

# Summary of Comments on Serial Attached SCSI Standard

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Author: ADPT

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Page: i

Sequence number: 4

Date: 1/30/2003 5:55:52 PM -06'00'

Type: Note

ACCEPT - DONE (adopted Mark Evans' proposed terminology changes)

1.0 References to ATA through-out the draft need to be reviewed and changed

to SATA where necessary. The interface protocol that SAS implements is SATA.

SATA specification in turn references ATA as the upper layer protocol.

Page: 8

Sequence number: 14

Date: 1/30/2003 5:58:38 PM -06'00'

Type: Note

REJECT (only one use of that term at this time this comment was reviewed, in the port introduction; changed it to use "identification sequence")

2.0 The term "initialization" is used in 3 places. It should be added to the definitions sub-clause.

Page: 8

Sequence number: 15

Date: 2/25/2003 6:45:42 PM -06'00'

Type: Note

REJECT (per 2/25 WG)

3.0 The term "idle" used through-out the draft has conflicting meanings. Sometimes it refers to "idle time" and other times to "no activity". We should

use "idle time" or "idle dwords" or "no activity".

Page: 24

Sequence number: 9

Date: 1/22/2003 3:32:17 PM -06'00'

Type: Note

REJECT (initiator could support SATA to talk to a SATA-only target port, but STP won't help)(whole section being deleted anyway)

4.0 P24, 4.1.6 2nd para - Last sentence reads "included in SAS domains if the expander device". S/B "included in SAS domains if the Initiator or expander device"

Page: 30

Sequence number: 12

Date: 1/23/2003 5:04:38 PM -06'00'

Type: Note

ACCEPT - DONE

5.0 P30, 5th para - "physical links that make up to pathway", S/B "physical links that make up the pathway".

Page: 66

Sequence number: 4

Date: 1/31/2003 4:01:23 PM -06'00'

Type: Note

ACCEPT - DONE (per SAS PHY WG Accept. Update all cable and backplane figures to reflect power and port capabilities)

6.0 P66, Figure 33 Internal backplane environment - It is unclear where power for the target device is derieved.

Page: 68

Sequence number: 6

Date: 1/31/2003 4:17:43 PM -06'00'

Type: Note

ACCEPT - DONE (per SAS PHY WG Change AR+/-, AT+/-, BR+/-, and BT+/- to RP+/-, TP+/-, RS+/-, and TS+/- respectively. Resolves both Adaptec comments without adding a SATA column to table 30.)  
7.0 P68, Table 30 - For clarification, a SATA column S/B added that clearly shows that the connections are the same.

Page: 68

Sequence number: 7

Date: 1/31/2003 4:17:50 PM -06'00'

Type: Note

ACCEPT - DONE (per SAS PHY WG Change AR+/-, AT+/-, BR+/-, and BT+/- to RP+/-, TP+/-, RS+/-, and TS+/- respectively. Resolves both Adaptec comments without adding a SATA column to table 30.)  
8.0 P68, Table 30 - Name Column - Names should match SATA to resolve confusion. Refer to figure 6 in SATA 1.0. Use the same terminology used in Table 31 for Rx and Tx signals.

Page: 71

Sequence number: 21

Date: 1/31/2003 4:44:13 PM -06'00'

Type: Note

REJECT (per phy WG - Active is not determined by the cable assembly.)  
9.0 P71, 5.4.2 2nd para - S/B "one, two, three, or four active physical links".

Page: 72

Sequence number: 10

Date: 1/31/2003 4:47:16 PM -06'00'

Type: Note

ACCEPT - DONE (with "defined by this standard". Per phy WG: Resolve ADPT comment by changing "characteristic tables to: characteristics within this standard")  
10.0 P72, 5.7.1 1st para - Is "transmitter and receiver characteristic tables, See Tables 35 & 36, only".

Page: 73

Sequence number: 2

Date: 2/9/2003 11:23:37 AM -06'00'

Type: Note

ACCEPT - DONE (Accept connector designation, reject distance. Figures will be updated.)  
11.0 P73, Figure 35 & 36 - distance from connector pin to loads S/B specified. The connector should also be identified.

Page: 74

Sequence number: 6

Date: 1/31/2003 4:55:26 PM -06'00'

Type: Note

ACCEPT - DONE  
12.0 P74, Table 34 - note b - refer to the SATA 1.0 specification

Page: 77

Sequence number: 7

Date: 1/20/2003 5:14:04 PM -06'00'

Type: Note

REJECT (per phy WG: Not needed with incorporation of OOB characteristics in Table 35.)  
13.0 P77, Top of page - add a new sub-clause 5.7.4.1

Page: 82

Sequence number: 11

Date: 2/20/2003 9:36:44 AM -06'00'

Type: Note

ACCEPT - DONE (changed to inter-enclosure and intra-enclosure transmitter)  
14.0 P82, 5.7.11, 3rd para - Is "specification of the external, initiator, expander .....device transmitter". S/B "specification of the initiator, expander .....device transmitter". What is an external device transmitter?

Page: 94

Sequence number: 1

Date: 2/24/2003 10:02:13 AM -06'00'

Type: Note

REJECT (per SAS phy WG, Reject. The text is not in error.)

15.0 P94, 6.5 1st para - "signals are low-speed signal patterns detected".  
S/B "signals are low-speed envelope patterns detected".

Page: 97

Sequence number: 9

Date: 1/8/2003 2:09:38 PM -06'00'

Type: Note

REJECT (for OOB signal detection, all rates up to the highest speed must be supported)

16.0 P97, 3rd para - e.g. should read "a SAS receiver shall support its current speed and one generation less. A 3.0Gbps receiver shall support 1.5Gbps, a 6.0Gbps receiver need only support 3.0Gbps. The transmitter and receiver portion of the PHY shall support the same rate."

Page: 98

Sequence number: 4

Date: 1/8/2003 2:28:41 PM -06'00'

Type: Note

ACCEPT - DONE (added receiving but not primitive, since it's a primitive sequence)

17.0 P98, 6.6.1, last sentence - "After a HARD RESET a device" S/B "After receipt of a HARD RESET primitive a device".

Page: 104

Sequence number: 8

Date: 1/9/2003 3:33:55 PM -06'00'

Type: Note

REJECT (but will remove the whole sentence)

18.0 P104, Table 49 -RCD - comments- reads "Used by transmitter and receiver to calculate the speed negotiation window time." S/B "Used by transmitter and receiver to indicate the speed negotiation window is beginning."

Page: 104

Sequence number: 9

Date: 1/24/2003 3:07:10 PM -06'00'

Type: Note

REJECT (but the receiver times are being deleted)

19.0 P104, Table 49 3rd row - "(SNTT for receiver)" S/B "(SNTR for receiver)"

Page: 104

Sequence number: 10

Date: 1/24/2003 3:07:04 PM -06'00'

Type: Note

REJECT (but the receiver times are being deleted)

20.0 P104, Table 49 6th row - "(SNLT for receiver)" S/B "(SNLR for receiver)"

Page: 105

Sequence number: 3

Date: 1/9/2003 4:11:03 PM -06'00'

Type: Note

ACCEPT - DONE (just remove "receiving")

21.0 P105, 1st sentence- "If the received phy supports the physical link rate...." S/B "If the phy supports the received physical link rate...."

Page: 106

Sequence number: 5

Date: 1/9/2003 4:26:07 PM -06'00'

Type: Note

ACCEPT - DONE (added "sequence" here and in prev paragraph)

22.0 P106, 1st sentence - "...SAS phy fails speed negotiation, it shall...." S/B "...SAS phy fails speed negotiation at all supported rates, it shall...."

Page: 138

Sequence number: 15

Date: 1/8/2003 1:02:38 PM -06'00'

Type: Note

ACCEPT - DONE

23.0 P138, 7.1.4.9, 4th para - TBD?

Page: 143

Sequence number: 11  
Date: 1/8/2003 1:18:00 PM -06'00'  
Type: Note  
ACCEPT - DONE  
24.0 P143, 7.1.6.5, delete "used as"

Page: 151  
Sequence number: 5  
Date: 1/24/2003 7:15:16 PM -06'00'  
Type: Note  
ACCEPT - DONE (changed all "device" to "port" and made sure all are defined in ch3)  
25.0 P151, clarify what is a SMP target/initiator?

Page: 161  
Sequence number: 8  
Date: 1/22/2003 5:27:09 PM -06'00'  
Type: Note  
REJECT (whole section deleted)(comment is correct; if left in, need to show gating off the output and input)  
26.0 P161, Figure 68 - the figure does not match the verbage on the previous page - sub-clause 7.10.

Page: 229  
Sequence number: 25  
Date: 1/6/2003 6:15:51 PM -06'00'  
Type: Note  
ACCEPT - DONE (it was called TIMEOUT in the table)  
27.0 P229, the RETRANSMIT bit shall. Where is the bit shown in the SSP  
Frame format table 88 or table 96?

Page: 240  
Sequence number: 13  
Date: 2/2/2003 2:01:55 PM -06'00'  
Type: Note  
ACCEPT - DONE  
28.0 P240, remove the editors note

## Author: DELL

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Page: 65  
Sequence number: 4  
Date: 1/20/2003 4:03:10 PM -06'00'  
Type: Note  
REJECT (SAS PHY WG majority vote to REJECT as the WG looked at this item prior to choosing no key.)  
Dell #1  
Request investigation of keying feature for SAS 4X external connection to allow future compatibility with SATA 4X JBODs. The current cable selection (non-keyed) is not compatible with any keyed cable. Proposal could anticipate a keyed SAS connector for controllers and JBODs, and a keyed SAS/SATA connector for controllers only.

Page: 65  
Sequence number: 5  
Date: 1/22/2003 10:04:52 AM -06'00'  
Type: Note  
REJECT (per phy WG)  
Dell #2  
Request investigation of the HDD connector keying feature to prevent SAS drives from plugging into SATA backplanes. Most drive slots use bays and carriers with integrated levers for increased seating force. The drive carrier lever engages with the front panel just prior to the connection engagement, which means activating the lever to seat the drive will cause damage to the drive and midplane connectors due to the increased (10x) forces involved.

# Author: DSS

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Page: 21

Sequence number: 12

Date: 1/23/2003 3:13:53 PM -06'00'

Type: Note

ACCEPT - DONE (reworded; see new text)

1. (T) Section 4.1.3, second paragraph (unordered list). It is unclear in the standard, but I don't think Phys don't have SAS addresses. This wording needs improvement to indicate exactly what the SAS Address in question is assigned to.

Page: 32

Sequence number: 6

Date: 2/9/2003 4:20:47 PM -06'00'

Type: Note

ACCEPT - DONE (No. Chapter 10 says "The target device shall use different identifiers for each logical unit name, each target port identifier, and the target device name." To help clarify that in this section, added "The selected SAS address shall be used for no other name or identifier." to the device name and port identifier sections.)

2. (T) Section 4.2.1, first paragraph. In FCP-2, the device (node) is allowed to share the same name as LUN 0. Is that true for SAS also?

Page: 34

Sequence number: 5

Date: 1/23/2003 6:15:46 PM -06'00'

Type: Note

ACCEPT - DONE (remove the bit mention)

3. (T) Section 4.2.6, first paragraph. Should be "6-bit".

Page: 35

Sequence number: 3

Date: 1/7/2003 6:18:00 PM -06'00'

Type: Note

REJECT - state machines are a key documentation technique to try to reduce interpretation differences about what is legal.

4. (T) Section 4.3, entire section. These state machines do not belong in this standard as normalized text.

The standard should be specifying observable behavior, not implementation such as this.

Page: 41

Sequence number: 1

Date: 1/6/2003 3:46:39 PM -06'00'

Type: Note

ACCEPT - DONE

5. (E) Table 12, there are 2 cases of missing ")".

Page: 43

Sequence number: 10

Date: 1/6/2003 3:47:04 PM -06'00'

Type: Note

ACCEPT - DONE

6. (E) Table 15, there are 2 cases of missing ")".

Page: 49

Sequence number: 15

Date: 1/11/2003 5:07:34 PM -06'00'

Type: Note

ACCEPT - DONE (changed to "SCSI BUS RESET OCCURRED" since the new names proposed in 02-232 were rejected)

7. (T) Section 4.4.2, last paragraph. The additional sense code "HARD RESET OCCURRED" does not exist.

Page: 49

Sequence number: 16

Date: 3/8/2003 5:28:05 PM -06'00'

Type: Note

REJECT (yes it does forbid that)

8. (T) Section 4.6.1, first paragraph unordered list, item c. This sounds like it forbids an expander from supporting only wide ports with multiple phys per port.

Page: 50

Sequence number: 6

Date: 3/8/2003 5:26:31 PM -06'00'

Type: Note

REJECT (but reworded)

9. (E) Section 4.6.2, third paragraph. Change the second sentence to "If an expander device contains more than one internal SMP port, more than one internal SSP port, or more than one internal STP port, the additional ports shall include SAS addresses different from that of the expander device."

Page: 138

Sequence number: 14

Date: 1/6/2003 3:13:32 PM -06'00'

Type: Note

ACCEPT - DONE

10. (E) Section 7.1.4.6, second paragraph. Reference is wrong - should be 7.7.

Page: 141

Sequence number: 5

Date: 1/6/2003 3:13:56 PM -06'00'

Type: Note

ACCEPT - DONE

11. (E) Section 7.1.4.12, second paragraph. Reference is wrong - should be 7.7.

Page: 151

Sequence number: 4

Date: 1/8/2003 1:32:39 PM -06'00'

Type: Note

ACCEPT - DONE

12. (T) Section 7.7.2, seventh paragraph after table 73. Shouldn't this be "the SAS Address of the port transmitting the IDENTIFY address frame"?

Page: 154

Sequence number: 6

Date: 1/24/2003 7:21:34 PM -06'00'

Type: Note

ACCEPT - DONE (changed other text indicating the address is for the device. It's for the port.)

13. (T) Section 7.8.1, forth paragraph. In section 7.7.2, the SAS ADDRESS field is defined as belonging to the device, not the port. Here it looks like the port's SAS Address. If it is not the port's SAS address, but is in fact the device's SAS Address, this statement is incorrect and it is not possible to detect that multiple Phys are attached to the same port using the SAS Address. If instead a Phy is supposed to report the SAS Address of the port it is attached to, then expander devices will need to assign a unique SAS Address to each port.

Page: 157

Sequence number: 13

Date: 2/25/2003 7:27:00 PM -06'00'

Type: Note

ACCEPT - DONE (SL\_IR transmitter section was too high)

14. (E) Section 7.8.6. Hanging paragraphs, add a level 3 subclause heading.

Page: 157

Sequence number: 14

Date: 3/1/2003 6:12:56 PM -06'00'

Type: Note

ACCEPT - DONE (tracking with other comments)

15. (E) Section 7.8.6 SL\_IR transmitter, last paragraph. The wording of the second sentence is unclear, and it occurs at least twice in the document. I think it is trying to limit the frame length for the purpose of ignoring primitives to cover the case where the EOAF is missed. Better wording is:

"For the purpose of ignoring primitives, IDENTIFY frames consist of a SOAF followed by a maximum of 8 dwords and an EOAF."

Page: 157

Sequence number: 15

Date: 2/25/2003 7:28:22 PM -06'00'

Type: Note

REJECT (I agree, but would require lots of changes. Consider for SAS-2)

16. (T) Section 7.8.6.1.2.1. States can't take action. The state machine can take action while in a state or when entering or leaving a state. Even better, the port can take an action when the state machine is in a state, or when it (the state machine) transitions into or out of a state. This issue is prevalent in these state machine descriptions.

Page: 162

Sequence number: 9

Date: 2/17/2003 5:33:00 PM -06'00'

Type: Note

REJECT (XFER\_RDY counts as data)

17. (E) Section 7.12.1, second paragraph. What about XFER\_RDY?

Page: 162

Sequence number: 10

Date: 2/17/2003 5:34:23 PM -06'00'

Type: Note

ACCEPT - DONE (changed all "request response" to "response" in this section)

18. (E) Section 7.12.2.1, third paragraph. The term "connection response" is used in this paragraph without definition. The term "connection request response" is defined in the next subclause. Are these the same?

Page: 162

Sequence number: 11

Date: 2/17/2003 5:40:46 PM -06'00'

Type: Note

REJECT (functional equivalence is certainly allowed, but this is how we specify things.)

19. (E) Section 7.12.2.1, third paragraph. The method of performing timeouts is vendor specific and should not be specified this way. Fix the wording so that timeout periods are used rather than timers.

Page: 162

Sequence number: 12

Date: 2/17/2003 5:40:55 PM -06'00'

Type: Note

ACCEPT - DONE (reworded)

20. (E) Section 7.12.2.1, forth paragraph. There is a double negative in the second sentence that confuses the meaning.

Page: 162

Sequence number: 13

Date: 2/17/2003 5:37:34 PM -06'00'

Type: Note

ACCEPT - DONE

21. (E) Section 7.12.2.1, forth paragraph, last sentence. Change "Rate matching is used on any..." to "Rate matching shall be used on any..."

Page: 163

Sequence number: 28

Date: 2/17/2003 5:48:50 PM -06'00'

Type: Note

REJECT (that section mentions OPEN\_REJECT (RETRY). That's covered by "sent in response by the destination port" in the table.)

22. (T) Section 7.12.2.2, last paragraph. The first paragraph in subclause 7.16.1 describes another reason for sending an OPEN\_REJECT.

Page: 170

Sequence number: 5

Date: 2/10/2003 6:24:52 PM -06'00'

Type: Note

REJECT

23. (T) Section 7.13 and 7.14. The state machines described in subclauses 7.13 and 7.14 are implementation details that are vendor specific and should not be included as normative text within a T10 standard. This standard should be limited to specifying observable behavior and refrain from specifying implementation.

Page: 192

Sequence number: 2

Date: 2/18/2003 4:04:28 PM -06'00'

Type: Highlight

ACCEPT - DONE (replaced with "is receiving")

24. (T) Section 7.16.5, the paragraph before figure 79. The term "back channel" and "backchannel" is used here without definition.

Page: 193

Sequence number: 5

Date: 2/16/2003 10:16:42 AM -06'00'

Type: Note

ACCEPT - DONE (changed to "not balanced" in most cases)

25. (E) Section 7.16.6, unordered list. "unbalanced", "imbalanced", "nonbalanced" and "not balanced" are all terms that are used throughout the document. Should look for one consistent, defined term.

Page: 193

Sequence number: 6

Date: 2/9/2003 3:39:17 PM -06'00'

Type: Note

REJECT

26. (T) Subclause 7.16.7 describes an implementation of subclauses 7.16.1 through 7.16.6. This is inappropriate for normative text and should be removed.

Page: 207

Sequence number: 6

Date: 2/19/2003 10:59:27 AM -06'00'

Type: Note

REJECT (the intent is that SMP functions do not require processing (from request time to response time). New functions could be defined that request something and poll for results later. We are clarifying that hard reset/link reset phy operations return immediately rather than wait for the reset to complete.)

27. (T) Section 7.18.1, first paragraph. Several of the management functions may require software or firmware intervention. No provision is included to break the connection and free the resource while this intervention takes place. This could lead to serious performance degradation in SAS networks.

Page: 207

Sequence number: 7

Date: 2/19/2003 11:02:35 AM -06'00'

Type: Note

ACCEPT - DONE (changed from "shall" to "checks" and added cross reference. This is the same way it is now expressed in the SSP link layer section.)

28. (T) Section 7.18.1, last paragraph. What is the action for frames with less than 8 bytes and good CRC?

Page: 207

Sequence number: 8

Date: 2/19/2003 11:04:22 AM -06'00'

Type: Note

REJECT (there is no reason to specify what the source should get back after doing something illegal. The target state machine will ignore any additional frames.)

29. (T) Section 7.18.2, second sentence. What should the source expect to receive if it transmits more than 1 request?

Page: 208

Sequence number: 10

Date: 1/11/2003 5:01:05 PM -06'00'

Type: Note

REJECT

30. (T) Subclause 7.18.4 describes an implementation of subclauses 7.18.1 through 7.18.3. This is inappropriate for normative text and should be removed.

Page: 227

Sequence number: 2

Date: 2/2/2003 11:05:08 AM -06'00'

Type: Note



REJECT (it receives them before they are ACKed, thus the "going to". Changed to "to be" per Intel comment.)  
31. (E) Section 9.1. Change "...that are going to be ACKed..." to "that are ACKed..."

Page: 228

Sequence number: 6

Date: 1/6/2003 3:24:12 PM -06'00'

Type: Note

ACCEPT - DONE

32. (T) Table 88. TIMEOUT bit should be RETRANSMIT bit.

Page: 229

Sequence number: 22

Date: 1/6/2003 3:24:35 PM -06'00'

Type: Note

ACCEPT - DONE

33. (T) Table 89. Data frames are 1 to 1 024 bytes (can't have zero length data frame).

Page: 229

Sequence number: 23

Date: 2/2/2003 11:14:56 AM -06'00'

Type: Note

ACCEPT - DONE (changed to "failed in its previous attempt" without mentioning specific reasons)

34. (T) Section 9.1, fourth paragraph after table 89. The frame can be retransmitted after receiving a NAK also.

Page: 229

Sequence number: 24

Date: 2/2/2003 11:08:58 AM -06'00'

Type: Note

ACCEPT - DONE (added an e.g. to try to clarify)

35. (E) Section 9.1, seventh paragraph after table 89. I don't understand the last sentence in this paragraph.

"The tag space used in the tag fields is shared across COMMAND and TASK frames."

Page: 230

Sequence number: 12

Date: 1/6/2003 3:25:42 PM -06'00'

Type: Note

ACCEPT - DONE

36. (E) Section 9.2.2.1, first paragraph after table 90. The rules for handling commands sent to logical units that do not exist are defined in SAM-2, not SPC-2.

Page: 231

Sequence number: 4

Date: 1/13/2003 6:20:43 PM -06'00'

Type: Note

REJECT (Jan WG - SAM-3 will mention that CHECK CONDITION/ILLEGAL MESSAGE will be returned for any invalid task attributes. It's not a SAS-specific issue.)

37. (T) Section 9.2.2.1. What is the correct response to a COMMAND frame with a TASK ATTRIBUTE field value that is not supported by the logical unit?

Page: 231

Sequence number: 5

Date: 2/15/2003 3:57:59 PM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call, go ahead and say "shall ignore". Even though "reserved" is how SPI-5, FCP-2, and SRP describe it, it is unlikely that any target ever checks those bytes and seems best to prohibit checking.)

38. (T) Section 9.2.2.1, second paragraph after table 91. Defining fields to be reserved generally means they must be tested for zero. Change the second sentence from "Any bytes between the end of the CDB and the end of the two fields are reserved" to "Any bytes between the end of the CDB and the end of these two field shall be ignored". Change the last sentence to "...the remaining ten bytes shall be ignored and the..."

Page: 232

Sequence number: 6

Date: 2/15/2003 4:22:24 PM -06'00'

Type: Note

ACCEPT - DONE (added INVALID LOGICAL UNIT response code to be returned in this case. SAM-3 proposal will be made to return a service response of FUNCTION REJECTED in this case. Also added to state machine.)  
39. (T) Section 9.2.2.2, paragraph preceding table 93. I could find no rules for handling task management functions addressed to logical units that do not exist in either SPC-2 or SAM-2.

Page: 232

Sequence number: 7

Date: 2/2/2003 3:00:06 PM -06'00'

Type: Note

ACCEPT - DONE (added footnote that TARGET RESET is not supported on this row. FCP uses 20h for that function.)  
40. (E) Table 93. Why is 20h spelled out here with the "all others" below indicating "reserved"?

Page: 232

Sequence number: 8

Date: 2/2/2003 11:37:56 AM -06'00'

Type: Note

ACCEPT - DONE (added "unsupported")  
41. (T) Section 9.2.2.2, first paragraph after table 93. What if a valid TMF is not supported?

Page: 232

Sequence number: 9

Date: 3/11/2003 4:28:11 PM -06'00'

Type: Note

ACCEPT - DONE (no need to define all the tmf behaviors - SAM-3 does that. This paragraph and the QUERY TASK paragraph should be deleted.)  
42. (T) Section 9.2.2.2, third paragraph after table 93. What is returned if the task with TAG OF TASK TO BE MANAGED is in the task set?

Page: 233

Sequence number: 17

Date: 1/22/2003 6:22:09 PM -06'00'

Type: Note

REJECT (but renamed Relative Offset here to Requested Offset and the header one to Data Offset)  
43. (T) Section 9.2.2.3, first paragraph after table 94. This is confusing to have RELATIVE OFFSET field in the payload of the frame and a field with exactly the same name in the header of the frame. Recommend that this field be removed and the RELATIVE OFFSET field in the frame header be used for this purpose.

Page: 233

Sequence number: 18

Date: 1/22/2003 6:23:01 PM -06'00'

Type: Note

ACCEPT - DONE  
45. (T) Section 9.2.2.3, second paragraph after table 94. The last sentence in this paragraph should be "...the target port shall set the WRITE DATA LENGTH field to less than or equal to the value in the MAXIMUM BURST SIZE field times 512 (see 10.1.6.14)."

Page: 233

Sequence number: 19

Date: 3/11/2003 4:33:23 PM -06'00'

Type: Note

ACCEPT - DONE (changed to "to the value indicated by". Don't think we want to specify the 512 here; the mode page owns that)  
46. (T) Section 9.2.2.3, fourth paragraph after table 94. Change the first sentence in this paragraph to: "...set the relative offset to 512 times the value of the FIRST BURST SIZE field in the Disconnect-Reconnect mode page (see 10.1.1.1.5). Fix the link to the section.

Page: 234

Sequence number: 4

Date: 1/6/2003 3:48:20 PM -06'00'

Type: Note

ACCEPT - DONE  
47. (E) Section 9.2.2.4, first paragraph after note 23. This paragraph is

redundant with the first 2 paragraphs on this page. We get it already.

Page: 236

Sequence number: 4

Date: 3/8/2003 3:08:36 PM -06'00'

Type: Note

ACCEPT - DONE (Nothing for SAS itself. Jan WG - that's for SAM-3 to worry about. SAM-3 rev 5 added a rule that invalid task attributes shall return a CHECK CONDITION with sense key of ILLEGAL REQUEST and additional sense code of INVALID MESSAGE ERROR.)

52. (T) Section 9.2.5.1, fifth paragraph. What is to be done with a COMMAND frame with an unsupported TASK ATTRIBUTE value?

Page: 237

Sequence number: 8

Date: 2/2/2003 1:08:21 PM -06'00'

Type: Note

ACCEPT - DONE (added footnote explaining that code 00h is only used with responding to a TASK frame)

48. (T) Table 99. A command frame that does not have an invalid field value will not return a RESPONSE IU with RESPONSE\_DATA format, but will instead use the SENSE\_DATA format. This means that option 'a' under Code 0 is not required. It would also be helpful to add a paragraph explaining this behavior to the subclause.

Page: 237

Sequence number: 9

Date: 2/15/2003 2:47:56 PM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call. Remove x4 requirement.

Original note: Currently, the sense data list length is required to be x4, so the padding is inside the sense data field itself. The frame header number of fill bytes is not used (only DATA frames use that). This differs from other protocols so needs to be changed.)

49. (T) Section 9.2.2.5.4, forth paragraph. Add statement that the NUMBER OF FILL BYTES field in the frame header shall indicate the number of fill bytes added.

Page: 239

Sequence number: 8

Date: 2/15/2003 5:49:36 PM -06'00'

Type: Note

REJECT (Several tape backup companies report no problem with recovery. Defer any optimizations to SAS-2).

50. (T) Section 9.2.4.3, second paragraph. The lack of an ability to recover from these types of errors at the link level will preclude the use of this interface on devices other than disk drives. When this shortcoming is solved in the next generation of SAS, it will create interoperability issues that will hinder the acceptance of this interface. Quantum has produced a proposal (02-487) that will solve this problem that should be included before forwarding SAS.

Page: 240

Sequence number: 12

Date: 2/24/2003 12:11:56 AM -06'00'

Type: Note

REJECT (same comment made on prev page - only one needed for tracking)

51. (T) Section 9.2.4.4, first paragraph. The lack of an ability to recover from these types of errors at the link level will preclude the use of this interface on devices other than disk drives. When this shortcoming is solved in the next generation of SAS, it will create interoperability issues that will hinder the acceptance of this interface. Quantum has produced a proposal (02-487) that will solve this problem that should be included before forwarding SAS.

Page: 241

Sequence number: 4

Date: 2/2/2003 3:09:19 PM -06'00'

Type: Note

ACCEPT - DONE (per Jan WG; all changed to just "initiator shall abort" except 10.1.3, which gives an "e.g. sending ABORT TASK")

53. (E) Section 9.2.5.2, third paragraph. An initiator always has the option of sending a TASK frame with an ABORT TASK or ABORT TASK SET task management function. Perhaps it would be better to remove the recurring statements and add a paragraph that states that an initiator may use this means to abort the task when an error is detected with it.

Page: 242  
Sequence number: 20  
Date: 1/11/2003 4:52:24 PM -06'00'  
Type: Note

REJECT  
54. (T) Subclause 9.2.6 describes an implementation of subclauses 9.2.1 through 9.2.5. This is inappropriate for normative text and should be removed.

Page: 260  
Sequence number: 9  
Date: 1/11/2003 4:52:11 PM -06'00'  
Type: Note

ACCEPT - DONE (reference to 10.3.1 added)  
55. (T) Section 9.4.2, second paragraph after table 102. Where is FUNCTION described?

Page: 260  
Sequence number: 10  
Date: 1/11/2003 4:50:42 PM -06'00'  
Type: Note

ACCEPT - DONE (1023 fixed to 1024)  
56. (T) Section 9.4.2, third paragraph after table 102. Should be 1 024 bytes based on description of max size frame?

Page: 261  
Sequence number: 10  
Date: 1/30/2003 4:42:07 PM -06'00'  
Type: Note

ACCEPT - DONE (changed 1023 to 1024)  
57. (T) Section 9.4.3, first paragraph after table 104. Should be 1 024 bytes based on description of max size frame?

Page: 262  
Sequence number: 5  
Date: 1/11/2003 4:48:15 PM -06'00'  
Type: Note

REJECT  
58. (T) Subclause 9.4.4 describes an implementation of subclauses 9.4.1 through 9.4.3. This is inappropriate for normative text and should be removed.

Page: 269  
Sequence number: 4  
Date: 2/28/2003 3:41:43 PM -06'00'  
Type: Note

ACCEPT - DONE (reworded with DATAPRES)  
59. (T) Table 108. There is no RSPVALID field in the RESPONSE frame.

Page: 270  
Sequence number: 4  
Date: 2/28/2003 3:41:37 PM -06'00'  
Type: Note

ACCEPT - DONE (reworded with DATAPRES)  
60. (T) Table 109. There is no RSPVALID field in the RESPONSE frame.

Page: 274  
Sequence number: 4  
Date: 2/28/2003 3:41:21 PM -06'00'  
Type: Note

ACCEPT - DONE (reworded with DATAPRES)  
61. (T) Table 116. There are no RSPVALID or SNSVALID fields in the RESPONSE frame.

Page: 275  
Sequence number: 3  
Date: 1/30/2003 2:33:33 PM -06'00'  
Type: Note

ACCEPT - DONE (reworded with DATAPRES)

62. (T) Table 117. There are no RSPVALID or SNSVALID fields in the RESPONSE frame.

Page: 276

Sequence number: 4

Date: 1/30/2003 2:31:26 PM -06'00'

Type: Note

REJECT (but downgraded the list to a set of examples, since there are other ways to determine the tag is free for reuse. The layer crossing is conceptually solved by passing the DONEs, etc. upstream - I'd rather just refer to them directly in the examples).

63. (T) Section 10.1.3, last paragraph and unordered list. This paragraph is placing a requirement on an application client that involves knowledge of activities not seen at that level.

Page: 277

Sequence number: 4

Date: 1/11/2003 4:37:24 PM -06'00'

Type: Note

REJECT (the OPEN used to open the connection communicated the full SAS address of the opener and destination. That is used for persistent reservations as the "initiator port address".)

64. (T) Section 10.1.5. Without a port login, the only method available to associate persistent reservation to an initiator port is to use the hashed source address. A statement to clarify this should be added in this subclause. What action should be taken in cases where a conflict exists?

Page: 277

Sequence number: 5

Date: 1/13/2003 8:48:23 PM -06'00'

Type: Note

REJECT (can use OPEN\_REJECT (RETRY) to prevent additional initiator-based opens)

65. (T) Section 10.1.5. Similar to SPI, there is no port login function that can be used by a device to manage each I\_T nexus. Unlike SPI, SAS networks can be configured with hundreds of initiators. How does a device report an error caused by receipt of a command from an initiator when no more resources are available to manage a new I\_T nexus?

Page: 277

Sequence number: 6

Date: 1/14/2003 11:06:14 AM -06'00'

Type: Note

REJECT

66. (T) Section 10.1.6.1.1. Unfortunately, there is precedence for this.

However, mode pages are a bad

way to configure the transport layer. It requires too much information be shared between layers and between logical units, which should not be sharing information. A much better method of configuring the transport layer was introduced when port logins were added, and that is exactly where the parameters included in this page belong. Unfortunately again, this transport layer does not include the concept of a port login, a shortcoming that will undoubtedly be corrected in future versions causing great interoperability issues for years to come.

Page: 279

Sequence number: 6

Date: 1/30/2003 1:56:05 PM -06'00'

Type: Note

ACCEPT - DONE (requires moving the 512-byte definition up above this sentence)

67. (E) Section 10.1.6.1.5, first paragraph. The wording of the last sentence is confusing. Try replacing

"... where the transfer length is specified in the WRITE DATA LENGTH field" with "where the WRITE DATA LENGTH field is equal to 512 times the FIRST BURST SIZE."

Page: 279

Sequence number: 7

Date: 1/30/2003 1:49:52 PM -06'00'

Type: Highlight

ACCEPT - DONE ("the same connection in which the command is transferred"

68. (T) Section 10.1.6.1.5, fourth paragraph. The last sentence in this paragraph should be removed or the term "this connection" should be clarified.

Page: 281

Sequence number: 8

Date: 1/11/2003 4:29:17 PM -06'00'

Type: Note

ACCEPT - DONE (corrected page layout)

69. (T) Table 122. What happened to byte 2 and 3?

Page: 281

Sequence number: 9

Date: 2/8/2003 12:18:37 PM -06'00'

Type: Note

ACCEPT - DONE (but it's plus 4 not plus 2, once the byte numbers for this page are corrected).  
[comment moved to 10.1.6.2.3 from 6.2.2]

70. (T) Section 10.1.6.2.3. A description for the PAGE LENGTH field should be added that states the

PAGE LENGTH shall be equal to the (NUMBER OF PHYS value times the SAS phy mode descriptor length) plus 2 and is not adjusted for truncation.

Page: 296

Sequence number: 9

Date: 1/6/2003 3:39:26 PM -06'00'

Type: Note

ACCEPT - DONE

71. (E) Section 10.3.1.2, paragraph immediately preceding table 131. This paragraph should not be numbered.

Page: 302

Sequence number: 12

Date: 1/29/2003 3:48:16 PM -06'00'

Type: Note

ACCEPT - DONE (clarified that it might be the SAS address of a SAS port, expander device, or address provided for a SATA device port. Also added expander device to SAS device in next a)b) list.)

72. (T) Section 10.3.1.4, the paragraphs below table 139 that describe the SAS ADDRESS field.

According to the definition of SAS Address in 3.1.99, Phys don't have SAS Addresses. These must be either the SAS address of the Port or the device.

Page: 308

Sequence number: 3

Date: 1/6/2003 3:41:12 PM -06'00'

Type: Note

ACCEPT - DONE

73. (E) Section 10.3.1.7, third paragraph below table 147. Reference numbers need to be fixed.

Page: 312

Sequence number: 6

Date: 1/6/2003 3:41:03 PM -06'00'

Type: Note

ACCEPT - DONE

74. (E) Section 10.3.1.8, third paragraph after table 150. Reference numbers need to be fixed.

Page: 330

Sequence number: 4

Date: 1/17/2003 11:33:47 AM -06'00'

Type: Note

REJECT (but added "to help" in 4.2.3)

75. (T) Annex D. This annex indicates that hashed address collisions should be very infrequent, but they will still happen. What action is taken when a collision is detected?

Author: ENDL

---

Page: v

Sequence number: 1

Date: 2/6/2003 11:42:03 AM -06'00'

Type: Note

ACCEPT - DONE (track with another comment)  
Remove revision history before delivering the dpANS to Public Review.

Page: 6

Sequence number: 1

Date: 3/8/2003 3:54:46 PM -06'00'

Type: Highlight

ACCEPT - DONE (lacking input from Cris Simpson, added text about relaying an indication and replying to a request)  
3.1.17 confirmation  
Is a confirmation really just a single parameter passed from a lower layer to a higher layer? Or, is a confirmation a passing of parameters and other state information from a lower layer to a higher layer?

Page: 6

Sequence number: 2

Date: 1/22/2003 3:36:13 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted "device". It was intended to indicate that there is no special SAS meaning for the term on its own.)  
3.1.25 device  
The definition of device should include some relationship to SAS. As currently defined, a "device" may be a pencil, a house, a spaceship, or the moon.

Page: 6

Sequence number: 3

Date: 1/22/2003 10:34:16 AM -06'00'

Type: Highlight

REJECT (per Jan Editor's meeting: acronym suffices)  
3.1.27 direct current  
Provide a definition for A.C.

Page: 6

Sequence number: 4

Date: 2/25/2003 6:42:48 PM -06'00'

Type: Highlight

REJECT (use of signal in English meaning, T1 meeting, INCITS meaning, etc. is sufficiently clear. Are renaming "signal" to "message" when referring to request/confirmation/indication/response.)  
[2/21 Phy group recommends no definition.]  
I think we're stuck overloading this term.  
T1 glossary  
signal: 1. Detectable transmitted energy that can be used to carry information. 2. A time-dependent variation of a characteristic of a physical phenomenon, used to convey information. 3. As applied to electronics, any transmitted electrical impulse. [JP1] 4. Operationally, a type of message, the text of which consists of one or more letters, words, characters, signal flags, visual displays, or special sounds, with prearranged meaning and which is conveyed or transmitted by visual, acoustical, or electrical means. [JP1])  
3.1.27 direct current  
Provide a definition for "signal". Relying on the standard English definition for "signal" allows a Stop sign to be a "signal".

Page: 7

Sequence number: 1

Date: 2/28/2003 3:18:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (change this use to "message")  
3.1.39 expander connection router  
Global  
The reason why "signal" is not a defined term is becoming clear, i.e. "signal" has no consistent usage in SAS. The term "signal" as used in the ER definition almost certainly means something very different than the term "signal" as used in the D.C. definition. Otherwise, a SAS expander operates by switching raw waveforms from one phy to another, which seems unlikely to be the case. The inconsistent usage of 'signal' is far and away the most egregious problem ENDL discovered in its limited Letter Ballot review.

Page: 7

Sequence number: 2

Date: 1/25/2003 11:19:31 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted sentence)  
3.1.43 expander port  
Please provide a subject for this 'sentence': "Contains one or more phys."

Page: 7

Sequence number: 3

Date: 1/7/2003 2:27:42 PM -06'00'

Type: Highlight

ACCEPT - DONE ("set of values")

3.1.55 hash function

Since "domain" is equivalent to "SAS domain" (see 3.1.31), a hash function can be applied only to a SAS domain, whatever that means. Perhaps "domain" can be replaced with "value range" twice in the 3.1.55 definition.

Page: 8

Sequence number: 1

Date: 3/8/2003 9:30:01 AM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with INTC comment)

3.1.62 indication

Is an indication really just a single parameter passed from a lower layer to a higher layer? Or, is an indication a passing of parameters and other state information from a lower layer to a higher layer?

Page: 8

Sequence number: 2

Date: 1/7/2003 2:29:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.63 information unit

"Portion" s/b "The portion"

Page: 8

Sequence number: 3

Date: 2/7/2003 6:33:03 PM -06'00'

Type: Highlight

REJECT (but deleted link altogether)

3.1.70 link

"A physical link." s/b "Synonymous with physical link (see 3.1.86)."

Page: 9

Sequence number: 1

Date: 2/7/2003 6:46:42 PM -06'00'

Type: Highlight

REJECT (but deleted the "part of" sentence)

3.1.80 OOB sequence

"OOB signals. Part of" s/b "OOB signals, part of"

Page: 9

Sequence number: 2

Date: 3/5/2003 5:05:48 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with INTC comment)

3.1.96 request

Is a request really just a single parameter passed from a higher layer to a lower layer? Or, is a request a passing of parameters and other state information from a higher layer to a lower layer?

Page: 9

Sequence number: 3

Date: 3/5/2003 5:05:38 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with INTC comment)

3.1.97 response

Is a response really just a single parameter passed from a higher layer to a lower layer? Or, is a response a passing of parameters and other state information from a higher layer to a lower layer?

Page: 10

Sequence number: 1

Date: 1/30/2003 6:04:16 PM -06'00'

Type: Line

REJECT (but deleted "SAS primitive" since that term is never used. SATA primitive is only used twice. Once replaced by "Primitives defined by SATA". The other is in a title of scrambling types.)

3.1.xx

Since SAS primitive has a definition, should SATA primitive have a definition?



Page: 10

Sequence number: 2

Date: 2/28/2003 9:30:23 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.115 SCSI initiator device

"originate device service" s/b "originates device service"

Page: 11

Sequence number: 1

Date: 1/30/2003 6:07:20 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "to an expander device". Also added to subtractive routing method definition.)

3.1.137 table routing method

It is not clear from the definitions whether a table routing method could result in a routing to an end device. If that is possible, both table routing and direct routing may do the same thing. If that is not possible, then "route connection requests" should be "route connection requests to devices other than end devices".

Page: 15

Sequence number: 1

Date: 1/7/2003 3:06:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.4 Editorial conventions

"Fields containing only one bit are usually referred to as the name bit instead of the name field." is a repeat of the second sentence in the third paragraph in this subclause. Remove this paragraph because the earlier sentence uses small caps more correctly.

Page: 19

Sequence number: 1

Date: 1/7/2003 5:28:27 PM -06'00'

Type: Highlight

REJECT (this is not a subset of SAS ports)

4.1.1 Architecture overview

'which' s/b 'that' [twice]

Page: 22

Sequence number: 1

Date: 1/7/2003 5:34:29 PM -06'00'

Type: Circle

ACCEPT - DONE

4.1.3 Ports

Figure 6 Ports

Based on the title of the subclause, the title of the figure, and the text preceding the figure, the ports attached to the narrow link should be labeled 'Narrow Port', 'Port'.

Page: 23

Sequence number: 1

Date: 1/7/2003 5:37:17 PM -06'00'

Type: Circle

ACCEPT - DONE

4.1.4 SAS devices

figure 7

If figure 6 is changed to use 'Narrow Port' perhaps figure 7 should be changed too.

Page: 23

Sequence number: 2

Date: 1/22/2003 3:31:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "in this standard")

4.1.4 SAS devices

last 2 in subclause

The phrase 'In figures that show ports but no phys ...' makes not sense in the context of this subclause. Perhaps 'In figures in this standard that show ports but no phys ...'.

Page: 26

Sequence number: 1

Date: 2/8/2003 11:35:48 AM -06'00'

Type: Circle

ACCEPT - DONE (kept the internal port given the new virtual phy approach for internal SAS devices. It's important to clarify that those internal expander ports have direct routing attributes. Changed "target port" to "SAS port" so it represents both initiators and targets and added a SAS device around it.. Labeled the expander port as "internal". Made each use the "more than one is possible" style.)

#### 4.1.8.2 Edge expander device set, figure 11

I think this figure would more clearly represent the routing possibilities in an edge expander device set if the optional target port joined the optional initiator port in being absent from the figure. If necessary, add a sentence before or after the figure indicating that optional initiator and target ports have been omitted for clarity.

Page: 26

Sequence number: 2

Date: 3/3/2003 6:37:32 PM -06'00'

Type: Note

ACCEPT - DONE (Moved the edge expander device set section after the Domain section. Added a small service delivery subsystem section.

Thus, 4.1.1 introduces a hierarchy of objects; 4.1.2 details the lowest level (phy) and leads up to this section on domains.

Subsequent sections in 4.1.x give more detail on expander topologies, connections, and pathways. Arguably the expander topologies section could be made part of the service delivery subsystem section, and pathways could join it. There's no good home for connections, though. Leaving it in this order until a better suggestion comes along).

Counterargument: expander topologies are really defining the service delivery subsystem object, so should remain before domains.)

#### 4.1.9 Domains

The presence of a subclause describing domains separating two subclauses discussing expanders and expander topologies is more than a little confusing. My gut level preference would be to put the domains subclause between 4.1.1 and 4.1.2. However, it appears that the general order of topic introduction in 4.1 is from the bottom of the architectural pyramid up, leading to the conclusion that the discussion of domains should appear last among the subclauses in 4.1.

Page: 28

Sequence number: 1

Date: 1/23/2003 4:45:51 PM -06'00'

Type: Strikeout

ACCEPT - DONE (replaced with an intro saying something like "a service delivery subsystem may contain expanders")

#### 4.1.10 Expander device topologies

Delete the first sentence of this subclause. It grows tiresome with repetition. Surely, the reader has grasped the concept by this point in 4.1.

Page: 28

Sequence number: 2

Date: 3/4/2003 11:33:35 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed "configured" to "constructed" to avoid confusion with the discover process)

#### 4.1.10 Expander device topologies

Regarding, 'The number of edge expander devices and the phy route attributes of edge expander devices within an edge expander device set shall be established when the edge expander device set is configured.'

Since it is said elsewhere that application clients do something to edge expander device sets in the configuration process, does the cited sentence mean that application clients can control the number of expander devices in an edge expander device set?

Page: 30

Sequence number: 2

Date: 1/23/2003 5:07:42 PM -06'00'

Type: Highlight

ACCEPT - DONE (overcome by rewrite)

#### 4.1.11 Connections

items a) and c) in the first unordered list identify the protocol in use, while item b) omits this information. Include or do not include the protocol information equally in all list entries.

Page: 30

Sequence number: 3

Date: 1/23/2003 5:02:39 PM -06'00'

Type: Highlight

ACCEPT - DONE (Reworded)

#### 4.1.11 Connections

Regarding, '...the number of connections shall not exceed the number of phys within the wide port (i.e., only one connection per phy is allowed)...'.

It would seem that this requirement applies equally well to both wide and narrow ports. Furthermore, I cannot find a statement that specifically limits a narrow port to one connection per phy (i.e., one connection). It might be useful to 1) remove the word 'however', and 2) change 'wide port' to 'port' or if that is deemed too vague change 'wide port' to 'port, either wide or narrow,'.

Page: 30

Sequence number: 4  
Date: 1/23/2003 5:03:29 PM -06'00'  
Type: Highlight

ACCEPT - DONE  
4.1.11 Connections

Move the qualifying phrase 'if multiple pathways exist between the initiator port(s) and the target port(s)' to the beginning of the sentence so that the word following directly introduces the list.

Page: 31  
Sequence number: 1  
Date: 3/2/2003 3:37:22 PM -06'00'  
Type: Circle

ACCEPT - DONE (tracking with another comment)  
4.1.11 Connections

Do not anchor figure 17 to list entry d) so that list entry d) is not orphaned from the rest of the list by a quarter page of white space.

Page: 31  
Sequence number: 2  
Date: 3/2/2003 3:40:06 PM -06'00'  
Type: Circle

ACCEPT - DONE (got rid of curves, use straight lines for connections)  
4.1.11 Connections

It is most curious how connection E has succeeded in avoiding the requirement to pass through any phy on one of the expanders and in the target port.

Page: 32  
Sequence number: 1  
Date: 3/2/2003 3:01:00 PM -06'00'  
Type: Circle

ACCEPT - DONE (redrew instead. Made all end phys SAS phys not initiator or target, so it's obvious that any phy can open any other phy. Reduced from 6 to 4 to avoid clutter. Label the expander phys as such.)

4.1.11 Connections

Since figure 18 appears to make no attempt to unambiguously relate pathways to physical links (e.g., one of the magenta pathways passes through four phys in the expander device) perhaps it would be best to remove the physical links and expander device phys from the figure.

## Author: FUJ

---

Page: ix  
Sequence number: 4  
Date: 1/7/2003 11:13:52 AM -06'00'  
Type: Note

ACCEPT - DONE  
FUJITSU-1  
PDF page : ix  
Section : 1.19 Revision sas-r02c  
Figure/Table  
Paragraph/sentence/row/column  
Comment : 1.19 Revision sas-03

Page: 6  
Sequence number: 16  
Date: 1/22/2003 10:05:45 AM -06'00'  
Type: Highlight

ACCEPT - DONE (delete the 2nd sentence)  
FUJITSU-2

PDF page : 6

Section : 3.1.18 connection

Figure/Table

Paragraph/sentence/row/column

Comment : It defines only SSP(SCSI) case. SMP/STP case should be added since "3.1.78 nexus:" explains only SCSI and "see SAM-3"

Page: 109  
Sequence number: 16  
Date: 1/9/2003 4:48:12 PM -06'00'

Type: Note

ACCEPT - DONE (removed "Phy layer" and changed "phy" to "phy layer")  
FUJITSU-3  
PDF page : 109  
Section : 6.8.2 OOB sequence status  
Figure/Table : Figure 56  
Paragraph/sentence/row/column : line 3  
Comment : "Phy layer SAS phy (SP) state machine" / "SAS phy (SP) state machine" unification of the term as "SAS phy layer (SP) state machine"

Page: 139

Sequence number: 4

Date: 1/22/2003 10:06:45 AM -06'00'

Type: Highlight

ACCEPT - DONE (change "response" to "the result of")  
FUJITSU-4  
PDF page : 139  
Section : 7.1.4.11 OPEN\_REJECT  
Figure/Table :  
Paragraph/sentence/row/column line 2  
Comment : "The response to some OPEN\_REJECTs is to abandon the connection request and the response to other OPEN\_REJECTs is to retry the connection request." This "response" makes confusion as RESPONSE to the originator of OPEN\_REJECT. An "action" seems better to understanding.

Page: 139

Sequence number: 5

Date: 2/17/2003 1:47:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (change "Any device" to "any phy" (check other tables nearby). This does not only apply to expanders - if the destination gets a bad rate request, it returns this too. The last sentence in the description describes the direct-connect situation which does not include an expander.)  
FUJITSU-5  
PDF page : 139  
Section : 7.1.4.11 OPEN\_REJECT  
Figure/Table : Table 61  
Paragraph/sentence/row/column: 2nd row  
Comment : OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED) by "Any device".  
No Expander case, this is a mistake of OOB speed matching sequence.  
But how to communicate using different speed?  
So, this is the case of only Expander.

Page: 139

Sequence number: 6

Date: 1/17/2003 6:10:30 PM -06'00'

Type: Note

REJECT (no change requested)  
FUJITSU-6  
PDF page : 139  
Section : 7.1.4.11 OPEN\_REJECT  
Figure/Table : Table 61  
Paragraph/sentence/row/column : 1st, last row  
Comment : In case of BAD/WRONG destination, Initiator can report to Upper Application, but device can do nothing except to terminate the command. This kind of logical error should be reported on appropriate method.

Page: 163

Sequence number: 26

Date: 2/17/2003 5:50:09 PM -06'00'

Type: Highlight

ACCEPT - DONE (point to 7.12.3 where arbitration fairness selects the winner when OPENs cross)  
FUJITSU-7  
PDF page : 163  
Section : 7.12.2.2 Connection request responses  
Figure/Table : Table 78

Paragraph/sentence/row/column : 4th row

Comment : "OPEN address frame" "indicates two connection requests crossing on the physical link." In no expander case, the action should be defined to avoid racing condition or ping-pong condition. For instance, Initiator implicitly abandon the connection request, and  
Target proceeds operation.

Page: 163

Sequence number: 27

Date: 1/17/2003 6:15:48 PM -06'00'

Type: Note

REJECT (the device sending OPEN is not the only one that could send a BREAK. The other side could send it first.)

FUJITSU-8

PDF page : 163

Section : 7.12.2.2 Connection request response

Figure/Table : Table 78

Paragraph/sentence/row/column : row 5 BREAK

Comment : According to 7.12.5 and 7.12.6, BREAK is used by originator at first. If BREAK is responded for Connection (OPEN address frame),

this is a protocol error. So, "The destination port or expander port may reply with BREAK indicating the connection is not being established." is not correct. BREAK is the response of the BREAK of open requester not correct response of Connection request (OPEN address frame).

Page: 167

Sequence number: 11

Date: 3/5/2003 3:38:17 PM -06'00'

Type: Highlight

REJECT (Changed "No response and timer expires" to "Break Timeout timer expires" to be a little clearer. Although the originating device could do a link reset sequence, that may be overkill (a single lost SOAF will trigger this case.) On the other hand, "Breaking a connection" below is more likely to be a major error. Added a comment below recommending that.)

FUJITSU-9

PDF page : 167

Section : 7.12.5 Abandoning a connection request

Figure/Table : Table 81

Paragraph/sentence/row/column : row 3 No response and timer expires

Comment : In case of response time out of BREAK, there should be clear action definition. Since BREAK is used for AIP timeout, the response timeout of BREAK is double timeout condition. Link Initialization or something to recover or terminate queue action should be taken. (Then, the other path action should be taken on multiple port devices in future.)

## Author: HPQ

---

Page: ix

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

1.19 Revision sas-r02d

This should be sas-r03 not sas-r02d.

Page: 30

Sequence number: 1

Date: 3/2/2003 3:28:49 PM -06'00'

Type: Note

ACCEPT - DONE (added a sentence, somewhat out of place here)

4.1.11 Connections

This general intro needs to make it clear that frames related to one command (ATA or SCSI) may be transferred in different connections. A connection need not stay open for the duration of the command.

Page: 59

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.3 Expander route table

Change "expander" to "expander device" before (i.e., self-reference)

Page: 61

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

Table 26 - Expander route table levels

Change "SAS address of the device" to "SAS address of the port" for each entry

Page: 114

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE (Track with other comment)

6.8.3 SP state machine

Implement Editor's Note 1 about the interaction between SP and SP\_DWS.

Page: 137

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Note

REJECT (Jan WG)

7.1.4.4 BROADCAST

Make one of the BROADCAST primitives BROADCAST (VENDOR SPECIFIC).

Page: 137

Sequence number: 2

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Note

ACCEPT - DONE (per Jan WG go ahead and use 8 broadcast codes. Keep existing encodings; pull next four from annex H for the new ones.)

7.1.4.4 BROADCAST

Increase the total number of broadcast primitives to 8. There are 4 more D04.7 codes available.

broadcast (change)

broadcast (rsvd change 0) (end devices treat as change)

broadcast (rsvd change 1)

broadcast (rsvd 0)

broadcast (rsvd 1)

broadcast (rsvd 2)

broadcast (rsvd 3)

broadcast (rsvd 4)

Page: 142

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.1.5.6 RRDY (Receiver ready)

Remove:

"RRDY (RESERVED 2) Reserved. Processed the same as RRDY (NORMAL)."

There is no primitive code assigned for this.

Page: 143

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Note

ACCEPT - DONE

7.2 Clock skew management

Remove blank line after second paragraph

Page: 151

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE (clarified that for SAS ports, it's a port identifier. For expander devices, it's a device name.)

7.7.2 IDENTIFY address frame

"The SAS ADDRESS field indicates the SAS address of the device transmitting the IDENTIFY address frame."

It's really the SAS address of the port, not the device.

Page: 160

Sequence number: 1

Date: 2/19/2003 6:09:13 PM -06'00'

Type: Highlight

REJECT (went with LSI command "if one of the")

7.9 Power management

Change "If the primitives arrives" to "If the primitive arrives"

Page: 162

Sequence number: 1

Date: 2/17/2003 5:39:35 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

7.12.2.1 Connection request

"If none of the

prospective intermediate physical links does not support the requested connection rate,"  
should be

"If one of the ..."

[from hcurley@indra.com]

Page: 163

Sequence number: 1

Date: 3/5/2003 3:23:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted reference from table 81. Once a BREAK is sent, no reason to honor anything but BREAK coming back.

Ignore incoming OPENs, OPEN\_ACCEPTs, etc. at that time)

7.12.2.2 Connection request responses

BREAK is effectively referenced twice by table 81 since it shows up here, and this table shows up in table 81

Need to differentiate between originated and received BREAKs (the latter need responses) too

Page: 165

Sequence number: 1

Date: 3/11/2003 4:15:48 PM -06'00'

Type: Note

ACCEPT - DONE (also added to last sentence in section)

7.12.3.1.4 Pathway Recovery

\*\*\*

This comparison should also include the connection rate as the lowest priority bits, so two requests from a wide port (which have the same source address) resolve consistently

This parallels the normal arbitration fields specified in 7.12.3.1.1 (which uses AWT, source address, connection rate)

Page: 207

Sequence number: 1

Date: 2/19/2003 10:57:56 AM -06'00'

Type: Highlight

REJECT (whole paragraph deleted)

7.17.3 Preparing to close an STP connection

Add "or" before the last option in the list: "detected, [or] after"

Page: 216

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.2 Port layer

remove duplicate header numbers

Page: 224

Sequence number: 1

Date: 3/21/2003 8:45:50 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.4.3.1.2 PL\_PM I\_T nexus loss timer  
Second list:  
a) Open Failed (Connection Rate Not Supported)  
is unnecessary since targets are required to try 1.5 Gbps and that will never get this error  
(at least for target side)

Page: 228  
Sequence number: 1  
Date: 2/16/2003 11:41:50 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.1 SSP frame format  
Table 88 - SSP frame format  
Change TIMEOUT bit to RETRANSMIT

Page: 240  
Sequence number: 1  
Date: 2/16/2003 11:41:50 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (for too short for LUN field, too short for CDB, and additional cdb mismatch, generate a RESPONSE IU with a RESPONSE CODE indicating INVALID FRAME. In ch10 protocol services, this means a service delivery subsystem failure.)  
9.2.5.1 Target port error handling  
and 9.2.6.3.9 in the state machine  
"the target port shall return a  
CHECK CONDITION status with a sense key of ILLEGAL REQUEST and an additional sense code of  
INFORMATION UNIT TOO SHORT (see 9.2.6.3.9)."  
Instead, return a RESPONSE frame with a RESPONSE CODE indicating this problem. Don't involve the application layer.

Page: 240  
Sequence number: 2  
Date: 2/16/2003 11:41:50 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (for too short for LUN field, too short for CDB, and additional cdb mismatch, generate a RESPONSE IU with a RESPONSE CODE indicating INVALID FRAME. In ch10 protocol services, this means a service delivery subsystem failure.)  
9.2.5.1 Target port error handling  
"the target port shall return a CHECK CONDITION status with a sense key of ILLEGAL  
REQUEST and an additional sense code of INFORMATION UNIT TOO LONG (see 9.2.6.3.9)."  
Instead, return a RESPONSE frame with a RESPONSE CODE and don't bother the application layer.

Page: 258  
Sequence number: 1  
Date: 2/16/2003 11:41:50 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.9.1 State description (for ST\_TTS7)  
Editor's Note 3 - add service response argument to SCSI Command Received () and Task Management Function Request ()  
This note should be rejected. Errors in command frame reception should generate RESPONSE frames with RESPONSE CODE errors, not CHECK CONDITIONS.

Page: 258  
Sequence number: 2  
Date: 2/28/2003 11:20:34 AM -06'00'  
Type: Highlight  
REJECT (maybe in SAS-2)  
9.2.6.3.9.1 State description (ST\_TTS7)  
Editor's Note 4 - add local Service Response to Send Command Complete () and Task Management Function Executed ()  
Implement only if a SAM-3 proposal is accepted in the letter ballot resolution timeframe.

Page: 259  
Sequence number: 1  
Date: 2/16/2003 11:41:50 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.3.1 Initial FIS  
Change "the SMP REPORT SATA PORT function" to "the SMP REPORT PHY SATA function"

Page: 259  
Sequence number: 2



Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Change "CLOSE CLEAR AFFILIATION" to "CLOSE (CLEAR AFFILIATION)"

Page: 292

Sequence number: 1

Date: 3/15/2003 10:26:57 AM -06'00'

Type: Highlight

REJECT (the CAP WG rejected 02-419, so binary NAA target device names will remain the requirement. Multiple protocol target devices may have multiple target device names.)

10.1.9 SCSI vital product data

Table 128 - Device Identification VPD page required identification descriptors

The target device name should follow the common string format being proposed in 02-419 (if that is accepted by CAP).

Only SAS-only devices should be required to use the "naa." format name for a target device name.

Similarly, only SAS-only devices should be required to use the NAA binary formats for logical unit names.

Page: 294

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Note

ACCEPT - DONE (1/21 call voted to accept 03-034r4 which doesn't contain a GENERAL CONTROL function any longer. Instead, a virtual internal phy concept is used.)

10.3.1 SMP functions

Add a GENERAL CONTROL function 80h. See 03-034.

It has bits to reset internal targets of each protocol  
clear affiliation of an internal STP target

Page: 296

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

EXPANDER ROUTE INDEXES paragraph

...route indexes PER PHY

also note that some phys may not reach this limit

Page: 296

Sequence number: 2

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

Table 131 - REPORT GENERAL response

The row labeled byte 28 should be labeled byte 11.

Page: 296

Sequence number: 3

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

Table 131 - REPORT GENERAL response

The first row labeled byte 31 should be labeled byte 27.

Page: 302

Sequence number: 1

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE (Reworded)

10.3.1.4 DISCOVER function

"The ATTACHED SAS ADDRESS field contains the SAS address of the attached phy."

It's really the SAS address of the attached port or expander device, as reported by the attached phy.

Page: 302

Sequence number: 2

Date: 2/16/2003 11:41:50 AM -06'00'

Type: Highlight

ACCEPT - DONE (mention "transmitted during initialization sequence". Also mention SAS port and expander device as the owner of the SAS address.)

"The SAS ADDRESS field contains the SAS address of this phy."

It's really the address reported by this phy, not the address of this phy.

Page: 382

Sequence number: 1

Date: 3/15/2003 3:29:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (adopted a STA-provided "icon")

Annex J SAS logo

Figure J.1 — SAS logo

The SCSI Trade Association has a new logo for SAS to replace this one.

## Author: IBM

---

Page: ii

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

Points of Contact

George Penokie's email address is gop@us.ibm.com

Page: iii

Sequence number: 2

Date: 3/11/2003 3:43:19 PM -06'00'

Type: Highlight

ACCEPT - DONE (contents merged with LSI comment)

Abstract

This abstract is inaccurate and should be rewritten to the following:

This standard defines mechanical, electrical, timing requirements, command, and task management delivery protocol requirements to transfer commands and data between SCSI devices attached to a SCSI

serial interface. This standard is intended to be used in conjunction with the SCSI command sets. The resulting interface facilitates the interconnection of computers and intelligent peripherals and thus provides a common interface standard for both system integrators and suppliers of intelligent peripherals.

Page: v

Sequence number: 2

Date: 5/12/2003 10:19:34 AM

Type: Highlight

ACCEPT - DONE

Revision Information

This needs to be removed before public review.

Page: x

Sequence number: 2

Date: 2/19/2003 6:45:59 PM -06'00'

Type: Circle

REJECT (I'll follow Bill Ham and submit with multiple levels and let ANSI and ISO ruin it if they insist. All the long titles have been corrected so there are no wrapping problems.)

Contents

Indents only go one deep. So ,for example, everything under clause 4 should be intended to the same level no matter how many sub-sections there are. This will happen at either ANSI or ISO any way.

Also, when the indents are more that four deep there is a readability issue with long section titles.

Page: x

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

Contents

The term 'Page' needs to be move so the 'e' aligns with the LSD of the page number.

Page: xxxiii

Sequence number: 2  
Date: 1/6/2003 6:16:00 PM -06'00'  
Type: Note

ACCEPT - DONE

Foreword

The INCITS leadership should be adding here as follows:

Karen Higginbottom, Chair

David Michael, Vice-chair

Monica Vago, Secretary

Page: xxxiii

Sequence number: 3  
Date: 1/6/2003 6:16:00 PM -06'00'  
Type: Note

ACCEPT - DONE

Foreword

The t10 leadership should be adding here as follows:

John B. Lohmeyer, Chair

George O. Penokie, Vice-Chair

Ralph O. Weber, Secretary

Page: xxxiii

Sequence number: 4  
Date: 2/19/2003 6:37:31 PM -06'00'  
Type: Note

ACCEPT - DONE (added as of 2/19/2003)

Foreword

The list of t10 members should be added here. A good format is to place the list in three columns (see SPI-5)

Page: 1

Sequence number: 1  
Date: 1/7/2003 1:53:36 PM -06'00'  
Type: Highlight

REJECT - this standard is better

Figure 1

The statement << this standard >> should in this case be replaced with SAS.

Page: 1

Sequence number: 2  
Date: 1/7/2003 1:53:30 PM -06'00'  
Type: Highlight

REJECT - this standard is better

Figure 2

The statement << this standard >> should in this case be replaced with SAS.

Page: 4

Sequence number: 1  
Date: 1/11/2003 5:31:27 PM -06'00'  
Type: Highlight

ACCEPT - DONE (global format fix for notes)

2.3 References under development

Global

The format of the notes should be << NOTE 1 - >> the dash is missing.

Page: 4

Sequence number: 2  
Date: 3/11/2003 3:51:39 PM -06'00'  
Type: Square

REJECT - there are SATA references throughout this standard. (might want to make it clear that a "SATA" reference means all of these, not just the 8/29/01 document)

2.4 Other references

As far as I can tell there are no references to these documents within this standard. So why are they listed as normative? They should be removed or appropriate references added.

Page: 5

Sequence number: 3  
Date: 1/7/2003 2:14:28 PM -06'00'  
Type: Highlight

ACCEPT - DONE

### 3.1.13 broadcast primitive processor

The statement << The portion of an ... >> should be changed to << An object within an ... >>.

Page: 5

Sequence number: 4

Date: 2/6/2003 1:46:07 PM -06'00'

Type: Note

ACCEPT - DONE

3.1 Definitions

The ATA definitions should be replaced with document 03-022.

Page: 6

Sequence number: 10

Date: 2/6/2003 11:52:00 AM -06'00'

Type: Strikeout

ACCEPT - DONE (changed most "domain" references to "SAS domain". Kept this definiton but changed to "A SAS domain, SCSI domain, or ATA domain." (since we have a section called "Domains" which has pictures of ATA domains. I don't want to rename that section "SAS domains and ATA domains".))

3.1.31 domain:

Get rid of this by using << SAS domain >> in all cases.

Page: 6

Sequence number: 11

Date: 1/7/2003 2:20:41 PM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.32 downstream phy:

The term << primary>> should be deleted as it provide no additional information to the definition.

Page: 6

Sequence number: 12

Date: 1/7/2003 2:15:27 PM -06'00'

Type: Highlight

REJECT - upward signals are not always a response to anything

3.1.17 confirmation

A confirmation is not a parameter that is passed rather it is the a response returned from a lower layer indicating completion of a request from a higher layer.

Page: 7

Sequence number: 8

Date: 1/7/2003 2:24:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.39 expander connection router (ER):

The statement << The portion of an ...>> should be changed to << An object within an ... >>.

Page: 7

Sequence number: 9

Date: 1/7/2003 2:25:07 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.41 expander function:

The statement << The portion of an ... >> should be changed to << An object within an ... >>.

Page: 7

Sequence number: 10

Date: 2/7/2003 11:19:48 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "A routed SAS address" among other changes)

3.1.44 expander route entry:

So what is << A single destination SAS address >>? Do not all SAS addresses belong to an individual device? If so then all are single destination SAS addresses.

Page: 7

Sequence number: 11

Date: 1/7/2003 2:28:33 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.55 hash function:

Change the statement << into a hashed value >> to << into a shorter hashed value >>.

Page: 8

Sequence number: 10

Date: 2/28/2003 2:59:35 PM -06'00'

Type: Highlight

REJECT

3.1.62 indication:

An indication is not a parameter that is passed rather it is a transaction from a lower layer that conveys a request to a higher layer.

Page: 8

Sequence number: 11

Date: 2/7/2003 6:46:14 PM -06'00'

Type: Strikeout

REJECT - this links the term to other defined terms also in the glossary. Did add some xrefs.

3.1.72 link reset sequence:

This is way to detailed and is a duplicate of what is in 4.4. Delete <<an identification sequence, or a phy reset sequence followed by a hard reset sequence, another phy reset sequence, and an identification sequence>> and replace with <<one or more other sequences (see 4.4).>>

Page: 9

Sequence number: 10

Date: 3/5/2003 5:04:14 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with INTC comment)

3.1.96 request:

A request is not a parameter that is passed rather it is a transaction request from a higher layer that invokes a service from a lower layer.

Page: 9

Sequence number: 11

Date: 3/5/2003 5:04:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with INTC comment)

3.1.98 response:

A response is not a parameter that is passed rather it is a transaction from a higher layer that conveys the result of a request to a lower layer.

Page: 9

Sequence number: 12

Date: 1/7/2003 2:49:36 PM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.91 programmed maximum physical link rate:

The definition is no place to be defining the default value. Delete <<defaults to the hardware maximum physical link rate.>>

Page: 9

Sequence number: 13

Date: 1/7/2003 2:49:43 PM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.92 programmed minimum physical link rate:

The definition is no place to be defining the default value. Delete <<defaults to the hardware maximum physical link rate.>>

Page: 10

Sequence number: 6

Date: 2/28/2003 9:38:57 AM -06'00'

Type: Highlight

ACCEPT - DONE (Depends on if it's referring to the "request-response" model in SAM-3 4.2 and 4.3, or the 4-step model in the transport protocol services. The change was made in SAM-3 so is also made here.)

3.1.116 SCSI initiator port:

The statement <<requests and responses are routed>> should be <<requests and confirmations are routed>>. Note this is also wrong in SAM-3.

Page: 10

Sequence number: 7

Date: 2/28/2003 9:39:03 AM -06'00'

Type: Highlight

ACCEPT - DONE (Depends on if it's referring to the "request-response" model in SAM-3 4.2 and 4.3, or the 4-step model in the

transport protocol services. The change was made in SAM-3 so is also made here.)

3.1.119 SCSI target port:

The statement <<requests and

responses are routed>> should be <<indications and responses are routed>>. Note this is also wrong in SAM-3.

Page: 11

Sequence number: 8

Date: 1/20/2003 4:01:47 PM -06'00'

Type: Strikeout

REJECT (per PHY WG, but delete "(SSC)" abbreviation and keep a definition since the term is used within the specification.)

3.1.129 spread spectrum clocking (SSC):

This should be deleted as the term is not used anywhere else in this standard.

Page: 11

Sequence number: 9

Date: 1/7/2003 2:59:26 PM -06'00'

Type: Highlight

ACCEPT - DONE ("set of protocols and the interconnect")

3.1.124 Serial Attached SCSI (SAS):

The term <<protocol>> should be <<protocols>> as there are at least two protocols defined (i.e., SMP and SSP)

Page: 12

Sequence number: 2

Date: 3/8/2003 3:45:55 PM -06'00'

Type: Square

ACCEPT - DONE (They are SAM-3 terms so need to remain. Added i.e.'s relating the terms to SCSI application client, SCSI device server, SSP initiator port, and SSP target port.)

3.1.146 transport protocol service confirmation:

3.1.147 transport protocol service indication: .

3.1.148 transport protocol service request:

3.1.149 transport protocol service response:

I don't think these should even be in the glossary. But if they remain they need to change in the same manner suggested in the confirmation, indication, request, and response definitions.

Page: 12

Sequence number: 3

Date: 2/8/2003 10:38:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.151 upstream phy:

The term << primary >> should be deleted as it provide no additional information to the definition.

Page: 12

Sequence number: 4

Date: 2/8/2003 10:37:45 AM -06'00'

Type: Strikeout

REJECT (since we don't say "primitive" after each one in the text, the reader might not realize some obscure string of capital letters is a primitive name.)

3.2 Symbols and abbreviations

Primitives should not be listed in the abbreviations list. Remove all primitives from the list.

Page: 13

Sequence number: 3

Date: 2/8/2003 10:39:56 AM -06'00'

Type: Strikeout

REJECT (see same comment earlier)

3.2 Symbols and abbreviations

Primitives should not be listed in the abbreviations list. Remove all primitives from the list.

Page: 13

Sequence number: 4

Date: 2/8/2003 10:39:53 AM -06'00'

Type: Strikeout

REJECT (see same comment earlier)

3.2 Symbols and abbreviations

Primitives should not be listed in the abbreviations list. Remove all primitives from the list.

Page: 14

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.3.6 need not:

Remove one of the :s

Page: 16

Sequence number: 3

Date: 1/7/2003 2:37:45 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 3

The indication goes from lower layers to higher layers. This should be response name.

Page: 16

Sequence number: 4

Date: 1/7/2003 2:37:54 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 3

The indication goes from lower layers to higher layers. This should be response name.

Page: 16

Sequence number: 5

Date: 1/7/2003 2:38:06 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 3

The Response goes from higher layers to lower layers. This should be indication name.

Page: 16

Sequence number: 6

Date: 1/7/2003 2:37:59 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 3

The Response goes from higher layers to lower layers. This should be indication name

Page: 17

Sequence number: 5

Date: 2/25/2003 7:01:57 PM -06'00'

Type: Highlight

REJECT

3.5.3 Parameters, requests, indications, confirmations, and responses

Loss the """" around the <<"(to all states)">>.

Page: 17

Sequence number: 6

Date: 1/7/2003 5:21:23 PM -06'00'

Type: Highlight

REJECT (I like to spell out the first use in the text then use the acronym thereafter - who studies the acronym list before reading the document? Also, MSB and LSB could easily be read as ms/lb BYTE not BIT.)

3.6 Bit and byte ordering

There is not need to redefine the LSB and MSB acronym as it has already been defined in the abbreviations list. Change <<least significant bit (LSB) is shown on the right and the most significant bit (MSB)>> to <<LSB is shown on the right and the MSB>>.

Page: 19

Sequence number: 2

Date: 1/7/2003 5:27:59 PM -06'00'

Type: Highlight

REJECT - not referring to a subset of ports; all SAS ports do this

4.1.1 Architecture overview

This which should be a that.

Page: 19

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - not referring to a subset of ports

4.1.1 Architecture overview  
This which should be a that.

Page: 20

Sequence number: 1

Date: 1/7/2003 5:24:47 PM -06'00'

Type: Highlight

REJECT (what's wrong with semicolons for related sentences?)

4.1.2 Physical links and phys

The statement <<A phy is a transceiver; it is the object in a ...>> should be changed to <<A phy is a transceiver and it is the object in a ...>>

Page: 21

Sequence number: 8

Date: 1/7/2003 5:25:30 PM -06'00'

Type: Highlight

ACCEPT - DONE (but with "which" rather than "that" - it's not a subset)

4.1.2 Physical links and phys

The statement <<unique phy identifier (see 4.2.6) within the device.>> should be changed to <<phy identifier (see 4.2.6) that is unique within the device>>.

Page: 21

Sequence number: 9

Date: 1/29/2003 12:35:34 PM -06'00'

Type: Strikeout

ACCEPT - DONE (this is here so ch4 the model chapter introduces the concept of link rates and dwords, which are used throughout subsequent chapters. Changed from naming 1.5 and 3.0 to "rates defined in 5.7" to address this comment. Later on in the connections section we have to add the concept of connection rate to address another comment.)

4.1.2 Physical links and phys

This should be deleted as it only contains information that is defined elsewhere. It adds nothing to the standard and could easily be forgotten about and not updated in the next version of the standard. Delete << Phys transmit and receive bits at physical link rates of 1,5 Gbps or 3,0 Gbps (see 5.7). The bits are part of dwords (see 6.1) which have been 8b10b coded into 10-bit characters (see 6.2).>>

Page: 24

Sequence number: 6

Date: 1/22/2003 3:06:09 PM -06'00'

Type: Highlight

REJECT (whole section being deleted anyway)

4.1.6 Target devices

\*\*\*

The idea that a target would support both SCSI and ATA is too weird to conceive. I would like the idea deleted. The effect is that some of the and/ors change to or and figure 9 loses the middle set of boxes.

Page: 25

Sequence number: 4

Date: 2/8/2003 11:17:04 AM -06'00'

Type: Highlight

REJECT (that's not true)

Figure 10

The term <<(optional)>> should be deleted as everything is optional unless stated otherwise.

Page: 25

Sequence number: 5

Date: 3/3/2003 6:00:53 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.8.2 Edge expander device set

The statement <<grouped into edge expander device sets.>> should be changed to <<grouped into an edge expander device set>>

Page: 25

Sequence number: 6

Date: 3/3/2003 6:01:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.8.2 Edge expander device set

The statement <<The edge expander device sets are>> should be <<An edge expander device set is>>

Page: 25



Sequence number: 7

Date: 3/3/2003 6:04:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (split the previous sentence into an a)b) list and merged with this sentence (as a second a)b) list))

4.1.8.2 Edge expander device set

The statement <<Edge expander device sets are>> should be <<An edge expander device set is>>.

Page: 26

Sequence number: 4

Date: 2/8/2003 11:18:07 AM -06'00'

Type: Highlight

REJECT (but deleted this anyway)

Figure 11

The term <<(optional)>> should be deleted as everything is optional unless stated otherwise.

Page: 28

Sequence number: 3

Date: 3/4/2003 11:32:48 AM -06'00'

Type: Circle

ACCEPT - DONE (and changed configured to "constructed" to avoid confusion with configuring via the discover process)

4.1.10 Expander device topologies

After the sentence that ends in <<is configured.>> add in the following sentence <<The method used to configure edge expander device sets is outside the scope of this standard.>>

Page: 28

Sequence number: 4

Date: 3/6/2003 9:04:21 AM -06'00'

Type: Circle

ACCEPT - DONE

Figure 14

The bracket that is labeled <<64 edge expander device sets>> should be rotated 90 degrees and be stretched to bracket the two edge expander device sets.

Page: 29

Sequence number: 2

Date: 3/6/2003 9:04:31 AM -06'00'

Type: Circle

ACCEPT - DONE

Figure 15

The bracket that is labeled <<64 attached devices or edge expander device sets>> should be rotated 90 degrees and be stretched to bracket the edge expander device set, the initiator or target devices, and the ...s.

Page: 29

Sequence number: 3

Date: 3/6/2003 9:04:44 AM -06'00'

Type: Circle

REJECT (but removed this bracket altogether)

Figure 16

The bracket that is labeled <<64 physical links per edge expander device set>> should be rotated 90 degrees and be stretched to bracket the initiator or target devices.

Page: 29

Sequence number: 4

Date: 3/6/2003 9:07:33 AM -06'00'

Type: Circle

ACCEPT - DONE

Figure 16

The bracket that is labeled <<2 edge expander device sets>> should be rotated 90 degrees and be stretched to bracket the 2 edge expander device sets.

Page: 30

Sequence number: 9

Date: 1/23/2003 5:00:40 PM -06'00'

Type: Highlight

REJECT (yes more than one I\_T can be connected at a time in the domain. It's only on a physical link that they are one at a time.)

4.1.11 Connections

The statement <<b) SCSI initiator port(s) to expander port(s) to SCSI target port(s); and>> is not correct. You cannot establish a connection between more than one initiator port and target port at a time. The statement should be changed to <<b) SCSI initiator port to expander port(s) to SCSI target port; and>>. The same is probably true for item c.

Page: 30

Sequence number: 10

Date: 3/21/2003 6:42:47 PM -06'00'

Type: Note

REJECT (but applied as needed)

4.1.11 Connections

Global

Having the anchored frame tag at the end of a paragraph can cause paragraphs, lines, and even individual words to be separated by large amounts of white space. This can make it difficult to read. The solution to this is to place the anchor in its own paragraph. I recommend this be done throughout this standard.

Page: 32

Sequence number: 5

Date: 2/10/2003 3:00:46 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 18

The text in the key list is not lined up.

Page: 33

Sequence number: 1

Date: 1/23/2003 5:52:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.2.2 SAS addresses

The statement <<names in this>> in note 7 should be <<names defined by this standard.>>

Page: 34

Sequence number: 2

Date: 1/23/2003 5:51:57 PM -06'00'

Type: Highlight

REJECT - this convention is already described in section 3.4 after table 2 for binary and hex numbers

4.2.2 SAS addresses

The \_ notation needs to be added to the notations section.

Page: 34

Sequence number: 3

Date: 1/23/2003 6:16:05 PM -06'00'

Type: Highlight

ACCEPT - DONE (and removed the 8-bit part too)

4.2.6 Phy identifier

The statement <<a unique 8-bit identifier within the device.>> should be changed to <<an 8-bit identifier that is unique within the device.>>.

Page: 35

Sequence number: 2

Date: 1/7/2003 6:16:47 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.1 State machine overview

The statement <<and target devices and their relationships to each other and to the SAS device,>> should be changed to <<and target devices, their relationships to each other, and to the SAS device,>>

Page: 36

Sequence number: 2

Date: 1/7/2003 6:19:57 PM -06'00'

Type: Circle

REJECT (if a state machine has an associated transmitter, that controls both data and control of the MUX. SP, SP\_IR, and SL are this way)

Figure 20

The blue dotted line on the last thing on the right is not connected to the correct text box. On closer inspection it looks like there are two other blue dotted lines that look like they are going to the wrong place and there are two boxes with no lines coming out.

Page: 39

Sequence number: 5

Date: 1/23/2003 6:34:34 PM -06'00'

Type: Note

REJECT (some of these have special meaning for STP)

Figure 23

In general this is too detailed for a SAS standard. Reduce the details. At a minimum reduce or eliminate the SATA primitives. All that is needed are some << SATA primitives >> labels.

Page: 39

Sequence number: 6

Date: 3/8/2003 5:13:11 PM -06'00'

Type: Note

REJECT

4.3.3 Signals

Tables 9 through 22

There needs to be a better notation for the direction indication. the --> and <-- looks hookey.

Page: 39

Sequence number: 7

Date: 3/8/2003 5:13:17 PM -06'00'

Type: Note

REJECT

4.3.3 Signals

Tables 9 through 22

In these tables the acronyms for the state machines are used but not all of them have been defined at this point in the standard.

One solution would be to make a list or table of all the state machines with there acronyms before table 9. Another way would be to add in keys to every table with the acronym followed by the long name.

Page: 39

Sequence number: 8

Date: 2/9/2003 5:05:23 PM -06'00'

Type: Note

ACCEPT - DONE (tracking with Mark Evans' comment)

4.3.3 Signals between state machines

This section needs to be replaced with proposal 03-023.

Page: 40

Sequence number: 1

Date: 3/8/2003 5:13:05 PM -06'00'

Type: Circle

ACCEPT - DONE

4.3.3 Signals

Tables 11 through 15

Where ever there are multiple blank rows they should be combined to make a single blank area.

Page: 45

Sequence number: 1

Date: 2/9/2003 5:21:30 PM -06'00'

Type: Circle

REJECT (it's not. Table 10 also has signals to the expander function.)

Table 18

Why is this the only table that has something called an <<Expander function>> in the layers column? It seems out of place. At the minimum some kind of explanation is needed as to what it is and why it is here.

Page: 49

Sequence number: 6

Date: 1/24/2003 9:45:07 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed this to "a hard reset")

4.4.2 Hard reset

In the statement <<If the port is part of a SCSI device, this causes a Transport Reset>> it is not clear what the <<this>> is referring to. This needs to be corrected.

Page: 49

Sequence number: 7

Date: 1/24/2003 9:40:31 AM -06'00'

Type: Note

ACCEPT - DONE (but only here, the first additional sense code mentioned; not adding an SPC-3 crossref to every use of additional sense code because there is often already a crossref after such)

4.4.2 Hard reset

There should be a reference to SPC-3 at the end of the last paragraph of this section.

Page: 49

Sequence number: 8

Date: 2/9/2003 5:22:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.5 I\_T nexus loss

The statement <<an open connection time out in response>> should be changed to <<an open connection time out occurs in response>>

Page: 49

Sequence number: 9

Date: 1/24/2003 9:35:56 AM -06'00'

Type: Highlight

REJECT (timers expire)

4.5 I\_T nexus loss

The term <<expires>> is not a word that should be used (look up the definition). It could easily be translated into dies. A quick fix would be to use <<times out>>. But I am open to other suggestions.

Page: 49

Sequence number: 10

Date: 2/9/2003 5:24:10 PM -06'00'

Type: Circle

REJECT (the editorial conventions say "lists sequenced by letters" which covers upper and lower case. There is no need to explain caps vs. lowercase; it's obvious.)

4.6.1 Expander device model overview

We have not used the A,B,C convention in any t10 standards yet. We have been just using the a,b,c even in second level lists. If we are going to start using this then we need to define in the conventions section how we will indicate up to four(?) levels for both ordered and unordered lists. I don't think that is necessary and that changing this to a,b,c would not cause any confusion.

Page: 49

Sequence number: 11

Date: 3/11/2003 4:02:23 PM -06'00'

Type: Strikeout

REJECT (we indicate the minimum number here as 2. This sentence indicates there is a maximum as well. )

4.6.1 Expander device model overview

I see no benefit from the statement <<For the maximum number of phys, see 4.1.8>>. It should be deleted or at a minimum reduced to <<(see 4.1.8)>>.

Page: 49

Sequence number: 12

Date: 3/8/2003 5:27:33 PM -06'00'

Type: Highlight

REJECT

4.5 I\_T nexus loss

The statement << it shall retry the connection request until: >> appears to be in conflict with Table 61 — OPEN\_REJECT abandon primitives. That table includes OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED). So who can it be retried and abandoned at the same time . This needs to be fixed.

Page: 50

Sequence number: 3

Date: 3/8/2003 5:25:00 PM -06'00'

Type: Highlight

REJECT (the SAS port is either narrow or wide.)

Figure 25

What is the statement <<Narrow or wide port>> have to do with this figure? It seems like it is saying there is a port that connects the expander function to the external SAS port. I believe it should be deleted.

Page: 50

Sequence number: 4

Date: 3/8/2003 5:25:38 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.1 Expander device model overview

In figure 25 it appears the <<external expander port>> is called an <<external SAS port>> also the same figure lists <<IR>> while the text lists <<SL\_IR>>. This inconsistent terminology needs to be resolved.

Page: 50

Sequence number: 5

Date: 3/8/2003 5:26:13 PM -06'00'

Type: Circle

ACCEPT - DONE (should be improved - no specific comments)

#### 4.6.1 Expander device model overview

There are several cases of inconsistent terminology between this section and figure 25. These all need to be resolved to one set of terms.

Page: 51

Sequence number: 1

Date: 1/24/2003 9:50:43 AM -06'00'

Type: Highlight

ACCEPT - DONE

#### 4.6.6 Expander device interface

The statement <<The interaction between an XL state machine and the expander function is called the expander device interface, and uses signals called requests, confirmations, indications, and responses.>> should be changed to <<The interaction between the XL state machine and the expander function consists of requests, confirmations, indications, and responses. This interaction is called the expander device interface.>>

Page: 52

Sequence number: 1

Date: 2/9/2003 5:27:26 PM -06'00'

Type: Circle

REJECT (Jan editors meeting said accept, but that's incorrect)

#### Figure 26

The outputs from the broadcast primitive processor should be called confirmation not indication. The indication only occurs when there are interim steps between the request and the confirmation.

Page: 53

Sequence number: 1

Date: 2/14/2003 5:12:13 PM -06'00'

Type: Circle

REJECT (Jan editors meeting said accept, but that's incorrect. They're not confirming any request - they are asynchronous inputs.)

#### Figure 27

The outputs from the broadcast primitive processor should be called confirmations not indications. The indication only occurs when there are interim steps between the request and the confirmation.

Page: 55

Sequence number: 1

Date: 1/24/2003 10:21:49 AM -06'00'

Type: Circle

REJECT - the input indications are very important (the phy has got two signals named Transmit Open - the request going out and the indication coming in).

#### Table 24

Global

All the request/indication terms should be changed to just request. There is no need to state the indication part of the procedure.

Page: 55

Sequence number: 2

Date: 1/24/2003 10:22:30 AM -06'00'

Type: Circle

REJECT - the input confirmations are very important (the phy has got two signals named Arb Status (Normal) - the response going out and the confirmation coming in).

#### Table 24

Global

All the confirmation/response terms should be changed to just confirmation. There is no need to state the response part of the procedure.

This change should also be made in the globally.

Page: 55

Sequence number: 3

Date: 3/8/2003 5:23:53 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to messages)

#### 4.6.9 Expander connection router interface

The term <<signals>> is not correct here. I'm not sure what it should be maybe <<dwords>> or <<parameters>>.

Page: 59

Sequence number: 2

Date: 2/9/2003 5:29:22 PM -06'00'

Type: Strikeout

REJECT (the example is of a sequence of unknown length not a 3 level sequence)

#### 4.6.9 Expander connection router interface

The <<, etc.>> should be deleted because the e.g. implies an etc. at the end of the list.

Page: 59

Sequence number: 3

Date: 2/9/2003 5:30:39 PM -06'00'

Type: Highlight

REJECT (unordered list makes the conditions stand out better)

#### 4.6.9 Expander connection router interface

The following <<For each of the level 2 devices that:

a) is an edge expander device with M phys; and

b) is attached to a phy in the level 1 edge expander device with the table routing attribute,

the next M entries shall be the SAS addresses of the devices (level 3) attached to that level 2 edge expander device.>>  
should be changed to

<<For each of the level 2 devices that is an edge expander device with M phys and is attached to a phy in the level 1 edge expander device with the table routing attribute, the next M entries shall be the SAS addresses of the devices (level 3) attached to that level 2 edge expander device.>>

Page: 65

Sequence number: 3

Date: 1/31/2003 3:48:54 PM -06'00'

Type: Highlight

REJECT (per SAS PHY WG

Reject IBM comment: Adds to the normative explanation of the SAS connection scheme by showing similarities.)

#### 5.1 SATA cables and connectors (informative)

This section should be placed in a annex that describes any SATA specific functions.

Page: 66

Sequence number: 3

Date: 1/31/2003 3:56:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG with "pins" too)

#### 5.2 SAS cables and connectors

Figure 32

The statement <<Tx to Rx on each>> should be changed to <<the Tx signal to the Rx signal on each>>

Page: 67

Sequence number: 9

Date: 1/31/2003 4:05:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (per PHY WG Accept text change but leave as text rather than changing to a footnote.)

#### 5.2 SAS cables and connectors

The following paragraph should be a footnote in table 29 and should be modified as shown <<The SATA device plug connector (e.g., used by a <<SATA>> disk drive) may be attached to a SAS backplane receptacle connector or a SAS internal cable receptacle connector, connecting the primary signal pairs and leaving the second signal pairs unconnected.

Page: 67

Sequence number: 10

Date: 1/31/2003 4:06:48 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 5.2 SAS cables and connectors

The term <<drive>> should be deleted as the form factors apply to a size of a device not the type of device.

Page: 67

Sequence number: 11

Date: 1/31/2003 4:11:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG

Delete (xxx)s to resolve IBM comment. Use is obvious by the name.)

#### 5.3.2.1 SAS plug connector overview

The statement <<(for SAS cables) and SAS backplane

receptacle connectors (for SAS backplanes).>> should be <<for SAS cables and SAS backplane receptacle connectors for SAS backplanes>>

Page: 67

Sequence number: 12

Date: 1/31/2003 4:13:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (per PHY WG)

5.3.3 SAS internal cable receptacle connector

The statement <<link, pins S8 through S14, is>> should be <<link (i.e., pins S8 through S14) is>>.

Page: 68

Sequence number: 2

Date: 1/31/2003 4:41:20 PM -06'00'

Type: Highlight

ACCEPT - DONE (per PHY WG)

Table 30

So when I hook up all the voltage and precharge pins together and blow-up the drive and the possibly the power supply who is going to be responsible.

This should change to <<

The precharge pin and each corresponding voltage pin shall be connected together (e.g., the V5 precharge pin is connected to the two V5 pins).>>.

Page: 68

Sequence number: 3

Date: 1/31/2003 5:08:59 PM -06'00'

Type: Highlight

ACCEPT - DONE (with "pin" per phy WG)

5.3.5 SAS internal connector pin assignments

The statement << AT+ of connector 1 shall connect to AR+ >> should be << AT+ signal of connector 1 shall connect to AR+ signal >>.

Page: 68

Sequence number: 4

Date: 1/20/2003 4:12:52 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.3.6 SAS external cable plug connector

It the statement << It

attaches >> what is the << it >> supposed to be be? I'm not sure. This needs to be fixed.

Page: 68

Sequence number: 5

Date: 1/20/2003 4:10:02 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.3.5 SAS internal connector pin assignments

The statement <<Table 30 shows>> should be <<Table 30 defines>>.

Page: 69

Sequence number: 3

Date: 1/20/2003 4:12:42 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.3.7 SAS external receptacle connector

It the statement << It

attaches >> what is the << it >> supposed to be be? I'm not sure. This needs to be fixed.

Page: 69

Sequence number: 4

Date: 1/20/2003 4:13:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.3.8 SAS external connector pin assignments

The statement <<Table 31 shows>> should be <<Table 31 defines>>.

Page: 70

Sequence number: 6

Date: 1/31/2003 4:27:40 PM -06'00'

Type: Highlight

ACCEPT - DONE (per PHY WG)

5.4.1 SAS internal cables

The statement << SATA-style cable receptacle on the initiator device >> should be << SATA-style cable receptacle (see SATA) on the initiator device >>.

Page: 70

Sequence number: 7

Date: 1/31/2003 4:29:14 PM -06'00'

Type: Highlight

ACCEPT - DONE (per PHY WG, with "same as that defined for")

5.4.1 SAS internal cables

The following << A SAS initiator device shall use a SATA-style host plug connector for connection to the SAS internal cable. The SATA host plug connector is defined in SATA. The signal assignment for the SAS initiator device or expander device with this connector shall be the same as defined for a SATA host in SATA. >>

should be changed to

<< A SAS initiator device shall use a SATA-style host plug connector (see STAT) for connection to the SAS internal cable. The signal assignment for the SAS initiator device or expander device with this connector shall be the same as a SATA host (see SATA). >>

Page: 71

Sequence number: 14

Date: 1/31/2003 4:43:31 PM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG; include rather than carry)

5.4.2 SAS external cables

The statement << not carry power>> should be changed to << not contain power >>.

Page: 71

Sequence number: 15

Date: 1/20/2003 4:29:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

The statement << READY LED signal is raised, >> should be << READY LED signal is asserted, >>

Page: 71

Sequence number: 16

Date: 2/20/2003 9:28:55 AM -06'00'

Type: Strikeout

ACCEPT - DONE (deleted whole sentence)

5.6 READY LED pin

The following should be deleted << since this pin may be connected by a system directly to power supply GROUND. >>. The standard does not need to justify a requirement.

Page: 71

Sequence number: 17

Date: 1/20/2003 4:43:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

global

Whenever a signal name is used it needs to be followed by the term << signal >>. Several places in this section READY LED is used without the term << signal >>. It should have been written as << READY LED signal >> in all cases.

Page: 71

Sequence number: 18

Date: 1/20/2003 4:26:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

The title of this section is not correct. It should be << READY LED signal >>.

Page: 71

Sequence number: 19

Date: 1/20/2003 4:43:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

global

There should be a reference to where the <<standby or stopped power condition state,>> are defined.

Page: 71

Sequence number: 20

Date: 1/20/2003 4:43:12 PM -06'00'



Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

global

There should be a reference to where the <<. active or idle power condition state,>> are defined.

Page: 72

Sequence number: 7

Date: 1/20/2003 4:49:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

The references to the a,b,c list items should have a cross-reference link.

Page: 72

Sequence number: 8

Date: 2/9/2003 11:22:37 AM -06'00'

Type: Strikeout

REJECT (from minutes of Joint WG in Jan: George Penokie led a discussion of the importance or unimportance of BER (Bit Error Rate) in SAS. Bill Ham, Alvin Cox and several others attempted (without success) to convince George that all BER information in SAS is very necessary. Eventually, it was agreed that every occurrence of BER in SAS be inspected and agreement reached by the group to keep them, remove them, or reword them to emphasize a preference for the use of better BERs than those stated in SAS.)

5.7.2 General interface specification

\*\*\*\*

All references to a BER should be removed from this standard. The value as specific is not low enough and specifying a lower number is not practical. Any SAS design that only meets the current specified BER will fail any qualification being used today.

Page: 72

Sequence number: 9

Date: 1/20/2003 5:00:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS phy WG, changed to "These signal specifications are consistent with using good quality cable assemblies constructed with shielded twinex cable with 24 gauge solid wire up to eight meters in length without using any form of equalization (e.g., transmitter pre-emphasis, receiver adaptive equalization, or passive cable equalization).")

5.7.2 General interface specification

\*\*\*\*

The following statement indicates there are cable lengths specified in this standard but there are none.

I believe that with out guidance from this standard as to what reasonable lengths are for cables this group is doing a disservice to the using community. I proposal cable lengths be specified in the same manner as they are in SPI-5.

<< TxRx connections operating at the maximum specified distances may require some form of equalization (e.g., transmitter pre-emphasis, receiver adaptive equalization, or passive cable equalization) to enable the signal requirements to be met. >>

Page: 74

Sequence number: 3

Date: 1/20/2003 5:02:30 PM -06'00'

Type: Circle

ACCEPT - DONE

Table 34

The entries in the characteristics column should be left justified.

Page: 74

Sequence number: 4

Date: 1/31/2003 4:55:57 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per phy WG)

Table 34

The term << or odd mode, >> is not used anywhere else in this standard and should be deleted.

Page: 74

Sequence number: 5

Date: 1/31/2003 4:56:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

Table 34

The statement << rate (both up and down). >> should be << rate for both power on and power off conditions. >>

Page: 75

Sequence number: 1

Date: 1/20/2003 5:06:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.3.2 Delivered (receive) eye mask at IR, CR, and XR

The term << delivered (receive) >> should be changed to << receive >>

Page: 76

Sequence number: 1

Date: 1/20/2003 5:12:15 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.3.3 Jitter tolerance masks

In the statement starting with << However, the leading >> the << however >> seems odd. It's not clear as to where the << however >> is referring to. Either the sentence needs to move or the << however >> should be deleted. I think deletion is the right answer.

Page: 76

Sequence number: 2

Date: 1/31/2003 4:58:48 PM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG)

5.7.4 Transmitted signal characteristics

After the first usage of the statement << SATA 1.0 signal levels >> there needs to be a the << (see SATA) >> reference added.

Page: 77

Sequence number: 4

Date: 1/25/2003 11:22:27 AM -06'00'

Type: Highlight

ACCEPT - DONE (xref to 5.7.8)

5.7.5 Received signal characteristics

Table 35

There need to be a reference to were the << CJTPAT test pattern >> is.

Page: 77

Sequence number: 5

Date: 1/31/2003 4:59:26 PM -06'00'

Type: Highlight

REJECT (per phy WG reject IBM comment to split tables.)

5.7.5 Received signal characteristics

Table 36

This table should be broken into three tables with titles of:

<< Delivered signal characteristic at IR compliance points >>, << Delivered signal characteristic at CR compliance points >>, and  
<< Delivered signal characteristic at XR compliance points >>. Then the first column can be deleted and the table will not flow  
across multiple pages.

Page: 78

Sequence number: 2

Date: 2/21/2003 3:48:02 PM -06'00'

Type: Highlight

ACCEPT - DONE (per phy call 2/21)

5.7.5 Received signal characteristics

Table 36

The term << guaranteed >> should be deleted in all cases. Standards in general do not give guarantees. I do not believe anything  
would be lost if it is deleted.

Page: 80

Sequence number: 1

Date: 1/31/2003 5:01:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (Accept IBM comment. make the following changes:

Change section title to:

Compliant jitter test pattern (CJTPAT)

Change first sentence to:

The CJTPAT within a compliant protocol frame shall be used for all jitter testing unless otherwise specified.)

5.7.8 Jitter compliance test pattern (CJTPAT)

What the heck does CJPAT stand for: Jitter compliance test pattern or compliant protocol frame? It appears to be defined as both  
here. This needs to be resolved.

Page: 81

Sequence number: 1

Date: 3/4/2003 6:17:59 PM -06'00'

Type: Highlight

ACCEPT - DONE (added space to table cells)

5.7.9 Impedance specifications

Table 39

The formatting of table 39 needs work. The super-script is running into the double lines.

Page: 81

Sequence number: 2

Date: 1/31/2003 5:04:32 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.9 Impedance specifications

Table 39

The last sentence of the footnotes does not have a period.

Page: 81

Sequence number: 3

Date: 1/31/2003 5:04:09 PM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG, with tweaks. Add the following definition:

Media: A term referring to particular elements comprising the interconnect including copper cables, pc boards, or other transmission line materials.)

5.7.9 Impedance specifications

Table 39

The term << media >> is not defined. This needs to be added to the glossary.

Page: 82

Sequence number: 5

Date: 1/20/2003 5:31:05 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.11 Transmitter characteristics

global

The term << A. C. >> needs to be changed to <<A.C.>> in all cases.

Page: 82

Sequence number: 6

Date: 1/31/2003 5:35:47 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.11 Transmitter characteristics

global

The term << D. C. >> needs to be changed to <<D.C.>> in all cases.

Page: 82

Sequence number: 7

Date: 1/31/2003 5:35:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.11 Transmitter characteristics

global

There should be no << etc. >> at the end of an e.g. list. The ect is implied in all e.g. lists and is therefore not needed.

Page: 82

Sequence number: 8

Date: 1/20/2003 5:35:34 PM -06'00'

Type: Highlight

ACCEPT - DONE (f is the signal frequency in hertz.)

5.7.11 Transmitter characteristics

In the equation for S21 it is not clear what << f >> is. There needs to be a << Where: >> after the equation that describes << f >>.

Page: 82

Sequence number: 9

Date: 1/20/2003 5:38:27 PM -06'00'

Type: Highlight

REJECT (per phy WG, "a" intentionally left out as inclusion of it implies a single measurement. Multiple measurements)

#### 5.7.11 Transmitter characteristics

The statement << determined by measurement made >> seems to be missing a word. I think it should be << determined by a measurement made >>.

Page: 86

Sequence number: 10

Date: 2/6/2003 11:16:16 AM -06'00'

Type: Highlight

REJECT (but moved column to the right. Shows the differences between SAS and SATA primitives.)

6.2.1 Encoding overview

Table 40

The << Usage in SATA >> column should be deleted. As most there could be a footnote stating << For the SATA usage of K28.3 and K28.5 characters see SATA. >>

Page: 88

Sequence number: 2

Date: 1/24/2003 12:15:55 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted parens altogether)

6.3.2 Transmission order

The statement << (SOF delimiter) >> is not complete in SAS because we use other delimiters. It should be change to << (e.g., SOF delimiter) >>.

Page: 88

Sequence number: 3

Date: 1/24/2003 12:15:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted parens altogether)

6.3.2 Transmission order

The statement << (EOF delimiter) >> is not complete in SAS because we use other delimiters. It should be change to << (e.g., EOF delimiter) >>.

Page: 88

Sequence number: 4

Date: 1/24/2003 12:10:58 PM -06'00'

Type: Highlight

REJECT - this seems like a truly parenthetical expression to me. It's not crucial to the sentence but is pointing out that the characters might be the same.

6.3.3.1 Definitions

The statement << two (not necessarily different) transmission >> should be change to << two, not necessarily different, transmission >>.

Page: 88

Sequence number: 5

Date: 1/24/2003 12:12:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.3.3.1 Definitions

The term << Current RD >> should not be capitalized. Change to << current RD >>.

Page: 88

Sequence number: 6

Date: 1/24/2003 12:11:40 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.3.3.1 Definitions

The term << Current RD >> should not be capitalized. Change to << current RD >>.

Page: 92

Sequence number: 1

Date: 1/24/2003 12:19:18 PM -06'00'

Type: Highlight

ACCEPT - DONE (table 43 or table 44)

6.3.3.2 Generating transmission characters

In the statement << the table shall be found >> what table is being referred to? I don't know and this needs to be fixed.

Page: 93

Sequence number: 2

Date: 1/24/2003 12:19:40 PM -06'00'

Type: Circle

ACCEPT - DONE

6.4 Bit order

Figure 44

The << 16 >> at the top needs to be fixed.

Page: 95

Sequence number: 1

Date: 1/8/2003 1:53:56 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 Out of band (OOB) signals

\*\*\*\*

The term << UI >> is used throughout this section with a different meaning than in all section up to this point. In this section it is assumed to be a fixed value while in all other sections it assumed to be a value the is related to the data rate of the bus. This inconsistency cannot be allowed. The thing that is called UI in this section needs to be renamed. I like OOBI. Out Of Band Interval. This would then be defined as the G1 UI.

Page: 95

Sequence number: 2

Date: 1/8/2003 1:56:15 PM -06'00'

Type: Strikeout

REJECT (now that we're not using the SATA UI(OOB) term, this note serves to relate OOBI to UI(OOB) in SATA.)

Table 46

This statement << UI(OOB) is different than that defined in SATA; SAS has tighter clock tolerance. >> is meaningless in this standard as there are lots of differences between SAS and SATA.

Page: 97

Sequence number: 5

Date: 1/8/2003 2:08:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 Out of band (OOB) signals

The statement << Figure 47 describes SAS OOB signal detection by the SP receiver. >> needs a cross-reference to the SP receiver section which 6.7.

Page: 97

Sequence number: 6

Date: 2/9/2003 5:36:42 PM -06'00'

Type: Note

ACCEPT - DONE (track with Mark Evans' comment)

6.5 Out of band (OOB) signals

Here's another one of those chopped sentences that occur because of the anchor placement.

Page: 97

Sequence number: 7

Date: 3/5/2003 4:14:29 PM -06'00'

Type: Note

ACCEPT - DONE (made at least one pass reviewing the tables and applying a common table format with more cell spacing.)

Tables

Global

Many of the table have spacing between the double line borders and the text that is too close. This needs to be fixed on all tables.

Page: 99

Sequence number: 1

Date: 2/16/2003 10:02:19 AM -06'00'

Type: Highlight

REJECT (it is most useful in context, which is here.)

6.6.2 SATA phy reset sequence (informative)

This entire section should be deleted as it only described SATA functionality that is a duplicate of what is defined in the SATA document. If not deleted then it should be moved to a informative annex.

Page: 99

Sequence number: 2

Date: 1/8/2003 2:55:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.3 SAS to SATA phy reset sequence

The statement << in response to a COMINT, >> should be << in response to receiving a COMINIT, >>.

Page: 100

Sequence number: 5

Date: 1/8/2003 3:02:42 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 50

The << Time z >> and it's definition are not lined up.

Page: 102

Sequence number: 4

Date: 1/8/2003 5:42:21 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.1 SAS OOB sequence

The statement <<phy A starting the SAS OOB sequence before, after, or at the same time as SAS phy. >> should be << phy A starting the SAS OOB sequence before, after, or at the same time as SAS phy B. >>.

Page: 103

Sequence number: 1

Date: 2/16/2003 10:02:42 AM -06'00'

Type: Strikeout

REJECT (highlights an important difference)

6.6.4.2 SAS speed negotiation sequence

The statement << like the SATA speed negotiation sequence. >> is not relevant to this standard and should be deleted.

Page: 103

Sequence number: 2

Date: 1/8/2003 5:52:36 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.6.4.2 SAS speed negotiation sequence

The SNLT is defined elsewhere so there is not need for the statement << a subset of the SNTT used by the receiver. >> which is more confusing than helpful. Delete it.

Page: 104

Sequence number: 4

Date: 1/24/2003 2:46:14 PM -06'00'

Type: Highlight

ACCEPT - DONE (who cares if an initiator takes longer? An attached device unless it tries. There should be a requirement on expanders. We might place a requirement on targets. Even then, the initiator's own polls will find a hot-plugged target quickly as it deserves. This value is here just to indicate that some attempt should be made again if nothing is detected.

Changing to:

initiator max - no (initiator can wait as long as it wants)

initiator min - yes (for EMI)

expander max - yes (so initiators are assured of seeing targets quickly)

expander min - yes (for EMI)

target max - no

target min - yes (for EMI)

drop nominal time

only applies to enabled phys (see SMP PHY CONTROL)

(original comment:)

Table 49

The hot-plug time out should be a requirement not a option. The <<should>> should be changed to a << shall >>

Page: 104

Sequence number: 5

Date: 1/8/2003 1:57:22 PM -06'00'

Type: Strikeout

ACCEPT - DONE (deleted note a as it is not used)

Table 49

This statement << UI(OOB) is different than that defined in SATA; SAS has tighter clock tolerance. >> is meaningless in this standard as there are lots of differences between SAS and SATA.

Page: 104

Sequence number: 6

Date: 1/14/2003 8:52:33 PM -06'00'

Type: Note

REJECT (the WG repeatedly requested overall text rules here so the state machine doesn't have to be thought-simulated to figure

out the resulting rules. That's what this section does.)

#### 6.6.4.2 SAS speed negotiation sequence

\*\*\*\*

Much of the information in this section after table 49 is an exact duplicate of the information provided in the SAS speed negotiation states sections. It is not a good idea to have the same thing defined in two places in the standard. I suggest that the duplicate information in this section be placed in annex B.

Page: 105

Sequence number: 1

Date: 1/8/2003 6:10:42 PM -06'00'

Type: Highlight

ACCEPT - DONE (it's not an "in other words" sentence. However, an ordered list works much better. Also tossed the "valid" and "invalid" wording. Also changed annex B examples like this.)

#### 6.6.4.2 SAS speed negotiation sequence

The statement << (supported by phy A but not by phy B, so invalid), >> should be << (i.e., supported by phy A but not by phy B, so invalid), >>

Page: 105

Sequence number: 2

Date: 1/8/2003 6:12:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (it's not an "in other words" sentence. However, an ordered list works much better. Also tossed the "valid" and "invalid" wording. Also changed annex B examples like this.)

#### 6.6.4.2 SAS speed negotiation sequence

The statement << (supported by phy A but not by phy B, so invalid), >> should be << (i.e., supported by phy A but not by phy B, so invalid), >>

Page: 106

Sequence number: 4

Date: 1/24/2003 3:50:22 PM -06'00'

Type: Highlight

REJECT (only required for expander phys)

#### 6.6.5 Phy reset sequence after device is attached

The transmission of COMINIT should be a requirement not a option. The <<should>> should be changed to a << shall >>

Page: 108

Sequence number: 1

Date: 1/24/2003 6:18:28 PM -06'00'

Type: Highlight

REJECT (SATA used Await. English rules would replace Await with WaitFor, not just Wait)

#### 6.8 SAS phy (SP) state machine (global)

All the states that have << Await >> in the title should be change to << Wait >>.

Page: 108

Sequence number: 2

Date: 1/8/2003 6:30:19 PM -06'00'

Type: Strikeout

REJECT (allow that rule to be violated in introductions... note this one even has an e.g. about the source)

#### 6.8.1 Overview

The statement << from the management layer >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 109

Sequence number: 5

Date: 1/10/2003 2:36:41 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 6.8.2.1.1 State description

The statement << This state shall send a Transmit COMINIT parameter to the SP transmitter and wait for COMINIT to be transmitted and/or received.>> should be << Upon entry into this state, this state shall:

- a) request a COMINIT be transmitted by sending a Transmit COMINIT parameter to the SP transmitter then wait for the receipt of a COMINIT Transmitted parameter and/or a COMINIT Detected parameter; and
- b) send a PhyNotReady parameter to the SP\_DWS state machine. >>

Page: 109

Sequence number: 6

Date: 1/10/2003 11:20:56 AM -06'00'

Type: Highlight

ACCEPT - DONE (it doesn't wait at all; changed "and does not receive" to "and has not received" so it doesn't imply waiting might

occur)

#### 6.8.2.1 SP1:OOB\_COMINIT state

There is a problem with this state in that there is not indication as to the timing relationship between the receipt of COMINIT Transmitted and COMINIT Detected. This does not allow one to pick out which one of the three transitions to make. For example a COMINIT transmitted is received so how long does the state wait before determining that no COMINIT detected is going to occur? Or the reverse? This needs to be fixed.

Page: 109

Sequence number: 7

Date: 3/5/2003 4:15:08 PM -06'00'

Type: Circle

REJECT (but in the SL\_IR picture put arrows into each state machine, and put the orange cutouts in all the figures)

Figure 56

The statement << (to all states in the SP state machine causing transition to SP1:OOB\_COMINIT) >> should be changed to << causes all states to transition to SP1:OOB\_COMINIT) >>

Page: 109

Sequence number: 8

Date: 1/24/2003 6:19:59 PM -06'00'

Type: Circle

REJECT (per Jan WG)

Figure 56

The labels on the state transitions should be deleted and they don't necessarily give the complete reason for the transition.

Page: 110

Sequence number: 3

Date: 2/21/2003 2:59:05 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 6.8.2.3.1 State description

The statement << This state is entered when a COMINIT sequence has been detected but the COMINIT initiated in SP1:OOB\_COMINIT has not been completely transmitted. >> should be deleted as we do not describe entry conditions only exit conditions.

Page: 110

Sequence number: 4

Date: 2/21/2003 2:58:50 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 6.8.2.4.1 State description

The statement << This state is reached when a COMINIT has been transmitted and detected.>> should be deleted as we do not describe entry conditions only exit conditions.

Page: 110

Sequence number: 5

Date: 1/10/2003 2:42:27 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 6.8.2.4.1 State description

The statement << This state shall send a Transmit COMSAS parameter to the SP transmitter and wait for COMSAS to be transmitted and/or detected.>> should be << Upon entry into this state, this state shall request a COMSAS be transmitted by sending a Transmit COMSAS parameter to the SP transmitter then wait for the receipt of a COMSAS Transmitted parameter and/or a COMSAS Detected parameter. >>

Page: 110

Sequence number: 6

Date: 1/10/2003 5:09:58 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed "does not receive" to "has not received" to avoid any implication of waiting)

#### 6.8.2.4 SP4:OOB\_COMSAS state

There is a problem with this state in that there is not indication as to the timing relationship between the receipt of COMSAS Transmitted and COMSAS Detected. This does not allow one to pick out which one of the three transitions to make. For example a COMSAS Detected is received so how long does the state wait before determining that no COMSAS Transmitted is going to occur? The reverse? This needs to be fixed.

Page: 110

Sequence number: 7

Date: 1/10/2003 2:37:38 PM -06'00'

Type: Highlight



ACCEPT - DONE

6.8.2.3.1 State description

The statement << This state waits for COMINIT to be transmitted. >> should be << This state waits for receipt of a COMINIT Transmitted parameter. >>

Page: 111

Sequence number: 2

Date: 2/9/2003 5:44:32 PM -06'00'

Type: Strikeout

REJECT (useful as an overview)

6.8.2.6.1 State description

The statement << This state is entered when a COMSAS sequence has been both transmitted and detected. >> should be deleted as we do not describe entry conditions only exit conditions.

Page: 111

Sequence number: 3

Date: 2/4/2003 7:10:25 PM -06'00'

Type: Highlight

REJECT (but changed to "initialized and started")

6.8.2.7.1 State description

The statement << time out timer shall be initialized and enabled. >> should be << time out timer shall be set to it's initial value and enabled. >>

Page: 111

Sequence number: 4

Date: 1/24/2003 6:24:52 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved the NOTE into an i.e.; split item d) into two)

6.8.2.7.2 Transition SP7:OOB\_AwaitCOMSAS to SP1:OOB\_COMINIT

The statements << If all of these conditions are true: ... this state shall send a Broadcast Event Notify (SATA Spinup Hold) confirmation to the expander function and perform this transition.

NOTE 11 In other words, SMP PHY CONTROL-based requests to reset the phy bypass spinup hold; all other resets honor it. >> should be changed to

<<This state shall send a Broadcast Event Notify (SATA Spinup Hold) confirmation to the expander function if: .... >> This deletes the note.

Page: 113

Sequence number: 3

Date: 1/10/2003 5:15:33 PM -06'00'

Type: Highlight

ACCEPT - DONE

Figure 57

The term << window >> in 2 places should be << rate >>.

Page: 113

Sequence number: 4

Date: 1/10/2003 5:15:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (made a little shorter)

Figure 57

The << ALIGN1 Detected >> going into SP11 looks like it is coming from SP10.

Page: 113

Sequence number: 5

Date: 1/24/2003 6:30:17 PM -06'00'

Type: Circle

REJECT (per Jan WG)

Figure 57

The labels on the state transitions should be deleted and they don't necessarily give the complete reason for the transition.

Page: 114

Sequence number: 4

Date: 2/21/2003 2:47:20 PM -06'00'

Type: Strikeout

REJECT (it is not stated anywhere else)

6.8.3.1.1 State description

The following statement should be deleted as the information stated is already stated elsewhere << This allows time required for a transmitter to switch to either the next higher or next lower supported speed. >>

Page: 114

Sequence number: 5

Date: 2/21/2003 2:47:45 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.1.1 State description

The following statement << This state marks the beginning of the SAS speed negotiation process. >> should be << This is the initial state of the SAS speed negotiation >>.

Page: 114

Sequence number: 6

Date: 2/21/2003 2:48:05 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.8.3.1.1 State description

The following statement should be deleted as the same information is duplicated in the last sentence of this section << It is used to transmit idle in between SAS speed negotiation windows. >>.

Page: 114

Sequence number: 7

Date: 2/4/2003 7:11:25 PM -06'00'

Type: Highlight

REJECT (this is the selected timer terminology)

6.8.3.1.1 State description

The statement <<... RCD timer shall be initialized and >> should be << ... RCD timer shall be set to it's initial value and enabled..>>.

Page: 114

Sequence number: 8

Date: 1/10/2003 10:44:47 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.1.2 Transition SP8:SAS\_Start to SP10:SAS\_AwaitALIGN

The statement << speed negotiation window is supported. >> should be << speed negotiation rate is supported. >> It's not the window that's supported or not supported but the link rate for that window.

Page: 114

Sequence number: 9

Date: 1/10/2003 10:44:53 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.1.3 Transition SP8:SAS\_Start to SP9:SAS\_RateNotSupported

The statement << speed negotiation window is not supported. >> should be << speed negotiation rate is not supported. >> It's not the window that's supported or not supported but the link rate for that window.

Page: 114

Sequence number: 10

Date: 2/21/2003 2:50:06 PM -06'00'

Type: Square

ACCEPT - DONE (using new timer convention and keeping the selecting... text)

6.8.3.1.1 State description

This should be an a.b.c list like this:

Upon entering this state, this state shall:

- a) set the RCD timer to it's initial value;
- b) enable the RCD timer; and
- c) send the Set Rate parameter to the SP transmitter to select the next negotiated rate.

Page: 114

Sequence number: 11

Date: 2/16/2003 10:11:28 AM -06'00'

Type: Highlight

REJECT (this is DC idle not idle dwords)

6.8.3.1.1 State description

The statement << During this state idle shall be transmitted. >> should be changed to << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the SP transmitter (see 7.3). >>

Page: 114

Sequence number: 12

Date: 2/21/2003 2:50:20 PM -06'00'

Type: Highlight

REJECT (it's DC idle not idle dwords)

6.8.3.2.1 State description

The statement << During this state idle shall be transmitted. >> should be changed to << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the SP transmitter (see 7.3). >>

Page: 114

Sequence number: 13

Date: 2/4/2003 7:10:58 PM -06'00'

Type: Highlight

REJECT (but changed to "initialized and started")

The statement << SNTT timer shall be initialized and enabled. >> should be << SNTT timer shall be set to it's initial value and enabled. >>

Page: 114

Sequence number: 14

Date: 1/25/2003 4:44:32 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.8.3.2.1 State description

This statement adds nothing but confusion and should be deleted << The state machine exits from this state after the SNTT expires.>>

Page: 114

Sequence number: 15

Date: 1/10/2003 10:44:05 AM -06'00'

Type: Highlight

ACCEPT - DONE (after ..expires if...)

6.8.3.1.2 Transition SP8:SAS\_Start to SP10:SAS\_AwaitALIGN

The statement << occur if the RCD timer expires and the current >> should be << occur after the RCD timer expires if the current >>. The timer will always time out.

Page: 114

Sequence number: 16

Date: 1/10/2003 10:44:10 AM -06'00'

Type: Highlight

ACCEPT - DONE (after ..expires if...)

6.8.3.1.3 Transition SP8:SAS\_Start to SP9:SAS\_RateNotSupported

The statement << occur if the RCD timer expires and the current >> should be << occur after the RCD timer expires if the current >>. The timer will always time out.

Page: 114

Sequence number: 17

Date: 1/10/2003 10:45:58 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.2.2 Transition SP9:SAS\_RateNotSupported to SP14:SAS\_Fail

The statement << if the >> should be <<after the >> as the timer will always time out.

Page: 114

Sequence number: 18

Date: 2/21/2003 2:43:12 PM -06'00'

Type: Square

ACCEPT - DONE (not as an a)b) list but use the parameter name and preface with Upon entering)

6.8.3.3.1 State description

The following should be made into an a,b,c list << The state machine shall start transmitting ALIGN (0) primitives at the current rate (G1, G2, G3...).

Upon entering this state, the SNTT timer and SNLT timer shall be initialized and enabled. >> as follows:

<< Upon entering this state, this state shall:

a) request ALIGN (0) be transmitted at the current rate (e.g., G1, G2, G3) by repeatedly sending a Transmit ALIGN0 parameter to the SP transmitter; and

b) the SNTT timer and SNLT timer shall be set to their initial value and enabled. >>.

Page: 114

Sequence number: 19

Date: 2/21/2003 2:43:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (delete whole sentence)

6.8.3.3.1 State description

The statement << synchronization occurs before >> should be changed to << synchronization (i.e., ALIGN0 Detected parameter or ALIGN1 Detected parameter received) occurs before >>.

Page: 114

Sequence number: 20

Date: 2/21/2003 2:44:26 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.1.1 State description

The statement << speed negotiation window received as an argument.>> should be changed to << SAS Speed Negotiation Window Rate argument. >>

Page: 115

Sequence number: 6

Date: 2/21/2003 2:57:41 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.8.3.4.1 State description

The statement << This state is reached after ALIGN (0) has been both transmitted and received. >> should be deleted as we do not describe entry conditions only exit conditions.

Page: 115

Sequence number: 7

Date: 2/21/2003 2:52:18 PM -06'00'

Type: Highlight

REJECT (unnecessary verbage, and says the wrong kind of ALIGN too)

6.8.3.4.1 State description

The following statement << This state shall repeatedly send a Transmit ALIGN0 parameter to the SP transmitter.>> should be <<This state shall request ALIGN (0) be transmitted at the current rate (e.g., G1, G2, G3) by repeatedly sending a Transmit ALIGN0 parameter to the SP transmitter. >>

Page: 115

Sequence number: 8

Date: 1/25/2003 4:47:57 PM -06'00'

Type: Highlight

REJECT (rewording implies an omniscent state. This state can only based decisions on its inputs.)

6.8.3.4.2 Transition SP11:SAS\_AwaitALIGN1 to SP14:SAS\_Fail

The following statement << This transition shall occur if the SNTT timer expires. This indicates that the other phy has not been able to lock at the current rate. >> should be <<This transition shall occur if the other phy has not locked at the current rate and the SNTT timer times-out. >>

Page: 115

Sequence number: 9

Date: 1/25/2003 4:46:51 PM -06'00'

Type: Highlight

REJECT (this state can only respond to its input signals, not to the state of some other phy.)

6.8.3.4.3 Transition SP11:SAS\_AwaitALIGN1 to SP14:SAS\_AwaitSNW

The statement <<This transition shall occur if this state receives an ALIGN1 Detected parameter before the SNTT timer expires. This indicates that the other phy has been able to lock at the current rate. >> should be changed to << This transition shall occur if the other phy has locked (i.e., ALIGN1 Detected parameter received before the SNTT timer expires). >>

Page: 115

Sequence number: 10

Date: 2/21/2003 3:00:16 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.8.3.5.1 State description

The statement << This state is reached after ALIGN (1) has been both transmitted and received. >> should be deleted as we do not describe entry conditions only exit conditions.

Page: 115

Sequence number: 11

Date: 2/21/2003 2:54:14 PM -06'00'

Type: Highlight

REJECT (unnecessarily verbose)

6.8.3.5.1 State description

The following statement << This state shall repeatedly send a Transmit ALIGN1 parameter to the SP transmitter.>> should be <<This state shall request ALIGN (1) be transmitted at the current rate (e.g., G1, G2, G3) by repeatedly sending a Transmit ALIGN1 parameter to the SP transmitter.>>.

Page: 115

Sequence number: 12

Date: 1/10/2003 10:46:42 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.5.2 Transition SP12:SAS\_AwaitALIGN1 to SP13:SAS\_Pass

The statement << if the >> should be << after the >>.

Page: 115

Sequence number: 13

Date: 2/21/2003 2:56:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.6.2 Transition SP13:SAS\_Pass to SP8:SAS\_Start

The statement << which is sent as an argument to the SN\_start state>> should be moved to the end of the section and restated as <<This transition shall pass a SAS Speed Negotiation Window Rate argument to the SN\_start state. >>.

Page: 116

Sequence number: 2

Date: 2/21/2003 3:05:14 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.7.3 Transition SP14:SAS\_Fail to SP8:SAS\_Start

The statement << Which speed negotiation window to use is sent as an argument with this transition. >> should be changed to <<This transition shall pass which speed negotiation window to use in the SAS Speed Negotiation Window Rate argument to the SN\_start state. >>.

Page: 116

Sequence number: 3

Date: 3/8/2003 12:30:08 PM -06'00'

Type: Strikeout

ACCEPT - DONE (editors note incorporation eliminated this sentence)

6.8.3.8.1 State description

The following << to provide rule checking for dword synchronization and determination of link failure. >> should be deleted as the information is already in the DWS section. A reference to DWS would be OK.

Page: 116

Sequence number: 4

Date: 2/21/2003 4:38:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.8.1 State description

The statement << the receipt of a COMINIT; >> should be << the receipt of a COMINIT Detected parameter >>.

Page: 116

Sequence number: 5

Date: 2/21/2003 4:39:19 PM -06'00'

Type: Strikeout

ACCEPT - DONE

6.8.3.8.1 State description

The statement << While in this state, dwords from the link layer are transmitted at the negotiated physical link rate >> should be deleted as it is stated 2 times in this section.

Page: 116

Sequence number: 6

Date: 2/21/2003 4:38:52 PM -06'00'

Type: Strikeout

REJECT (this is special)

6.8.3.8.1 State description

The statement << from the link layer >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 117

Sequence number: 1

Date: 1/10/2003 10:55:14 AM -06'00'

Type: Highlight

REJECT (but changed it to "if ...this state receives" to match other text)

6.8.3.8.2 Transition SP15:SAS\_PHY\_Ready to SP1:OOB\_COMINIT

The statement << occur if: >> should be << occur after >>.

Page: 117

Sequence number: 2

Date: 2/5/2003 10:03:07 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4 SATA host emulation states

The statement << the SAS device (an initiator device or expander device) has >> should be << a SAS initiator device or an expander device has >>.

Page: 117

Sequence number: 3

Date: 2/16/2003 10:12:58 AM -06'00'

Type: Strikeout

REJECT (it's a good overview of what these states do)

6.8.4 SATA host emulation states

The statement << During SATA host emulation, the SAS device transmits a COMWAKE sequence and then waits to receive a COMWAKE. Once the COMWAKE sequence is detected, the SAS device follows the speed negotiation sequence defined in SATA. >> should be deleted as the information in this statement is duplicate information.

Page: 118

Sequence number: 5

Date: 2/4/2003 6:46:17 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 58

The COMWAKE Transmitted parameter is missing as a input to SP16.

Page: 118

Sequence number: 6

Date: 2/4/2003 6:49:18 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 58

The COMWAKE Detected parameter is missing as a input to SP17.

Page: 118

Sequence number: 7

Date: 2/4/2003 6:49:25 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 58

The COMWAKE Completed parameter is missing as a input to SP18.

Page: 118

Sequence number: 8

Date: 1/24/2003 6:31:38 PM -06'00'

Type: Circle

REJECT (per Jan WG)

Figure 58

The labels on the state transitions should be deleted and they don't necessarily give the complete reason for the transition.

Page: 119

Sequence number: 3

Date: 2/21/2003 4:40:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.2.2 Transition SP17:SATA\_AwaitCOMWAKE to SP18:SATA\_AawitNoCOMWAKE

There is a typo in the SP18 state name. It should be SATA\_AwaitNoCOMWAKE.

Page: 119

Sequence number: 4

Date: 2/21/2003 4:40:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (but COMWAKE Transmitted not COMWAKE Completed)

6.8.4.1.1 State description

The statement << wait for COMWAKE to be transmitted. >> should be changed to << wait for a COMWAKE Completed parameter to be received. >>.

Page: 119

Sequence number: 5

Date: 2/21/2003 4:41:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.3.1 State description

The statement << This state waits for COMWAKE to be fully received. >> should be << This state waits for a COMWAKE Completed parameter to be received. >>

Page: 119

Sequence number: 6

Date: 2/21/2003 4:41:36 PM -06'00'

Type: Highlight

REJECT (unnecessarily verbose)

6.8.4.4.1 State description

The statement << repeatedly send a Transmit D10.2 parameter to the SP transmitter; >> should be <<request D10.2s be transmitted by repeatedly sending a Transmit D10.2 parameter to the SP transmitter. >>

Page: 119

Sequence number: 7

Date: 2/4/2003 7:14:01 PM -06'00'

Type: Highlight

REJECT (but changed to "initialized and start")

6.8.4.4.1 State description

The statement << start the ALIGN detect time out timer; >> should be << set the ALIGN detect timer to it's initial value and enabled it; >>

Page: 119

Sequence number: 8

Date: 2/21/2003 4:41:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.4.1 State description

The statement <<ALIGN to be received or an ALIGN detect time out. >> should be << ALIGN0 Received parameter to be received or an ALIGN detect time out to occur. >>

Page: 119

Sequence number: 9

Date: 3/4/2003 6:36:51 PM -06'00'

Type: Strikeout

ACCEPT - DONE (is it based on receiving COMWAKE or transmitting it? SATA uses "after detecting the release of" which indicates COMWAKE Completed is intended - i.e. entry into this state..)

6.8.4.4.1 State description

The statement << The SAS device shall start transmitting D10.2 characters no later than 20 G1 dwords (i.e., 533 ns) after COMWAKE was deasserted. >> should be deleted as it makes no sense here. It appears to be more of a transmitter requirement rather than a requirement of this state. Also COMWAKE is not something that can be deasserted it is a sequence of signals.

Page: 119

Sequence number: 10

Date: 2/21/2003 4:46:39 PM -06'00'

Type: Strikeout

ACCEPT - DONE (reworded. In SATA speed negotiation, the ALIGNs can come in at any link rate; this phy doesn't know what rate to expect at this time. Added sentence "...the ALIGN(0) was received at any of the physical link rates supported by this phy." Added sentence to SP receiver section that that argument is provided for SATA speed negotiation.)

6.8.4.4.2 Transition SP19:SATA\_AwaitALIGN to SP20:SATA\_AdjustSpeed

The statement << at any of its supported physical link rates. >> should be deleted as it makes no sense here.

Page: 119

Sequence number: 11

Date: 2/4/2003 7:15:18 PM -06'00'

Type: Highlight

REJECT (unnecessarily verbose)

6.8.4.5.1 State description

The statement << This state shall repeatedly send Transmit D10.2 parameters to the SP transmitter >> should be <<This state

shall request D10.2s be transmitted by repeatedly sending a Transmit D10.2 parameter to the SP transmitter >>

Page: 120

Sequence number: 7

Date: 1/10/2003 10:50:49 AM -06'00'

Type: Highlight

ACCEPT - DONE (but left in "this state")

6.8.4.5.2 Transition SP20:SATA\_AdjustSpeed to SP21:SATA\_TransmitALIGN

This statement << when this state receives a Transmitter Ready parameter. >> should be <<after receiving a Transmitter Ready parameter. >>.

Page: 120

Sequence number: 8

Date: 2/21/2003 6:46:21 PM -06'00'

Type: Highlight

REJECT (unnecessarily verbose)

6.8.4.6.1 State description

The statement << This state shall repeatedly send the Transmit ALIGN0s parameter to the SP transmitter. >> should be << This state shall request ALIGN0s be transmitted by repeatedly sending a Transmit ALIGN0 parameter to the SP transmitter. >>

Page: 120

Sequence number: 9

Date: 2/21/2003 6:45:24 PM -06'00'

Type: Strikeout

ACCEPT - DONE (added a Dword Received parameter to the SP receiver, and changed the transition to "after this state receives three consecutive Dword Received parameters with dwords other than ALIGN(0).")

6.8.4.6.1 State description

The statement << When the SP receiver detects three back-to-back non-ALIGNs, the state machine transitions to state SP22:SATA\_PHY\_Ready. >> should be deleted as all the information is in the transition description.

Page: 120

Sequence number: 10

Date: 1/10/2003 10:55:44 AM -06'00'

Type: Highlight

REJECT (that doesn't follow the convention)

6.8.4.7.4 Transition SP22:SATA\_PHY\_Ready to SP23:SATA\_PM\_Slumber

The statement << if this state receives an Enter Slumber request. >> should be << if an Enter Slumber request is received.>>.

Page: 120

Sequence number: 11

Date: 1/10/2003 10:55:38 AM -06'00'

Type: Highlight

REJECT (that doesn't follow the convention)

6.8.4.7.4 Transition SP22:SATA\_PHY\_Ready to SP23:SATA\_PM\_Slumber

The statement << if this state receives an Enter Partial request. >> should be << if an Enter Partial request is received.>>

Page: 120

Sequence number: 12

Date: 2/4/2003 7:05:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to OOB\_COMINIT proper state number)

6.8.4.7.2 Transition SP22:SATA\_PHY\_Ready to SP1:Reset

In figure 58 this transition goes to SP1:OOB\_COMMINIT but here it goes to SP1:Reset . Only one is correct. This needs to be fixed.

Page: 120

Sequence number: 13

Date: 2/21/2003 6:49:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed COMINIT Received to COMINIT Detected. Added it and DWS Reset to the figure.)

6.8.4.7.2 Transition SP22:SATA\_PHY\_Ready to SP1:Reset

The statement << This transition shall occur if this state receives a COMINIT Received parameter or a DWS Reset parameter. >> makes no sense as there is not COMINIT Received or DWS Reset in figure 58. So it is not clear what causes this transition.

Page: 120

Sequence number: 14

Date: 2/21/2003 6:52:19 PM -06'00'

Type: Highlight

REJECT

6.8.4.7.1 State description



The statement << This state shall send a PhyReady (SATA) parameter to the SP\_DWS state machine. >> should be  
Upon entering this state, this state shall send a PhyReady (SATA) parameter to the SP\_DWS state machine. >>.

Page: 120

Sequence number: 15

Date: 2/21/2003 6:52:09 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded to match SAS\_PHY\_Ready)

6.8.4.7.1 State description

The statement << In this state, the SP state machine hands control over dword transmission to the SP\_DWS state machine. The SP receiver monitors the input dword stream looking for COMINIT. >>

should be

<< This state sends RhyReady (SATA) parameter to the SP\_DWS state machine to enable it. >> If this state needs to take some action if a COMINIT detected or complete happens then there needs to be a parameter input and a description as to what happens when the parameter is received.

Page: 120

Sequence number: 16

Date: 1/10/2003 10:55:53 AM -06'00'

Type: Highlight

REJECT (that doesn't follow the convention)

6.8.4.8.2 Transition SP23:SATA\_PM\_Partial to SP16:SATA\_COMWAKE

The statement << if this state receives a Exit Partial request. >> should be << if an Exit Partial request is received. >>

Page: 120

Sequence number: 17

Date: 1/10/2003 10:56:00 AM -06'00'

Type: Highlight

REJECT (that doesn't follow the convention)

6.8.4.8.3 Transition SP23:SATA\_PM\_Partial to SP18:SATA\_AwaitNoCOMWAKE

The statement << if this state receives a COMWAKE Detected parameter. >> should be << if a COMWAKE Detected parameter is received. >>.

Page: 120

Sequence number: 18

Date: 2/21/2003 6:41:23 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.8.1 State description

The statement << Exit from this state is driven from receipt of COMWAKE or by request of the link layer. >> should be << This state waits for a COMWAKE Detected parameter or a Exit Partial parameter to be received. >>

Page: 120

Sequence number: 19

Date: 2/21/2003 6:41:15 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.9.1 State description

The statement << Exit from this state is driven from receipt of COMWAKE or by request of the link layer. >> should be << This state waits for a COMWAKE Detected parameter or a Exit Slumber parameter to be received. >>.

Page: 120

Sequence number: 20

Date: 1/10/2003 10:56:04 AM -06'00'

Type: Highlight

REJECT (that doesn't follow the convention)

6.8.4.9.2 Transition SP24:SATA\_PM\_Slumber to SP16:SATA\_COMWAKE

The statement << if this state receives a Exit Slumber request. >> should be << if an Exit Slumber request is received. >>

Page: 121

Sequence number: 2

Date: 2/4/2003 6:59:47 PM -06'00'

Type: Highlight

REJECT (may be a better convention, but not predominant for SAS-1)

6.8.4.9.3 Transition SP24:SATA\_PM\_Slumber to SP18:SATA\_AwaitNoCOMWAKE

The statement << if this state receives a COMWAKE Detected parameter. >> should be << if a COMWAKE Detected parameter is received. >>.

Page: 121

Sequence number: 3

Date: 1/9/2003 9:23:21 AM -06'00'

Type: Highlight

REJECT (they're sent/pushed here for action. received implies "pulled")

6.9.1 Overview

The statement << are sent to the SP\_DWS machine >> should be << are received by the SP\_DWS state machine >>.

Page: 121

Sequence number: 4

Date: 2/20/2003 9:30:24 AM -06'00'

Type: Circle

ACCEPT - DONE (item c) above should be "receiving Phy Not Ready" not PhyReady - that causes the state machine to start in DWS0)

6.9.1 Overview

There should be text here that states what happens when a PhyNotReady parameter is received.

Page: 121

Sequence number: 5

Date: 2/21/2003 6:36:50 PM -06'00'

Type: Note

ACCEPT - DONE (added green arrow and use parameter names throughout. Added to SP\_DWS receiver section).

6.9.1 Overview

It seems like there should a Dword Received parameter from the receiver that goes to all the states within this state machine. As a result there should be a green open arrow pointing to the edge of the SP\_DWS state machine. The following text should be added here: All the states within the SP\_DWS receive the Dword Receive parameter from the SP receiver.

Page: 121

Sequence number: 6

Date: 1/10/2003 10:59:22 AM -06'00'

Type: Strikeout

REJECT (that rule is not for introductions)

6.9.1 Overview

The statement << from the SP state machine. >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 121

Sequence number: 7

Date: 1/10/2003 10:59:27 AM -06'00'

Type: Strikeout

REJECT (that rule is not for introductions)

6.9.1 Overview

The statement << from the SP state machine: >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 122

Sequence number: 1

Date: 2/28/2003 9:59:49 AM -06'00'

Type: Circle

ACCEPT - DONE (cutout added, but to all states kept)

Figure 59

There needs to be a cut-out so the PhyNotReady arrow points to the SP\_DWS state machine. Also the text need not state that the parameter goes to all states. That is implied. The statement << (This parameter causes a transition to SP\_DW0:AcquireSync) >>.

Page: 122

Sequence number: 2

Date: 1/24/2003 6:31:59 PM -06'00'

Type: Circle

REJECT (per Jan WG)

Figure 59

The labels on the state transitions should be deleted and they don't necessarily give the complete reason for the transition.

Page: 123

Sequence number: 5

Date: 2/21/2003 6:16:36 PM -06'00'

Type: Strikeout

ACCEPT - DONE (reworded to just "this is the initial state of this state machine.)

6.9.2.1 State description

The statement << This state is entered upon power on loss or previous dword synchronization. >> should be deleted as we do not define entry conditions.

Page: 123

Sequence number: 6

Date: 2/21/2003 6:17:29 PM -06'00'

Type: Highlight

REJECT (no it just waits for the first Dword Received)

6.9.2.1 State description

The statement << In this state, the receiver monitors the input data stream >> should be << This state monitors the Dwords received in the Dword Received parameter >>.

Page: 123

Sequence number: 7

Date: 2/21/2003 6:17:59 PM -06'00'

Type: Highlight

ACCEPT - DONE (but moved to SP\_DWS receiver section)

6.9.2.1 State description

The statement << character it detects into the >> should be << character detected into the >>.

Page: 123

Sequence number: 8

Date: 2/21/2003 6:18:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.2.2 Transition SP\_DWS0:AcquireSync to SP\_DWS1:Valid1

The statement << is detected. >> should be << is received >>.

Page: 123

Sequence number: 9

Date: 1/10/2003 11:01:17 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.3.1 State description

The statement << This state is reached after one valid primitive has been detected. >> should be deleted as we do not describe entry conditions.

Page: 123

Sequence number: 10

Date: 1/10/2003 11:01:23 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.4.1 State description

The statement << This state is reached after the receiver has detected two valid primitives. >> should be deleted as we do not describe entry conditions.

Page: 123

Sequence number: 11

Date: 1/10/2003 11:01:30 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.5.1 State description

The statement << This state is reached when the receiver has detected three valid primitives without adjusting the dword synchronization. >> should be deleted as we do not describe entry conditions.

Page: 123

Sequence number: 12

Date: 2/21/2003 6:19:36 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

6.9.3.1 State description

The statement <<In this state, the receiver shall monitor the input data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 123

Sequence number: 13

Date: 2/21/2003 6:19:50 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

6.9.4.1 State description

The statement <<In this state, the receiver shall monitor the input data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 123

Sequence number: 14

Date: 2/21/2003 6:22:18 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

6.9.5.1 State description

The statement << In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 123

Sequence number: 15

Date: 2/21/2003 6:21:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.3.2 Transition SP\_DWS1:Valid1 to SP\_DWS2:Valid2

The statement << This transition shall occur when a valid primitive is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains a valid primitive. >>

Page: 123

Sequence number: 16

Date: 2/21/2003 6:20:29 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.4.2 Transition SP\_DWS2:Valid2 to SP\_DWS3:SyncAcquired

The statement << This transition shall occur when a valid primitive is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains a valid primitive. >>

Page: 123

Sequence number: 17

Date: 2/21/2003 6:20:48 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.4.3 Transition SP\_DWS2:Valid2 to SP\_DWS0:AcquireSync

The statement << This transition shall occur when a invalid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword.>>

Page: 123

Sequence number: 18

Date: 2/21/2003 6:24:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.5.2 Transition SP\_DWS3:SyncAcquired to SP\_DWS4:Lost1

The statement << This transition shall occur when an invalid dword (i.e., the first invalid dword) is detected.>> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword (i.e., the first invalid dword).>>

Page: 123

Sequence number: 19

Date: 2/28/2003 10:09:10 AM -06'00'

Type: Highlight

ACCEPT - DONE (move to XL state machine)

6.9.5.2 Transition SP\_DWS3:SyncAcquired to SP\_DWS4:Lost1

The statement << An expander forwarding the dword to another phy shall replace the invalid dword with ERROR for a SAS physical link or

SATA\_ERROR for a SATA physical link. >> seems out of place here. This should be defined in the expander information that describes the insertion of error primitives. As most there should be a reference to that information << For expander rules on invalid Dwords replacement see x.x.x. >>

Page: 124

Sequence number: 2

Date: 2/21/2003 6:25:57 PM -06'00'

Type: Strikeout

REJECT (explains what the state is)

6.9.6.1 State description

The statement << This state is reached when one invalid dword has been received and not nullified. >> should be deleted as we do not describe entry conditions.

Page: 124

Sequence number: 3

Date: 1/10/2003 11:01:41 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.7.1 State description

The statement << This state is reached when a valid dword has been received, and another valid dword will nullify the previous invalid dword. >> should be deleted as we do not describe entry conditions.

Page: 124

Sequence number: 4

Date: 1/10/2003 11:01:49 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.8.1 State description

The statement << This state is reached when two invalid dwords has been received and not nullified. >> should be deleted as we do not describe entry conditions.

Page: 124

Sequence number: 5

Date: 1/10/2003 11:01:54 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.9.1 State description

The statement << This state is reached when a valid dword has been received, and another valid dword will nullify the previous invalid dword. >> should be deleted as we do not describe entry conditions.

Page: 124

Sequence number: 6

Date: 1/10/2003 11:01:35 AM -06'00'

Type: Highlight

REJECT (it explains the state name and is not a set of entry equations)

6.9.6.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 124

Sequence number: 7

Date: 2/21/2003 6:28:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

6.9.7.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 124

Sequence number: 8

Date: 2/21/2003 6:28:41 PM -06'00'

Type: Highlight

ACCEPT - DONE (Reworded)

6.9.8.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 124

Sequence number: 9

Date: 2/21/2003 6:28:58 PM -06'00'

Type: Highlight

ACCEPT - DONE (Reworded)

6.9.9.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking>>

Page: 124

Sequence number: 10

Date: 2/21/2003 6:25:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.6.2 Transition SP\_DWS4:Lost1 to SP\_DWS5:Lost1Recovered

The statement << This transition shall occur when a valid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 124

Sequence number: 11

Date: 2/21/2003 6:26:42 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.7.2 Transition SP\_DWS5:Lost1Recovered to SP\_DWS3:SyncAcquired

The statement << This transition shall occur when a valid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 124

Sequence number: 12

Date: 2/21/2003 6:27:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.8.2 Transition SP\_DWS6:Lost2 to SP\_DWS7:Lost2Recovered

The statement << This transition shall occur when a valid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 124

Sequence number: 13

Date: 2/21/2003 6:28:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.6.3 Transition SP\_DWS4:Lost1 to SP\_DWS6:Lost2

The statement << This transition shall occur when an invalid dword is detected.>> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword.>>

Page: 124

Sequence number: 14

Date: 2/21/2003 6:29:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.7.3 Transition SP\_DWS5:Lost1Recovered to SP\_DWS6:Lost2

The statement << This transition shall occur when an invalid dword is detected.>> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword.>>

Page: 124

Sequence number: 15

Date: 2/21/2003 6:27:33 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.8.3 Transition SP\_DWS6:Lost2 to SP\_DWS8:Lost3

The statement << This transition shall occur when an invalid dword is detected.>> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword.>>

Page: 124

Sequence number: 16

Date: 2/28/2003 10:09:18 AM -06'00'

Type: Highlight

ACCEPT - DONE (move to XL state machine)

6.9.6.3 Transition SP\_DWS4:Lost1 to SP\_DWS6:Lost2

The statement << An expander forwarding the dword to another phy shall replace the invalid dword with ERROR for a SAS physical link or

SATA\_ERROR for a SATA physical link. >> seems out of place here. This should be defined in the expander information that describes the insertion of error primitives. As most there should be a reference to that information << For expander rules on invalid Dwords replacement see x.x.x. >>

Page: 124

Sequence number: 17

Date: 2/28/2003 10:09:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (move to XL state machine)

6.9.7.3 Transition SP\_DWS5:Lost1Recovered to SP\_DWS6:Lost2

The statement << An expander forwarding the dword to another phy shall replace the invalid dword with ERROR for a SAS physical link or

SATA\_ERROR for a SATA physical link. >> seems out of place here. This should be defined in the expander information that describes the insertion of error primitives. As most there should be a reference to that information << For expander rules on invalid Dwords replacement see x.x.x. >>

Page: 124

Sequence number: 18

Date: 2/28/2003 10:09:30 AM -06'00'

Type: Highlight

ACCEPT - DONE (move to XL state machine)

6.9.8.3 Transition SP\_DWS6:Lost2 to SP\_DWS8:Lost3

The statement << An expander forwarding the dword to another phy shall replace the invalid dword with ERROR for a SAS physical link or

SATA\_ERROR for a SATA physical link. >> seems out of place here. This should be defined in the expander information that describes the insertion of error primitives. As most there should be a reference to that information << For expander rules on invalid Dwords replacement see x.x.x. >>

Page: 125

Sequence number: 1

Date: 1/10/2003 11:02:02 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.10.1 State description

The statement << This state is reached when three invalid dwords has been received and not nullified. >> should be deleted as we do not describe entry conditions.

Page: 125

Sequence number: 2

Date: 1/10/2003 11:02:21 AM -06'00'

Type: Strikeout

REJECT (it explains the state name and is not a set of entry equations)

6.9.11.1 State description

The statement << This state is reached when a valid dword has been received, and another valid dword will nullify the previous invalid dword. >> should be deleted as we do not describe entry conditions.

Page: 125

Sequence number: 3

Date: 2/21/2003 6:35:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (Reworded)

6.9.10.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 125

Sequence number: 4

Date: 2/21/2003 6:35:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

6.9.11.1 State description

The statement <<In this state, the receiver shall monitor the incoming data stream looking >> should be << This state shall monitor the Dwords received in the Dword Received parameter looking >>

Page: 125

Sequence number: 5

Date: 2/21/2003 6:34:52 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.9.2 Transition SP\_DWS7:Lost2Recovered to SP\_DWS4:Lost1

The statement << This transition shall occur when a valid dword is detected. >> should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 125

Sequence number: 6

Date: 2/21/2003 6:33:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.10.2 Transition SP\_DWS8:Lost3 to SP\_DWS9:Lost3Recovered

The statement << This transition shall occur when a valid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 125

Sequence number: 7

Date: 2/21/2003 6:33:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.11.2 Transition SP\_DWS9:Lost3Recovered to SP\_DWS6:Lost2

The statement << This transition shall occur when a valid dword is detected. >>

should be << This transition shall occur after receiving a Dword Received parameter that contains an valid Dword.>>

Page: 125

Sequence number: 8

Date: 2/21/2003 6:34:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.9.3 Transition SP\_DWS7:Lost2Recovered to SP\_DWS8:Lost3

The statement << This transition shall occur when an invalid dword is detected.>> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword.>>

Page: 125

Sequence number: 9

Date: 2/21/2003 6:34:11 PM -06'00'

Type: Highlight

ACCEPT - DONE (just "after sending". Moved the rest into the state description.)

6.9.10.3 Transition SP\_DWS8:Lost3 to SP\_DWS0:AcquireSync

The statement << If an invalid dword (i.e., the fourth non-nullified invalid dword) is detected, this state shall send a DWS Reset parameter to the SP state machine and this transition shall occur. >> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword (i.e., the fourth non-nullified invalid dword) and after sending a DWS Reset parameter to the SP state machine.>>

Page: 125

Sequence number: 10

Date: 2/21/2003 6:34:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (just "after sending". Moved the rest into the state description.)

6.9.11.3 Transition SP\_DWS9:Lost3Recovered to SP\_DWS0:AcquireSync

The statement << If an invalid dword (i.e., the fourth non-nullified invalid dword) is detected, this state shall send a DWS Reset parameter to the SP state machine and this transition shall occur. >> should be << This transition shall occur after receiving a Dword Received parameter that contains an invalid Dword (i.e., the fourth non-nullified invalid dword) and after sending a DWS Reset parameter to the SP state machine.>>

Page: 125

Sequence number: 11

Date: 2/28/2003 10:09:36 AM -06'00'

Type: Highlight

ACCEPT - DONE (move to XL state machine)

6.9.9.3 Transition SP\_DWS7:Lost2Recovered to SP\_DWS8:Lost3

The statement << An expander forwarding the dword to another phy shall replace the invalid dword with ERROR for a SAS physical link or

SATA\_ERROR for a SATA physical link. >> seems out of place here. This should be defined in the expander information that describes the insertion of error primitives. As most there should be a reference to that information << For expander rules on invalid Dwords replacement see x.x.x. >>

Page: 125

Sequence number: 12

Date: 1/25/2003 11:24:27 AM -06'00'

Type: Strikeout

ACCEPT - DONE

6.10 Spin-up

The statement << NOTE 12 A SATA target device with rotating media spins up:

a) automatically after power on (allowed by SATA);

b) after its phy is enabled (allowed by SATA);

c) after the reset sequence has completed (recommended by SATA); or



d) after the Power Up in Standby flag is cleared by an application (if the ATA Power Up in Standby feature is implemented).

The ATA Power Up in Standby feature is not widely implemented, since it requires the target device to include a nonvolatile memory to remember the state of the Power Up in Standby flag. Desktop-class disk drives do not typically have nonvolatile memory storage. >> has no value to this standard and should be deleted.

Page: 127

Sequence number: 2

Date: 1/25/2003 11:24:39 AM -06'00'

Type: Highlight

REJECT

Table 51

The footnotes have to be on each split of the table not just the last one.

Page: 135

Sequence number: 1

Date: 2/17/2003 11:26:42 AM -06'00'

Type: Strikeout

ACCEPT - DONE (keep these 3 sentences here. Put a short reference in each of the 3 sections below back to here - "ALIGNs may be sent inside primitive sequences as described in 7.1.3.1.")

7.1.3.1 Primitive sequence overview

The statement << ALIGNs may be sent inside primitive sequences without affecting the count or breaking the consecutiveness requirements. >>

should be deleted as it is repeated in each of the next three sections.

The other option would be to delete the text in all three sections and leave it here.

Page: 135

Sequence number: 2

Date: 2/17/2003 11:27:48 AM -06'00'

Type: Highlight

ACCEPT - DONE (delete everything after "consecutively")

7.1.3.4 Triple primitive sequence

The statement << consecutively and followed by idle dwords until a response is received. >> should be <<consecutively followed by idle dwords. >> The statement << until a response is received >> is incomplete because it does not describe what the response is that is received. Either that has to be defined or the statement deleted.

Page: 135

Sequence number: 3

Date: 2/17/2003 11:27:19 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.1.3.3 Repeated primitive sequence

The statement << until a response is received >> is incomplete because it does not describe what the response is that is received. Either that has to be defined or the statement deleted.

Page: 135

Sequence number: 4

Date: 2/17/2003 11:28:17 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.3.4 Triple primitive sequence

The statement << detect a triple primitive sequence by receiving the identical primitive in three consecutive dwords. >> should be << detect a triple primitive sequence after the identical primitive is received in three consecutive dwords. >>

Page: 135

Sequence number: 5

Date: 2/17/2003 12:02:01 PM -06'00'

Type: Highlight

REJECT (your comment on the previous section deleted "and followed by..." which is a good idea for both sections. No point in removing it there and adding it here.)

7.1.3.5 Redundant primitive sequence

The statement << shall be sent six times consecutively. >> should be << shall be sent six times consecutively followed by idle dwords.

Page: 135

Sequence number: 6

Date: 2/17/2003 12:02:40 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 7.1.3.5 Redundant primitive sequence

The statement << detect redundant primitive sequences by receiving an identical primitive for three consecutive dwords. >> should be << detect a redundant primitive sequence after the identical primitive is received in three consecutive dwords. >>

Page: 135

Sequence number: 7

Date: 2/17/2003 11:29:52 AM -06'00'

Type: Highlight

ACCEPT - DONE (Change to "After receiving a triple primitive sequence, a receiver shall not detect a second instance of the same triple primitive sequence until") Apply to the redundant primitive sequence text too.

#### 7.1.3.4 Triple primitive sequence

\*\*\*

In the statement << receiver shall not detect primitive sequences a second time until it >> it is not clear if the primitive sequence that shall not be detected is this primitive sequence or any primitive sequence or any triple primitive sequence. This needs to be made clear.

Page: 135

Sequence number: 8

Date: 2/17/2003 12:03:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (worded per comment in previous section)

#### 7.1.3.5 Redundant primitive sequence

\*\*\*

In the statement << receiver shall not detect primitive sequences a second time until it >> it is not clear if the primitive sequence that shall not be detected is this primitive sequence or any primitive sequence or any redundant primitive sequence. This needs to be made clear.

Page: 135

Sequence number: 12

Date: 2/16/2003 10:14:56 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed sentence)

#### 7.1.3.5 Redundant primitive sequence

Redundant primitive sequences shall only be detected outside of a connection.  
is wrong. BREAK is a redundant primitive and is certainly allowed inside connections.

Page: 136

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 7.1.4.2 ALIGN

The statement << are used for >> should be deleted as it is duplicated in the sentence.

Page: 136

Sequence number: 2

Date: 2/17/2003 12:09:23 PM -06'00'

Type: Strikeout

REJECT - highlights a difference with SATA that could lead to interop bugs.

#### 7.1.4.2 ALIGN

The statement << NOTE 14 SATA devices are allowed to decode every dword starting with a K28.5 as an ALIGN, since ALIGN is the only primitive defined starting with K28.5. >> as it contains no information that is relevant to this standard.

Page: 137

Sequence number: 5

Date: 2/17/2003 12:59:50 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 7.1.4.4 BROADCAST

Change << BROADCAST indications >> to << BROADCASTs >>.

Page: 137

Sequence number: 6

Date: 2/17/2003 12:59:56 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 7.1.4.4 BROADCAST

Change << BROADCAST indication >> to << BROADCAST >>.

Page: 137  
Sequence number: 7  
Date: 2/17/2003 1:00:18 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.4.4 BROADCAST  
Change << second indication >> to << second BROADCAST >>.

Page: 137  
Sequence number: 8  
Date: 2/17/2003 1:00:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (changed to "affiliation" which is now in the definitions section)  
Table 60  
The term << initiator affiliation. >> is not used anywhere else in this standard. So I have no idea as to what it is. It needs to be defined or changed to a term that is defined.

Page: 137  
Sequence number: 10  
Date: 2/17/2003 1:01:29 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (Jan WG treat like CLOSE (NORMAL) when received in SSP or SMP connection)  
7.1.4.5 CLOSE  
\*\*\*  
There is no indication as to what a device should do if it does not support STP and receives a CLOSE (CLEAR AFFILIATION). I suggest the description should be changed to << Close an open STP connection and clear the initiator affiliation. If a device does not support STP it shall process the CLOSE (CLEAR AFFILIATION) the same as CLOSE (NORMAL). >>

Page: 138  
Sequence number: 8  
Date: 1/6/2003 6:16:00 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.4.9 NOTIFY  
The TBD needs to be replaced with a reference.

Page: 138  
Sequence number: 9  
Date: 2/17/2003 1:02:59 PM -06'00'  
Type: Note  
ACCEPT - DONE (added "and shall be ignored at other times")  
7.1.4.8 HARD\_RESET  
There should be a statement that states that the HARD\_RESET shall be ignored if received at any time other than after a phy reset sequence and before the identification sequence.

Page: 138  
Sequence number: 10  
Date: 1/8/2003 1:04:01 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.4.9 NOTIFY  
The statement << devices shall transmit NOTIFY (ENABLE\_SPINUP) >> should be changed to << devices shall use NOTIFY (ENABLE\_SPINUP) >>. The rules for usage do follow in this paragraph but the use of the word << transmit >> in this sentence makes the sentence seem incomplete.

Page: 138  
Sequence number: 11  
Date: 2/17/2003 1:33:56 PM -06'00'  
Type: Note  
REJECT (Either ALIGN or NOTIFY fulfills the 2048 dwords.)  
7.1.4.9 NOTIFY  
\*\*\*\*  
The way this is now it is possible that the receiver may not get an ALIGN within the 2048 dwords if a NOTIFY replaces an ALIGN. There needs to be a rule that when sending NOTIFYs the transmitter is still required to send ALIGNs at least once every 2048 dwords.

Page: 139  
Sequence number: 3

Date: 2/11/2003 5:07:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (added a definition to 3.1.x)

7.1.4.11 OPEN\_REJECT

Table 61

The term << affiliation >> needs to be defined.

Page: 140

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Circle

ACCEPT - DONE

Table 62

There needs to be a double line between the body and footer.

Page: 141

Sequence number: 3

Date: 2/17/2003 1:57:27 PM -06'00'

Type: Square

ACCEPT - DONE

Table 63

The statement << Timed out waiting for an ACK or NAK. The ACK/NAK count does not match the frame count. Transmitter is going to transmit

BREAK in 1 ms unless DONE is received prior to that. >>

should be

<< The SSP state machine timed out waiting for an ACK or NAK (see 7.16.7.2) and the transmitter is going to transmit BREAK unless a DONE is received within 1 ms of transmitting the DONE (ACK/NAK TIMEOUT).

Page: 143

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (joined two sentences with and)

7.2 Clock skew management

The statement << This is used when transmitting data >> should be << The internal clock is used when transmitting data >>.

Page: 143

Sequence number: 7

Date: 2/17/2003 4:38:59 PM -06'00'

Type: Highlight

ACCEPT - DONE (all data changed to dwords in this section)

7.2 Clock skew management

The statement << data needs to be latched based >> should be << dwords need to be latched based >>.

Page: 143

Sequence number: 8

Date: 2/17/2003 4:37:02 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.2 Clock skew management

The statement << receive data

and not be able to >> should be << receive dwords and not be able to

Page: 143

Sequence number: 9

Date: 2/17/2003 4:37:09 PM -06'00'

Type: Highlight

ACCEPT - DONE (change all these "data" to "dwords". In the figure, "clock derived from serial bitstream")

7.2 Clock skew management

The statement << have data when needed >> should be << have dwords when needed >>.

Page: 143

Sequence number: 10

Date: 2/17/2003 4:38:41 PM -06'00'

Type: Highlight

REJECT (this is a valid use of "will". Just rewording it to avoid using the word "will" but still have same meaning is worse than leaving "will" in place.)

7.1.6.3 SATA\_HOLD and SATA\_HOLD\_A (Hold and hold acknowledge)

The statement << SATA\_HOLD\_A will arrive within >> should be << SATA\_HOLD\_A arrives within >>.

Page: 144

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Square

ACCEPT - DONE

Table 66

Make the information << Original source of data

SSP initiator phy or target phy in SSP connection, SMP initiator phy or SMP target phy in SMP connection, Any phy outside connections, or

STP target phy in an STP connection >> into a left aligned a,b,c list.

Page: 144

Sequence number: 5

Date: 2/17/2003 4:44:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.2 Clock skew management

The term << amongst >> should << through >>

Page: 144

Sequence number: 6

Date: 2/17/2003 4:44:40 PM -06'00'

Type: Highlight

ACCEPT - DONE (slightly different)

7.3 Idle links

The statement << While no connection is open and a physical link is idle, or while an SSP or SMP connection is open and the physical link is idle, SAS phys shall transmit idle dwords. >> should be << SAS phys shall transmit idle words if:

a) no connection is open and a physical link is idle;

b) an SSP connection is open and the physical link is idle; or

c) an SMP connection is open and the physical link is idle. >>

Page: 145

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - there's no overlap between lines, and the suggested setting adds awkward look extra space to some of the lines but not all

Table 67

The paragraphs within the definitions should have the paragraph designer, basic, line spacing, fixed box unchecked. This will remove the superscripts running into the line above.

Page: 146

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.4.2 CRC generation

The statement << order - the bits within each byte of the data dword are transposed to match the implicit transposition in the 8b10b encoding process. >> should be << order (i.e., the bits within each byte of the data dword are transposed to match the implicit transposition in the 8b10b encoding process). >>.

Page: 147

Sequence number: 13

Date: 1/17/2003 11:28:23 AM -06'00'

Type: Highlight

REJECT (but sentence being deleted)

7.5 Scrambling

The statement << Table 69 shows when the scrambling logic shall treat data as big-endian and when it shall treat data as little-endian. >> should be << Table 69 shows when the scrambling logic shall handle data as big-endian and when it shall handle data as little-endian. >> .

Page: 147

Sequence number: 14

Date: 2/17/2003 5:00:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (delete second sentence)

7.5 Scrambling

The statement << These patterns can cause issues in the physical >> should be << These patterns may cause issues in the

physical >>.

Page: 149

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.7.1 Address frames overview

The statement << Primitives may be inserted in the address frame. >> is no longer valid and needs to be deleted.

Page: 150

Sequence number: 2

Date: 1/24/2003 7:13:10 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.7.2 IDENTIFY address frame

The statement << The recipient shall ignore reserved and ignored fields in the IDENTIFY address frame. >> should be deleted as the information is already stated in the keywords definitions.

Page: 152

Sequence number: 3

Date: 2/17/2003 5:07:43 PM -06'00'

Type: Strikeout

ACCEPT - DONE (Move all the reasons for OPEN REJECT into the OPEN REJECT table in 7.1.4.11. Most of the reasons are there already.)

7.7.3 OPEN address frame

The statement << The destination device shall reject the connection request with OPEN\_REJECT (PROTOCOL NOT SUPPORTED) if the PROTOCOL field is set to a value it does not support. >> should be deleted as this information is already stated in the state machines.

Page: 153

Sequence number: 2

Date: 2/17/2003 5:15:34 PM -06'00'

Type: Strikeout

ACCEPT - DONE (move to 7.1.11)

7.7.3 OPEN address frame

The statement << Every phy shall support the 1,5 Gbps connection rate at every physical link rate. >> should be deleted as this is not the place to put link speed requirements.

Page: 153

Sequence number: 3

Date: 1/24/2003 7:18:31 PM -06'00'

Type: Strikeout

ACCEPT - DONE (changing Reserved to Compatible Features; shall set to zero, receivers shall not check. This is NOT the normal definition of reserved.)

The statement << The destination device shall ignore the contents of reserved fields in the OPEN address frame. >> should be deleted as it is already stated in the keywords definitions section.

Page: 153

Sequence number: 4

Date: 2/17/2003 5:23:45 PM -06'00'

Type: Strikeout

REJECT (did not delete, but reworded as "alternative to using the SAS target port's SAS address for context lookup.)

7.7.3 OPEN address frame

The statement << The INITIATOR CONNECTION TAG field is used for SSP and STP connection requests to provide an initiator port an easier context lookup when the target port originates a connection request. >> states no requires or options and should be deleted.

Page: 154

Sequence number: 4

Date: 3/1/2003 6:19:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (change "shall transmit" to "transmits" and "shall expect to receive" to "receives")

7.8.1 Overview

The statement << Each phy shall also expect to receive an >> should be << Each phy receives an >>.

Page: 154

Sequence number: 5

Date: 1/24/2003 7:23:13 PM -06'00'

Type: Highlight

ACCEPT - DONE (this IS the definition of it. Nevertheless, pointed to 4.4.1 the reset overview)

7.8.1 Overview

The statement << link reset sequence. >> should be << link reset sequence (see x.x.x.) >>.

Page: 155

Sequence number: 8

Date: 2/21/2003 7:14:17 PM -06'00'

Type: Highlight

ACCEPT - DONE (with rewording per other comments)

7.8.2 Initiator device specific rules

The statement << When this is done after a link reset sequence, this allows the application client within an initiator device to discover all the devices in the SAS domain. When this is done after a BROADCAST (CHANGE), this allows the application client within an initiator device to determine what has changed in the SAS domain. >>

should be

<< If an application client initiates the discover process after a link reset sequence then on completion of the discovery that application client has discovered all the devices within the SAS domain. If the application client initiates the discovery process after a BROADCAST (CHANGE) then on completion of the discovery that application client has discovered any devices that have been removed or inserted into the SAS domain. >>

Page: 155

Sequence number: 9

Date: 2/21/2003 7:07:27 PM -06'00'

Type: Highlight

ACCEPT - DONE (with and instead of then)

7.8.2 Initiator device specific rules

The statement << a routing loop. It shall disable routing >> should be << a routing loop then the application client shall disable routing >> .

Page: 155

Sequence number: 10

Date: 2/21/2003 7:06:40 PM -06'00'

Type: Highlight

ACCEPT - DONE (merge sentences, only point to the SMP function name not the field name, and added an xref)

7.8.2 Initiator device specific rules

The statement << function request is used to disable the expander port of an expander device. >> should be << function request shall be used to disable the expander port of an expander device. >>

Page: 155

Sequence number: 11

Date: 3/1/2003 6:18:21 PM -06'00'

Type: Square

ACCEPT - DONE

7.8.5.1 Overview

The statements << The SL\_IR state machine sends the following parameters to the SL\_IR transmitter:

a) Transmit IDENTIFY; and

b) Transmit HARD\_RESET.

The SL\_IR state machine receives the following parameters:

a) SOAF Received;

b) Data Dword Received;

c) EOAF Received; and

d) HARD\_RESET Received. >> should be placed in section 7.8.6 as that is where the transmitter and receiver information is defined. That way it is all in one place.

Page: 155

Sequence number: 12

Date: 1/24/2003 7:39:31 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.5.1 Overview

There needs to be an item << c) Transmit Idle Dword >> added to the SL\_IR transmitter list.

Page: 155

Sequence number: 13

Date: 1/24/2003 7:38:46 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.5.1 Overview

There needs to be an items << e) IDENTIFY Transmitted  
f) HARD\_RESET Transmitted >> add to the SL\_IR receiver list.

Page: 156

Sequence number: 8

Date: 2/28/2003 10:19:37 AM -06'00'

Type: Circle

ACCEPT - DONE (duplicated to each state machine. Kept "to all states".)

7.8.5 Identification and hard reset

Figure 67

The << Enable Disable Link Layer (Disable) >> confirmation needs to point into each of the 3 state machines. The statement << (to all states in all state machines, causing transition to Idle state) >> should be changed to << ((This parameter causes a transition to SL\_IR\_xxx1:Idle) >> replace xxx with TIR, RIF, and IRC on the appropriate arrow.

Page: 156

Sequence number: 9

Date: 2/19/2003 5:40:55 PM -06'00'

Type: Circle

ACCEPT - DONE (spaced out SL\_IR\_TIR and SL\_IR\_IRC states some more)

Figure 67

Several of the green arrows look like they are originating from other states. They should be shortened to avoid confusion.

Page: 156

Sequence number: 10

Date: 1/24/2003 7:41:52 PM -06'00'

Type: Circle

ACCEPT - DONE

Figure 67

The << Enable Disable SAS Link (Enable) >> should indicate it goes to SL or XL.

Page: 157

Sequence number: 5

Date: 3/1/2003 6:15:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (trashed this list and replaced with a list of the real parameter names)

7.8.6 SL\_IR transmitter and receiver

The statement << SOAF/IDENTIFY address frame/EOAF; >> has a problem in that the name of the parameter that causes the transmission is called << Transmit IDENTIFY >>. Those two names are enough different so it is not obvious one is a result of the other. One solution would be to add << (i.e., Transmit IDENTIFY parameter) >> to item b).

Page: 157

Sequence number: 6

Date: 3/1/2003 6:14:24 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted paragraph, since the SL\_IR state machines parse dwords on their own, the receiver doesn't know anything about frames)

7.8.6 SL\_IR transmitter and receiver

The statement << The SL\_IR receiver shall ignore any primitive received inside an IDENTIFY address frame. In this case, a data dword shall be considered inside a frame when it is received after an SOAF and before an EOAF if the primitive is received after the 8th data dword following the SOAF. >> seems to be confusing. Changing it to the following may help << The SL\_IR receiver shall ignore any primitive received inside an IDENTIFY address frame. In this case, a primitive shall be considered inside a frame when it is received within the first eight data dwords after an SOAF. >>

Page: 157

Sequence number: 7

Date: 3/1/2003 6:13:42 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.6 SL\_IR transmitter and receiver

There needs to be a new paragraph that describes what the SL\_IR receiver receives. Something like << When the SL\_IR receiver receives a dword the SL\_IR receiver notifies the SL\_IR state machine of the receipt of those dwords. The following are the only received dwords that the SL\_IR transmitter shall send notifications on:

- a) SOAF;
- b) Data Dword;
- c) EOAF; or
- d) HARD\_RESET. >>.

Page: 157

Sequence number: 8



Date: 2/21/2003 7:18:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE (I disagree it's obvious but will delete it anyway)

7.8.6.1.1 Overview

The statement << This is the only state machine in the SL\_IR state machines that transmits dwords on the physical link. >> Is obvious and not necessary.

Page: 157

Sequence number: 9

Date: 2/19/2003 5:42:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.2.1 State description

The statement << This state shall repeatedly send Transmit Idle Dword to the SL\_IR transmitter. >> should be

<< This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the SL\_IR transmitter (see 7.3). >>

Page: 157

Sequence number: 10

Date: 1/24/2003 7:45:48 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.2.2 Transition SL\_IR\_TIR1:Idle to SL\_IR\_TIR2:Transmit\_Identify

The statement << when both: >> should be changed to << after >>.

Page: 157

Sequence number: 11

Date: 1/24/2003 7:45:54 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.2.3 Transition SL\_IR\_TIR1:Idle to SL\_IR\_TIR3:Transmit\_Hard\_Reset

The statement << when both: >> should be changed to << after >>.

Page: 157

Sequence number: 12

Date: 1/24/2003 7:45:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.3.1 State description

The statement << This state shall send a Transmit IDENTIFY parameter to the SL\_IR transmitter. >> should be << Upon entry into this state, this state shall send a Transmit IDENTIFY parameter to the SL\_IR transmitter. >>

Page: 158

Sequence number: 2

Date: 2/19/2003 5:44:40 PM -06'00'

Type: Highlight

REJECT (the state description talks about receiving. Just transition after doing the last thing is simpler)

7.8.6.1.3.2 Transition SL\_IR\_TIR2:Transmit\_Identify to SL\_IR\_TIR4:Completed

The statement << This transition shall occur after this state has sent an Identify Transmitted parameter. >> should be << This transition shall occur after:

a) receiving a IDENTIFY Transmitted parameter; and

b) sending an Identify Transmitted parameter to the IRC state machine. >>.

Page: 158

Sequence number: 3

Date: 2/19/2003 5:44:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.3.1 State description

The statement << When this state receives >> should be << After this state receives >>.

Page: 158

Sequence number: 4

Date: 1/24/2003 7:46:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.4.1 State description

The statement << This state shall send a >> should be << Upon entry into this state, this state shall send a >>.

Page: 158

Sequence number: 5

Date: 2/19/2003 5:44:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.4.1 State description

The statement << When this state receives >> should be << After this state receives >>.

Page: 158

Sequence number: 6

Date: 2/19/2003 5:46:23 PM -06'00'

Type: Highlight

REJECT (state description discusses receiving; simpler to base transition only on sending)

7.8.6.1.4.2 Transition SL\_IR\_TIR3:Transmit\_Hard\_Reset to SL\_IR\_TIR3:Completed

The statement << This transition shall occur after sending a HARD\_RESET Transmitted confirmation. >> should be << This transition shall occur after:

a) receiving a HARD\_RESET Transmitted parameter; and

b) sending a HARD\_RESET Transmitted confirmation to the management application layer. >>.

Page: 158

Sequence number: 7

Date: 2/19/2003 5:46:38 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.5 SL\_IR\_TIR4:Completed state

The statement << This state shall repeatedly send the Transmit Idle Dword parameter to the SL\_IR transmitter. >> should be << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the SL\_IR transmitter (see 7.3). >>

Page: 158

Sequence number: 8

Date: 2/19/2003 5:47:39 PM -06'00'

Type: Highlight

REJECT (no, it only collects the SOAF. The next state collects the rest of the address frame)

7.8.6.2.2.1 State description

The statement << This state waits for an SOAF to be received from the physical link, indicating an address frame is arriving. >> should be << This state waits for an address frame to be received. >>

Page: 158

Sequence number: 9

Date: 1/24/2003 7:47:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.2.2 Transition SL\_IR\_RIF1:Idle to SL\_IR\_RIF2:Receive\_Identify\_Frame

The statement << when both: >> should be changed to << after >>.

Page: 158

Sequence number: 10

Date: 2/19/2003 5:48:15 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.3.1 State description

The statement << After receiving the frame, it shall check if it is a correct IDENTIFY address frame. >> should be << After receiving the address frame, this state shall check if it is a valid IDENTIFY address frame. >>

Page: 158

Sequence number: 11

Date: 2/19/2003 5:46:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.1 Overview

The statement << an IDENTIFY address frame from the physical link and checks the IDENTIFY address >> should be << an IDENTIFY address frame and checks that IDENTIFY address >>.

Page: 159

Sequence number: 3

Date: 2/19/2003 5:49:36 PM -06'00'

Type: Highlight

REJECT (but deleted the after receiving portion, which is covered by the state description)

7.8.6.2.3.2 Transition SL\_IR\_RIF2:Receive\_Identify\_Frame to SL\_IR\_RIF3:Completed

The statement << This transition shall occur after receiving an EOAF and sending the Identify Received parameter or Address Frame Failed confirmation. >> should be << This transition shall occur after:

- a) receiving an EOAF Received parameter; and
- b) sending the Identify Received parameter or Address Frame Failed confirmation. >>

Page: 159

Sequence number: 4

Date: 2/19/2003 5:50:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.4 SL\_IR\_RIF3:Completed state

The statement << This state does nothing except wait for >> should be << This state waits for >>.

Page: 159

Sequence number: 5

Date: 2/19/2003 5:50:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (also changed notify to notifies to match)

7.8.6.3.1 Overview

The statement << state machines function is to ensure IDENTIFY address >> should be << state machine ensures IDENTIFY address >>.

Page: 159

Sequence number: 6

Date: 2/19/2003 5:54:02 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.3.2.1 State description

The statement << This state shall >> should be << Upon entry into this state, this state shall: >>

Page: 159

Sequence number: 7

Date: 2/19/2003 5:54:15 PM -06'00'

Type: Note

ACCEPT - DONE (deleted from figure)

7.8.6.3.2.1 State description

There is not description of when the << Identify Time out >> confirmation is send out. That confirmation is in figure 67 as an output from the SL\_IR\_IRC1 state. This needs to fixed.

Page: 160

Sequence number: 7

Date: 1/24/2003 7:48:07 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed)

7.10 Near-end analog loopback test

\*\*\*

This section should be deleted as it causes implantation problems and is of little or no use in real life.

Page: 160

Sequence number: 8

Date: 2/19/2003 5:54:48 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.6.3.3.1 State description

The statement << from the Transmit IDENTIFY or HARD\_RESET state machine, >> should be deleted as we do not state were things come from.

Page: 160

Sequence number: 9

Date: 2/19/2003 5:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (following new timer convention - initialize and start the)

7.8.6.3.3.1 State description

The statement << initialize a receive identify time out >> should be << initialize the receive identify time out >> .

Page: 160

Sequence number: 10

Date: 2/19/2003 5:56:19 PM -06'00'

Type: Highlight

ACCEPT - DONE (but changed to expires which is the convention)

7.8.6.3.3.1 State description

The statement << time out timer is

exceeded, this state shall: >> should be << time out timer times out, this state shall >>.

Page: 160

Sequence number: 11

Date: 2/19/2003 5:02:05 PM -06'00'

Type: Highlight

ACCEPT - DONE (renamed Identification Sequence Complete and put in figure)

7.8.6.3.3.1 State description

The << Identify Sequence Complete >> confirmation is not shown in figure 67. This needs to be fixed.

Page: 160

Sequence number: 12

Date: 2/19/2003 5:58:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (added to figure)

7.8.6.3.3.1 State description

The << HARD\_RESET Received >> confirmation is not shown in figure 67. This needs to be fixed.

Page: 160

Sequence number: 13

Date: 2/19/2003 5:56:48 PM -06'00'

Type: Highlight

ACCEPT - DONE (but with expires, the new convention)

The statement << time out timer is exceeded before >> should be << time out timer times out before >> .

Page: 160

Sequence number: 14

Date: 2/19/2003 6:02:08 PM -06'00'

Type: Highlight

REJECT (this would just duplicate all the text in the state description. Took out "to the management application layer" but just left in the "after sending ..." list. Added Phy Enabled to the list and made it an and/or.)

7.8.6.3.3.2 Transition SL\_IR\_IRC2:Wait to SL\_IR\_IRC3:Completed

The statement << This transition shall occur after sending a HARD\_RESET Received confirmation, Identify Timeout confirmation, or Identify Sequence Complete confirmation to the management application layer. >> should be

<< This transition shall occur:

a) if an Identify Received parameter and an Identify Transmitter parameter are received, and after sending:

A) an Identify Sequence Complete confirmation to the management application layer;

B) in an expander device, a Broadcast Event Notify (Identification Sequence Complete) confirmation to the expander function;

C) a Phy Enabled confirmation to the port layer and the management application layer; and

D) an Enable Disable SAS Link (Enable) parameter to the SL state machine (see 7.13) in initiator devices and target devices or the XL state machine (see 7.14) in expander devices;

b) if a HARD\_RESET Received parameter is received and after sending a HARD\_RESET Received confirmation to the management application layer; or

c) if the identify timer times out and after sending an Identify Timeout confirmation to the management application layer.>>

Page: 160

Sequence number: 15

Date: 2/19/2003 6:02:27 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.3.4 SL\_IR\_IRC3:Completed state

The statement << This state does nothing except wait for >> should be << This state waits for >>.

Page: 160

Sequence number: 16

Date: 2/19/2003 6:03:14 PM -06'00'

Type: Strikeout

REJECT (we have to describe how we do not support it if the SATA device tries to use it.)

The statement << SATA interface power management is not supported in SAS. >> should be deleted. For something that is not supported there seems to be a lot of discussion in this section.

Page: 160

Sequence number: 17

Date: 2/19/2003 5:55:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.6.3.3.1 State description

The statement << from the Receive IDENTIFY Address Frame state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 161

Sequence number: 7

Date: 2/17/2003 5:28:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.11 Domain changes

The statement << domain with a discover process (see 4.6.11.5) >> should be << domain using the discover process (see 4.6.11.5) >>

Page: 162

Sequence number: 6

Date: 2/17/2003 5:32:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

The statement << communication can begin. >> should be << any communication begins >>.

Page: 162

Sequence number: 7

Date: 2/17/2003 5:35:20 PM -06'00'

Type: Highlight

REJECT (this is the overview of what the state machines do)

7.12.2.1 Connection request

The statement << After transmitting an OPEN address frame, the source phy shall initialize an open time out timer to 1 ms and start the timer. Whenever an AIP is received, the source phy shall reinitialize and restart the timer. Source phys are not required to enforce a limit on the number of AIPs received before abandoning the connection request, but they may do so. When any connection response is received, the source phy shall reinitialize the timer. If the timer expires before a connection response is received, the source phy may assume the destination port does not exist and shall transmit BREAK to abandon the connection request. >>

is a duplicate of the information that is in the state machines and should be deleted.

Page: 163

Sequence number: 18

Date: 1/25/2003 11:38:31 AM -06'00'

Type: Highlight

REJECT (the OPEN address frame is mentioned in the first sentence in this paragraph)

7.12.3 Arbitration fairness

The statement << the SCALE bit to one; >> should be << the SCALE bit in the OPEN address frame to one; >>.

Page: 163

Sequence number: 19

Date: 1/25/2003 11:40:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted retry delay so this is moot; responses would have been 1) this IS the definition of retry delay 2) it was supposed to be a shall; 3) agree it should be a minimum)

7.12.2.2 Connection request responses

\*\*\*

The text << the source port shall wait a retry delay of 15  $\mu$ s before >> has more than one problem.

One is that the term retry delay should be defined as a specific time (i.e., retry delay = 15usec) the 15 usec would then be dropped from the text. Or the the statement needs to change to << the source port shall wait 15  $\mu$ s before >>.

The next problem is that this is a shall when it should be a should.

The last problem is that there is no tolerance on the value. It should be stated as << shall (should) wait a minimum of 15 us before >>.

Page: 163

Sequence number: 20

Date: 2/17/2003 5:41:23 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.2.2 Connection request responses

The term << possible >> should be deleted.

Page: 163

Sequence number: 21

Date: 2/17/2003 5:46:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.2.2 Connection request responses  
global

The statement << I\_T\_L\_Q >> should be << I\_T\_L\_Q nexus >>. In all cases I\_T, I\_T\_L, and I\_T\_L\_Q should be I\_T nexus, I\_T\_L nexus, and I\_T\_L\_Q nexus.

Page: 163

Sequence number: 22

Date: 1/25/2003 11:30:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (with which rather than that; it's not a subset)

7.12.3 Arbitration fairness

The statement << wait timer counting the >> should be << wait timer that counts the >>.

Page: 163

Sequence number: 23

Date: 1/25/2003 11:33:17 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3 Arbitration fairness

The statement << may be unfair, setting the >> should be << may be unfair by setting the >>.

Page: 163

Sequence number: 24

Date: 3/5/2003 3:27:27 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3 Arbitration fairness

The term <<livelocks.>> needs to be added to the glossary.

Page: 163

Sequence number: 25

Date: 1/25/2003 11:34:47 AM -06'00'

Type: Strikeout

REJECT (a hint that livelocks exist if the AWT is rendered ineffective seems appropriate here)

7.12.3 Arbitration fairness

The statement << and helps prevent livelocks. >> should be deleted.

Page: 163

Sequence number: 32

Date: 1/25/2003 11:36:12 AM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG remove totally; also removed the single reference to retry delay in the port layer)

7.12.2.2 Connection request responses

\*\*\*

The requirement << After receiving an OPEN\_REJECT that indicates a retry may be performed (see table 62), the source port shall wait a retry delay of 15  $\mu$ s before issuing another connection request to the same destination port. >> should be removed as it only adds needless complexity to targets and initiators. It's also not clear the reason for this requirement as the open/reject functionally will most likely be contained totally in hardware.

Page: 164

Sequence number: 8

Date: 2/19/2003 12:39:39 PM -06'00'

Type: Highlight

REJECT (this is a good use of must. It's not a shall; it's referring to the effects of a shall somewhere else.)

7.12.3 Arbitration fairness

Note 22 states << of the time a device must wait after receiving OPEN\_REJECT (PATHWAY BLOCKED) >>

which has two problems one is the word must is used. If that is changed to a shall which seems logical then problem two occurs in that now you have a requirement in a note which is not allowed. This needs to be fixed.

Page: 164

Sequence number: 9

Date: 2/19/2003 12:36:49 PM -06'00'

Type: Highlight

ACCEPT - DONE ("by" implies there might be other ways to win arbitration. Reworded into an i.e.)

7.12.3 Arbitration fairness

The statement << wins arbitration, receiving either >> should be << wins arbitration by receiving either >>.

Page: 164

Sequence number: 10

Date: 2/19/2003 12:37:50 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded as an i.e.)

7.12.3 Arbitration fairness

The statement

<< arbitration request, receiving an OPEN address frame from the destination port with matching PROTOCOL and CONNECTION RATE fields. >>

should be <

< arbitration request if an OPEN address frame from the destination port with matching PROTOCOL and CONNECTION RATE fields was received. >>

Page: 164

Sequence number: 11

Date: 1/25/2003 11:42:36 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3 Arbitration fairness

The statement << values in this order: >> should be << values in the following order: >>.

Page: 164

Sequence number: 12

Date: 2/19/2003 11:16:49 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.1 Arbitration overview

The statement << values in this order: >> should be << values in the following order: >>.

Page: 165

Sequence number: 3

Date: 1/25/2003 11:44:48 AM -06'00'

Type: Highlight

REJECT (SAM has a status called CONDITION MET; what's wrong with that term?)

7.12.3.1.1 Arbitration overview

The statement << conditions are met: >> should be << conditions occur >>.

Page: 165

Sequence number: 4

Date: 1/25/2003 11:44:40 AM -06'00'

Type: Highlight

REJECT (SAM has a status called CONDITION MET; what's wrong with that term?)

7.12.3.1.1 Arbitration overview

The statement << conditions are met: >> should be << conditions occur >>.

Page: 165

Sequence number: 5

Date: 1/25/2003 11:44:36 AM -06'00'

Type: Highlight

REJECT (SAM has a status called CONDITION MET; what's wrong with that term?)

7.12.3.1.1 Arbitration overview

The statement << conditions are met: >> should be << conditions occur >>.

Page: 165

Sequence number: 6

Date: 2/19/2003 1:50:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.1 Arbitration overview

The statement << port which contains >> should be << port that contains >>.

Page: 165

Sequence number: 7

Date: 2/19/2003 1:51:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.1 Arbitration overview

The statement << destination (this case occurs >> should be << destination (i.e., occurs >>

Page: 165

Sequence number: 8

Date: 1/25/2003 11:45:04 AM -06'00'

Type: Highlight

REJECT (SAM has a status called CONDITION MET; what's wrong with that term?)

7.12.3.1.3 Partial Pathway Timer

The statement << conditions are met: >> should be << conditions occur >>.

Page: 165

Sequence number: 9

Date: 2/19/2003 2:54:20 PM -06'00'

Type: Highlight

REJECT (met is fine)

7.12.3.1.3 Partial Pathway Timer

The statement << above are not met, the >> should be << above do not occur, the >>.

Page: 165

Sequence number: 10

Date: 2/19/2003 2:54:48 PM -06'00'

Type: Strikeout

ACCEPT - DONE (got rid of decrementing verbiage)

7.12.3.1.3 Partial Pathway Timer

Delete the statement << until reaching zero, >> and place the following statement in this section <<The expander connection manager shall stop decrementing the PPT timer when it reaches zero. >>.

Page: 165

Sequence number: 11

Date: 2/19/2003 3:54:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "shall stop")

The statement << manager shall hold the PPT timer at an initial value set to the partial pathway time out value. >> does not make sense. This needs to be fixed.

Page: 165

Sequence number: 12

Date: 2/19/2003 1:53:32 PM -06'00'

Type: Highlight

REJECT (important to say why this exists)

7.12.3.1.4 Pathway Recovery

The statement << requests in order to prevent deadlock using Pathway Recovery Priority comparisons. >> should be << requests using Pathway Recovery Priority comparisons. >>.

Page: 165

Sequence number: 13

Date: 2/19/2003 1:52:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.4 Pathway Recovery

The statement << fields within the OPEN >> should be << fields from the OPEN >>.

Page: 165

Sequence number: 14

Date: 2/19/2003 3:45:16 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.3.1.4 Pathway Recovery

The statement << as follows: >> should be deleted as there is no list that follows.

Page: 166

Sequence number: 1

Date: 2/19/2003 3:55:41 PM -06'00'

Type: Highlight

ACCEPT - DONE (wins)

7.12.4.1 All expander devices

The statement << frame will win >> should be << frame shall win >> or << frame wins >>.

Page: 166

Sequence number: 2



Date: 2/19/2003 4:05:12 PM -06'00'

Type: Strikeout

ACCEPT - DONE (it does add something, but will delete it)(later removed entire sentence)

7.12.3.1.4 Pathway Recovery

The term << effectively >> should be deleted as it adds nothing.

Page: 166

Sequence number: 3

Date: 2/19/2003 4:05:02 PM -06'00'

Type: Highlight

ACCEPT - DONE (used "using" instead) (later removed entire sentence)

7.12.3.1.4 Pathway Recovery

The statement << only with the SOURCE SAS >> should be << only on the SOURCE SAS >>.

Page: 166

Sequence number: 4

Date: 2/19/2003 4:11:46 PM -06'00'

Type: Highlight

ACCEPT - DONE (in previous sections, clearly defined "arbitration priority" in a table, and added "arbitration" in front of priority here.)

7.12.4.1 All expander devices

In the statement << frame unless it has higher >> it is not clear what the it is referring to. This needs to be fixed.

Page: 166

Sequence number: 5

Date: 2/19/2003 4:12:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.4.1 All expander devices

The statement << three AIPs consecutively >> should be << three consecutive AIPs >>.

Page: 166

Sequence number: 6

Date: 3/11/2003 4:17:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "within 128 dwords" per email discussion)

7.12.4.1 All expander devices

The term << immediately >> does not give enough information as to how soon immediately is. This needs to be fixed.

Page: 166

Sequence number: 7

Date: 2/21/2003 7:19:58 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.4.2 Edge expander devices

The statement << this means >> should be deleted.

Page: 166

Sequence number: 8

Date: 2/21/2003 7:20:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.4.2 Edge expander devices

The statement << When two edge expander >> should be << If two edge expander >>.

Page: 166

Sequence number: 9

Date: 2/21/2003 7:20:24 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.4.2 Edge expander devices

The statement << When a fanout expander >> should be << If a fanout expander >>.

Page: 167

Sequence number: 4

Date: 2/21/2003 7:29:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.4.3 Fanout expander devices

The statement << phys which are >> should be << phys that are >>.

Page: 167

Sequence number: 5

Date: 2/21/2003 7:29:01 PM -06'00'

Type: Highlight

REJECT (it is the fanout expander device)

7.12.4.3 Fanout expander devices

In the statement << it shall compare >> it is not clear what the it is. This needs to be fixed.

Page: 167

Sequence number: 6

Date: 2/21/2003 7:28:50 PM -06'00'

Type: Note

REJECT (it is the fanout expander device)

7.12.4.3 Fanout expander devices

There are a whole bunch of << it >> s in this section where it is not clear what the it is. This needs to be fixed.

Page: 167

Sequence number: 7

Date: 3/5/2003 3:51:53 PM -06'00'

Type: Strikeout

REJECT (this is an overview of what the state machine does, and shouldn't be just buried in the state machine)

7.12.5 Abandoning a connection request

The statement << After transmitting BREAK, the source port shall initialize a break time out timer to 1 ms and start the timer. If the timer expires before a break response is received, the source port may assume the physical link is unusable. >> should be deleted as it is duplicated in the state machine descriptions.

Page: 167

Sequence number: 8

Date: 3/5/2003 3:25:18 PM -06'00'

Type: Circle

ACCEPT - DONE (deleted the row; ignore anything but BREAKs after sending BREAK)

This confirms that the connection request has been abandoned.

Table 81

The statement << The BREAK was too late and an open response arrived late. The originator shall honor this as a response to the open request it was attempting to abandon. >> is not clear and the reference to 7.12.2 does not help in understanding this. This needs to be fixed.

Page: 167

Sequence number: 9

Date: 2/21/2003 7:28:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.5 Abandoning a connection request

The statement << the target port. >> should be << the destination port >> as a BREAK can be sent from both targets and initiators .

Page: 167

Sequence number: 10

Date: 3/5/2003 3:49:39 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.5 Abandoning a connection request

The term << possible >> should be deleted.

Page: 168

Sequence number: 2

Date: 2/19/2003 4:26:01 PM -06'00'

Type: Highlight

REJECT (good use of will - it's not a shall, it's a reflection of some other shalls)

7.12.5 Abandoning a connection request

The statement << that an open response will not occur. >> should be << that an open response shall not occur >>.

Page: 168

Sequence number: 3

Date: 2/19/2003 4:32:40 PM -06'00'

Type: Note

ACCEPT - DONE (there's not really any order implied here. The text inside the figure describes the order. However, added arrows showing which OPENS and BREAKs are forwarded or locally replied to.)

Figure 69

The order of the BREAKs in this figure is not clear. They should be numbered in the time order they will occur.

Page: 169

Sequence number: 1

Date: 1/25/2003 11:46:04 AM -06'00'

Type: Highlight

REJECT - the title is "breaking a connection"

7.12.5 Abandoning a connection request

The statement << BREAK to break the connection. >> should be << BREAK to end the connection >>.

Page: 169

Sequence number: 2

Date: 2/19/2003 4:33:06 PM -06'00'

Type: Highlight

REJECT (the title is "breaking")

7.12.6 Breaking a connection

The statement << to break a connection, >> should be << to end a connection, >>.

Page: 169

Sequence number: 3

Date: 3/5/2003 3:49:51 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.6 Breaking a connection

The term << possible >> should be deleted.

Page: 169

Sequence number: 4

Date: 2/19/2003 4:33:26 PM -06'00'

Type: Highlight

REJECT (the title is breaking)

7.12.6 Breaking a connection

The statement << may be broken as the >> should be ended as the >>

Page: 169

Sequence number: 5

Date: 2/19/2003 4:33:38 PM -06'00'

Type: Highlight

REJECT (the title is breaking)

7.12.6 Breaking a connection

The statement << to a broken connection: >> should be << to a connection that has ended do to a BREAK: >>.

Page: 169

Sequence number: 6

Date: 2/19/2003 4:33:49 PM -06'00'

Type: Highlight

REJECT (the title is breaking)

7.12.6 Breaking a connection

The statement << the broken connection; >> should be << to a connection that has ended do to a BREAK: >>.

Page: 169

Sequence number: 7

Date: 2/19/2003 4:33:57 PM -06'00'

Type: Highlight

REJECT (the title is breaking)

7.12.6 Breaking a connection

The statement << a broken connection >> should be << a connection that has ended do to a BREAK >>.

Page: 169

Sequence number: 8

Date: 2/19/2003 4:34:06 PM -06'00'

Type: Highlight

REJECT (the title is breaking)

7.12.6 Breaking a connection

The statement << a broken connection >> should be << a connection that has ended do to a BREAK >>.

Page: 170

Sequence number: 2

Date: 2/10/2003 5:54:46 PM -06'00'

Type: Strikeout

REJECT (it's more unclear with that phrase removed, which would confuse the source of the CLOSE).

7.12.7 Closing a connection

The statement << when the connection was opened. >> does not seem necessary and is unclear. It should be deleted.

Page: 170

Sequence number: 3

Date: 3/5/2003 4:17:19 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved all the affiliation discussion to the STP closing a connection section (which is replacing the STP preparing to close section)))

7.12.7 Closing a connection

The statement << If an expander that supports attachment of a SATA target >> should start a new paragraph.

[also expander should be expander device]

Page: 170

Sequence number: 4

Date: 2/10/2003 3:51:47 PM -06'00'

Type: Circle

ACCEPT - DONE (added parenthetical note in figure that ACK, RRDY, and NAK may be sent after the DONE)

Figure 71

It is not at all clear what the purpose of the ACK and RRDY indications from the transmitter is all about. This needs to be fixed.

Page: 171

Sequence number: 1

Date: 2/10/2003 3:46:46 PM -06'00'

Type: Strikeout

REJECT (from other state machines in other sections is good to mention)

7.13.1 Overview

The statement << from the SL\_IR state machines >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 171

Sequence number: 2

Date: 2/10/2003 3:46:39 PM -06'00'

Type: Strikeout

REJECT (from other state machines in other sections is good to mention)

7.13.1 Overview

The statement << from the SSP, STP, and SMP link layer state machines: >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 171

Sequence number: 3

Date: 2/10/2003 3:46:31 PM -06'00'

Type: Strikeout

REJECT (from other state machines in other sections is good to mention)

7.13.1 Overview

The statement << from the SL\_IR state machines >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 172

Sequence number: 1

Date: 2/28/2003 10:23:00 AM -06'00'

Type: Circle

ACCEPT - DONE (made arrow touch box, left text alone)

Figure 72

The << Enable Disable Link Layer (Disable) >> confirmation needs to touch the edge of the state machine box. The statement << (to all states in all state machines, causing transition to SL0:Idle) >> should be changed to << (This parameter causes a transition to SL0:Idle) >>.

Page: 173

Sequence number: 1

Date: 3/1/2003 6:11:56 PM -06'00'

Type: Note

ACCEPT - DONE

7.13.2 SL transmitter and receiver

There should be a list of inputs and outputs from the SL transmitter listed in this section. Something like this should be added. <<

The SL state machine sends the following parameters to the SL transmitter:

a, b, c list of outputs

The SL state machine receives the following parameters from the SL receiver:

a, b, c list of inputs

Page: 174

Sequence number: 7

Date: 2/28/2003 6:18:45 PM -06'00'

Type: Highlight

REJECT (but deleted whole paragraph)

7.13.2 SL transmitter and receiver

The statement << The SL receiver shall ignore any primitive received inside an OPEN address frame. In this case, a dword shall be considered inside a frame when it is received after an SOAF and before an EOAF if the primitive is received after the 8th data dword following the SOAF. >> seems to be confusing.

Changing it to the following may help

<< The SL receiver shall ignore any primitive received inside an OPEN address frame. In this case, a primitive shall be considered inside a frame when it is received within the first eight data dwords after an SOAF. >>

Page: 174

Sequence number: 8

Date: 2/3/2003 3:32:54 PM -06'00'

Type: Highlight

ACCEPT - DONE (but paragraph deleted)

7.13.3.1 State description

The statement << SSP Link (Enable) confirmation is received >> should be << SSP Link (Enable) parameter is received >>

Page: 174

Sequence number: 9

Date: 2/3/2003 3:27:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (modeled after XL0 wording; dropped "activated" concept)

7.13.3.1 State description

The statement << that is used when the SL state machine is activated and there is no active connection >> should be << that is used when the SL state machine is activated and there is no pending or active connection >>. This should be the same wording that is used in the XL0 state description in 7.14.2.1.

Page: 174

Sequence number: 10

Date: 2/3/2003 3:34:05 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.3.1 State description

The statement << The SL0:Idle state is the >> should be << This state is the >>.

Page: 175

Sequence number: 1

Date: 1/11/2003 5:25:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.4.1 State description

The statement << c) If the frame is discarded then no further action is taken by this state relating to the invalid address frame. >> should not have a c). It should just be a sentence.

Page: 177

Sequence number: 6

Date: 2/3/2003 3:20:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (recast into paragraph rather than a) b) list so "this transition shall occur after" is contiguous)

7.13.5.2 Transition SL2:Selected to SL0:Idle

The statement in 1, 2, 3, and 4 << then after this >> should be changed to << and after this >>. This change should make the statements more clear that they are currently.

Page: 179

Sequence number: 1

Date: 1/24/2003 7:50:55 PM -06'00'

Type: Highlight

REJECT (mentioning both the parent and the two children are important here)

7.14.1 Overview

The statement << facilitated by the expander function - specifically the expander connection manager and expander connection router. >> should be << facilitated by the expander connection manager and the expander connection router. >>

Page: 180

Sequence number: 3

Date: 2/10/2003 3:05:12 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.1 Overview

The statement << The XL state machine shall be activated after the completion of the phy reset sequence by receiving an after receiving an Enable Disable SAS Link (Disable) parameter from the SL\_IR state machines (see 7.8.5). >>

should be changed to

<< The state machine shall start in the XL0:Idle state. The state machine shall transition to the XL0:Idle state from any other state after receiving an Enable Disable SAS Link (Disable) parameter from the SL\_IR state machines (see 7.8.5). >>

Page: 180

Sequence number: 4

Date: 2/10/2003 3:06:07 PM -06'00'

Type: Strikeout

REJECT

7.14.1 Overview

The statement << from the expander connection manager: >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 180

Sequence number: 5

Date: 2/10/2003 3:06:21 PM -06'00'

Type: Strikeout

REJECT

7.14.1 Overview

The statement << from the broadcast primitive processor: >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 180

Sequence number: 6

Date: 2/10/2003 3:06:27 PM -06'00'

Type: Strikeout

REJECT

7.14.1 Overview

The statement << from the SL\_IR state machine: >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 181

Sequence number: 1

Date: 3/1/2003 11:31:06 AM -06'00'

Type: Circle

ACCEPT - DONE

7.14.1 XL state machine overview

Figure 74

The << Enable Disable Link Layer (Disable) >> confirmation needs a cut out from the XL state machine and it needs to touch the edge of the state machine box. [accept]

The statement << (to all states in all state machines, causing transition to XL0:Idle) >> should be changed to << (This parameter causes a transition to XL0:Idle) >>. [reject]

Page: 182

Sequence number: 1

Date: 3/1/2003 11:30:59 AM -06'00'

Type: Circle

ACCEPT - DONE

7.14.1 XL state machine overview

Figure 75

The << Enable Disable Link Layer (Disable) >> confirmation needs a cut out from the XL state machine and it needs to touch the edge of the state machine box. [accept]

The statement << (to all states in all state machines, causing transition to XL0:Idle) >> should be changed to << (This parameter causes a transition to XL0:Idle) >>. [reject]

Page: 183

Sequence number: 1

Date: 3/1/2003 11:30:14 AM -06'00'

Type: Circle

ACCEPT - DONE

#### 7.14.1 XL state machine overview

##### Figure 76

The << Enable Disable Link Layer (Disable) >> confirmation needs a cut out from the XL state machine and it needs to touch the edge of the state machine box. [accept]

The statement << (to all states in all state machines, causing transition to XL0:Idle) >> should be changed to << (This parameter causes a transition to XL0:Idle) >>. [reject]

Page: 183

Sequence number: 2

Date: 3/1/2003 11:23:42 AM -06'00'

Type: Note

ACCEPT - DONE (included that XL transmitter handles rate matching)

7.14.2 XL0:Idle state (before this section)

There needs to be a section added here they gives the XL transmitter and XL receiver information (i.e., the green arrows). This section would be very similar to 7.13.2 SL transmitter and receiver.

Page: 184

Sequence number: 4

Date: 2/10/2003 3:30:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (kept Otherwise)

7.14.2.1 State description

The statement << Otherwise, this state shall repeatedly send a Transmit Idle Dword parameter to the XL transmitter. >> should be << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the XL transmitter (see 7.3). >> and should be it's own paragraph.

Page: 184

Sequence number: 5

Date: 3/15/2003 5:06:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (kept as is here)

7.14.2.1 State description

The statement << that occurs when there is no pending or active connection >> should be << that is used when the XL state machine is activated and there is no pending or active connection >>. This should be the same wording that is used in the SLO state description in 7.13.3.1.

Page: 184

Sequence number: 6

Date: 2/10/2003 3:09:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.2.1 State description

The statement << Transmit Broadcast Primitive parameter >> should be << Transmit Broadcast Primitive request >> .

Page: 184

Sequence number: 7

Date: 2/10/2003 3:10:00 PM -06'00'

Type: Highlight

REJECT (too verbose)

7.14.2.1 State description

The statement << this state shall send a Transmit BROADCAST parameter to the XL transmitter. >> should be << this state shall request a BROADCAST be transmitted by sending a Transmit BROADCAST parameter to the XL transmitter. >>

Page: 184

Sequence number: 8

Date: 2/21/2003 7:39:17 PM -06'00'

Type: Note

ACCEPT - DONE (added into all the transitions out of XL0)

7.14.2 XL0:Idle state

There is not description of what occurs when the Enable Disable SAS Link (Enable) parameter is received. This needs to be fixed.

Page: 184

Sequence number: 9

Date: 3/11/2003 4:27:16 PM -06'00'

Type: Note

ACCEPT - DONE (sentence added in XL0 to XL5 about the argument with the transition)

7.14.2 XL0:Idle state

There is not description of what causes an Open Address Frame parameter to be sent to the XL5 state. This needs to be fixed.

Page: 184

Sequence number: 10

Date: 2/21/2003 7:33:12 PM -06'00'

Type: Highlight

REJECT

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

The statement << shall occur when the following conditions are met: >> should be << shall occur if: >>.

Page: 184

Sequence number: 11

Date: 2/27/2003 5:53:00 PM -06'00'

Type: Circle

ACCEPT - DONE

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

The is nothing in figure 74 that shows a Transmit Open or a Transmit Break. This needs to be fixed.

Page: 184

Sequence number: 12

Date: 2/21/2003 7:34:25 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

The following should be deleted << from another phy via the expander connection router >> as the general rule is that we do not state where things come from in state diagrams.

Page: 184

Sequence number: 13

Date: 2/21/2003 7:36:05 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

The following should be deleted << from another phy via the expander connection router >> as the general rule is that we do not state where things come from in state diagrams. Several of the deletions I am suggesting in 7.14 look like they should reference a section that describes the interaction between expander objects

Page: 184

Sequence number: 14

Date: 2/21/2003 7:36:26 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.2.3 Transition XL0:Idle to XL5:Forward\_Open

The following should be deleted << from another phy via the expander connection router >> as the general rule is that we do not state where things come from in state diagrams.

Page: 184

Sequence number: 15

Date: 2/21/2003 7:36:33 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.2.3 Transition XL0:Idle to XL5:Forward\_Open

The following should be deleted << from another XL state machine via the expander connection router >> as the general rule is that we do not state where things come from in state diagrams.

Page: 184

Sequence number: 16

Date: 2/21/2003 7:36:44 PM -06'00'

Type: Highlight

REJECT

7.14.2.3 Transition XL0:Idle to XL5:Forward\_Open

The statement << shall occur when the following conditions are met: >> should be << shall occur if: >>.

Page: 184

Sequence number: 17

Date: 1/24/2003 7:52:22 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.2.4 Transition XL0:Idle to XL9:Break

The statement << shall occur when a BREAK Received parameter is received. >> should be << shall occur after receiving a



BREAK Received parameter. >>

Page: 184

Sequence number: 18

Date: 2/21/2003 7:37:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.2.5 Transition XL0:Idle to XL10:Break\_Wait

The statement << shall occur when a Transmit Break indication is received from another XL state machine via the expander connection router. >> should be << shall occur after receiving a Transmit Break indication. >>.

Page: 184

Sequence number: 19

Date: 2/21/2003 7:41:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (partially. Changed whens to ifs. Added "repeatedly" to explain the AIP(NORMAL) usage. Removed froms.)

7.14.3.1 State description

The statements << This state shall send the following parameters to the XL transmitter:

a) Transmit AIP (WAITING ON PARTIAL) when an Arbitrating (Waiting On Partial) confirmation is received from the expander connection manager;

b) Transmit AIP (WAITING ON PARTIAL) when an Arbitrating (Blocked On Partial) confirmation is received from the expander connection manager;

c) Transmit AIP (WAITING ON CONNECTION) when an Arbitrating (Waiting On Connection) confirmation is received from the expander connection manager; or

d) Transmit AIP (NORMAL). >> should be << This state shall request:

a) an AIP (WAITING ON PARTIAL) be transmitted by sending a Transmit AIP (WAITING ON PARTIAL) parameter to the XL transmitter if an Arbitrating (Waiting On Partial) confirmation is received;

b) an AIP (WAITING ON PARTIAL) be transmitted by sending a Transmit AIP (WAITING ON PARTIAL) parameter to the XL transmitter if an Arbitrating (WBlocked On Partial) confirmation is received;

c) an AIP (WAITING ON CONNECTION) be transmitted by sending a Transmit AIP (WAITING ON CONNECTION) parameter to the XL transmitter if an Arbitrating (Waiting On Connection) confirmation is received;

d) an AIP (NORMAL) be transmitted by sending a Transmit AIP(NORMAL) if an ????? is received;

Page: 184

Sequence number: 20

Date: 2/10/2003 3:15:36 PM -06'00'

Type: Highlight

REJECT (wrong)

7.14.3.1 State description

The statement << Request Path request >> should be << Request Path confirmation >>.

Page: 185

Sequence number: 3

Date: 3/2/2003 12:01:42 PM -06'00'

Type: Note

ACCEPT - DONE (word in terms of the other two. 1st paragraph start when BOP is received. last paragraph based on receiving some other. Tim H will provide wording for all of XL1).

7.14.3 XL1:Request\_Path state

The way Arbitrating (Block On Partial) is used is not consistent with the way confirmations and parameters are used in the rest of this standard. It is acting more like a signal is this description. This needs to be fixed. There needs to be two arguments; one for Blocked On Partial and another called something like Partial Cleared.

The descriptions would then say that the timer starts on Arbitration (Blocked On Partial) and if no Arbitrating (Partial Cleared) is received before the timer timers out then xyz happens.

Page: 185

Sequence number: 4

Date: 2/10/2003 3:18:23 PM -06'00'

Type: Highlight

REJECT (want to avoid the standard "sent" word here)

7.14.3.1 State description

The statement << status is conveyed to the expander >> should be << status is sent to the expander >>.

Page: 185

Sequence number: 5

Date: 2/27/2003 6:03:13 PM -06'00'

Type: Note

REJECT (it is in the figure already)

7.14.3 XL1:Request\_Path state

There was no description of the Arb Reject parameter shown in figure 74 in this section.

Page: 185

Sequence number: 6

Date: 1/24/2003 7:54:17 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.3.2 Transition XL1:Request\_Path to XL2:Request\_Open

The following should be deleted << from the expander connection manager. >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 185

Sequence number: 7

Date: 2/21/2003 7:45:41 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.3.2 Transition XL1:Request\_Path to XL2:Request\_Open

The following should be deleted << from the expander connection manager. >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 185

Sequence number: 8

Date: 2/21/2003 7:45:38 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.3.2 Transition XL1:Request\_Path to XL2:Request\_Open

The following should be deleted << from the expander connection manager. >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 185

Sequence number: 9

Date: 2/10/2003 3:13:42 PM -06'00'

Type: Circle

ACCEPT - DONE (also changed "after this state receives" to "after receiving")

7.14.3.2 Transition XL1:Request\_Path to XL2:Request\_Open

7.14.3.3 Transition XL1:Request\_Path to XL4:Open\_Reject

7.14.3.4 Transition XL1:Request\_Path to XL0:Idle

7.14.3.5 Transition XL1:Request\_Path to XL9:Break

The term < when >> should be << after >>.

Page: 185

Sequence number: 10

Date: 2/10/2003 3:29:22 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.4.1 State description

The statement << This state shall repeatedly send a Transmit Idle Dword parameter to the XL transmitter. >> should be << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the XL transmitter (see 7.3). >>.

Page: 185

Sequence number: 11

Date: 2/27/2003 6:01:43 PM -06'00'

Type: Note

ACCEPT - DONE (but no Transmit Open indication here)

7.14.4 XL2:Request\_Open state

The Transmit Idle Dword parameter, the Transmit Open request (?), and Transmit Open indication (?) are missing from figure 75. This needs to be fixed.

Page: 185

Sequence number: 12

Date: 2/27/2003 5:57:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.4.1 State description

The statement << This state shall send a Transmit >> give no indication as to when this is supposed to happen. I am guessing the statement should be << Upon entry into this state, this state shall send a Transmit >>.

Page: 185

Sequence number: 13

Date: 2/21/2003 7:44:12 PM -06'00'

Type: Strikeout

REJECT (shows the relationship from the request to the indication)

7.14.4.1 State description

The statement << received by the destination phy as a Transmit Open indication. >> should be deleted.

Page: 185

Sequence number: 14

Date: 2/10/2003 3:20:03 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.4 XL2:Request\_Open state

The statement << Transmit Open request/indication >> should be << Transmit Open request >>.

Page: 185

Sequence number: 15

Date: 2/27/2003 5:57:10 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after sending a Transmit Open request.")

7.14.4.2 Transition XL2:Request\_Open to XL3:Open\_Confirm\_Wait

The statement << This transition shall occur after the OPEN address frame has been forwarded to a destination phy. >> should be  
<< This transition shall occur after sending an OPEN address frame transmitted by sending a Transmit OPEN Address Frame  
parameter to the XL transmitter of a destination phy. >>

Page: 185

Sequence number: 16

Date: 2/21/2003 7:42:32 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.3.1 State description

The statement << from the expander connection manager. >> should be deleted as the general rule is that we do not state where  
things come from in state diagrams.

Page: 186

Sequence number: 2

Date: 2/27/2003 6:08:30 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "After sending a Transmit OPEN\_ACCEPT parameter.")

7.14.5.3 Transition XL3:Open\_Confirm\_Wait to XL7:Connected

There is no << OPEN\_ACCEPT Transmitted >> parameter in figure 75.

Page: 186

Sequence number: 3

Date: 3/1/2003 4:47:39 PM -06'00'

Type: Square

REJECT (shall sends go here)

7.14.5.1 State description

Most of what is in the following statements should be placed in the section that describe the transitions as the receipt of the various  
confirmation (if they really are configurations) and parameter cause the state transitions It also needs to be reworded to match the  
wording used in the other state diagram sections << This state shall send the following parameters to the XL transmitter:

- a) Transmit AIP (NORMAL) when an Arb Status (Normal) confirmation is received;
- b) Transmit AIP (WAITING ON PARTIAL) when an Arb Status (Waiting On Partial) confirmation is received;
- c) Transmit AIP (WAITING ON CONNECTION) when an Arb Status (Waiting On Connection) confirmation is received;
- d) Transmit AIP (WAITING ON DEVICE) when an Arb Status (Waiting On Device) confirmation is received;
- e) Transmit OPEN\_ACCEPT when an Open Accept confirmation is received;
- f) Transmit OPEN\_REJECT when an Open Reject confirmation is received; or
- g) Transmit Idle Dword when none of the previous conditions are present.

This state shall send a Transmit Break request to a destination phy when a BREAK Received parameter is received. >>

Page: 186

Sequence number: 4

Date: 2/10/2003 3:32:07 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.5.1 State description

The statement << g) Transmit Idle Dword when none of the previous conditions are present. >> should be << This state shall  
request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to  
the XL transmitter (see 7.3). >>.

Page: 186

Sequence number: 5

Date: 2/27/2003 6:06:50 PM -06'00'

Type: Highlight

ACCEPT - DONE (but it's a confirmation not a request)

7.14.5.1 State description

The statement << Arb Status (Waiting on Partial) is received, >> should be << Arb Status (Waiting on Partial) request is received, >>

Page: 186

Sequence number: 6

Date: 3/1/2003 4:47:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.5.1 State description

The statement << Otherwise, this state shall send a Phy Status (Partial Pathway) confirmation to the expander connection manager. >> Is not precise in that it gives no information as to when the Phy Status (Partial Pathway) confirmation is to be sent.

Page: 186

Sequence number: 7

Date: 2/21/2003 7:46:08 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.5.2 Transition XL3:Open\_Confirm\_Wait to XL0:Idle

The statement << from a destination phy, >> should be deleted.

Page: 186

Sequence number: 8

Date: 2/21/2003 7:46:47 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.5.2 Transition XL3:Open\_Confirm\_Wait to XL0:Idle

The statement << from a destination phy, >> should be deleted.

Page: 186

Sequence number: 9

Date: 2/21/2003 7:46:52 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.5.2 Transition XL3:Open\_Confirm\_Wait to XL0:Idle

The statement << from a destination phy, >> should be deleted.

Page: 186

Sequence number: 10

Date: 2/21/2003 7:49:22 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.5.3 Transition XL3:Open\_Confirm\_Wait to XL7:Connected

The statement << from a destination phy, >> should be deleted.

Page: 186

Sequence number: 11

Date: 2/21/2003 7:49:38 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.5.5 Transition XL3:Open\_Confirm\_Wait to XL10:Break\_Wait

The statement << from a destination phy, >> should be deleted.

Page: 186

Sequence number: 12

Date: 2/27/2003 6:05:11 PM -06'00'

Type: Circle

ACCEPT - DONE (fixed picture. Actually the pictures are wrong. they are confirmations and need to be shown passed up. The expander function needs to be below the XL not above it)

7.14.5.2 Transition XL3:Open\_Confirm\_Wait to XL0:Idle

7.14.5.3 Transition XL3:Open\_Confirm\_Wait to XL7:Connected

According to Figure 75 the term << confirmation >> in these sections should be << request >>.

Page: 186

Sequence number: 13

Date: 3/1/2003 4:45:46 PM -06'00'

Type: Circle

REJECT

7.14.5.2 Transition XL3:Open\_Confirm\_Wait to XL0:Idle

There is no parameter in figure 75 that shows anything about << path resources >> being released. This needs to be fixed.

Page: 186

Sequence number: 14

Date: 2/27/2003 6:09:32 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after sending a Transmit Break request.")

7.14.5.4 Transition XL3:Open\_Confirm\_Wait to XL9:Break

The statement << after a BREAK Received parameter is received and a Transmit Break request has been sent to a destination phy. >> should be << after receiving BREAK Received parameter and requesting a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter of a destination phy. >>

Page: 186

Sequence number: 15

Date: 2/27/2003 6:10:05 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after receiving a Transmit Break indication.")

7.14.5.5 Transition XL3:Open\_Confirm\_Wait to XL10:Break\_Wait

The statement << occur when a Transmit Break indication is received >> should be << occur after receiving a Transmit Break request. >>.

Page: 186

Sequence number: 16

Date: 3/1/2003 4:44:54 PM -06'00'

Type: Note

ACCEPT - DONE (changed to "argument")

7.14.6.1 State description

There is no Arb Reject confirmation in figure 74. There is an Arb Reject parameter passed from the XL1 state. But that is not described in the XL1 state. This needs to be fixed.

Page: 186

Sequence number: 17

Date: 3/1/2003 4:42:09 PM -06'00'

Type: Note

REJECT (state descriptions describe shall sends)

7.14.6.1 State description

Most of what is in the following statements should be placed in the section that describe the transitions as the receipt of the various confirmation (if they really are configurations) and parameter cause the state transitions It also needs to be reworded to match the wording used in the other state diagram sections

<< This state shall send the following parameters to the XL transmitter:

a) Transmit OPEN\_REJECT (NO DESTINATION) when an Arb Reject (No Destination) confirmation is received from the expander connection manager;

b) Transmit OPEN\_REJECT (BAD DESTINATION) when an Arb Reject (Bad Destination) confirmation is received from the expander connection manager;

c) Transmit OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED) when an Arb Reject (Bad Connection Rate) confirmation is received from the expander connection manager;

d) Transmit OPEN\_REJECT (PATHWAY BLOCKED) when an Arb Reject (Pathway Blocked) confirmation is received from the expander connection manager. >>

Page: 186

Sequence number: 18

Date: 2/10/2003 3:21:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.6.1 State description

The statement << Thist state shall >> should be << This state shall >>

Page: 186

Sequence number: 19

Date: 2/21/2003 7:50:05 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.6.1 State description

The statement << from the expander connection manager;>> should be deleted as the general rule is that we do not state where

things come from in state diagrams.

Page: 186

Sequence number: 20

Date: 2/21/2003 7:50:12 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.6.1 State description

The statement << from the expander connection manager; >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 187

Sequence number: 2

Date: 3/1/2003 4:58:35 PM -06'00'

Type: Note

ACCEPT - DONE (the address frame is an argument with the transition. Added idle dwords paragraph.)

7.14.7 XL5:Forward\_Open state

There is an << Open Address Frame >> parameter and a << Transmit Idle Dword >> parameter in figure 75 for this state that are not described in this section. That needs to be fixed.

Page: 187

Sequence number: 3

Date: 2/21/2003 7:52:11 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted "received from..." the frame is an argument to the Transmit Open)

7.14.7.1 State description

The statement << frame indicated by the Transmit Open indication received from a source phy >> does not make any sense. I'm not sure how to fix it but it must be fixed.

Page: 187

Sequence number: 4

Date: 2/21/2003 7:53:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (track with other comment)

7.14.7.1 State description

There is no << Transmit Open indication >> shown in figure 75. This needs to be fixed.

Page: 187

Sequence number: 5

Date: 3/1/2003 4:55:18 PM -06'00'

Type: Highlight

ACCEPT - DONE (upon entry)

7.14.7.1 State description

The statement << This state shall send a Transmit OPEN Address Frame parameter to the XL transmitter with the fields set to the values specified by the >> has some problems. There is no indication as to where or what event causes what is stated to occur.

This needs to be fixed. Then it needs to be reworded to something like << After (trigger event) this state shall request an OPEN address frame be transmitted by sending a Transmit OPEN Address Frame parameter to the XL transmitter. The Transmit OPEN Address Frame arguments shall be set to the values specified by the Transmit Open indication. >>

Page: 187

Sequence number: 6

Date: 3/1/2003 4:58:13 PM -06'00'

Type: Highlight

ACCEPT - DONE (after receiving OPEN Address Frame Transmitted)

How does this state know when an << OPEN address frame has been transmitted. >> when there are no Open Address Frame Transmitted parameters as inputs? This needs to be fixed.

Page: 187

Sequence number: 7

Date: 2/10/2003 3:32:18 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.1 State description

The statement << This state shall transmit idle dwords. >> >> should be << This state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the XL transmitter (see 7.3). >>.

Page: 187

Sequence number: 8

Date: 2/27/2003 6:15:44 PM -06'00'

Type: Circle

ACCEPT - DONE (added OPEN\_NN Received to figure and use that phrase in text)

7.14.8.1 State description

There is no OPEN\_ACCEPT or OPEN\_REJECT parameters shown in figure 75. This needs to be corrected.

Page: 187

Sequence number: 9

Date: 3/1/2003 4:48:49 PM -06'00'

Type: Square

REJECT (shall sends go here)

7.14.8.1 State description

Most of what is in the following statements should be placed in the section that describe the transitions as the receipt of the various confirmation (if they really are configurations) and parameter cause the state transitions It also needs to be reworded to match the wording used in the other state diagram sections

<< This state shall send the following responses through the expander connection router to a source phy, received by the source phy as confirmations:

- a) Open Accept when OPEN\_ACCEPT is received;
- b) Open Reject when OPEN\_REJECT is received;
- c) Backoff Retry when a higher priority OPEN address frame is received (see 7.12.3) and the source SAS address and connection rate of the received OPEN address frame are not equal to the destination SAS address and connection rate of the transmitted OPEN address frame; or
- d) Backoff Reverse Path when a higher priority OPEN address frame is received (see 7.12.3) and the source SAS address and connection rate of the received OPEN address frame are equal to the destination SAS address and connection rate of the transmitted OPEN address frame.

Page: 187

Sequence number: 10

Date: 3/1/2003 4:48:41 PM -06'00'

Type: Highlight

REJECT ("Arb Status" is not transmitted by anything, it's an internal signal. Fine as is.)

7.14.8.1 State description

The statement << This state shall send the following arbitration responses through the expander connection router to a source phy, received by the source phy as confirmations:

- a) Arb Status (Waiting On Device) when an AIP Received parameter has not been received;
- b) Arb Status (Normal) when an AIP (NORMAL) Received parameter is received;
- c) Arb Status (Waiting On Partial) when an AIP (WAITING ON PARTIAL) Received parameter is received;
- d) Arb Status (Waiting On Connection) when an AIP (WAITING ON CONNECTION) Received parameter is received; and
- e) Arb Status (Waiting On Device) when an AIP (WAITING ON DEVICE) Received parameter is received.

>> should be << This state shall request:

- a) an Arb Status (Waiting On Device) be transmitted by sending an Arb Status (Waiting On Device) parameter to the XL transmitter if an AIP Received parameter is not received; >>This gives no indication as to when the parameter that is not received is checked or under what conditions it is considered not received <<
- b)an Arb Status (Normal) be transmitted by sending an Arb Status (Normal) parameter to the XL transmitter if an AIP (NORMAL) Received parameter is received;
- c)an Arb Status (Waiting On Partial) be transmitted by sending an Arb Status (Waiting On Partial) parameter to the XL transmitter if an AIP (WAITING ON PARTIAL) Received parameter is received;
- d)an Arb Status (Waiting On Connection) be transmitted by sending an Arb Status (Waiting On Connection) if an AIP (WAITING ON CONNECTION) Received parameter is received; and
- e)an Arb Status (Waiting On Device) be transmitted by sending an Arb Status (Waiting On Device) if an AIP (WAITING ON DEVICE) Received parameter is received. >>.

Page: 187

Sequence number: 11

Date: 2/21/2003 7:50:19 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.6.1 State description

The statement << from the expander connection manager; >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 187

Sequence number: 12

Date: 2/21/2003 7:50:27 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.6.1 State description

The statement << from the expander connection manager; >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 188

Sequence number: 4

Date: 3/1/2003 5:20:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (used repeatedly)

7.14.8.1 State description

The statement << Otherwise, this state shall send a Phy Status (Partial Pathway) confirmation to the expander connection manager. >> Is not precise in that it gives no information as to when the Phy Status (Partial Pathway) confirmation is to be sent.

Page: 188

Sequence number: 5

Date: 2/27/2003 6:19:35 PM -06'00'

Type: Highlight

REJECT (comment doesn't match highlighted text)

7.14.8.1 State description

The statement << Arb Status (Waiting on Partial) is received, >> should be << Arb Status (Waiting on Partial) request is received, >>

Page: 188

Sequence number: 6

Date: 3/1/2003 5:00:44 PM -06'00'

Type: Highlight

REJECT (it's not talking about a transition.)

7.14.8.1 State description

The statement << This state shall send a Transmit Break request to a source phy when a BREAK Received parameter is received. >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 188

Sequence number: 7

Date: 2/27/2003 6:17:59 PM -06'00'

Type: Highlight

REJECT

7.14.8.2 Transition XL6:Open\_Response\_Wait to XL0:Idle

The statement << The XL7:XL0 transition shall occur after one of the following conditions are met: >> should be << This transition shall occur after: >>.

Page: 188

Sequence number: 8

Date: 3/1/2003 5:06:23 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved path resource release rules into state description, simplified transition to just after sending one of the two responses)

7.14.8.2 Transition XL6:Open\_Response\_Wait to XL0:Idle

The statement << OPEN\_REJECT is received, Open Reject response has been sent to a source phy, and path resources have been released; >> should be << an OPEN\_REJECT is received, and after requesting an Open Reject be transmitted by sending an Open Reject response to the XL transmitter of a source phy and after path resources have been released >>

Also, there is nothing in figure 75 that would indicate what parameter is used to determine that << resources have been released >>.

Page: 188

Sequence number: 9

Date: 3/1/2003 5:07:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.2 Transition XL6:Open\_Response\_Wait to XL0:Idle

The statement << received OPEN address frame >> should be << received OPEN Address Frame Received parameter >>

Page: 188

Sequence number: 10

Date: 3/1/2003 5:08:09 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved rules into state description. You're on your own w.r.t. path resources).

7.14.8.2 Transition XL6:Open\_Response\_Wait to XL0:Idle

The statement << a Backoff Retry response has been sent

to a source phy, and path resources have been released. >> should be << and after requesting an Backoff Retry be transmitted by sending a Backoff Retry response to the XL transmitter of a source phy and after path resources have been released >>

Also, there is nothing in figure 75 that would indicate what parameter is used to determine that << resources have been released >>.



Page: 188

Sequence number: 11

Date: 3/1/2003 5:09:23 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.3 Transition XL6:Open\_Response\_Wait to XL2:Request\_Open

The statement << received OPEN address frame >> should be << received OPEN Address Frame Received parameter >>

Page: 188

Sequence number: 12

Date: 2/27/2003 6:17:38 PM -06'00'

Type: Highlight

REJECT (there's no such thing as transmitting a Backoff Reverse Path)

7.14.8.3 Transition XL6:Open\_Response\_Wait to XL2:Request\_Open

The statement << and Backoff Reverse Path response has been sent to a source phy.>> should be << and after requesting a Backoff Reverse Path be transmitted by sending a Backoff Reverse Path response to the XL transmitter of a source phy >>

Page: 188

Sequence number: 13

Date: 2/21/2003 7:55:31 PM -06'00'

Type: Highlight

REJECT (but shortened to just "after sending")

7.14.8.5 Transition XL6:Open\_Response\_

The statement << occur after a BREAK is received and Transmit Break response is sent to a source phy. >> should be << after receiving BREAK Received parameter and requesting a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter of a source phy. >>

Page: 188

Sequence number: 14

Date: 2/21/2003 7:54:53 PM -06'00'

Type: Highlight

REJECT (it's an indication not a request)

7.14.8.6 Transition XL6:Open\_Response\_Wait to XL10:Break\_Wait

The statement << occur when a Transmit Break indication is received >> should be << occur after receiving a Transmit Break request. >>.

Page: 188

Sequence number: 15

Date: 2/21/2003 7:54:28 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.8.6 Transition XL6:Open\_Response\_Wait to XL10:Break\_Wait

The statement << from a source phy. >> should be deleted.

Page: 188

Sequence number: 16

Date: 3/1/2003 5:16:46 PM -06'00'

Type: Highlight

ACCEPT - DONE (but kept here)

7.14.9.1 State description

The statement << This state shall send a Transmit Break request to a connected phy when a BREAK Received parameter is received.. >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 188

Sequence number: 17

Date: 3/1/2003 5:16:55 PM -06'00'

Type: Highlight

ACCEPT - DONE (but kept here)

7.14.9.1 State description

The statement << This state shall send a Transmit Close request to a connected phy when a CLOSE Received parameter is received >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 188

Sequence number: 18

Date: 3/1/2003 5:21:27 PM -06'00'

Type: Square

ACCEPT - DONE (reworded)

7.14.9.1 State description

The statements << This state shall transmit all dwords received by the Transmit Dword indication from a connected phy via the expander connection router.

This state shall send all valid dwords received by the SAS phy through the expander connection router to a connected phy using the Transmit Dword request with the exception of BREAK and CLOSEes. >> are very confusing. The indications, responses, and parameters need to be more clearly defined as to which cause what action. This needs to be fixed.

Page: 188

Sequence number: 19

Date: 3/1/2003 5:23:12 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.9.2 Transition XL7:Connected to XL8:Close\_Wait

The statement << from a connected phy via the expander connection router. >> needs to be deleted.

Page: 188

Sequence number: 20

Date: 3/1/2003 5:22:54 PM -06'00'

Type: Highlight

REJECT (no, the state this transition is going to, XL8, will send the Transmit CLOSE parameter. This state just exists when the indication shows up.)

7.14.9.1 State description

The statement << This transition shall occur when a Transmit Close indication is received >> should be This transition shall occur after receiving a Transmit Close indication and after requesting a Transmit Close be transmitted by sending a Transmit Close parameter to the XL transmitter of a connected phy. >>

Page: 188

Sequence number: 21

Date: 3/1/2003 5:17:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (added repeatedly)

7.14.9.1 State description

The statement << This state shall send a Phy Status (Connected) confirmation to the expander connection manager. >> gives no indication as to what event triggers the confirmation being sent. This needs to be fixed.

Page: 189

Sequence number: 1

Date: 2/10/2003 3:42:31 PM -06'00'

Type: Highlight

ACCEPT - DONE (based on after sending the request alone)

7.14.9.3 Transition XL7:Connected to XL9:Break

The statement << occur when a BREAK Received parameter is received. >> should be << after receiving BREAK Received parameter and requesting a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter. >>

Page: 189

Sequence number: 2

Date: 2/10/2003 3:41:40 PM -06'00'

Type: Highlight

REJECT (indication is the proper term for input versions)

7.14.9.4 Transition XL7:Connected to XL10:Break\_Wait

The statement << occur when a Transmit Break indication is received >> should be << occur after receiving a Transmit Break request. >>.

Page: 189

Sequence number: 3

Date: 2/21/2003 7:56:32 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.9.4 Transition XL7:Connected to XL10:Break\_Wait

The statement << from a connected phy via the expander connection router. >> should be deleted.

Page: 189

Sequence number: 4

Date: 2/21/2003 7:55:56 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.10.4 Transition XL8:Close\_Wait to XL10:Break\_Wait

The statement << from a connected phy via the expander connection router. >> should be deleted.

Page: 189

Sequence number: 5

Date: 2/10/2003 3:41:12 PM -06'00'

Type: Highlight

REJECT (it's called an indication when it is the input version)

7.14.10.4 Transition XL8:Close\_Wait to XL10:Break\_Wait

The statement << occur when a Transmit Break indication is received >> should be << occur after receiving a Transmit Break request. >>

Page: 189

Sequence number: 6

Date: 1/24/2003 7:57:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (but it's a Transmit Break request to the internals, not a Transmit Break to the XL transmitter)

7.14.10.3 Transition XL8:Close\_Wait to XL9:Break

The statement << occur when a BREAK Received parameter is received. >> should be << after receiving BREAK Received parameter and requesting a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter. >>

Page: 189

Sequence number: 7

Date: 3/4/2003 3:04:54 PM -06'00'

Type: Highlight

ACCEPT - DONE (after sending a Transmit Close and releasing...)

7.14.10.2 Transition XL8:Close\_Wait to XL0:Idle

The statement << after a CLOSE has been both transmitted and received and after path resources have been released for this connection. >> should be << after receiving a Close Received parameter, after requesting a CLOSE be transmitted by sending a Transmit Close to the XL transmitter of a connected phy, and after sending a Transmit Close request to the ????. The expander device shall transmit the same CLOSE primitive that was received (e.g. CLOSE (NORMAL) forwarded as CLOSE (NORMAL)). >>.

Page: 189

Sequence number: 8

Date: 2/10/2003 3:38:54 PM -06'00'

Type: Highlight

REJECT

7.14.10.1 State description

The statement << This state shall send a Transmit Break request to a connected phy when a BREAK Received parameter is received. >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 189

Sequence number: 9

Date: 2/10/2003 3:38:40 PM -06'00'

Type: Highlight

REJECT

The statement << This state shall send a Transmit Close request to a connected phy when a CLOSE Received parameter is received. The expander device shall transmit the same CLOSE primitive that was received (e.g. CLOSE (NORMAL) forwarded as CLOSE (NORMAL)). >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 189

Sequence number: 10

Date: 2/10/2003 3:38:14 PM -06'00'

Type: Highlight

REJECT (just being in the state suffices)

The statement << This state shall send a Transmit >> gives no indication as to when this is supposed to occur. This needs to be fixed.

Page: 189

Sequence number: 11

Date: 2/10/2003 3:32:29 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.10.1 State description

The statement << then shall repeatedly send a

Transmit Idle Dword parameter to the XL transmitter. >> should be << then this state shall request idle dwords be transmitted by repeatedly sending a Transmit Idle Dword parameter to the XL transmitter (see 7.3). >>.

Page: 189

Sequence number: 12

Date: 2/10/2003 3:37:59 PM -06'00'

Type: Highlight

REJECT (just being in the state suffices)

7.14.10.1 State description

The statement << This state shall send a Phy Status (Connected) confirmation to the expander connection manager. >> gives no indication as to what event triggers the confirmation being sent. This needs to be fixed.

Page: 189

Sequence number: 13

Date: 3/1/2003 5:29:03 PM -06'00'

Type: Square

ACCEPT - DONE (reworded)

7.14.10.1 State description

The statements << This state shall send all valid dwords received by the SAS phy through the expander connection router to a connected phy using the Transmit Dword request with the exception of BREAK and CLOSEes. >> are very confusing. The indications, responses, and parameters need to be more clearly defined as to which cause what action. This needs to be fixed.

Page: 189

Sequence number: 14

Date: 2/10/2003 3:37:15 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed "any" - beyond that is up to the implementer)

7.14.11.1 State description

How does this happen? << releases any path resources. >>

Page: 189

Sequence number: 15

Date: 2/10/2003 3:36:53 PM -06'00'

Type: Highlight

REJECT

7.14.11.1 State description

The statement << This state shall send a Transmit BREAK parameter to the XL transmitter. >> needs to be moved into the relevant state transition. And reworded to the standard wording.

Page: 189

Sequence number: 16

Date: 2/10/2003 3:36:40 PM -06'00'

Type: Highlight

ACCEPT - DONE

The statement << This transition shall occur after transmitting a BREAK. >> should be << This transition shall occur after requesting a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter. >>

Page: 189

Sequence number: 17

Date: 2/10/2003 3:35:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed "any". The meaning is up to the implementer.)

7.14.12.1 State description

How does this happen? << releases any path resources. >>

Page: 189

Sequence number: 18

Date: 2/10/2003 3:34:16 PM -06'00'

Type: Highlight

REJECT (why be so verbose?)

The statement << send a Transmit BREAK parameter to the XL transmitter. >> should be << request a BREAK be transmitted by sending a Transmit BREAK parameter to the XL transmitter.

Page: 190

Sequence number: 3

Date: 1/25/2003 4:12:38 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14.12.2 Transition XL10:Break\_Wait to XL0:Idle

The statement << whichever occurs first. >> should be deleted.

Page: 190

Sequence number: 4  
Date: 2/4/2003 6:23:46 PM -06'00'  
Type: Highlight  
REJECT (paragraph being deleted per Brian Day comment)  
7.15 Rate matching  
The statement << on any potential  
intermediate physical link. >> should be << on any physical link that makes up any potential pathway >>.

Page: 190  
Sequence number: 5  
Date: 2/18/2003 3:31:53 PM -06'00'  
Type: Strikeout  
REJECT (helps explain why we have this bizzare rotation)  
7.15 Rate matching  
The statement << to reduce EMI. >> should be deleted. As that information is not needed.

Page: 190  
Sequence number: 6  
Date: 2/4/2003 6:31:42 PM -06'00'  
Type: Circle  
REJECT (but redraw figure show the phys are shown left-to-right and the timelines are labeled)  
Figure 77  
This figure would be clearer if the phy-expander-phy boxes where removed and the arrows from the text point to the correct blobs.

Page: 190  
Sequence number: 7  
Date: 2/4/2003 6:28:00 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
7.15 Rate matching  
The term << immediately >> should be deleted.

Page: 190  
Sequence number: 8  
Date: 2/4/2003 6:28:31 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (changed to "forwarding")  
The statement << after seeing an OPEN\_ACCEPT. >> should be << after transmitting (receiving ??) an OPEN\_ACCEPT >>. I'm not sure which is correct but I don't think expanders are going to have eyes that will see things.

Page: 190  
Sequence number: 9  
Date: 2/21/2003 8:05:35 PM -06'00'  
Type: Note  
ACCEPT - DONE (start after the EOAF. No rate matching mentioned during the OPEN itself. No requirement that ALIGNs or normal dword be sent first.)  
7.15 Rate matching  
\*\*\*\*  
There is no description about when the source is supposed to start transmitting at the link rate sent in the OPEN. This needs to be specified here.

Page: 191  
Sequence number: 2  
Date: 2/18/2003 3:41:40 PM -06'00'  
Type: Highlight  
REJECT (better as is)  
7.16.2 Full duplex  
The statement << so the DONE (NORMAL) may be followed  
by RRDYs, ACKs, and NAKs. >> should be << allowing RRDYs, ACKs, and NAK to follow a DONE (NORMAL). >>

Page: 191  
Sequence number: 3  
Date: 2/18/2003 3:49:24 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE (didn't delete, but removed shall, changed 28 bytes to "too short", and added xref to SSP\_RF state machine)  
7.16.3 SSP frame transmission  
The statement << The link layer shall  
check that the number of data dwords between the SOF and EOF is at least 28 bytes and that the CRC is  
valid. >> should be deleted as the requirement is contains in the state descriptions.

Page: 191

Sequence number: 4

Date: 2/18/2003 4:01:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (but the This prevents is actually for the initiator "shall never refuse" sentence in the paragraph, not the target "may refuse to" sentence. Prefaced the first sentence with "To prevent deadlocks..." and moved the target "may" rule to its own paragraph.)

7.16.4 SSP flow control

The statement << An SSP target port or an SSP target/initiator port acting in its target role may refuse to provide credit for any reason, including because it needs to transmit a frame itself. This prevents deadlocks where both ports are waiting on the other to provide credit. >> should be

<< To prevent deadlocks where both an SSP target port and an SSP initiator port are waiting on the other to provide credit an SSP target port or an SSP target/initiator port acting in its target role may refuse to provide credit for any reason, including because it needs to transmit a frame itself. >>

Page: 191

Sequence number: 5

Date: 1/24/2003 7:57:58 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.4 SSP flow control

The statement << be interlocked. >> should be << be interlocked and which shall be non-interlocked >>.

Page: 193

Sequence number: 2

Date: 2/18/2003 7:07:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

The statement << 1 ms; the ACK/NAK count >> should be << 1 ms and as a result the ACK/NAK count >>.

Page: 193

Sequence number: 3

Date: 1/22/2003 9:56:19 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

The is a space missing at the end if this sentence << channel.Once a port >>.

Page: 193

Sequence number: 4

Date: 1/24/2003 8:04:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

I believe the may in the statement << it may close the connection by transmitting the CLOSE >> should be a shall.

Page: 194

Sequence number: 6

Date: 2/10/2003 1:20:28 PM -06'00'

Type: Strikeout

REJECT (fine for a state machine documented elsewhere)

7.16.7.1 Overview

The statement << from the SL state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 194

Sequence number: 7

Date: 2/10/2003 1:20:34 PM -06'00'

Type: Strikeout

REJECT (fine for a state machine documented elsewhere)

7.16.7.1 Overview

The statement << from the SL state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 194

Sequence number: 8

Date: 2/10/2003 1:20:07 PM -06'00'

Type: Strikeout

REJECT (fine for an overview)

7.16.7.1 Overview

The statement << from the SSP\_D1:DONE\_Wait state >> as the general rule is that we do not state where things come from in state diagrams.

Page: 194

Sequence number: 9

Date: 2/10/2003 1:20:11 PM -06'00'

Type: Strikeout

REJECT (fine for an overview)

7.16.7.1 Overview

The statement << from the SSP\_D1:DONE\_Wait state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 197

Sequence number: 3

Date: 3/1/2003 11:42:04 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.7 SSP link layer (SSP) state machines

There needs to be a section added after figure 84 and before 7.16.7.2 to describe the SSP transmitter and SSP receiver.

Something like this needs to be here . << The SSP state machine sends the following parameters to the SSP transmitter:

a, b, c list of outputs

The SSP state machine receives the following parameters from the SSP receiver:

a, b, c list of inputs >> in addition there should be wording like that in section 7.13.2.

Page: 199

Sequence number: 6

Date: 2/10/2003 2:22:11 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.16.7.5.1 State description

The statement << from the port layer >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 199

Sequence number: 7

Date: 2/10/2003 2:12:56 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.4.1 State description

The statement << A DONE (ACK/NAK TIMEOUT) confirmation informs >> should be << A DONE Received (ACK/NAK TIMEOUT) >>.

Page: 200

Sequence number: 8

Date: 2/10/2003 2:24:55 PM -06'00'

Type: Highlight

REJECT (getting rid of SOF/.../EOF name)

7.16.7.7.1 State description

The statement << that the frame has been >> should be << that the SOF/frame/EOF have been >>.

Page: 202

Sequence number: 6

Date: 1/31/2003 6:06:43 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state

The statement << from the SSP\_TAN1:Idle state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 202

Sequence number: 7

Date: 1/31/2003 6:07:05 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state

The statement << from the SSP\_RF1:Rcv\_Frame state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 203

Sequence number: 1

Date: 1/31/2003 6:07:40 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.16.7.14.1 State description

The statement << from the SSP\_RF1:Rcv\_Frame state. >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 204

Sequence number: 3

Date: 2/10/2003 2:48:23 PM -06'00'

Type: Highlight

REJECT (no "translation" is occurring. However, this whole paragraph is reworded with the STP/SATA bridge terminology).

7.17.1 STP frame transmission

The statement << Table 84 shows a target port transmitting a SATA frame to an expander port. >> should be << Table 84 shows the expander port or STP initiator port translation of a SATA frame or primitive to an STP frame or primitive when the STP frame or primitive is received from a SATA target >>.

Page: 204

Sequence number: 4

Date: 2/20/2003 9:32:16 AM -06'00'

Type: Highlight

ACCEPT - DONE (Deleted the path phrase; no need to mention intermediate expanders here. Reworded "solely" to "In this example, ... to send just one frame")

7.17.1 STP frame transmission

The statement << on the path to the STP initiator port solely for the frame. >> should be << on the pathway to the STP initiator port. >>. I don't understand what << solely for the frame >> means. It doesn't seem to imply that every frame requires an open to be transmitted which should not be correct.

Page: 204

Sequence number: 5

Date: 2/10/2003 2:48:58 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded whole paragraph)

7.17.1 STP frame transmission

The statement << Table 85 shows an STP initiator port transmitting a frame, with the expander device attached to the SATA target port opening a connection solely for the frame. >> should be

<< Table 85 shows the expander port translation of a STP frame or primitive to an SATA frame or primitive when the STP frame or primitive is received from an STP initiator port or expander port. The STP initiator port opens a connection to an expander port on a pathway to the expander. >> I don't understand what << solely for the frame >> means. It doesn't seem to imply that every frame requires an open to be transmitted which should not be correct.

Page: 205

Sequence number: 2

Date: 2/10/2003 2:57:21 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.2 STP flow control

The statement << number of dwords it must store in an internal buffer if it can do so without exceeding >> should be << number of dwords it is required to store in an internal buffer if it does so without exceeding >>.

Page: 205

Sequence number: 3

Date: 2/17/2003 2:41:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.2 STP flow control

The statement << during which each expander device must accept incoming data dwords into a buffer. >> should be << during which each expander device shall accept incoming data dwords into a buffer. >>.

Page: 205

Sequence number: 4

Date: 2/10/2003 2:55:42 PM -06'00'

Type: Highlight



ACCEPT - DONE (but reworded for STP/SATA bridge)

7.17.1 STP frame transmission

The statement << CLOSE on the expander >> should be << CLOSE at the expander >>.

Page: 205

Sequence number: 5

Date: 2/10/2003 2:55:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (but reworded for STP/SATA bridge)

7.17.1 STP frame transmission

The statement << CLOSE on the expander >> should be << CLOSE at the expander >>.

Page: 205

Sequence number: 6

Date: 2/10/2003 2:55:53 PM -06'00'

Type: Highlight

ACCEPT - DONE (but reworded for STP/SATA bridge)

7.17.1 STP frame transmission

The statement << While the connection is open, the expander device is not involved. >> should be << While the connection is open, the expander device passes through all dwords without modification. >>

Page: 207

Sequence number: 4

Date: 1/25/2003 11:49:08 AM -06'00'

Type: Highlight

REJECT (whole paragraph deleted anyway)(could add a see SATA xref)

7.17.3 Preparing to close an STP connection

The term << command-tag

queuing >> is not used anywhere else in this document. Either it needs to be defined or deleted.

Page: 207

Sequence number: 5

Date: 1/25/2003 11:49:26 AM -06'00'

Type: Highlight

REJECT (whole paragraph deleted)

7.17.3 Preparing to close an STP connection

The statement << An expander device may issue CLOSE at the end of each frame, after a time out waiting for another frame, after every n frames, after a certain time period, after a SATA\_CONT is detected, after a SATA\_HOLD is detected. >> should be an a,b,c list and needs an << or >> between the last two cases.

Page: 208

Sequence number: 3

Date: 2/1/2003 4:34:21 PM -06'00'

Type: Strikeout

REJECT (SL to SMP communication froms allowed)

7.18.4.1 Overview

The statement << from the SL state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 4

Date: 2/1/2003 4:34:27 PM -06'00'

Type: Strikeout

REJECT (SL to SMP communication froms allowed)

7.18.4.1 Overview

The statement << from the SL state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 5

Date: 2/1/2003 4:34:34 PM -06'00'

Type: Strikeout

REJECT (SL to SMP communication froms allowed)

7.18.4.1 Overview

The statement << from the SL state machine >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 6

Date: 1/25/2003 11:54:53 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.1 Overview

The statement << from the SMP\_IL3:Rcv\_response\_Frame state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 7

Date: 1/25/2003 11:54:57 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.1 Overview

The statement << from the SMP\_IL3:Rcv\_response\_Frame state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 8

Date: 1/25/2003 11:55:07 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.1 Overview

The statement << from the SMP\_TL2:Wait\_transmit\_frame state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 208

Sequence number: 9

Date: 1/25/2003 11:55:02 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.1 Overview

The statement << from the SMP\_TL1:Wait\_originate\_frame state >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 210

Sequence number: 2

Date: 3/1/2003 4:03:14 PM -06'00'

Type: Note

ACCEPT - DONE

7.18.4 SMP link layer (SMP) state machines

There needs to be a section added after figure 84 and before 7.16.7.2 to describe the SMP transmitter and SMP receiver.

Something like this needs to be here . << The SMP state machine sends the following parameters to the SMP transmitter:

a, b, c list of outputs

The SMP state machine receives the following parameters from the SMP receiver:

a, b, c list of inputs >> in addition there should be wording like that in section 7.13.2

Page: 211

Sequence number: 3

Date: 1/25/2003 11:57:35 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.2.3.1 State description

The statement <<from the port layer >> should be deleted as the general rule is that we do not state where things come from in state diagrams.

Page: 213

Sequence number: 2

Date: 3/1/2003 4:05:15 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with other comment)

8 Port layer

This section should be entirely replaced with document 03-024 plus figures.

Page: 215

Sequence number: 5

Date: 3/21/2003 8:40:12 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.1 Overview

global

In some places within this document AWT is used and in other places << arbitration wait timer >> is used. This needs to be made consistent. I vote for fewer acronyms.

Page: 216

Sequence number: 11

Date: 3/21/2003 8:40:48 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

Figure 91

Some of the text on the arrows needs to be positioned better. For example: the << Phy Enabled >> text entering into PL\_OC1 covers most of the arrow, it is not clear which transition the << (requests to each phy ) from the PL\_OC2 is attached to, and the name of the state machine should be across the top as in all the other state diagrams.

Page: 217

Sequence number: 4

Date: 3/21/2003 8:41:53 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (recommend not changing for frame-content arguments)

8.3.3.1.1 State description overview

I thought all arguments had the first letter of each word capitalized. None of these do. This should be made consistent.

Page: 228

Sequence number: 5

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (it's the retransmit bit)

Table 88

There is no description of the << TIMEOUT >> bit, This needs to be fixed.

Page: 229

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

Table 89

\*\*\*\*

I thought we outlawed 0 length data frames. I think the IU size for DATA should be 1 to 1 024.

Page: 229

Sequence number: 7

Date: 2/2/2003 11:13:54 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed sentence; changed Name column to Name of frame; added "frame" after each)

9.2.1 SSP frame format

Why not put this information into table 89 << An SSP frame containing a COMMAND information unit (IU) is called a COMMAND frame; an SSP frame containing a TASK IU is called a TASK frame; etc. >> or make it an a,b,c list. But in any case list them all.

Page: 229

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (the TIMEOUT bit in the table should be this bit)

9.2.1 SSP frame format

I don't see any bit named this in table 88. It needs to be added or this paragraph needs to be deleted << The RETRANSMIT bit may be set to one for RESPONSE frames and shall be set to zero for all other frame types. This field indicates the frame is a retransmission after the target port timed out waiting for the ACK or NAK for its previous attempt to transmit the frame. >>. If it stays then the term << field >> in the second sentence needs to be changed to << bit >>.

Page: 229

Sequence number: 9

Date: 2/2/2003 11:10:32 AM -06'00'

Type: Highlight

REJECT (no improvement)

9.2.1 SSP frame format

The statement << The TAG field allows the initiator port to establish a context for commands and task management functions. >> should be << The TAG field is a value assigned by the application client and sent to the initiator port in the SCSI command information unit and the task management information unit. The tag is used to establish a context between different commands and different task management functions. >>

Page: 229

Sequence number: 10

Date: 1/22/2003 6:07:54 PM -06'00'

Type: Highlight

ACCEPT - DONE ("established by the connection".)

9.2.1 SSP frame format

The statement << that is unique for the I\_T nexus. >> should be << that is unique for the I\_T nexus defined by the source SAS address and the destination SAS address. >>.

Page: 229

Sequence number: 11

Date: 2/2/2003 11:08:31 AM -06'00'

Type: Highlight

REJECT (semicolons join related sentences)

9.2.1 SSP frame format

The statement << SAM-3; the TAG field >> should be <<SAM-3. The TAG field >>.

Page: 229

Sequence number: 12

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE (changed to "more easily". The field is not strictly necessary to establish a context, it's just an assist.)

9.2.1 SSP frame format

Delete the term << quickly >> as there is no time reference as to how quick quick is.

Page: 229

Sequence number: 13

Date: 1/22/2003 6:05:54 PM -06'00'

Type: Highlight

ACCEPT - DONE (overcome by rewrite)

9.2.1 SSP frame format

The statement << that need this field >> should be << that use this field >>.

Page: 229

Sequence number: 14

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.1 SSP frame format

The statement << set a value that is unique for the I\_T nexus. >> should be << set it to a value that is unique for each I\_T nexus. >>

Page: 229

Sequence number: 15

Date: 1/22/2003 6:05:41 PM -06'00'

Type: Highlight

ACCEPT - DONE (overcome by a rewrite of this paragraph)

9.2.1 SSP frame format

The statement << need this field >> should be << use this field >>.

Page: 229

Sequence number: 16

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - this is the only case; it's not an example, so e.g. is not appropriate.

9.2.1 SSP frame format

The statement << frame (due to a >> should be << frame (e.g., due to >>.

Page: 229

Sequence number: 27

Date: 2/15/2003 5:47:38 PM -06'00'

Type: Highlight

ACCEPT - DONE (per Jan WG: let both initiator and target set it arbitrarily except for XFER\_RDY -> DATA. Use recipient shall ignore wording. No need to say a target not needing it shall use FFFFh - any value is fine. IBM complained about that resolution; Feb 11 call changed it to may or may not check and defined the result - RESPONSE frame with INVALID FIELD - instead. Also, handling of reserved field checking was noted as missing; that will be added via another comment. New text is in 03-091.)

9.2.1 SSP frame format

\*\*\*\*\*

The statement <<The target port shall set this field to FFFFh for all frames other than XFER\_RDY frames. >> should be deleted. The tag should have meaning to the target only. The current requirement suggests that the initiator may expect and verify that the tag is FFFFh for non-XFER\_RDY frames. This should not happen.

Some targets implementations would prefer to use target port transfer tag to keep track of frames. That makes it easy to associate a frame in an analyzer trace (read data, response, etc.) with a particular command.

Page: 230

Sequence number: 5

Date: 1/22/2003 6:16:33 PM -06'00'

Type: Strikeout

REJECT (this emphasizes that this layer, the transport layer, is not using the CRC field, even though it shows up in the transport layer data structures.)

9.2.1 SSP frame format

The statement << not the transport layer. >> is redundant and should be deleted.

Page: 230

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.1 COMMAND information unit

The term << performed >> should be << processed >>.

Page: 230

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - mirrors wording in SPC-3

9.2.2.1 COMMAND information unit

The term << SCSI >> should be deleted as it is redundant with SPC-2.

Page: 230

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.1 COMMAND information unit

The term << specifies >> should be << contains >>.

Page: 231

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

The statement << For example, a six-byte CDB occupies the first six bytes of the CDB field; the remaining ten bytes are reserved and the ADDITIONAL CDB BYTES field is not present. >> should be << (e.g., a six-byte CDB occupies the first six bytes of the CDB field; the remaining ten bytes are reserved and the ADDITIONAL CDB BYTES field is not present). >>

Page: 231

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.2 TASK information unit

The << performed >> should be << processed >>.

Page: 232

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.2 TASK information unit

The term << specifies >> should be << contains >>.

Page: 232

Sequence number: 2

Date: 2/15/2003 4:08:33 PM -06'00'

Type: Strikeout

REJECT - the reference should be SAM-3 not SPC-2, and the SCSI wording is copied from SPC-2/3 (but moot after sentence replaced with a new rule)

9.2.2.2 TASK information unit

The term << SCSI >> should be deleted as it is redundant with SPC-2.

Page: 232

Sequence number: 3

Date: 1/22/2003 6:20:05 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "set to the value of the [xyz] field")

Table 93

global

In the description column there are several cases where small caps is used when they should not be. Small caps should only be used when referencing the name of a field not the contains of the field. For example <<

The task manager shall perform the ABORT TASK SET task management function with L set to LOGICAL UNIT NUMBER >>

should be << The task manager shall perform the ABORT TASK SET task management function with L set to logical unit number >> .

Page: 232

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.2 TASK information unit

The statement << The TARGET RESET task management function defined in SAM-3 is not supported. >> should be a footnote in table 91.

Page: 233

Sequence number: 6

Date: 2/2/2003 12:11:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.3 XFER\_RDY information unit

The term << indicates >> should be << contains >>.

Page: 233

Sequence number: 7

Date: 3/11/2003 4:30:24 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "contains...app client buffer offset of the segment of write data")

9.2.2.3 XFER\_RDY information unit

The statement << initial application client buffer offset of the write data >> implies that all XFER\_RDYs for a given I\_T\_L\_Q nexus will have the same value. That does not seem right. Is it?

Page: 233

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - don't want it to sound like data is just transferred, either. There is not an e.g. here implying DATA frames are one possible option.

9.2.2.3 XFER\_RDY information unit

The statement << (using DATA frames). >> seems redundant and could be interpreted to means that there is another way to move data besides DATA frames.

Page: 233

Sequence number: 9

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed "indicates how many" to "contains the number of")

9.2.2.3 XFER\_RDY information unit

The term << indicates >> should be << contains >>.

Page: 233

Sequence number: 10

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - see nearby same comment

9.2.2.3 XFER\_RDY information unit

The statement << (using DATA frames). >> seems redundant and could be interpreted to means that there is another way to

move data besides DATA frames.

Page: 233

Sequence number: 11

Date: 1/22/2003 6:21:25 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.3 XFER\_RDY information unit

The paragraph << The initial XFER\_RDY frame for a given command shall set the relative offset to the value of the FIRST BURST SIZE field in the Disconnect-Reconnect mode page (see 10.1.1.1.5). If any additional XFER\_RDY frames are required, the RELATIVE OFFSET field shall be set to the value of the previous XFER\_RDY frames relative offset plus the previous XFER\_RDY frames write data length. >> need to move up under the relative offset field paragraph.

Page: 233

Sequence number: 12

Date: 1/22/2003 6:20:30 PM -06'00'

Type: Highlight

ACCEPT - DONE (Requested Offset)

Table 94

\*\*\*\*\*

The field name << RELATIVE OFFSET >> is a problem because when this table is combined with the header information (in table 88) you then have two fields with exactly the same name. So things get confusing real fast. I recommend changing the name of the field in XFER\_RDY to something like << XFER\_RDY RELATIVE OFFEST >>.

Page: 234

Sequence number: 2

Date: 2/28/2003 6:09:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (they're synonyms - what's wrong with constrained? changed anyway)

9.2.2.4 DATA information unit

The statement << constrained by >> should be << limited to >>.

Page: 234

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - this makes it sound like just the value is important, when the association to a specific XFER\_RDY frame is the key point

9.2.2.4 DATA information unit

The statement << The DATA frame shall only contain write data for a single XFER\_RDY frame. >> should be << The DATA frame shall contain no more write data than was indicated in the WRITE DATA LENGTH field of a single XFER\_RDY frame. >>.

Page: 235

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - but replaced with field names (see Intel comment)

9.2.2.5.1 RESPONSE information unit overview

This should be deleted << which defines the format and content of the response IU. >> as this information is in the table.

Page: 235

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.5.1 RESPONSE information unit overview

The statement << and if an error occurs >> should be << and in response to any errors that occur >>.

Page: 236

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.2.5.3 RESPONSE information unit RESPONSE\_DATA format

The term << certain >> should be deleted as it add a level in uncertainty to the standard.

Page: 237

Sequence number: 1

Date: 1/14/2003 11:19:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG: The sense data list length field shall not be larger than 1000 (see table 89).)

#### 9.2.2.5.4 RESPONSE information unit SENSE\_DATA format

This seems like a strange value to pick << than 1 000 and shall >> why not 1024? Unless there is some reason it should be changed to 1 024.

Page: 237

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.3 Frame sequences

The statement << sequence. The transport protocol services (see 10.1.1) invoked by the application layer are also shown. >> should be << sequence and the transport protocol services (see 10.1.1) invoked by the application layer. >>.

Page: 237

Sequence number: 3

Date: 1/16/2003 7:48:31 PM -06'00'

Type: Note

ACCEPT - DONE (with frame rather than IU)

Figures 94 - 97

Put the term << IU >> after all the IU names (e.g., TASK IU, RESPONSE IU).

Page: 237

Sequence number: 4

Date: 1/22/2003 6:39:08 PM -06'00'

Type: Note

ACCEPT - DONE (also mention that connections may come and go at any time)

#### 9.2.3 Frame sequences

\*\*\*\*

Somewhere in this section there should be a paragraph that states the following :

- that commands can be sent any time.
- When commands are queued data may be transferred for any command at any time.
- Responses may be returned in any order.

Page: 238

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.3 Frame sequences

The statement << sequence. The transport protocol services (see 10.1.1) invoked by the application layer are also shown. >> should be << sequence and the transport protocol services (see 10.1.1) invoked by the application layer. >>.

Page: 238

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.3 Frame sequences

The statement << sequence. The transport protocol services (see 10.1.1) invoked by the application layer are also shown. >> should be << sequence and the transport protocol services (see 10.1.1) invoked by the application layer. >>.

Page: 239

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.3 Frame sequences

The statement << sequence. The transport protocol services (see 10.1.1) invoked by the application layer are also shown. >> should be << sequence and the transport protocol services (see 10.1.1) invoked by the application layer. >>.

Page: 239

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to 'times out waiting for')

#### 9.2.4.3 XFER\_RDY frame

The statement << and does not receive an ACK or NAK, it shall close >> should be << and times out waiting for ACK or NAK it shall close >>.



Page: 240

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to 'times out waiting for')

9.2.4.4 DATA frame

The statement << and does not receive an ACK or NAK, it shall close >> should be << and times out waiting for ACK or NAK it shall close >>.

Page: 240

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to 'times out waiting for')

9.2.4.4 DATA frame

The statement << and does not receive an ACK or NAK, it shall abort >> should be << and times out waiting for ACK or NAK it shall abort >>

Page: 240

Sequence number: 5

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.4.5 RESPONSE frame

There is no bit named << RETRANSMIT bit >> in the SSP frame. This needs to be fixed.

Page: 240

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.4.5 RESPONSE frame

The statement << RETRANSMIT bit of one, and it >> should be << RETRANSMIT bit set to one, and it >>

Page: 241

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.5.2 Initiator port error handling

The statement << is not twelve bytes long, >> should be << is not 12 bytes long, >>.

Page: 241

Sequence number: 2

Date: 1/16/2003 8:03:14 PM -06'00'

Type: Note

REJECT - remain silent (initiator handling of bizarre errors need not be specified)

9.2.5.2 Initiator port error handling

The last three paragraphs all need a statement about what the initiator does if it does receive a RESPONSE. I believe << discard it >> is the right answer but it needs to be stated.

Page: 242

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.1 Overview

The statement << SSP transport layer contains state >> should be << SSP transport layer (ST) contains state >>.

Page: 242

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT

The statement << perform the following functions: >> should be << run in parallel to: >>.

Page: 242

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT

9.2.6.2.1 Overview

The statement << (initiator send frame) >> should be deleted.

Page: 242

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT

9.2.6.2.1 Overview

The statement << (initiator process response) >> should be deleted.

Page: 242

Sequence number: 5

Date: 2/8/2003 2:09:52 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator process response) >> should be deleted.

Page: 242

Sequence number: 6

Date: 2/8/2003 2:12:47 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator send frame) >> should be deleted.

Page: 242

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator send frame) >> should be deleted.

Page: 242

Sequence number: 8

Date: 2/8/2003 2:12:38 PM -06'00'

Type: Strikeout

REJECT

9.2.6.2.1 Overview

The statement << (initiator receive data) >> should be deleted.

Page: 242

Sequence number: 9

Date: 2/8/2003 2:12:09 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator frame router) >> should be deleted.

Page: 242

Sequence number: 10

Date: 2/8/2003 2:12:01 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator frame router) >> should be deleted.

Page: 242

Sequence number: 11

Date: 2/8/2003 2:11:29 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator frame router) >> should be deleted.

Page: 242  
Sequence number: 12  
Date: 1/6/2003 6:16:00 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << (initiator frame router) >> should be deleted.

Page: 242  
Sequence number: 13  
Date: 2/8/2003 2:09:21 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << from the SCSI  
initiator devices application layer, >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 14  
Date: 2/8/2003 2:09:37 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << from the ST\_IFR (initiator frame router) state machine >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 15  
Date: 2/8/2003 2:10:30 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << from the ST\_IFR (initiator frame router) state machine >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 16  
Date: 2/8/2003 2:10:38 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << from the ST\_IFR (initiator frame  
router) state machine >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 17  
Date: 2/8/2003 2:10:45 PM -06'00'  
Type: Strikeout  
REJECT  
9.2.6.2.1 Overview  
The statement << from the ST\_ISF (initiator send frame) state machine. >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 18  
Date: 2/8/2003 2:11:17 PM -06'00'  
Type: Strikeout  
REJECT (but dropped "state machine")  
9.2.6.2.1 Overview  
The statement << from the port layer state machine >> should be deleted as we do not indicate where things come from only where they go to.

Page: 242  
Sequence number: 19  
Date: 2/8/2003 12:36:20 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6 SSP transport layer state machines

global in 9.2.6

The term << port layer state machines >> should in most if not all cases be << port layer >>.

Page: 243

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator process response) >> should be deleted.

Page: 243

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

The statement << (initiator receive data) >> should be deleted.

Page: 243

Sequence number: 4

Date: 2/8/2003 2:16:53 PM -06'00'

Type: Strikeout

REJECT (but deleted state machine)

9.2.6.2.1 Overview

The statement <<

from the port layer state machine. >> should be deleted as we do not indicate where things come from only where they go to.

Page: 243

Sequence number: 5

Date: 2/8/2003 2:15:07 PM -06'00'

Type: Strikeout

REJECT

9.2.6.2.1 Overview

The statement << from the SCSI initiator device's application layer >> should be deleted as we do not indicate where things come from only where they go to.

Page: 244

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.1 Overview

The term << describes >> should be << shows >>.

Page: 244

Sequence number: 9

Date: 2/8/2003 2:18:47 PM -06'00'

Type: Square

REJECT (that's what SAM-3 calls it, and Ralph rejected suggestions to rename the protocol services)

Figure 98

The term << Request >> should be deleted from the << Send Task Management Request >>

Page: 245

Sequence number: 2

Date: 2/9/2003 12:29:53 PM -06'00'

Type: Strikeout

REJECT (paragraph deleted)

9.2.6.2.2.1 State description

The statement << from the SCSI initiator device's application layer >> should be deleted.

Page: 245

Sequence number: 3

Date: 2/9/2003 12:29:38 PM -06'00'

Type: Strikeout

REJECT (paragraph deleted)

9.2.6.2.2.1 State description

The statement << from the ST\_IFR (initiator frame router) state machine. >> should be deleted.

Page: 245

Sequence number: 4

Date: 2/9/2003 12:29:14 PM -06'00'

Type: Strikeout

REJECT (kept something similar as paragraph moved to ST\_ISF overview section)

9.2.6.2.2.1 State description

The statement << from the

ST\_ISF2:Prepare\_Command\_Request state, >> should be deleted.

Page: 245

Sequence number: 5

Date: 2/9/2003 12:29:22 PM -06'00'

Type: Strikeout

REJECT (kept something similar as paragraph moved to ST\_ISF overview section)

9.2.6.2.2.1 State description

The statement << from the

ST\_ISF3:Prepare\_Send\_Data\_Out state. >> should be deleted.

Page: 245

Sequence number: 6

Date: 2/28/2003 5:49:23 PM -06'00'

Type: Square

ACCEPT - DONE (movement done; changed activated and initiated to started throughout)

9.2.6.2.2.1 State description

and global

The paragraph <<The ST\_ISF state machine shall be initiated when a Send SCSI Command or a Send Task Management Request transport protocol service request is received from the SCSI initiator device's application layer or when an XFER\_RDY Arrived parameter is received from the ST\_IFR (initiator frame router) state machine. >> does not belong here. It should be part of the overview for the state machine. This is only supposed to be information about the state not the state machine. And should be changed to << The ST\_ISF state machine shall be activated when a Send SCSI Command or a Send Task Management Request transport protocol service request is received or when an XFER\_RDY Arrived parameter is received. >>

Page: 245

Sequence number: 7

Date: 2/9/2003 12:28:39 PM -06'00'

Type: Square

ACCEPT - DONE

9.2.6.2.2.1 State description

The paragraph <<This state shall be entered when either a COMMAND or TASK frame is received from the ST\_ISF2:Prepare\_Command\_Request state, or when a DATA frame is received from the ST\_ISF3:Prepare\_Send\_Data\_Out state. >> should be << This state is the initial state and is the state that is used after the ST\_ISF state machine has been activated. >>

Page: 245

Sequence number: 8

Date: 2/8/2003 2:59:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.2.1 State description

The statement << A Send SCSI Command or a Send Task Management Request transport protocol service request includes the following to be used >> should be << A Send SCSI Command transport protocol service request or a Send Task Management protocol service request includes the following to be used >>

Page: 245

Sequence number: 9

Date: 2/3/2003 3:04:53 PM -06'00'

Type: Highlight

REJECT (whole sentence being deleted)

9.2.6.2.2.1 State description

The statement << The request may >> should be << The transport protocol service request may >>.

Page: 245

Sequence number: 10

Date: 2/8/2003 2:59:38 PM -06'00'

Type: Highlight

REJECT

9.2.6.2.2.1 State description

It looks like the term << request: >> should be << transport protocol service request >> in all cases in this section. This needs to be

fixed.

Page: 245

Sequence number: 11

Date: 2/9/2003 12:26:53 PM -06'00'

Type: Highlight

ACCEPT - DONE (already in transition, so just deleted this)

9.2.6.2.2.1 State description

The statement << If the ST\_ISF state machine was initiated as the result of receiving a transport protocol service request, then this state shall transition to the ST\_ISF2:Prepare\_Command\_Request state.>> belongs in the transition description not here.

Page: 245

Sequence number: 12

Date: 2/9/2003 12:25:08 PM -06'00'

Type: Note

REJECT

9.2.6.2.2.1 State description

The term << initiated >> should be << activated >> in this section.

Page: 245

Sequence number: 13

Date: 2/15/2003 5:54:35 PM -06'00'

Type: Note

ACCEPT - DONE (upgrade to a shall to match 10.1.3 and 9.2.5.2)

9.2.6.2.2.1 State description

\*\*\*\*

I don't like the may's in item a) and item b). Why is this a may instead of a shall?

Page: 246

Sequence number: 2

Date: 2/2/2003 3:34:26 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.2.1 State description

The statement << from the port layer state machine. >> should be deleted.

Page: 246

Sequence number: 3

Date: 2/9/2003 12:32:18 PM -06'00'

Type: Square

ACCEPT - DONE (merged 12 byte check and write data length check into transition)

9.2.6.2.2.1 State description

The statement << e) If the length of the XFER\_RDY frame is 12 bytes, the write data length is correct, and an ACK Transmitted confirmation has been received, then this state shall transition to the ST\_ISF3:Prepare\_Send\_Data\_Out state. >> belongs in the transition description. It should be moved there.

Page: 246

Sequence number: 4

Date: 2/9/2003 12:32:53 PM -06'00'

Type: Highlight

REJECT

9.2.6.2.2.1 State description

The statement << If this state is entered from the ST\_ISF2:Prepare\_Command\_Request state, then this state shall send a Transmit Frame (Interlocked) request to the port layer state machine. >> should be << Upon entry into this state from the ST\_ISF2:Prepare\_Command\_Request state, this state shall send a Transmit Frame (Interlocked) request to the port layer state machine. >>

Page: 246

Sequence number: 5

Date: 2/9/2003 12:32:59 PM -06'00'

Type: Highlight

REJECT

9.2.6.2.2.1 State description

The statement << If this state is entered from the ST\_ISF3:Prepare\_Send\_Data\_Out state, then this state shall send a Transmit Frame (Non-interlocked) request to the port layer state machine. >> should be << Upon entry into this state from the ST\_ISF3:Prepare\_Send\_Data\_Out state, this state shall send a Transmit Frame (Non-Interlocked) request to the port layer state machine. >>

Page: 246

Sequence number: 6  
Date: 2/9/2003 12:33:23 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.2.2.1 State description  
The statement << from this state >> should be deleted.

Page: 246  
Sequence number: 7  
Date: 2/9/2003 12:33:38 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.2.2.1 State description  
The statement << (initiator process response) >> should be deleted.

Page: 246  
Sequence number: 8  
Date: 2/9/2003 12:34:27 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.2.2.1 State description  
The statement << After sending a Transmit Frame request this state shall wait for a Transmission Status confirmation. If the confirmation is not Transmission Status (Frame Transmitted), >> should be << After sending a Transmit Frame request to the port layer this state shall wait for a Transmission Status confirmation. If the confirmation is not Transmission Status (Frame Transmitted) confirmation, >>

Page: 246  
Sequence number: 9  
Date: 2/9/2003 12:34:55 PM -06'00'  
Type: Square  
REJECT (terminate is fine. Putting it here is fine; it's something that happens in this state.)  
9.2.6.2.2.1 State description  
The statement << After sending a Delivery Failure parameter to the ST\_IPR state machine, the ST\_ISF state machine shall terminate. >> does not belong here. It should be part of the overview for the state machine. This is only supposed to be information about the state not the state machine. It should also be reword to remove the << terminate >> term. Maybe stopped or removed or deactivated.

Page: 246  
Sequence number: 10  
Date: 2/9/2003 12:35:58 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (changed to shall... if there is more data to transfer. Vague but accurate.)  
9.2.6.2.2.1 State description  
\*\*\*  
The may in the statement << If the transmitted frame was a DATA frame, then this state may transition to the >> seems like there should be more description. The transition either occurs or it does not occur.  
Also this whole paragraph should be down in the transition section. This needs to be fixed.

Page: 246  
Sequence number: 11  
Date: 2/20/2003 9:31:35 AM -06'00'  
Type: Square  
ACCEPT - DONE (deleted the first one. The text location kind of implies termination for different reasons, but we'll assume that sequencing is unimportant for these rules)  
9.2.6.2.2.1 State description  
The statement << After sending a Delivery Failure parameter to the ST\_IPR state machine, the ST\_ISF state machine shall terminate. >> is a duplicate of what is stated just above and does not belong here. It should be in the state machine overview.

Page: 246  
Sequence number: 12  
Date: 2/9/2003 12:38:15 PM -06'00'  
Type: Highlight  
REJECT (it's up to this layer to decide to cancel a request for whatever reason. SAM doesn't describe timeouts (yet) in its Execute Command model.)  
9.2.6.2.2.1 State description  
\*\*\*  
The may in the statement <<This state may also send a Cancel request to the port layer state >> seems like there should be more description. The transition either occurs or it does not occur.

Page: 246

Sequence number: 13

Date: 2/9/2003 12:38:30 PM -06'00'

Type: Highlight

REJECT (only happens in this state)

9.2.6.2.2.1 State description

The statement << The ST\_ISF state machine shall terminate upon receipt of a Cancel Acknowledge confirmation. >> does not belong here. It should be in the state machine overview.

Page: 246

Sequence number: 14

Date: 2/9/2003 12:39:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.2.2 Transition ST\_ISF1:Send\_Frame to ST\_ISF2:Prepare\_Command\_Request

The statement << occur after a Send SCSI Command or Send Task Management Request transport protocol service request has been received. >> should be << occur after receiving a Send SCSI Command or Send Task Management Request transport protocol service request. >>.

Page: 247

Sequence number: 7

Date: 2/9/2003 11:04:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed some ands to ifs too)

9.2.6.2.2.3 Transition ST\_ISF1:Send\_Frame to ST\_ISF3:Prepare\_Send\_Data\_Out

The statement << a) an ACK Received confirmation has been received for a COMMAND frame for a data-out operation and the first burst size is not zero;

b) an XFER\_RDY Arrived parameter has been received, all required values are present and correct, and an ACK Transmitted confirmation has been received; or

c) a Transmission Status (Frame Transmitted) confirmation for a Transmit Frame (Non-interlocked) request has been received and the number of data bytes that has been transmitted for the request is less than the first burst size or the write data length. >> should be

<< a) receiving an ACK Received confirmation for a COMMAND frame for a data-out operation if the first burst size is not zero;

b) receiving an XFER\_RDY Arrived parameter with all required values present and correct, and after receiving an ACK Transmitted confirmation; or

c) receiving a Transmission Status (Frame Transmitted) confirmation for a Transmit Frame (Non-interlocked) request if the number of data bytes that has been transmitted for the Transmit Frame (Non-interlocked) request is less than the first burst size or the write data length. >>

Page: 247

Sequence number: 8

Date: 2/9/2003 11:05:03 AM -06'00'

Type: Strikeout

REJECT (important to say where the values came from)

9.2.6.2.3.1 State description

The statement << received from the SCSI initiator device's application layer >> should be deleted.

Page: 247

Sequence number: 9

Date: 2/9/2003 11:05:17 AM -06'00'

Type: Strikeout

REJECT (important to say where they came from)

9.2.6.2.3.1 State description

The statement << received from the SCSI initiator device's application layer >> should be deleted.

Page: 247

Sequence number: 10

Date: 1/30/2003 4:23:27 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after constructing")

9.2.6.2.3.2 Transition ST\_ISF2:Prepare\_Command\_Request to ST\_ISF1:Send\_Frame

The statement << after the ST\_ISF2:Prepare\_Command\_Request state >> should be <<after this state >>.

Page: 247

Sequence number: 11

Date: 2/9/2003 11:05:59 AM -06'00'

Type: Strikeout

REJECT (but changed parens to comma)

9.2.6.2.4.1 State description



The statement << (these were received either from the SCSI initiator device's application layer or included in an XFER\_RDY Arrived parameter): >> should be deleted.

Page: 248

Sequence number: 2

Date: 2/9/2003 10:57:47 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted whole paragraph and added data to the first a)b)c) list. Saying it shall generate fill bytes should be enough here. The definitions of those fields need to be referenced to understand them anyway.)

9.2.6.2.4.1 State description

In what case would the following statement not be true? << If all of the data for the request is not included in the frame, the number of data bytes in the frame shall be a multiple of four, and the number of fill bytes shall be zero. >> If it is always true or is described somewhere else then it should be deleted.

Page: 248

Sequence number: 3

Date: 1/30/2003 4:23:51 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after constructing")

9.2.6.2.4.2 Transition ST\_ISF3:Prepare\_Send\_Data\_Out to ST\_ISF1:Send\_Frame

The statement << after the ST\_ISF3:Prepare\_Send\_Data\_Out state has >> should be << after this state has >>.

Page: 248

Sequence number: 4

Date: 2/8/2003 2:49:20 PM -06'00'

Type: Square

ACCEPT - DONE

9.2.6.2.5.1 State description

The statement << The ST\_IRD state machine shall be initiated when a Data-In Arrived parameter is received. >> should be in the state machine overview not here.

Page: 248

Sequence number: 5

Date: 2/8/2003 2:55:43 PM -06'00'

Type: Square

REJECT (it happens after this state does something)

9.2.6.2.5.1 State description

The statement << This state machine shall terminate after sending the parameter. >> should be in the state machine overview not here.

Page: 248

Sequence number: 6

Date: 2/8/2003 2:57:24 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.5.2 Transition ST\_IRD1:Receive\_Data\_In to ST\_IRD2:Process\_Received\_Data\_In

The statement << by the ST\_IRD1:Receive\_Data\_In has been >> should be << by this state has been >>.

Page: 248

Sequence number: 7

Date: 2/8/2003 2:55:35 PM -06'00'

Type: Square

REJECT (it happens after this state does something)

9.2.6.2.6 ST\_IRD2:Process\_Received\_Data\_In state

The statement << The ST\_IRD state machine shall terminate after the data-in data is processed. >> should be in the state machine overview not here.

Page: 248

Sequence number: 8

Date: 2/8/2003 2:50:17 PM -06'00'

Type: Square

REJECT (this is the overview, there being only one state)

9.2.6.2.7 ST\_IPR1:Process\_Received\_Response state

The statement << The ST\_IPR state machine shall be initiated when a Response Arrived parameter is received or a Delivery Failure parameter is received. >> should be in the state machine overview not here.

Page: 249

Sequence number: 3

Date: 2/8/2003 2:55:55 PM -06'00'

Type: Square

REJECT (it happens after this state does something)

9.2.6.2.7 ST\_IPR1:Process\_Received\_Response state

The statement << The ST\_IPR state machine shall terminate after sending a confirmation.>> should be in the state machine overview not here.

Page: 249

Sequence number: 4

Date: 2/9/2003 10:52:06 AM -06'00'

Type: Highlight

ACCEPT - DONE (bit was incorrectly called TIMEOUT in the frame header table; RETRANSMIT is the correct name)

9.2.6.2.7 ST\_IPR1:Process\_Received\_Response state

The statement << of the RETRANSMIT bit. >> is a problem because there is no RETRANSMIT bit . This needs to be fixed.

Page: 249

Sequence number: 5

Date: 2/8/2003 2:50:40 PM -06'00'

Type: Square

REJECT (this is the overview, there being only one state)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << The ST\_IFR state machine shall be initiated when:

a) an Accept\_Reject OPENs request is received;

b) a Frame Received confirmation is received;

c) a DONE Received confirmation is received; or

d) a hard reset occurs. >> should be in the state machine overview not here.

Page: 249

Sequence number: 6

Date: 2/9/2003 10:52:19 AM -06'00'

Type: Highlight

REJECT

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << If the ST\_IFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 249

Sequence number: 7

Date: 2/9/2003 10:52:52 AM -06'00'

Type: Highlight

REJECT (this is a one-state state machine so this IS the overview)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << The ST\_IFR state machine shall terminate

after sending an Accept\_Reject OPENs request to the port layer state machine. >> should be in the state machine overview not here.

Page: 250

Sequence number: 11

Date: 2/2/2003 3:39:31 PM -06'00'

Type: Strikeout

REJECT (helpful for overview)

9.2.6.3.1 Overview

The statement << from the port layer state machine >> should be deleted.

Page: 250

Sequence number: 12

Date: 2/2/2003 3:41:43 PM -06'00'

Type: Strikeout

REJECT (fine for overview)

9.2.6.3.1 Overview

The statement <<from the SCSI target device's application layer >> should be deleted.

Page: 250

Sequence number: 13

Date: 2/2/2003 3:42:26 PM -06'00'

Type: Strikeout

REJECT (fine for overview)

9.2.6.3.1 Overview

The statement <<from the SCSI target device's application

layer; >> should be deleted.

Page: 250

Sequence number: 14

Date: 2/9/2003 10:45:07 AM -06'00'

Type: Highlight

REJECT

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << If the ST\_IFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 250

Sequence number: 15

Date: 2/8/2003 2:25:36 PM -06'00'

Type: Highlight

REJECT (deleting entire paragraph)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << If the ST\_IFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 250

Sequence number: 16

Date: 2/9/2003 10:45:16 AM -06'00'

Type: Highlight

REJECT

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << If the ST\_IFR state machine was initiated as the result of a >> should be << If this state initially received a >>.

Page: 250

Sequence number: 17

Date: 2/9/2003 10:45:33 AM -06'00'

Type: Highlight

REJECT (this is a one-state state machine, so this IS the overview)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

All these << terminate >>s are a problem because the state machine comings and goings should be specified in the state machines overview.

Page: 250

Sequence number: 18

Date: 3/5/2003 4:38:15 PM -06'00'

Type: Highlight

ACCEPT - DONE (change to "valid state machine" rather than "existing" since state machines are "created" on the fly sometimes.)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << specify an existing state machine, >> should be << specify an active state machine >>.

Page: 250

Sequence number: 19

Date: 2/8/2003 2:56:02 PM -06'00'

Type: Square

REJECT (it happens after this state does something)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

The statement << The ST\_IFR state machine shall terminate after sending a parameter to another state machine. >> should be in the state machine overview not here.

Page: 250

Sequence number: 20

Date: 2/9/2003 10:45:47 AM -06'00'

Type: Strikeout

REJECT

9.2.6.3.1 Overview

The statement << (target frame router) >> should be deleted.

Page: 250

Sequence number: 21

Date: 2/9/2003 10:46:02 AM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.1 Overview

The statement << (target transport server) >> should be deleted.

Page: 250  
Sequence number: 22  
Date: 2/9/2003 10:46:42 AM -06'00'  
Type: Strikeout  
REJECT (when moved to the correct section it's an appropriate use)  
9.2.6.3.1 Overview  
The statement << (target transport server) >> should be deleted.

Page: 250  
Sequence number: 23  
Date: 2/2/2003 3:42:34 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.1 Overview  
The term << several >> should be deleted. in item d)

Page: 251  
Sequence number: 4  
Date: 2/2/2003 3:44:07 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.1 Overview  
The term << describes >> should be << shows >>.

Page: 251  
Sequence number: 5  
Date: 2/2/2003 3:50:00 PM -06'00'  
Type: Circle  
ACCEPT - DONE (used correct connector style so arcs appear)  
Figure 99  
Either all the crossing lines need hops or none should have them. For this figure it looks like none would be OK.

Page: 251  
Sequence number: 6  
Date: 2/9/2003 10:30:40 AM -06'00'  
Type: Highlight  
REJECT (this is the SAM-3 name)  
Figure 99  
The term << Request >> in the << task Management Request Received >> should be deleted.

Page: 252  
Sequence number: 6  
Date: 2/2/2003 3:57:57 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state  
The statement << from the SCSI target device's application layer, >> should be deleted.

Page: 252  
Sequence number: 7  
Date: 2/2/2003 3:31:52 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state  
The statement << from the port layer state machine, >> should be deleted.

Page: 252  
Sequence number: 8  
Date: 2/2/2003 3:29:28 PM -06'00'  
Type: Square  
REJECT - this IS the overview (it's a one state state machine. Added "machine" to the header.  
9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state  
The statement << The ST\_TFR state machine shall be initiated when:  
a) an Accept\_Reject OPENS request is received;  
b) a Frame Received confirmation is received; or  
c) a hard reset occurs. >> should be in the state machine overview not here.

Page: 252

Sequence number: 9

Date: 2/2/2003 3:57:27 PM -06'00'

Type: Square

REJECT (this IS the overview)

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << Each indication or parameter shall contain the content of the SAS frame.

The ST\_TFR state machine shall terminate after sending a Data-Out Arrived parameter or transport protocol service indication. >> should be in the state machine overview not here.

Page: 252

Sequence number: 10

Date: 2/2/2003 3:26:28 PM -06'00'

Type: Highlight

ACCEPT - DONE ("this state" accepted, "but key "initiated as the result of")

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << If the ST\_TFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 252

Sequence number: 11

Date: 2/2/2003 3:26:31 PM -06'00'

Type: Highlight

ACCEPT - DONE ("this state" accepted, "but key "initiated as the result of")

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << If the ST\_TFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 252

Sequence number: 12

Date: 2/2/2003 3:26:36 PM -06'00'

Type: Highlight

ACCEPT - DONE ("this state" accepted, "but key "initiated as the result of")

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << If the ST\_TFR state machine was initiated as the result of receiving >> should be << If this state initially received >>.

Page: 252

Sequence number: 13

Date: 2/2/2003 3:57:03 PM -06'00'

Type: Highlight

REJECT (this IS the overview)

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

All these << terminate >>s are a problem because the state machine comings and goings should be specified in the state machines overview.

Page: 252

Sequence number: 14

Date: 2/2/2003 3:56:47 PM -06'00'

Type: Highlight

ACCEPT - DONE ("as send a corresponding Accept\_Reject OPENS)

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << with the received attribute to the port layer state machine. >> should be << with the attribute received with the Accept\_Reject OPEN to the port layer state machine. >>

Page: 252

Sequence number: 15

Date: 2/2/2003 3:55:43 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << the length of the information unit is [28 + (4 x additional CDB length)] bytes. >> should be << the length of the information unit (see 9.2.5.1) >>. All the length rules are specified elsewhere and should not be here.

Page: 252

Sequence number: 16

Date: 2/2/2003 3:55:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << the length of the information unit is 28 bytes. >> should be << the length of the information unit (see 9.2.5.1) >>. All the length rules are specified elsewhere and should not be here.

Page: 252

Sequence number: 17

Date: 2/2/2003 3:53:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << information unit is not 28 bytes, >> should be << information unit is not correct, >>

Page: 252

Sequence number: 18

Date: 2/2/2003 3:55:53 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << If it conflicts, this state may send a Response >> should be << If the tag is checked and it conflicts this state shall send a >>. There should no requirement for checking but if checked and there is a error then the response should be a shall.

Page: 252

Sequence number: 19

Date: 2/28/2003 3:21:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << hard reset, then the ST\_TFR state >> should be << HARD\_RESET Received confirmation , then the ST\_TFR state >>

Page: 252

Sequence number: 20

Date: 2/2/2003 3:51:35 PM -06'00'

Type: Highlight

REJECT (only the ones named in SAM are "transport protocol service requests". Everything else follow's SAS's plain request terminology.)

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

Global

It looks like the term << request: >> when used in relation to requests from the application layer should be << transport protocol service request >> in all cases in this section. This needs to be fixed.

Page: 252

Sequence number: 21

Date: 2/2/2003 3:26:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << then the ST\_TFR state machine shall discard >> should be << then this state machine shall discard >>.

Page: 252

Sequence number: 22

Date: 2/2/2003 3:26:51 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

The statement << then the ST\_TFR state machine shall discard >> should be << then this state machine shall discard >>.

Page: 253

Sequence number: 1

Date: 1/30/2003 4:09:06 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.3.2 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS2:Send\_Frame

The statement << from the SCSI target device's application layer. >> should be deleted.

Page: 253

Sequence number: 2

Date: 1/30/2003 4:08:37 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.3.3 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS4:Receive\_Data\_Out

The statement << from the SCSI target device's application layer. >> should be deleted.

Page: 253

Sequence number: 3

Date: 1/30/2003 4:08:27 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.3.4 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS7:Prepare\_Response

The statement << from the SCSI target device's application layer. >> should be deleted.

Page: 253

Sequence number: 4

Date: 2/2/2003 4:18:27 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.4.1 State description

The statement << This state is entered when a DATA frame is received from the ST\_TTS3:Prepare\_Send\_Data\_In state, when an XFER\_RDY frame is received from the ST\_TTS4:Receive\_Data\_Out state, when a RESPONSE frame is received from the ST\_TTS7:Prepare\_Response state, or after the ST\_TTS7:Prepare\_Response state has determined that the vendor-specific number of retries for a RESPONSE frame has been exceeded. >> should be deleted as we do not describe entry conditions.

Page: 253

Sequence number: 5

Date: 1/30/2003 4:11:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.3.1 State description

The statement << from the SCSI target device's application layer: >> should be deleted.

Page: 253

Sequence number: 6

Date: 2/2/2003 4:17:25 PM -06'00'

Type: Square

ACCEPT - DONE (Created an overview for it)

9.2.6.3.3.1 State description

The statement << The ST\_TTS state machine shall be initiated when one of the following is received from the SCSI target device's application layer:

- a) a Send Data-In transport protocol service request;
- b) a Receive Data-Out transport protocol service request;
- c) a Task Management Function Executed transport protocol service response; or
- d) a Send Command Complete transport protocol service response. >> should be in the state machine overview not here.

Page: 253

Sequence number: 7

Date: 1/30/2003 4:10:42 PM -06'00'

Type: Highlight

REJECT (it's already overly redundant to even mention these fields.)

9.2.6.3.3.1 State description

The list << a) connection rate;

b) initiator connection tag;

c) destination SAS address; and

d) source SAS address. >> should be moved into the lists for each of the protocol services. I know this will create the same entries in each but it would be clearer.

Page: 253

Sequence number: 8

Date: 1/30/2003 4:09:53 PM -06'00'

Type: Strikeout

REJECT (these add on to the initial a)b)c) list just above)

9.2.6.3.3.1 State description

Delete << also >> and add in the complete list.

Page: 253

Sequence number: 9

Date: 1/30/2003 4:09:59 PM -06'00'

Type: Strikeout

REJECT (these add on to the initial a)b)c) list just above)  
9.2.6.3.3.1 State description  
Delete << also >> and add in the complete list.

Page: 253

Sequence number: 10

Date: 1/30/2003 4:10:05 PM -06'00'

Type: Strikeout

REJECT (these add on to the initial a)b)c) list just above)  
9.2.6.3.3.1 State description  
Delete << also >> and add in the complete list.

Page: 253

Sequence number: 11

Date: 1/30/2003 4:07:19 PM -06'00'

Type: Highlight

ACCEPT - DONE  
9.2.6.3.3.2 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS2:Send\_Frame  
The statement << after the ST\_TTS1:Target\_Request\_Response\_Router state has received a Send Data-In transport protocol service request >> should be << after receiving a Send Data-In transport protocol service request. >>

Page: 253

Sequence number: 12

Date: 1/30/2003 4:07:40 PM -06'00'

Type: Highlight

ACCEPT - DONE  
9.2.6.3.3.3 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS4:Receive\_Data\_Out  
The statement << after the ST\_TTS1:Target\_Request\_Response\_Router state has received a Receive Data-Out transport protocol service request >> should be << after receiving a Receive Data-Out transport protocol service request. >>

Page: 253

Sequence number: 13

Date: 1/30/2003 4:07:48 PM -06'00'

Type: Highlight

ACCEPT - DONE  
9.2.6.3.3.4 Transition ST\_TTS1:Target\_Request\_Response\_Router to ST\_TTS7:Prepare\_Response  
The statement << after the ST\_TTS1:Target\_Request\_Response\_Router state has received a Task Management >> should be << after receiving a Task Management >>.

Page: 254

Sequence number: 6

Date: 2/2/2003 3:34:44 PM -06'00'

Type: Strikeout

ACCEPT - DONE  
9.2.6.3.4.1 State description  
The statement << from the port layer state machine. >> should be deleted.

Page: 254

Sequence number: 7

Date: 2/2/2003 3:34:52 PM -06'00'

Type: Strikeout

ACCEPT - DONE  
9.2.6.3.4.1 State description  
The statement << from the port layer state machine. >> should be deleted.

Page: 254

Sequence number: 8

Date: 3/8/2003 3:19:34 PM -06'00'

Type: Square

ACCEPT - DONE (but moved to state transition, not state overview)  
9.2.6.3.4.1 State description  
If the TTS state machine was initiated as the result of this state receiving a Send Data-In transport protocol service request, the specified values are included with the request, and this state has received an ACK Transmitted confirmation, then this state shall transition to the ST\_TTS3:Prepare\_Send\_Data\_In state. >> should be in the state machine overview not here.



Page: 254

Sequence number: 9

Date: 2/9/2003 10:26:46 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.1 State description

The statement << state shall receive >> should be << state shall wait for receipt >>.

Page: 254

Sequence number: 10

Date: 2/15/2003 6:06:18 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted; already in state transition)

9.2.6.3.4.1 State description

The statement << If the frame transmitted was a DATA frame, then this state may transition to the ST\_TTS3:Prepare\_Send\_Data\_In state after receiving a Transmission Status (Frame Transmitted) confirmation. >> should be moved to the relevant state transition description.

Page: 254

Sequence number: 11

Date: 2/15/2003 6:04:47 PM -06'00'

Type: Highlight

ACCEPT - DONE (transition already covers it)

9.2.6.3.4.1 State description

The statement << If the confirmation is ACK Received and the transmitted frame was an XFER\_RDY frame, then this state shall transition to the ST\_TTS4:Receive\_Data\_Out state. >> should be moved to the relevant state transition description.

Page: 254

Sequence number: 12

Date: 2/15/2003 6:05:14 PM -06'00'

Type: Highlight

REJECT (no specific transition is being described so this is harmless here)

9.2.6.3.4.1 State description

The statement << If the frame transmitted was an XFER\_RDY frame or a RESPONSE frame, then this state shall wait to receive an ACK Received, NAK Received, or Connection Failed confirmation before transitioning from this state. >> should be moved to the relevant state transition description.

Page: 254

Sequence number: 13

Date: 2/9/2003 10:30:03 AM -06'00'

Type: Highlight

ACCEPT - DONE (reworded quite a bit to get rid of "confirmation transmission status parameter")

9.2.6.3.4.1 State description

The statement << one of the following: >> should be << one of the following occurs >>.

Page: 255

Sequence number: 1

Date: 2/2/2003 3:35:06 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.4.1 State description

The statement << from the port layer state machine. >> should be deleted.

Page: 255

Sequence number: 2

Date: 2/2/2003 3:35:16 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.4.4 Transition ST\_TTS2:Send\_Frame to ST\_TTS7:Prepare\_Response The statement << from the port layer state machine: >> should be deleted.

Page: 255

Sequence number: 3

Date: 2/2/2003 4:31:38 PM -06'00'

Type: Square

REJECT (it only happens in this state)

9.2.6.3.4.1 State description

The statement << The ST\_TTS state machine shall terminate after sending the Data-In Delivered confirmation. >> should be in the state machine overview not here.

Page: 255

Sequence number: 4

Date: 2/2/2003 4:31:49 PM -06'00'

Type: Highlight

REJECT (it only happens in this state)

9.2.6.3.4.1 State description

The statement << The ST\_TTS state machine terminates upon receipt of a Cancel Acknowledge confirmation >> should be in the state machine overview not here.

Page: 255

Sequence number: 5

Date: 2/9/2003 10:18:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.2 Transition ST\_TTS2:Send\_Frame to ST\_TTS3:Prepare\_Send\_Data\_In

The statement << this state receives >> should be << receiving >>

Page: 255

Sequence number: 6

Date: 2/9/2003 10:17:55 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.2 Transition ST\_TTS2:Send\_Frame to ST\_TTS3:Prepare\_Send\_Data\_In

The statement << this state receives >> should be << receiving >>

Page: 255

Sequence number: 7

Date: 1/30/2003 4:24:35 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.3 Transition ST\_TTS2:Send\_Frame to ST\_TTS4:Receive\_Data\_Out

The statement << this state has received >> should be << receiving >>

Page: 255

Sequence number: 8

Date: 2/8/2003 5:00:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "received from the application layer")

9.2.6.3.5.1 State description

The statement << the tag received from the ST\_TTS2:Send\_Frame state to construct the frame. >> should be << the received tag to construct the frame. >>.

Page: 255

Sequence number: 9

Date: 1/30/2003 4:24:59 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after constructing")

9.2.6.3.5.2 Transition ST\_TTS3:Prepare\_Send\_Data\_In to ST\_TTS2:Send\_Frame

The statement << after the ST\_TTS3:Prepare\_Send\_Data\_In state has >> should be << after this state has >>.

Page: 256

Sequence number: 4

Date: 2/9/2003 10:16:52 AM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.6.1 State description

The statement << This state is entered after one of the following occurs:

- a) a Receive Data-Out service request is received from the ST\_TS1:Request\_Response\_Router state;
- b) a DATA frame is received from the ST\_TFR (target frame router) state machine;
- c) an ACK Received confirmation for an XFER\_RDY frame was received from the ST\_TTS2:Send\_Frame state;
- d) an XFER\_RDY frame has been constructed by the ST\_TTS5:Prepare\_XFER\_RDY state; or
- e) data-out data has been processed by the ST\_TTS6:Process\_Received\_Data\_Out state. >> should be deleted as we do not describe entry conditions.

Page: 256

Sequence number: 5

Date: 2/2/2003 3:35:25 PM -06'00'

Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.6.1 State description  
The statement << from the port layer state machine >> should be deleted.

Page: 256  
Sequence number: 6  
Date: 2/2/2003 3:35:33 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.6.1 State description  
The statement << from the ST\_TFR state machine. >> should be deleted.

Page: 256  
Sequence number: 7  
Date: 2/2/2003 4:13:51 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.6.3.6.1 State description  
The statement << from the ST\_TFR1:Target\_Frame\_Router state. >> should be deleted.

Page: 256  
Sequence number: 8  
Date: 2/9/2003 10:01:13 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (and included first burst handling text too)  
9.2.6.3.6.1 State description  
The statement << If this state was entered as the result of receiving a Receive Data-Out service request from the ST\_TS1:Request\_Response\_Router state then this state shall transition to the ST\_TTS5:Prepare\_XFER\_RDY state. >> should be moved to the relevant state transition description.

Page: 256  
Sequence number: 9  
Date: 1/30/2003 4:19:06 PM -06'00'  
Type: Highlight  
REJECT (it terminates after this state does that)  
9.2.6.3.6.1 State description  
The statement << The ST\_TTS state machine shall terminate after sending the confirmation. >> should be in the state machine overview not here.

Page: 256  
Sequence number: 10  
Date: 1/30/2003 4:18:59 PM -06'00'  
Type: Highlight  
REJECT (it terminates after this state does that)  
9.2.6.3.6.1 State description  
The statement << The ST\_TTS state machine shall terminate after sending the confirmation. >> should be in the state machine overview not here.

Page: 256  
Sequence number: 11  
Date: 1/30/2003 4:18:53 PM -06'00'  
Type: Highlight  
REJECT (it terminates after this state does that)  
9.2.6.3.6.1 State description  
The statement << The ST\_TTS state machine shall terminate after sending the confirmation. >> should be in the state machine overview not here.

Page: 256  
Sequence number: 12  
Date: 1/30/2003 4:18:47 PM -06'00'  
Type: Highlight  
REJECT (it terminates after this state does that)  
9.2.6.3.6.1 State description  
The statement << The ST\_TTS state machine shall terminate after sending the confirmation. >> should be in the state machine overview not here.

Page: 256  
Sequence number: 13

Date: 2/9/2003 10:16:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6.1 State description

The statement << If the target transport tag value matches the value sent with the corresponding XFER\_RDY frame, and the length of the data does not exceed that specified by the XFER\_RDY frame that requested the data, then this state shall transition to the ST\_TTS6:Process\_Received\_Data\_Out state. >> should be moved to the relevant state transition description.

Page: 256

Sequence number: 14

Date: 2/9/2003 10:16:10 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted this arc entirely; let TTS5 go directly to TTS2)

9.2.6.3.6.1 State description

The statement << If this state is entered from the ST\_TTS5:Prepare\_XFER\_RDY state, then this state shall transition to the ST\_TTS2:Send\_Frame state. >> should be moved to the relevant state transition description.

Page: 256

Sequence number: 15

Date: 1/30/2003 4:19:28 PM -06'00'

Type: Highlight

REJECT (it terminates after this state does that)

9.2.6.3.6.1 State description

The statement << The ST\_TTS state machine shall terminate after sending the confirmation. >> should be in the state machine overview not here.

Page: 257

Sequence number: 1

Date: 2/2/2003 4:32:50 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.6.4 Transition ST\_TTS4:Receive\_Data\_Out to ST\_TTS6:Process\_Received\_Data\_Out

The statement << from the ST\_TFR (target frame router) state machine. >> should be deleted.

Page: 257

Sequence number: 2

Date: 2/2/2003 4:26:02 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 State description

The statement << by this state from the ST\_TFR state machine. >> should be deleted.

Page: 257

Sequence number: 3

Date: 2/8/2003 3:46:06 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 State description

The statement << This state is entered after one of the following occurs:

- a) a Response Data parameter is received by this state from the ST\_TFR state machine;
- b) a Task Management Function Executed transport protocol service response was received by the ST\_TTS1:Target\_Request\_Response\_Router state from the SCSI target device's application layer;
- c) a Send Command Complete transport protocol service response was received by the ST\_TTS1:Target\_Request\_Response\_Router state from the SCSI target device's application layer; or
- d) the ST\_TTS2:Send\_Frame state receives something other than a Transmission Status (Frame Transmitted) confirmation followed by an ACK Received confirmation for a RESPONSE frame from the port layer state machine (i.e., the frame transmission was unsuccessful). >> should be deleted as we do not describe entry conditions.

Page: 257

Sequence number: 4

Date: 2/2/2003 4:26:26 PM -06'00'

Type: Square

ACCEPT - DONE (moved to new overview section)

9.2.6.3.9.1 State description

The statement << If not already running, the ST\_TTS state machine shall be initiated when a Response Data parameter is received. >> should be in the state machine overview not here.

Page: 257

Sequence number: 5

Date: 1/30/2003 4:13:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6.2 Transition ST\_TTS4:Receive\_Data\_Out to ST\_TTS2:Send\_Frame

The statement << This transition shall occur after this state has received an XFER\_RDY frame from the ST\_TTS5:Prepare\_XFER\_RDY state. >> should be << This transition shall occur if this state is entered from the ST\_TTS5:Prepare\_XFER\_RDY state. >>

Page: 257

Sequence number: 6

Date: 1/30/2003 4:13:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6.4 Transition ST\_TTS4:Receive\_Data\_Out to ST\_TTS6:Process\_Received\_Data\_Out

The statement << after the ST\_TTS4:Receive\_Data\_Out state receives a Data-Out Arrived parameter >> should be << after receiving a Data-Out Arrived parameter >>

Page: 257

Sequence number: 7

Date: 1/30/2003 4:13:32 PM -06'00'

Type: Highlight

ACCEPT - DONE

The statement << This transition shall occur after a Receive Data-Out transport protocol service request has been received by the ST\_TTS4:Receive\_Data\_Out state from the ST\_TTS1:Request\_Response\_Router state. >> should be << This transition shall occur if this state is entered from the ST\_TTS1:Request\_Response\_Router state. >>

Page: 257

Sequence number: 8

Date: 1/30/2003 4:14:36 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "after constructing")

9.2.6.3.7.2 Transition ST\_TTS5:Prepare\_XFER\_RDY to ST\_TTS4:Receive\_Data\_Out

The statement << after the ST\_TTS5:Prepare\_XFER\_RDY state has >> should be << after this state has >>.

Page: 258

Sequence number: 3

Date: 2/8/2003 4:18:21 PM -06'00'

Type: Strikeout

ACCEPT - DONE (this is actually one of those odd "receiving stuff with a transition" scenarios. Reworded to say "if this state machine receives" which avoids the transition-with-contents issue.)

9.2.6.3.9.1 State description

The statement << from the ST\_TTS1:Target\_Request\_Response\_Router state, >> should be deleted.

Page: 258

Sequence number: 4

Date: 2/2/2003 3:36:27 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 State description

The statement << from the port layer state machine >> should be deleted.

Page: 258

Sequence number: 5

Date: 2/8/2003 3:47:37 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 State description

The statement << from the ST\_TFR state machine, >> should be deleted.

Page: 258

Sequence number: 6

Date: 2/8/2003 3:47:47 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 State description

The statement << from the ST\_TFR state machine, >> should be deleted.

Page: 258

Sequence number: 7

Date: 2/8/2003 4:55:30 PM -06'00'

Type: Highlight

REJECT (convention seems to be to use lowercase here... see list above. It's not a field reference, it's the name of a single bit value)

9.2.6.3.9.1 State description

The term << retransmit >> as in retransmit bit should be in small caps.

Page: 259

Sequence number: 4

Date: 1/30/2003 4:26:49 PM -06'00'

Type: Strikeout

REJECT - why?

9.3.2 SATA tunneling for multiple STP initiator ports

The statement << from an STP initiator port, >> should be deleted.

Page: 259

Sequence number: 5

Date: 1/30/2003 4:22:46 PM -06'00'

Type: Highlight

ACCEPT - DONE ("after constructing")

9.2.6.3.9.2 Transition ST\_TTS7:Prepare\_Response to ST\_TTS2:Send\_Frame

The statement << after the ST\_TTS7:Prepare\_Response state has >> should be << after this state has >>.

Page: 259

Sequence number: 6

Date: 2/15/2003 6:15:05 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Why is the term << PHY OPERATION >> in small caps? I don't think it should be.

Page: 259

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

The statement << In this state, >> should be << Under these conditions, >>.

Page: 259

Sequence number: 8

Date: 2/15/2003 6:15:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Why is the term << PHY OPERATION >> in small caps? I don't think it should be.

Page: 259

Sequence number: 9

Date: 2/15/2003 6:18:28 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded in terms of receives, since it's describing requirements on the recipient)

9.3.2 SATA tunneling for multiple STP initiator ports

This statement << STP initiator port issues an >> should be << STP initiator port sends an >>

Page: 259

Sequence number: 10

Date: 2/15/2003 6:15:27 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Why is the term << PHY OPERATION >> in small caps? I don't think it should be.

Page: 259

Sequence number: 11

Date: 2/15/2003 6:14:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Why is the term << PHY OPERATION >> in small caps? I don't think it should be.

Page: 259

Sequence number: 12

Date: 2/15/2003 6:17:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (added to acronym list)

9.3.3 BIST Activate FIS

The acronym << BIST >> is not in the acronyms list. It needs to be added or removed from here.

Page: 260

Sequence number: 4

Date: 1/30/2003 4:28:59 PM -06'00'

Type: Highlight

REJECT (but reworded whole paragraph in terms of SMP target ports)

9.4.1 SMP overview

The statement << Other target ports >> should be << Target ports >>.

Page: 260

Sequence number: 5

Date: 1/22/2003 5:38:38 PM -06'00'

Type: Highlight

ACCEPT - DONE (globally changed target port to SMP target port or SSP target port or STP target port, and initiator port to SMP initiator port or SSP initiator port or STP initiator port)

Figure 100

The label << Target port >> should be << Expander port or Target port >>.

Page: 260

Sequence number: 6

Date: 1/30/2003 4:28:10 PM -06'00'

Type: Highlight

REJECT - "determined by" is too active a verb for this - sounds like the function is going to do something to figure it out. "based on" works better.

9.4.2 SMP\_REQUEST frame

The statement << length is based on the function >> should be << length is based on the function >> length is determined by the selected function >>.

Page: 260

Sequence number: 7

Date: 1/30/2003 5:01:10 PM -06'00'

Type: Note

ACCEPT - DONE

Table 102

There needs to be a row labeled << Fill bytes if Needed >> added to this table.

Page: 261

Sequence number: 5

Date: 1/30/2003 5:03:18 PM -06'00'

Type: Highlight

ACCEPT - DONE ("by the SMP target port")

9.4.3 SMP\_RESPONSE frame

global for SMP

The statement << the target port >> should be << the target port or expander port >> or << destination port >>

Page: 261

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

Table 103

There needs to be a row labeled << Fill bytes if Needed >> added to this table.

Page: 261

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

9.4.3 SMP\_RESPONSE frame

There is no description of what the << FUNCTION >> field is. This needs to be fixed.

Page: 261

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (with no xref)

9.4.3 SMP\_RESPONSE frame

The statement << requested, and are described in the model section. >> should be << requested (see x.x.x.). >>

Page: 262

Sequence number: 1

Date: 1/30/2003 5:24:21 PM -06'00'

Type: Highlight

REJECT (request in the generic state machine sense)

9.4.4.1 Overview

The statement << that process requests from the management application layer and >> should be << that process management requests and >> .

Page: 262

Sequence number: 2

Date: 1/30/2003 5:24:25 PM -06'00'

Type: Highlight

REJECT (request in the generic state machine sense)

9.4.4.2.1 Overview

The statement << processes requests from the management application layer. >> should be << processes management requests. >>.

Page: 262

Sequence number: 3

Date: 1/30/2003 5:23:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.1 Overview

The term << communicated >> should be << sent >>.

Page: 262

Sequence number: 4

Date: 1/30/2003 5:23:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.1 Overview

The statement << in a return confirmation. >> should be <<as a confirmation. >>.

Page: 263

Sequence number: 4

Date: 1/30/2003 5:24:53 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.4.4.2.2.1 State description

The statement << from the management application layer. >> should be deleted.

Page: 263

Sequence number: 5

Date: 2/28/2003 4:38:54 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.2.1 State description

The statement << of values to be used in the CONNECTION RATE, INITIATOR CONNECTION TAG, DESTINATION SAS ADDRESS, and SOURCE SAS ADDRESS fields in the OPEN address frame, and the FUNCTION and ADDITIONAL REQUEST BYTES fields in the SMP\_REQUEST frame. >> should list the actual values, not the fields they go into, in an a,b,c list like the ones in the several of the other ST state descriptions.

Page: 264

Sequence number: 5



Date: 2/28/2003 4:51:46 PM -06'00'

Type: Strikeout

REJECT

9.4.4.2.4.1 State description

The statement << from the port layer >> should be deleted.

Page: 264

Sequence number: 6

Date: 1/30/2003 5:38:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.3.1 Overview

The statement << is communicated from the port layer and that confirmation is sent to the management application layer. >> should be << is sent to the management application layer. >>.

Page: 264

Sequence number: 7

Date: 2/28/2003 4:51:28 PM -06'00'

Type: Strikeout

ACCEPT - DONE

using the following arguments received with the transition into this state:

a) function; and

b) additional request bytes.

9.4.4.2.3.1 State description

The statement << received in the MT\_ID1:Idle to MT\_ID2:Send transition, >> should be deleted.

Page: 264

Sequence number: 8

Date: 2/28/2003 4:51:12 PM -06'00'

Type: Highlight

ACCEPT - DONE (as a)b) list)

9.4.4.2.3.1 State description

The statement << frame using the function and additional request bytes arguments >> should be << frame using the received function and additional request bytes arguments >>

Page: 264

Sequence number: 9

Date: 2/28/2003 4:53:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (reword like previous sentence)

9.4.4.2.3.1 State description

The statement << used for the CONNECTION RATE, INITIATOR CONNECTION TAG, DESTINATION SAS ADDRESS, and SOURCE SAS ADDRESS fields in the OPEN address frame >> should list the actual values, not the fields they go into, in an a,b,c list like the ones in the several of the other ST state descriptions.

Page: 264

Sequence number: 10

Date: 1/30/2003 5:36:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

The statement << after a Transmission Status (SMP Frame Transmitted) confirmation is received. >> should be << after receiving a Transmission Status (SMP Frame Transmitted) confirmation. >>.

Page: 264

Sequence number: 11

Date: 2/28/2003 4:46:51 PM -06'00'

Type: Highlight

REJECT (but reworded per standard timer convention)

9.4.4.2.4.1 State description

The statement << This state shall initialize a SMP frame receive time out timer to a vendor-specific time and start the timer upon entry into this state. >> should be << Upon entry into this state, this state shall initialize a SMP frame receive time out timer to a vendor-specific time and start the timer. >>

Page: 264

Sequence number: 12

Date: 2/28/2003 4:46:10 PM -06'00'

Type: Highlight

REJECT (but reworded to get rid of the "has sent" implied shalls. Moved all the "if ... then this state shall" rules into the state

description. Simplified the transition text to just be "if this state has sent" each of the possibilities)

#### 9.4.4.2.4.2 Transition MT\_ID3:Receive to MT\_ID1:Idle

The statement

<< a) an Frame Received (SMP) confirmation is received, and, as a result, this state has sent an SMP Frame Pair Sent/Received confirmation to the management application layer;  
b) a Connection Closed or Frame Received (SMP Failure) confirmation is received, and, as a result, this state has sent an SMP Frame Tx/Rcv Failure confirmation to the management application layer; or  
c) the SMP frame receive time out timer is exceeded before a SMP Frame Pair Sent/Received confirmation is received, and, as a result, this state has sent an SMP Frame Receive Time out confirmation to the management application layer and has sent an SMP Transmit Break request to the port layer. >> should be  
<< a) receiving a Frame Received (SMP) confirmation and after sending an SMP Frame Pair Sent/Received confirmation to the management application layer;  
b) receiving a Connection Closed or Frame Received (SMP Failure) confirmation and after sending an SMP Frame Tx/Rcv Failure confirmation to the management application layer; or  
c) the SMP frame receive time out timer times out before a SMP Frame Pair Sent/Received confirmation is received and after this state has sent an SMP Frame Receive Timeout confirmation to the management application layer and has sent an SMP Transmit Break request to the port layer. >>

Page: 264

Sequence number: 13

Date: 2/28/2003 4:47:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.4.4.3.1 Overview

The term << forwards >> should be << sends >>.

Page: 265

Sequence number: 3

Date: 1/30/2003 5:38:35 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 9.4.4.3.2.1 State description

The statement << from the port layer. >> should be deleted.

Page: 265

Sequence number: 4

Date: 1/30/2003 5:43:39 PM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 9.4.4.3.3.1 State description

The statement << from the management application layer. >> should be deleted.

Page: 265

Sequence number: 5

Date: 1/30/2003 5:40:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (added shall send to the state description, and based this just on after sending)

#### 9.4.4.3.2.2 Transition MT\_TD1:Idle to MT\_TD2:Respond

The statement << occur after an Frame Received (SMP) confirmation is received, and, as a result, this state has sent an SMP Frame Received confirmation to the >> should be << occur after receiving a Frame Received (SMP) confirmation and after sending an SMP Frame Received confirmation to the >>

Page: 265

Sequence number: 6

Date: 1/30/2003 5:41:05 PM -06'00'

Type: Highlight

ACCEPT - DONE (slightly different)

#### 9.4.4.3.3.1 State description

The statement << Upon receipt, this state shall send a Transmit Frame (SMP) request to the port layer. >> should be a new paragraph and changed to << This state shall send a Transmit Frame (SMP) request to the port layer after receiving a Tx SMP Frame request. >>.

Page: 265

Sequence number: 7

Date: 2/28/2003 4:54:45 PM -06'00'

Type: Highlight

REJECT (but moved shalls into state description and simplified transition text)

#### 9.4.4.3.3.2 Transition MT\_TD2:Respond to MT\_TD1:Idle

The statement

<< a) a Transmission Status (SMP Frame Transmitted) confirmation is received; or  
b) a Connection Closed confirmation is received, and, as a result, this state has sent an SMP Connection Closed confirmation to the management application layer. >> should be <<  
a) receiving a Transmission Status (SMP Frame Transmitted) confirmation ; or  
b) receiving a Connection Closed confirmation and after sending an SMP Connection Closed confirmation to the management application layer. >>.

Page: 267

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.1 Transport protocol services overview

The statement << and how each transport protocol service is implemented in SSP. >> should be << and the SSP implementation of each transport protocol service. >>.

Page: 267

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - requests and confirmations are only used by state machines. This is not referencing a specific state machine.

10.1.1.1 Transport protocol services overview

The terms << state machines >> should be deleted as we don't normally refer to state machines only layers.

Page: 267

Sequence number: 3

Date: 2/1/2003 1:58:33 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.2 Send SCSI Command transport protocol service

The statement << protocol service request to have an initiator port >> should be << protocol service request to request an initiator port >>

Page: 268

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.2 Send SCSI Command transport protocol service

The statement << shows how the arguments to the Send SCSI Command transport protocol service are used. >> should be << shows the usage of the Send SCSI Command transport protocol service arguments. >>.

Page: 268

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.3 SCSI Command Received transport protocol service

The statement << shows how the arguments to the SCSI Command Received transport protocol service are determined. >> should be << shows the usage of the SCSI Command Received transport protocol service arguments >>

Page: 268

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - the only other place is 9.2.5.1 which is a summary of error handling with cross references to the home of each rule. This is the "normative" location for this rule (bridging to SAM-3) and is pointed to by 9.2.4.5 and elsewhere.

10.1.1.3 SCSI Command Received transport protocol service

The statement << If a target port calls SCSI Command Received () with a TAG already in use (i.e., an overlapped command), the device server responses are defined in SAM-3. >> should be deleted as the tag checking rules are defined elsewhere in this document.

Page: 269

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.4 Send Command Complete transport protocol service

The statement << shows how the arguments to the Send Command Complete transport protocol service are used. >> should be << shows the usage of the Send Command Complete transport protocol service arguments. >>.

Page: 269

Sequence number: 3

Date: 2/1/2003 1:58:45 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.4 Send Command Complete transport protocol service

The statement << have a target port transmit >> should be << request a target port transmit >>.

Page: 270

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.5 Command Complete Received transport protocol service

The statement << shows how the arguments to the Command Complete Received transport protocol service are determined. >> should be << shows the usage of the Command Complete Received transport protocol service arguments. >>.

Page: 270

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (globally)

10.1.1.6 Send Data-In transport protocol service

The term << I\_T\_L\_Q >> should be << I\_T\_L\_Q nexus >> in all cases.

Page: 270

Sequence number: 3

Date: 2/1/2003 1:59:16 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.6 Send Data-In transport protocol service

The statement << have a target port transmit >> should be << request a target port transmit >>.

Page: 271

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.6 Send Data-In transport protocol service

The statement << shows how the arguments to the Send Data-In transport protocol service are used. >> should be << shows the usage of the Send Data-In transport protocol service arguments. >>.

Page: 271

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.7 Data-In Delivered transport protocol service

The statement << shows how the arguments to the Data-In Delivered transport protocol service are determined. >> should be << shows the usage of the Data-In Delivered transport protocol service arguments. >>.

Page: 271

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (globally)

10.1.1.8 Receive Data-Out transport protocol service

The term << I\_T\_L\_Q >> should be << I\_T\_L\_Q nexus >> in all cases.

Page: 271

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Square

ACCEPT - DONE (changed "returned" to "completed successfully" - this means the device server is waiting for the function call to be invoked by the target port.)

10.1.1.8 Receive Data-Out transport protocol service

The statement << A device server shall not call Receive Data Out () for a given I\_T\_L\_Q until Data Out Received () has returned for the previous Receive Data Out () call (i.e., no XFER\_RDY until all write DATA frames for the previous XFER\_RDY frame, if any, and has provided link layer acknowledgement for all of the previous write DATA frames for that I\_T\_L\_Q). >> does not parse I think it should be << A device server shall not call Receive Data Out () for a given I\_T\_L\_Q nexus until Data Out Received () has been returned for the previous Receive Data Out () call (i.e., no XFER\_RDY sent until all write DATA frames for the previous XFER\_RDY frame, if any, and have been provided by link layer acknowledgements for all of the previous write DATA frames for that I\_T\_L\_Q nexus). >>

Page: 271

Sequence number: 5

Date: 2/1/2003 1:59:25 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.7 Data-In Delivered transport protocol service

The statement << have a target port transmit >> should be << request a target port transmit >>.

Page: 272

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.8 Receive Data-Out transport protocol service

The statement << shows how the arguments to the Receive Data-Out transport protocol service are used. >> should be << shows the usage of the Receive Data-Out transport protocol service arguments. >>.

Page: 272

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.9 Data-Out Received transport protocol service

The statement << shows how the arguments to the Data-Out Received transport protocol service are determined. >> should be << shows the usage of the Data-Out Received transport protocol service arguments. >>.

Page: 272

Sequence number: 4

Date: 2/1/2003 1:59:50 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.10 Send Task Management Request transport protocol service

The statement << have an initiator port transmit >> should be << request an initiator port transmit >>.

Page: 273

Sequence number: 2

Date: 2/1/2003 2:00:24 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.12 Task Management Function Executed transport protocol service

The statement << have a target port transmit >> should be << request a target port transmit >>.

Page: 273

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.10 Send Task Management Request transport protocol service

shows how the arguments to the Send Task Management Request transport protocol service are used. >> should be << shows the usage of the Send Task Management Request transport protocol service arguments. >>.

Page: 273

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.11 Task Management Request Received transport protocol service

The statement << shows how the arguments to the Task Management Request Received transport protocol service are determined. >> should be << shows the usage of the Task Management Request Received transport protocol service arguments. >>.

Page: 273

Sequence number: 5

Date: 1/30/2003 2:39:36 PM -06'00'

Type: Strikeout

ACCEPT - DONE (delete this paragraph. There are no such rules in either SAM-3.)

10.1.1.11 Task Management Request Received transport protocol service

The statement << If a target port calls Task Management Request Received () with a TAG already in use, the device server responses are defined in SAM-3. >> should be deleted as the tag checking rules are defined elsewhere in this document.

Page: 274

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.12 Task Management Function Executed transport protocol service

The statement << shows how the arguments to the Task Management Function Executed transport protocol service are used. >> should be << shows the usage of the Task Management Function Executed transport protocol service arguments. >>.

Page: 275

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - no improvement

10.1.1.13 Received Task Management Function-Executed transport protocol service

The statement << shows how the arguments to the Received Task Management Function-Executed transport protocol service are determined. >> should be << shows the usage of the Received Task Management Function-Executed transport protocol service arguments. >>.

Page: 275

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

10.1.2 Device server error handling

The information in this section could be placed in a single table. This should make the presentation of the error information easier to determine.

<< If a device server calls Receive Data-Out () and receives a Delivery Result that indicate a deliver failure the device server shall respond as shown in table xx.

Table xx - Response to Delivery Result DELIVERY FAILURE

Columns would be: Delivery Result : Status : Sense Key : Additional sense code: >>

Page: 276

Sequence number: 2

Date: 1/30/2003 2:27:49 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per Jan WG - keep the list but as an example)

10.1.3 Application client error handling

The statement << it determines the ACK for the RESPONSE frame was seen by the target port. This is indicated by: >> should be deleted. The workings of the lower layers is not needed here.

JanWG: Change to:

shall not use the tag until it determines the tag is no longer in use by the logical unit (e.g., the ACK for the RESPONSE frame was seen by the target port). Examples of ways the app client may determine when a tag may be reused are:

a) b) c)

Page: 276

Sequence number: 3

Date: 3/11/2003 4:36:53 PM -06'00'

Type: Square

ACCEPT - DONE ( A table doesn't help; changed the wording a bit.)

The statement << If an application client calls Send SCSI Command () and an initiator port calls Command Complete Received () and delivers a Service Response of Service Delivery of Target Failure - ACK/NAK Timeout, the application client shall send a QUERY TASK task management function with Send Task Management Request () to determine whether the command was received successfully. If Received Task Management Function Executed () returns a Service Response of FUNCTION SUCCEEDED, the application client shall assume the command was delivered successfully. If it returns a Service Response of FUNCTION COMPLETE, and Command Complete Received () has not yet been called a second time for the command in question, the application client shall assume the command was not delivered successfully and may reuse the tag. >>

is very awkward. There must be a better way to present this information. May by some kind of table like the one suggested in the target error handling suggested in the above comment.

Page: 277

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (data that shall be returned is described)

10.1.5.1 INQUIRY command

The statement << is modified as described >> should be << by a SAS device is described >>.

Page: 277

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.5.4 START STOP UNIT command

The statement << are modified as described >> should be << by a SAS device is described >>.

Page: 279

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.3 MAXIMUM CONNECT TIME LIMIT field

The statement << (i.e., a value of one in this field specifies that the time shall be less than or equal to 100  $\mu$ s, a value of two in this field specifies that the time shall be less than or equal to 200  $\mu$ s, etc.). >> should be << (e.g., a value of one in this field specifies that the time shall be less than or equal to 100  $\mu$ s, a value of two in this field specifies that the time shall be less than or equal to 200  $\mu$ s). >>

Page: 279

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.4 MAXIMUM BURST SIZE field

The statement << (i.e., a value of one in this field specifies that the number of bytes transferred to the initiator port for the nexus shall be less than or equal to 512, a value of two in this field specifies that the number of bytes transferred to the initiator port for the nexus shall be less than or equal to 1 024, etc.). >> should be << (e.g., a value of one in this field specifies that the number of bytes transferred to the initiator port for the nexus shall be less than or equal to 512, a value of two in this field specifies that the number of bytes transferred to the initiator port for the nexus shall be less than or equal to 1 024). >>

Page: 279

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "frame" after XFER\_RDY wherever it was not already followed by "information unit" or used in a signal name)

10.1.6.1.5 FIRST BURST SIZE field

The term << XFER\_RDY frame >> is << XFER\_RDY >> in many other places in the standard. This needs to be stated one way. I believe just << XFER\_RDY >> is used everywhere else.

Page: 279

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.5 FIRST BURST SIZE field

The statement << (i.e., a value of one in this field specifies that the number of bytes transferred by the initiator port shall be less than or equal to 512, a value of two in this field specifies that the number of bytes transferred by the initiator port shall be less than or equal to 1 024, etc.). >> should be << (e.g., a value of one in this field specifies that the number of bytes transferred by the initiator port shall be less than or equal to 512, a value of two in this field specifies that the number of bytes transferred by the initiator port shall be less than or equal to 1 024). >>

Page: 279

Sequence number: 5

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.5 FIRST BURST SIZE field

The statement << size, i.e., an initiator port shall transmit no data frames to the target port before receiving an XFER\_RDY frame. >> should be << size (i.e., an initiator port shall transmit no data frames to the target port before receiving an XFER\_RDY frame). >>

Page: 281

Sequence number: 3

Date: 1/30/2003 1:45:04 PM -06'00'

Type: Highlight

ACCEPT - DONE ("create" doesn't work. Changed to "recognizing")

10.1.6.2.2 Protocol-Specific Port mode page - short format

The statement << connection time outs before treating it as an I\_T nexus loss >> should be << connection time outs before creating an I\_T nexus loss >>

Page: 281

Sequence number: 4

Date: 1/14/2003 11:14:51 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.2.2 Protocol-Specific Port mode page - short format

\*\*\*\*

The statement << If the mode page is implemented, the default setting shall be 2 000 ms. >> is a problem. We have never specified a default value for a more page value. Why are we going it here? I don't believe we should start now. We could possibly recommend the value in a note. Reword to << Note xx: If this mode page is implemented a non-zero default value should be specified. It is recommend that this value be 2 000 ms. >>

Page: 281

Sequence number: 5

Date: 1/30/2003 1:46:51 PM -06'00'

Type: Highlight

REJECT (but changed to "never recognize an I\_T nexus loss". Details about specific OPEN\_REJECTs belong in the port layer.)

10.1.6.2.2 Protocol-Specific Port mode page - short format

The statement << indicates the target port shall never consider rejections an I\_T nexus loss. >> should be << indicates the target port shall not stop retrying OPEN\_REJECT (NO DESTINATION), OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED) connection requests.

Page: 281

Sequence number: 6

Date: 2/8/2003 12:18:52 PM -06'00'

Type: Strikeout

REJECT - there is an SMP table with a field like number of phys that are not followed by descriptors. Why not make it clear? If the field were called "number of phy mode descriptors" I would agree (but I don't want to rename it to that)

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

The statement << and indicates the number of SAS

phy mode descriptors that follow. >> is obvious and should be deleted.

Page: 282

Sequence number: 1

Date: 2/15/2003 2:59:19 PM -06'00'

Type: Highlight

REJECT - listing all the fields that way will take 1/4 of a page while conveying little useful information. These paragraphs just say they're defined elsewhere.

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

The statement << The PHY IDENTIFIER field, ATTACHED DEVICE TYPE field, NEGOTIATED PHYSICAL LINK RATE field, ATTACHED SSP INITIATOR bit, ATTACHED STP INITIATOR bit, ATTACHED SMP INITIATOR bit, ATTACHED SSP TARGET bit, ATTACHED STP TARGET bit, ATTACHED SMP TARGET bit, ATTACHED SAS ADDRESS field, SAS ADDRESS field, HARDWARE MINIMUM PHYSICAL LINK RATE field, and HARDWARE MAXIMUM PHYSICAL LINK RATE field are defined in the SMP DISCOVER function (see 10.3.1.4). >> needs to made into an a,b,c list.

Page: 283

Sequence number: 1

Date: 1/30/2003 1:37:33 PM -06'00'

Type: Highlight

REJECT (the list would take as much space as the table; it's just a redirection to another section anyway)

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

The statement << The PHY OPERATION field, PROGRAMMED MINIMUM PHYSICAL LINK RATE field, and PROGRAMMED MAXIMUM

PHYSICAL LINK RATE field are defined in the SMP PHY CONTROL function >> . >> needs to made into an a.b.c list.



Page: 283

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - this terminology works better for multiprotocol devices

Table 124

The term << Protocol-specific log parameter >> should be changed to << SAS log parameter >> in all cases.

Page: 284

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT

Table 125

The term << Protocol-specific log parameter >> should be changed to << SAS log parameter >> in all cases.

Page: 285

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

Table 126

Left justify all the entries in the << Description >> column.

Page: 286

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT

10.1.7.1 Protocol-Specific log page for SAS

The statement << The PHY IDENTIFIER field, ATTACHED DEVICE TYPE

field, NEGOTIATED PHYSICAL LINK RATE field, ATTACHED SSP

INITIATOR bit, ATTACHED STP INITIATOR bit, ATTACHED SMP INITIATOR bit, ATTACHED SSP TARGET bit, ATTACHED

STP TARGET bit, ATTACHED SMP TARGET bit, ATTACHED SAS ADDRESS field, and SAS ADDRESS field are defined in the

SMP DISCOVER function (see 10.3.1.4). >> needs to be made into an a,b,c list.

Page: 287

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT

10.1.7.1 Protocol-Specific log page for SAS

The statement << The INVALID DWORD COUNT field, DISPARITY ERROR COUNT field, LOSS OF DWORD

SYNCHRONIZATION field, and PHY RESET PROBLEM COUNT field are each defined in the SMP REPORT PHY ERROR LOG

response data (see 10.3.1.5). >> needs to be made into an a,b,c list.

Page: 287

Sequence number: 7

Date: 2/3/2003 2:14:31 PM -06'00'

Type: Square

ACCEPT - DONE (this was intended to be a brief overview of the spinup concept. Changed to:

The logical unit uses NOTIFY (ENABLE SPINUP) to:

a) automatically spin-up after power on; and

b) delay spin-ups requested by START STOP UNIT commands.

)

10.1.8 SCSI power condition states

The statement << a) after power on, if the target device has not received a START STOP UNIT command with the START bit set to zero, transition to the active power condition state after receiving NOTIFY (ENABLE\_SPINUP). The target device automatically transitions after power on without waiting for the application client; and

b) after power on, if the target device has previously received a START STOP UNIT command with the START bit set to zero when it receives a START STOP UNIT command with the START bit set to one, spin-up after receiving the next NOTIFY

(ENABLE\_SPINUP). The application client's request is effectively delayed until NOTIFY (ENABLE\_SPINUP) arrives. >> makes no sense in the context of this section. Something is wrong here and I have no idea what is going on here. This needs to be fixed.

Page: 287

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

REJECT - the fact that it is a superset is important

10.1.8 SCSI power condition states

The statement << The SA\_PC

state machine is an enhanced version of the logical unit power condition state machines described in SPC-3, SBC-2, and RBC. >> doesn't add anything to SAS and should be deleted.

Page: 287

Sequence number: 9

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8 SCSI power condition states

The list of state machines needs cross-references and an indication of the initial state.

Page: 288

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

Figure 103

This drawing needs the orange background and the state machine title in it like all the other state machine drawings in this document.

Page: 288

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - states are not always zero time, transitions are. The whole idea of a state is that it is "maintaining state" for some period of time

10.1.8.1.1 State description

The statement << This state shall be entered upon power on. This state consumes zero time. >> should be << Upon power on this state shall be entered. >> All states are zero time so there is no need to state it here.

Page: 289

Sequence number: 8

Date: 1/25/2003 4:51:27 PM -06'00'

Type: Highlight

REJECT

10.1.8.2.2 Transition SA\_PC\_1:Active to SA\_PC\_2:Idle

The term << expires.>> should be << timed out >>.

Page: 289

Sequence number: 9

Date: 1/25/2003 4:51:16 PM -06'00'

Type: Highlight

REJECT

10.1.8.2.3 Transition SA\_PC\_1:Active to SA\_PC\_3:Standby

The term << expires.>> should be << timed out >>

Page: 289

Sequence number: 10

Date: 1/25/2003 4:51:07 PM -06'00'

Type: Highlight

REJECT

10.1.8.3.3 Transition SA\_PC\_2:Idle to SA\_PC\_3:Standby

The term << expires.>> should be << timed out >>.

Page: 290

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - that requirement is for SBC-2 to state, not this standard.

10.1.8.5.1 State description

The statement << This state is only implemented >> should be << This state shall only implemented >>

Page: 291

Sequence number: 10

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8.6.1 State description

The statement << This state is only implemented >> should be << This state shall only implemented >>.

Page: 291

Sequence number: 11

Date: 3/15/2003 5:17:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (It is indeed the transition or perhaps the entry into the state that causes excess power, not the fact of being in the new state itself (idle might use 1 W, idle->active might use 50 W for a brief period, then active might drop to 15 W. Reword as "not consume additional power as a result of the transition...")

10.1.8.6.2 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_1:Active

\*\*\*\*

The statement << the device does not temporarily consume additional power during the transition to SA\_PC\_1:Active. >> should be << the device does not temporarily consume additional power as a result of a transition to SA\_PC\_1:Active. >> but I don't understand what this is all about. The statement itself tells me nothing. This needs to be fixed.

Page: 291

Sequence number: 12

Date: 1/25/2003 4:51:53 PM -06'00'

Type: Highlight

REJECT

10.1.8.6.3 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_3:Standby

The term << expires.>> should be << timed out >>

Page: 291

Sequence number: 13

Date: 1/25/2003 4:52:02 PM -06'00'

Type: Highlight

REJECT

10.1.8.6.5 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_6:Idle\_Wait

The term << expires.>> should be << timed out >>.

Page: 291

Sequence number: 14

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8.7.1 State description

The statement << This state is only implemented >> should be << This state shall only implemented >>

Page: 291

Sequence number: 15

Date: 1/22/2003 5:40:16 PM -06'00'

Type: Highlight

REJECT (going with expires everywhere)

10.1.8.7.3 Transition SA\_PC\_6:Idle\_Wait to SA\_PC\_3:Standby

The term << expires.>> should be << timed out >>

Page: 292

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (but added VPD to the acronym list and "(VPD)" to the 1.1.9 section header, its first use)

10.1.9 SCSI vital product data

The statement << the Device Identification vital product data (VPD) page (83h) >> should be << the Device Identification VPD page (83h) >>

Page: 292

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (twice)

Table 128

The statement << The IDENTIFIER field contains the SAS address of the target port being used to run the INQUIRY command. >> should be << The IDENTIFIER field contains the SAS address of the target port through which the INQUIRY command was received. >>

Page: 294

Sequence number: 2

Date: 2/1/2003 2:22:49 PM -06'00'

Type: Strikeout

REJECT (this explains why the CRC field, owned by the link layer, is shown in this application layer section. Added xref to SMP link layer; added similar sentence for SMP FRAME TYPE and transport layer.)

10.3.1.1 Function overview

The statement << The CRC field is included in each frame, although that field is parsed by the link layer. >> should be deleted as it is information that is stated else where and should not be here.

Page: 296

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

The statement << 1) Table 131 defines the response format. >> should not have a << 1) >> in it. This needs to be fixed.

Page: 296

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

The statement << for either of the following reasons: >> should be << for the following reasons: >>

Page: 296

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

The << EXPANDER ROUTE INDEXES field >> and the << CONFIGURABLE ROUTE TABLE>> need some cross references to where the expander route table is defined and the configurable route table is defined.

Page: 297

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

<< table that  
shall be configured. >> should be << table that  
is required to be configured. >>

Page: 298

Sequence number: 4

Date: 1/22/2003 9:35:00 AM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG; with mods per 03-060; George will propose that SPC-3 use "shall" here too)

10.3.1.3 REPORT MANUFACTURER INFORMATION function

\*\*\*\*

The statement << The vendor identification string should be one defined >> should be << The vendor identification string shall be as defined >>

Page: 299

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The statement << by the phy, as well as the routing attribute supported >> should be << by the phy and the routing attribute supported >>

Page: 299

Sequence number: 4

Date: 2/28/2003 3:32:58 PM -06'00'

Type: Highlight

ACCEPT - DONE (this is hard to search for. Hope all of them are fixed.)

10.3.1.4 DISCOVER function

Global

The usage of small caps should be limited to field names only. The use when talking about the value is not correct (e.g., NUMBER OF PHYS and FUNCTION RESULT) here. This needs to be fixed.

Page: 301

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The statement << complete (when a SAS device is attached) or after the initial Register - Device to Host FIS has been received (when a SATA device is attached). >> should be << complete if a SAS device is attached or after the initial Register - Device to Host FIS has been received if a SATA device is attached. >>

Page: 301

Sequence number: 4

Date: 1/21/2003 7:10:12 PM -06'00'

Type: Highlight

ACCEPT - DONE (see Vixel comment: second sentence removed, "method" added into descriptions in table)

10.3.1.4 DISCOVER function

The statement << The ROUTING ATTRIBUTE field shall not change based on the attached device type. The routing method used by the expander connection manager shall change based on the attached device type as described in table 137. >> If not clear as to the point that is trying to be made. This needs to be fixed or deleted.

Page: 302

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (see Maxtor resolution)

10.3.1.4 DISCOVER function

In the statement << link rate if they have been >> what it the << they >> referring to. This needs to be fixed.

Page: 302

Sequence number: 7

Date: 2/8/2003 12:20:44 PM -06'00'

Type: Strikeout

REJECT (without that phrase the whole note is meaningless, and the group at least at one time felt the note was worth maintaining)  
Table 139

The statement << in its local data structures >> should be deleted as that kind of data structure is not defined anywhere.

Page: 302

Sequence number: 8

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

REJECT - these sentences just refer to the other bits for their meaning. Will add cross references to the IDENTIFY address frame.

10.3.1.4 DISCOVER function

All the << The xxx bit indicates the xxx value received during the link reset sequence. >> should be for example<< An ATTACHED SSP INITIATOR bit set to one indicates an SSP initiator is attached. An ATTACHED SSP INITIATOR bit set to zero indicates an SSP initiator is not attached. >>

Page: 302

Sequence number: 9

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The statement << completes, when a SAS device is attached; >> should be << completes if a SAS device is attached; >>

Page: 302

Sequence number: 10

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The statement << completes, when a SATA device is attached; >> should be << completes if a SATA device is attached; >>

Page: 303

Sequence number: 4

Date: 1/29/2003 12:44:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG Note added for a recommended default)

10.3.1.4 DISCOVER function

The statement << The default value for PARTIAL PATHWAY TIMEOUT VALUE shall be 7  $\mu$ s. >> is a problem. We have never specified a default value for a mode page value. Why are we going it here? I don't believe we should start now. We could possibly recommend the value in a note. Reword to << Note xx: If this function is implemented a it is recommend that this value be 7  $\mu$ s. >>

Page: 305

Sequence number: 5

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

The statement << have been received (outside of phy reset sequences). >> should be << have been received outside of phy reset sequences. >>

Page: 305

Sequence number: 6

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

The statement << have been received (outside of phy reset sequences). >> should be << have been received outside of phy reset sequences. >>

Page: 305

Sequence number: 7

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

The statement << has been lost (outside of phy reset sequences). >> should be << has been lost outside of phy reset sequences. >>.

Page: 307

Sequence number: 3

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (with "may be used")

10.3.1.7 REPORT ROUTE INFORMATION function

The statement << This function is used primarily as a diagnostic tool to resolve topology issues. >> should be << This function is used to resolve topology issues. >>

Page: 308

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.7 REPORT ROUTE INFORMATION function

The statement << the table routing attribute (see 4.x.x.x) the >> needs a real cross reference.

Page: 312

Sequence number: 4

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.8 CONFIGURE ROUTE INFORMATION function

The statement << the table routing attribute (see 4.x.x.x) the >> needs a real cross reference.

Page: 312

Sequence number: 5

Date: 1/29/2003 6:30:50 PM -06'00'

Type: Note

REJECT - in this response there is no such data to worry about - just the CRC (moot with combined table)

Table 152

What happened to the << rest of data is invalid. >> statement in the two descriptions. It should be stated here also.

Page: 314

Sequence number: 1

Date: 1/21/2003 4:41:38 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.9 PHY CONTROL function

The << PROGRAMMED MINIMUM PHYSICAL LINK RATE field >> and << PROGRAMMED MAXIMUM PHYSICAL LINK RATE field >> need to be described in separate paragraphs.

Page: 314

Sequence number: 2

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT (but raises a bigger issue filed as a PostLB comment)

10.3.1.9 PHY CONTROL function

The statement << may be set beforehand >> should be << may be sent in an operation other than a LINK RESET operation before a LINK RESET is sent. >>

Page: 316

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE (this response frame doesn't have any "rest of data" to worry about, so removed it from 10h. This comment prompted adding it to one of the REPORT PHY SATA results).

Table 157

What happened to the << rest of data is invalid. >> statement in the two descriptions. It should be stated here also.

Page: 319

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Note

ACCEPT - DONE

A.1 Compliant jitter test pattern (CJTPAT)

The statements << The second column (8b data dword) lists the >> and << The third column (Scrambler output dword) lists >> and << The fourth column (Scrambled 8b data dword) shows >> need to reference the table to which they are referencing.

Page: 326

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted the whole paragraph)

C.1 CRC generator and checker implementation examples

The statement << 1, 2, and 3 below are included to provide a validation >> needs a more precise. The reference to <<below >> needs to be more accurate.

Page: 330

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

D.1 Hashing overview

The statement << 4.2.2 describes hashed SAS addresses >> should be << See 4.2.2 for a description of the hashed SAS addresses >>

Page: 330

Sequence number: 2

Date: 1/20/2003 6:12:26 PM -06'00'

Type: Note

REJECT (all the decimal points are lined up, which makes these bizarre ISO formatted numbers more readable)

Table D.1

Center all the cells.

Page: 331

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE also changed the may later in the sentence

D.3 Hash generation

The statement << length can be treated as >> should be << length is treated as >>.

Page: 332

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

D.5 Hash implementation with XORs

The statement << 24-bit HASHED SAS ADDRESS field for the SSP frame >> should be << 24-bit hashed SAS address for the SSP frame >> .

Page: 336

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Strikeout

ACCEPT - DONE

E.1 Scrambler implementation in C

The term << specified >> should be deleted.

Page: 340

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

REJECT - why use 11 characters when 4 suffice?

F.3 Byte and bit ordering

The statement << Thus, the first byte contains the least >> should be << As a result the first byte contains the least >>

Page: 360

Sequence number: 1

Date: 1/6/2003 6:16:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

H.1 Overview

The statement << Hamming distance (the number of bits different in two patterns) of at least >> should be << Hamming distance (i.e., the number of bits different in two patterns) of at least >>.

Page: 366

Sequence number: 1

Date: 1/25/2003 4:56:59 PM -06'00'

Type: Highlight

ACCEPT - DONE ("initialize before use")

I.2 Header file

The statement << SMP Request, must be initialized >> should be << SMP Request, is initialized >>.

Page: 369

Sequence number: 1

Date: 1/25/2003 4:57:33 PM -06'00'

Type: Highlight

ACCEPT - DONE ("initialize before use")

I.2 Header file

The statement << SMP Response, must be initialized >> should be << SMP Response, is initialized >>

Page: 370

Sequence number: 1

Date: 1/25/2003 4:58:21 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.2 Header file

The statement << file will perform the >> should be << file performs the >>.

Page: 371

Sequence number: 2

Date: 1/30/2003 11:00:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << change primitives will initiate >> should be << change primitives initiate >>.

Page: 371

Sequence number: 3

Date: 1/25/2003 5:04:32 PM -06'00'

Type: Highlight



ACCEPT - DONE

I.3 Source file

The statement << discover information will end up >> should be << discover information ends up >>.

Page: 372

Sequence number: 1

Date: 1/25/2003 5:05:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.2 Header file

The statement << expander in the chain must be configured >> should be << expander in the chain is configured >>.

Page: 373

Sequence number: 1

Date: 1/25/2003 5:07:15 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed warning)

I.2 Header file

The statement << production code must handle >> should be << production code handles >>. Requirements cannot be in an informative annex.

Page: 373

Sequence number: 2

Date: 1/25/2003 5:06:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (this isn't a requirement it's a warning that the code isn't complete here. Removed, however.)

I.2 Header file

The statement << production code must handle >> should be << production code handles >>. Requirements cannot be in informative annex.

Page: 374

Sequence number: 1

Date: 1/25/2003 5:08:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << this routine will add a SAS Address >> should be << this routine adds a SAS Address >>.

Page: 374

Sequence number: 2

Date: 1/25/2003 5:08:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << this routine will add a SASAddress >> should be << this routine adds a SASAddress >>.

Page: 374

Sequence number: 3

Date: 1/25/2003 5:08:07 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << this routine will reset the ChainEntry >> should be << this routine resets the ChainEntry >>.

Page: 375

Sequence number: 1

Date: 1/25/2003 5:08:12 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << this routine will get the route index >> should be << this routine gets the route index >>.

Page: 375

Sequence number: 2

Date: 1/25/2003 5:08:15 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

The statement << this routine will get the >> should be << this routine gets the >>.

Page: 379  
Sequence number: 1  
Date: 1/25/2003 5:09:13 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
I.3 Source file  
The statement << this routine will append >> should be << this routine appends >>.

Page: 380  
Sequence number: 1  
Date: 1/25/2003 5:09:23 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
I.3 Source file  
The statement << DiscoverProcess will get >> should be << DiscoverProcess gets >>.

Page: 380  
Sequence number: 2  
Date: 1/25/2003 5:09:51 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
I.3 Source file  
The statement << we find will naturally move >> should be << we find naturally moves >>.

Page: 382  
Sequence number: 4  
Date: 1/6/2003 6:16:00 PM -06'00'  
Type: Note  
REJECT - I see no such header with Acrobat 5.0.5  
Annex J  
There seems to a bogus frame title at the end of the document. It shows up as an << untitled >> entry in the bookmarks list in Acrobat which seems to be hyper linked to something on page 172.

## Author: INTC

---

Page: ii  
Sequence number: 2  
Date: 12/30/2002 10:44:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Front matter  
HIS s/b IHS

Page: iii  
Sequence number: 3  
Date: 1/7/2003 11:09:04 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (see IBM and LSI comments)  
Abstract  
"Serial ATA compatible physical layer": partly true, but overly limited. Implies that SATA is used as-is, across the board.  
Expand/clarify.

Page: iv  
Sequence number: 1  
Date: 1/7/2003 11:13:31 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (changed to 2003)  
ANSI stuff  
2002 s/b 2003 or 200x

Page: xxxi  
Sequence number: 1  
Date: 1/7/2003 1:52:38 PM -06'00'  
Type: Highlight

ACCEPT - DONE (spaces after figure number)  
TOC  
Fix para formatting for Annex TOC entries

Page: xxxiii  
Sequence number: 5  
Date: 1/7/2003 1:52:56 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (removed "of "instead to match other standards)  
Foreword  
Fix 'of it' or reword for clarification from  
"At the time of it approved this standard, INCITS had the  
following members:"  
to  
"At the time of standard approval, INCITS had the following members:"

Page: 5  
Sequence number: 5  
Date: 2/6/2003 11:45:47 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA terminology per Mark Evans proposal. George won't allow us to use quotes around referenced terms.)  
3.1.3 ATA device  
NOTE 4  
"uses the term device": place single quotes around words  
when the word itself is referenced:  
the term 'device', the term 'target device'

Page: 5  
Sequence number: 6  
Date: 2/6/2003 11:45:07 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA terminology per Mark Evans proposal)  
3.1.4 ATA domain  
"(ATA) service delivery subsystem": Clarify whether this has the  
same defn as the SCSI SDS

Page: 5  
Sequence number: 7  
Date: 2/6/2003 11:44:45 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA terminology per Mark Evans proposal)  
3.1.6 ATA initiator port  
"Equivalent to a host adapter": 'initiator port' is an abstraction,  
'host adapter' is, at least in one sense, a  
piece of hardware. Clarify model, and that  
reference to 'HA' is to the term 'HA', not a thing. (FRAG)

Page: 5  
Sequence number: 8  
Date: 1/7/2003 2:12:59 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.1.3 ATA device  
NOTE 4  
GLOBAL  
"ATA/ATAPI V1": Be consistent w/ 2.4, which uses ATAPI-7 (GLOBAL)

Page: 5  
Sequence number: 9  
Date: 2/6/2003 11:44:38 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA terminology per Mark Evans proposal)  
3.1.9 ATA target port  
"task router" does not appear in ATAPI7. Use correct ATA terminology.

Page: 5  
Sequence number: 10  
Date: 2/6/2003 1:58:55 PM -06'00'  
Type: Highlight

ACCEPT - DONE

3.1.14 byte

8 s/b 'eight'

Page: 5

Sequence number: 11

Date: 2/6/2003 1:59:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.15 character

10 s/b 'ten'

Page: 6

Sequence number: 13

Date: 2/7/2003 5:24:40 PM -06'00'

Type: Highlight

ACCEPT - DONE (application client runs the discover process - fixed globally)

3.1.30 discover process

management application client: Clarify whether 'process' means 'algorithm' or some executing code.

Page: 6

Sequence number: 14

Date: 1/22/2003 9:49:51 AM -06'00'

Type: Highlight

ACCEPT - DONE (delete it. That will mean no special meaning)

3.1.25 device

'A physical entity' seems quite vague. Clarify whether that is the intent.

Page: 6

Sequence number: 15

Date: 1/7/2003 2:18:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.34 (Page 6) dword synchronization

Add '(see 6.9)'

Page: 7

Sequence number: 12

Date: 12/30/2002 1:45:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.45 expander route index

Fix typo -- change "a" to "an"

Page: 7

Sequence number: 13

Date: 3/2/2003 12:29:11 PM -06'00'

Type: Highlight

ACCEPT - DONE (make "with" the most common usage throughout)(still broken)

3.1.47 fanout expander device

'no phys with subtractive' - ambiguous. Change 'with' to 'having'

Page: 7

Sequence number: 14

Date: 2/6/2003 3:47:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.40 (Page 7) expander device

Make defn more generic - It provides connectivity by routing frames.

Page: 7

Sequence number: 15

Date: 2/7/2003 11:01:50 AM -06'00'

Type: Highlight

ACCEPT - DONE (new generic definition)

3.1.43 (Page 7) expander port

"A SAS expander device object that routes SSP, SMP, and STP frames to and from physical links or to internal initiator ports and/or target ports. Contains one or more phys."

Either add: 'routes primitives, primitive sequences and other frames too.' or make more generic by not listing every function.

Page: 8

Sequence number: 12

Date: 3/8/2003 3:52:55 PM -06'00'

Type: Highlight

ACCEPT - DONE (lacking response from Cris Simpson, added "usually relaying a request")

3.1.62 indication

indication: Defn is same as for 'confirmation'.

Clarify whether they are identical.

Page: 9

Sequence number: 14

Date: 1/20/2003 6:08:39 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to lowercase p-like)

3.1.95 reflection coefficient

This is the upper-case greek letter "gamma". It normally represents a complex number indicating phase as well as magnitude. Later, the char 'rho' is used, representing abs val.

Page: 9

Sequence number: 15

Date: 2/7/2003 6:49:25 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded to match new object hierarchy)

3.1.84 phy

"interfaces to a service delivery subsystem" Please confirm intent that phy is outside the SDS.

Page: 9

Sequence number: 16

Date: 3/8/2003 3:52:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (lacking input from Cris Simpson, added "usually in response to an indication")

3.1.98 response

response: Confirm intent that this be interchangeable with 'request'

Page: 9

Sequence number: 17

Date: 3/3/2003 11:25:41 AM -06'00'

Type: Highlight

ACCEPT - DONE (added potential pathway term, made glossary entries match section 4.x)

3.1.83 (Page 9) pathway

"A set of physical links between a SAS initiator port and a SAS target port"

Use defn from 4.1.12:

"A pathway is the physical route of a connection."

Page: 9

Sequence number: 18

Date: 1/7/2003 2:45:33 PM -06'00'

Type: Highlight

REJECT - consecutive may mislead because of interspersed ALIGNs. The cross reference defines it in detail.

3.1.91 (Page 9) primitive sequence

"A set of primitives" change to

"A set of one or more consecutive primitives"

Page: 9

Sequence number: 19

Date: 3/8/2003 3:51:37 PM -06'00'

Type: Highlight

ACCEPT - DONE (lacking input from Cris Simpson, added "usually initiating some action")

3.1.96 (Page 9) request:

"request" has the same definition as "response"

Clarify the difference between the two.

Page: 9

Sequence number: 20  
Date: 2/7/2003 6:48:29 PM -06'00'  
Type: Highlight  
REJECT  
3.1.100 (Page 9) SAS device  
"an ATA device" - Change 'device' to 'object'

Page: 10  
Sequence number: 8  
Date: 2/7/2003 6:50:56 PM -06'00'  
Type: Highlight  
REJECT (SAS port and expander port kept separate in new model)  
3.1.104 SAS port  
an expander port is also a SAS port, although it doesn't have a  
SAS address. Add 'expander port'.

Page: 10  
Sequence number: 9  
Date: 2/7/2003 6:50:34 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA wording rewrote this)  
3.1.102 (Page 10) SAS initiator device:  
a SMP initiator device is also a SAS initiator device

Page: 10  
Sequence number: 10  
Date: 2/7/2003 6:50:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (new ATA wording rewrote this)  
3.1.106 (Page 10) SAS target device:  
Add SSP, SMP, STP target devices, and initiators.

Page: 11  
Sequence number: 10  
Date: 2/28/2003 2:57:23 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (phy definition fixed and this definition rewritten)  
3.1.127 service delivery subsystem  
'service requests' SDS defn appears to be at odds with that  
implied by 'phy' defn wrt abstraction level. Clarify.

Page: 11  
Sequence number: 11  
Date: 2/20/2003 9:27:57 AM -06'00'  
Type: Highlight  
REJECT (but definition rewritten by PHY WG)  
3.1.129 spread spectrum clocking  
increase -> widen

Page: 11  
Sequence number: 12  
Date: 2/20/2003 9:28:15 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (included in definition rewritten by PHY WG)  
3.1.129 spread spectrum clocking  
peaks -> peak amplitude

Page: 11  
Sequence number: 13  
Date: 1/7/2003 3:03:12 PM -06'00'  
Type: Highlight  
REJECT - we don't do anything to break linked command usage  
3.1.141 task  
"linked commands" - remove if linked cmds not supported

Page: 11  
Sequence number: 14  
Date: 1/22/2003 10:40:30 AM -06'00'  
Type: Highlight

ACCEPT - DONE

3.1.128 (Page 11) speed negotiation sequence

"determine the highest common supported physical link rate"  
change to  
"negotiate the operational physical link rate"

Page: 11

Sequence number: 15

Date: 1/7/2003 3:00:39 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.128 speed negotiation sequence

'where' s/b 'by which'

Page: 13

Sequence number: 5

Date: 1/20/2003 6:08:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.2 symbols and abbreviations

The lower-case greek letter "rho" is normally used to represent the "absolute" reflection coefficient (real ratio of incident to reflected voltage). It looks like an italics lower-case roman letter 'p'.

Page: 17

Sequence number: 7

Date: 2/28/2003 3:19:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (change to message everywhere)

3.5.3 Parameters, requests, indications, confirmations, and responses

\*\*\*

"Parameters": Incorrect use of the term 'parameter' to mean 'signal', 'notification', or 'indication' (in the generic sense). Replace with one of these or an appropriate term that better reflects what's really being passed. If nothing else, call it a 'message' or an 'object', so that it can carry multiple parameters, as is the actual case.

Page: 19

Sequence number: 4

Date: 1/23/2003 2:36:07 PM -06'00'

Type: Highlight

REJECT (expander device is not a SAS device, but contains one. Changed to match new glossary definition.)

4.1.1 (Page19) Architecture overview

"A SAS device (see 4.1.4) is an ATA device or SCSI device with ports in a SAS domain:"

Expander device is also a SAS device as defined on page 9, 3.1.100 SAS device.

Page: 19

Sequence number: 5

Date: 1/23/2003 2:36:45 PM -06'00'

Type: Highlight

REJECT (yes they are; fixed the phy definition, which should help reduce confusion)

4.1.1 (Page 19) Architecture overview

"The service delivery subsystem in a SAS domain may include expander devices"

Expander devices are not part of the "service delivery subsystem.

Expander device interfaces to the SAS service delivery subsystem.

This is also shown in Figure 4 on page 20.

Page: 21

Sequence number: 10

Date: 1/23/2003 3:15:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.3 (Page 21) Ports (narrow ports and wide ports)

"A port may contain one or more phys." should be  
A port contains one or more phys.

Page: 21

Sequence number: 11

Date: 1/23/2003 3:14:47 PM -06'00'

Type: Highlight

ACCEPT - DONE (rewritten)

4.1.3 Ports (narrow ports and wide ports)

\*\*\*

Clarify whether the SAS address of the port or the device.

Page: 23

Sequence number: 3

Date: 1/22/2003 3:04:46 PM -06'00'

Type: Highlight

REJECT (but the SP state machine supports both modes, and this is a common question)(whole section deleted anyway)

4.1.5 Initiator devices

"Initiator ports may support SSP and/or STP and/or SATA."

SAS initiator does not support native SATA as stated below -

"Initiator ports supporting SATA are outside the scope of this standard."

Page: 24

Sequence number: 7

Date: 1/22/2003 3:06:24 PM -06'00'

Type: Highlight

REJECT (whole section being deleted)

4.1.6 Target devices

Figure 9

Target device: Figure doesn't match text. Figure should show

SATA target device/port, perhaps as a separate block attached to the Service delivery subsystem.

Page: 24

Sequence number: 8

Date: 1/22/2003 3:06:39 PM -06'00'

Type: Highlight

REJECT (whole section being deleted)

4.1.6 Target devices

SAS target device does not support SATA, it can support ATA target.

Confusing.

Page: 25

Sequence number: 8

Date: 3/3/2003 6:08:02 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded a bit)

4.1.8.2 Edge expander device set

This sentence needs to be clarified in terms of the phys of other

edge expander devices that the phys that support table routing

can be attached to (eg., direct routing, subtractive routing,

table routing, or all of the above) Figure 11 implies that

it would only attach to a subtractive port.

Page: 25

Sequence number: 9

Date: 3/8/2003 12:24:32 PM -06'00'

Type: Highlight

ACCEPT - DONE (fixed phy definition)

4.1.8.1 Expander device overview

"Expander devices are part of the service delivery subsystem"

appears to be in conflict with glossary defn for phy. Clarify SDS model.

Page: 25

Sequence number: 10

Date: 2/8/2003 11:14:41 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed glossary to "may contain subtractive routing attributes")

4.1.8.1 Expander device overview

subtractive routing attribute defined in Clause 3 and general concept is clear; however, the delineation between edge/fanout due to subtractive routing is unclear. Conflicts with defn for 'edge expander device'. Please clarify.



glossary is:

An expander device containing phys with subtractive routing attributes (see 4.1.8.1).

Page: 25

Sequence number: 11

Date: 1/17/2003 4:49:12 PM -06'00'

Type: Highlight

REJECT (this is true)

4.1.8 (Page 25) Expander device overview

"Expander devices are part of the service delivery subsystem."

- expander is not part of the service delivery subsystem as shown in Fig. 4 on page 20. Expander interface to the service delivery subsystem.

Page: 25

Sequence number: 12

Date: 3/3/2003 6:38:38 PM -06'00'

Type: Highlight

ACCEPT - DONE (Added "SAS" to the main bubble, added separate bubble for SATA devices connected to the new STP/SATA bridge object)

4.1.8.1 Expander device overview

Fig 10 (Page 25) Expander device

Expander only interface to SATA target. The diagram is not clear that it seems it also allows the expander device interface to SATA initiators, SATA expander ports.

Page: 25

Sequence number: 13

Date: 1/17/2003 4:33:15 PM -06'00'

Type: Highlight

REJECT (we once tried to call that an edge router, but the WG preferred to keep it in the edge expander device class)

4.1.8.1 Expander device overview

"There are two types of expander devices differentiated by the routing attributes of their phys, edge expander devices and fanout expander devices."

The expander device which is not the leaf edge expander within the edge expander set behaves differently than an edge expander and fanout expander. It has the routing capability as the fanout expander but it also has a subtractive port which fanout expander does not have. Thus, there are THREE types.

Page: 25

Sequence number: 14

Date: 3/3/2003 6:00:38 PM -06'00'

Type: Highlight

REJECT (mentioning edge expander device sets in parallel with edge expander devices would be more confusing, leading the reader to believe they're different. A set may have just one e.e.device and rule b) works fine with that.)

4.1.8.2 (Page 25) Edge expander device set

"attached to the phys supporting subtractive routing on another edge expander device set;"

change to

"attached to the phys supporting subtractive routing on another edge expander or edge set;"

to make it clear even an edge expander is a subset of edge expander set

Page: 26

Sequence number: 5

Date: 3/3/2003 6:23:37 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded to management application client within the SAS domain. No mention of where it is.)

4.1.8.3 (Page 26) Configurable expander device

"Expander devices with a configurable route table [MAY]

depend on the application client within one or more initiator

devices to use the discover process (see 4.6.11.5)

to configure the expander route table."

The edge expander set can self-initialize itself.

Page: 27

Sequence number: 2

Date: 1/23/2003 4:26:47 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
4.1.9 Domains  
Figure 12  
Add 'STP' targ port.

Page: 27  
Sequence number: 3  
Date: 1/23/2003 4:24:29 PM -06'00'

Type: Highlight  
ACCEPT - DONE (add some SMP boxes and add note that normally SMP targets are inside the cloud)  
4.1.9 Domains  
Figure 12  
Also need to show SMP connections in the SAS domain.

Page: 27  
Sequence number: 4  
Date: 1/23/2003 4:27:40 PM -06'00'

Type: Highlight  
REJECT (the "other expander ports" phrase covers STP passthru)(but whole paragraph deleted anyway)  
4.1.9 (Page 27) Domains  
"The expander port attached to a SATA target port  
translates STP to SATA;"  
It should also mention the case where the expander attached to a  
STP target port where the expander only need to pass thru STP traffic.

Page: 28  
Sequence number: 5  
Date: 1/23/2003 4:30:02 PM -06'00'

Type: Highlight  
REJECT (An edge expander device set is not an edge expander device. An edge expander device set is not a SAS device. An edge expander device is not a SAS device (although it contains one). Each edge expander device has its own SAS address. Thus, an edge expander device set has lots of SAS addresses.)  
4.1.10 (Page 28) Expander device topologies  
Clarify:  
Is edge expander device set a \_single\_ SAS device?  
Probably not because edge expander device set has one or more device name?

Page: 29  
Sequence number: 5  
Date: 1/23/2003 4:47:51 PM -06'00'

Type: Highlight  
ACCEPT - DONE (add "temporary." Pull in second sentence from the glossary too (not necessarily as the 2nd sentence here; wording changes may be appropriate))  
4.1.11 (Page 29) Connections  
"A connection is an association between an initiator port and a target port."  
A "connection" is a physical path that is logically established and has the right to pass information between the initiator and the target as only as the logical establishment is maintained. Clarify.  
3.1.x has "A temporary association between an initiator port and a target port (see 7.12). During a connection all transmitted dwords are associated with the I\_T nexus formed by that initiator port and target port."

Page: 30  
Sequence number: 11  
Date: 1/23/2003 5:04:53 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
4.1.11  
Connections "to pathway" changed to "the pathway"

Page: 31  
Sequence number: 5  
Date: 3/2/2003 3:39:07 PM -06'00'

Type: Highlight  
ACCEPT - DONE (rewritten. pull the 4.1.12 definition into 3.1.83, but change "required" to "used" in both places)  
4.1.12 Pathways  
"the pathway consists of all the physical links required to route

dwds between the initiator phy and the target phy"

Definition is not quite the same as defined in 3.1.83 on page 9 which says:

A set of physical links between a SAS initiator port and a SAS target port (see 4.1.12).

Page: 31

Sequence number: 6

Date: 3/2/2003 3:38:47 PM -06'00'

Type: Highlight

ACCEPT - DONE (port/device clarified in IDENTIFY description, note added here about addresses.)

4.1.10 Expander device topologies

Figure 17 - Multiple connections on wide ports

Initiator

\*\*\*

This Initiator shows two ports. The Expander device has two corresponding Expander ports. CLARIFY how the expander can determine there are two ports if the initiator reports the same "device" SAS address in the Identify address frame on all 6 phys? Need an overview of multi-ported devices and usage of device & port SAS addresses.

Page: 33

Sequence number: 2

Date: 2/9/2003 4:20:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (add Device name section 4.2.x and make sure it points to the VPD page for targets. Removed this paragraph; put the appropriate shalls in the Device name and Port identifier sections. Moved Note 7 into the Device names section.)

4.2.2 SAS addresses

\*\*\*

Specify which one is reported when device has multiple ports in the same domain.

Page: 34

Sequence number: 4

Date: 2/9/2003 4:29:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (Add ref to IDENTIFY and OPEN address frames where port identifiers are used. In the new Device name section, reference IDENTIFY where the device name is used.)

4.2.5 Port identifiers

\*\*\*

Clarify whether this is the SAS address reported in the Identify message, or is it the "device" SAS address?

Page: 49

Sequence number: 13

Date: 1/7/2003 6:24:28 PM -06'00'

Type: Highlight

ACCEPT - DONE (broadcast primitive processor)

4.6.1 Expander device model overview

bullet a).C)

Is this the "Broadcast" Primitive Processor? If so, I think the original "Broadcast" was clearer. If not, then the "BPP" acronym doesn't match. Other places including the Acronym glossary in section 3.2, and section 4.6.5, "BPP" continues to be referred to as the "Broadcast Primitive Processor".

Page: 49

Sequence number: 14

Date: 3/5/2003 3:59:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (added more examples to and reworded the port section earlier)

4.6.1 Expander device model overview (c):

\*\*\*

Clarify how the expander determines how to group phys under ports. If it's based on the SAS address reported in the Identify address frame, all phys attached to the same "device" must form a single port?

Page: 51

Sequence number: 2

Date: 1/24/2003 9:49:58 AM -06'00'

Type: Highlight

ACCEPT - DONE (change SL\_IR to Broadcast)

#### 4.6.5 Broadcast primitive processor (BPP):

I don't believe "SL\_IR primitive requests" has been defined anywhere. Does it include RESET? ALIGN? BROADCAST primitives? If there is a subset of all the primitives that applies that's different from the BROADCAST primitives defined in section 7.1, they ought to be so designated as SL\_IR primitive requests in section 7.1. If "SL\_IR primitive requests" are the same thing as "Broadcast Primitives", then the text here should use the same term.

Page: 55

Sequence number: 4

Date: 1/24/2003 10:07:23 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.9 Expander connection router interface

Table 24

Transmit Close

Replace "an CLOSE" with "a CLOSE"

Page: 57

Sequence number: 1

Date: 3/5/2003 2:29:02 PM -06'00'

Type: Note

ACCEPT - DONE (text added to the introduction of "Configurable" that expander devices with phys with the table routing attribute phys may be configurable. If so, they depend on an app client in the domain to program the table. If not, then an app client/SMP initiator port is required inside the expander device itself.)

4.6.11.1

Define a method for identifying/reporting this case for self-initialized.

Page: 59

Sequence number: 4

Date: 12/30/2002 11:15:46 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

change "has" to "have"

Page: 61

Sequence number: 2

Date: 1/24/2003 11:04:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

"U" should be changed to "V" \*\*\*

Page: 76

Sequence number: 3

Date: 1/20/2003 5:12:27 PM -06'00'

Type: Highlight

REJECT (per PHY WG)

5.7.3.3 Jitter Tolerance Masks

change "Z1" to "Z1tol"

Page: 77

Sequence number: 6

Date: 1/20/2003 5:44:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.4 Transmitted Signal Characteristics

General comment: A 3Gb PHY hitting maximum specs for compliance point

CT will not be able to pass both bit rate r/f times. Reduce min r/f

time for 1,5 from 133 to 67ps.

Page: 81

Sequence number: 4

Date: 1/31/2003 5:32:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.9 Impedance specifications

Table 39 - Impedance requirements footnote f:

The text uses an upper-case greek letter "gamma" that normally represents a complex number. To represent the "magnitude" of the reflection coefficient, use the lower-case greek letter "rho".

Page: 81

Sequence number: 5

Date: 1/20/2003 6:09:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.9 Impedance specifications

Table 39 - Impedance requirements footnote f:

The text uses an upper-case greek letter "gamma" that normally represents a complex number. To represent the "magnitude" of the reflection coefficient, use the lower-case greek letter "rho".

Page: 82

Sequence number: 10

Date: 1/20/2003 5:38:34 PM -06'00'

Type: Note

REJECT (per phy WG)

5.7.11 Transmitter characteristics

Clarify whether both cases must pass, or whether one or the other is sufficient.

Page: 104

Sequence number: 7

Date: 1/9/2003 4:08:54 PM -06'00'

Type: Note

ACCEPT - DONE (deleted)

6.6.4.2

table 49 Footnote

The reference doesn't appear to be applied to anything.

In any case the comment doesn't belong with this table as it is defined as the SAS speed negotiation.

Correct ref or delete.

Page: 108

Sequence number: 3

Date: 1/8/2003 6:38:57 PM -06'00'

Type: Highlight

ACCEPT - DONE (it's really OOB\_COMINIT)

6.8.1 Overview

"SP0:SAS\_PowerOn state" is not defined anywhere within the document. Define this state.

Page: 108

Sequence number: 4

Date: 1/17/2003 2:21:49 PM -06'00'

Type: Note

REJECT (but added cross ref after SP\_DWS reference)

6.8.1 Overview

Define 'DWS' in clause 3

Page: 109

Sequence number: 9

Date: 1/9/2003 6:03:44 PM -06'00'

Type: Highlight

REJECT (we're not trying to list all entry actions like timer controls...just signals to other state machines that may be generated)

6.8.2 OOB sequence states

Fig 56

Entry action is not listed as described in 6.8.2.2.1 on page 110.

Page: 109

Sequence number: 10

Date: 1/8/2003 6:41:58 PM -06'00'

Type: Highlight

REJECT (The state description below says "send this and wait..)

6.8.2 OOB sequence states

Fig 56

"Transmit COMSAS"

When should this action be executed? Clarify.

Page: 109

Sequence number: 11

Date: 1/9/2003 6:04:08 PM -06'00'

Type: Highlight

REJECT (we're not trying to list all entry actions like timer controls...just signals to other state machines that may be generated)

6.8.2 OOB sequence states

Fig 56

SP7:OOB\_AwaitCOMSAS entry action is not listed as described in 6.8.2.7.1 on page 111

Page: 109

Sequence number: 12

Date: 1/9/2003 4:51:08 PM -06'00'

Type: Highlight

REJECT (state description describes when... this just shows the signals that might come out of the states)

6.8.2 OOB sequence states

Fig 56

The "Broadcast Event Notify" transition looks like an unconditional jump in the state diagram, but it actually only transit if all the conditions list in 6.8.2.7.2 are true.

It is very misleading as shown in the state diagram.

Page: 109

Sequence number: 13

Date: 1/9/2003 6:06:01 PM -06'00'

Type: Highlight

REJECT (we used to have Verilog style equations and output definitions, and the complaint was they were too informative. Now we have minimal text descriptions and get complaints from some that they're still too much and others that they're not enough.)

6.8.2 OOB sequence states

Fig 56 SAS phy (SP) state machine - OOB sequence states

With all the missing transition conditions and entry action conditions, it makes this state diagram practically useless.

Add complete details or remove so as not to cause confusion.

Page: 109

Sequence number: 14

Date: 1/8/2003 6:41:10 PM -06'00'

Type: Highlight

REJECT (yes. The state description below says "send this and wait. That means send it one time upon entry.)

6.8.2 OOB sequence states

Fig 56

"Transmit COMINIT"

When should this action be executed? When entering SP1?

Page: 109

Sequence number: 15

Date: 1/9/2003 4:50:36 PM -06'00'

Type: Highlight

REJECT (state description describes when these are sent)

6.8.2 OOB sequence states

Fig 56

"PhyNotReady"

When should this action be executed?

When entering SP1?

Page: 110

Sequence number: 8

Date: 1/9/2003 6:09:03 PM -06'00'

Type: Highlight

REJECT (when we had full equations this was specified. The text describes how multiple arcs are chosen when more than one is possible.)

6.8.2.1.2 Transition SP1:OOB\_COMINIT to SP2:OOB\_AwaitCOMX

"a COMINIT Transmitted parameter and does not receive a COMINIT Detected parameter."

In Fig 56 on page 109, the transition condition only listed "COMINIT Transmitted"parameter"

Page: 110

Sequence number: 9

Date: 1/9/2003 6:09:11 PM -06'00'

Type: Highlight

REJECT (when we had full equations this was specified. The text describes how multiple arcs are chosen when more than one is possible.)

6.8.2.1.3

"a COMINIT Detected parameter and does not receive a COMINIT Transmitted parameter"

In Fig 56 on page 109, the transition condition only listed " COMINIT Detected"

Page: 110

Sequence number: 10

Date: 1/10/2003 2:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.2.2.1 State description

Ambiguous: COMINIT and COMSAS could be read as modifiers for 'timeout'.

Add 'detect' after each.

Page: 110

Sequence number: 11

Date: 2/21/2003 2:59:35 PM -06'00'

Type: Highlight

REJECT (figures don't show rules)(but sentence deleted later)

6.8.2.3.1 State description

"but the COMINIT initiated in

SP1:OOB\_COMINIT has not been completely transmitted."

This condition is not shown in state diagram Fig 56 on page 109.

Page: 110

Sequence number: 12

Date: 1/10/2003 2:43:04 PM -06'00'

Type: Highlight

REJECT (when we had full equations this was specified. The text describes how multiple arcs are chosen when more than one is possible. However, did change "does not " to "has not".)

6.8.2.4.2 Transition SP4:OOB\_COMSAS to SP5:OOB\_AwaitCOMSAS\_Sent

"and does not receive a COMSAS Transmitted parameter."

This condition is not listed in the transition in Fig. 56 on 109, which may cause race condition in SM.

Page: 111

Sequence number: 5

Date: 1/10/2003 2:43:11 PM -06'00'

Type: Highlight

REJECT (when we had full equations this was specified. The text describes how multiple arcs are chosen when more than one is possible. However, did change "does not " to "has not")

6.8.2.4.4

"and does not receive a COMSAS Detected parameter."

This transition condition is not listed in Fig 56 on page 109

Page: 111

Sequence number: 6

Date: 1/10/2003 2:26:58 PM -06'00'

Type: Highlight

REJECT (this is the only one like this, and this sentence provides that warning)

6.8.2.6.2 (Page 111)

"The COMSAS Completed parameter may be received before this state is entered."

How long does this COMSAS Completed or other completed/transmitted/detected) signal stay valid after the event?

Since this is the only place in this state machine description where receiving "before" the state is OK. Does it mean that all other detection/transmitted/etc. paramters are required to be valid

only after the corresponding state has been entered?

Page: 111

Sequence number: 7

Date: 1/24/2003 6:25:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded as "receipt of a COMSAS Detected parameter")

6.8.2.7.1 State description

In Fig 56 on page 109, it states "COMSAS detected",  
is "received" the same as "detected"?

Page: 112

Sequence number: 3

Date: 1/24/2003 6:27:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (now transitions to a new state based on other comments)

6.8.2.7.5 Transition SP7:OOB\_AwaitCOMSAS to SAS\_AwaitNoCOMX

Change "SAS\_AwaitNoCOMX" to "SP2:SAS\_AwaitCOMX"

Page: 113

Sequence number: 6

Date: 1/11/2003 3:57:57 PM -06'00'

Type: Highlight

REJECT (diagram just shows what signals come from what states, not when)

Figure 57 (Page 113)

When should "Transmit ALIGN1" should be sent?

The text in 6.8.3.4.1 says "repeatedly send", but this is not  
reflected in this state diagram.

Page: 113

Sequence number: 7

Date: 2/16/2003 10:08:42 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "speed negotiation failed")

6.8.3 SAS speed negotiation states

Figure 57

"No more rates" is not even close to what is  
described in 6.8.3.7.2 on page 116. Clarify.

Page: 114

Sequence number: 21

Date: 1/17/2003 2:15:35 PM -06'00'

Type: Highlight

REJECT (See other idle comment)

6.8.3.1.1 (Page 114)

"During this state idle shall be transmitted."

This requirement is not listed in the state diagram  
state SP8 in Fig 57 on page 113

Page: 114

Sequence number: 22

Date: 2/21/2003 2:40:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (yes. initialized and start chosen as the general convention)

6.8.3.2.1 (Page 114)

Clarify:

Is "enabled" the same as "started"?

Page: 114

Sequence number: 23

Date: 1/17/2003 2:15:14 PM -06'00'

Type: Highlight

REJECT (see other idle comment)

6.8.3.2.1

"During this state idle shall be transmitted."

This requirement is not listed in the state diagram state  
SP8 in Fig 57 on page 113

Page: 114



Sequence number: 24

Date: 2/4/2003 7:11:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (have timers start not enable globally)

6.8.3.3.1 (Page 114)

Need clarification:

Is "enabled" the same as "started"?

Page: 114

Sequence number: 25

Date: 1/25/2003 4:45:02 PM -06'00'

Type: Highlight

ACCEPT - DONE (delete whole sentence)

6.8.3.3.1 (Page 114) State description

"if synchronization occurs before the SNLT expires."

Need to clarify what "synchronization" means, I think it is trying to say either "ALIGN0 Detected" or "ALIGN1 Detected". Usually the word "synchronizin" means something else. This sentence can be deleted because the same action is clearly described in 6.8.3.3.2 and 6.8.3.3.3 .

Also, missing transition if only SNLT expires and no "synchronization" in this state?

Page: 115

Sequence number: 14

Date: 2/21/2003 2:56:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (delete sentence)

6.8.3.4.1

"This state is exited when the SNTT expires or when ALIGN (1) primitives are received before the SNLT timer expires."

This same information is repeated at 6.8.3.4.2

Page: 115

Sequence number: 15

Date: 2/21/2003 2:57:22 PM -06'00'

Type: Highlight

REJECT (but deleted sentence)

6.8.3.5.1 (Page 115)

"This state is reached after ALIGN (1) has been both transmitted and received."

This sentence is not describing the same behavior as shown in the state diagram - Fig 57 on page 113.

Change to:

"This state is reached after ALIGN(1) has been recovered before the SNLT timer expires"

Page: 116

Sequence number: 7

Date: 2/21/2003 4:38:35 PM -06'00'

Type: Highlight

ACCEPT - DONE ("at the rate established in the previous speed negotiation window.")

6.8.3.8.1

"While in this state dwords from the link layer are transmitted at the negotiated physical link rate."

Who (in what state/state machine) is responsible to tell the PHY what the negotiated link rate is? Clarify.

Page: 118

Sequence number: 9

Date: 2/4/2003 6:50:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4 SATA host emulation states

Figure 58

SP16:SATA\_COMWAKE

Missing input parameter "COMWAKE Transmitted" with dotted line unfilled arrow into SP16.

Page: 118

Sequence number: 10

Date: 2/4/2003 6:50:00 PM -06'00'

Type: Highlight

REJECT (text describes the order requirements)

6.8.4 SATA host emulation states

Figure 58 - SAS phy (SP) state machine - SATA host emulation states

SP20: SATA\_AdjustSpeed

dotted unfilled arrow with parameter (Transmit D10.2)

and

dotted unfilled arrow with parameter (Set Rate)

It seems it may have to send "Set Rate" parameter before  
"Transmit D10.2", please clarify.

Page: 119

Sequence number: 12

Date: 1/10/2003 10:49:18 AM -06'00'

Type: Highlight

REJECT (figure just shows the possible signals not the details. That's what this text is for)

6.8.4.4.1 State description

"a) repeatedly send a Transmit D10.2 parameter to the SP transmitter"

"repeatedly send" is not shown in the state diagram in Fig 58  
as a condition required for transmitting D10.2

Page: 119

Sequence number: 13

Date: 1/17/2003 1:52:27 PM -06'00'

Type: Highlight

REJECT (but will make timers stand out better in the text and may add timer arcs to figures in SAS-2)

6.8.4.4.1 State description

\*\*\*

GLOBAL

"b) start the ALIGN detect timeout timer"

It looks like this is a state entry action and it  
is not listed in the state diagram in Fig 58

THIS IS one of a pattern of incomplete definitions due to the  
assumption of hidden, underlying state machines. Need to explicitly  
identify these implicit state machines and the signals/messages they  
exchange with other SMs.

Page: 119

Sequence number: 14

Date: 2/21/2003 5:04:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed COMWAKE to "after entry into this state. State diagrams don't show when their signals are sent.

Changed 20 G1 dwords to COMWAKE response time and added that to a timing table above, defined as 533 ns.)

6.5.4.4.1 State description

"The SAS device shall start transmitting D10.2 characters no  
later than 20 G1 dwords (i.e. 533 ns) after COMWAKE was deasserted"

Use of COMWAKE is confusing - sometimes parms are received,  
sometimes CW is 'deasserted' - what is it? [agree]

This seems as a state entry action and it does not show the  
relation of transmitting D10.2 characters no later than 20 G1  
dwords after COMWAKE was deasserted in the state diagram in Fig 58. [reject]

Since not all SAS implementation required to support G1 speed,  
this state should not specify requirement in "G1 dwords", instead  
it should just specify time - 533 ns. [accept; check what SATA intends]

Page: 119

Sequence number: 15

Date: 1/22/2003 9:41:55 AM -06'00'

Type: Highlight

ACCEPT - DONE (made into an ordered list)

must set the rate before transmitting the 10.2s

Page: 137

Sequence number: 9

Date: 1/22/2003 9:48:47 AM -06'00'

Type: Highlight

ACCEPT - DONE (change "init sequence" to "link reset sequence". This is not concerned with the higher level software.)

#### 7.1.4.4 BROADCAST

If an expander's routing tables are configured by initiators,  
how does an expander know the initialization sequence has  
completed? Clarify.

Page: 138

Sequence number: 12

Date: 1/6/2003 1:31:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 7.1.4.9 NOTIFY

NOTIFY (ENABLE\_SPINUP)

Add correct reference for TBD.

Page: 138

Sequence number: 13

Date: 1/22/2003 9:48:13 AM -06'00'

Type: Highlight

ACCEPT - DONE (change "accept" to "honor" and "all target ports equivalently")

#### 7.1.4.9 Notify

Meaning of 'accept' here requires clarification.

Page: 141

Sequence number: 4

Date: 2/17/2003 1:58:25 PM -06'00'

Type: Highlight

REJECT (other comment resolution on this sentence adds an xref to the SSP state machine which should suffice)

#### 7.1.5.3 DONE

Table 63

Ack/NAK TIMEOUT

"is going to" Sentence s/b xref to where the behavior is defined

Page: 142

Sequence number: 6

Date: 1/6/2003 1:42:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 7.1.6.3 SATA\_HOLD and SATA\_HOLD\_A

"...transmitting a SATA\_HOLD." should be changed to

"...receiving an SATA\_HOLD"

Page: 162

Sequence number: 8

Date: 1/22/2003 9:47:11 AM -06'00'

Type: Highlight

ACCEPT - DONE ("If any of the prospective... does not support")

#### 7.12.2.1 Connection Request

"If none of the prospective intermediate physical links [does not]

support the requested connection rate, ..."

Remove "does not"

Page: 166

Sequence number: 10

Date: 2/21/2003 7:23:53 PM -06'00'

Type: Highlight

ACCEPT - DONE (requests to devices not in the fanout expander routing tables cause the fanout expander to return NO DEST,  
and requests to devices in the fanout tables but not currently attached to an edge expander return BAD DEST)

#### 7.12.4.2 Edge Expander Devices

Par. 5, last sentence

"When a fanout expander device is in the domain, an

OPEN\_REJECT (NO DESTINATION) is returned."

"is returned" - who returns?

Page: 166

Sequence number: 11

Date: 2/21/2003 7:27:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (delete this table. Chapter 4 has much more details on the model for routing tables. Add cross reference to Ch 4. Check all the paragraphs here looking for out of date text.)  
7.12.4.2 Edge expander devices  
The simple edge expander device routing table described in table 80 needs to be reconciled with the expander routing table described in "4.6.11.3 Expander route table."  
Text needs to describe when it's appropriate to use the simpler table vs. the more complex table and what the restrictions are if a simpler approach is used.

Page: 174

Sequence number: 11

Date: 1/17/2003 1:04:23 PM -06'00'

Type: Highlight

REJECT (missing SOAFs just mean the frame data looks like idle dwords. The EOAF is then ignored.)  
7.13.3.1 State Description  
par. 7 . (i.e) Explanation missing regarding what should be done about data dwords transmitted between consecutive EOAFs. SOAFs is clear.  
(Multiple occurrences)

Page: 191

Sequence number: 6

Date: 1/22/2003 9:46:13 AM -06'00'

Type: Highlight

ACCEPT - DONE ("Receiving ports shall acknowledge frames within 1 ms if not discarded as described in 7.x.x.x with either ...")  
7.16.3 SSP frame transmission  
"Every frame shall be acknowledged" By whom? Place the requirement on something.

Page: 191

Sequence number: 7

Date: 1/22/2003 9:44:10 AM -06'00'

Type: Highlight

ACCEPT - DONE (rename section "transmission and reception". Also done in SMP and STP sections.)  
7.16.3 SSP frame transmission  
Create new subclause for frame reception.

Page: 191

Sequence number: 8

Date: 2/18/2003 4:02:16 PM -06'00'

Type: Highlight

ACCEPT - DONE ("Every frame not discarded as described in 7.16.7.9". See other comment)  
7.16.3 SSP frame transmission  
"Every frame shall be acknowledged" conflicts with  
7.16.7.9, which describes some frames that are dropped.  
Qualify with 'valid' or something.

Page: 198

Sequence number: 2

Date: 3/15/2003 4:44:42 PM -06'00'

Type: Highlight

ACCEPT - DONE (call the signals between peers "messages". General term for request, indication, confirmation, and response is "interlayer messages" too (not used much in that context)).  
7.16.7.2 SSP\_TIM1:Tx\_Interlock\_Monitor state  
'When the number of EOF Transmitted parameters received' - These are signals, indications, something. They are not parameters.  
Use an appropriate term, see ANSI IT Dictionary.

Page: 213

Sequence number: 3

Date: 1/6/2003 1:17:15 PM -06'00'

Type: Highlight

ACCEPT - DONE  
8.1 Overview  
"PC\_OC" s/b replaced with "PL\_OC"

Page: 213

Sequence number: 4

Date: 3/21/2003 8:38:17 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.1 Overview

'establish port connections and disconnections' - Sounds awkward to establish a disconn. Reword.

Page: 213

Sequence number: 5

Date: 3/21/2003 8:38:12 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2 Overview

'pass transmit data, receive data' AWK - reword.

Suggest 'data for transmission, received data'

Page: 213

Sequence number: 6

Date: 3/21/2003 8:38:00 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.1 Overview

'...form the port layer' AWK. Rearrange sentence.

Suggest 'The port layer consists of...'

Page: 214

Sequence number: 7

Date: 3/21/2003 8:39:22 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.2 Bus inactivity time limit timer

ALL OTHER TIMERS

'The timer shall count down' - specify when

(or include xref to spec, here, 8.4.4.1) it starts.

(For this and all other defined timers)

Page: 217

Sequence number: 5

Date: 12/30/2002 1:30:39 PM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.2.2 Transition PL\_OC1:Idle to PC\_OC2:Overall\_Control

In this heading, the heading number is duplicated and PC\_OC2 should be changed to PL\_OC2

Page: 217

Sequence number: 6

Date: 1/8/2003 9:36:04 AM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.3.1.1 State Description Overview

PM\_PM should change to PL\_PM

Page: 217

Sequence number: 7

Date: 2/16/2003 11:28:45 AM -06'00'

Type: Highlight

REJECT (they are treated as separate arguments)

8.3.3.1.1 State description overview

The Tx Frame parameter

"following arguments: Balance Required or Balance Not Required"

BR and BNR are not arguments, they are possible values of an argument that should be called 'Balance Requirement' or something similar.

Correct.

Page: 217

Sequence number: 8

Date: 3/1/2003 4:10:08 PM -06'00'

Type: Highlight

REJECT (no it's intra-port layer as used here)

8.3.3.1.1 State description overview  
GLOBAL  
"parameter" s/b 'request' as per 4.3.3.2 .

Page: 217

Sequence number: 9

Date: 3/21/2003 8:41:46 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.2 Keep track of connections/frame requests  
"Keep track of connections/frame requests" is the first  
time I've seen an imperative used as a subclause title.  
Replace with "Connection frame/request tracking"

Page: 217

Sequence number: 10

Date: 3/21/2003 8:41:42 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.2 Keep track of connections/frame requests  
"A phy is available if it is not processing a Tx Frame"  
What if it has lost sync, etc? Add defn for 'available'  
or qualify. Clarify.

Page: 217

Sequence number: 11

Date: 3/21/2003 8:41:36 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.1 State description overview  
GLOBAL  
The information ("parameters/arguments" to/from  
various state machines and layers) discussed throughout  
this clause needs to be defined as per 3.7.  
Very confusing: for example, "parameter shall include as arguments:"

Page: 218

Sequence number: 6

Date: 3/21/2003 8:42:36 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.4 SSP wide port rules  
Multiple in subclause  
"An initiator port shall not transmit ...for which...transmitting  
a frame [ ]" Add "on another phy".

Page: 218

Sequence number: 7

Date: 3/21/2003 8:42:32 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (there's both a parameter and a request with that name. Sorry.)  
8.3.3.1.3 Select a request to process and the phy on which to process it  
GLOBAL  
"Tx Frame request" Elsewhere, Tx Frame is called a  
parameter. Change all occurrences to 'request'.

Page: 218

Sequence number: 8

Date: 3/21/2003 8:42:26 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (no they're different)  
8.3.3.1.3 Select a request to process and the phy on which to process it  
1)  
Is 'Tx Frame request' the same as 'Transmit Frame request' above?  
If so, be consistent in usage, if not, add some modifier to  
one to make the distinction clear.

Page: 218

Sequence number: 9

Date: 3/21/2003 8:42:21 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.3 Select a request to process and the phy on which to process it

"A destination is considered the same" - AWK

suggest:

"Destinations are considered to be identical if they have the same protocol and SAS address."

Page: 218

Sequence number: 10

Date: 3/21/2003 8:42:17 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.2 Keep track of connections/frame requests

"This state shall consider a phy as having an active connection"

Drop "shall consider" and define it:

"A phy has an active connection when..."

Page: 219

Sequence number: 3

Date: 2/16/2003 11:29:13 AM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.3.1.5 Filling in the Tx Frame arguments

3d para

"Balanced" Remove 'd'

Page: 219

Sequence number: 4

Date: 3/21/2003 8:43:38 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

3d para

"argument" -> 'value'

(This appears to be redundant to 8.3.3.1.1)

Confusing use of 'argument' and 'parameter'

Page: 219

Sequence number: 5

Date: 3/21/2003 8:43:33 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

"are transferred to the selected PL\_PM's AWT timer and

PBC counter" By whom? The PL\_PM, or the PL\_OC2? Clarify.

Page: 219

Sequence number: 6

Date: 3/21/2003 8:43:29 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

"are not received" Place reqmt on sender that it not

send, or clarify that these are not present within TxFrame,

or are ignored on receipt.

Page: 219

Sequence number: 7

Date: 3/21/2003 8:43:26 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

"are received as arguments"

s/b

"are present in "

Page: 219

Sequence number: 8

Date: 3/21/2003 8:43:53 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (agree)

8.3.3.1.5 Filling in the Tx Frame arguments

"a corresponding PL\_OC Retry Frame AWT timer"

Provide separate text listing all architectural timers and their functions.

Page: 219

Sequence number: 9

Date: 3/21/2003 8:43:20 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

The I\_T nexus loss

"The selected PL\_PM timer shall be set" Express in active voice (who shall?).

Page: 219

Sequence number: 10

Date: 3/21/2003 8:43:13 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

"state (i.e, either stopped,"

Clarify that you are defining the possible states or ref where defined. "i.e." is a bit too casual.

Page: 219

Sequence number: 11

Date: 3/21/2003 8:43:16 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

'are read from' Use active voice.

Page: 219

Sequence number: 12

Date: 3/21/2003 8:43:07 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

"is updated" Use active voice.

Page: 220

Sequence number: 1

Date: 3/21/2003 8:44:18 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.6 Confirmations

"to finish servicing each Transmit Frame request." Unclear - is this how THIS state completes the request, or does it tell the Transport layer to do so? Clarify.

Page: 220

Sequence number: 2

Date: 3/21/2003 8:44:14 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.6 Confirmations

"Since the transport layer responses ...are instantaneous" 'are returned immediately' seems better if the intent is (response returned as soon as request received). Clarify.

Page: 220

Sequence number: 3

Date: 3/21/2003 8:44:09 AM -06'00'

Type: Highlight



REJECT (but port layer rewritten)  
8.3.3.1.6 Confirmations  
Need comma after e.g.  
"to continue" may be clearer.

Page: 220

Sequence number: 4

Date: 3/21/2003 8:44:03 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.6 Confirmations  
"parameter" -> "confirmation"?

Page: 220

Sequence number: 5

Date: 3/21/2003 8:43:59 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.6 Confirmations  
Table 86 header  
"parameter" s/b 'value' or 'code'

Page: 221

Sequence number: 4

Date: 3/21/2003 8:44:41 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.7 Handling Cancel requests  
"Cancel request for a specific Transmit Frame request"  
There is no listing I could find of the arguments to a  
Cancel request. Add xref to that defn. Clarify the means  
by which a specific TF request is identified.

Page: 221

Sequence number: 5

Date: 3/21/2003 8:44:35 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.7 Handling Cancel requests  
"send a Cancel Acknowledge...and terminate"  
Either change order to (terminate, ack), or add prohibition  
on beginning TF processing.

Page: 221

Sequence number: 6

Date: 3/21/2003 8:44:30 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.7 Handling Cancel requests  
"layer, this frame is currently" Ambig.  
s/b " layer and the specified frame "? Clarify.

Page: 221

Sequence number: 7

Date: 3/21/2003 8:44:24 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.3.3.1.7 Handling Cancel requests  
"layer, this frame is currently" AMBIG  
s/b " layer and the specified frame "? Clarify.

Page: 225

Sequence number: 5

Date: 3/21/2003 8:45:54 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.4.3.1.4 Open Failed handling  
"parameter" - confirmation?

Page: 227  
Sequence number: 1  
Date: 12/30/2002 11:28:40 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.1 Transport layer overview  
clarify:  
"only receives from the link layer those frames that are to be ACKed."

Page: 229  
Sequence number: 17  
Date: 1/6/2003 10:39:04 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (added xref to 9.2.4.5 RESPONSE error handling)  
9.2.1 SSP frame format  
RETRANSMIT  
"may be set to one"  
Add xref or "shall be set to one" when a RESP frame is a retrans.

Page: 229  
Sequence number: 18  
Date: 1/6/2003 10:37:11 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.1 SSP frame format  
For DATA  
"to that" s/b "to the tag"

Page: 229  
Sequence number: 19  
Date: 1/17/2003 12:14:12 PM -06'00'  
Type: Highlight  
REJECT (paragraph being redone, targets always allowed to use the field)  
9.2.1 SSP frame format  
TP Xfer Tag  
"need" s/b "use"  
(We don't care if they NEED it, just whether they use it)

Page: 229  
Sequence number: 20  
Date: 1/17/2003 12:13:44 PM -06'00'  
Type: Highlight  
REJECT (the whole paragraph is being redone, and targets are allowed to set the field any time)  
9.2.1 SSP frame format  
TPXfer Tag  
"do not need this field" Clarify whether TP can  
use it sometime, but not other times. or say "use"

Page: 229  
Sequence number: 21  
Date: 1/17/2003 12:01:25 PM -06'00'  
Type: Highlight  
REJECT (Jan WG disk drives don't need)  
9.2.1 SSP frame format  
Table 89 - FRAME TYPE field  
\*\*\*  
Max data frame size of 1024 is inefficient for block-sizes greater  
than 512 bytes. This is a serious problem for systems that  
use data-integrity guards on a block-by-block basis. Recommend  
the max DATA IU payload accommodate two blocks with a  
generously-sized block-guard (16-bytes). Change (1 024) to (1 056).

Page: 230  
Sequence number: 9  
Date: 1/6/2003 10:44:53 AM -06'00'  
Type: Highlight  
ACCEPT - DONE ("..shall transfer data beginning on a dword boundary...". Kept the i.e.)  
9.2.1 SSP frame format  
DATA frames

"each DATA frame shall begin on a dword boundary"  
It's the TRANSFER, frame. Drop (i.e.)

Page: 230

Sequence number: 10

Date: 12/30/2002 2:04:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (a SAM-3 reference was meant)  
9.2.1.1 COMMAND information unit  
"SPC-2" if referencing SAM-3, why not SPC-3, especially  
when ref'd on next page. Be consistent. Suggest SPC-3.

Page: 230

Sequence number: 11

Date: 12/30/2002 1:37:57 PM -06'00'

Type: Highlight

ACCEPT - DONE (globally for all occurrences of [0-9]<space>[0-9] except in the 8b10b tables)  
9.2.1 SSP frame format  
The INFORMATION UNIT field  
1  
024 - Make space non-breaking (ctrl-space)

Page: 231

Sequence number: 3

Date: 1/6/2003 10:50:05 AM -06'00'

Type: Highlight

ACCEPT - DONE (also in 9.2.2.1)  
9.2.2.2 TASK information unit  
"request a" s/b "request that a"

Page: 233

Sequence number: 13

Date: 1/6/2003 10:57:47 AM -06'00'

Type: Highlight

REJECT (but changed "begin" wording a bit)  
9.2.2.3 XFER\_RDY information unit  
"each DATA frame shall begin on a dword boundary"  
Remove (ie)

Page: 233

Sequence number: 14

Date: 1/6/2003 10:57:05 AM -06'00'

Type: Highlight

REJECT (but changed "aligned" to "multiple")  
9.2.2.3 XFER\_RDY information unit  
"non-dword aligned write data length"  
A length does not have alignment.  
Remove the paren statement.

Page: 233

Sequence number: 15

Date: 1/6/2003 10:56:26 AM -06'00'

Type: Highlight

ACCEPT - DONE (target port)  
9.2.2.3 XFER\_RDY information unit  
GLOBAL  
"frame for a given command shall set"  
Frames don't set themselves. Place the reqmt on some port.

Page: 235

Sequence number: 3

Date: 1/6/2003 11:22:07 AM -06'00'

Type: Highlight

ACCEPT - DONE (added all the field names in the intro to the DATAPRES field. The descriptions are in subsequent sections)  
9.2.2.5.1 RESPONSE information unit overview  
Table 96 - RESPONSE information unit  
STATUS - Following text does not give ref to where  
STATUS values defined. (make sure for all fields)

Page: 236

Sequence number: 3

Date: 1/6/2003 12:25:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (for all 3 sections, used a)b)c) lists to highlight that they're based on DATAPRES)

9.2.2.5.3 RESPONSE information unit RESPONSE\_DATA format

"The SENSE DATA field shall not be present."

Make clear that this and related reqmts are conditional on the DATAPRES == RESP\_DATA, and not global. Suggest unordered list under "If the DATAPRES..."

Page: 237

Sequence number: 5

Date: 1/13/2003 6:02:38 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed it)

Table 99

9.2.2.5.3 RESPONSE information unit RESPONSE\_DATA format

"NO FAILURE, when responding to a COMMAND frame"

Response data would not be returned if there was no error. Remove this.

Page: 237

Sequence number: 6

Date: 1/6/2003 12:26:27 PM -06'00'

Type: Highlight

ACCEPT - DONE (a)b)c) list format)

9.2.2.5.4 RESPONSE information unit SENSE\_DATA format

"The RESPONSE DATA LIST LENGTH field shall be set to zero"

Make clear that these reqmts are conditional on DATAPRES value.

Page: 239

Sequence number: 4

Date: 1/6/2003 12:48:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.4.1 COMMAND frame

"whether ...received or not" 'Whether' is sufficient to cover both cases. Drop "or not".

Page: 239

Sequence number: 5

Date: 1/6/2003 12:48:39 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.4.1 COMMAND frame

"command [ ] was ACKed" add "frame"

Page: 239

Sequence number: 6

Date: 1/6/2003 12:48:12 PM -06'00'

Type: Highlight

REJECT - (no unit attention, just a CHECK CONDITION for the command involved. "Returning CHECK CONDITION status" is higher level than returning a RESPONSE frame with CHECK CONDITION status and avoids needing to mention opening a new connection and other details.)

9.2.4.3 XFER\_RDY frame

"close the connection ..return a [ ] CHECK CONDITION status"

Does this mean "generate a UA"?

Add "a RESPONSE FRAME with" (MULTIPLE places)

Does it establish a new connection to send the RESPONSE? Clarify.

Page: 239

Sequence number: 7

Date: 1/6/2003 12:42:29 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to 'times out waiting for')

9.2.4.3 XFER\_RDY frame

"does not receive an ACK or NAK"

Over what time period? Clarify.

Page: 240

Sequence number: 7

Date: 2/2/2003 2:36:35 PM -06'00'

Type: Highlight

ACCEPT - DONE (for too short for LUN field, too short for CDB, and additional cdb mismatch, generate a RESPONSE IU with a RESPONSE CODE indicating INVALID FRAME. In ch10 protocol services, this means a service delivery subsystem failure.)

9.2.5.1 Target port error handling

"too short to contain a LUN field"

Be explicit - state number of bytes.

Page: 240

Sequence number: 8

Date: 2/2/2003 2:36:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (for too short for LUN field, too short for CDB, and additional cdb mismatch, generate a RESPONSE IU with a RESPONSE CODE indicating INVALID FRAME. In ch10 protocol services, this means a service delivery subsystem failure.)

9.2.5.1 Target port error handling

"contains a LUN field but is too small to contain a CDB"

If frame is malformed, how could you say it has LUN but not CDB?

Replace this with a list of sizes, in bytes, and the appropriate responses.

Page: 240

Sequence number: 9

Date: 1/6/2003 12:55:38 PM -06'00'

Type: Highlight

REJECT - the crossreference has that rule

9.2.5.1 Target port error handling

"OVERLAPPED COMMANDS DETECTED"

State (non) requirements on checking.

Page: 240

Sequence number: 10

Date: 1/6/2003 12:52:31 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed several others in this section)

9.2.5.1 Target port error handling

'TAG that is already in use' - Should be small caps only if referring to the field, but not to the value. Correct.

Page: 241

Sequence number: 3

Date: 2/15/2003 5:51:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (per Jan WG; 03-088 makes this request from SPC-3)

9.2.5.1 Target port error handling

ILLEGAL TARGET PORT TRANSFER TAG - Although the tag may be invalid, there's no indication that it's illegal.

Rename ASC - use INVALID.

## Author: KnowledgeTek

---

Page: 8

Sequence number: 13

Date: 1/7/2003 2:39:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (figure 3 is backwards)

3.1.62 indication:

The definition says < passed from lower layer... >

3.5.1 State machine conventions overview, Figure 3 shows < indication from upper layer... >

Page: 9

Sequence number: 21

Date: 1/7/2003 2:42:14 PM -06'00'

Type: Highlight

ACCEPT - DONE (figure is wrong)

3.1.98 response:  
definition says < passed from a higher layer...>  
3.5.1 State machine conventions overview, figure3  
says < to upper layer...>

Page: 53  
Sequence number: 2  
Date: 12/31/2002 1:35:11 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (phy status)  
4.6.7 Expander device interface detail  
Figure 27  
'Link Status' sb 'Phy Status' or Table 23 needs to change its entries to 'Link Status'

Page: 53  
Sequence number: 3  
Date: 12/31/2002 1:34:05 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
4.6.7 Expander device interface detail  
Figure 27  
All of the requests and indications using "Send" sb "Transmit" or Table 24 should change its entries to "Send".  
There are eight occurrences of "Send" in this figure that should change to "Transmit"

Page: 53  
Sequence number: 4  
Date: 1/11/2003 5:16:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 5  
Date: 12/31/2002 1:34:25 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 6  
Date: 12/31/2002 1:34:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 7  
Date: 12/31/2002 1:34:32 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 8  
Date: 12/31/2002 1:34:09 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 9  
Date: 12/31/2002 1:34:14 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Send

Page: 53  
Sequence number: 10  
Date: 1/11/2003 5:16:45 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
Send

Page: 57  
Sequence number: 2  
Date: 3/5/2003 2:22:37 PM -06'00'  
Type: Highlight

ACCEPT - DONE (added "or internal SAS devices" to the direct routing method.)

#### 4.6.11.1 Routing attributes and methods

##### 4th paragraph

The following paragraph implies that the routing will be either table OR direct, not both:

"A phy that has the table routing attribute allows the expander connection manager to use one of the following methods to route connection requests:

- a) the table routing method if attached to an expander device; or
- b) the direct routing method if attached to an end device."

#### 4.6.11.2 Expander device connection request routing

##### 2nd paragraph

This paragraph says that if the "DISABLE ROUTE ENTRY bit" is set the entry is ignored (I assume that means the connection request will get an OPEN\_REJECT response???)

"If the destination SAS address of a connection request matches the attached SAS address of an expander route entry and the DISABLE ROUTE ENTRY bit is set to one in the expander route entry, then the expander connection manager shall ignore the expander route entry."

#### 4.6.11.3 Expander route table

##### 10th paragraph

This paragraph states that the "attached" expander's entry is disabled( I assume this means directly attached and not cascaded expanders beyond the one directly attached???)

"If the discover process detects an expander route table entry that references the SAS address of an attached edge expander device, it shall set the DISABLE ROUTE ENTRY bit to one in the expander route table entry."

Given the above, how can access to internal devices (i.e., SMP Target function) that share the expanders SAS address be accomplished?

Page: 61  
Sequence number: 3  
Date: 3/5/2003 4:10:43 PM -06'00'  
Type: Highlight

REJECT (the directly attached SAS address is NOT part of the route table. It's part of direct routing not table routing. Made that clearer in the text and the examples.)

#### 4.6.11.4 Expander route index order

##### Table 26 - Expander route table levels.

The first entry in the table for level one should be the expander SAS address of expander N. Level two entries should begin with the device SAS addresses attached to phy0 of expander N. etc.... There is only one Level 1 entry per phy. I believe the whole table is wrong...

(I'm assuming the text is correct in paragraph 2, including numbered list, of the same clause???)

That text follows here:

For purposes of configuring the expander route table, the edge expander devices attached to the phy are assigned levels:

- 1) the attached edge expander device is considered level 1;
- 2) devices attached to it are considered level 2;
- 3) devices attached to level 2 edge expander devices are considered level 3; and
- 4) etc.

Page: 63  
Sequence number: 1  
Date: 3/8/2003 5:30:30 PM -06'00'  
Type: Highlight

REJECT (table does not have direct route entries)

#### 4.6.11.4

##### Table 27 - Expander route table entries for edge expander E0 phy 0

see comments for table 26

The level 1 entries should be the devices attached to the E0 phy 0, that is edge expander E1.

Level 2 entries are the devices attached to edge expander E1 (i.e., D1,1... D1,Y)

I'm assuming the text is correct in the 2nd paragraph, including numbered list, of the same clause.

Page: 63  
Sequence number: 2  
Date: 3/8/2003 5:30:40 PM -06'00'  
Type: Highlight

REJECT (Table does not have direct route entries)

#### 4.6.11.4

Table 28 - Expander route table entries for fanout expander device F phy 0

See comment on table 27, same type of errors apply to this table.

Page: 64

Sequence number: 1

Date: 2/9/2003 5:33:24 PM -06'00'

Type: Highlight

REJECT (all application clients running the discover process have to fill in the tables the same way, or multiple initiators would confuse each other. The level-order traversal has each initiator gingerly probe the domain closest-to-furthest)

#### 4.6.11.5 Discover process

1st paragraph

"The order of traversal shall be to discover:

- 1) the expander device to which the initiator port is attached;
- 2) every device attached to that expander device; and
- 3) as each expander device is found, every device attached to that expander device."

The above requires traversal to go down each phy to end before moving to the next phy. This seems to complicate the process of building the routing table entries since the order is based on level. Why the requirement as stated???

Page: 99

Sequence number: 3

Date: 1/8/2003 2:52:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed the times altogether. Also reformatted the picture a bit to show locking on the nth rate not the 2nd rate)

#### 6.6.2.2 SATA speed negotiation sequence (informative)

Figure 49

Time reference is incorrect. 533 ns sb 53,3 ns

Page: 108

Sequence number: 5

Date: 1/8/2003 6:29:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (should be SP1:OOB\_COMINIT)

#### 6.8.1 Overview

A reference is made to "SP0:SAS\_PowerOn state" in the third paragraph. This state does not appear in the state figures nor is there a state description of function or how it transitions to other states. Nor is it listed in the preceding paragraph of SP states.

Page: 110

Sequence number: 13

Date: 1/22/2003 10:19:41 AM -06'00'

Type: Highlight

REJECT (yes that is the intent for the first two; once a Transmit COMxxx is sent, COMxxx Transmitted ought to show up. The last one is waiting on COMSAS Completed after COMSAS Detected. If this hangs forever, it means the bus is hung sending ALIGN bursts. I think reset as the only out is acceptable.)

#### 6.8.2.3 SP3:OOB\_AwaitCOMINIT\_Sent state

#### 6.8.2.5 SP5:OOB\_AwaitCOMSAS\_Sent state

#### 6.8.2.6 SP6:OOB\_AwaitNoCOMSAS state

The above states have only one way out. If that event doesn't occur it appears the only way out is reset. Is that the intent???

Page: 114

Sequence number: 27

Date: 2/21/2003 5:06:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (gave it a mixed case name. It comes with the transition [very bizarre but we're stuck with that sometimes])

#### 6.8.3.1.1 State description

4th paragraph, item b)

states:

"to the value of the speed negotiation window received as an argument."

This "argument" is not shown in the state diagram figure 57 nor is there an indication of where it comes from.

Page: 115

Sequence number: 16

Date: 12/31/2002 1:31:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 6.8.3.6.2 Transition SP13:SAS\_Pass to SP8:SAS\_Start

1st paragraph, item a)

SN\_start state sb SP8:SAS\_Start state.



Page: 117

Sequence number: 4

Date: 2/5/2003 10:04:28 AM -06'00'

Type: Highlight

REJECT (yes, SAS initiators can attach directly to SATA drives. That becomes outside the scope of this standard. However, the SP state machine is integrated and handles both (for both initiators and expanders), since there is nothing in SATA that we can clearly "join in progress" to handle the rest of the link reset sequence.)

6.8.4 SATA host emulation states

1st paragraph

states:

...(an initiator device...

Is this allowed????

Page: 215

Sequence number: 6

Date: 12/31/2002 1:30:29 PM -06'00'

Type: Underline

ACCEPT - DONE

8.3.1 Overview

Paragraph 3

Sentence 2

PL\_PM1:Idle sb PL\_OC1:Idle

Page: 216

Sequence number: 12

Date: 12/31/2002 1:29:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

Clause 8.3.2.1 & 8.3.2.2

8.3.2.1 & 8.3.2.2 is repeated in the clause heading

Page: 216

Sequence number: 13

Date: 12/31/2002 1:29:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.2 repeated

Page: 217

Sequence number: 12

Date: 12/31/2002 1:29:53 PM -06'00'

Type: Highlight

ACCEPT - DONE

Clause 8.3.2.1 & 8.3.2.2

8.3.2.1 & 8.3.2.2 is repeated in the clause heading

Page: 217

Sequence number: 13

Date: 12/31/2002 1:29:41 PM -06'00'

Type: Highlight

ACCEPT - DONE

8.3.3.1.1 State description overview

1st paragraph

PM\_PM sb PL\_PM

Page: 233

Sequence number: 16

Date: 12/31/2002 1:29:13 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.4 DATA information unit

2nd paragraph, last sentence states:

"The minimum size of the data IU is one byte."

9.2.1 SSP frame format

Table 89 states:

"0 - 1024 bytes" under information unit size.

Assuming text takes precedence over tables and the text is correct, Table 89 needs to be fixed.

Page: 260

Sequence number: 8  
Date: 12/31/2002 1:29:00 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.4.2 SMP\_Request Frame  
1 023 bytes sb 1 024 bytes.

Page: 261  
Sequence number: 9  
Date: 12/31/2002 1:21:55 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.4.3 SMP\_RESOPONSE Frame  
1 023 bytes sb 1 024 bytes

Page: 298  
Sequence number: 5  
Date: 12/31/2002 1:28:51 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (removed paragraph)  
10.3.1.3 REPORT MANUFACTURER INFORMATION function.  
This paragraph does not apply and should be deleted or the field does apply and needs to be added to table 133.  
The ADDITIONAL LENGTH field indicates the length in bytes of the parameters, including the ADDITIONAL LENGTH field. If the ADDITIONAL REQUEST BYTES of the SMP\_REQUEST is too small to transfer all of the parameters, the ADDITIONAL LENGTH shall not be adjusted to reflect the truncation.

Page: 305  
Sequence number: 8  
Date: 12/31/2002 1:28:25 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (they stop at the maximum and do not wrap)  
10.3.1.5 REPORT PHY ERROR LOG function  
None of the following fields indicates if the field wraps or freezes at max count.  
INVALID DWORD COUNT  
DISPARITY ERROR COUNT  
LOSS OF DWORD SYNCHRONIZATION COUNT  
PHY RESET PROBLEM COUNT

Page: 315  
Sequence number: 2  
Date: 1/9/2003 5:56:09 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (it is updated regardless)  
10.3.1.9 PHY CONTROL function  
PARTIAL PATHWAY TIMEOUT VALUE description does not state if this value is always update or not regardless of phy operation requested.

## Author: LSI Day

---

Page: 30  
Sequence number: 13  
Date: 2/16/2003 11:41:29 AM -06'00'  
Type: Note  
ACCEPT - DONE  
4.1.11 Connections  
page 30  
In second paragraph from end, should read "...links that make up the pathway..." (change "to" to "the")

Page: 138  
Sequence number: 17  
Date: 2/16/2003 11:41:29 AM -06'00'  
Type: Note  
ACCEPT - DONE (should ALIGN have a table too?)  
7.1.4.9 NOTIFY  
page 138.  
The NOTIFY does not have a table as the other primitives, and should be added.

Page: 142

Sequence number: 8

Date: 2/17/2003 4:31:27 PM -06'00'

Type: Note

ACCEPT - DONE (rewritten and moved to 7.16.2 STP flow control section. Added "When transmitting a frame, " to head the sentence and corrected "transmitting" to "receiving." Also describe "when receiving a frame". Made the rules 19 and 21 for interop with loose SATA spec.)

7.1.6.3 SATA\_HOLD and SATA\_HOLD\_A

page 142

The first sentence is incorrect. Replace sentence with "An expander device running SATA protocol shall transmit a SATA\_HOLD\_A within 20 dwords of receiving a SATA\_HOLD when it is the source of the data dwords of the frame."

Page: 143

Sequence number: 12

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (change to "shall not transmit SATA\_X\_RDY or SATA\_R\_RDY on the SATA physical link until...")

7.1.6.4 SATA\_R\_RDY and SATA\_X\_RDY

page 143

Last sentence should start "Expander or initiator devices..."

Page: 149

Sequence number: 2

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (per other comment, just removed that sentence.)

7.7.1 Address frame overview

page 149.

Only ALIGNs should be allowed inside address frames. Change third sentence to "Except for ALIGN, primitives may not be inserted in the address frame."

Page: 153

Sequence number: 5

Date: 2/24/2003 12:08:01 AM -06'00'

Type: Note

REJECT (but deleted the conflicting paragraph in 7.15. 7.15 should be fixed and this paragraph is correct. If there is one possible 3 Gbps path, the initiator should be allowed to request it, even if 1.5 Gbps paths might be available along the way. It may request 1.5 if it cares more about connecting that getting a certain rate.)

7.7.3 OPEN address frame

page 153.

Middle of page, sentence starting "When requesting a connection to a target port..." conflicts with section 7.15. Change sentence to "When requesting a connection to a target port, an initiator port shall set the CONNECTION RATE field to the slowest negotiated physical link rate on any potential intermediate physical link."

Page: 157

Sequence number: 16

Date: 3/3/2003 10:15:38 AM -06'00'

Type: Note

REJECT (SL\_IR wouldn't parse the ALIGN if it saw it. Saying ignore doesn't preclude other receivers from seeing it. Whole paragraph deleted anyway. )

7.8.6 SL\_IR transmitter and receiver

page 157

ALIGNs are allowed inside of address frames. Change wording in second paragraph to "... a primitive other than ALIGN is requested ...".

Change wording in third paragraph to "... shall ignore any primitive other than ALIGN received inside ..."

Page: 163

Sequence number: 29

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (Jan WG agreed AWT should be mandatory)

7.12.3 Arbitration fairness

page 163

AWT is mandatory. Change start of second paragraph to "Each initiator port, target port, and expander port shall include an arbitration wait timer ..."

Change start of third paragraph to "Initiator ports and target ports shall implement arbitration wait timers. They shall set the timer ..."

Page: 174

Sequence number: 12

Date: 3/1/2003 6:08:34 PM -06'00'

Type: Note

REJECT (the SL receiver doesn't care about ALIGNs and NOTIFYs. A receiver closer to the physical link picks them off.)

7.13.2 SL transmitter and receiver

page 174

ALIGNs are allowed inside of address frames.

Change wording in second paragraph to "... a primitive other than ALIGN is requested ...".

Change wording in third paragraph to "... shall ignore any primitive other than ALIGN received inside ..."

Page: 175

Sequence number: 2

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.13.4.1 State description

page 175

Last paragraph has a misformatted sentence with c).

Page: 190

Sequence number: 11

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (globally fixed "an SATA" to "a SATA")

7.15 Rate matching

page 190

Last paragraph should read "... port discovers a SATA target ..." (change "an" to "a")

Page: 193

Sequence number: 7

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

page 193

Last paragraph needs to include CREDIT\_BLOCKED. Change wording to "... may transmit ACK, NAK, RRDY, and CREDIT\_BLOCKED ..."

Page: 194

Sequence number: 10

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.7.1 Overview

page 194

Sentence starting with "The SSP\_RF state machine ..." should read "... if those frames were successfully or unsuccessfully received." (Add "ly")

Page: 201

Sequence number: 4

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.7.8 SSP\_TF4:Indicate\_Done\_Tx state

page 201.

Item c) should start "Wait For DONE (Credit Timeout) ...".

Page: 202

Sequence number: 8

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.7.12.2 Transition SSP\_TC1:Idle to SSP\_TC2:Indicate\_Credit\_Tx

page 202

Add another sentence "This transition shall pass a CREDIT\_BLOCKED argument to the Indicate\_Credit\_Tx state if a Rx Credit Status (Blocked) parameter was received."

Page: 207

Sequence number: 9

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (but change "manages the STP connection requests" to "manages affiliations")

7.17.3 Preparing to close an STP connection

page 207

In second paragraph, expander behavior regarding multi initiator ports is incorrect or misleading. Replace entire paragraph with:  
"In a SCSI domain with a single initiator port, when a SATA target port transmits an SATA\_X\_RDY, the expander device may use the time between SATA\_X\_RDY and SATA\_R\_RDY to insert an OPEN address frame to open a connection to the initiator port. In a SAS domain with multiple initiator ports, the expander device manages the STP connection requests (see 9.3.2). Only data FISes are subject to flow control, so the expander device shall be capable of accepting a whole register FIS frame."

Page: 207

Sequence number: 10

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

7.17.3 Preparing to close an STP connection

page 207

Third paragraph starting "An expander device may issue CLOSE ..." conflicts with first paragraph. Remove entire paragraph.

Page: 214

Sequence number: 8

Date: 3/21/2003 8:39:16 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.2.1 Timers and counters overview

page 214

Parentheses in item c) conflicts with section 4.5. Remove words in parentheses.

Page: 215

Sequence number: 7

Date: 3/21/2003 8:40:03 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.2.5 Arbitration wait time (AWT) timer

page 215

Add sentence at end "The AWT timer shall not be incremented past 7FFFh."

Page: 216

Sequence number: 14

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (it was pointing down not right)

Figure 91

page 216

Arrowhead missing between PL\_OC1 and PL\_OC2

Page: 217

Sequence number: 14

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

8.3.3.1.1 State description overview

page 217

Replace "PM\_PM" with "PL\_PM".

Page: 218

Sequence number: 11

Date: 3/21/2003 8:42:13 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (agree)

8.3.3.1.3 Select a request to process and the phy on which to process it

page 218

Second paragraph, should also take the initiator bit into account.

Change sentence to "A destination is considered the same if it has the same SAS address, initiator bit, and protocol."

Page: 221

Sequence number: 8

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

8.4.1 Overview

page 221.

Last sentence on page. Change "PL\_PM1" to "PL\_PM1:Idle".

Page: 226

Sequence number: 13

Date: 3/21/2003 8:46:19 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4.4.1 State Description

page 226.

Fifth paragraph on page is incorrectly issuing Disable Tx Frames for any DONE Received. Correct condition is already covered in fourth paragraph. Remove entire paragraph.

Page: 228

Sequence number: 7

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.1 SSP Frame Format

page 228

Replace "TIMEOUT" with "RETRANSMIT" in table 88.

Page: 229

Sequence number: 26

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.1 SSP Frame Format

page 229

Change Information unit size in table 89 for DATA from "0 to 1024" to "1 to 1024"

Page: 246

Sequence number: 15

Date: 3/8/2003 2:56:38 PM -06'00'

Type: Note

ACCEPT - DONE (reworded to support data frame pipelining. This is not well written - really need to describe a queue of frames and mark them completed as the ACKs or NAKs arrive. Maybe in SAS-2.)

9.2.6.2.2.1 State Description

page 246

Seventh paragraph (starting with "After receiving ...") and eighth paragraph (starting with "If the transmitted frame ...") are redundant, and transport should wait for port layer confirmation regardless of whether it is data-out or data-in operation.

Change 7th paragraph to read as

"After receiving a Transmission Status (Frame Transmitted) confirmation for a COMMAND or TASK frame, this state shall then wait for one of the following confirmations from the port layer state machine before transitioning from this state:"

Remove eighth paragraph.

Page: 250

Sequence number: 24

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (with slight rewrite; also in ST\_TFR)

Page 250

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, sixth paragraph

Reword first sentence:

If the frame type is correct relative to the confirmation, then this state may check that the hashed source SAS address and the hashed destination SAS address in the frame match the source SAS address of the port transmitting the frame and the destination SAS address of the port receiving the frame for the current connection.

Page: 252

Sequence number: 23

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (with slight rewrite; also in ST\_IFR)

Page 252

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state, sixth paragraph

Reword first sentence:

If the frame type is correct relative to the confirmation, then this state may check that the hashed source SAS address and the hashed destination SAS address in the frame match the source SAS address of the port transmitting the frame and the destination SAS address of the port receiving the frame for the current connection.

Page: 264

Sequence number: 14

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (and mention that it shall be set to one)

9.4.4.2.3.1 State description

page 264

Add INITIATOR field into sentence, to read "... CONNECTION RATE, INITIATOR, INITIATOR CONNECTION TAG, ..."

Page: 264

Sequence number: 15

Date: 3/5/2003 4:31:22 PM -06'00'

Type: Note

ACCEPT - DONE (check globally for past tense in transitions. Moved the "shall send" rules into the state description and simplified the transition descriptions in many cases.)

9.4.4.2.4.2 Transition MT\_ID3:Receive to MT\_ID1:Idle

page 264

Change all occurrences of "has sent" to "shall send" in items a), b), and c).

Page: 264

Sequence number: 16

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE

9.4.4.3.1 Overview

page 264

Change item b) from "MT\_TD2:Send" to "MT\_TD2:Respond"

Page: 276

Sequence number: 5

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (the list downgraded to a list of examples)

10.1.3 Application client error handling

page 276

Last paragraph implies a specific implementation, and does not cover the cases when the connection is broken. Recommend to remove last paragraph.

Alternately say that the method the application client uses to reuse tags is outside the scope of this standard.

Page: 324

Sequence number: 7

Date: 2/16/2003 11:41:29 AM -06'00'

Type: Note

ACCEPT - DONE (all 3 parts)

Annex B

page 324

Replace references to figures A.1 and A.2 to B.1 and B.2 respectively. (DONE)

In Figure B.1, sequence for Phy A Tx/ Phy B Rx should say "Not supported by phy A". (DONE)

For consistency, swap the sequences so that Figures B.1 and B.2 are consistent as far as which Rx/Tx is shown on top. (In B.1, Phy A Rx is shown on top, where in B.2 Phy A Tx is shown on top). (DONE)

## Author: LSI Hoglund

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Page: 6

Sequence number: 17

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE (rewritten with "may contain")

3.1.35 edge expander device

page 6

Definition suggests subtractive routing ports are required by edge expander - this is not the case. A simple expander may only

support direct attachment.

Page: 7

Sequence number: 16

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE

3.1.39 expander connection router

page 7

typo: acronym (ER) should be (ECR)

Page: 8

Sequence number: 16

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE (but not applying to definition of invalid dword, since K28.6 is purposely introducing an invalid dword.)

Global

There are many places which state that K28.5 and K28.3 are the only two control characters used by SAS. SATA\_ERROR has been defined using K28.6. Globally add K28.6 as a legal control character.

Page: 30

Sequence number: 14

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE (deleted current list; replaced by sentence relating connections to SSP, STP, or SMP)

4.1.11 Connections

page 30

abc list of connection types is incomplete - either remove or add all possible types, i.e SMP initiator port to expander SMP target port (or SMP through expander to another expander, etc)

Page: 40

Sequence number: 2

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

REJECT (it is complete for all the signals coming from SP. There's on more from SL\_DWS. The rest are for XL to XL communication, which is not detailed in these tables.)

4.3.3.1 Table 10; page 40

Broadcast Event Notify (type) list incomplete (should be consistent with Table 25).

Page: 49

Sequence number: 19

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.1 Expander device model overview

page 49

a) C) SL\_IR primitive processor - typo: should be broadcast primitive processor (DONE)

Page: 49

Sequence number: 21

Date: 3/8/2003 5:28:21 PM -06'00'

Type: Note

ACCEPT - DONE (rewritten a bit)

4.6.1 Expander device model overview

page 49

also, c) an expander port available per phy - what does this mean? is this necessary? either clarify or remove.

Page: 51

Sequence number: 4

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.5 Broadcast primitive processor

page 51

typo: replace SL\_IR with broadcast (twice).

Page: 53

Sequence number: 11

Date: 2/16/2003 11:41:41 AM -06'00'



Type: Note

ACCEPT - DONE

4.6.7 Figure 27

page 53

update diagram text:

change Link Status to Phy Status

change Send Open to Transmit Open

change Send Close to Transmit Close

change Send Break to Transmit Break

change Send Dword to Transmit Dword

Page: 114

Sequence number: 28

Date: 2/21/2003 2:39:44 PM -06'00'

Type: Note

ACCEPT - DONE (track with other comment)

6.8.3.3 SP10:SAS\_AwaitALIGN state

page 114

Agree with editor's note regarding the closer coordination between SP and DWS state machines to detect ALIGNs and ALIGN1s.

Prefer that more than a single ALIGN or ALIGN1 required to advance SP, i.e. use filtering provided by the DWS process.

Page: 115

Sequence number: 19

Date: 2/21/2003 3:04:11 PM -06'00'

Type: Note

ACCEPT - DONE (this must be the "incorporate editors note comment. Track with other comment)

6.8.3.4 SP11:SAS\_AwaitALIGN1 state

page 114

Same comment as for 6.8.3.3.

Page: 140

Sequence number: 4

Date: 2/17/2003 1:53:57 PM -06'00'

Type: Note

REJECT (the "or"ed ones can never happen simultaneously so placing a priority requirement on them is going too far.)

7.1.4.11 OPEN\_REJECT

page 140

Priority list for expander devices transmitting OPEN\_REJECT is ambiguous.

Clarify using the following priorities:

1) OPEN\_REJECT(BAD DESTINATION)

2) OPEN\_REJECT(NO DESTINATION)

3) OPEN\_REJECT(CONNECTION RATE NOT SUPPORTED)

4) OPEN\_REJECT(STP RESOURCES BUSY)

5) OPEN\_REJECT(PATHWAY BLOCKED)

Page: 163

Sequence number: 31

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE (shall wins)

7.12.3 Arbitration fairness

pages 163-164

Resolve apparent inconsistency between Paragraph 2 which states expander port may include an arbitration wait timer and

Paragraph 5 which states that expander ports shall include arbitration wait timers.

Page: 165

Sequence number: 15

Date: 2/19/2003 3:54:09 PM -06'00'

Type: Note

ACCEPT - DONE (several times in this section)

7.12.3.1.3 Partial Pathway Timer

page 165

Partial Pathway Timeout timers are maintained by each expander phy, not by the expander connection manager. Replace expander connection manager with expander phy.

Page: 204

Sequence number: 6

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE (inserted before the wait for SATA\_R\_RDY)

7.17.1 STP frame transmission

page 204

Tables 84 and 85 should show where OPEN\_ACCEPT occurs relative to the frame transmission.

Page: 205

Sequence number: 7

Date: 2/17/2003 4:21:07 PM -06'00'

Type: Note

ACCEPT - DONE (added a paragraph on SATA\_R\_IP)

7.17.2 STP flow control

page 205

Text description correlates well with Figure 86 as far as getting into the HOLD condition but recommend including more text describing the process of releasing the HOLD condition.

Page: 207

Sequence number: 11

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

REJECT (Brian Day's rewrite accepted instead)

7.17.3 Preparing to close an STP connection

page 207

Remove Paragraph 2, starting with "In a SCSI domain." - it is misleading and provides no normative content.

Recommend restricting when expander device may issue CLOSE to only include the first three cases listed (end of each frame, timeout waiting for another frame, after every n frames).

Page: 259

Sequence number: 14

Date: 2/16/2003 11:41:41 AM -06'00'

Type: Note

ACCEPT - DONE

9.3.1 Initial FIS

typo: SMP REPORT SATA PORT should be SMP REPORT PHY SATA.

## Author: LSI Jenkins

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Page: 72

Sequence number: 1

Date: 2/16/2003 11:41:37 AM -06'00'

Type: Highlight

ACCEPT - DONE (thanks)

5.7 Driver and receiver electrical characteristics

For what it's worth, an acquaintance of mine who was not involved with the drafting of the SAS spec reviewed this document on behalf of another company. He offered the unsolicited comment that this was a quite well written specification. ...Just thought I'd pass that along.

Page: 77

Sequence number: 1

Date: 2/16/2003 11:41:37 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.4 Transmitted signal characteristics

Table 35 — Transmitted signal characteristics at Tx compliance points

133 ps (0.2 UI) provides no overlap with required 3Gbps max rise time. I believe the initial intent was to track SATA. However, the SATA min risetime at 1.5Gbps is being changed to 100 ps (0.15 UI). I propose that SAS change this value to 67 ps (0.1 UI) at 1.5 Gbps, allowing extra room for higher performance devices.

I also propose that the minimum rise/fall time of 67 ps (0.2 UI) at 3 Gbps be changed to 50 ps (0.15 UI) for similar reasons.

Page: 78

Sequence number: 1

Date: 2/21/2003 3:49:08 PM -06'00'

Type: Highlight

ACCEPT - DONE (per phy call 2/21 they are not intended to line up with SATA values because the SATA values are not high enough. However, they have been defined better.)

5.7.4 Transmitted signal characteristics

Table 36 — Delivered signal characteristic at Rx compliance points (part 2 of 2)

"OOB detect guaranteed on (eye opening) ... OOB detect guaranteed off signal level "

It is unclear to me a) how to interpret these values, and b) how they are meant to line up (if at all) with the SATA spec values. The signal characteristic names suggest that the first spec is the eye opening of a minimum valid signal, while the second spec is the absolute peak-peak voltage of noise which must be ignored. This is fine, but it is unclear how this relates to footnote c which seems to be describing something different.

Regarding lining up with SATA, that document specifies "squellch detector threshold" with a min/max of 50/200 mVp-p.

Apologies for having no clear recommended change, but it seems that a 120 mV required noise tolerance does not compare well with SATA's threshold range of 50 to 200 mV.

## Author: LSI Lohmeyer

---

Page: iii

Sequence number: 1

Date: 2/19/2003 6:46:19 PM -06'00'

Type: Note

ACCEPT - DONE (contents merged with IBM comment)

Abstract

The abstract is incomplete. SAS also defines a physical layer and a management protocol (SMP). Consider replacing the existing abstract with:

This standard specifies the functional requirements for the Serial Attached SCSI (SAS) physical interconnect, which is compatible with the Serial ATA physical interconnect. It also specifies three transport protocols, one to transport SCSI commands, another to transport Serial ATA commands to multiple target devices, and a third to support interface management.

Page: ix

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

1.19 Revision Information

sas-r02c in 1.19 should be sas-r03, but all of the revision history needs to be removed for public review anyway.

Page: xxxiii

Sequence number: 1

Date: 2/19/2003 6:37:44 PM -06'00'

Type: Note

ACCEPT - DONE (in three columns)

Foreword

I think it is appropriate to give a credit to the Serial Attached SCSI Working Group, which did the initial SAS proposal. This credit should go after the T10 member list.

Possible wording:

The Serial Attached SCSI Working Group provided the initial proposal for this standard. This Working Group consisted of the following member companies: <<<This list needs to be reviewed for accuracy>>>

Adaptec Corp.

Amphenol

BREA Technologies

Compaq Computer Corp.

Crossroads Systems, Inc.

Cypress Semiconductor

Data Transit Corp.

Dell

Eurologic Systems Limited

FCI

Fujitsu Limited

Hewlett Packard Co.

Hitachi America, Ltd.

IBM Corp.

I-TECH Corp.

KnowledgeTek, Inc.

LSI Logic Corp.

Marvell Technology Group Ltd.

Maxtor Corp.

Molex Inc.

NEC Electronics

QLogic Corp.

Seagate Technology

Serverworks

Page: 5

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (new ATA terminology per Mark Evans proposal)  
3.1.8 ATA target device and 3.1.9 ATA target port  
See previous comment.

Page: 5

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (new ATA terminology per Mark Evans proposal. ATA target device only has one ATA target port, so they ARE both equivalent.)  
3.1.8 ATA target device and 3.1.9 ATA target port  
Since both ATA target device and ATA target port are equivalent to a device in ATA, does this mean that ATA target devices and ATA target ports are equivalent? If not, then one of these things is not equivalent to an ATA device.

Page: 6

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE  
3.1.32 downstream phy  
Replace "direction frame transmission" with "direction of frame transmission"

Page: 6

Sequence number: 6

Date: 3/11/2003 3:58:28 PM -06'00'

Type: Highlight

REJECT (but general issue addressed with virtual phy/internal SAS device concept. SAS devices are the generic term, which may be in end devices or expander devices.)  
3.1.37 end device  
Delete "that is not contained within an expander device".  
This is the first of several comments on "internal devices" and "internal ports". The current working draft does not use this terminology consistently and needs a number of changes no matter how the problem is solved.  
I prefer a solution that acknowledges that internal devices are just like external devices except for their lack of phys and does not attempt to merge internal devices into the expander device definition.  
Places I addressed in my comments:  
3.1.37 end device  
3.1.40 expander device  
3.1.43 expander port  
3.1.66+ internal device  
3.1.70 link  
3.1.73+ logical link  
3.1.82 partial pathway  
3.1.83 pathway  
4.1.3 Ports (narrow ports and wide ports)  
4.6.1 Expander device model overview  
4.1.8.1 Expander device overview  
4.1.8.2 Edge expander device set: 3rd paragraph. Is 64 the maximum number of phys or devices?  
4.1.8.2 Edge expander device set, Figure 11 - Edge expander device set  
4.1.12 Pathways  
4.4.2 Hard reset - fifth paragraph  
5.3.2.1 SAS plug connector overview  
Places possibly needing additional changes:  
4.1.8.2 Edge expander device set: 1st paragraph; 2nd sentence.  
Address internal devices?  
4.1.8.3 Configurable expander device: 1st paragraph; last sentence.  
Does the ECM route requests to non-phys?  
4.1.9 Domains, Figure 12 - Domains and connections. Should internal devices be shown?  
4.1.10 Expander device topologies: 3rd paragraph.  
4.1.10 Expander device topologies, Figures 14-16 Should internal

devices be shown?

4.1.11 Connections, Figure 17 Should internal devices be shown?

7.7.2 IDENTIFY address frame, Table 73 - Device types and paragraph above the table

7.12.4.2 Edge expander devices, Table 80

10.3.1 SMP functions. We may need to revise or add functions to properly support internal devices.

10.3.1.2 REPORT GENERAL response (in particular, the NUMBER OF PHYS field may need clarification and we may need to add a field for the number of internal ports).

10.3.1.4 DISCOVER function, Table 138 may need a clarification

Page: 7

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.55 hash function

Replace "and that reduces" with "reducing"

Page: 7

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (but rewritten)

3.1.40 expander device

Replace the last sentence with:

"An expander device supports SMP via an internal SMP target device. However, this internal device is logically considered outside the expander device. Other internal devices (e.g., a SCSI device supporting enclosure services) may also be packaged with expander devices, however these devices are also logically considered outside the expander device."

Page: 7

Sequence number: 6

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (but rewritten based on other comments)

3.1.43 expander port

Replace "physical links or to internal initiator ports and/or target ports. Contains one or more phys." with "links. Contains zero or more phys."

Page: 8

Sequence number: 4

Date: 3/8/2003 3:56:53 PM -06'00'

Type: Note

REJECT (avoided using "internal device" or "internal SAS device anywhere obviating the need for this term)

After 3.1.66

Add a new definition:

"3.1.66+ internal device: An end device that is physically packaged with an expander device and uses a logical link."

Page: 8

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (but deleted "link" altogether. Changed some remaining uses to "physical link" throughout the document.)

3.1.70 link

Replace "physical link" with "physical or logical link".

Page: 8

Sequence number: 6

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

REJECT (we don't need to name that link since there are no specs on it and no references to it. We just say an internal phy attaches to an internal SAS port.)

After 3.1.73

Add a new definition:

"3.1.73+ logical link: For internal devices, the virtual link from the expander port to the internal device port. Contains no phys."

Page: 9

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (just leaving OOB here alone in both 3.1.80 and 3.1.81)  
3.1.81 OOB signal  
Replace "out-of-band (OOB)" with "OOB".

Page: 9

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (just leaving OOB here alone in both 3.1.80 and 3.1.81)  
3.1.80 OOB sequence  
Replace "OOB" with "out-of-band (OOB)".

Page: 9

Sequence number: 6

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

REJECT - we don't use link alone  
3.1.82 partial pathway  
Delete "physical".

Page: 9

Sequence number: 7

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

REJECT - we don't use link alone  
3.1.83 pathway  
Delete "physical".

Page: 10

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (why expand each and/or into lots of text more prone to errors?)  
3.1.101 SAS domain  
Global  
Replace "an ATA domain and/or a SCSI domain" with an ATA domain, a SCSI domain, or both domains".  
This comment applies to all occurrences of and/or.

Page: 10

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE  
3.1.122 Serial ATA (SATA)  
Add "(see 2.4)" to the end of the definition.

Page: 11

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

REJECT - use "set of protocols and the interconnect"  
3.1.124 Serial Attached SCSI (SAS)  
This definition is confusing in that this standard defines three protocols (SSP, STP, and SMP) plus a physical transport.  
It may be easiest just to delete this definition.

Page: 12

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE  
3.2 Symbols and abbreviations  
Add:  
EMI electromagnetic interference  
EMI is referenced in 7.15.

Page: 15

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed second sentence; small caps is correct)

3.4 Editorial conventions

The first sentence after Table 2 is redundant with the last sentence of the third paragraph. Delete one of these sentences.

Why does one have NAME in small caps and the other is lower-case?

Page: 17

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.5.2 Transitions

In the last paragraph of this subclause, replace "valid in entry" with "valid upon entry".

Page: 17

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.5.3 Parameters, requests, etc.

In the last paragraph of this subclause, replace "onto" with "to".

Page: 17

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.6 Bit and byte ordering

In the fourth paragraph, replace "non-monotonically" with "non-sequentially".

Page: 18

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

3.7 Notation for procedures and functions

In the first procedure (Procedure Name), the parenthesis do not match. If the Search example below is correct, then there is an extra right parenthesis after input-2.

Page: 21

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.3 Ports (narrow ports and wide ports)

In the third paragraph, replace "with one phy" with "with only one phy".

Page: 21

Sequence number: 2

Date: 3/8/2003 5:13:37 PM -06'00'

Type: Note

REJECT

4.1.3 Ports (narrow ports and wide ports)

Rename this subclause:

4.1.3 Ports (narrow ports, wide ports, and internal ports)

Add the following paragraph:

"An internal port in an expander device does not contain a phy and is used to connect to an internal device."

Page: 24

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (STP target ports are allowed)(whole section being deleted anyway)

4.1.6 Target devices

Figure 9 - Target device

The text "STP and SMP" is too close to the line.

Page: 24

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

REJECT (STP target ports are allowed)(whole section being deleted anyway)

4.1.6 Target devices

Figure 9 - Target device

Don't most ATA targets use SATA protocol instead of STP protocol?

Also, see the related comment at 4.1.11 Connections.

Page: 25

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

4.1.8.1 Expander device overview

Figure 10 - Expander Device

Modify the figure to show the required SMP target port. The internal expander ports should be included in the Expander device (shaded box) while the target and initiator internal ports should be outside the shaded box.

Page: 25

Sequence number: 2

Date: 3/8/2003 12:26:16 PM -06'00'

Type: Highlight

REJECT (but replaced with virtual phy/internal port/internal SAS device concept)

4.1.8.1 Expander device overview

Replace the second sentence of the first paragraph with:

"Expander devices include one or more internal expander ports connected to internal devices. These internal ports use a logical link that does not contain phys. All expander devices have one internal expander port connected to an internal SMP target port.

They may have additional internal expander ports connected to internal initiator ports or internal target ports (e.g., a SCSI enclosure services target device)."

Page: 25

Sequence number: 3

Date: 3/3/2003 6:10:34 PM -06'00'

Type: Highlight

ACCEPT - DONE ("number of SAS addresses used by")

4.1.8.2 Edge expander device set

Third paragraph. Should this maximum be the number of devices or phys?

Page: 26

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

REJECT (but deleted this anyway)

4.1.8.2 Edge expander device set

Figure 11 - Edge expander device set

Show the internal target port outside the Edge expander device set box.

Page: 30

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE (list removed in favor of generic SSP, STP, and SMP references. We can't say ATA initiator any more.)

4.1.11 Connections

In the first list, it appears that a connection type has been omitted:

d) ATA initiator port(s) using STP to ATA target port(s) using STP.

If this connection type is not intended to be supported, then delete STP target ports from the second paragraph in 4.1.6 and from Figure 9

Page: 31

Sequence number: 3

Date: 3/2/2003 3:37:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with another comment)

4.1.11 Connections

In the third list, why does item d) appear on the next page? There is plenty of room to place it on the same page with the first three list items.

Page: 31



Sequence number: 4

Date: 3/8/2003 5:14:02 PM -06'00'

Type: Highlight

REJECT (I don't think it matters)

4.1.12 Pathways

Is there a pathway to an internal target device? If so, then the first paragraph needs some changes to accommodate targets without phys. I suggest re-wording the second paragraph of this paragraph as follows:

"In the case where there are expander devices between an initiator and a target, the pathway consists of all the links required to route dwords between the initiator and the target."

Page: 32

Sequence number: 2

Date: 3/2/2003 3:40:46 PM -06'00'

Type: Note

ACCEPT - DONE (figure redrawn)

4.1.12 Pathways

Figure 18 - Pathways

The pathway lines and arcs obscure the physical link lines. Consider moving them a bit above or below the physical link lines.

Page: 32

Sequence number: 3

Date: 3/2/2003 3:40:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (reordered sections and added xref)

4.1.12 Pathways

Add a forward reference from the e.g. in the first paragraph under Figure 18 to the subclause on connections: (see 7.12).

Page: 32

Sequence number: 4

Date: 3/2/2003 3:01:18 PM -06'00'

Type: Strikeout

REJECT (we don't have non-physical links)

4.1.12 Pathways

Delete "physical" from the paragraph after figure 18.

Page: 49

Sequence number: 1

Date: 3/5/2003 3:58:09 PM -06'00'

Type: Note

ACCEPT - DONE (change to "stop transmitting valid dwords")

4.4.2 Hard Reset

The second paragraph, first sentence is ambiguous. What exactly does "stop transmitting" mean? Is this the Tx Off Voltage in table 35? If so, add a forward reference. What are the timing requirements to stop transmitting?

Page: 49

Sequence number: 2

Date: 3/6/2003 9:49:00 AM -06'00'

Type: Highlight

ACCEPT - DONE (worded differently, merging other comments)

4.4.2 Hard Reset

Delete the second sentence of the fifth paragraph and add the following two paragraphs after the fifth paragraph:

"If the port is an internal port within an expander device and the internal port is connected to an internal SCSI device, this causes a Transport Reset event notification to the SCSI application layer (see 10.1.4); the SCSI device shall perform the actions defined for hard reset in SAM-3.

If the port is an internal port within an expander device and the internal port is connected to an internal ATA device, the ATA device shall perform the actions defined for power-on or hardware reset in ATA."

Page: 49

Sequence number: 3

Date: 3/8/2003 5:26:42 PM -06'00'

Type: Highlight

REJECT

4.6.1 Expander device model overview

First list, item d). Replace "internal" with "internal expander port providing a connection for an internal SMP target port."

Page: 50

Sequence number: 1

Date: 3/5/2003 4:09:44 PM -06'00'

Type: Note

ACCEPT - DONE (the "port" boxes should all have "more than one" constructs. Also, the external phy "more than one" boxes should be on the bottom right to match other such figures)

#### 4.6.1 Expander device model overview

Figure 25

Is there some reason that only one SATA port is shown? Don't ports automatically configure to the protocol of the attached device?

Page: 50

Sequence number: 2

Date: 3/8/2003 5:24:39 PM -06'00'

Type: Highlight

REJECT

#### 4.6.1 Expander device model overview

Replace "the following:" with "additional internal expander ports providing connections for:"

Page: 66

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE (Reject size, accept color suggestion. Size will vary depending on needs of the figure rather than size consistency from figure to figure.)

#### 5.2 SAS cables and connectors

Figure 33

Where SAS uses the same connector as in SATA, the color and size should match the corresponding connector in figure 31. Thus the SATA-style host plug connector should be dark green and be the same size as the dark green signal host plug connector in figure 31.

The signal portions of the SAS internal cable connectors need to be shown in pink (just like the SATA internal cable) and the end that plugs into the target device needs to be the same width as the SAS plug connector.

Page: 67

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE (per PHY WG. Accept. Type of connector: SAS internal cable SATA-style signal cable receptacle, Reference: SATA, Attaches to: SATA-style host plug, Reference SATA.)

#### 5.2 SAS cables and connectors

Table 29 - Connectors

Add rows for the SATA-style host plug connector and the SATA-style signal cable receptacle. References should be to SATA for the connector drawings and to 5.4.1 for pin assignments.

Page: 67

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

#### 5.2 SAS cables and connectors

Penultimate paragraph. Replace "second" with "secondary".

Page: 67

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG

Change text to: "SAS target devices supporting internal interconnection of physical link(s) and power...")

#### 5.3.2.1 SAS plug connector overview

This subclause uses "internal ports" for a different concept than used elsewhere in the standard. I recommend replacing "internal ports" with "internal connections".

Page: 67

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 5.3.3 SAS internal cable receptacle connector

In list item b, delete "only".

Page: 67

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE  
5.3.4 SAS backplane receptacle connector  
In list item b, delete "only".

Page: 67  
Sequence number: 6  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
5.3.2.1 SAS plug connector overview  
Since 5.3.2.1 is the only subclause under 5.3.2, promote this subclause.

Page: 68  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Note  
REJECT (per PHY WG. You are correct that the signals do not cross, but they do not cross because the pin signal assignments are different for an initiator and a target. Unlike SATA, with SAS there is a target connector and an initiator connector. We did not see the merit of the comment and did not understand why it was made except for possible confusion with the original SAS pinout when the initiator and target pin assignments were different.))  
5.3.5 SAS internal connector pin assignments  
In the first paragraph under table 30, the second sentence is either not true or misleading. The Rx and Tx signals are not crossed in the SAS internal cable assembly using the SATA-style signal cable receptacle on one end and the SAS internal cable receptacle on the other end (see figure 34).

Page: 69  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (per PHY WG but as should rather than It is recommended. Accept  
Add sentence:  
It is recommended that external cables be labeled to indicate how many physical links are included (e.g., X1, X2, X3, and X4 on each connector's housing).)  
5.3.8 SAS external connector pin assignments  
We should recommend that external cables be labeled to indicate how many physical links are included (e.g., X1, X2, X3, and X4 on each connector's overmolding).

Page: 71  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (per phy WG, removed whole second half of sentence including all color references)  
5.6 READY LED pin  
Replace "shall" with "should". The visual output color is not important to the operation of the interface.

Page: 71  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (although compound adjectives may use extra hyphens, they don't have to. Nevertheless, removed everywhere not used preceding a noun.)  
5.6 READY LED pin  
Global  
List item d), last sentence. Replace "vendor-specific" with "vendor specific".  
Global comment: There is no hyphen if these words are not used as an adjective modifying a noun. There are also many places in the document where the hyphen needs to be added because vendor-specific is used as an adjective modifying a noun.

Page: 86  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (globally)  
6.2.1 Encoding overview  
Global  
Replace "10 bit" with "10-bit" whenever this phrase is used as an adjective to modify characters or bytes.  
This comment also applies to the occurrences of "8 bit", which should be changed to "8-bit".

Page: 100  
Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.3 SAS to SATA phy reset sequence

The text (two paragraphs above Figure 50 - SAS to SATA OOB sequence) says that the SAS phy responds with COMRESET. However figure 50 shows a COMWAKE at this point.

Page: 100

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (hot-plug timeout is currently in the speed negotiation sequence timing table. It is really related to the phy reset sequence, not just the speed negotiation sequence. I think a new phy reset sequence timing table should be created in 6.6.1 that includes the hot-plug timeout. Then, this is no longer a forward reference. Tom agrees)

6.6.4.1 SAS OOB sequence

Add forward reference in first paragraph: "hot-plug timeout (see table 49)".

Page: 101

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (reworded if phrases to the front of each of a) and b))

6.6.4.1 SAS OOB sequence

In the first list, shouldn't item a) be: "... has not yet transmitted a COMINIT, followed by a COMSAS; or"

Page: 104

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (create a timing table in 6.6.2 for this. SATA unfortunately doesn't refer to this time by name - the 880 is embedded in the state machine description. We don't want to do that.)

6.6.4.2 SAS speed negotiation sequence

Table 49 - SAS speed negotiation sequence timing specs (last row)

What is a SATA speed negotiation parameter doing in a SAS speed negotiation table? Either put this parameter in a different table or name of this table appropriately (e.g., delete "SAS").

Page: 109

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.2 OOB sequence states

Figure 56 - SAS phy (SP) state machine - OOB sequence states

The "COMSAS Transmitted" parameter into the SP3:OOB\_AwaitCOMINIT\_Sent should be "COMINIT Transmitted".

Page: 111

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.2.7.2 Transition SP7:OOB\_AwaitCOMSAS to SP1:OOB\_COMINIT

List item a) is missing the verb "is". It should read: "a) this device is in..."

Page: 112

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed to the new SP2 state)

6.8.2.7.5 Transition SP7:OOB\_AwaitCOMSAS to SAS\_AwaitNoCOMX

Where does this transition really go? The subclause title is missing the state descriptor. Figure 56 shows this transition going to SP2:OOB\_AwaitCOMx.

Page: 114

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE (track with other comment)

Editor's Notes

Global

Obviously, the four editor's notes need to be resolved and removed.

Page: 115

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.4.1 State description

Second paragraph should read: "This state shall repeatedly send a Transmit ALIGN1 parameter..."

Page: 115

Sequence number: 2

Date: 2/20/2003 5:22:20 PM -06'00'

Type: Highlight

ACCEPT - DONE (no note)

6.8.3.4.3 Transition SP11:SAS\_AwaitALIGN1 to SP14:SAS\_AwaitSNW

Replace "SNTT" with "SNLT".

Should we add a note to clarify that this transition is not taken if ALIGN1 is detected after SNLT expires and before SNTT expires?

Page: 115

Sequence number: 3

Date: 2/20/2003 5:23:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.5.2 Transition SP12:SAS\_AwaitALIGN1 to SP13:SAS\_Pass

Replace "if" with "after".

Page: 115

Sequence number: 4

Date: 2/21/2003 5:09:41 PM -06'00'

Type: Highlight

ACCEPT - DONE (defined in an i.e. as ever going from SP14:SAS\_Fail to SP8:SAS\_Start)

6.8.3.6.2 Transition SP13:SAS\_Pass to SP8:SAS\_Start

The term "fallen back" is not defined. Should it be defined as an SP14 to SP2 transition?

"Fallen back" also appears in 6.8.3.6.3.

Page: 116

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted duplicate sentence)

6.8.3.8.1 State description

The last sentence of the last paragraph is redundant with the previous paragraph.

Page: 118

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4 SATA host emulation states

Third paragraph: Replace "specification" with "standard".

Page: 118

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

6.8.4 SATA host emulation states

Figure 58 - SAS phy (SP) state machine - SATA host emulation states

State SP16 needs a COMWAKE Transmitted input parameter (see 6.8.4.1.2).

Page: 118

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

6.8.4 SATA host emulation states

Figure 58 - SAS phy (SP) state machine - SATA host emulation states

State SP17 needs a COMWAKE Detected input parameter (see 6.8.4.2.2).

Page: 118

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

6.8.4 SATA host emulation states

Figure 58 - SAS phy (SP) state machine - SATA host emulation states

State SP18 needs a COMWAKE Completed input parameter (see 6.8.4.3.2).

Page: 119

Sequence number: 1

Date: 2/20/2003 5:24:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (ALIGN0 Received parameter)

6.8.4.4.1 State description

In list item c, replace "ALIGN" with "ALIGN0".

Page: 119

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE ("after entry into this state.")

6.8.4.4.1 State description

Should the last word of this subclause be "completed"? If not, define "deasserted".

Page: 120

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.6.1 State description

Replace "ALIGN0s" with "ALIGN0".

Page: 120

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.7.3 Transition SP22:SATA\_PHY\_Ready to SP24:SATA\_PM\_Partial

Change this subclause name to "Transition SP22:SATA\_PHY\_Ready to SP23:SATA\_PM\_Partial" (i.e., SP24 should be SP23).

Page: 120

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.7.4 Transition SP22:SATA\_PHY\_Ready to SP23:SATA\_PM\_Slumber

Change this subclause name to "Transition SP22:SATA\_PHY\_Ready to SP24:SATA\_PM\_Slumber" (i.e., SP23 should be SP24).

Page: 120

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.4.7.2 Transition SP22:SATA\_PHY\_Ready to SP1:Reset

Change this subclause name to "Transition SP22:SATA\_PHY\_Ready to SP1:OOB\_COMINIT" (i.e., Reset should be OOB\_COMINIT).

Page: 120

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (but corrected picture to match this text)

6.8.4.8.2 Transition SP23:SATA\_PM\_Partial to SP16:SATA\_COMWAKE

Change the name of this subclause to "Transition SP23:SATA\_PM\_Partial to SP17:SATA\_AwaitCOMWAKE".

Page: 120

Sequence number: 6

Date: 2/20/2003 5:25:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (both sections; rewritten as This state waits for ... parameter or ... request.)

6.8.4.8.1 State description

6.8.4.9.1 State description

Replace "Exit from this state is driven from" with "This state is exited upon".

Page: 123

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.9.2.1 State description

Replace "upon power on loss or previous dword synchronization" with "upon power on or loss of previous dword synchronization."

Page: 123

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

6.9.3 SP1\_DWS1:Valid1 state

This transition needs to be added to the text:

6.9.3.3 Transition SP\_DWS1:Valid1 to SP\_DWS0:AcquireSync

"This transition shall occur when an invalid dword is detected."

Page: 123

Sequence number: 3

Date: 2/21/2003 6:23:47 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded to "if this state machine has received"... they arrive when this state machine is in SP\_DWS0 not this state (in practice, they'll be level-sensitive signals))

6.9.5.1 State description

The text refers to a PhyReady (SAS) parameter and to a PhyReady (SATA) parameter as being inputs to this state. However, neither is shown in figure 59. These parameters should be added to the figure.

Page: 124

Sequence number: 1

Date: 2/21/2003 6:32:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded as just "This state is reached when a valid dword has been received after three invalid dwords had been received." [three/two/or one as appropriate])

6.9.7.1 State description

6.9.9.1 State description

6.9.11.1 State description

Replace the first sentence with: "This state is reached if a valid dword is received while in the previous state. Receiving another valid dword in this state nullifies the previous invalid dword. "

Page: 128

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.2 Primitive summary

Table 51

Table 52

Table 53

Note c in the three primitive tables omits single primitive from the list of primitive types. Add "as a single primitive," to the list in note c for each table.

Page: 137

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (reworded as "Processed the same... by end devices" to match other tables)

7.1.4.4 BROADCAST

Table 59 - BROADCAST primitives

Replace "process the same" with "process this primitive the same".

Page: 138

Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.4.6 EOAF (End of address frame)  
The link to 7.4 is wrong. Replace it with a link to 7.7.

Page: 138  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
7.1.4.9 NOTIFY  
Last sentence of third paragraph. Delete "as described in TBD" or fill in a valid TBD.

Page: 138  
Sequence number: 3  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
REJECT - there's no real prohibition against sending it to other types of SAS devices. Only SSP targets require it.  
7.1.4.9 NOTIFY  
In the fourth paragraph, replace "while" with "only while".

Page: 140  
Sequence number: 1  
Date: 2/17/2003 1:53:36 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (Either:  
a) no such destination device; or  
b) the SAS address is valid for a SATA target device attached to an expander device, but the initial Register FIS has not been successfully received.  
)  
7.1.4.11 OPEN\_REJECT  
Table 62 - OPEN\_REJECT retry primitives  
The wording in the description of OPEN\_REJECT (NO DESTINATION) is confusing. I think you should replace "devices" with "device" in the third line, but perhaps there is a better change.

Page: 141  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.4.12 SOAF (Start of address frame)  
The link to 7.4 is wrong. Replace it with a link to 7.7.

Page: 142  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
REJECT (no, normal ERROR is used in that case)  
7.1.6.1 SATA\_ERROR  
In the first paragraph, isn't SATA\_ERROR also sent when forwarding dwords from a SATA link to a SAS link and an invalid dword is received?

Page: 142  
Sequence number: 3  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.6.2 SATA\_PMACK, SATA\_PMNAK, SATA\_PMREQ\_P, and SATA\_PMREQ\_S (Power management acknowledgements and requests)  
The link to 7.4 is not correct. I think 7.9 is the correct link.

Page: 143  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.2 Clock skew management



In the second paragraph, replace "To solve this," with "To solve this problem,".

Page: 143

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.2 Clock skew management

In the second paragraph, replace "strip it out" with "strip them out".

Page: 143

Sequence number: 4

Date: 2/17/2003 4:32:30 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "that arrive in")

7.2 Clock skew management

In the second paragraph, replace "make it to" with "are placed into".

Page: 144

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE (added "a phy" before "that is" so it doesn't look like i.e. is being replicated)

7.2 Clock skew management

Paragraph above Table 66. Change "(i.e., that is not..." to "(i.e., not...".

Page: 146

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.4.2 CRC generation

In the sentence above 7.4.3, the link to 6.5 is wrong. I think it should be to 7.6, Bit order of CRC and Scrambler.

Page: 147

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.4.3 CRC checking

In the penultimate paragraph, the link to 6.5 is wrong. I think it should be to 7.6, Bit order of CRC and Scrambler.

Page: 147

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed paragraph)

7.4.3 CRC checking

In the last paragraph, the link to Annex B is wrong. I think it should be to Annex C, CRC.

Page: 147

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.5 Scrambling

In the paragraph above table 69, the reference to 6.5 is wrong. I think it should be to 7.6, Bit order of CRC and Scrambler.

Page: 147

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.5 Scrambling

In the first paragraph, second sentence, replace "issues" with "EMI issues".

Page: 150

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (if we put the range here it's bound to change)

7.7.1 Address frames overview

In the paragraph below table 71, replace "entire address frame" with "address frame (bytes 0 through 27)".

Page: 152

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

7.7.3 OPEN address frame

The descriptions of the fields in table 74 should be re-ordered to match the order of the fields in the table.

Page: 154

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.1 Overview

In the penultimate paragraph, replace "it" with "the additional IDENTIFY address frame".

Page: 154

Sequence number: 2

Date: 2/17/2003 5:30:09 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.2 Initiator device specific rules

7.8.3 Fanout expander device specific rules

7.8.4 Edge expander device specific rules

Delete "specific" from each of these subclause titles.

Page: 155

Sequence number: 1

Date: 2/21/2003 7:14:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (with rewording per other comments)

7.8.2 Initiator device specific rules

Replace the second paragraph with "When the discover process is done after a link reset sequence, the application client within an initiator device discovers all the devices in the SAS domain. When the discover process is done after a BROADCAST (CHANGE), the application client within an initiator device determines what has changed in the SAS domain.".

Page: 155

Sequence number: 2

Date: 2/17/2003 5:30:38 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.4 Edge expander device specific rules

Assuming my previous comment on the 7.8.2 title is accepted, delete "specific" in the second paragraph of this subclause.

Page: 155

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.5.1 Overview

Delete reference to 7.8; we are already in subclause 7.8.

Page: 157

Sequence number: 1

Date: 3/1/2003 6:16:43 PM -06'00'

Type: Highlight

ACCEPT - DONE (the only primitive possible is HARD\_RESET and it cannot be sent at the wrong time. Removed this text)

7.8.6 SL\_IR transmitter and receiver

In the paragraph below the list, what should the SL\_IR transmitter do if a primitive is requested to be transmitted while sending an IDENTIFY address frame? Discard the primitive or store it until the EOAF?

Page: 157

Sequence number: 2

Date: 3/1/2003 6:16:02 PM -06'00'

Type: Highlight

REJECT (no explanation for 8th dword planned. It's an escape valve in case the EOAF is lost)

7.8.6 SL\_IR transmitter and receiver

The last sentence of the last paragraph is not clear. We need to explain what is magical about the 8th data dword.

Page: 158

Sequence number: 1

Date: 2/19/2003 5:48:31 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.1.4.2 Transition SL\_IR\_TIR3:Transmit\_Hard\_Reset to SL\_IR\_TIR3:Completed

Replace "SL\_IR\_TIR3:Completed" with "SL\_IR\_TIR4:Completed" in the title of this subclause.

Page: 159

Sequence number: 1

Date: 2/19/2003 5:49:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.3.1 State description

In the last paragraph, replace "illegal" with "invalid".

Page: 159

Sequence number: 2

Date: 2/19/2003 5:52:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed from figure)

7.8.6.3.2 SL\_IR\_IRC1:Idle state

The state diagram (figure 67) shows an identify 'Timeout' parameter confirmation leaving this state, but it is not described. I think it was moved to the SL\_IR\_IRC2 state and should be deleted from this state in the state diagram.

Page: 160

Sequence number: 2

Date: 2/19/2003 6:08:39 PM -06'00'

Type: Highlight

ACCEPT - DONE (Identification Sequence Complete now there)

7.8.6.3.3.1 State description

The first list item talks about an "Identify Sequence Complete confirmation". However this confirmation does not appear in figure 67. Please add it to the figure.

Page: 160

Sequence number: 3

Date: 2/19/2003 5:58:08 PM -06'00'

Type: Highlight

REJECT (it is in the figure; the top blue dashed arrow going into SL\_IR\_IRC2 from the middle state machine)

7.8.6.3.3.1 State description

The penultimate paragraph talks about an "Identify Received parameter". However this parameter does not appear in figure 67. Please add it to the figure.

Page: 160

Sequence number: 4

Date: 2/19/2003 6:08:19 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.3.3.1 State description

The penultimate paragraph talks about an "HARD\_RESET Received confirmation". However this confirmation appears under the SL\_IR\_IRC1:Idle state in figure 67. Please move it to the SL\_IR\_IRC2:Wait state in the figure.

Page: 160

Sequence number: 5

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.9 Power management

Replace the last sentence of the third paragraph with "If one of these primitives arrives while an STP connection is open, it may forward the primitive to the STP initiator port."

Page: 161

Sequence number: 1

Date: 2/17/2003 5:31:33 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.11 Domain changes

Assuming my previous comment regarding the title of subclause 7.8.2 is accepted, delete "specific" from the 5th paragraph.

Page: 161

Sequence number: 2

Date: 2/17/2003 5:31:27 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.11 Domain changes

Assuming my previous comment regarding the title of subclause 7.8.3 is accepted, delete "specific" from the 6th paragraph.

Page: 161

Sequence number: 3

Date: 2/17/2003 5:31:21 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.11 Domain changes

Assuming my previous comment regarding the title of subclause 7.8.4 is accepted, delete "specific" from the 7th paragraph.

Page: 162

Sequence number: 2

Date: 2/17/2003 5:39:24 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

7.12.2.1 Connection request

In the last paragraph, second sentence, replace "does not support" with "supports".

Page: 163

Sequence number: 2

Date: 2/17/2003 5:42:18 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded as singular not plural)

7.12.2.2 Connection request responses

Table 78 - Connection request responses

In the description of AIP, the sentence beginning with "While the expander..." is not worded correctly. The number of expander devices (plural) does not match it (singular). Replace "it returns an AIP" with "they return AIPs".

Page: 163

Sequence number: 3

Date: 2/17/2003 5:43:22 PM -06'00'

Type: Note

REJECT (no, it's an open choice)

7.12.2.2 Connection request responses

Is there an order of precedence to the list future connection rates in the penultimate paragraph?

Page: 163

Sequence number: 4

Date: 2/19/2003 12:33:54 PM -06'00'

Type: Note

ACCEPT - DONE (paragraph being deleted because it is not a complete list of acceptance requirements.)

7.12.2.2 Connection request responses

Last paragraph. Shouldn't the list of reasons to transmit OPEN\_ACCEPT include that the INITIATOR bit is in an acceptable state as documented in 7.7.3?

Page: 163

Sequence number: 5

Date: 3/5/2003 3:25:57 PM -06'00'

Type: Highlight

ACCEPT - DONE (add definitions of deadlock and livelock to ch3)

7.12.3 Arbitration fairness

Fourth paragraph, last word. The term "livelocks" should either be eliminated (it is only used here) or a definition should be included.

Page: 163

Sequence number: 30

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE (made subsequent section at the same level)

7.12.3 Arbitration fairness

page 163

Hanging paragraph.

Page: 164

Sequence number: 1

Date: 2/19/2003 12:43:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (yes, added "and the opposite initiator bit")

7.12.3 Arbitration fairness

Paragraph 6. Do we also need to specify that the INITIATOR field is compatible with the role we were requesting?

Page: 168

Sequence number: 1

Date: 3/21/2003 6:43:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.5 Abandoning a connection request

The paragraph just below table 81 and above figure 69 breaks unnaturally across a page boundary, with the last two lines on the next page even though there is plenty of space on the previous page.

Page: 174

Sequence number: 1

Date: 3/1/2003 6:11:45 PM -06'00'

Type: Note

ACCEPT - DONE (changes per other comments)

7.13.2 SL transmitter and receiver

The last two paragraphs of this subclause are nearly identical to the last two paragraphs in 7.8.6 and thus have the same issues identified there. These paragraphs need similar changes.

Page: 174

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (this sentence deleted instead)

7.13.3.1 State description

In the third paragraph, neither of the confirmations listed are shown in figure 72. Please add them to the figure.

Page: 177

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (by is bye bye)

7.13.5.1 State description

Replace "by by" by "by" in the second paragraph.

Page: 177

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed 1/2/3/4 list and reworded)

7.13.5.2 Transition SL2:Selected to SL0:Idle

Each of the 4 conditions has an English problem with the phrase ", then after". The problem can be corrected by replacing ", then" with " and" in four places.

Page: 178

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.6.1 State description

Add either "(see SATA)" or "(see 7.17.4)" at the end of the fourth paragraph.

Page: 180

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE

#### 7.14.1 Overview

In the paragraph after the first list, delete "an after receiving".

Page: 184

Sequence number: 1

Date: 2/21/2003 7:35:11 PM -06'00'

Type: Highlight

ACCEPT - DONE (Tracking with another comment)

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

Item b) references a Transmit Break indication, but the indication does not appear as an input to the XL0:Idle state in figure 74.

Please add it.

Page: 184

Sequence number: 2

Date: 2/21/2003 7:35:24 PM -06'00'

Type: Highlight

ACCEPT - DONE (tracking with another comment)

7.14.2.2 Transition XL0:Idle to XL1:Request\_Path

Item a) references a Transmit Open indication, but the indication does not appear as an input to the XL0:Idle state in figure 74.

Please add it.

Page: 184

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (yes; also initiator connection tag)

7.14.3.1 State description

Should the second list include the INITIATOR bit?

Page: 185

Sequence number: 1

Date: 2/27/2003 6:04:07 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.4.1 State description

In the second paragraph, the Transmit Idle Dword parameter is referenced, but it does not appear for this state in figure 75. Please add it to the figure.

Page: 185

Sequence number: 2

Date: 2/27/2003 6:03:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.4.1 XL2 State description

In the third paragraph, the Transmit Open request is referenced, but it does not appear for this state in figure 75. Please add it to the figure.

Page: 187

Sequence number: 1

Date: 3/1/2003 4:55:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to the transition into this state)

7.14.7.1 State description

In the first paragraph, the Transmit Open indication is referenced, but it does not appear in figure 75 for this state. Please add it to the figure.

Page: 188

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.2 Transition XL6:Open\_Response\_Wait to XL0:Idle

The link (see 7.12.3) does not work.

Page: 188

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.3 Transition XL6:Open\_Response\_Wait to XL2:Request\_Open  
The link (see 7.12.3) does not work.

Page: 188

Sequence number: 3

Date: 3/1/2003 4:59:21 PM -06'00'

Type: Highlight

REJECT (but pulled all the invalid dword replacement functionality into this section, eliminating the need for any such link)

7.14.9.1 State description

In the fourth paragraph, replace "section 7.12.4" with "subclause 7.12.4." Also, make the link work.

Page: 193

Sequence number: 1

Date: 2/18/2003 7:08:34 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

The last two sentences of the last paragraph are run together. Add a space.

Page: 194

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.1 Overview

In the paragraph beginning with "The SSP\_TF state machine's...", replace "it" with "is".

Page: 194

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (per Mark Evans' suggested wording)

7.16.7.1 Overview

In the paragraph beginning with "The SSP\_RF state machine's...", replace "successful or unsuccessful received." with "successfully or unsuccessfully received.".

Page: 195

Sequence number: 1

Date: 3/1/2003 11:41:45 AM -06'00'

Type: Highlight

REJECT (maybe something can be done for SAS-2. The state machine itself is labeled part 1 which will have to suffice.)

7.16.7.1 Overview

Figure 82

(and Global)

The SSP\_TF3 state is split between two figures (not even consecutive figures). This is very confusing because there is no visual clue in the figure that the state is continued elsewhere. We should add some clue that it is continued somewhere else (perhaps the horizontal bar under the state name or the vertical bar should be dashed).

Page: 202

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state

In the fourth paragraph, replace "Received Frames" with "Frame Received".

Page: 204

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.1 STP frame transmission

Table 84 - SATA target port transmitting a frame

It the title of the second column, replace "or STP" with "or to STP".

Page: 204

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (throughout tables 84 and 85)

7.17.1 STP frame transmission

Table 84 - SATA target port transmitting a frame

Table 85 - STP initiator port transmitting a frame

"<repeats>" needs a better definition. If it means that the SATA\_X\_RDY primitive repeats, then replace it with "<SATA\_X\_RDY repeats>".

Page: 205

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (but new wording per IBM comment)

7.17.1 STP frame transmission

Last paragraph, third sentence.

Replace "...involved." with "...involved (except to repeat dwords)."

Page: 207

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.3 Preparing to close an STP connection

Second paragraph.

Replace "SCSI domain" with "SAS domain".

Page: 211

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (data dwords)

7.18.4.3.1.1 State description

Third paragraph. Replace "dword" with "dwords".

Page: 211

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.4.3.1.2 Transition SMP\_TL1:Wait\_originate\_frame to SMP\_TL2:Wait\_transmit\_frame

The first sentence of the first paragraph would be clearer if another "after" were included after the "and" as follows: "...after a valid SMP request frame is received and after sending..."

Page: 214

Sequence number: 1

Date: 3/21/2003 8:39:50 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.4 I\_T nexus loss timer

In list item a), replace "counting and assigned an expired status;" with "counting and shall be assigned an expired status;"

Page: 214

Sequence number: 2

Date: 3/21/2003 8:39:46 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.4 I\_T nexus loss timer

In list item b), replace "and assigned" with "and shall be assigned".

Page: 214

Sequence number: 3

Date: 3/21/2003 8:39:42 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.4 I\_T nexus loss timer

First paragraph, first sentence. Replace "is" with "shall be" or "may be", depending on whether this timer is mandatory or optional. Depending on this choice, the second sentence of this paragraph should start with "It shall be:" or "If implemented, it is:".

Page: 215

Sequence number: 1



Date: 3/21/2003 8:40:38 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (agree)

8.3.1 Overview

In the second list (of states), add references to 8.3.2 for the PL\_OC1:Idle state and to 8.3.3 for the PL\_OC2:Overall\_Control state.

Page: 215

Sequence number: 2

Date: 3/21/2003 8:40:31 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (should have said PL\_OC1:Idle)

8.3.1 Overview

In the last paragraph, last sentence. How can the Overall\_Control state machine transition to the PL\_PM1:Idle state, which is in another state machine? Should this sentence read, "The state machine shall transition to the PL\_OC2:Overall\_Control state after receiving a Phy Enabled confirmation from any phy assigned to the port."?

Page: 216

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE

8.3.2 8.3.2 PL\_OC1:Idle state

Delete redundant subclause number.

Page: 216

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE

8.3.2.1 8.3.2.1 State description

Delete redundant subclause number.

Page: 217

Sequence number: 1

Date: 3/21/2003 8:42:04 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3.1.1 State description overview

The example in the first line is an exhaustive list. Replace "e.g.," with "i.e.,".

Page: 217

Sequence number: 2

Date: 3/1/2003 4:11:10 PM -06'00'

Type: Strikeout

ACCEPT - DONE

8.3.2.2 8.3.2.2 Transition PL\_OC1:Idle to PC\_OC2:Overall\_Control

Delete redundant subclause number.

Page: 218

Sequence number: 1

Date: 3/21/2003 8:43:02 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (agree)

8.3.3.1.4 SSP wide port rules

First paragraph. Add forward reference to COMMAND frames subclause after "COMMAND frames". That is, "(see 9.2.4.1)".

Page: 218

Sequence number: 2

Date: 3/21/2003 8:42:53 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (agree)

8.3.3.1.4 SSP wide port rules

Second paragraph. Add forward reference to TASK frame subclause after "TASK frame". That is, "(see 9.2.4.2)".

Page: 218

Sequence number: 3

Date: 3/21/2003 8:42:46 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (agree)

#### 8.3.3.1.4 SSP wide port rules

Fifth paragraph. Add forward reference to DATA frame subclause after "DATA frame". That is, "(see 9.2.4.4)".

Page: 218

Sequence number: 4

Date: 3/21/2003 8:42:41 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (agree)

#### 8.3.3.1.4 SSP wide port rules

Sixth paragraph. Add forward reference to RESPONSE frame subclause after "RESPONSE frame". That is, "(see 9.2.4.5)".

Page: 219

Sequence number: 1

Date: 3/21/2003 8:43:46 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

#### 8.3.3.1.5 Filling in the Tx Frame arguments

In list item a), shouldn't "should" be "shall"?

Page: 221

Sequence number: 1

Date: 3/21/2003 8:44:53 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

#### 8.3.3.1.6 Confirmations

Global

In the last paragraph of this subclause, replace "running" with "running,".

Global: While English allows the last comma before an "and" or "or" to be omitted, it is less ambiguous to include the comma. This is especially true for lists within lists. This comment may apply elsewhere.

Page: 221

Sequence number: 2

Date: 3/21/2003 8:44:49 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (agree)

#### 8.4.1 Overview

In the second list (of states), add references:

- a) PL\_PM1:Idle (see 8.4.2);
- b) PL\_PM2:ReqWait (see 8.4.3);
- c) PL\_PM3:Connected (see 8.4.4); and
- d) PL\_PM4:Wait\_For\_Close (see 8.4.5).

Page: 224

Sequence number: 2

Date: 3/21/2003 8:45:46 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten) (you could get that response even if asking for an SSP connection, so have to handle it)

#### 8.4.3.1.2 PL\_PM I\_T nexus loss timer

First paragraph. This paragraph deals with SSP ports. Why is item d), which is an STP confirmation, in the list?

Page: 225

Sequence number: 1

Date: 3/21/2003 8:46:13 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

#### 8.4.3.1.4 Open Failed handling

In the first paragraph, fourth line, replace "Open Failure confirmation" with "Open Failed confirmation".

Page: 225

Sequence number: 2

Date: 3/21/2003 8:46:07 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

#### 8.4.3.1.4 Open Failed handling

Table 87 - Retry Frame conditions

In Table 87, is it obvious what is done if the I\_T nexus loss timer has expired and an Open Failed (Pathway Blocked) confirmation is received? If not, add a row to this table describing this case.

Page: 226

Sequence number: 1  
Date: 3/21/2003 8:47:20 AM -06'00'  
Type: Highlight  
REJECT (but port layer rewritten)  
8.4.4.1 State description  
The eighth paragraph refers to a DONE (ACK/NAK TIMEOUT) Received confirmation, which does not appear in figures 92 nor 93.  
Should the "DONE Transmitted" confirmation in figure 93 be "DONE Received"? If so, fix figure 93 and change the confirmation in this paragraph to be "DONE Received (ACK/NAK TIMEOUT) confirmation".

Page: 226  
Sequence number: 2  
Date: 3/21/2003 8:47:16 AM -06'00'  
Type: Highlight  
REJECT (but port layer rewritten)  
8.4.4.1 State description  
Ninth paragraph. This paragraph refers to a DONE Received confirmation going to the application layer and to a DONE Received confirmation coming from the link layer. Neither appears in figures 92 and 93.

Page: 226  
Sequence number: 3  
Date: 3/21/2003 8:47:13 AM -06'00'  
Type: Highlight  
REJECT (but port layer rewritten)  
8.4.4.1 State description  
Tenth paragraph. The "Close Connection request" in the third sentence does not appear in figures 92 nor 93.

Page: 226  
Sequence number: 4  
Date: 3/21/2003 8:46:55 AM -06'00'  
Type: Highlight  
REJECT (but port layer rewritten)  
8.4.4.1 State description  
Last paragraph. The "Close Connection request" in the second sentence does not appear in figures 92 nor 93.

Page: 228  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (it's the retransmit bit)  
9.2.1 SSP frame format  
Table 88 - SSP frame format  
Byte 10 includes a TIMEOUT bit that is not described.

Page: 229  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (the TIMEOUT bit should have been RETRANSMIT)  
9.2.1 SSP frame format  
The fourth paragraph below Table 89 refers to a RETRANSMIT bit, but this bit does not appear in Table 88. Where does it go?

Page: 230  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.1 SSP frame format  
Penultimate paragraph. Find some way to prevent the 1 024 from wrapping from one line to the next line.

Page: 233  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.2.3 XFER\_RDY information unit  
First paragraph under table 94. The reference to 10.1.1.1.5 is wrong and the link does not work. I think this reference should be to 10.1.6.1.5.

Page: 233

Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.2.3 XFER\_RDY information unit  
Last paragraph. The reference to 10.1.1.1.5 is wrong and the link does not work. I think this reference should be to 10.1.6.1.5.

Page: 244  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (the UnOrderList0Reset paragraph tag was marked to "Keep with next" which is unnecessary)  
9.2.6.2.1 Overview  
The penultimate paragraph wraps unnaturally to the top of a new page when there is plenty of room for it on the previous page.

Page: 244  
Sequence number: 2  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (but then decided to remove it entirely)  
9.2.6.2.1 Overview  
Figure 98 - SSP transport layer (ST) state machines - initiator device  
Replace "DONE (ACK/NAK TIMEOUT) Received" with "DONE Received (ACK/NAK TIMEOUT)".

Page: 246  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
REJECT (this is making sure the ACK went out for the XFER\_RDY)  
9.2.6.2.2.1 State description  
In item e) describing the XFER\_RDY Arrived parameter, replace "ACK Transmitted" with "ACK Received".

Page: 247  
Sequence number: 1  
Date: 2/16/2003 11:41:33 AM -06'00'  
Type: Highlight  
REJECT (this is waiting to ensure the ACK is sent out for the XFER\_RDY before starting to send data frames)  
9.2.6.2.2.3 Transition ST\_ISF1:Send\_Frame to ST\_ISF3:Prepare\_Send\_Data\_Out  
In item b) of the list, replace "ACK Transmitted" with "ACK Received".

Page: 247  
Sequence number: 2  
Date: 2/28/2003 5:39:58 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (values)  
9.2.6.2.3.1 State description  
In the second paragraph, replace "the following received" with "the following fields received".

Page: 247  
Sequence number: 3  
Date: 2/28/2003 5:39:41 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (values)  
9.2.6.2.3.1 State description  
In the third paragraph, replace "the following received" with "the following fields received".

Page: 247  
Sequence number: 4  
Date: 2/28/2003 5:39:29 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (values)  
9.2.6.2.3.1 State description  
In the fourth paragraph, replace "the following" with "the following fields".

Page: 247  
Sequence number: 5  
Date: 2/28/2003 5:39:19 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (values)

#### 9.2.6.2.4.1 State description

In the first paragraph, replace "the following" with "the following fields".

Page: 247

Sequence number: 6

Date: 2/28/2003 5:39:03 PM -06'00'

Type: Highlight

ACCEPT - DONE ("values")

#### 9.2.6.2.4.1 State description

In the second paragraph, replace "the following" with "the following fields".

Page: 248

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed this transition altogether)

#### 9.2.6.2.5.2 Transition ST\_IRD1:Receive\_Data\_In to ST\_IRD2:Process\_Received\_Data\_In

Don't we only want to make this transition after verifying that everything is correct with the received DATA frame?

Replace "...any value...has..." with "...all values...have...".

Page: 249

Sequence number: 1

Date: 2/28/2003 5:38:16 PM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

First paragraph, item d). Replace "a hard reset occurs" with "a HARD\_RESET Received indication is received".

Page: 250

Sequence number: 1

Date: 3/1/2003 4:36:40 PM -06'00'

Type: Highlight

REJECT (but deleted hard reset from here. Added separate paragraph forwarding HARD\_RESET Received upstream)

#### 9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

Third paragraph. Replace "Frame Received (Frame Failed) or a hard reset," with "Frame Received (Frame Failed) indication or a HARD\_RESET Received indication,".

Page: 250

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleting entire paragraph. This was passing up DONE Received (ACK/NAK Timeout vs. normal) status so the application could decide when to reuse tags. Responses to other comments make that vendor-specific, so we can remove this confirmation.)

#### 9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

Fourth paragraph. How shall this state "notify the application layer"? I presume it needs to send a some kind of confirmation to the application layer.

Page: 250

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state

Item c) in the last list. Replace "Data-in parameter" with "Data-in Arrived parameter"

Page: 252

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT - hard reset is more than a signal

#### 9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state

First paragraph, item c). Replace "a hard reset occurs" with "a HARD\_RESET Received indication is received".

Page: 252

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT - hard reset is more than a signal  
9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state  
Third paragraph. Replace "a hard reset" with "a HARD\_RESET Received indication".

Page: 254

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Strikeout

ACCEPT - DONE (magic is good)

9.2.6.3.4.1 State description

Second paragraph. Minimally, delete "this state" as the Send Data-In transport protocol service request was not received by this state. However, this correction implies that the ST\_TTS2 state magically knows how the ST\_TTS1 state got started. It is probably better to say, "If this state was entered from the ST\_TTS1:Request\_Response\_Router state, ..."

Page: 254

Sequence number: 2

Date: 2/28/2003 5:26:46 PM -06'00'

Type: Highlight

ACCEPT - DONE (change to "and this state has received an ACK Transmitted confirmation for each frame previously received (i.e., received with a Data-Out Arrived message)" in both paragraphs above. Add note that these rules are mainly for wide port hopping. Check first paragraph on the page too.)

9.2.6.3.4.1 State description

Fifth paragraph. Replace "ACK Transmitted" with "ACK Received".

Page: 254

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.1 State description

Seventh paragraph. It seems odd to say this state shall receive a Transmission Status confirmation from another state machine. Perhaps we should say "this state shall wait to receive".

Page: 254

Sequence number: 4

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.1 State description

Tenth paragraph. Same problem with "this state shall receive".

Page: 256

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6.1 State description

Second paragraph. Replace "ST\_TS1" with "ST\_TTS1".

Page: 256

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6.1 State description

First paragraph, item a). Replace "ST\_TS1" with "ST\_TTS1".

Page: 259

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Second paragraph, item d). Replace "CLOSE CLEAR AFFILIATION)" with "CLOSE (CLEAR AFFILIATION)".

Page: 264

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.3.2 Transition MT\_ID2:Send to MT\_ID1:Idle

Replace "and sending" with "and after sending".

Page: 264

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.3.1 Overview

Replace "MT\_TD2:Send" with "MT\_TD2:Respond".

Page: 269

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.5 Command Complete Received transport protocol service

First paragraph. Replace "not" with "to".

Page: 272

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.10 Send Task Management Request transport protocol service

Replace the service request with the correct one:

"Send Task Management Request (IN (Nexus, Function Identifier ) )"

Page: 273

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.11 Task Management Request Received transport protocol service

Replace the service indication with the correct one:

"Task Management Request Received (IN (Nexus, Function Identifier ) )"

Page: 274

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.12 Task Management Function Executed transport protocol service

Replace the service response with the correct one:

"Task Management Function Executed (IN (Nexus, Service Response ) )"

Page: 274

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.13 Received Task Management Function-Executed transport protocol service

Replace the service confirmation with the correct one:

"Received Task Management Function Executed (IN (Nexus, Service Response ) )"

Page: 276

Sequence number: 1

Date: 3/11/2003 4:35:02 PM -06'00'

Type: Highlight

ACCEPT - DONE (non-breaking space placed before each "()". It's debatable whether the () are even needed.)

10.1.3 Application client error handling

Third paragraph. The "()" should not be allowed to wrap onto a new line. Does Frame have an equivalent function to Word's non-breaking space?

Page: 277

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.1 Disconnect-Reconnect mode page overview

First paragraph. Replace "(e.g., as if the mode page is implemented and the field is set to zero)" with "(i.e., as if the field in the mode page is implemented and the field is set to zero)".

Page: 287

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Note

ACCEPT - DONE

10.1.8 SCSI power condition states

To be consistent with the other subclauses in this standard, add forward references (with links) to the relevant subclauses in the second list (items a through g should point to 10.1.8.1 through 10.1.8.7).

Page: 288

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8 SCSI power condition states

Figure 103 — SCSI application layer power condition (SA\_PC) state machine for SAS

This state machine looks different from the other state machines. Minimally add the gold box.

Page: 289

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (already ref SPC-3 in the state description text)

10.1.8.2.2 Transition SA\_PC\_1:Active to SA\_PC\_2:Idle

Item c). Replace "Power Condition mode page idle timer expires" with "Power Condition mode page idle condition timer (see SPC-3) expires".

Page: 289

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (already ref SPC-3 in the state description text)

10.1.8.2.3 Transition SA\_PC\_1:Active to SA\_PC\_3:Standby

Item c). Replace "Power Condition mode page standby timer expires" with "Power Condition mode page standby condition timer (see SPC-3) expires".

Page: 289

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT (already ref SPC-3 in the state description text)

10.1.8.3.3 Transition SA\_PC\_2:Idle to SA\_PC\_3:Standby

Item c). Replace "Power Condition mode page standby timer expires" with "Power Condition mode page standby condition timer (see SPC-3) expires".

Page: 291

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT - already referenced in the intro

10.1.8.6.3 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_3:Standby

Item c). Replace "Power Condition mode page standby timer expires" with "Power Condition mode page standby condition timer (see SPC-3) expires".

Page: 291

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT - already referenced in the intro

10.1.8.6.5 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_6:Idle\_Wait

Item c). Replace "Power Condition mode page idle timer expires" with "Power Condition mode page idle condition timer (see SPC-3) expires".

Page: 291



Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

REJECT - already referenced in the intro

10.1.8.7.3 Transition SA\_PC\_6:Idle\_Wait to SA\_PC\_3:Standby

Item c). Replace "Power Condition mode page standby timer expires" with "Power Condition mode page standby condition timer (see SPC-3) expires".

Page: 299

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG; removed all the function result text from each function and moved into 10.3.1.1 big table for all functions. In that table, PHY DOES NOT EXIST is used whenever appropriate.)

10.3.1.4 DISCOVER function

Second paragraph below table 134. Why not use a FUNCTION RESULT of PHY DOES NOT EXIST, which we define in table 136?

Page: 302

Sequence number: 3

Date: 3/21/2003 6:43:42 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The paragraph between tables 138 and 139 wraps onto the next page even though there is room on the previous page for the whole paragraph.

Page: 311

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.8 CONFIGURE ROUTE INFORMATION function

Second paragraph below table 150. The link to 9.4.4.2 is wrong and does not work.

Page: 312

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (fixed the reference)

10.3.1.8 CONFIGURE ROUTE INFORMATION function

Third paragraph below table 150. Either find the subclause number for the see 4.x.x.x reference or delete it.

Page: 312

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.8 CONFIGURE ROUTE INFORMATION function

Paragraph between tables 151 and 152. The reference to table 149 should be to table 152.

Page: 324

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

B.1 SAS phy reset sequence examples

In the first paragraph, replace "Figure A.1" with "Figure B.1".

Page: 324

Sequence number: 2

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

B.1 SAS phy reset sequence examples

In the first paragraph below figure B.1, replace "Figure A.2" with "Figure B.2".

Page: 324

Sequence number: 3

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (An ordered list works much better. Also tossed the "valid" and "invalid" wording.)

B.1 SAS phy reset sequence examples

First paragraph, last sentence. This sentence does not make sense. Consider replacing "...invalid), that phy then selects..." with "...invalid). Both phys then select..."

Page: 325

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE (An ordered list works much better. Also tossed the "valid" and "invalid" wording.)

B.1 SAS phy reset sequence examples

Paragraph above Figure B.2, last sentence. This sentence does not make sense. Consider replacing "...invalid), that phy then selects..." with "...invalid). Both phys then select..."

Page: 377

Sequence number: 1

Date: 2/16/2003 11:41:33 AM -06'00'

Type: Highlight

ACCEPT - DONE

Annex I

Global

There are several places where C comments wrap to the next line. This code will not compile correctly. We need to correct these wrapping comments.

Page: 382

Sequence number: 2

Date: 3/15/2003 10:53:53 AM -06'00'

Type: Note

ACCEPT - DONE (added new "SAS icon" from SCSI trade association.)

Annex J SAS logo

Figure J.1 — SAS logo

We should change this logo to match the one selected by the SCSI Trade Association.

## Author: MSFT

---

Page: 259

Sequence number: 13

Date: 3/11/2003 6:02:25 PM -06'00'

Type: Note

ACCEPT - DONE (3/11 WG added "An affiliation established when the command is transmitted shall be maintained until all frames for the command have been delivered. An STP initiator port implementing command queuing shall maintain an affiliation while any commands are outstanding. This avoids confusing the SATA device, which only knows about one SATA host. STP initiator ports may keep affiliations for longer tenures, but this is discouraged.")

.3.2 SATA tunneling for multiple initiator ports

The affiliation mechanism creates a policy that encourages initiators to

fight over resources. The policy that multiple initiators shouldn't be actively connecting to an STP target shouldn't be enforced by hardware. It

should be a usage convention.

[key concern is resources coming and going as seen by an OS]

## Author: MXO

---

Page: i

Sequence number: 1

Date: 2/28/2003 6:13:24 PM -06'00'

Type: Note

REJECT (Enable Disable SAS Link is an intra-layer signal from SL\_IR to SL and XL. Enable Disable Link Layer is a inter-layer signal from SP\_DWS to SL\_IR. They're not the same.)

Global

Replace "Enable Disable SAS Link (Enable)" with "Enable Disable Link Layer (SAS Enable)".

Page: i

Sequence number: 2

Date: 2/28/2003 6:13:11 PM -06'00'

Type: Note

REJECT (Enable Disable SAS Link is an intra-layer signal from SL\_IR to SL and XL. Enable Disable Link Layer is a inter-layer signal from SP\_DWS to SL\_IR. They're not the same.)

Global

Replace "Enable Disable SAS Link (Disable)" with "Enable Disable Link Layer (Disable)".

Page: i

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (changed where it is clear, e.g. SMP requests and SMP responses. Mode pages go both directions, so neither is more correct; changed to "contains" or "means" in several instances. Address frames come from any type of device; since "indicate" was predominant, left them alone.)

Global

Replace "indicate" and all of its forms by the correct form of "specify" when the value or action originates with the initiator.

Page: x

Sequence number: 1

Date: 2/20/2003 9:27:02 AM -06'00'

Type: Note

ACCEPT - DONE

Table of contents, 4.3.3.4 Signals between link layer, port layer, and management application layer for all protocols

Align the page number properly.

Page: xvi

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 7.8.6.2.3.2 Transition SL\_IR\_RIF2:Receive\_Identify\_Frame to SL\_IR\_RIF3:Completed

Align the page number properly.

Page: xix

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 7.18.4.2.2.2 Transition SMP\_IL2:Indicate\_frame\_tx to SMP\_IL3:Rcv\_response\_frame

Align the page number properly.

Page: xx

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 9.2.6.2.2.2 Transition ST\_ISF1:Send\_Frame to ST\_ISF2:Prepare\_Command\_Request

Align the page number properly.

Page: xxi

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 9.2.6.2.3.2 Transition ST\_ISF2:Prepare\_Command\_Request to ST\_ISF1:Send\_Frame

Align the page number properly.

Page: xxi

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 9.2.6.3.6.3 Transition ST\_TTS4:Receive\_Data\_Out to ST\_TTS5:Prepare\_XFER\_RDY

Align the page number properly.

Page: xxi

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (track with IBM comment)

Table of contents, 9.2.6.3.7.2 Transition ST\_TTS5:Prepare\_XFER\_RDY to ST\_TTS4:Receive\_Data\_Out

Align the page number properly.

Page: 6

Sequence number: 7

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (definition from FC-MJSQ letter ballot.)

3.1.24 deterministic jitter

Rewrite this definition to be something like: "Jitter from all sources for which the probability of a variation in interval occurring outside the specified bounds is zero. These sources include duty cycle distortion, data dependent jitter, sinusoidal dependent jitter, and jitter uncorrelated to the data."

Page: 8

Sequence number: 7

Date: 3/5/2003 5:02:50 PM -06'00'

Type: Highlight

REJECT (no, the expander model uses it too)

3.1.62 indication

In this standard an indication is passed from a transport layer to an application layer only.

Page: 9

Sequence number: 8

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - expander state machines use it too

3.1.98 response

In this standard a response is passed from an application layer to a transport layer only.

Page: 11

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (with specific wording from the OPEN address frame field definition)

Definitions, 3.1.x

Add a definition for pathway blocked count something like the following, "Pathway blocked count (PBC): the number of times that a pathway has been blocked when attempting to open a connection."

Page: 17

Sequence number: 4

Date: 3/3/2003 5:55:00 PM -06'00'

Type: Strikeout

REJECT

3.5.2 Transitions, third paragraph

Delete the word "fully".

Page: 21

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.3 Ports (narrow ports and wide ports), NOTE 6

In the first sentence replace "primarily" with "e.g.,"

Page: 34

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

4.2.3 Hashed SAS address

Add the following paragraph at the end of this clause: "Annex D contains information on SAS address hashing."

Page: 39

Sequence number: 1

Date: 3/8/2003 12:27:37 PM -06'00'

Type: Note

ACCEPT - DONE (not blindly replace, but merge in some of the proposal. The proposal lists state names receiving each signal. The tables are hard enough to keep updated as is. Perhaps a better suggestion is to remove these tables altogether.)

#### 4.3.3 Signals between state machines

Replace this clause with T10/03-023r0.

Page: 49

Sequence number: 4

Date: 3/8/2003 5:27:08 PM -06'00'

Type: Highlight

REJECT (too much detail for chapter 4)

4.5 I\_T nexus loss, first paragraph

Change the first sentence from, "When a port receives OPEN\_REJECT (NO DESTINATION), OPEN\_REJECT (CONNECTION RATE NOT

SUPPORTED), or an open connection timeout in response to a connection request, it shall retry the connection request until:" to something like,

"When a port receives OPEN\_REJECT (NO DESTINATION), OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED), or an open connection timeout in response to a connection request, it shall retry the connection request. After receiving an OPEN\_REJECT (NO DESTINATION) or after an open connection time out, the port shall use the same OPEN address frame to retry the connection. After receiving an OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED), the port shall send a new OPEN address frame with the connection rate changed as described in 7.12.2.2. The connection request shall be retried until:"

Page: 65

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG Accept except use "(see SATA)" instead of "(for reference)" at the end of the sentence.)

5.1 SATA cables and connectors (informative), first paragraph

Figure 31 doesn't really show the cables and connectors, so the first sentence should be changed to something like, "Figure 31 shows a schematic representation of the cables and connectors defined by SATA (for reference)."

Page: 65

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG

Accept except use "analogous" for "equivalent" or "analogue".)

5.1 SATA cables and connectors (informative), first paragraph

The second sentence implies too much of a similarity between SATA and SAS devices. Either delete this sentence or change it to something like, "A SATA host is an analogue to a SAS initiator device; a SATA device is an analogue to a SAS target device."

Page: 66

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG)

5.2 SAS cables and connectors

As above, Figure 32 doesn't really show the cables and connectors, so the sentence should be changed to something like, "Figure 32 shows a schematic representation of the cables and connectors defined in this standard to support an external environment."

Page: 71

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin, first paragraph

Change "turn on" to "activate".

Page: 71

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin, second paragraph

In the second sentence change "when the READY LED signal is raised" to "when the READY LED signal is asserted."

Page: 71

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (but per PHY WG deleted whole sentence)

5.6 READY LED pin, third paragraph

Change the second sentence to: "The READY LED circuitry in the target device shall be ground tolerant since this pin may be connected by a system directly to power supply ground."

Page: 71

Sequence number: 6

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (but sentence deleted)

5.6 READY LED pin, fifth paragraph

Change "turn on" to "activate".

Page: 71

Sequence number: 7

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin, bulleted list, item a)

Change the second sentence to: "In this state the target device may be removed with no danger of mechanical or electrical damage;"

Page: 71

Sequence number: 8

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per SAS PHY WG, change to:

When processing a command, the target device shall toggle the READY LED signal in a vendor-specified manner (e.g., the LED is usually on, but is momentarily off when commands are processed);)

5.6 READY LED pin, bulleted list, item c)

The second sentence ("When processing a command, the target device shall negate READY LED for a period long enough to be detected by an observer (i.e., LED is usually on, but flashes off when commands are processed);" is vague in the extreme. At least add some "example" times.

Page: 71

Sequence number: 9

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (but sentence deleted)

5.6 READY LED pin, fifth paragraph

Change "...may optionally be driven..." to "...may be driven..."

Page: 71

Sequence number: 10

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG, change to:

If the target device is formatting the media, it shall toggle the READY LED signal in a vendor-specific manner (e.g., with each cylinder change on a disk drive).)

5.6 READY LED pin, bulleted list, item d)

The first sentence ("If the target device is formatting the media, it shall toggle READY LED between asserted and negated at significant intervals during the format operation (e.g., with each cylinder change on a disk drive).") is also vague in the extreme. What is a "significant interval". At least add some "example" times.

Page: 74

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG)

5.7.3.1 Eye masks overview, first paragraph

In the last sentence change "sigma" to "standard deviations".

Page: 77

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.7.4 page 77

Table 35

Change Note c:

... unpowered or during idle time of an OOB signal.

5.7.4 Transmitted signal characteristics, Table 35 - Transmitted signal characteristics at Tx compliance points

In note c) change "...logically turned off..." to "...not being driven..."

Page: 82

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed satisfies to is given by)

5.7.11 Transmitter characteristics, fourth paragraph

In the last sentence replace "...satisfies the following equation." with "...shall satisfy the following equation."

Page: 82

Sequence number: 2

Date: 2/21/2003 4:31:06 PM -06'00'

Type: Highlight

ACCEPT - DONE (equation completely rewritten by phy WG).

5.7.11 Transmitter characteristics

Replace the equation after the fourth paragraph with:

$|S_{21}| = -\{20 \log_{10}(e)\} \{[6,5 \times 10^{-6} (f^{0,5})] + [2,0 \times 10^{-10} (f)] + [3,3 \times 10^{-20} (f^2)]\} \text{ dB}$

Page: 82

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (per phy WG, Add text at the end of the last sentence in the paragraph so that the sentence reads: "A compliance interconnect is any physical interconnect with equal or greater loss at frequencies from 150 MHz to 3,0 GHz and that also meets the ISI loss requirements shown in figures 42 and 43.")

5.7.11 Transmitter characteristics, fifth paragraph

Add text at the end of the last sentence in the paragraph so that the sentence reads: "A compliance interconnect is any physical interconnect with equal or greater loss at all frequencies than that required by the TCTF and that also meets the ISI loss requirements shown in figures 42 and 43."

Page: 82

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG Delete "an" to resolve MXO comment)

5.7.10 Electrical TxRx connections, first paragraph

Change "media" to "medium" (AN electrically conductive MEDIUM).

Page: 86

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.2 Encoding (8b10b), 6.2.1 Encoding overview, first paragraph

In the first sentence, change "10 bit" to "10-bit". There are four additional occurrences of different values in this clause to change. There are no other occurrences of this in the draft.

Page: 86

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.2 Encoding (8b10b), 6.2.1 Encoding overview, second paragraph

Change "four byte" to "four-byte".

Page: 86

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.2 Encoding (8b10b), 6.2.1 Encoding overview, third paragraph after Table 40 - Special character usage

Change "10 bit" to "10-bit".

Page: 86

Sequence number: 5  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.2 Encoding (8b10b), 6.2.1 Encoding overview, third paragraph after Table 40 - Special character usage  
Change "8 bit" to "8-bit".

Page: 86  
Sequence number: 6  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.2 Encoding (8b10b), 6.2.1 Encoding overview, third paragraph after Table 40 - Special character usage  
Change "10 bit" to "10-bit".

Page: 86  
Sequence number: 7  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (added definitions for disparity and running disparity from FC-FS. Changed several uses of "disparity" to "running disparity" throughout SAS to match the definitions.)  
6.2 Encoding (8b10b), 6.2.1 Encoding overview, third paragraph  
The term "disparity" is introduced without definition. Either add definitions for the various forms of "disparity", or reference 6.3.3 Valid and invalid transmission characters.

Page: 86  
Sequence number: 8  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Strikeout  
REJECT (it's a significant increase, why not communicate that)  
6.2.2 8b10b coding introduction, second paragraph  
In the second sentence, delete the word "greatly".

Page: 86  
Sequence number: 9  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Strikeout  
REJECT (any pattern is recognizable. The fact that a comma is all zeros makes it easy to detect with simpler logic.)  
6.2.2 8b10b coding introduction, second paragraph  
In the third sentence, delete the word "easily".

Page: 87  
Sequence number: 1  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (and following sentence too. D vs. K is always used in the Dxx.y format; I don't think this section applies to normal data references)  
6.2.3 8b10b encoding notation conventions, fourth paragraph  
Delete the sentence, "The control variable is typically not specified." Item a) in the following bulleted list states what the values of the control variable are.

Page: 97  
Sequence number: 1  
Date: 3/21/2003 6:42:57 PM -06'00'  
Type: Note  
ACCEPT - DONE  
6.5 Out of band (OOB) signals, third paragraph after Table 48 - OOB signal receiver requirements  
Delete the page break in this paragraph.

Page: 100  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (enters the SATA speed negotiation sequence after COMWAKE)  
6.6.3 SAS to SATA phy reset sequence, sixth paragraph  
In the last sentence delete the word "normal" or describe an abnormal SATA reset sequence.

Page: 109  
Sequence number: 2



Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

6.8.2 OOB sequence states, Figure 56 - SAS phy (SP) state machine - OOB sequence states

Add a "Broadcast Event Notify" confirmation from SP1:OOB\_COMINIT (this has the argument Phy Not Ready).

Page: 109

Sequence number: 3

Date: 3/11/2003 4:03:44 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved SP1 to SP0, SP2 to SP1, created new SP2 to serve as a return path which honors COMINIT but not COMSAS)

6.8.2 OOB sequence states, Figure 56 - SAS phy (SP) state machine - OOB sequence states

The COMSAS detect timeout transition from SP7:OOB\_AwaitCOMSAS cannot go to SP2:OOB\_AwaitCOMX because this would cause another COMSAS to be transmitted. Add another state to which this transition goes where the timer resides. Then, after the timer expires, a hot-plug timeout would cause a transition to SP1:OOB\_COMINIT.

Page: 110

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (global)

6.8.2.1 SP1:OOB\_COMINIT state, 6.8.2.1.1 State description

Change "PhyNotReady" to "Phy Not Ready".

Page: 110

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (as "In expander devices,... Notify (Phy Not Ready) ...")

6.8.2.1 SP1:OOB\_COMINIT state, 6.8.2.1.1 State description

Add "This state shall send a Broadcast Event Notify confirmation to the expander function."

Page: 112

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed to the new SP2 state)

6.8.2.7.5 Transition SP7:OOB\_AwaitCOMSAS to SAS\_AwaitNoCOMX

Based on a previous comment, this transition should be deleted (also, there is no SAS\_AwaitNoCOMX state).

Page: 115

Sequence number: 5

Date: 2/21/2003 2:51:21 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.4 SP11:SAS\_AwaitALIGN1 state, 6.8.3.4.1 State description, second paragraph

Change "ALIGN0" to "ALIGN1".

Page: 123

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

6.9.3 SP\_DWS1:Valid1 state

There is a transition description missing. Add: "6.9.4.3 Transition SP\_DWS1:Valid1 to SP\_DWS0:AcquireSync, This transition shall occur when an invalid dword is detected."

Page: 127

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - fine as is

7.1.1 Primitives overview, first paragraph

Change the second sentence to: "Primitives are neither big-endian nor little-endian; they shall be interpreted as first, second, third, and last bytes."

Page: 137

Sequence number: 4

Date: 2/17/2003 1:00:12 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.4 BROADCAST, second paragraph after Table 59 - BROADCAST primitives  
In the last sentence change "dropped" to "ignored".

Page: 138

Sequence number: 4

Date: 2/17/2003 1:05:56 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "for clock skew management and rate matching. Did not put in the i.e.)

7.1.4.9 NOTIFY, first paragraph

It could be problematic to send a NOTIFY during the phy reset sequence. Therefore, change the first sentence to: "A NOTIFY may be sent in place of an ALIGN during rate matching and clock skew management (i.e., a NOTIFY shall not be sent in place of an ALIGN during character and dword alignment during the phy reset sequence."

Page: 139

Sequence number: 1

Date: 2/17/2003 1:51:17 PM -06'00'

Type: Note

ACCEPT - DONE (but point to 7.11.2.2 not 4.5)

7.1.4.11 OPEN\_REJECT, Table 61 - OPEN\_REJECT abandon primitives, description for OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED)

Add a parenthetical something like the following to the last sentence, "(the connection shall be retried as described in 4.5)."

Page: 139

Sequence number: 2

Date: 2/17/2003 1:45:25 PM -06'00'

Type: Highlight

ACCEPT - DONE ("would have to be routed")

7.1.4.11 OPEN\_REJECT, Table 61 - OPEN\_REJECT abandon primitives

In the description of OPEN\_REJECT (BAD DESTINATION) change "needs to be routed" to "is to be routed".

Page: 142

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.5.6 RRDY (Receiver ready), Table 65 - RRDY primitives

Delete RRDY (RESERVED 2) as there is no such primitive.

Page: 144

Sequence number: 2

Date: 2/17/2003 4:44:16 PM -06'00'

Type: Highlight

REJECT (the note is correct as written, but the transmit rule needs to say that's for transmitting to SATA only. Add "The ALIGNs received by the expander device containing the STP/SATA bridge may not arrive in pairs" to start the note. Pull the the last sentence out of the note into the paragraph above.)

7.2 Clock skew management, note 19

Delete this note. An expander device may delete all ALIGNs only so long as the rules described in Table 66 are met.

Page: 145

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.4.2 CRC generation, NOTE 21

Delete the word "simply".

Page: 147

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.4.3 CRC checking

Delete the last paragraph ("Annex B contains examples of CRC generation/checker implementations.") as this is already stated in the Overview clause (see 7.4.1).

Page: 151

Sequence number: 2  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.7.2 IDENTIFY address frame  
Reorder the paragraphs below Table 73 - Device types such that the descriptions of the fields are in the common-practice order of their appearance in the table (i.e., top to bottom and left to right).

Page: 151  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.7.2 IDENTIFY address frame  
Add the following paragraph after Table 73 - Device types: "The ADDRESS FRAME TYPE field shall be set to 0h."

Page: 152  
Sequence number: 2  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.7.3 OPEN address frame  
Reorder the paragraphs below Table 74 - OPEN address frame format such that the descriptions of the fields are in the common-practice order of their appearance in the table (i.e., top to bottom and left to right).

Page: 155  
Sequence number: 4  
Date: 2/21/2003 7:14:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (with rewording per other comments)  
7.8.2 Initiator device specific rules, second paragraph  
Reword this to: "When a discover process is performed after a link reset sequence, the application client may discover all of the devices in the SAS domain. When a discover process is performed after a BROADCAST (CHANGE), the application client may determine what has changed in the SAS domain."

Page: 155  
Sequence number: 5  
Date: 3/5/2003 8:42:35 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (and moved to 4.6.11.3 Expander route table section. Change to \_may\_ disable the port attached to the already-seen SAS address. If it does choose to do so, it shall disable all phys attached to that SAS address but the lowest numbered phy on the expander device with the lowest SAS address.)  
7.8.2 Initiator device specific rules, fourth paragraph  
Reword this to: "If during the discover process (see 4.6.11.5) the application client detects two ports with the same SAS address, it has found a routing loop. To break the loop the application client shall use the CONFIGURE ROUTE INFORMATION function (see 10.3.1.8) to disable the expander port through which the duplicate SAS address was detected."

Page: 156  
Sequence number: 1  
Date: 3/1/2003 6:17:55 PM -06'00'  
Type: Highlight  
REJECT (this state machine is not used for SATA; SATA spec covers that mode)  
7.8.5 Identification and hard reset (SL\_IR) state machines, 7.8.5.1 Overview, Figure 67 - SAS link layer identification and hard reset (SL\_IR) state machines  
In the SL\_IR\_TIR1 state: delete "(SAS Enable)" as the argument for this confirmation may be either (SAS Enable) or (SATA Enable).

Page: 156  
Sequence number: 2  
Date: 3/1/2003 6:17:52 PM -06'00'  
Type: Highlight  
REJECT (this state machine is not used for SATA; SATA spec covers that mode)  
7.8.5 Identification and hard reset (SL\_IR) state machines, 7.8.5.1 Overview, Figure 67 - SAS link layer identification and hard reset (SL\_IR) state machines  
In the SL\_IR\_RIF1 state: delete "(SAS Enable)" as the argument for this confirmation may be either (SAS Enable) or (SATA Enable).

Page: 156  
Sequence number: 3

Date: 3/1/2003 6:18:03 PM -06'00'

Type: Highlight

REJECT (this state machine is not used for SATA; SATA spec covers that mode)

7.8.5 Identification and hard reset (SL\_IR) state machines, 7.8.5.1 Overview, Figure 67 - SAS link layer identification and hard reset (SL\_IR) state machines

In the SL\_IR\_IRC1 state: delete "(SAS Enable)" as the argument for this confirmation may be either (SAS Enable) or (SATA Enable).

Page: 156

Sequence number: 4

Date: 2/19/2003 5:38:41 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.5 Identification and hard reset (SL\_IR) state machines, 7.8.5.1 Overview, Figure 67 - SAS link layer identification and hard reset (SL\_IR) state machines

In the SL\_IR\_IRC2 state: Add a "HARD\_RESET Received" confirmation from this state to the upper layers. This is already partly in the text for this state, and another Maxtor comment to the text clarifies this.

Page: 156

Sequence number: 5

Date: 2/19/2003 5:38:20 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.5 Identification and hard reset (SL\_IR) state machines, 7.8.5.1 Overview, Figure 67 - SAS link layer identification and hard reset (SL\_IR) state machines

In the SL\_IR\_IRC2 state: add the "Identification Sequence Complete" confirmation to the management application layer. This is described in the corresponding text for this state.

Page: 157

Sequence number: 3

Date: 3/1/2003 6:15:25 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted paragraph; SL\_IR state machines handle frame parsing)

7.8.6 SL\_IR transmitter and receiver, third paragraph

Reword this to: "The SL\_IR receiver shall ignore any primitives received inside an OPEN address frame (i.e., after an SOAF but before the subsequent EOAF) except SOAF and BREAK. If a receiver receives a second SOAF after receiving an SOAF but before receiving a subsequent EOAF, then the receiver shall ignore the dwords before the second SOAF (i.e., the receiver shall consider the second SOAF as the start of a new IDENTIFY address frame). If a receiver receives a BREAK after receiving an SOAF but before receiving a subsequent EOAF, then the receiver shall ignore the dwords before the BREAK (i.e., ignore the IDENTIFY address frame)."

Page: 160

Sequence number: 6

Date: 2/28/2003 12:47:43 PM -06'00'

Type: Highlight

ACCEPT - DONE (got rid of the "to" so it's implicitly to the next layer.)

7.8.6.3.3 SL\_IR\_IRC2:Wait state, 7.8.6.3.3.1 State description, fourth paragraph

Change "management application layer" to "port layer". Other Maxtor comments have the port layer sending this to the transport layer, then to the application layer.

Page: 161

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (request THAT an expander device set) (but whole section deleted)

7.10 Near-end analog loopback test, second paragraph after Figure 68 - Test modes

Change "...device set..." to "...device to set..."

Page: 161

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (whole section deleted)

7.10 Near-end analog loopback test, third paragraph after Figure 68 - Test modes

Change "...the application client shall transmit a BREAK or CLOSE..." to "...the application client shall request that a BREAK or CLOSE be transmitted..."

Page: 162

Sequence number: 3

Date: 2/17/2003 5:40:07 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.2.1 Connection request, third paragraph

Delete the clause "but they may do so" at the end of the third sentence.

Page: 162

Sequence number: 4

Date: 2/17/2003 5:34:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.2.1 Connection request, second paragraph

Change the last phrase in the second sentence from "...decides to abandon the connection request with BREAK." to "...abandons the connection request with BREAK."

Page: 162

Sequence number: 5

Date: 2/17/2003 5:39:04 PM -06'00'

Type: Highlight

ACCEPT - DONE (reworded)

7.12.2.1 Connection request, fourth paragraph

The second sentence is incorrect. Change it to: "If none of the intermediate physical links support the requested connection rate, the expander device shall return OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED)."

Page: 163

Sequence number: 6

Date: 2/19/2003 11:25:29 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, second paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 163

Sequence number: 7

Date: 2/19/2003 11:25:17 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, second paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 163

Sequence number: 8

Date: 2/19/2003 11:25:47 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, third paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 163

Sequence number: 9

Date: 2/19/2003 11:25:51 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, third paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 163

Sequence number: 10

Date: 2/19/2003 11:25:56 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, fourth paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 163

Sequence number: 11

Date: 2/17/2003 5:44:14 PM -06'00'

Type: Highlight

REJECT (this is a target only rule. Change "the target" to "a SAS target.")

7.12.2.2 Connection request responses, third paragraph

Change "...the target port shall set the connection rate for future requests..." to "...the source port shall set the connection rate for future requests..."

Page: 164

Sequence number: 2

Date: 2/19/2003 11:26:32 AM -06'00'

Type: Highlight

ACCEPT - DONE (without acronym)

7.12.3 Arbitration fairness, fifth paragraph

Change "arbitration wait timer" to "AWT timer."

Page: 167

Sequence number: 1

Date: 3/5/2003 3:24:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (instead, just deleted the row. Anything not mentioned is implicitly ignored.)

7.12.5 Abandoning a connection request, Table 81 - Abandon connection request responses, second row

Change the entry in the Response column to "Open response (see 7.12.2)". Change the entry in the Description column to "An open response arrived after the BREAK was sent. The originator shall ignore the response."

Page: 167

Sequence number: 2

Date: 2/21/2003 7:30:16 PM -06'00'

Type: Highlight

REJECT (it is always the fanout expander device here. Using bloated full names everywhere decreases readability.)

7.12.4.3 Fanout expander devices

There are too many "its" (and other wrongness) in this clause. Change it to be something like: "When a fanout expander device receives a connection request, the fanout expander shall determine if a pathway exists to the destination device by comparing the destination SAS address of the request to the SAS addresses of the devices to which the fanout expander's phys are attached. For all phys that are attached to edge expander devices, the fanout expander shall compare the destination SAS address to all of the enabled SAS addresses in the expander route table.

[new paragraph] If the expander device discovers that there are one or more pathways to the device having the destination SAS address, then the expander device shall arbitrate for access and forward the connection request. [new paragraph] If the expander device does not discover a pathway to the device having the destination SAS address, then the expander device shall reply to the source of the connection request with OPEN\_REJECT (NO DESTINATION). If the destination phy is in the same expander port as the source phy, the expander device shall reply to the source with OPEN\_REJECT (BAD DESTINATION)."

Page: 167

Sequence number: 3

Date: 2/21/2003 7:30:54 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.5 Abandoning a connection request, first paragraph after Table 81 - Abandon connection request responses

Change the last phrase from "...not the target port." to "...not the destination port."

Page: 174

Sequence number: 3

Date: 3/1/2003 6:11:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (per 2/25 WG meeting, deleted this paragraph. The SL state machine parses incoming frames dword-by-dword; the receiver doesn't parse the frame and need any such rule)

7.13.2 SL transmitter and receiver, third paragraph

Reword this paragraph to: "The SL receiver shall ignore any primitives received inside an OPEN address frame (i.e., after an SOAF but before the subsequent EOAF) except SOAF and BREAK. If a receiver receives a second SOAF after receiving an SOAF but before receiving a subsequent EOAF, then the receiver shall ignore the dwords before the second SOAF (i.e., the receiver shall consider the second SOAF as the start of a new IDENTIFY address frame). If a receiver receives a BREAK after receiving an SOAF but before receiving a subsequent EOAF, then the receiver shall ignore the dwords before the BREAK (i.e., ignore the IDENTIFY address frame)."

Page: 176

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (trying to keep the protocols separate from source/vs destination)

7.13.4.4 Transition SL1:ArbSel to SL3:Connected, second paragraph

Delete the comma in "(STP, Source Opened)".

Page: 176

Sequence number: 2  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (trying to keep the protocols separate from source/vs destination)  
7.13.4.4 Transition SL1:ArbSel to SL3:Connected, third paragraph  
Delete the comma in "(SSP, Source Opened)".

Page: 176  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (trying to keep the protocols separate from source/vs destination)  
7.13.4.4 Transition SL1:ArbSel to SL3:Connected, fourth paragraph  
Delete the comma in "(SMP, Source Opened)".

Page: 177  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (trying to keep the protocols separate from source/vs destination)  
7.13.5.3 Transition SL2:Selected to SL3:Connected, first bulleted list  
In item b): delete the comma in "(SSP, Destination Opened)".

Page: 177  
Sequence number: 4  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (trying to keep the protocols separate from source/vs destination)  
7.13.5.3 Transition SL2:Selected to SL3:Connected, second bulleted list  
In item b): delete the comma in "(SMP, Destination Opened)".

Page: 177  
Sequence number: 5  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (trying to keep the protocols separate from source/vs destination)  
7.13.5.3 Transition SL2:Selected to SL3:Connected, third bulleted list  
In item b): delete the comma in "(STP, Destination Opened)".

Page: 190  
Sequence number: 1  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
REJECT (paragraph being deleted per Brian Day comment)  
7.15 Rate matching, first paragraph  
Change the first part of the first sentence from "Initiator ports shall use SMP to discover the negotiated physical link rate..." to  
"Initiator ports shall discover the negotiated physical link rate..." There are other methods besides SMP that an initiator may use,  
and targets are not required to support SMP.

Page: 194  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7 SSP link layer (SSP) state machines, 7.16.7.1 Overview, ninth paragraph  
Change the first sentence to: "The SSP\_RF state machine's function is to receive frames and to determine whether or not those  
frames were received successfully."

Page: 199  
Sequence number: 1  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.4 SSP\_D1:DONE\_Wait state, 7.16.7.4.1 State description, last paragraph  
Change "DONE (ACK/NAK TIMEOUT) confirmation" to DONE Received (ACK/NAK TIMEOUT) confirmation".

Page: 199  
Sequence number: 2  
Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (with e.g. rather than i.e.)

7.16.7.4 SSP\_D1:DONE\_Wait state, 7.16.7.4.1 State description, last paragraph

Add an "i.e." in the last clause: "...other DONE Received confirmations (i.e., DONE Received (Close Connection) and DONE Received (Credit Timeout)) may be used by the application layer to decide when to reuse tags."

Page: 199

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 Transition SSP\_TF1:Connected\_Idle to SSP\_TF2:Tx\_Wait, second paragraph

Change "Tx Frame (Balanced)" to "Tx Frame (Balance Required)".

Page: 199

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 Transition SSP\_TF1:Connected\_Idle to SSP\_TF2:Tx\_Wait, second paragraph

Change "Tx Frame (Nonbalanced)" to "Tx Frame (Balance Not Required)".

Page: 201

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.9 SSP\_RF1:Rcv\_Frame state, first bulleted list

Change item c) from "Received Frame" to "Frame Received".

Page: 210

Sequence number: 1

Date: 2/19/2003 11:11:53 AM -06'00'

Type: Note

ACCEPT - DONE

7.18.4 SMP link layer (SMP) state machines, 7.18.4.1 Overview, Figure 89 - SMP link layer (SMP) state machines – target device

Add a "Frame Transmitted" confirmation from the SMP\_TL2 state to the port layer.

Page: 213

Sequence number: 1

Date: 3/21/2003 8:38:26 AM -06'00'

Type: Note

ACCEPT - DONE

8 Port layer

Replace this clause as described in T10/03-024r0.

Page: 216

Sequence number: 4

Date: 3/21/2003 8:41:21 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

In the PL\_OC2 state: delete the confirmation "Port Ready" as there is no text that describes what this is supposed to be.

Page: 216

Sequence number: 5

Date: 3/21/2003 8:41:16 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

In the PL\_OC2 state: add a Phy Enabled confirmation from the link layer to this state, as a second Phy Enabled may be received after transition from PL\_OC1 to PL\_OC2.

Page: 216

Sequence number: 6

Date: 3/1/2003 4:08:37 PM -06'00'

Type: Note

REJECT (wrong signals)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine



In the PL\_OC1 state: add a Enable Disable Link Layer (Enable) confirmation from the link layer to this state. This may also cause the transition to PL\_OC2.

Page: 216

Sequence number: 7

Date: 3/1/2003 4:08:29 PM -06'00'

Type: Note

REJECT (wrong signals)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

In the PL\_OC2 state: add a Enable Disable Link Layer (Enable) confirmation from the link layer, as a second Phy Enabled may be received after transition from PL\_OC1 to PL\_OC2.

Page: 216

Sequence number: 8

Date: 3/1/2003 4:08:17 PM -06'00'

Type: Note

REJECT (the port layer works off Phy Enabled/Disabled not Enable Disable Link Layer)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

Add a Enable Disable Link Layer (Disable) confirmation from the link layer to this state machine (i.e., to all states in the state machine).

Page: 216

Sequence number: 9

Date: 3/21/2003 8:41:05 AM -06'00'

Type: Note

REJECT (but port layer rewritten)(agree)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

Add a HARD\_RESET Received confirmation from the link layer to this state machine (i.e., to all states in the state machine).

Page: 216

Sequence number: 10

Date: 3/21/2003 8:40:58 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (agree)

8.3 Port layer overall control (PL\_OC) state machine, 8.3.1 Overview, Figure 91 - Port layer overall control (PL\_OC) state machine

In the PL\_OC1 state: add a HARD\_RESET Received confirmation going from this state to the transport layer.

Page: 222

Sequence number: 1

Date: 3/1/2003 4:16:22 PM -06'00'

Type: Note

REJECT (wrong signal)

8.4 Port layer phy manager (PL\_PM) state machine, 8.4.1 Overview, Figure 92 - Port layer phy manager (PL\_PM) state machine (part 1)

Add a Enable Disable Link Layer (Disable) confirmation from the link layer to this state machine (i.e., to all states in the state machine).

Page: 222

Sequence number: 2

Date: 3/21/2003 8:45:04 AM -06'00'

Type: Note

REJECT (but port layer rewritten) (agree)

8.4 Port layer phy manager (PL\_PM) state machine, 8.4.1 Overview, Figure 92 - Port layer phy manager (PL\_PM) state machine (part 1)

Add a HARD\_RESET Received confirmation received by this state machine (i.e., to all states in the state machine) from the link layer.

Page: 223

Sequence number: 1

Date: 3/21/2003 8:45:30 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine, 8.4.1 Overview, Figure 93 - Port layer phy manager (PL\_PM) state machine (part 2)

Delete the "Connection Failed" confirmation from this figure.

Page: 223

Sequence number: 2

Date: 3/21/2003 8:45:26 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine, 8.4.1 Overview, Figure 93 - Port layer phy manager (PL\_PM) state machine (part 2)

The DONE Transmitted confirmation would be better shown in part 1 as it results in a Disable Tx Frames parameter being sent to the PL\_OC state machine.

Page: 223

Sequence number: 3

Date: 3/21/2003 8:45:22 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine, 8.4.1 Overview, Figure 93 - Port layer phy manager (PL\_PM) state machine (part 2)

Add a DONE Received confirmation from the link layer to this state.

Page: 228

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2 SSP transport layer, 9.2.1 SSP frame format, Table 88 - SSP frame format

Change "TIMEOUT" to "RETRANSMIT" as it is described in the text that follows the table.

Page: 229

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (with "is" not "shall")

9.2.1 SSP frame format, fourth paragraph below Table 89 - FRAME TYPE field

Change the first part of the sentence to: "The RETRANSMIT bit may be set to one for RESPONSE frames (see 9.2.4.5)..." The RETRANSMIT bit SHALL be set to one in RESPONSE frames under certain conditions (see 9.2.4.5)."

Page: 229

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Strikeout

ACCEPT - DONE (changed to "more easily")

9.2.1 SSP frame format, ninth paragraph below Table 89 - FRAME TYPE field

In the first sentence delete "quickly".

Page: 229

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (paragraph being rewritten)

9.2.1 SSP frame format, ninth paragraph below Table 89 - FRAME TYPE field

In the fourth sentence change "Target ports that do not need this field..." to "Target ports that do not use this field..."

Page: 230

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.1 SSP frame format

Add the following paragraph as next to last in the clause: "Fill bytes shall be included so that the CRC field is aligned on a four byte boundary. The contents of the fill bytes are vendor-specific."

Page: 230

Sequence number: 3

Date: 3/1/2003 4:26:08 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "of"s)

9.2.1 SSP frame format, next-to-last paragraph

Change the parenthetical to "(1 024 bytes of data plus a 24-bytes header plus a 4-byte CRC)."

Page: 236

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT - the fields are defined in the NO\_DATA and SENSE\_DATA sections

9.2.2.5.1 RESPONSE information unit overview

Add a new last paragraph in this clause: "For description of the content of the STATUS field see SAM-3. For description of the content of the SENSE DATA field see SPC-3."

Page: 243

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (the UnOrderList0Reset paragraph tag was marked to "Keep with next" which is unnecessary)

9.2.6.2 Initiator device state machines, 9.2.6.2.1 Overview

After the paragraph describing the ST\_IFR state machine: there is a superfluous page break.

Page: 244

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.2 Initiator device state machines, 9.2.6.2.1 Overview, Figure 98 - SSP transport layer (ST) state machines - initiator device

In the ST\_ISF1 state: add an "ACK Transmitted" confirmation from the port layer. There is already text that describes this.

Page: 244

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2 Initiator device state machines, 9.2.6.2.1 Overview, Figure 98 - SSP transport layer (ST) state machines - initiator device

In the ST\_IFR1 state: delete the confirmation "DONE (ACK/NAK TIMEOUT) Received" as there are no words describing this, and there is already an (ACK/NAK TIMEOUT) argument for the Transmission Status confirmation.

Page: 244

Sequence number: 5

Date: 2/28/2003 6:01:18 PM -06'00'

Type: Highlight

REJECT (per 2/25 WG, move Nexus Lost into ST\_IPR1 which processes the Delivery Failure. 2/28: see no need to move it, leave here.)

9.2.6.2 Initiator device state machines, 9.2.6.2.1 Overview, Figure 98 - SSP transport layer (ST) state machines - initiator device

In the ST\_ISF1 state: delete the confirmation "Nexus Lost". If there is a Transmission Status with an argument other than (Frame Transmitted), this state sends a Delivery Failure (Service Delivery Subsystem Failure) parameter to the ST\_IPR state machine.

This results in that state machine sending this information to the application layer.

Page: 245

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT (port layer rewrite not sharing I\_T nexus loss counts with transport layer any more)

9.2.6.2.2 ST\_ISF1:Send\_Frame state, 9.2.6.2.2.1 State description, second bulleted list

Add: I\_T nexus loss count.

Page: 249

Sequence number: 2

Date: 2/28/2003 12:51:56 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, first bulleted list

Change "a hard reset occurs" to "a HARD\_RESET Received confirmation is received." Other Maxtor proposals and comments supplement this change.

Page: 250

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, fifth paragraph

Change "ACK/NAK balanced)" to "(ACK/NAK Balanced)".

Page: 250

Sequence number: 5

Date: 2/28/2003 5:37:09 PM -06'00'

Type: Highlight

REJECT

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, fifth paragraph

Change the first occurrence of "(ACK/NAK Not Balanced)" to "Received (ACK/NAK Unbalanced)".

Page: 250

Sequence number: 6

Date: 2/28/2003 5:37:00 PM -06'00'

Type: Highlight

REJECT

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, fifth paragraph

Change the second occurrence of "(ACK/NAK Not Balanced)" to "Received (ACK/NAK Unbalanced)".

Page: 250

Sequence number: 7

Date: 2/28/2003 12:52:56 PM -06'00'

Type: Highlight

REJECT (but deleted and added separate paragraph forwarding it upstream)

9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state, third paragraph

Change "hard reset" to "HARD\_RESET Received confirmation." Other Maxtor proposals and comments supplement this change.

Page: 250

Sequence number: 8

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT (Those are part of transport protocol service requests. Added "requests" alongside "responses")

9.2.6.3 Target device state machines, 9.2.6.3.1 Overview, first bulleted list

Item a) is missing from the list. Insert the following: "a) receives and processes data-in and data-out delivery service requests from the SCSI target application layer;"

Page: 251

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.3 Target device state machines, 9.2.6.3.1 Overview, Figure 99 - SSP transport layer (ST) state machines - target device

In the ST\_TTS2 state: add an "ACK Transmitted" confirmation from the port layer. There is already text that describes this.

Page: 251

Sequence number: 2

Date: 2/28/2003 5:36:32 PM -06'00'

Type: Highlight

REJECT (Nexus Lost is in the proper location)

9.2.6.3 Target device state machines, 9.2.6.3.1 Overview, Figure 99 - SSP transport layer (ST) state machines - target device

In the ST\_TTS2 state, delete the "Nexus Lost" confirmation to the application layer. This information is sent to the application layer via the Data-In Delivered confirmation.

Page: 252

Sequence number: 3

Date: 2/28/2003 5:36:21 PM -06'00'

Type: Highlight

REJECT

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state, fourth paragraph

Change "(ACK/NAK Not Balanced)" to "Received (ACK/NAK Unbalanced)".

Page: 252

Sequence number: 4

Date: 2/28/2003 2:43:06 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state, first bulleted list

Change "a hard reset occurs" to "a HARD\_RESET Received confirmation is received." Other Maxtor proposals and comments supplement this change.

Page: 252

Sequence number: 5

Date: 2/28/2003 3:21:39 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.2 ST\_TFR1:Target\_Frame\_Router state, third paragraph

Change "hard reset" to "HARD\_RESET Received confirmation." Other Maxtor proposals and comments supplement this change.

Page: 254

Sequence number: 5

Date: 2/28/2003 5:35:26 PM -06'00'

Type: Highlight

REJECT (I think we do want to show a transport to application signal called Nexus Lost to match SAM-3.)

9.2.6.3.4 ST\_TTS2:Send\_Frame state, 9.2.6.3.4.1 State description

Delete the ninth paragraph ("If the confirmation is Transmission Status (Open Failed) and it includes an I\_T Nexus Lost argument, this state

shall send a Nexus Lost confirmation to the application layer.") This information is sent to the application layer via the Data-In Delivered confirmation.

Page: 260

Sequence number: 1

Date: 2/28/2003 10:57:46 AM -06'00'

Type: Highlight

REJECT (but added "Fill bytes, if needed" row to the table so it's clear where they go)

9.4.2 SMP\_REQUEST frame, fourth paragraph after Table 102 - SMP\_REQUEST frame format

Change to: "Fill bytes shall be included at the end of the data in the ADDITIONAL REQUEST BYTES field so that the CRC field is aligned on a four byte boundary. The contents of the fill bytes are vendor-specific.."

Page: 260

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (added "of"s)

9.4.2 SMP\_REQUEST frame, third paragraph after Table 102 - SMP\_REQUEST frame format

Change the parenthetical to "(1 024 bytes of data plus a 24-bytes header plus a 4-byte CRC)."

Page: 260

Sequence number: 11

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.2 SMP\_REQUEST frame, second paragraph after Table 102 - SMP\_REQUEST frame format

Change to: "The FUNCTION field specifies which function is being requested (see 10.3.1.1).

Page: 260

Sequence number: 12

Date: 2/28/2003 5:18:26 PM -06'00'

Type: Highlight

ACCEPT - DONE (added with an xref to ch 10 error list)

9.4.2 SMP\_REQUEST frame, second paragraph after Table 102 - SMP\_REQUEST frame format

Add "If the value in the FUNCTION field is not supported, then the target port shall return a FUNCTION RESULT of SMP FUNCTION FAILED in the RESPONSE frame."

Page: 260

Sequence number: 13

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.2 SMP\_REQUEST frame, first paragraph after Table 102 - SMP\_REQUEST frame format

Change to: "The SMP FRAME TYPE field shall be set to 40h specifying that this is an SMP\_REQUEST frame.

Page: 260

Sequence number: 14

Date: 2/28/2003 5:18:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (make the transport layer do the check and reply with BREAK rather than with a frame (for both target and initiator receiving the wrong frame type))

9.4.2 SMP\_REQUEST frame, first paragraph after Table 102 - SMP\_REQUEST frame format

Add " If the SMP FRAME TYPE field is not set to 40h, then the target port shall return a FUNCTION RESULT of SMP FUNCTION FAILED in the RESPONSE frame."

Page: 261

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (but worded as being responded to)

9.4.3 SMP\_RESPONSE frame

Add a new second paragraph after Table 103 - SMP\_RESPONSE frame format: "The FUNCTION field specifies which function is being requested (see 10.3.1.1)."

Page: 261

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.3 SMP\_RESPONSE frame, second paragraph after Table 104 - Function results

Change to: "Fill bytes shall be included at the end of the data in the ADDITIONAL REQUEST BYTES field so that the CRC field is aligned on a four byte boundary. The contents of the fill bytes are vendor-specific.."

Page: 261

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (added "of"s)

9.4.3 SMP\_RESPONSE frame, first paragraph after Table 104 - Function results

Change the parenthetical to "(1 024 bytes of data plus a 24-bytes header plus a 4-byte CRC)."

Page: 278

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1.1 Disconnect-Reconnect mode page overview, second paragraph after Table 119 - Disconnect-Reconnect mode page for SSP

Change to: "The PAGE CODE (PS) field shall be set to 02h and the PAGE LENGTH field shall be set to 0Eh."

Page: 280

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.1.6.2.2 Protocol-Specific Port mode page - short format

Add a paragraph after Table 121 - Protocol-Specific Port Control mode page for SAS SSP - short format: "The PARAMETERS SAVEABLE (PS) bit is defined in SPC-3."

Page: 280

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.1.6.2.2 Protocol-Specific Port mode page - short format

Add a paragraph after the description of the SPF field after Table 121 - Protocol-Specific Port Control mode page for SAS SSP - short format: "The PAGE CODE field shall be set to 19h."

Page: 280

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed all the rejects in favor of a xref to 8.2.4 which lists them)

10.1.6.2.2 Protocol-Specific Port mode page - short format, second paragraph after Table 121 - Protocol-Specific Port Control mode page for SAS SSP - short format

Delete OPEN\_REJECT (CONNECTION RATE NOT SUPPORTED). Other comments make it so that this is no longer a reason for I\_T nexus loss.

Page: 281

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

Add a paragraph after Table 122 - Protocol-Specific Port Control mode page for SAS SSP - Phy Control And Discover subpage: "The PARAMETERS SAVEABLE (PS) bit is defined in SPC-3."

Page: 281

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

Add a paragraph after the description of the SPF field after Table 122 - Protocol-Specific Port Control mode page for SAS SSP - Phy Control And Discover subpage: "The PAGE CODE field shall be set to 19h."

Page: 287

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT (deleted paragraphs. Replaced by shorter paragraph. Not supposed to be an a) b) list without a : introducing them anyway.)

10.1.8 SCSI power condition states, first bulleted list

Add a line feed before item a).

Page: 287

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (deleted paragraph. Replaced by shorter paragraph.)

10.1.8 SCSI power condition states, first bulleted list

Change the text in item a) to: "After power on, if the target device has not received a START STOP UNIT command with the START bit set to zero, the target device transitions to the active power state after receiving an ENABLE SPINUP. The target device transitions to the active state after power on without waiting for an action by the application client."

Page: 287

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (deleted paragraph. Replaced by shorter paragraph.)

10.1.8 SCSI power condition states, first bulleted list

Change the text in item b) to: "After power on, if the target device receives a START STOP UNIT command with the START bit set to zero before receiving an ENABLE SPINUP, the target device shall wait to transition to the active power state until receiving a START STOP UNIT command with the START bit set to one and an ENABLE SPINUP. This delays the application client's request until the NOTIFY (ENABLE\_SPINUP) arrives."

Page: 289

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8.2.2 Transition SA\_PC\_1:Active to SA\_PC\_2:Idle, and several other places in this clause

"FORCE IDLE" is named "FORCE\_IDLE\_0" in the proposal to include this in SBC-2 (02-464).

Page: 289

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.8.2.3 Transition SA\_PC\_1:Active to SA\_PC\_3:Standby, and several other places in this clause

"FORCE STANDBY" is named "FORCE\_STANDBY\_0" in the proposal to include this in SBC-2 (02-464).

Page: 289

Sequence number: 6

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT (leave details to SBC/SPC)

10.1.8.2.3 Transition SA\_PC\_1:Active to SA\_PC\_3:Standby, bulleted list

Change item c) to: "the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is not disabled by a START STOP UNIT command, and the standby condition timer is zero."

Page: 289

Sequence number: 7

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - I'd rather keep the details of expiration in the SPC-3 model/bit descriptions

10.1.8.3.3 Transition SA\_PC\_2:Idle to SA\_PC\_3:Standby, bulleted list

Change item c) to: "the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is not disabled by a START STOP UNIT command, and the standby condition timer is zero"

Page: 290

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (per Jan CAP WG discussion)

10.1.8.4.3 Transition SA\_PC\_3:Standby to SA\_PC\_5:Active\_Wait, bulleted list

Add an item to the list: "a START STOP UNIT command with the START bit set to one is received."

Page: 290

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (per Jan CAP WG discussion)

10.1.8.5.2 Transition SA\_PC\_4:Stopped to SA\_PC\_3:Standby, bulleted list

Add an item to the list: "a START STOP UNIT command with the POWER CONDITION field set to FORCE\_STANDBY\_0 is received."

Page: 291

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE (per Jan CAP WG discussion).

10.1.8.5.4 Transition SA\_PC\_4:Stopped to SA\_PC\_6:Idle\_Wait, bulleted list

Add an item to the list: "a START STOP UNIT command with the POWER CONDITION field set to FORCE\_IDLE\_0 is received."

Page: 291

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - the idle bit could be set to 1 yet the standby timer could still expire. It depends on what the timers are programmed to. I'd rather just say "the timer expires" here are let the bit definitions/model section in SPC-3 describe what that means.

10.1.8.6.3 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_3:Standby, bulleted list

Change item c) to: "the IDLE bit is set to zero in the Power Condition mode page, the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is not disabled by a START STOP UNIT command, and the standby condition timer is zero."

Page: 291

Sequence number: 6

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT (Active to Standby doesn't do this. Covered by "timer expires")

10.1.8.6.3 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_3:Standby, bulleted list

Add item d) to the list: "the IDLE bit is set to zero in the Power Condition mode page, the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is zero, and a command completes."

Page: 291

Sequence number: 7

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT - this is covered by "idle timer expires"

10.1.8.6.5 Transition SA\_PC\_5:Active\_Wait to SA\_PC\_6:Idle\_Wait, bulleted list

Add item d) to the list: "the IDLE bit is set to one in the Power Condition mode page, the idle condition timer is not disabled by a START STOP UNIT command, and the idle condition timer is zero."

Page: 291

Sequence number: 8

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - this is covered by "the standby timer expires." The idle bit could be set to 1 yet the standby timer could still expire so this is incomplete. Let the bit definitions/model section in SPC-3 describe what that means.

10.1.8.7.3 Transition SA\_PC\_6:Idle\_Wait to SA\_PC\_3:Standby, bulleted list

Change item c) to: " the IDLE bit is set to zero in the Power Condition mode page, the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is not disabled by a START STOP UNIT command, and the standby condition



timer is zero."

Page: 291

Sequence number: 9

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

REJECT (Idle to Standby doesn't do this.)

10.1.8.7.3 Transition SA\_PC\_6:Idle\_Wait to SA\_PC\_3:Standby, bulleted list

Add item d) to the list: "the IDLE bit is set to zero in the Power Condition mode page, the STANDBY bit is set to one in the Power Condition mode page, the standby condition timer is zero, and a command completes."

Page: 295

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

Add two paragraphs after Table 130 - REPORT GENERAL request:

- 1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and
- 2) "The FUNCTION field shall be set to 00h (see 9.4.2)."

Page: 296

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function

Add two paragraphs after Table 131 - REPORT GENERAL response:

- 1) "The SMP FRAME TYPE field shall be set to 41h." and
- 2) "The FUNCTION field shall be set to 00h."

Page: 296

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function, paragraph before Table 131 - REPORT GENERAL response

Remove the indent from, remove the bulleted number from, and add a line feed after this sentence.

Page: 297

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.3 REPORT MANUFACTURER INFORMATION function

Add two paragraphs after Table 132 - REPORT MANUFACTURER INFORMATION request

- 1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and
- 2) "The FUNCTION field shall be set to 01h (see 9.4.2)."

Page: 297

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - only "edge routers" have to have tables. An edge device could have only direct routing ports and thus no table.

10.3.1.2 REPORT GENERAL function, fifth paragraph after Table 131 - REPORT GENERAL response

Change the first part of the sentence from, "If an edge expander device supports an expander route table, then..." to "For an edge expander device," as an edge expander shall support this field.

Page: 297

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.2 REPORT GENERAL function, sixth paragraph after Table 131 - REPORT GENERAL response

Change the first part of the sentence from, "If a fanout expander device supports an expander route table, then..." to "For an fanout expander device," as a fanout expander shall support this field.

Page: 298

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.3 REPORT MANUFACTURER INFORMATION function

Add two paragraphs after Table 133 - REPORT MANUFACTURER INFORMATION response

- 1) "The SMP FRAME TYPE field shall be set to 41h." and
- 2) "The FUNCTION field shall be set to 01h."

Page: 298

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.3 REPORT MANUFACTURER INFORMATION function

After Table 133 - REPORT MANUFACTURER INFORMATION response: delete the paragraph describing the ADDITIONAL LENGTH field, as there is no field of this name in table 133.

Page: 299

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.4 DISCOVER function

Add two paragraphs after Table 134 - DISCOVER request:

- 1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and
- 2) "The FUNCTION field shall be set to 10h (see 9.4.2)."

Page: 300

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.4 DISCOVER function

Add two paragraphs after Table 134 - DISCOVER response:

- 1) "The SMP FRAME TYPE field shall be set to 41h." and
- 2) "The FUNCTION field shall be set to 10h."

Page: 301

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE (also rearranged OPEN and IDENTIFY address frame fields in ch7)

10.3.1.4 DISCOVER function, after Table 137 - Routing attributes

Move the description of the ATTACHED DEVICE TYPE field to be before the description of the ROUTING ATTRIBUTE field so that they are in the common-practice order of their appearance in the table (i.e., top to bottom and left to right).

Page: 301

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 Discover, paragraph after Table 138 - Attached device types

The second sentence is unclear. Reword this to be something like: "The negotiated physical link rate may be less than the programmed minimum physical link rate or greater than the programmed maximum physical link rate if one of the programmed rates has been changed since the link reset sequence."

Page: 302

Sequence number: 4

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

Part one: change the order of the following field descriptions so that they are in the common-practice order of their appearance in the table (i.e., top to bottom and left to right): PROGRAMMED MINIMUM PHYSICAL LINK RATE, HARDWARE MINIMUM PHYSICAL LINK RATE, PROGRAMMED MAXIMUM PHYSICAL LINK RATE, and HARDWARE MAXIMUM PHYSICAL LINK RATE.

Page: 302

Sequence number: 5

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

REJECT - duplicate comment

10.3.1.4 Discover, paragraph after Table 138 - Attached device types

Part two of the previous comment, and move this part of the sentence to be with the previous part.

Page: 303

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

Part two: change the order of the following field descriptions so that they are in the common-practice order of their appearance in the table (i.e., top to bottom and left to right): PROGRAMMED MINIMUM PHYSICAL LINK RATE, HARDWARE MINIMUM PHYSICAL LINK RATE, PROGRAMMED MAXIMUM PHYSICAL LINK RATE, and HARDWARE MAXIMUM PHYSICAL LINK RATE.

Page: 303

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

Add two paragraphs after Table 141 - REPORT PHY ERROR LOG request:

1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and

2) "The FUNCTION field shall be set to 11h (see 9.4.2)."

Page: 303

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function, first paragraph after Table 141 - REPORT PHY ERROR LOG request

Add a sentence to the paragraph: "If the value is not within the range of zero to NUMBER OF PHYS (see 9.4.4.2), the target port shall return a FUNCTION RESULT of SMP FUNCTION FAILED in the response frame."

Page: 304

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

Add two paragraphs after Table 142 - REPORT PHY ERROR LOG response:

1) "The SMP FRAME TYPE field shall be set to 41h." and

2) "The FUNCTION field shall be set to 11h."

Page: 305

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function

Add two paragraphs after Table 144 - REPORT PHY SATA request:

1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and

2) "The FUNCTION field shall be set to 12h (see 9.4.2)."

Page: 305

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function

Add the following paragraph after the paragraph describing the FUNCTION RESULT field: "The PHY IDENTIFIER field indicates the phy (see 4.2.6) for which physical configuration link information is being returned."

Page: 305

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.5 REPORT PHY ERROR LOG function, the three paragraphs below Table 143 - Function results for REPORT PHY ERROR LOG

Delete the parentheses around the phrase "outside of phy reset sequences".

Page: 306

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function

Add two paragraphs after Table 145 - REPORT PHY SATA response:

- 1) "The SMP FRAME TYPE field shall be set to 41h." and
- 2) "The FUNCTION field shall be set to 12h."

Page: 306

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function, first paragraph after Table 144 - REPORT PHY SATA request

Add a sentence to the paragraph: "If the value is not within the range of zero to NUMBER OF PHYS (see 9.4.4.2), the target port shall return a FUNCTION RESULT of SMP FUNCTION FAILED in the response frame."

Page: 307

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function

Add the following paragraph after Table 146 - Function results for REPORT PHY SATA: "The PHY IDENTIFIER field indicates the phy (see 4.2.6) for which physical configuration link information is being returned."

Page: 307

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Strikeout

ACCEPT - DONE

10.3.1.7 REPORT ROUTE INFORMATION function, first paragraph

In the last sentence, delete "primarily".

Page: 308

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.7 REPORT ROUTE INFORMATION function

Add two paragraphs after Table 147 - REPORT ROUTE INFORMATION request:

- 1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and
- 2) "The FUNCTION field shall be set to 13h (see 9.4.2)."

Page: 309

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.7 REPORT ROUTE INFORMATION function

Add two paragraphs after Table 148 - REPORT ROUTE INFORMATION response:

- 1) "The SMP FRAME TYPE field shall be set to 41h." and
- 2) "The FUNCTION field shall be set to 13h."

Page: 311

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.8 CONFIGURE ROUTE INFORMATION function

Add two paragraphs after Table 150 - CONFIGURE ROUTE INFORMATION request:

- 1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and

2) "The FUNCTION field shall be set to 90h (see 9.4.2)."

Page: 312

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.8 CONFIGURE ROUTE INFORMATION function

Add two paragraphs after Table 151 - CONFIGURE ROUTE INFORMATION response:

1) "The SMP FRAME TYPE field shall be set to 41h." and

2) "The FUNCTION field shall be set to 90h."

Page: 313

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.9 PHY CONTROL function

Add two paragraphs after Table 153 - PHY CONTROL request:

1) "The SMP FRAME TYPE field shall be set to 40h (see 9.4.2)." and

2) "The FUNCTION field shall be set to 91h (see 9.4.2)."

Page: 313

Sequence number: 2

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.9 PHY CONTROL function

After Table 153 - PHY CONTROL request: move the paragraph describing the CRC field to the end of the clause so that it is in the common-practice order of its appearance in the table (i.e., top to bottom and left to right).

Page: 313

Sequence number: 3

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.9 PHY CONTROL function, first paragraph after Table 153 - PHY CONTROL request

Add a sentence to the paragraph: "If the value is not within the range of zero to NUMBER OF PHYS (see 9.4.4.2), the target port shall return a FUNCTION RESULT of SMP FUNCTION FAILED in the response frame."

Page: 315

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.9 PHY CONTROL function

Add two paragraphs after Table 156 - PHY CONTROL response:

1) "The SMP FRAME TYPE field shall be set to 41h." and

2) "The FUNCTION field shall be set to 91h."

Page: 317

Sequence number: 1

Date: 2/16/2003 11:40:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

A.1 Compliant jitter test pattern (CJTPAT), first paragraph

In the first sentence change "low-density pattern" to "low transition density pattern" in two places.

Page: 317

Sequence number: 2

Date: 2/16/2003 11:50:16 AM -06'00'

Type: Highlight

ACCEPT - DONE (per Alvin, kept same wording but moved paragraph above the table.)

A.1 Compliant jitter test pattern (CJTPAT), paragraph below Table A.1- CJTPAT for RD+

Change this paragraph to be something like: "If the same 8b characters are used when there is negative running disparity (RD-) and when there is positive running disparity, the resulting 10b pattern generated for each disparity type is different. 8b characters used when there is RD- may not provide the critical phase shifts as the same characters used when there is RD+. To achieve the same phase shift effects with RD- as with RD+, a different 8b pattern is required to be used for each disparity type."

Page: 382  
Sequence number: 3  
Date: 2/16/2003 11:40:39 AM -06'00'  
Type: Note  
ACCEPT - DONE (tracking with another comment)  
Annex J, Figure J.1 - SAS logo  
Replace the old logo with the new logo.

## Author: PostLB

---

Page: iv  
Sequence number: 2  
Date: 2/3/2003 2:46:56 PM -06'00'  
Type: Note  
ACCEPT - DONE  
change the 7-point blank text line to 10 points at the top of page iv (to match a common font size in the rest of the document)

Page: x  
Sequence number: 4  
Date: 1/7/2003 12:58:15 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Global  
Move top right header to the right margin (the text containing 21 November 2002)  
it's 0.2 inches too far to the left

Page: 4  
Sequence number: 3  
Date: 3/4/2003 6:15:08 PM -06'00'  
Type: Note  
ACCEPT - DONE (change first two to ATA/ATAPI-7 Volume 3 and move into normative references)  
2.4 Other references  
Change some of the SATA references to ATA/ATAPI-7 Volume 3 now that T13 has started its SATA incorporation

Page: 5  
Sequence number: 17  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
3.1 Definitions  
Add command descriptor block (CDB)

Page: 5  
Sequence number: 18  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
3.1 Definitions  
Add compliant jitter test pattern (CJTPAT)

Page: 6  
Sequence number: 18  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
3.1.32 downstream phy:  
Rewrite of STP flow control gets rid of use of this term; delete.

Page: 6  
Sequence number: 19  
Date: 3/2/2003 12:27:10 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Global  
Change active connection, open connection, etc to just "connection" everywhere appropriate  
Use "connection is established" when needed

Page: 7  
Sequence number: 17  
Date: 1/30/2003 5:51:48 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.1.58 I\_T\_L\_Q nexus  
replace this with "tagged task" to match SAM-3 definition. Better to relate to an object than a 64-bit number.

Page: 7  
Sequence number: 18  
Date: 3/3/2003 11:22:43 AM -06'00'  
Type: Note  
ACCEPT - DONE  
Correct (see x.y) vs . See x.y. usage for each definition. Use (see x.y) when following a term being referenced (e.g. link reset sequence (see x.y) points to the link reset sequence section. Use "See x.y" when it's a reference for the whole glossary entry itself. e.g. xyz: abc def. See x.y. points to a section about xyz.)

Page: 7  
Sequence number: 19  
Date: 2/7/2003 6:45:16 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
3.1.52 hard reset sequence  
remove this text, which is not in most other sequence definitions:  
following the SAS speed negotiation sequence

Page: 7  
Sequence number: 20  
Date: 3/24/2003 9:22:53 AM -06'00'  
Type: Note  
ACCEPT - DONE  
3.1.xx  
Add "I\_T nexus loss" with SAS rather than SCSI scope  
(from March SAS WG)

Page: 8  
Sequence number: 17  
Date: 2/7/2003 5:57:07 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.1.78 nexus  
Change queue tag to tagged task to better match SAM-3's I\_T\_L\_Q definition (although this nexus definition differs from SAM-3's nexus definition)

Page: 8  
Sequence number: 18  
Date: 2/7/2003 6:45:43 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
3.1.59 identification sequence  
remove this text, which is not in most other sequence definitions:  
following the SAS speed negotiation sequence

Page: 8  
Sequence number: 19  
Date: 3/2/2003 12:30:46 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.1.65 initiator phy  
Global  
Get rid of this and use SAS initiator phy throughout

Page: 9  
Sequence number: 23  
Date: 2/7/2003 6:36:07 PM -06'00'  
Type: Highlight  
REJECT (but replaced by definition referring to transceiver.)  
3.1.84 phy

SAS device object that interfaces..., or an expander device object (i.e., expander phy) that is part of the service delivery subsystem.

Page: 9

Sequence number: 24

Date: 1/29/2003 12:24:47 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.91/92 programmed physical link rate

Add cross references to the SMP function and the mode page

Page: 9

Sequence number: 25

Date: 3/3/2003 2:56:39 PM -06'00'

Type: Note

ACCEPT - DONE (for "physical phy". Don't both putting the transceiver in UML.)

2/25 WG

make the phy contain a transceiver and include in UML

Page: 11

Sequence number: 16

Date: 2/7/2003 6:47:36 PM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.128 speed negotiation sequence

Delete:

Part of the phy reset sequence

to match other sequence definitions

Page: 11

Sequence number: 17

Date: 3/2/2003 2:36:22 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.139 target phy:

Global

Get rid of this and use SAS target phy throughout.

Page: 11

Sequence number: 18

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

3.1.xxx

Add SSP phy, STP phy, SMP phy, SSP initiator phy, SSP target phy, STP initiator phy, STP target phy, SMP initiator phy, SMP target phy

Page: 12

Sequence number: 5

Date: 2/5/2003 10:12:06 AM -06'00'

Type: Note

ACCEPT - DONE

3.2 Symbols and abbreviations

Add CJTPAT

Page: 12

Sequence number: 6

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

3.1.151 upstream phy:

Rewrite of STP flow control gets rid of use of this term; delete.

Page: 12

Sequence number: 7

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.150 unit interval:

add (UI) to glossary header



Page: 12

Sequence number: 8

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

3.2 Symbols and abbreviations

Add cross references to 3.1.xxx for every acronym which expands to a term defined in 3.1.

Page: 12

Sequence number: 9

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

3.1.150 unit interval

change 666,667 to 666,6 with a bar over the repeating 6

and 333,333 to 333,3 with a bar over the repeating 3

Page: 13

Sequence number: 6

Date: 1/25/2003 4:41:07 PM -06'00'

Type: Highlight

ACCEPT - DONE (PPT acronym later removed altogether)

3.2 Symbols and abbreviations

PPT timer should be timeout

Page: 13

Sequence number: 7

Date: 1/25/2003 4:40:54 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.2 Symbols and abbreviations

PPT is only used about six times in this standard; remove the acronym

Page: 13

Sequence number: 8

Date: 2/5/2003 10:10:48 AM -06'00'

Type: Note

ACCEPT - DONE

3.2 Symbols and abbreviations

Add Rx and Tx

Page: 14

Sequence number: 3

Date: 3/3/2003 11:21:05 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.3.10 restricted

Add "or for use in other data structures in this standard."

and remove "SCSI" from "SCSI standards"

Page: 14

Sequence number: 4

Date: 1/25/2003 4:30:51 PM -06'00'

Type: Highlight

ACCEPT - DONE

3.4 Editorial conventions

SCSI mode pages, SCSI log pages are mixed-case not uppercase

Page: 14

Sequence number: 5

Date: 1/25/2003 4:31:20 PM -06'00'

Type: Note

ACCEPT - DONE

add mixed-case convention for

parameters, requests, confirmations, responses, indications, and timers

Page: 14

Sequence number: 6

Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
3.3.7 obsolete  
remove SCSI from "SCSI standards"

Page: 15  
Sequence number: 4  
Date: 12/30/2002 10:41:07 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.4 Editorial conventions  
Table 1 should be Table 2

Page: 16  
Sequence number: 7  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
3.5.1 State machine conventions overview  
Add "event notification" along with confirmation and response

Page: 17  
Sequence number: 8  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
3.5.3 Parameters, ...and responses  
Add "event notifications" to this discussion

Page: 18  
Sequence number: 2  
Date: 1/25/2003 11:20:15 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Mirroring an ENDL comment in the definitions section,  
Contains should be "This list contains"

Page: 20  
Sequence number: 7  
Date: 1/23/2003 2:38:04 PM -06'00'  
Type: Note  
ACCEPT - DONE (labeled as "SCSI device name")  
the SCSI device also has a SAS address (retrieve with VPD from a target...)

Page: 20  
Sequence number: 8  
Date: 1/22/2003 10:52:01 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (1..\* for now)  
0..\* should be 1..\* since SMP targets must be included.  
If Steve's proposal is accepted, this could be exactly one unless virtual phys are present

Page: 20  
Sequence number: 9  
Date: 1/22/2003 10:54:59 AM -06'00'  
Type: Note  
ACCEPT - DONE (make the SCSI boxes all higher than the SAS boxes so the inheritance arrows go in the bottom of the SCSI boxes.

Page: 20  
Sequence number: 10  
Date: 1/22/2003 12:53:16 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Use the CIM color convention of green for aggregation lines and blue for inheritance lines

Page: 20  
Sequence number: 11

Date: 1/23/2003 2:38:40 PM -06'00'

Type: Note

ACCEPT - DONE

Change the SAS address in the SCSI port to "SCSI port identifier". Pure SCSI objects don't know anything about SAS attributes.

Page: 21

Sequence number: 13

Date: 2/8/2003 11:12:36 AM -06'00'

Type: Note

ACCEPT - DONE

4.1.2 Physical links and phys

Add reference to the hardware/programmed minimum/maximum physical link rate fields, which specify or indicate the physical link rates.

Page: 21

Sequence number: 14

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE

4.1.3 Ports

\*\*\*

Change Note 6 to a rule that this case is outside the scope of this standard (per 3/20 SAS call)

Page: 23

Sequence number: 9

Date: 1/23/2003 3:32:56 PM -06'00'

Type: Note

ACCEPT - DONE

4.1.4 SAS devices

Move the "In figures which contains ports but not phys" sentence into the SAS port section, not the SAS device section

Page: 25

Sequence number: 16

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.1.8.2 Edge expander device set

Put the text mentioning that constructing a set is outside the scope of the standard here before describing the properties of a set.

Page: 31

Sequence number: 7

Date: 3/2/2003 3:36:50 PM -06'00'

Type: Note

REJECT (but added some wide port circles and a note about the addresses)

show the IDENTIFY addresses here

Page: 31

Sequence number: 8

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.1.12 Pathways

Move pathway section above connection section, and focus on potential pathways rather than (completed) pathways.

Page: 32

Sequence number: 7

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE

Figure 18 - Pathways

change Pathways key to one grey line

Page: 34

Sequence number: 7

Date: 2/9/2003 4:25:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.2.3 Hashed SAS address

to help optional

addresses DSS comment in D.1

Page: 34

Sequence number: 8

Date: 1/23/2003 5:51:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.2.2 SAS address

IEEE COMPANY IDENTIFIER small caps without 'field'

Page: 34

Sequence number: 9

Date: 1/23/2003 5:59:01 PM -06'00'

Type: Note

ACCEPT - DONE

4.2.4 Port names

Note about lack of port names

Don't mention login non-existence; only helpful to someone with iSCSI, SRP, or FC experience

Page: 34

Sequence number: 10

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Note

ACCEPT - DONE

4.2.5 Port identifiers

Add a reference to the VPD page, since target point identifiers can be retrieved.

Page: 35

Sequence number: 4

Date: 3/2/2003 3:41:01 PM -06'00'

Type: Note

ACCEPT - DONE (added expander figure)

4.3.1 State machine overview

the expander state machine stack is not described here

The expander stack with an attached SATA device is also a bit different

Page: 35

Sequence number: 5

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

4.3.1 State machine overview

Make the port box encompass the transport layer state machines.

Then remove the source SAS address as an argument from application layer to transport layer in ch9/ch10.

This avoids some error cases - what if the application layer sent the wrong source address to a port?

Page: 39

Sequence number: 9

Date: 5/12/2003 10:16:25 AM

Type: Note

ACCEPT - DONE (per 4/4 call)

4.3.3 Signals between state machines

Move this into an informative annex

Page: 42

Sequence number: 2

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.3.3 Signals between layers for SMP

Change Tx Frame (SMP) to Tx Frame

(from March SAS WG)

Page: 42

Sequence number: 3

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.3.3 Signals between layers for SMP

Change Transmit Frame (SMP) to Transmit Frame  
(from March SAS WG)

Page: 45  
Sequence number: 2  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
4.3.3.4 Signals for all protocols  
Table 18 - Confirmations  
Change  
identify sequence  
to  
identification sequence

Page: 49  
Sequence number: 20  
Date: 1/25/2003 4:42:44 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Global: change all timers to "expire" There is inconsistent usage.

Page: 49  
Sequence number: 22  
Date: 3/8/2003 5:29:38 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
for SCSI initiator ports should be a "should" not a "shall"  
(from Brian Day)

Page: 49  
Sequence number: 23  
Date: 5/12/2003 10:16:30 AM  
Type: Note  
ACCEPT - DONE (per 5/5)  
4.4.2 Hard reset  
Add (see SAM-3) after the "shall not be affected by hard reset."  
Mark Evans will propose an application-to-port transport service to abort an outstanding protocol service. SAS 1.1 will implement that by clearing all frames at the port layer (leading to normal closing of the connection)

Page: 50  
Sequence number: 7  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
4.6.1 Expander device model overview  
Figure 25 - Expander device model  
Change  
SAS expander  
to  
expander  
(several times in figure)

Page: 50  
Sequence number: 8  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Note  
ACCEPT - DONE  
4.6.1 Expander device model overview  
Figure 25 - Expander device model  
Use more lower case in EF names

Page: 50  
Sequence number: 9  
Date: 3/24/2003 9:22:53 AM -06'00'  
Type: Note  
ACCEPT - DONE (note that it is not shown)  
4.6.1 Expander device model overview  
Figure 25 - Expander device model

Add SMP target port to figure or note that it is not shown  
(from March SAS WG)

Page: 52

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.6 Expander device interfaces

Use more acronyms in figure 27 - Expander device interfaces

Page: 53

Sequence number: 12

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.7 Expander device interface detail

Use more acronyms in figure 27 - Expander device interface detail

Page: 53

Sequence number: 13

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.7 Expander device interface model

Change Phy Status from a request to a response

Page: 53

Sequence number: 14

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.7 Expander device interface detail

Move this and the interface sections to become subsections under "Expander device interface"

4.6.6 Expander device interface

4.6.6.1 ...overview

4.6.6.2 .... detail

4.6.6.3 ECM interface

4.6.6.4 ECR interface

4.6.6.5 BPP interface

Page: 54

Sequence number: 2

Date: 3/2/2003 12:18:58 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.8 ECM interface

Split table 23 into separate request and confirmation tables.

Page: 54

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.8 Expander connection manager interface

Just use the ECM acronym; stop redefining it

Page: 54

Sequence number: 4

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Square

ACCEPT - DONE

4.6.8 Expander connection manager interface

Table 23 - ECM interface

Change Phy Status from a request to a response.

Page: 55

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.9 ECR interface

Split table 24 into separate request/indication and confirmation/response tables

Page: 55

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.9 Expander connection router interface

Just use the ECR acronym; stop redefining it

Page: 56

Sequence number: 1

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.10 Broadcast primitive processor interface

In "sequence complete"

capitalize S and C

Page: 56

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.10 BPP interface

Split table 25 into separate request and indication tables.

and

Change "Request/indication" to just request or indication as appropriate.

Page: 56

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.10 Broadcast primitive processor

Just use the BPP acronym; stop redefining it

Page: 56

Sequence number: 4

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Square

ACCEPT - DONE

4.6.10 BPP interface (removed specific types)

Add additional reserved types, or remove the specific types from this list

Page: 57

Sequence number: 4

Date: 1/29/2003 3:41:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.2 Expander device connection request routing

ATTACHED SAS ADDRESS should be routed SAS address

and it probably shouldn't be small caps (it's not exactly a field. It's a value in an internal data structure.)

Page: 57

Sequence number: 5

Date: 1/29/2003 3:41:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.2 Expander device connection request routing

attached SAS address should be routed SAS address

Also change of to in

Page: 57

Sequence number: 6

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.2 Expander device connection request routing

Item 1 "route to a phy with a direct routing attribute... when the SAS address...matches the attached SAS address"

A phy with table routing also follows this rule (the attached address is not in the table), so add "or table routing attribute"

Page: 58

Sequence number: 3

Date: 1/31/2003 3:45:48 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.11.3 Expander route table

Figure 28 - expander route table example

change <= to symbol in figure

Page: 58

Sequence number: 4

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.11.3 Expander route table

Move the paragraphs describing rules for the discover process into the discover process section. Keep this section short; just describe the route table itself, not the rules for filling it.

Page: 58

Sequence number: 5

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.2 Expander device connection request routing

Change "illegal expander phy

attachment," to "any other combination of expander phy attachment (e.g. table to table or direct to anything)" to tie this into the previous a)b)c) list and highlight the important "illegal" cases.

Page: 58

Sequence number: 6

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Strikeout

ACCEPT - DONE

4.6.11.3 Expander route table

Delete "An expander device is considered cascaded to another expander device when the expander device table routing phy is attached to the subtractive routing phy of another edge expander device."

This belongs on the expander topology section if anywhere (another comment resolution deletes the next paragraph, which is the only place "cascade" is used)

Page: 58

Sequence number: 7

Date: 3/31/2003 1:53:14 PM -06'00'

Type: Note

ACCEPT - DONE (added rule per discussion at March SAS WG. Per 3/31 Dennis Moore comment, changed from in configurable expanders to all expanders.)

4.6.11.3 Expander route table

and elsewhere?

All expander route entries shall be disabled after power on

(from LSI Logic)

Page: 59

Sequence number: 6

Date: 2/8/2003 11:40:57 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.3 expander route table

expander route table entry

should be

expander route entry

several times in 4.6.xx.xx

Page: 59

Sequence number: 7



Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

"the first N entries shall be the SAS addresses of

the devices attached to the attached edge expander device, ordered from phy 0 through phy N."

isn't clear that there is an entry per phy, whether or not something is attached. Change to

"the first N entries shall be used for expander phy 0 through expander phy N. If a phy is attached to a device, the expander route entry shall contain the SAS address of the device. If the phy is not attached to a device, the expander route entry shall be disabled."

Page: 59

Sequence number: 8

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

Change "another" to "an". Route tables could be in fanout expanders too - "another edge" is wrong.

Page: 59

Sequence number: 9

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

4.6.11.4 Expander route index order

Add "level 0" terminology to make the rest of the wording clearer

Page: 60

Sequence number: 1

Date: 3/8/2003 5:30:02 PM -06'00'

Type: Note

ACCEPT - DONE

Figure 29 - Expander route index levels

Show the contents of the routing table ("Entries for W") to make the figure more self-explanatory

Page: 60

Sequence number: 2

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.11.4 Expander route index order

Figure 29 - Expander route index levels

change the number of phys symbols to lowercase to differentiate from the addresses  
(from March SAS WG)

Page: 61

Sequence number: 5

Date: 1/24/2003 10:58:35 AM -06'00'

Type: Note

ACCEPT - DONE

4.6.11.4 Expander route index order

Table 26 - expander route table levels

delete extra blank rows

Page: 61

Sequence number: 6

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.11.4 Expander route index order

Table 26 - Expander route table levels

Change column header from:

Routed SAS address description

to

Expander route entry

Page: 61

Sequence number: 7

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE  
4.6.11.4 Expander route index order  
Table 26 - Expander route table levels  
change the number of phys symbols to lowercase to differentiate from the addresses  
(from March SAS WG)

Page: 62  
Sequence number: 1  
Date: 1/31/2003 3:45:48 PM -06'00'  
Type: Note  
ACCEPT - DONE  
4.6.11.4 Expander route index order  
figure 30 - Expander route index order  
change <= to symbol

Page: 64  
Sequence number: 3  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
4.6.11.5 Discover process  
Move this section up ahead of the expander route index order section.

Page: 64  
Sequence number: 4  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
4.6.11.5 Discover process  
Add some paragraphs mentioning what to do when each device is visited. For expander devices, use SMP REPORT GENERAL and DISCOVER to determine what is attached. If a configurable expander is found, configure it. If an end device is found, SMP queries are optional.

Page: 64  
Sequence number: 5  
Date: 3/10/2003 12:32:41 PM -06'00'  
Type: Note  
ACCEPT - DONE (per 3/10 WG)  
4.6.11.5 Discover process  
Add a paragraph mentioning that the discover process may be aborted and restarted if CHANGE is received  
(from Bob Nixon, Emulex)

Page: 65  
Sequence number: 6  
Date: 3/4/2003 6:15:54 PM -06'00'  
Type: Note  
ACCEPT - DONE  
5 Physical layer  
Add a 5.1 Physical layer overview with some introduction

Page: 66  
Sequence number: 5  
Date: 1/31/2003 3:57:32 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
SAS PHY WG  
5.2 page 66  
Replace "the connectors" with "a schematic representation of the cables and connectors"

Page: 66  
Sequence number: 6  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Figure 33 - SAS cables and connectors - internal environment  
Add internal dual port environment (per March SAS physical group)

Page: 67  
Sequence number: 13

Date: 3/15/2003 10:54:26 AM -06'00'

Type: Strikeout

REJECT (SCSI Trade Association created a SAS icon we can use unencumbered by legal restrictions)  
delete this? <<SAS connectors should be marked with the SAS logo (see Annex J).>>

Page: 71

Sequence number: 22

Date: 1/20/2003 4:27:50 PM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.6 page 71

Change "may" to "shall", requiring all targets to provide READY LED.

Page: 71

Sequence number: 23

Date: 1/20/2003 4:37:03 PM -06'00'

Type: Note

ACCEPT - DONE

SAS PHY WG

5.6 page 71

Change table 32 to the following ( $\leq$  used for less than or equal to symbol):

Driver state Test condition Requirement

Negated (LED off)  $0 \leq V_{OH} \leq 3,6 \text{ V} - 100 \text{ uA} < I_{OH} < 100 \text{ uA}$

Asserted (LED on)  $I_{OL} = 15 \text{ mA}$   $0 \leq V_{OL} \leq 0,225 \text{ V}$

Page: 71

Sequence number: 24

Date: 1/20/2003 4:39:23 PM -06'00'

Type: Note

ACCEPT - DONE

SAS PHY WG

5.6 page 71

Delete sentence after table 32 based on change of section name

Page: 72

Sequence number: 11

Date: 2/9/2003 11:23:16 AM -06'00'

Type: Note

ACCEPT - DONE (per Joint WG minutes in Jan: The group agreed to add the following:

These signal specifications are consistent with using good quality cable assemblies constructed with shielded twinex cable with 24 gauge solid wire up to eight meters in length without using any form of equalization (e.g., transmitter pre-emphasis, receiver adaptive equalization, or passive cable equalization).

George noted that the wire gauge has to be stated in ISO phrasing.)

next to cable length text, mention that STP flow control assumes a 50 ns cable propagation delay (one-way).

Cables that support STP shall not exceed that delay(unless the receiver has more buffers than specified by the equations).

Page: 72

Sequence number: 12

Date: 1/20/2003 4:50:17 PM -06'00'

Type: Note

ACCEPT - DONE

SAS PHY WG

5.6 page 72

Change "mechanical damage" to "mechanical or electrical damage".

Page: 74

Sequence number: 7

Date: 1/31/2003 4:54:18 PM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.7.2 General interface specification

Table 34, Page 74

Change to: Unit interval (UI) (nominal)

Page: 74

Sequence number: 8

Date: 1/31/2003 4:54:42 PM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.7.2 General interface specification

Table 34, Page 74

Change to: Media impedance (nominal)

Page: 74

Sequence number: 9

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

5.7.2 General interface characteristics

Table 35 - General interface characteristics

change 666,667 to 666,6 with a bar over the repeating 6

and 333,333 to 333,3 with a bar over the repeating 3

Page: 76

Sequence number: 4

Date: 1/20/2003 5:11:24 PM -06'00'

Type: Highlight

ACCEPT - DONE (per

SAS PHY WG

5.7.3.3 page 76

...table 36 and Z1tol and Z1op shall be defined from these slopes as follows:

Page: 76

Sequence number: 5

Date: 2/1/2003 1:50:33 PM -06'00'

Type: Note

ACCEPT - DONE

5.7.3.3 Jitter tolerance masks

Format Z1tol equation using Equation editor

Page: 76

Sequence number: 6

Date: 2/9/2003 3:04:20 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.4 Transmitted signal characteristics

Change

SAS expander

to

expander

Page: 77

Sequence number: 8

Date: 1/31/2003 2:45:55 PM -06'00'

Type: Strikeout

ACCEPT - DONE

SAS PHY WG

7.5.4 page 77

Table 35

delete

Condition a) to be included as note f in table 35 as follows:

The maximum difference in the average differential voltage (D.C. offset) component between the burst times and the idle times of an OOB signal.

Add line to table with Signal characteristic = OOB offset delta (with a reference to note f), Units = mV, and values for 1,5 and 3,0 Gbps of +/- 25.

Page: 77

Sequence number: 9

Date: 1/31/2003 2:45:42 PM -06'00'

Type: Strikeout

ACCEPT - DONE

SAS PHY WG

7.5.4 page 77

Table 35

Condition b) and c) to be included as note g in table 35 as follows:

The maximum difference in the average of the common mode voltage between the burst times and the idle times of an OOB signal. Add line to table with Signal characteristic = OOB Common mode delta (with a reference to note g), Units = mV, and value for 1,5 and 3,0 Gbps of +/- 50.

Page: 77

Sequence number: 10

Date: 1/31/2003 2:45:47 PM -06'00'

Type: Strikeout

ACCEPT - DONE

SAS PHY WG

7.5.4 page 77

Characteristic requirements moved into table 35. Delete this text.

Page: 78

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Square

ACCEPT - DONE

5.7.5 Received signal characteristics

Table 36 - Delivered signal characteristic

Some of the Jitter Units cells are blank; change to N/A

Page: 79

Sequence number: 3

Date: 1/31/2003 3:32:40 PM -06'00'

Type: Note

ACCEPT - DONE

5.7.6 Jitter

Table 37 - Jitter compliance points

The notes need to be referenced.

a - general

b - general

c - total jitter columns

d - total jitter columns

e - deterministic and total columns

f - total jitter columns

Page: 79

Sequence number: 4

Date: 1/31/2003 3:45:21 PM -06'00'

Type: Note

ACCEPT - DONE

5.7.7 Jitter tolerance

Table 38 - Jitter tolerance compliance points

Note a is not referenced but should be

Page: 81

Sequence number: 6

Date: 2/1/2003 1:50:01 PM -06'00'

Type: Note

ACCEPT - DONE

5.7.9 Impedance specifications

Format C equation in footnote using Equation editor

Page: 82

Sequence number: 12

Date: 2/1/2003 1:49:22 PM -06'00'

Type: Note

ACCEPT - DONE

5.7.11 Transmitter characteristics

Format S21 equation using Equation editor

Page: 84

Sequence number: 1

Date: 1/31/2003 5:33:17 PM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.12 Receiver characteristics

10 -12 remove space

Page: 86

Sequence number: 11

Date: 2/6/2003 11:17:41 AM -06'00'

Type: Highlight

ACCEPT - DONE (only when a dash follows the 8, though)

6.2.2 8b10b coding introduction

Change all the "eight-"s in this section to "8" since 10 is expressed as "10"  
(also see INTC comment in glossary)

Page: 86

Sequence number: 12

Date: 2/6/2003 11:12:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.2.2 8b10b coding introduction

an 10-bit should be a 10-bit

Page: 86

Sequence number: 13

Date: 2/8/2003 11:40:57 AM -06'00'

Type: Note

ACCEPT - DONE

6.2.1 Encoding overview

Table 40 - Special character usage

add K28.6 since ERROR uses it (to table and text)

Page: 87

Sequence number: 2

Date: 1/11/2003 5:14:32 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.2.3 8b10b encoding conventions

this specification should be this standard

Page: 88

Sequence number: 7

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

6.3.3.1 Valid and invalid transmission characters definitions

"shall initialize current RD to negative."

Allow positive or negative per other comment

Page: 91

Sequence number: 1

Date: 2/7/2003 6:02:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.3.3.1 Valid and invalid transmission characters

add K28.6

Page: 91

Sequence number: 2

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

6.3 Character encoding and decoding

"five bits of the same

polarity" is an incomplete definition of a comma pattern. It's really 2 bits of one value and 5 bits of the other - 7 total.

Fix in this paragraph and expand the underlines in Table 44 - Valid special characters.

Page: 92

Sequence number: 2

Date: 1/24/2003 12:14:23 PM -06'00'

Type: Highlight

ACCEPT - DONE

Table 45 - delayed code violation example

Change "character" labels to "first character" "second character" and "third character"

Page: 94  
Sequence number: 2  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
SAS devices  
should be  
Phys compliant with this standard  
(from Vixel)

Page: 94  
Sequence number: 3  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
"During the idle time, the transmitter output  
shall meet the requirements described in 5.7.4."  
needs to mention that the burst time levels are also described in 5.7.4. Someone implementing SP should be reading this section  
but might not peruse 5.7.4.

Page: 95  
Sequence number: 3  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
future generations of SAS devices.  
to  
phys compliant with future generations of this standard  
(from Vixel)

Page: 95  
Sequence number: 4  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
Table 46 - OOB signal timing specs  
666,667 ps 666,734  
change nominal to 666,6 with a bar over the repeating 6  
change 666,734 to 666,733 which is the result if the nominal is not rounded.

Page: 97  
Sequence number: 8  
Date: 1/8/2003 2:04:14 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
Table 48 OOB signal receiver requirements  
The number 1008 needs a space after the 1 to follow ISO format

Page: 97  
Sequence number: 10  
Date: 1/8/2003 2:27:11 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.5 OOB signals  
Delete COMINIT Completed as it is not used

Page: 97  
Sequence number: 11  
Date: 1/24/2003 12:46:48 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Word this in terms of negation time, not "greater than proceeding idle time"  
They happen to match now, but that's not necessarily true.

Page: 97

Sequence number: 12

Date: 1/24/2003 12:43:47 PM -06'00'

Type: Note

ACCEPT - DONE (had to split into two tables to fit)

idle time may should be:

>= 55 ns and < 175 ns

>= 175 ns and < 525 ns (propose to SATA)

>= 525 ns and < 1575 ns (propose to SATA)

idle time shall should be:

>= 101,3 ns and <= 112 ns

>= 304 ns and <= 336 ns

>= 911,7 ns and <= 1008 ns

negation time shall should be:

> 175 ns

> 525 ns

> 1575 ns

Page: 97

Sequence number: 13

Date: 1/24/2003 12:48:43 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 OOB signals

After table 48 OOB signal receiver requirements

"not an error to receive more than six"

should be four, since this is the receiver section

Page: 97

Sequence number: 14

Date: 3/4/2003 6:25:33 PM -06'00'

Type: Note

ACCEPT - DONE

6.5 OOB signals

incorporate 03-096 which adds receiver requirements on the burst times.

(from George Penokie)

Page: 98

Sequence number: 5

Date: 2/9/2003 3:08:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.1 Overview

Change

Overview

to

Phy reset sequences overview

Page: 98

Sequence number: 6

Date: 2/21/2003 2:37:22 PM -06'00'

Type: Strikeout

ACCEPT - DONE

Delete "(i.e., from initiator phy to expander phy, expander phy to expander phy, or expander phy to target phy)."

which seems to assume a certain topology.

Page: 98

Sequence number: 7

Date: 5/12/2003 10:16:25 AM

Type: Note

ACCEPT - DONE

6.6.1 Phy reset sequences overview

Add a list of all the reasons that a phy reset sequence might be originated.

For all phys, shall: power on, hard reset, losing dword sync, management request.

For expander phys, shall: hot-plug timeout.

For SAS phys, may: hot-plug timeout



Page: 100

Sequence number: 6

Date: 1/24/2003 2:47:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed sentence. The phy reset section overview says this now)

6.6.4.1 SAS OOB sequence

Is hot-plug timeout a shall or a should? (see comment in timing table)

Page: 101

Sequence number: 3

Date: 1/8/2003 5:35:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.1 SAS OOB sequence

phys should be phy (two times)

Page: 101

Sequence number: 4

Date: 1/24/2003 2:52:13 PM -06'00'

Type: Note

ACCEPT - DONE

add a description of replying to a COMSAS directly with COMSAS

Page: 102

Sequence number: 5

Date: 1/11/2003 5:13:03 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed Scenario 3)

6.6.4.1 SAS OOB sequence

Figure 51 - SAS to SAS OOB sequence

Scenario 3: start should be starts

Page: 104

Sequence number: 11

Date: 1/24/2003 3:06:49 PM -06'00'

Type: Note

ACCEPT - DONE (removed receiver times altogether)

Table 49 - SAS speed negotiation sequence timing specifications

Some of these receiver times might not be used in the standard. Or it's not clearly differentiated when the transmit times apply and when the receive times apply.

Page: 104

Sequence number: 12

Date: 1/24/2003 3:06:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.2 SAS speed neg sequence

Table 49 - SAS speed neg

Rate change delay should be "Rate change delay time (RCDT)" to match the other names

Page: 104

Sequence number: 13

Date: 1/9/2003 3:46:16 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.2 SAS speed neg

Table 49 - SAS speed neg

Replace speed negotiation window time with a version in units of OOB.

Page: 106

Sequence number: 6

Date: 1/21/2003 4:10:41 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.2 SAS speed negotiation sequence

Figure 54 - SAS speed negotiation

Bx should be Rx

Page: 106

Sequence number: 7  
Date: 1/24/2003 4:03:16 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.6.5 Phy reset sequence after device is attached  
There is no such thing as a COMINIT sequence. Change to COMINIT signal. Global change for COMxxx sequence.

Page: 106  
Sequence number: 8  
Date: 5/12/2003 10:16:25 AM  
Type: Note  
ACCEPT - DONE  
6.6.5 Phy reset sequence after device is attached  
Remove (i.e., SAS target phys should only try once after power on) that was added during letter ballot resolution - make clear the retry rules apply to all new phy reset sequences.

Page: 107  
Sequence number: 5  
Date: 2/16/2003 10:03:05 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (deleted the offending statement)  
6.6.5 Phy reset after device is attached  
"bypassing the normal requirement that COMINIT be both transmitted and received."  
with the changes earlier, this is not a violation of the "Normal" requirement anymore

Page: 107  
Sequence number: 6  
Date: 2/21/2003 8:01:46 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.7 SP transmitter and receiver  
Change  
ALIGN0 Detected;  
to  
ALIGN0 Received  
convention is primitives are Received; OOB signals are Detected/Completed

Page: 107  
Sequence number: 7  
Date: 2/21/2003 8:01:46 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.7 SP transmitter and receiver  
Change  
ALIGN1 Detected;  
to  
ALIGN1 Received  
convention is primitives are Received; OOB signals are Detected/Completed

Page: 108  
Sequence number: 6  
Date: 1/8/2003 6:38:16 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.8 SP state machine  
Add a cross reference to the first reference to SP\_DWS state machine

Page: 108  
Sequence number: 7  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
6.8.1 Overview  
Change  
Overview  
to  
SP state machine overview

Page: 110

Sequence number: 14

Date: 2/9/2003 5:42:14 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.2.2.1 SP2:OOB\_AwaitCOMX state description  
initialized and enabled  
should be  
initialized and started

Page: 111

Sequence number: 8

Date: 1/10/2003 5:11:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.2.6.1 State description (SP6)  
Reword "waits for COMSAS to be completely received." like the others

Page: 113

Sequence number: 9

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (added labels)  
6.8.3 SAS speed negotiation states  
Figure 57 - SAS SN states  
The transitions out of SP13:SAS\_Pass and SP14:SAS\_Fail lack labels

Page: 113

Sequence number: 10

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE  
6.8.3 SAS speed negotiation states  
Figure 57 - SN states  
Add cutout and to all states input

Page: 115

Sequence number: 17

Date: 1/6/2003 9:29:43 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.5.2 Transition SP12:SAS\_AwaitALIGN1 to ...  
SP12:SAS\_AwaitALIGN1 should be SP12:SAS\_AwaitSNW  
(from muikien\_kirk@adaptec.com)

Page: 115

Sequence number: 18

Date: 1/6/2003 9:29:49 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3.4.3 Transition SP11:SAS\_AwaitALIGN1 to SAS\_AwaitSNW  
SP14:SAS\_AwaitSNW should be SP12:SAS\_AwaitSNW (without the space and 14 changed to 12)  
(from muikien\_kirk@adaptec.com)

Page: 116

Sequence number: 8

Date: 3/15/2003 10:01:26 AM -06'00'

Type: Note

ACCEPT - DONE (SP12:SAS\_AwaitSNW sends a Start\_IR\_Receiver confirmation to SL\_IR\_RIF and SL\_IR\_IRC. That confirmation replaces Phy Layer Ready going into those two state machines, enabling them to start watching for IDENTIFY address frames and HARD\_RESETs.  
If SP12:Await\_SNW [but not SP13:SAS\_Pass since it takes zero time] receive an Stop SNTT request from SL\_IR\_IRC during the final speed negotiation window, they transition to SP15:SAS\_PHY\_Ready. This short circuits the SNTT (the other phy must have received enough ALIGNs and left its SNTT if an IDENTIFY or HARD\_RESET showed up, so further sending of ALIGN(1)s is unnecessary). When SP reaches SP15:SAS\_PHY\_Ready, it still sends Phy Layer Ready which wakes up SL\_IR\_TIR as currently defined. This takes zero time so the 1 ms IDENTIFY timeout can easily be honored.)  
6.8.3.8 SP15:SAS\_PHY\_Ready state  
Because of clock tolerances and COMSAS detect tolerance, there is an issue with IDENTIFY being transmitted before the receiver has not yet reached SP15. One solution is to delay transmitting IDENTIFY for 2 usec. Another solution is to allow IDENTIFY

detection as soon as incoming dword sync is achieved (even if the phy is still sending ALIGNs for its SNTT.)  
(from Bruce Leshay, Maxtor)

Page: 117

Sequence number: 5

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE  
6.8.4 SATA host emulation states  
Change SAS device to phy in this paragraph  
(from Vixel)

Page: 118

Sequence number: 11

Date: 2/4/2003 6:57:13 PM -06'00'

Type: Note

ACCEPT - DONE  
6.8.4 SATA host emulation states  
Figure 58 - SP state machine SATA host emulation states  
The SP23:SATA\_PM\_Partial to SP17:SATA\_AwaitCOMWAKE arc should go to SP16:SATA\_COMWAKE  
and  
The SP24:SATA\_PM\_Slumber to SP17:SATA\_AwaitCOMWAKE arc should go to SP16:SATA\_COMWAKE

Page: 118

Sequence number: 12

Date: 2/9/2003 3:05:20 PM -06'00'

Type: Highlight

ACCEPT - DONE  
6.8.4 SATA host emulation states  
Change  
SAS expander  
to  
expander

Page: 118

Sequence number: 13

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE  
6.8.4 SATA host emulation states  
Figure 57 - SATA host emulation states  
Add cutout and to all states input

Page: 119

Sequence number: 16

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE  
6.8.4.4.1 SP19  
Change SAS device to phy  
(from Vixel)

Page: 120

Sequence number: 21

Date: 1/11/2003 5:13:03 PM -06'00'

Type: Highlight

ACCEPT - DONE  
6.8.4.6.2 SP21:SATA\_TransmitALIGN to SP22:SATA\_PHY\_Ready  
when should be if

Page: 121

Sequence number: 8

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE  
6.9.1 Overview  
Change  
Overview  
to

## SP\_DWS state machine overview

Page: 121

Sequence number: 9

Date: 3/11/2003 4:47:28 PM -06'00'

Type: Note

REJECT (defer to SAS-2)

6.9 SP\_DWS state machine

\*\*\*

The incoming dword architecture is not clear.

This would work:

SP\_DWS sends each Dword Received to the link layer SL\_IR, which sends it to SL or XL after finishing the identification sequence.

SL sends the dword received to SSP, STP, or SMP after establishing the corresponding type of connection, ignoring invalid dwords.

XL sends the dword received to the ECR (after establishing a connection), changing to ERROR or SATA\_ERROR as needed.

Page: 121

Sequence number: 10

Date: 5/12/2003 10:16:25 AM

Type: Note

ACCEPT - DONE

6.9.1. SP\_DWS overview

Add Management Reset request to starting conditions (in text and in figure). Both SP and SP\_DWS need to get restart together if that message is sent.

Page: 123

Sequence number: 20

Date: 3/4/2003 6:38:02 PM -06'00'

Type: Note

ACCEPT - DONE (done with move to XL of ERROR generation.)

6.9 SP\_DWS

when moving the ERROR/SATA\_ERROR stuff into XL, make sure that incoming ERROR is converted to SATA\_ERROR (along with incoming invalid dwords).

Page: 127

Sequence number: 3

Date: 2/7/2003 6:05:39 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.1 Primitives overview

this standard

needs a closing )

Page: 127

Sequence number: 4

Date: 3/4/2003 6:38:46 PM -06'00'

Type: Note

ACCEPT - DONE

7 Link layer

Add a 7.1 Link layer overview section with a very short introduction

Page: 131

Sequence number: 3

Date: 1/24/2003 6:38:31 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.1 Primitives

and global

Change NOTIFY (ENABLE\_SPINUP) to NOTIFY (ENABLE SPINUP) - the underscore is not used inside parenthesis

Page: 131

Sequence number: 4

Date: 3/21/2003 8:56:29 AM -06'00'

Type: Highlight

ACCEPT - DONE (new coding of K28.5, D31.3, D10.2, D10.2 incorporated)

7.1.2 Primitive summary

\*\*\*

NOTIFY (RESERVED 2) K28.5 D31.3 D27.3 D10.2

This is not neutral as it needs to be. All the other ALIGNs and NOTIFYs are neutral.

Page: 131  
Sequence number: 5  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.1.2 Primitive summary  
Add a new section for Primitive encodings

Page: 131  
Sequence number: 6  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.2 Primitive summary  
Before the primitive encoding table, "primitives used outside connections."  
should be:  
"primitives not specific to type of connection"

Page: 133  
Sequence number: 2  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.2 Primitive summary  
used inside SSP and SMP connections.  
add "only" to match table name

Page: 134  
Sequence number: 1  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.2 Primitive summary  
used inside STP connections and on SATA physical links.  
add "only" to match table name

Page: 135  
Sequence number: 9  
Date: 2/17/2003 12:08:48 PM -06'00'  
Type: Note  
ACCEPT - DONE (variety of examples added to the picture, but none of the invalid types)  
7.1.3.4 Triple primitive sequence  
Figure 61 - Triple primitive sequence  
label the 3 CLOSEs only as the triple primitive sequence.  
Change CLOSE to "Triple type of primitive"  
idle to "another dword"  
show another 3 after them  
Then show only one or two idles and mark that the second ones aren't in a second example  
Do the same kind of changes for the redundant section

Page: 135  
Sequence number: 10  
Date: 1/24/2003 6:39:45 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.3.4 Triple primitive sequence  
CLOSE should be CLOSE (NORMAL))

Page: 135  
Sequence number: 11  
Date: 2/17/2003 12:03:39 PM -06'00'  
Type: Note  
ACCEPT - DONE (the redundant example shows Redundant A and Redundant B to imply that they are different)  
Note: back to back BROADCAST primitives are not detected  
somehow...

Page: 136  
Sequence number: 3

Date: 2/17/2003 12:08:11 PM -06'00'

Type: Note

ACCEPT - DONE (made a bit more complicated that suggested. Shows a variety of examples)

7.1.3.5 Redundant primitive sequences

Figure 62

keep this picture simpler than the triple picture

show where the receiver detects after 3

don't use BROADCAST, use Redundant type of primitive

Page: 136

Sequence number: 4

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

7.1.4.2 ALIGN

Add a table of the 4 ALIGN primitives.

Page: 136

Sequence number: 5

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.2 ALIGN

Expand the list of what ALIGNs are used for to add OOB signals. Split clock skew management and rate matching into separate rows.

Page: 136

Sequence number: 6

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.2 ALIGN

SAS devices

should be

Phys

(from Vixel)

Page: 136

Sequence number: 7

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

7.1.4.1 AIP

Table 58 - AIP Primitives

AIP (WAITING ON PARTIAL) description

"...other connection requests that have also received AIP (WAITING ON PARTIAL)."

doesn't have any trigger (recursive definition). It should be:

with other partial pathways (i.e.,

connection requests that have not reached the destination phy).

Page: 137

Sequence number: 11

Date: 2/9/2003 12:14:25 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.4 BROADCAST

Change "end devices" and "initiator ports and target ports" to "SAS ports" in this section. Broadcast primitives should be forwarded to SAS ports inside expander devices, not just those in end devices.

Potential confusion: "expander port" is not a "SAS port" - expander ports must not treat the reserved primitives the same. To help, add (i.e. SAS initiator ports and SAS target ports) after "SAS ports" in the table

Page: 137

Sequence number: 12

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

7.1.4.3 BREAK

change abandon to abort

Page: 138

Sequence number: 18

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.9 NOTIFY

\*\*\*

"NOTIFY shall not be transmitted until at least three

ALIGNs have been transmitted since the previous NOTIFY."

This is just to reduce EMI issues. Different NOTIFYs could be interspersed without causing problems. Reword to "a specific NOTIFY shall not be transmitted a second time until... ALIGNs or different NOTIFYs"

Page: 138

Sequence number: 19

Date: 3/16/2003 9:44:20 AM -06'00'

Type: Note

ACCEPT - DONE

7.1.4.7 ERROR

Add sentence that SAS phys may ignore ERROR or treat it as an invalid dword.

Page: 138

Sequence number: 20

Date: 3/15/2003 4:53:17 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per 3/11 SAS WG)

10.1.4.9 NOTIFY

Remove "and RBC"

Page: 139

Sequence number: 7

Date: 2/17/2003 1:52:14 PM -06'00'

Type: Note

ACCEPT - DONE (Jan WG treat as OPEN\_REJECT (WRONG DESTINATION))

what if OPEN\_REJECT (STP RESOURCES BUSY) is the reply to an SSP or SMP request?

Page: 139

Sequence number: 8

Date: 2/17/2003 1:48:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed from expander phy to destination phy)

7.1.4.11 OPEN\_REJECT

Table 61 - OPEN\_REJECT abandon primitives

originator could be destination phy for a native STP target

Page: 139

Sequence number: 9

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Square

ACCEPT - DONE

7.1.4.11 OPEN\_REJECT

Table 61 - OPEN\_REJECT abandon primitives

Fill in the blank "originator" cells with "Unknown"

Page: 139

Sequence number: 10

Date: 3/15/2003 3:26:36 PM -06'00'

Type: Note

ACCEPT - DONE (per March SAS WG incorporated 03-119)

7.1.4.11 OPEN\_REJECT

\*\*\*

03-119 proposes adding invalid initiator connection tag to the list of reasons for PROTOCOL NOT SUPPORTED  
(from Brian Day, LSI Logic)

Page: 140

Sequence number: 5

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Square

ACCEPT - DONE

7.1.4.11 OPEN\_REJECT



Table 62 - OPEN\_REJECT retry primitives  
Fill in the blank "originator" cells with "Unknown"

Page: 140  
Sequence number: 6  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.4.11 OPEN\_REJECT  
change abandon to stop retrying

Page: 140  
Sequence number: 7  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.4.11 OPEN\_REJECT  
change abandon to stop retrying

Page: 142  
Sequence number: 7  
Date: 3/11/2003 4:06:19 PM -06'00'  
Type: Note  
ACCEPT - DONE (per Jan WG. Moved all the rules to 7.16.2 STP flow control. For receiving from SATA links, must accept 21 dwords. For transmitting to SATA, must reply with HOLDA within 19 dwords. For receiving from SAS links, must accept 20 + 4n dwords. For transmitting to SAS links, must reply within 20 dwords.)  
7.1.6.3 SATA\_HOLD and HOLDA  
SATA's 20 dwords is too loose. Should we mandate stopping transmitting within 19 to meet a receiver expectation of 20?  
26.667 ns for one primitive (At 1.5 Gbps)  
5 ns/m delay 10 m external cable => 2 dwords at 1.5 Gbps; 4 at 3.0 Gbps  
Receive buffer approach:  
1. STP data receivers shall accept (20 + 4n) dwords after sending HOLD (4n = 8 at 3 Gbps, 4 at 1.5 Gbps)  
2. STP data transmitters shall send no more than 20 dwords after receiving HOLD  
Mention that round-trip is used to select 4. This also/mostly goes into 7.17.2.  
outside the scope: SATA link from expander to SATA drive follows SATA rules (should transmit only 19 dwords and receive 21 to be safe)

Page: 142  
Sequence number: 9  
Date: 2/17/2003 2:02:58 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.1.6.3 and global  
Change SATA protocol to just SATA

Page: 142  
Sequence number: 10  
Date: 2/7/2003 6:13:10 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.1.6.1 SATA\_ERROR  
Add that an incoming ERROR is also forwarded as a SATA\_ERROR

Page: 144  
Sequence number: 7  
Date: 2/17/2003 4:45:24 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.2 Clock skew management  
Change data to dwords (i.e., is not the original source of the data)

Page: 144  
Sequence number: 8  
Date: 2/17/2003 4:44:59 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.2 Clock skew management  
around table 66  
data sb dword all over on this page

Page: 144  
Sequence number: 9  
Date: 1/25/2003 11:01:51 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.2 clock skew management  
for expander devices forwarding dwords from SAS phys to SAS phys

Page: 144  
Sequence number: 10  
Date: 2/1/2003 1:48:43 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.4 CRC  
Format all equations with division using Equation editor

Page: 144  
Sequence number: 11  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE (added a definition sentence)  
7.3 Idle links  
This section lacks a definition of the term "idle dword."

Page: 147  
Sequence number: 15  
Date: 1/31/2003 3:45:48 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.5 Scrambling  
Table 68 - Scrambling types  
Data should be Type

Page: 147  
Sequence number: 16  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.5 Scrambling  
ALIGN in CONT description  
add "or NOTIFY"

Page: 150  
Sequence number: 3  
Date: 1/24/2003 7:12:51 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (actually Restricted)  
Make this Ignored

Page: 150  
Sequence number: 4  
Date: 1/24/2003 7:10:17 PM -06'00'  
Type: Note  
ACCEPT - DONE  
change Ignored fields to Restricted. The IDENTIFY frame is the source for them, and should set them to 0 so other data structures can fill them in.

Page: 151  
Sequence number: 6  
Date: 1/24/2003 7:08:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.7.3 OPEN address frame  
Add CRC field paragraph.

Page: 151  
Sequence number: 7  
Date: 2/9/2003 12:13:41 PM -06'00'

Type: Strikeout  
ACCEPT - DONE  
7.7.2 IDENTIFY address frame  
Table 73 - Attached device type  
Delete only since other comments make end devices distinct from with expander devices

Page: 151  
Sequence number: 8  
Date: 2/21/2003 7:02:25 PM -06'00'  
Type: Note  
ACCEPT - DONE (changed to port references)  
7.7.2 IDENTIFY address frame  
drop the target/initiator device references

Page: 152  
Sequence number: 4  
Date: 1/24/2003 7:03:09 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.7.3 OPEN address frame  
Table 74 - OPEN address frame format  
Delete (MSB) and (LSB)

Page: 152  
Sequence number: 5  
Date: 1/24/2003 7:05:47 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (per Jan WG)  
Change all Reserved fields here to COMPATIBLE FEATURES  
Transmitters shall set these to zero.  
Recipient shall not check these fields.

Page: 152  
Sequence number: 6  
Date: 3/4/2003 6:43:15 PM -06'00'  
Type: Note  
ACCEPT - DONE (changed to port throughout this section)  
7.7.3 OPEN address frame  
"device" seems to be used wrong here

Page: 153  
Sequence number: 6  
Date: 3/4/2003 6:44:27 PM -06'00'  
Type: Note  
ACCEPT - DONE (reworded to use "potential pathway" term. Drop the wide and narrow sentences that are more confusing than helpful)  
check use of pathway vs. wide links  
Is pathway only one physical link in the wide link (implied by ch4), or is it all the physical links in the wide link (implied by here)?  
ch4 wins.  
"to a value supported by a potential pathway. For each wide link in a potential pathway, ..."  
Use potential pathway throughout where needed

Page: 153  
Sequence number: 7  
Date: 1/24/2003 7:17:23 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE (Per 1/21 SAS call, delete this sentence.)  
"The requested connection rate shall not exceed the slowest negotiated physical link rate along the pathway."

Page: 153  
Sequence number: 8  
Date: 2/15/2003 2:50:06 PM -06'00'  
Type: Note  
ACCEPT - DONE (per Feb 11 call)  
7.7.3 OPEN address frame  
Table 76 - Connection rate  
\*\*\*  
Change 0h and 1h to 8h and 9h (for 1.5 Gbps and 3.0 Gbps) to match DISCOVER and PHY CONTROL functions (which also need to change to match)

Page: 153

Sequence number: 9

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

7.7.3 OPEN address frame

(per 5/6 meeting)

Initiator Connection Tag rules for targets.

Change "the..." to:

the most recent value received or the value received in one of the connection requests for one of the outstanding commands or task management functions.

Keep the check consistency sentence.

Page: 154

Sequence number: 8

Date: 1/24/2003 7:08:11 PM -06'00'

Type: Note

ACCEPT - DONE

7.7.3 OPEN address frame

Add CRC field paragraph.

Page: 154

Sequence number: 9

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.1 Overview

Change

Overview

to

Identification and hard reset sequence overview

Page: 154

Sequence number: 10

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Square

ACCEPT - DONE

7.7.3 OPEN address frame

Reword in terms of port identifiers of SAS port. The source address is from the originator not the port transmitting (expanders port don't change it as they forward connection requests).

Page: 154

Sequence number: 11

Date: 3/2/2003 1:58:47 PM -06'00'

Type: Note

ACCEPT - DONE (per 2-24 WG)

7.8.2 Initiator specific rules

Downgrade "shall perform" to "should perform"

(from Bob Nixon, Emulex)

Page: 154

Sequence number: 12

Date: 3/15/2003 3:27:13 PM -06'00'

Type: Note

ACCEPT - DONE (incorporated alternative change to fix this; see comment in SP SAS\_PHY\_Ready state)

7.8 Identification and hard reset sequence

\*\*\*

A 2 ms delay should always begin the identification sequence, to allow for tolerances in the ending time of the speed negotiation sequences.

(from Maxtor)

Page: 155

Sequence number: 14

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.5.1 Overview

Change

Overview  
to  
SL\_IR state machine overview

Page: 155

Sequence number: 15

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE  
7.8.3 Fanout expander device rules  
Change  
identify sequence  
to  
identification sequence

Page: 155

Sequence number: 16

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE  
7.8.4 Edge expander rules  
Change  
identify sequence  
to  
identification sequence

Page: 155

Sequence number: 17

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE  
7.8.2 Initiator device specific rules  
Move the discover process paragraph about disabling loops into the discover process section in chapter 4. It really applies to management app clients in fanout expanders too, so is misplaced here.

Page: 156

Sequence number: 11

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE  
7.8.5.1 SL\_IR state machine  
Figure 67 - SL\_IR state machine  
Remove  
Identify Timeout  
from SL\_IR\_IRC1. It's not in the text and SL\_IR\_IRC2 provides it.

Page: 156

Sequence number: 12

Date: 3/1/2003 4:38:34 PM -06'00'

Type: Note

ACCEPT - DONE (per 2/25)  
7.8.5.1 SL\_IR  
and global  
add HARD\_RESET Received to each layer so it can be sent to the SCSI application layer as Transport Reset. Each layer make time to forward it up after clearing itself.)

Page: 157

Sequence number: 17

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE  
7.8.6.1 Overview  
Change  
Overview  
to  
SL\_IR\_TIR state machine overview

Page: 158

Sequence number: 12

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.2.1 Overview

Change

Overview

to

SL\_IR\_RIF state machine overview

Page: 159

Sequence number: 8

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.8.6.3.1 Overview

Change

Overview

to

SL\_IR\_IRC state machine overview

Page: 160

Sequence number: 18

Date: 2/6/2003 11:05:45 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.9 Power management

Add SSP in front of target ports

Page: 160

Sequence number: 19

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.8.6.3.3.1 SL\_IR\_IRC2 state description

Delete:

indicating that

the identify sequence has completed,

which is redundant with the signal name itself

Page: 160

Sequence number: 20

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Underline

ACCEPT - DONE

7.8.6.3.3.2 SL\_IR\_IRC2 to SL\_IR\_IRC3

Change

identify sequence

to

identification sequence

Page: 160

Sequence number: 21

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.9 Power management

Remove:

An expander device may intercept SATA register FIS transfers and hide any SATA target device support for interface power management in the SCONTROL and SSTATUS registers.

That are registers in the HBA, not fields from the SATA device.

Page: 160

Sequence number: 22

Date: 3/15/2003 4:53:17 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per 3/11 SAS WG)

7.9 Power management

Remove "and RBC"

Page: 161  
Sequence number: 9  
Date: 3/1/2003 4:38:34 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.11 Domain changes  
discovery process  
should be  
discover process

Page: 162  
Sequence number: 14  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.12.1 Connection overview  
Change  
Connection  
to  
Connections

Page: 162  
Sequence number: 15  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.1 Connection overview  
change abandon to abort

Page: 163  
Sequence number: 33  
Date: 2/19/2003 11:19:25 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.12.3 Arbitration fairness  
Change "initiator port, target port" to "SAS port"  
and change "Initiator ports and target ports" to "SAS ports"

Page: 163  
Sequence number: 34  
Date: 2/8/2003 11:40:57 AM -06'00'  
Type: Note  
ACCEPT - DONE  
Change  
Initiator ports and target ports  
to  
SAS ports (i.e. SAS initiator ports and SAS target ports)  
throughout this section

Page: 163  
Sequence number: 35  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.2 Connection request responses  
change abandon to abort

Page: 164  
Sequence number: 13  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.12.3.1.1 Arbitration overview  
Convert the arbitration priority list into a table of concatenations like the pathway recovery priority. Call it Arbitration priority.

Page: 164  
Sequence number: 14  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Note

ACCEPT - DONE (added connection rate. Moved table from expander section to here, since it's now the same comparison for end devices and expander devices)

#### 7.12.3 Arbitration fairness

\*\*\*

Requests passing on the wire should also compare connection rates, so phys within the same port attached to each other (unusual but allowed) know which request to select if the rates differ (not prohibited so must be handled).

Page: 164

Sequence number: 15

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.3 Arbitration fairness

remove

"and set it to zero"

which is unnecessary

(from March SAS WG)

Page: 165

Sequence number: 16

Date: 2/19/2003 1:54:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "recommended")

7.12.3.1.3 Partial Pathway Timer

Per an IBM comment in the SMP PHY control section, the 7  $\mu$ s default needs to change to a recommended default not a required default.

Page: 165

Sequence number: 17

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.4 Pathway Recover

For "Pathway Recovery Priority"

use lowercase throughout this section

Page: 165

Sequence number: 18

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.3 Partial Pathway Timer

Rename section

to

Partial Pathway Timeout timer

Page: 166

Sequence number: 12

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.12.3.1.4 Pathway recovery

Delete the last sentence

"If the

PATHWAY BLOCKED COUNT fields match, then the comparison ..."

which is unnecessary (and too far removed from the table of the priority field concatenation to make sense here)

Page: 166

Sequence number: 13

Date: 3/15/2003 10:18:17 AM -06'00'

Type: Note

ACCEPT - DONE (changed BAD DESTINATION rule to be based on source request arriving on subtractive port or not. Removed the whole example paragraph since it's no longer discussing an odd exception.)

7.12.4.2 Edge expander devices

\*\*\*

If a match occurs on a subtractive routing method port that is the same port on which the connection request arrived, NO DESTINATION needs to be returned rather than BAD DESTINATION.

If the match is on a table routing or direct routing port, then BAD DESTINATION is appropriate.



Page: 167  
Sequence number: 12  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandoning to aborting

Page: 167  
Sequence number: 13  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandon to abort

Page: 167  
Sequence number: 14  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandon to abort

Page: 167  
Sequence number: 15  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandon to abort

Page: 167  
Sequence number: 16  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandon to abort

Page: 167  
Sequence number: 17  
Date: 5/12/2003 10:16:25 AM  
Type: Highlight  
ACCEPT - DONE  
7.1.12.5 Abandoning a connection request  
change abandon to abort

Page: 169  
Sequence number: 9  
Date: 3/2/2003 2:07:54 PM -06'00'  
Type: Highlight  
ACCEPT - DONE ("considered broken due to loss of dword synchronization")  
7.12.6 Breaking a connection  
disconnection at the PHY  
layer  
makes no sense  
(from George Penokie)

Page: 169  
Sequence number: 10  
Date: 3/15/2003 5:15:20 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (as a "may")  
Table 82 - Break connection responses  
\*\*\*  
"The originating port shall assume the connection has been broken."  
This "should" also trigger a link reset sequence, since a valid running XL or SL should always reply to BREAK with a BREAK after a connection has been opened. No response means something is wrong.

Page: 170  
Sequence number: 6  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.1 Overview  
Change  
Overview  
to  
SL state machine overview

Page: 170  
Sequence number: 7  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.12.7 Closing a connection  
Expanders (now STP target ports) are not allowed to originate CLOSE (CLEAR AFFILIATION) on their own. Split into initiator sentence and STP target port sentence.

Page: 170  
Sequence number: 8  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Square  
ACCEPT - DONE  
7.12.7 Closing a connection  
Move protocol-specific sentences into protocol-specific sections 7.16.6, 7.17.3, and 7.18.3  
Move the picture as is into 7.16.6. Replace with simpler picture showing only CLOSE (not DONE) - show both sequential and concurrent CLOSEs.

Page: 170  
Sequence number: 9  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.12.7 Closing a connection  
Change  
primitives  
to  
dwords  
(not just primitives matter)

Page: 171  
Sequence number: 4  
Date: 2/9/2003 12:11:24 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.13.1 SL state machine overview  
add open timeout timer, close timeout timer, and break timeout timer to a list in front of this state machine?

Page: 173  
Sequence number: 2  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Figure 73 - SL state machine part 2  
add cutouts to be consistent

Page: 174  
Sequence number: 13  
Date: 2/3/2003 3:13:07 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.3.2 SL0:Idle to SL1:ArbSel  
link rate should be connection rate

Page: 174  
Sequence number: 14

Date: 2/3/2003 3:33:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.3.2 SL0:Idle to SL1:ArbSel

reword

<<is received and an

.. is received.>> to <<receiving both...and...>

Page: 174

Sequence number: 15

Date: 2/3/2003 3:33:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.3.2 SL0:Idle to SL2:Selected

reword

<<is received and an

.. is received.>> to <<receiving both...and...>

Page: 174

Sequence number: 16

Date: 3/15/2003 3:25:18 PM -06'00'

Type: Note

ACCEPT - DONE (incorporated 03-120)

7.13.2 SL transmitter and receiver

\*\*\*

Going into March T10 week, there is still debate on how BREAK should be handled. 03-120 proposes further tweaks.

Page: 174

Sequence number: 17

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE (based on a signal from the MA layer)

7.13.3 SL0:Idle state

Add "This state may send a Transmit BROADCAST message to the SL transmitter" and add it to the SL transmitter section.

Initiators and targets are allowed to transmit BROADCAST (CHANGE) (although targets should not).

Page: 175

Sequence number: 3

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.4.1 SL1

Change "request a ... by sending" to just "send"

Page: 176

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.4.4 SL1 to SL3

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 176

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.13.4.4 SL1 to SL3

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 176

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.4 SL1 to SL3  
Change:  
"transition shall pass .. to ..."  
to:  
"to transition shall include ..."

Page: 176  
Sequence number: 7  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.3 SL1 to SL2  
Change  
Source Port Hashed Value argument (i.e., hashed value of  
the source port identifier), and the Destination Port Hashed Value argument (i.e., hashed value of the source  
destination identifier)  
to  
"Hashed Source SAS Address and Hashed Destination SAS Address"

Page: 176  
Sequence number: 8  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.3 SL1 to SL2  
Change  
Source Port Hashed Value argument (i.e., hashed value of  
the source port identifier), and the Destination Port Hashed Value argument (i.e., hashed value of the source  
destination identifier)  
to  
"Hashed Source SAS Address and Hashed Destination SAS Address"

Page: 177  
Sequence number: 7  
Date: 3/1/2003 5:56:58 PM -06'00'

Type: Note  
ACCEPT - DONE (slipped into SL2:SL0 transition text, following the local convention)  
7.13.5 SL2:Selected state  
This state machine needs to own the affiliation status for the port.  
This state needs to describe returning OPEN\_REJECT (STP RESOURCES BUSY) when opened by an STP initiator which is not  
affiliated.

Page: 177  
Sequence number: 8  
Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.5.3 SL2 to SL3  
Change:  
"transition shall pass .. to ..."  
to:  
"to transition shall include ..."

Page: 177  
Sequence number: 9  
Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.5.3 SL2 to SL3  
Change:  
"transition shall pass .. to ..."  
to:  
"to transition shall include ..."

Page: 177  
Sequence number: 10  
Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.5.3 SL2 to SL3  
Change:  
"transition shall pass .. to ..."  
to:  
"to transition shall include ..."

Page: 177  
Sequence number: 11  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 12  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 13  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2:SL0  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 14  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2:SL0  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 15  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2:SL0  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 16  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.2 SL2:SL0  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 17  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.13.4.3 SL2:SL3  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 18  
Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight  
ACCEPT - DONE

7.13.4.3 SL2:SL3  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 19  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.4.3 SL2:SL3  
Change "request a ... by sending" to just "send"

Page: 177  
Sequence number: 20  
Date: 3/24/2003 9:22:53 AM -06'00'  
Type: Note  
ACCEPT - DONE (added as an e.g.)  
7.13.5.2 SL2:Selected to SL0:Idle  
add a Protocol Not Supported in an SMP initiator receives an incoming connection request from an SMP target

Page: 178  
Sequence number: 2  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.6.1 SL3:Connected state description  
This state requests  
to  
This state shall request

Page: 178  
Sequence number: 3  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.7.1 SL4  
Change "request a ... by sending" to just "send"

Page: 178  
Sequence number: 4  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.7.1 SL4  
Change "request a ... by sending" to just "send"

Page: 178  
Sequence number: 5  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.7.2 SL4:SL0  
Change "request a ... by sending" to just "send"

Page: 178  
Sequence number: 6  
Date: 3/24/2003 9:22:53 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.13.7 SL4:DisconnectWait  
Add that if CLOSE (Clear Affiliation) is received, an STP affiliation is cleared by an STP target port.

Page: 179  
Sequence number: 2  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.14.1 Overview  
Change  
Overview

to  
XL state machine overview

Page: 179  
Sequence number: 3  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.8.1 SL5  
Change "request a ... by sending" to just "send"

Page: 179  
Sequence number: 4  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.8.1 SL5  
Change "request a ... by sending" to just "send"

Page: 179  
Sequence number: 5  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.13.9.1 SL6  
Change "request a ... by sending" to just "send"

Page: 180  
Sequence number: 8  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.14.1 XL overview  
Change Phy Status from a request to a response throughout this section

Page: 180  
Sequence number: 9  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Square  
ACCEPT - DONE  
7.14.1 XL state machine overview  
All the signals to/from the ECM, ECR, and BPP can be deleted in favor of the more detailed lists in chapter 4.

Page: 181  
Sequence number: 2  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Figure 74 - XL state machine part 1  
Request Path, Arb Reject, etc. should be going down/coming from below

Page: 181  
Sequence number: 3  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.14.1 XL overview  
Figure 74 - XL part 1  
delete the arguments passed with transitions - just rely on the text to describe them (convention in other state diagrams)  
(from George Penokie)

Page: 182  
Sequence number: 2  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
Figure 75 - XL state machine part 2  
Transmit Break and Phy Status etc. should be requests going down

Page: 182

Sequence number: 3

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE

7.14.1 XL overview

Figure 75 - XL part 2

delete the arguments passed with transitions - just rely on the text to describe them (convention in other state diagrams)  
(from George Penokie)

Page: 183

Sequence number: 3

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

Figure 76 - XL part 3

Change Close to CLOSE

Page: 183

Sequence number: 4

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

Figure 76 - XL part 3

Change Close to CLOSE

Page: 183

Sequence number: 5

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

Figure 76 - XL state machine part 3

Transmit Break, Transmit Break, etc. should be going down/coming from below

Page: 184

Sequence number: 21

Date: 3/8/2003 12:31:17 PM -06'00'

Type: Note

ACCEPT - DONE (Tim Hoglund provided changes.)

7.14.2 XL0:Idle state

remove the XL0:Idle to XL9:Break transition. Don't want to reply to an inbound BREAK with one. Should work the same as SL which ignores them in its idle state.

Also need to add XL3 to XL1 direct transition (see figures in the end) and remove Transmit Break references above

Tim will provide the list of changes

Page: 186

Sequence number: 21

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.5.1 XL3

Phy Status confirmation

should be a request.

Page: 186

Sequence number: 22

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

7.14.5.2 XL3 to XL0

Lowercase the a's and an's in the a)b)c) list.

Page: 186

Sequence number: 23

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.6.1 XL4:Open\_Reject state description

"the following"



should be "one of the following"  
and c) needs an ; or at the end of it

Page: 187

Sequence number: 13

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE

7.14.7 XL5:Forward\_Open state

XL5 needs to accept OPEN Address Frame Received and BREAK Received and pass it on to XL6 in the transition  
(from March SAS WG)

Page: 188

Sequence number: 22

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.1 XL6

Phy Status confirmation  
should be a request.

Page: 188

Sequence number: 23

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

7.14.9.1 XL7

Phy Status confirmation  
should be a request.

Page: 188

Sequence number: 24

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.8.2 XL6:XL0

Change

The XL7:XL0 transition

to

this transition

wrong number and obsolete format

Page: 189

Sequence number: 19

Date: 3/10/2003 10:06:36 PM -06'00'

Type: Note

ACCEPT - DONE

7.14.10.1 XL8:Close\_Wait needs to mention invalid dwords too

pull out ERROR stuff from DWS; just have it output valid dword or invalid dword.

Let this state machine convert invalid dwords to ERROR or SATA\_ERROR as appropriate.

Page: 189

Sequence number: 20

Date: 2/9/2003 12:12:18 PM -06'00'

Type: Highlight

REJECT (but moved time reference to intro table instead)

millisecond should be ms

Page: 189

Sequence number: 21

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

7.14.10.1 XL8

Phy Status confirmation  
should be a request.

Page: 190

Sequence number: 12

Date: 2/4/2003 6:23:51 PM -06'00'

Type: Note

ACCEPT - DONE

Delete this paragraph, which conflicts with 7.7.3 (Brian Day's comment)

Page: 190

Sequence number: 13

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

7.15 Rate matching

Move this section earlier, ahead of the SL and XL sections.

In expanders, the XL state machine enforces rate matching, so the description of it should be ahead of the XL section. Putting it between SL and XL would seem odd, so before SL should do.

Page: 190

Sequence number: 14

Date: 3/21/2003 3:56:32 PM -06'00'

Type: Note

ACCEPT - DONE (In new port layer. Per 2/25 meeting. Rules put here for now but need to move to port layer.)

add rules that wide ports shall not reject connection requests based on their outgoing requests, and that if multiple connections are established a wide port shall transmit at least one frame before closing one of the connections).

Move these rules to the port layer when the rewrite is stable - they're not really link layer rules.

Page: 191

Sequence number: 9

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.2 SSP frame transmission and reception

add CREDIT\_BLOCKED to the list of primitives that may follow a DONE

Page: 191

Sequence number: 10

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.2 SSP frame transmission and reception

DONE (NORMAL)

to

DONE in this section, since these statements are true for other versions of DONE

Page: 191

Sequence number: 11

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

7.16.3 SSP frame transmission

\*\*\*

the additional sense code of DATA PHASE CRC ERROR DETECTED should be NAK RECEIVED to match what the transport and application layers mandate be returned for NAKed frames.

Page: 192

Sequence number: 1

Date: 3/1/2003 5:48:54 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed almost all "SSP port"s to "SSP phy"s)

7.16.5 Interlocked frames

SSP port

to

SSP phy (or similar)

throughout this section. Interlock rules are per-connection not crossing wide links

Page: 193

Sequence number: 8

Date: 3/5/2003 4:28:07 PM -06'00'

Type: Note

ACCEPT - DONE (added text to SL\_IR, SL, SSP, and SMP receiver sections)

7.16.7.1 SSP line layer overview

somewhere here, and in SMP link layer, and maybe XL link layer needs to say:  
Unless otherwise stated within the state description, all disparity errors, illegal characters, and unexpected primitives (i.e., any primitive not described in the description of the NNN state) received within any NNN state shall be ignored.

Page: 193

Sequence number: 9

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.1 Overview

Change

Overview

to

SSP link layer state machines overview

Page: 193

Sequence number: 10

Date: 2/18/2003 7:07:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

Change

shall transmit DONE

to

should transmit DONE

The port layer triggers this, and it says should

Page: 193

Sequence number: 11

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SMP connection

Change

Preparing to close

to

Closing

and pull in protocol-specific CLOSE text from 7.12.7 Closing a connection section

Page: 193

Sequence number: 12

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.6 Preparing to close an SSP connection

imbalanced

to

not balanced

Page: 194

Sequence number: 11

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

7.16.7 SSP state machines

Create a separate subclause for each state machine, and move each state machine overview into the first subclause of that subclause.

This will match all other state machines in the document

Page: 195

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.1 SSP state machines overview

and global

Change

Tx Balanced Status

to

Tx Balance Status  
everywhere

Page: 195

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE  
7.16.7.1 SSP state machines  
Figure 82 - SSP state machines  
Change  
EOF Transmitted  
to  
Frame Transmitted

Page: 196

Sequence number: 1

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE  
7.16.7.1 SSP state machines overview  
and global  
Change  
Rx Balanced Status  
to  
Rx Balance Status  
everywhere

Page: 197

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE  
7.16.7.1 SSP state machine  
Figure 84 SSP link layer state machine part 3  
and related text  
Change Transmit SOF/frame/EOF to Transmit Frame  
Change SOF/frame/EOF Transmitted to Frame Transmitted  
This matches the style used in SL\_IR and SMP state machines and looks more like a parameter name

Page: 197

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE  
7.16.7.2 SSP\_TIM state  
Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 197

Sequence number: 6

Date: 2/18/2003 7:09:50 PM -06'00'

Type: Highlight

ACCEPT - DONE  
7.16.7.2 SSP\_TIM Tx Interlock Monitor state  
Change  
EOF Transmitted  
to  
Frame Transmitted

Page: 197

Sequence number: 7

Date: 2/18/2003 7:09:58 PM -06'00'

Type: Highlight

ACCEPT - DONE  
7.16.7.2 SSP\_TIM Tx Interlock Monitor state  
Change  
EOF Transmitted  
to

Frame Transmitted

Page: 197

Sequence number: 8

Date: 2/18/2003 7:10:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM Tx Interlock Monitor state

Change

EOF Transmitted

to

Frame Transmitted

Page: 198

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 198

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 198

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 198

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 198

Sequence number: 7

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 198

Sequence number: 8

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.2 SSP\_TIM state

Change balance and unbalance references in this subclause to  
"ACK/NAK count is {not} balanced"

Page: 199

Sequence number: 8

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.3 SSP\_TF1 to SSP\_TF4:Indicate\_Done\_Tx

"this transition shall pass ... to the Tx\_Wait state."

How can a transition pass something to another state? Change the "shall pass ... to ... state" to "shall include ...".

Page: 199

Sequence number: 9

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 SSP\_TF1 to SSP\_TF2

Change

this transition shall pass a Close Connection argument to the Tx\_Wait state.

to

this transition shall include a Close Connection argument

Page: 199

Sequence number: 10

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 SSP\_TF1 to SSP\_TF2

Change:

this transition shall pass a Transmit Unbalanced Frame argument to the Tx\_Wait state.

to

shall include a Transmit Unbalanced Frame argument.

Page: 199

Sequence number: 11

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 SSP\_TF1 to SSP\_TF2

Change

transition shall pass a Transmit Balanced Frame argument to the Tx\_Wait state.

to

transition shall include a Transmit Balanced Frame argument

Page: 199

Sequence number: 12

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 SSP\_TF1 to SSP\_TF2

Change

Transmit Balanced Frame

to

Transmit Frame Balance Required

Page: 199

Sequence number: 13

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.2 SSP\_TF1 to SSP\_TF2

Change

Transmit Unbalanced Frame

to

Transmit Frame Balance Not Required

Page: 199

Sequence number: 14

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.1 SSP\_TF2 state description

Change

Transmit Balanced Frame

to

Transmit Frame Balance Required

Page: 199

Sequence number: 15

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.1 SSP\_TF2 state description

Change

Transmit Nonbalanced Frame

to

Transmit Frame Balance NotRequired

Page: 199

Sequence number: 16

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.2 SSP\_TF2 to SSP\_TF3

Change

Transmit Balanced Frame

to

Transmit Frame Balance Required

Page: 199

Sequence number: 17

Date: 3/15/2003 4:44:22 PM -06'00'

Type: Note

ACCEPT - DONE (corrected by 03-120; DONE timer does not start running until credit has been received)

7.16.7.4 SSP\_D state machine

concern expressed on T10 reflector about a race condition between the DONE Timeout timer and the Credit Blocked Timeout timer  
(from Brian Day, LSI)

Page: 200

Sequence number: 9

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.3 SSP\_TF2 to SSP\_TF4

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 200

Sequence number: 10

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.3 SSP\_TF2 to SSP\_TF4

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 200

Sequence number: 11

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.3 SSP\_TF2 to SSP\_TF4

Change:

"transition shall pass .. to ..."

to:  
"to transition shall include ..."

Page: 200  
Sequence number: 12  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
Change:  
"transition shall pass .. to ..."  
to:  
"to transition shall include ..."

Page: 200  
Sequence number: 13  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
In  
"is received"  
add "parameter" before "is"

Page: 200  
Sequence number: 14  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.2 SSP\_TF2 to SSP\_TF3  
Change  
Transmit Nonbalanced Frame  
to  
Transmit Frame Balance Not Required

Page: 200  
Sequence number: 15  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
Change  
Transmit Nonbalanced Frame  
to  
Transmit Frame Balance Not Required

Page: 200  
Sequence number: 16  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
Change  
Transmit Nonbalanced Frame  
to  
Transmit Frame Balance Not Required

Page: 200  
Sequence number: 17  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
Change  
Transmit Balanced Frame  
to  
Transmit Frame Balance Required

Page: 200



Sequence number: 18  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.6.3 SSP\_TF2 to SSP\_TF4  
Change  
Transmit Balanced Frame  
to  
Transmit Frame Balance Required

Page: 200  
Sequence number: 19  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.7 SSP\_TF3  
Change Transmit SOF/frame/EOF  
to  
Transmit Frame

Page: 200  
Sequence number: 20  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.7 SSP\_TF3  
Change Transmit SOF/frame/EOF  
to  
Transmit Frame

Page: 200  
Sequence number: 21  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.7 SSP\_TF3  
Change SOF/frame/EOF Transmitted  
to  
Frame Transmitted

Page: 200  
Sequence number: 22  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.7 SSP\_TF3  
Change SOF/frame/EOF Transmitted  
to  
Frame Transmitted

Page: 200  
Sequence number: 23  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.2 SSP\_TIM Tx Interlock Monitor state  
Change  
EOF Transmitted  
to  
Frame Transmitted  
(it is equivalent in all respects to Frame Transmitted from the SSP receiver, so it seems ok for them to have the same name)

Page: 200  
Sequence number: 24  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.16.7.8 SSP\_TF4  
Change "request a ... by sending" to just "send"

Page: 200

Sequence number: 25

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE (added some shall occurs)

7.16.7.6.3 SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_DONE\_Tx

\*\*\*

There is no "transition shall occur" in this section. Just a lot of text on what arguments are passed in the transition.  
(from George Penokie)

Page: 201

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.9 SSP\_RF1 state

Unbalanced should be Not Balanced

Page: 201

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Square

ACCEPT - DONE

7.16.7.9 SSP\_RF1 Receive Frame state

\*\*\*

This is broken:

"If the frame CRC is good and the frame contained no invalid data dwords, this state shall send the Frame Received (Successful) parameter to the SSP\_TAN1:Idle state and:

a) if the last Rx Credit Status parameter received had an argument of Credit Extended send the Frame Received (ACK/NAK Balanced) confirmation to the port layer; or

b) if the last Rx Credit Status parameter received had an argument of Credit Exhausted send a Frame Received (ACK/NAK Unbalanced) confirmation to the port layer."

It is confusing the concepts of credit (RRDY granted or not) with Balance (ACK/NAKs matching or not for interlocking certain frames).

If there is no credit available, a frame cannot be received (the purpose of credit is indicating a frame could be accepted into a buffer). That is already mentioned earlier.

This paragraph needs to describe receiving frames with or without balance, and pass that up to the port layer.

Page: 202

Sequence number: 9

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.12.2 SSP\_TC1 to SSP\_TC2

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 202

Sequence number: 10

Date: 2/19/2003 10:55:06 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.11 SSP\_RIM1 state

Change

Unbalanced

to

Not Balanced

Page: 202

Sequence number: 11

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.13.1 SSP\_TC2

Change "request a ... by sending" to just "send"

Page: 202

Sequence number: 12

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.13.1 SSP\_TC2

Change "request a ... by sending" to just "send"

Page: 202

Sequence number: 13

Date: 3/15/2003 3:28:06 PM -06'00'

Type: Note

ACCEPT - DONE (03-120 merged these together)

7.16.7.14 SSP\_TAN1 state machine

\*\*\*

The TC1 and TC2 states should be merged into one. As written, the state machine goes to TC2 and waits for an RRDY Transmitted. While waiting, it will miss incoming Frame Transmitted signals which trigger incoming Credit Status messages (that only TC1 looks at). A single state pseudo-state machine should suffice for the TC functionality.

Page: 203

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.14.2 SSP\_TAN1 to SSP\_TAN2

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 203

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.14.2 SSP\_TAN1 to SSP\_TAN2

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 203

Sequence number: 4

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.15.1 SSP\_TAN2

Change "request a ... by sending" to just "send"

Page: 203

Sequence number: 5

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.15.1 SSP\_TAN2

Change "request a ... by sending" to just "send"

Page: 203

Sequence number: 6

Date: 3/15/2003 3:28:23 PM -06'00'

Type: Note

ACCEPT - DONE (03-120 merged these together)

7.16.7.14 SSP\_TAN1 state machine

\*\*\*

The TAN1 and TAN2 states should be merged into one. As written, the state machine goes to TAN2 and waits for an ACK Transmitted. While waiting, it will miss incoming Frame Transmitted signals (that only TAN1 looks at). A single state pseudo-state machine should suffice for the TAN functionality.

Page: 204

Sequence number: 7  
Date: 3/1/2003 4:38:34 PM -06'00'  
Type: Highlight  
ACCEPT - DONE (redid the table as a figure, showing idle dwords before OPEN\_ACCEPT)  
7.17.1 STP frame transmission  
The expander shall not send SATA\_X\_RDY until after receiving the OPEN\_ACCEPT  
(from Bill Galloway)

Page: 204  
Sequence number: 8  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.17.1 STP frame transmission  
Table 84 - SATA target port transmitting a frame  
Redo this table as a figure, showing both directions on both physical links. Move down below the open and close sections.

Page: 204  
Sequence number: 9  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
7.17.1 STP frame transmission  
Table 85 - SATA initiator port transmitting a frame  
Redo this table as a figure, showing both directions on both physical links. Move down below the open and close sections.

Page: 205  
Sequence number: 8  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE (per Jan WG discussion)  
7.17.2 STP flow control  
\*\*\*  
Major rewrite needed to implement the  $(20 + 4n)$  rule described in comment in 7.1.6.3 SATA\_HOLD and SATA\_HOLD\_A.  
All rules moved out of 7.1.6.3 to here. New rules for SAS and SATA receivers and transmitters.  
Figure updated to match.

Page: 206  
Sequence number: 1  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.17.2 STP flow control  
Figure 86 - STP expander device buffering  
Use red-based colors for HOLD and green-based for R\_IP.

Page: 206  
Sequence number: 2  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.17.2 STP flow control  
Figure 86 - STP expander device buffering  
Show data dword latency steps at the top; it doesn't flow through as smoothly as indicated.

Page: 206  
Sequence number: 3  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE  
7.17.2 STP flow control  
Figure 86 - STP expander device buffering  
Use different shades of blue for different data dword sources at bottom.

Page: 206  
Sequence number: 4  
Date: 2/20/2003 9:33:24 AM -06'00'  
Type: Note  
ACCEPT - DONE

7.17.2 STP flow control  
Figure 86 - STP expander device buffering  
Add comments to buffers at top.

Page: 206

Sequence number: 5

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

7.17.2 STP flow control

Figure 86 - STP expander device buffering

Get rid of upstream/downstream terminology, which is no longer used in the text.

Page: 207

Sequence number: 12

Date: 3/1/2003 3:41:48 PM -06'00'

Type: Note

ACCEPT - DONE

7.17.4 STP link layer

Mention that this is modified to talk to a port layer, talk to the SL state machine for connection management, and implement affiliations.

Page: 207

Sequence number: 13

Date: 3/1/2003 4:02:43 PM -06'00'

Type: Highlight

ACCEPT - DONE

initiator could be a target too... change to STP ports

(global search for STP initiator and check if targets are also possible)

Page: 207

Sequence number: 14

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.3 Preparing to close an SMP connection

Change

Preparing to close

to

Closing

and pull in protocol-specific CLOSE text from 7.12.7 Closing a connection section

Page: 207

Sequence number: 15

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.3 Preparing to close an STP connection

Change

Preparing to close

to

Closing

and pull in protocol-specific CLOSE text from 7.12.7 Closing a connection section

Page: 207

Sequence number: 16

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.17.3 Preparing to close an STP connection

"An initiator or expander device shall transmit CLOSE after receiving a CLOSE."

This sounds like CLOSE is a reply when it could cross on the wire. Add "if it has not already transmitted CLOSE."

Page: 208

Sequence number: 11

Date: 1/25/2003 11:53:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.4.1 Overview (SMP link layer)

Enable Disable SSP should be Enable Disable SMP (two times on the page)

Page: 208

Sequence number: 12

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.4.1 Overview

Change

Overview

to

SMP link layer state machines overview

Page: 208

Sequence number: 13

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.3 Preparing to close an SMP connection

Since NEA loopback was removed, Delete:

The source device and destination device may leave the connection open to run loopback tests (see 7.10).

Page: 209

Sequence number: 2

Date: 2/8/2003 11:41:02 AM -06'00'

Type: Note

ACCEPT - DONE

7.18.4.1 SMP link layer overview

Move the initiator picture into the initiator subclause

Page: 210

Sequence number: 3

Date: 2/1/2003 3:55:21 PM -06'00'

Type: Note

ACCEPT - DONE

7.18.4.1 SMP link layer overview

Move the target picture into the target subclause

Page: 210

Sequence number: 4

Date: 2/1/2003 4:36:05 PM -06'00'

Type: Highlight

ACCEPT - DONE (renamed but kept SMP\_IL and SMP\_TL acronyms)

7.17.4.2 SMP Initiator Link state machine

reword names of the SMP state machines (Link is misused)

Page: 210

Sequence number: 5

Date: 3/1/2003 4:03:02 PM -06'00'

Type: Note

ACCEPT - DONE

7.18.4.1 SMP link layer target picture

Request Break and Request Close are broken; states within the same state machine don't send parameters to each other

Page: 210

Sequence number: 6

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.18.4.2 SMP\_IL1 state

Delete:

and there is

no active connection.

This state machine would not be here if there was no connection.

(from IBM)

Page: 210

Sequence number: 7

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
7.18.4.2.1.2 SMP\_IL1 to SMP\_IL2  
Change Tx Frame (SMP) to Tx Frame  
(from March SAS WG)

Page: 211  
Sequence number: 4  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.18.4.2.2.1 SMP\_IL2  
Change "request a ... by sending" to just "send"

Page: 212  
Sequence number: 1  
Date: 3/5/2003 3:55:49 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.18.4.3.2.1 SMP\_TL2  
Change "request a ... by sending" to just "send"

Page: 212  
Sequence number: 2  
Date: 3/24/2003 9:22:53 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
7.18.4.3.2.1 SMP\_TL2 state description  
Change Tx Frame (SMP) to Tx Frame  
(from March SAS WG)

Page: 213  
Sequence number: 7  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
8.1 Overview  
Change  
Overview  
to  
Port layer overview

Page: 214  
Sequence number: 9  
Date: 3/21/2003 8:39:08 AM -06'00'  
Type: Strikeout  
REJECT (but port layer rewritten)  
8.2 Port layer timers and counters  
Delete:  
Port layer

Page: 215  
Sequence number: 8  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
8.3.1 Overview  
Change  
Overview  
to  
PL\_OC state machine overview

Page: 221  
Sequence number: 9  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
8.4.1 Overview  
Change

Overview  
to  
PL\_PM state machine overview

Page: 229

Sequence number: 28

Date: 1/25/2003 11:59:10 AM -06'00'

Type: Note

ACCEPT - DONE

9.2.1 SSP frame format

Target port transfer tag paragraph

"unique for the L\_T nexus" is wrong - it should be "unique for the L\_Q portion of the nexus." The connection tag is unique for the L\_T; an SSP frame is sent inside a connection, so the L\_T is already known. This is used to distinguish between L\_Qs.

Page: 229

Sequence number: 29

Date: 1/23/2003 1:31:50 PM -06'00'

Type: Note

ACCEPT - DONE

9.2.1 SSP frame format

Table 89 - frame type field

Add a "Reference" column

Page: 229

Sequence number: 30

Date: 2/2/2003 11:08:16 AM -06'00'

Type: Note

ACCEPT - DONE

Mention that the TASK frame TAG field serves as the optional Association argument in SAM

Page: 230

Sequence number: 13

Date: 1/22/2003 5:50:09 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.1 SSP Frame header

is should be contains

Page: 230

Sequence number: 14

Date: 2/2/2003 12:12:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.1 SSP frame format

Relative offset field paragraph

indicates should be contains

Page: 231

Sequence number: 6

Date: 2/8/2003 11:40:57 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.1 COMMAND information unit

ordered attribute

should be

ordered task attribute

Page: 232

Sequence number: 5

Date: 2/15/2003 4:08:01 PM -06'00'

Type: Highlight

ACCEPT - DONE (but whole sentence changed later)

9.2.2.2 TASK information unit

SPC-2 should be SAM-3

Page: 232

Sequence number: 10

Date: 2/2/2003 2:59:13 PM -06'00'

Type: Note



ACCEPT - DONE

9.2.2.2 TASK information unit

Table 93 - Task management functions

Add columns showing when LOGICAL UNIT NUMBER and TAG OF TASK TO BE MANAGED fields are used

Page: 235

Sequence number: 4

Date: 2/2/2003 12:42:20 PM -06'00'

Type: Note

ACCEPT - DONE (per Jan WG)

9.2.2.5.1 RESPONSE IU overview

Add:

The maximum size of the response IU is the maximum size of any IU in an SSP frame (see 9.2.1).

Page: 235

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.2.5 RESPONSE information unit

Remove LIST from SENSE DATA LIST LENGTH and RESPONSE DATA LIST LENGTH.

That was the term used by SRP. However, the fields they apply to are called SENSE DATA and RESPONSE DATA not SENSE DATA LIST and RESPONSE DATA LIST.

Page: 237

Sequence number: 7

Date: 1/6/2003 12:26:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.2.5.4 RESPONSE information unit SENSE\_DATA format

In the SENSE DATA paragraph, change contains to shall contain to match the wording in the other paragraphs.

Page: 237

Sequence number: 10

Date: 1/22/2003 3:43:24 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.3 Frame sequences

Change Initiator port to SSP initiator port and Target port to SSP target port in all the frame sequence figures (94, 95, 96, 97)

Page: 239

Sequence number: 9

Date: 3/5/2003 4:41:09 PM -06'00'

Type: Note

ACCEPT - DONE (changed to "and does not receive" with an e.g. of times out, or the connection is broken)

9.2.4 SSP transport layer handling of link layer errors

Everywhere this says "and times out waiting for an ACK or NAK" it also needs to include loss of dword synchronization (phy layer problems) and BREAK before an ACK or NAK (which the transport layer passes to the application layer the same as an ACK/NAK timeout) (i.e. any connection closed with ACK/NAK not balanced)  
(from George Penokie IBM)

Page: 239

Sequence number: 10

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (and does not receive, e.g. ...)

9.2.4.1 COMMAND frame

Any where this wording occurs << times out waiting for an ACK or NAK, >> there needs to be a statement added about OOB disconnect and BREAK when ACK/NAK are not balanced.  
(from George Penokie)

Page: 239

Sequence number: 11

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Highlight

ACCEPT - DONE (and does not receive, e.g. ...)

9.2.4.2 TASK frame

Any where this wording occurs << times out waiting for an ACK or NAK, >> there needs to be a statement added about OOB

disconnect and BREAK when ACK/NAK are not balanced.  
(from George Penokie)

Page: 239

Sequence number: 12

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE (and does not receive, e.g. ...)

9.2.4.3 XFER\_RDY frame

Any where this wording occurs << times out waiting for an ACK or NAK, >> there needs to be a statement added about OOB disconnect and BREAK when ACK/NAK are not balanced.

(from George Penokie)

Page: 240

Sequence number: 11

Date: 1/6/2003 3:58:16 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to 'times out waiting for")

9.2.4.5 RESPONSE frame

Change "does not receive an ACK or NAK" to "times out waiting for an ACK or NAK"

Page: 240

Sequence number: 14

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE (and does not receive, e.g. ...)

9.2.4.4 DATA frame

Any where this wording occurs << times out waiting for an ACK or NAK, >> there needs to be a statement added about OOB disconnect and BREAK when ACK/NAK are not balanced.

(from George Penokie)

Page: 240

Sequence number: 15

Date: 3/5/2003 3:55:49 PM -06'00'

Type: Note

ACCEPT - DONE (and does not receive, e.g. ...)

9.2.4.5 RESPONSE frame

Any where this wording occurs << times out waiting for an ACK or NAK, >> there needs to be a statement added about OOB disconnect and BREAK when ACK/NAK are not balanced.

(from George Penokie)

Page: 241

Sequence number: 5

Date: 2/2/2003 3:04:14 PM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG)

Change may to shall

Also change may to shall in the state machine 9.2.6.2.2.1

Page: 241

Sequence number: 6

Date: 2/2/2003 2:51:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed last "it' to "the command" in 3 paragraphs)

9.2.5.2 Initiator port error handling

which it?

Page: 241

Sequence number: 7

Date: 2/15/2003 5:50:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (change made. 03-088 makes this request to change names in SPC-3.)

Rename this to DATA OFFSET ERROR since the relative offset field is being renamed DATA OFFSET or REQUESTED OFFSET everywhere else

Page: 241

Sequence number: 8

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call - based on Quantum comment in 9.2.2.2)

9.2.5.1 Target port error handling

Add TASK frame with bad LOGICAL UNIT NUMBER - generate a RESPONSE frame with RESPONSE\_DATA of INVALID LOGICAL UNIT NUMBER

Page: 241

Sequence number: 9

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

9.2.5.1 Target port error handling

After:

more write data than expected,

Add:

(i.e., the length of the frame extends past the end of the expected write data length)

Page: 241

Sequence number: 10

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

9.2.5.1 SSP target port error handling

Before:

"receives a DATA frame with an unknown TARGET PORT TRANSFER TAG,"

add:

if a target port is using target port transfer tags and it...

Page: 242

Sequence number: 21

Date: 2/8/2003 12:35:19 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Initiator device state machines overview

delete several

Page: 242

Sequence number: 22

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Square

ACCEPT - DONE

9.2.6.1 SSP transport layer state machines overview

Simplify this list; merge data services in with the rest of the transport protocol services

Get rid of initiator/target references

Page: 242

Sequence number: 23

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.1 Overview

Change

Overview

to

<new title> overview

Page: 242

Sequence number: 24

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.1 Overview

Change

Overview

to

SSP transport layer state machines overview

Page: 242

Sequence number: 25

Date: 3/21/2003 4:28:18 PM -06'00'

Type: Note

ACCEPT - DONE (added a sentence that Transmission Status and Frame Received confirmations are routed based on the tag, source, and destination. In port layer, made sure those always carry those fields (Frame Received carries the whole frame which covers it; Transmission Status names them). Added tag and destination arguments to Cancel request so port layer can associate it with the proper frame. New port layer expects it to have those arguments.)

9.2.6 SSP transport layer state machines

\*\*\*

Need to clarify that the confirmations from the port layer to the SSP transport layer like Transmission Status always contain the destination SAS address and tag, so they can be routed to the appropriate per-tag state machines.

The frame router could do this, but that would change every confirmation into a parameter going into the other states.

Page: 244

Sequence number: 10

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.1 ST state machines overview

Figure 96 - ST initiator device

move Delivery Failure near the source of the arrow

Page: 244

Sequence number: 11

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.2.1 ST\_I state machines

Add Transport Reset indication going upstream from ST\_IFR1

Page: 245

Sequence number: 14

Date: 1/30/2003 3:26:53 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.2.1 ST\_ISF1 state description

delete the in "tag of the task to be managed" to match the field name

Page: 245

Sequence number: 15

Date: 1/30/2003 3:54:10 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.2.1 ST\_ISF1: state description

The 2nd+ a)b) lists both need to include logical unit number (it's missing in the Send Task Management list) and should list it ahead of the tag (Send SCSI Command has it second not first)

Page: 245

Sequence number: 16

Date: 2/8/2003 3:00:34 PM -06'00'

Type: Strikeout

ACCEPT - DONE

Delete

The request may also contain the initiator connection tag to be used in any OPEN address frame.

The a)b) list above already includes initiator connection tag

Page: 245

Sequence number: 17

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.2.2 ST\_ISF1 state description

Remove

d) source SAS address.

as an argument from the application layer (part of making the transport layer part of the port object)

Page: 246

Sequence number: 16

Date: 2/8/2003 11:40:57 AM -06'00'

Type: Highlight

ACCEPT - DONE

#### 9.2.6.2.2.1 ST\_ISF1 Overview

attribute  
should be  
parameter

Page: 246

Sequence number: 17

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Underline

ACCEPT - DONE

9.2.6.2.2.1 ST\_ISF1 state description

After

e) source SAS address.

add "set to the SAS address of the SSP initiator port"

(part of making the transport layer part of the port object)

Page: 246

Sequence number: 18

Date: 3/1/2003 4:38:34 PM -06'00'

Type: Note

ACCEPT - DONE (also changed "Acknowledgement" to "Acknowledge" in a few places)

9.2.6 SSP transport layer

and global

Change Cancel Acknowledge into Transmission Status (Cancel Acknowledge)

this means every Transmit Frame just gets one kind of response

Page: 246

Sequence number: 19

Date: 3/15/2003 4:53:23 PM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.2.2.1 ST\_ISF1 state description

Add "protocol set to SSP" to Transmit Frame arguments

Page: 247

Sequence number: 12

Date: 1/30/2003 3:56:30 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.3.1 ST\_ISF2 state description

The first two a)b) lists should include logical unit number and include it before tag

Page: 247

Sequence number: 13

Date: 1/30/2003 3:58:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.4.1 ST\_ISF3 state description

logical unit number should be included ahead of tag;

Page: 247

Sequence number: 14

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.4 ST\_ISF3

and global

Change

Prepare\_Send\_Data\_Out

to

Prepare\_Data\_Out

to match other states and simplify

Page: 247

Sequence number: 15

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.2.3 ST\_ISF2

and global  
Change  
Prepare\_Command\_Request  
to  
Prepare\_Command\_Task  
to match other states and simplify

Page: 248

Sequence number: 9

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE  
9.2.6.2.6 ST\_IRD2  
and global  
Change:  
Process\_Received\_Data\_In  
to:  
Process\_Data\_In  
to match other states and simplify

Page: 248

Sequence number: 10

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE  
9.2.6.2.7 ST\_IPR1  
and global  
Change  
Process\_Received\_Response  
to  
Process\_Response  
to match other states and simplify

Page: 248

Sequence number: 11

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Square

ACCEPT - DONE  
9.2.6.2.6 ST\_IRD2:Process\_Received\_Data\_In  
and global  
The ST\_IRD2:Process\_Received\_Data\_In state does nothing useful and can be merged into the ST\_IRD1 state. This reduces the ST\_IRD state machine to a single state. The name should be changed from IRD to IPD (initiator process data). Update figures and all references to ST\_IRD.

Page: 249

Sequence number: 8

Date: 2/8/2003 2:30:41 PM -06'00'

Type: Strikeout

ACCEPT - DONE  
Delete:  
a DONE Received confirmation is received;  
Based on other comments, it is vendor-specific how an initiator decides to reuse tags. The state machines in the standard won't pass up DONEs for this purpose.

Page: 250

Sequence number: 25

Date: 2/2/2003 4:28:30 PM -06'00'

Type: Strikeout

ACCEPT - DONE  
9.2.6.3 Target device state machines overview  
With SAS's bizarre state machines, there are cases where ST\_TTS1 is not the initial state. Delete "(initial state)".

Page: 250

Sequence number: 26

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Note

ACCEPT - DONE  
The target state machines do not comprehend first burst. They need to.  
When Receive Data-Out arrives, it must be serviced first from the first burst data buffer. When that runs out, XFER\_RDYs are

generated.

Data-Out may appear before the first Receive Data-Out call, so the state machine has to be ready to go to TTS4 immediately. TTS4 needs to save the first burst data in a buffer.

Changes include:

- \* Change the Prepare\_XFER\_RDY outbound transition from Receive\_Data\_Out to Send\_Frame directly. There is no sense in going back to Receive\_Data\_Out; it does no work. Remove the Receive\_Data\_Out to Send\_Frame transition.
- \* Keep the entry to Receive\_Data\_out from the frame router. This lets it check the first burst amount before deciding if an XFER\_RDY is necessary.
- \* Let the TTS state machine start in TTS4 if first burst data arrives.

Page: 250

Sequence number: 27

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.1 Overview

Change

Overview

to

<new title> overview

Page: 250

Sequence number: 28

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.2.8 ST\_IFR1 state

Add Transport Reset indication going upstream from ST\_IFR1 when HARD\_RESET Received arrives

Page: 250

Sequence number: 29

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE (delete the Frame Received (Frame Failed) portion)

9.2.6.2.8 ST\_IFR1

Remove Frame Failed - it's a nonexistent signal

Page: 252

Sequence number: 24

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call - based on Quantum comment in 9.2.2.2)

9.2.6.3.2 ST\_TFR1 state

Add check for TASK frame with bad LOGICAL UNIT NUMBER - generate a RESPONSE frame with RESPONSE\_DATA of INVALID LOGICAL UNIT NUMBER

Page: 252

Sequence number: 25

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per discussion on Feb 11 call, based on target port transfer tag discussion in 03-091)

9.2.6.3.2 ST\_TFR1 Target Frame Router state

Add an optional check that reserved fields are zero. If not, Response Data (Invalid Frame) may be sent.

Page: 253

Sequence number: 14

Date: 1/30/2003 3:49:59 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.3.1 ST\_TTS1 state description

Change I\_T\_L\_x nexus (e.g., tag) to "tag" in all the a)b) lists in this section.

The first list mentions the source/destination SAS addresses, which form the I\_T portion. The 2nd-4th lists should just say "tag" to match the initiator wording (and avoid confusion with the Nexus and Association arguments described in ch 10)

Page: 253

Sequence number: 15

Date: 1/30/2003 3:51:11 PM -06'00'

Type: Note

ACCEPT - DONE

#### 9.2.6.3.3.1 ST\_TTS1 state description

The 2nd-4th a)b) lists needs to include the logical unit number, which is needed for the frame headers

Page: 253

Sequence number: 16

Date: 2/9/2003 12:49:44 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.3 ST\_TTS1

and global

Rename:

ST\_TTS1:Target\_Request\_Response\_Router

and ST\_TTS1:Request\_response\_Router

(inconsistent and verbose)

to:

ST\_TTS1:Start

Page: 253

Sequence number: 17

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.3.1 ST\_TTS1 state description

remove

d) source SAS address.

as an argument from the application layer (part of making the transport layer part of the port object)

Page: 254

Sequence number: 14

Date: 2/28/2003 5:19:47 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.4.1 ST\_TTS2 state description

e) source SAS address.

add: set to the SAS address of the SSP target port

(part of making the transport layer part of the port object)

Page: 254

Sequence number: 15

Date: 3/1/2003 4:38:34 PM -06'00'

Type: Highlight

ACCEPT - DONE (2/25 WG)

<<an ACK Received confirmation>> should be <all the ACK Received confirmations for all the frames transmitted...>

Page: 254

Sequence number: 16

Date: 3/5/2003 4:37:13 PM -06'00'

Type: Highlight

ACCEPT - DONE (2/25 WG reworded in terms of transition from TTS5 not TTS4, and added "received ACK Transmitted for each DATA frame received with a Data-Out Arrived message" to clarify how pipelining must stop before sending XFER\_RDY).

ACK Transmitted

see comment below

Page: 254

Sequence number: 17

Date: 3/8/2003 12:38:26 PM -06'00'

Type: Note

ACCEPT - DONE (up to port layer to check names of its signals now)

Ensure Nexus Lost argument name matches port layer.

Page: 254

Sequence number: 18

Date: 3/15/2003 4:53:23 PM -06'00'

Type: Note

ACCEPT - DONE

9.2.6.3.4 ST\_TTS2:Send Frame state description

Add "protocol set to SSP" to Transmit Frame arguments

Page: 255



Sequence number: 10  
Date: 1/30/2003 4:00:57 PM -06'00'  
Type: Note  
ACCEPT - DONE  
9.2.6.3.5.1 ST\_TTS3 state description  
should mention logical unit number along with tag

Page: 255  
Sequence number: 11  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.5.1 ST\_TTS3 State description  
Change:  
to be used in the frame:  
to:  
when constructing the frame

Page: 255  
Sequence number: 12  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.5 ST\_TTS3  
and Global  
Rename:  
Prepare\_Send\_Data\_In  
to:  
Prepare\_Data\_In  
to match other state names and simplify

Page: 255  
Sequence number: 13  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.4.2 TTS2 to TTS3  
if this state receives  
should be  
after receiving  
to match previous two IBM comments

Page: 255  
Sequence number: 14  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Square  
ACCEPT - DONE  
9.2.6.3.5.1 TTS3 state description  
Add data to the list. It is arguably implied by the first paragraph. To parallel the initiator Data\_Out preparation, though, it belongs in this list.

Page: 255  
Sequence number: 15  
Date: 3/1/2003 4:38:34 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE (2/25 WG)  
delete <<and an ACK Received  
confirmation>> so data frames can be pipelined

Page: 256  
Sequence number: 16  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Note  
ACCEPT - DONE  
9.2.6.3.6 ST\_TTS4  
Second paragraph  
Remove "from the ST\_TS1:Request\_Response\_Router state"

Page: 256

Sequence number: 17  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.6.1 TTS4 state description  
"If the value does not match"  
is unclear; does not match what?  
Change to "is invalid" which is equally vague but not obviously broken.

Page: 256  
Sequence number: 18  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.6.1 ST\_TTS4 State description  
Change  
DATA frame from the ST\_TFR state machine,  
to  
Data-Out Arrived parameter

Page: 256  
Sequence number: 19  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.6.1 ST\_TTS4 State description  
Change  
DATA frame from the ST\_TFR state machine,  
to  
Data-Out Arrived parameter

Page: 256  
Sequence number: 20  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.6.1 ST\_TTS4 State description  
Change  
DATA frame from the ST\_TFR state machine,  
to  
Data-Out Arrived parameter

Page: 256  
Sequence number: 21  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.3.6.1 ST\_TTS4 State description  
Change  
DATA frame from the ST\_TFR state machine,  
to  
Data-Out Arrived parameter

Page: 256  
Sequence number: 22  
Date: 2/9/2003 12:10:03 PM -06'00'  
Type: Note  
ACCEPT - DONE  
9.2.6.3.6.1 ST\_TTS4 state description  
Combine the four long paragraphs about receiving Data-Out Arrived into an a)b)c)d) list.

Page: 256  
Sequence number: 23  
Date: 5/12/2003 10:16:25 AM  
Type: Note  
ACCEPT - DONE  
9.2.6.3.6 ST\_TTS4:Receive\_Data\_Out  
Precedence of checks:  
1) discard unsolicited DATA frames

- 1) discard unknown TPTT
- 2) data offset
- 3) zero length or too much data

Page: 257

Sequence number: 9

Date: 1/30/2003 4:03:04 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.7.1 ST\_TTS5 state description

logical unit should appear alongside tag;

Page: 257

Sequence number: 10

Date: 2/8/2003 5:07:41 PM -06'00'

Type: Highlight

ACCEPT - DONE

Change:

Receive

Data-Out transport protocol service request

to:

application layer

to match other wording and simplify

Page: 257

Sequence number: 11

Date: 2/8/2003 4:58:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.7.1 ST\_TTS5 state description

Change:

to be used in the frame:

to:

when constructing the frame

Page: 257

Sequence number: 12

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.8 ST\_TTS7

and Global

Change:

Process\_Received\_Data\_Out

to:

Process\_Data\_Out

to match other state names and simplify

Page: 257

Sequence number: 13

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.7 ST\_TTS5

in "following received"

add values

Page: 258

Sequence number: 8

Date: 2/8/2003 4:53:34 PM -06'00'

Type: Highlight

ACCEPT - DONE (also made it clear that Response Data includes a logical unit number and tag.)

9.2.6.3.9.1 ST\_TTS7 state description

"this state shall use the tag received in the parameter."

contradicted by "this state shall use the following received from the application layer" in the next paragraph.

Page: 258

Sequence number: 9

Date: 1/30/2003 4:06:11 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.9.1 ST\_TTS7 state description

logical unit number should appear alongside tag

Page: 258

Sequence number: 10

Date: 2/8/2003 11:41:02 AM -06'00'

Type: Strikeout

ACCEPT - DONE

9.2.6.3.9.1 ST\_TTS7:Prepare\_Response

remove

d) ... from the port

layer state machine

Page: 258

Sequence number: 11

Date: 2/8/2003 4:02:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.9 ST\_TTS7

Convert these sentences into a table.

Page: 258

Sequence number: 12

Date: 2/8/2003 4:45:46 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.9.1 ST\_TTS7 State overview

status needs a semicolon

Page: 258

Sequence number: 13

Date: 2/9/2003 12:10:03 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.9.1 ST\_TTS7 State description

Change:

to be used in the frame:

to:

when constructing the frame

Page: 258

Sequence number: 14

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call - based on Quantum comment in 9.2.2.2)

9.2.6.3.9.1 ST\_TTS7:Prepare\_Response state description

Add Invalid Logical Unit Number handling - generate a RESPONSE frame with RESPONSE\_DATA of INVALID LOGICAL UNIT NUMBER

Page: 258

Sequence number: 15

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.9 ST\_TTS7

in "the following received"

add values

Page: 259

Sequence number: 15

Date: 2/15/2003 6:12:56 PM -06'00'

Type: Note

ACCEPT - DONE

9.3.4 STP transport layer state machines

Mention that this is modified to interface to the port layer

Page: 259

Sequence number: 16

Date: 2/28/2003 11:19:54 AM -06'00'

Type: Note

ACCEPT - DONE (incorporated 03-109r1 per 2/25 WG. Based on task file register support; more than one means no affiliations, only one means affiliations required.)

9.3.2 SATA tunneling for multiple STP initiator ports

Add comment that native STP devices should not support affiliations. (phrase as affiliations are only an expander function)

They can put in a virtual phy and support SMP. DISCOVER and PHY CONTROL to the virtual phy could control the affiliations.

Page: 259

Sequence number: 17

Date: 1/29/2003 3:28:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.3.2 SATA tunneling for multiple STP initiator ports

Rename this to "affiliations"

Page: 259

Sequence number: 18

Date: 2/15/2003 6:12:33 PM -06'00'

Type: Note

ACCEPT - DONE

The format of 9.4.x differs from the SSP frame format and should be restructured as follows:

9.4.1 SMP frame format (describe an SMP frame with just SMP FRAME TYPE, FUNCTION, and CRC fields). Include the frame type codes in the table listing SMP\_REQUEST and SMP\_RESPONSE. Mention that other codes are reserved.

9.4.2, 9.4.3 SMP\_REQUEST and SMP\_RESPONSE (as is)

9.4.4 Sequence of SMP frames (move the frame sequence picture into here)

9.4.5 SMP transport layer state machines (as is)

Page: 259

Sequence number: 19

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.1 SMP Overview

Change

SMP overview

to

SMP transport layer overview

Page: 259

Sequence number: 20

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE (per Feb 11 call)

9.3.2 SATA tunneling for multiple STP initiator ports

Change the rules so link resets DO cause affiliation loss in all cases except SMP LINK RESET requests.

Page: 260

Sequence number: 15

Date: 1/31/2003 3:45:48 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.2 SMP\_REQUEST frame

Add a sentence indicating who sends this frame and what it is for. (like SMP\_RESPONSE and all the SSP frames do)

Page: 261

Sequence number: 11

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE (added function result code for INVALID REQUEST FRAME LENGTH per 3/20 SAS call)

9.4.3 SMP\_RESPONSE frame

\*\*\*

How should a mild SMP frame length error be handled (the frame is within the 2 to 240+ length, but doesn't match the format defined in chapter 10)

A new result code of 03h would work well.

Page: 262

Sequence number: 6

Date: 2/9/2003 3:06:00 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.1 SMP transport layer state machine overview

Change

SAS expander

to

expander

Page: 262

Sequence number: 7

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.1 Overview

Change

Overview

to

SMP transport layer state machines overview

Page: 262

Sequence number: 8

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.1 Overview

Change

Overview

to

SMP initiator port state machine overview

Page: 262

Sequence number: 9

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Strikeout

ACCEPT - DONE

9.4.4.1 SMP transport layer state machines overview

delete "Each SAS expander device shall contain an MT\_TD state machine. Other device types may contain MT\_TD and/or MT\_ID state machines." after changing to SMP [target/initiator] port terminology.

Page: 263

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.5.5.2.2.2 MT\_ID1 to MT\_ID2

Change:

"transition shall pass .. to ..."

to:

"to transition shall include ..."

Page: 263

Sequence number: 7

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

9.4.4.2.2.1 MT\_ID1 state description

Remove source sas address field as an argument from the application layer (part of making the transport layer part of the port object)

Page: 263

Sequence number: 8

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.2.2 Transition MT\_ID1 to MT\_ID2

After

d) source SAS address;

add: set to the SAS address of the SMP initiator port

(part of making the transport layer part of the port object)

Page: 264

Sequence number: 17

Date: 2/9/2003 3:00:49 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.3 Expander device and target device state machine

Rename to "SMP target port transport layer state machine"

Also check initiator name

Page: 264

Sequence number: 18

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.3.1 Overview

Change

Overview

to

SMP target port state machine overview

Page: 264

Sequence number: 19

Date: 2/20/2003 9:33:24 AM -06'00'

Type: Note

ACCEPT - DONE

9.4.4.2.3.1 MT\_ID2:Send state description

Add that source SAS address shall be set to the SAS address for the SMP initiator port

(part of making the transport layer part of the port object)

Page: 264

Sequence number: 20

Date: 3/15/2003 4:53:23 PM -06'00'

Type: Note

ACCEPT - DONE

9.4.4.2.3.1 MT\_ID2:Send state description

Add "protocol set to SMP" to Transmit Frame arguments

Page: 264

Sequence number: 21

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.4.4.2.3.1 MT\_ID2 state description

Change Transmit Frame (SMP) to Transmit Frame

(from March SAS WG)

Page: 264

Sequence number: 22

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.4.2.1.2 SMP\_IL1 to SMP\_IL2

Change Transmit Frame (SMP) to Transmit Frame

(from March SAS WG)

Page: 265

Sequence number: 8

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE

9.4.4.3.3.1 MT\_TD2 state description

Change Transmit Frame (SMP) to Transmit Frame

(from March SAS WG)

Page: 266

Sequence number: 2

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.1 Transport protocol services overview

Change

Transport protocol services overview

to

SCSI transport protocol services overview

Page: 266

Sequence number: 3

Date: 3/1/2003 4:38:34 PM -06'00'

Type: Note

ACCEPT - DONE

10 Application layer

Add 10.1 Application layer overview

with a brief introduction

Page: 269

Sequence number: 5

Date: 2/2/2003 2:38:16 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.4 Send Command Complete

one and the RESPONSE CODE field is INVALID FRAME

(see comments in 9.2.5.1)

Page: 270

Sequence number: 5

Date: 2/8/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.5 Command Complete Received

one and the RESPONSE CODE field is INVALID FRAME

(see comments in 9.2.5.1)

Page: 272

Sequence number: 5

Date: 12/30/2002 6:05:57 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.8 Receive Data-Out

Table 112 - Receive Data-Out args

usd should be used

Page: 272

Sequence number: 6

Date: 2/1/2003 2:02:44 PM -06'00'

Type: Note

ACCEPT - DONE (put in [Association] argument to carry the TAG field, which might make it into SAM-3. Let the transport layer state machine just refer to "tag" and "tag of task to be managed" - it was not using "Nexus" so shouldn't be confused.)

10.1.1.10 Send Task Management Request transport protocol service

and other sections

the Q is really the "tag of task to be managed" field not the "tag" field

Page: 273

Sequence number: 6

Date: 1/30/2003 3:40:32 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.1.10 Send Task Management Request

and other sections

Both I\_T\_L and I\_T\_L\_Q are supported (I\_T would be too if TARGET RESET were supported).

Page: 274

Sequence number: 5

Date: 1/30/2003 2:38:19 PM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG: make TASK MANAGEMENT FUNCTION FAILED map to service delivery or target failure in Task Management Function Executed and Received Task Management Function Executed)



#### 10.1.1.12 Task Management Function Executed

Table 116 - Task Management Function Executed arguments

"d) The RESPONSE

frame SNSVALID bit is set to one."

is this the correct indication of severe failure for a task management function?

Page: 275

Sequence number: 4

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

10.1.2 Device server error handling

10.1.3 Application client error handling

Move application client section before the device server section

Page: 277

Sequence number: 7

Date: 3/15/2003 4:53:17 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per 3/11 SAS WG)

10.1.5.4 START STOP UNIT command

Remove "and RBC"

Page: 278

Sequence number: 2

Date: 2/8/2003 11:49:39 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.1 Disconnect-Reconnect mode page

Change specifies to contains or means several times in this section.

Page: 279

Sequence number: 8

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.2.1 Overview

Change

Overview

to

Protocol-Specific Port mode page overview

Page: 280

Sequence number: 4

Date: 2/2/2003 12:14:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.1.6.2.2 Protocol-specific port mode page - short format

indicates how long

should be

contains the time

Page: 280

Sequence number: 5

Date: 5/12/2003 10:16:25 AM

Type: Note

ACCEPT - DONE

10.1.6.2.2 Protocol-specific Port mode page - short format

Add an initiator response timeout, enforced by the transport layer, to abort a command after sending XFER\_RDY if DATA never shows up.

Per 03-164

Page: 281

Sequence number: 7

Date: 12/31/2002 1:11:02 PM -06'00'

Type: Highlight

ACCEPT - DONE

Table 122 - Protocol-specific port Control mode page -Phy Control and Discover subpage

The byte numbers are off. Byte 4 should be byte 2. 2 more reserved bytes are needed to keep the mode descriptors starting on

byte 8.

Page: 282

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.6.2.3 Protocol-Specific Port mode page PHY CONTROL and DISCOVER subpage

Swap ATTACHED SAS ADDRESS and SAS ADDRESS

Page: 282

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.6.2.3 Protocol-Specific Port mode page PHY CONTROL and DISCOVER subpage

Add ATTACHED PHY IDENTIFIER

Page: 282

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.6.2.3 Protocol-Specific Port mode page PHY CONTROL and DISCOVER subpage

Move 24..31 down and match new DISCOVER layout

Page: 282

Sequence number: 5

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE (per 4/4 call)

10.1.6.2.3 Protocol-Specific Port mode page - Phy Control And Discover subpage

Table 123 - SAS phy mode description

George Penokie asked that PHY OPERATION be marked Restricted in SAS-1, as the defined functions are probably not desired in targets.

Page: 286

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.7.1 Protocol-Specific log page

Swap SAS ADDRESS and ATTACHED SAS ADDRESS

Page: 286

Sequence number: 3

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.7.1 Protocol-Specific log page

Add ATTACHED PHY IDENTIFIER

Page: 286

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.1.7.1 Protocol-Specific log page

Add reserved bytes before INVALID DWORD COUNT to leave room for a full IDENTIFY frame

Page: 287

Sequence number: 10

Date: 3/15/2003 4:53:17 PM -06'00'

Type: Strikeout

ACCEPT - DONE (per 3/11 SAS WG)

10.1.8 SCSI power conditions

Remove "and RBC"

Page: 287

Sequence number: 11  
Date: 3/15/2003 4:53:17 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE (per 3/11 SAS WG)  
10.1.8 SCSI power conditions  
Remove "and RBC"

Page: 288  
Sequence number: 5  
Date: 1/30/2003 1:31:48 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.1.8 Power condition states  
Figure 103 - SA\_PC state machine  
Change devices to logical units in the notes

Page: 291  
Sequence number: 16  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE (throughout this section)  
10.1.7.6 SA\_PC\_5:Active\_Wait  
While in this state, media access commands shall return NOT READY/INITIALIZING COMMAND REQUIRED.  
For transitions into this state based on START STOP UNIT, mention that the command shall not complete with GOOD status until Active is reached.  
(from George Penokie)

Page: 291  
Sequence number: 17  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE (throughout this section)  
10.1.7.7 SA\_PC\_6:Idle\_Wait  
While in this state, media access commands shall return NOT READY/INITIALIZING COMMAND REQUIRED.  
For transitions into this state based on START STOP UNIT, mention that the command shall not complete with GOOD status until Idle is reached.  
(from George Penokie)

Page: 292  
Sequence number: 4  
Date: 1/31/2003 3:45:48 PM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
10.1.8.7.5 Idle\_Wait to Active\_Wait  
Delete  
b) a START STOP UNIT command with the POWER CONDITION field set to FORCE ACTIVE is received; or  
there is no such setting called "FORCE ACTIVE"

Page: 294  
Sequence number: 3  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.1 Function overview  
Change  
Function overview  
to  
SMP function overview

Page: 295  
Sequence number: 2  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (per Feb 11 call)  
10.3.1.2 REPORT GENERAL function  
Change  
This function may  
implemented by any type of device and should be implemented by expander devices.  
to:

shall be implemented by all SMP target ports.

Page: 296

Sequence number: 10

Date: 3/24/2003 9:22:53 AM -06'00'

Type: Note

ACCEPT - DONE (both added bit and added to BROADCAST (CHANGE) description)

10.3.1.2 REPORT GENERAL function

\*\*\*

Add a "configuring" bit indicating an expander without a configurable route table (i.e. self-configuring) is not done processing one or more CHANGES.

generate a CHANGE when this bit goes from 1 to 0

this does increment the change count

(from March SAS WG)

Page: 298

Sequence number: 6

Date: 2/25/2003 8:06:59 PM -06'00'

Type: Note

REJECT

ASCII strings shouldn't have (MSB)/(LSB) labels. Strings are arrays of 8-bit bytes. Each byte has an MSB/LSB. The string doesn't as a whole. [an array of dwords wouldn't be labeled thusly]

Page: 299

Sequence number: 5

Date: 2/2/2003 12:18:01 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

indicates should be specifies

Page: 299

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE (per Feb 11 call)

10.3.1.4 DISCOVER function

Change:

This function shall be implemented by all expander devices and shall not be implemented by other types of devices.

to:

shall be implemented by all SMP target ports.

Page: 300

Sequence number: 2

Date: 1/25/2003 5:39:50 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

Change SATA TARGET to SATA DEVICE

Page: 300

Sequence number: 3

Date: 1/21/2003 7:12:05 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

Change Reserved bit to ATTACHED SATA HOST

An ATTACHED SATA HOST bit of one indicates a SATA host is attached. A bit of zero ...

NOTE: Support for SATA hosts is outside the scope of this standard.

(from Bill Galloway, Pivot3)

Page: 300

Sequence number: 4

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.3.1.4 DISCOVER function

Add ATTACHED PHY IDENTIFIER which is being added to the IDENTIFY address frame

Page: 300

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.3.1.4 DISCOVER function

Swap ATTACHED SAS ADDRESS and SAS ADDRESS to match IDENTIFY address frame better

Page: 300

Sequence number: 6

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.3.1.4 DISCOVER function

Move 32..39 down to 40..47 to avoid contaminating the IDENTIFY region. Move vendor-specific fields to the bottom.

Page: 300

Sequence number: 7

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.4 DISCOVER function

Move ROUTING ATTRIBUTE down out of the IDENTIFY region

Page: 300

Sequence number: 8

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE

10.3.1.4 DISCOVER function

Add a PHY CHANGE COUNT field per 03-089

Page: 301

Sequence number: 6

Date: 2/6/2003 10:54:44 AM -06'00'

Type: Strikeout

ACCEPT - DONE

10.3.1.4 DISCOVER function

Table 138 - Attached device type

Delete only since other comments make end devices distinct from with expander devices

Page: 302

Sequence number: 11

Date: 1/29/2003 3:52:15 PM -06'00'

Type: Note

ACCEPT - DONE ("address provided for")

10.3.1.4 DISCOVER function

Mention what the ATTACHED SAS ADDRESS field contains if a SATA target is attached

Page: 302

Sequence number: 13

Date: 1/29/2003 3:51:15 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.4 DISCOVER function

The a) b) list belongs to ATTACHED SAS ADDRESS, not SAS ADDRESS. The SAS ADDRESS field itself should always be known. The Attached field changes based on identification/OOB sequences.

Page: 302

Sequence number: 14

Date: 2/15/2003 2:49:53 PM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.3.1.4 DISCOVER function

\*\*\*

Change 4h and 5h to 8h and 9h (for 1.5 Gbps and 3.0 Gbps)

Page: 302

Sequence number: 15  
Date: 3/1/2003 4:38:34 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.4 DISCOVER function  
discovery process  
should be  
discover process

Page: 303  
Sequence number: 5  
Date: 1/21/2003 4:43:05 PM -06'00'  
Type: Note  
ACCEPT - DONE  
10.3.1.5 DISCOVER function  
The default value shall be the hardware ... physical link rate.

Page: 303  
Sequence number: 6  
Date: 2/28/2003 3:31:52 PM -06'00'  
Type: Note  
ACCEPT - DONE (per 1/28 call)  
10.3.1.4 DISCOVER function  
or DISCOVER page, make 0 value on the programmed rates mean "not programmable"

Page: 303  
Sequence number: 7  
Date: 2/2/2003 12:18:59 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.5 REPORT PHY ERROR LOG  
indicates should be specifies

Page: 303  
Sequence number: 8  
Date: 2/7/2003 1:52:18 PM -06'00'  
Type: Note  
ACCEPT - DONE  
10.3.1.4 DISCOVER function  
\*\*\*  
Table 140 - Hardware and programmed physical link rates  
5h and 6h should be 8h and 9h to match the negotiated physical link rate field.

Page: 305  
Sequence number: 9  
Date: 2/16/2003 11:40:20 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (per Feb 11 call)  
10.3.1.6 REPORT PHY SATA function  
Change:  
This function  
shall be implemented by expander devices supporting attachment to SATA target devices. This function shall  
not be implemented by any other type of device.  
to:  
implemented by SMP target ports that are part of STP/SATA bridges in expander devices and by SMP target ports in SAS devices  
also containing STP target ports. This function shall not be implemented by any other type of SMP target port.

Page: 306  
Sequence number: 3  
Date: 2/2/2003 12:19:39 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.6 REPORT PHY SATA  
indicates should be specifies

Page: 307  
Sequence number: 4  
Date: 12/30/2002 2:30:56 PM -06'00'  
Type: Highlight

ACCEPT - DONE

Table 146 - Function results for REPORT PHY SATA

11h PHY DOES NOT SUPPORT SATA should mention "rest of data is invalid"

Page: 307

Sequence number: 5

Date: 2/8/2003 12:21:27 PM -06'00'

Type: Note

ACCEPT - DONE (and posted to T10 list)

10.3.1.6 REPORT PHY SATA

dump PHY NOT SATA result - the first byte in the REGISTER FIS field indicates if it's not a usable SATA device

dump SATA RESET HALTED result - DISCOVER's negotiated link rate field indicates spinup hold

PHY DOES NOT SUPPORT SATA means everything is invalid like most other function results

Page: 307

Sequence number: 6

Date: 1/29/2003 5:41:36 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA

Note 25

00b should be 000b and add an (i.e. no device attached)

Page: 307

Sequence number: 7

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function

"The contents of the REGISTER DEVICE TO HOST FIS field shall remain constant"

is not quite true; the rest of the paragraph gives special rules for byte 0. Reword to "The remaining bytes" and place after the byte 0 discussion.

Page: 307

Sequence number: 8

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.6 REPORT PHY SATA function

Change:

The STP SAS ADDRESS field contains the "SAS address that is used when a SATA target device is attached to the specified phy."

to

"the SAS address of the STP target port that contains the specified phy"

This handles native STP better

Page: 308

Sequence number: 4

Date: 1/29/2003 6:30:23 PM -06'00'

Type: Highlight

ACCEPT - DONE (moved into 10.3.1.1 combined table with these changes)

10.3.1.7 REPORT ROUTE INFORMATION

delete

"for any EXPANDER ROUTE INDEX with the indicated phy identifier."

just the shall return is enough.

Plus, the EXPANDER ROUTE INDEX should have been smallcaps.

Page: 308

Sequence number: 5

Date: 2/2/2003 12:20:53 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.7 REPORT ROUTE INFORMATION

indicates should be specifies (several places in the request description)

Page: 309

Sequence number: 2

Date: 12/30/2002 10:41:13 AM -06'00'

Type: Highlight  
ACCEPT - DONE  
10.3.1.7 REPORT ROUTE INFORMATION  
Table y should be Table 148

Page: 309  
Sequence number: 3  
Date: 2/7/2003 11:18:01 AM -06'00'  
Type: Highlight

ACCEPT - DONE  
10.3.1.7 REPORT ROUTE INFORMATION  
ROUTE should be EXPANDER ROUTE  
throughout this subclause

Page: 310  
Sequence number: 1  
Date: 1/29/2003 6:26:44 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.7 REPORT ROUTE INFORMATION  
Change "shall not be used" to "ecm shall not use" (get rid of passive tense to match the previous sentence)

Page: 311  
Sequence number: 3  
Date: 2/2/2003 12:22:12 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.8 CONFIGURE ROUTE INFORMATION  
indicates should be specifies (3 times in request)

Page: 311  
Sequence number: 4  
Date: 2/8/2003 11:40:57 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.8 CONFIGURE ROUTE INFORMATION  
ROUTE should be EXPANDER ROUTE  
throughout this subclause

Page: 312  
Sequence number: 7  
Date: 1/31/2003 3:45:48 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.8 CONFIGURE ROUTE INFORMATION  
Change "shall not be used" to "ecm shall not use" (get rid of passive tense to match the previous sentence)

Page: 313  
Sequence number: 4  
Date: 1/29/2003 12:20:15 PM -06'00'  
Type: Note  
ACCEPT - DONE (put in a 0 value for the link rates, and an enable bit for PPTV)  
10.3.1.9 PHY control function  
Options discussed at Jan WG:  
\* write enable bits for min+max rate, and pptv in byte 11 (Bill votes for this) DISCOVER returns these as 1 if they are writable.  
or:  
phy operations of:  
set PPTV (uses pptv field)  
link reset (uses rate field)  
hard reset (uses rate field)  
or:  
phy operation to return changeable fields like mode pages

Page: 313  
Sequence number: 5  
Date: 2/2/2003 12:23:53 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
10.3.1.9 PHY CONTROL



indicates should be specified several times in the request section

Page: 313

Sequence number: 6

Date: 2/6/2003 9:28:23 AM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.9 PHY CONTROL function

Table 153 - PHY CONTROL request

row for byte 39 should be two rows for 37-39

Page: 314

Sequence number: 3

Date: 1/29/2003 12:07:53 PM -06'00'

Type: Highlight

ACCEPT - DONE (make value of 0h be "no change")

10.3.1.9 PHY CONTROL function

The programmed link rate fields shall be set in the same request where a LINK RESET or HARD RESET operation is invoked.

There's no code that means "no change".

Page: 314

Sequence number: 4

Date: 2/15/2003 2:51:13 PM -06'00'

Type: Note

ACCEPT - DONE (complete immediately)

10.3.1.9 PHY CONTROL

Do LINK RESET and HARD RESET take time, or do they complete immediately?

Email discussion agrees they complete immediately; add such wording to the descriptions.

Page: 314

Sequence number: 5

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Note

ACCEPT - DONE (Feb 11 call - no, return SMP FUNCTION FAILED if attempted)

10.3.1.9 PHY CONTROL function

Should the PHY CONTROL phy operations of LINK RESET, HARD RESET, and DISABLE be allowed to be performed on the phy which is being used to

receive the PHY CONTROL request?

Page: 315

Sequence number: 3

Date: 1/30/2003 10:13:51 AM -06'00'

Type: Note

REJECT (added an enable bit for updating PPTV instead of a new phy operation)

10.3.1.9 PHY control function

Option discussed at Jan protocol WG: add a PHY OPERATION to set the PPTV. Only if that is selected is this field honored.

Page: 315

Sequence number: 4

Date: 1/29/2003 12:41:58 PM -06'00'

Type: Highlight

ACCEPT - DONE

10.3.1.9 PHY CONTROL

partial pathway timeout value paragraph

after zero, add (i.e., 0 us) so the time stands out

Page: 315

Sequence number: 5

Date: 2/15/2003 2:50:31 PM -06'00'

Type: Note

ACCEPT - DONE (per Feb 11 call)

10.3.1.9 PHY CONTROL function

\*\*\*

Table 155 - Programmed physical link rate

5h and 6h should be 8h and 9h to match the DISCOVER function negotiated physical link rate field.

Page: 330

Sequence number: 3

Date: 12/30/2002 2:17:26 PM -06'00'

Type: Highlight  
ACCEPT - DONE  
D.3 Hash generation  
show should be shown

Page: 330  
Sequence number: 5  
Date: 1/23/2003 1:44:43 PM -06'00'  
Type: Highlight

ACCEPT - DONE  
D.2 Hash collision probability  
and global  
vendor specific should be  
vendor-specific

Page: 330  
Sequence number: 6  
Date: 1/23/2003 1:45:36 PM -06'00'  
Type: Highlight

ACCEPT - DONE  
D.2 Hash collision probability  
Four models were used for the models for the simulations.  
Add : and an a)b)c)d) list of the four models.

Page: 330  
Sequence number: 7  
Date: 2/9/2003 6:09:08 PM -06'00'  
Type: Highlight

ACCEPT - DONE  
D.1 Hashing overview  
Change  
Hashing overview  
to  
SAS address hashing overview

Page: 331  
Sequence number: 2  
Date: 1/23/2003 1:47:59 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Figure D.1 BCH code generator  
The text is 12 pt and should be 10 pt

Page: 333  
Sequence number: 1  
Date: 1/24/2003 9:10:22 AM -06'00'  
Type: Note  
ACCEPT - DONE  
D.6 Hash examples  
Add all-0s and all-Fs examples  
Add some examples that hash to the same value

Page: 336  
Sequence number: 2  
Date: 12/30/2002 1:15:12 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
E Scrambling  
Figure E.1 — Scrambler  
Figure is using 8 point font; should be 10 point.

Page: 336  
Sequence number: 3  
Date: 12/30/2002 1:15:03 PM -06'00'  
Type: Note  
ACCEPT - DONE  
E Scrambling  
Hanging paragraph at top of annex

Page: 336

Sequence number: 4

Date: 1/8/2003 1:27:12 PM -06'00'

Type: Note

ACCEPT - DONE

E Scrambling

figure E.1 Scrambler

Need to add an arrow on the line going into the left side of the Context register box

Page: 339

Sequence number: 2

Date: 2/16/2003 11:40:20 AM -06'00'

Type: Highlight

ACCEPT - DONE

F.3 Byte and bit ordering

Move this section back into chapter 7, since it is normative for STP. (see comments in that section)

Page: 343

Sequence number: 2

Date: 12/30/2002 10:29:31 AM -06'00'

Type: Highlight

ACCEPT - DONE

G Expander handling of connections

G.1 Overview

Table G.1 - Column descriptions

RX should be Rx, TX should be Tx

Page: 343

Sequence number: 3

Date: 2/9/2003 3:01:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.1 Expander handling of connections overview

Change

SAS expander

to

expander

Page: 343

Sequence number: 4

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.1 Overview

Change

Overview

to

Expander handling of connections overview

Page: 343

Sequence number: 5

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.1 Overview

Change

Phy

to

Expander phy

Page: 343

Sequence number: 6

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.1 Overview

Change

Phy

to  
Expander phy

Page: 343  
Sequence number: 7  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 8  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 9  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 10  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 11  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 12  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 13  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 14  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 15  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 16  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 17  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 343  
Sequence number: 18  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.1 Overview  
Change  
Phy  
to  
Expander phy

Page: 345  
Sequence number: 2  
Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.2 Connection request - Open Accept  
and other sections

In all the figure titles, change the format from  
Open accept  
to

Connection request - OPEN\_ACCEPT

Page: 345

Sequence number: 3

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE

G.2 Connection request - Open accept  
and other sections

In all the section headers, change the format to use primitive names OPEN\_ACCEPT and lowercase

Page: 345

Sequence number: 4

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE

G.2 Connection request - Open accept

Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 346

Sequence number: 1

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE

G.3 Connection request - Open reject

Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 347

Sequence number: 1

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE

G.4 Connection request - Open reject by expander

Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 348

Sequence number: 1

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

G.5 Connection request - arbitration lost

Figure G.5

Phy [Y] Tx should switch from idle dwords to AIP(NORMAL) as the XL1:Request\_Path state is entered, then revert back to idle dwords while back in XL0.

Page: 348

Sequence number: 2

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE

G.5 Connection request - Arbitration lost

Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 349

Sequence number: 1

Date: 3/8/2003 12:22:29 PM -06'00'

Type: Note

ACCEPT - DONE

G.6 Connection request - Backoff and retry

Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 349

Sequence number: 2  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.6 Connection request - Backoff and retry  
To reflect the letter ballot changes in XL to avoid the step through XL0:Idle when backing off, remove the XL0:Idle steps; go directly to XL1

Page: 350  
Sequence number: 1  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.7 Connection request - Backoff and reverse path  
Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 350  
Sequence number: 2  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.7 Connection request - Backoff and reverse path  
To reflect the letter ballot changes in XL to avoid the step through XL0:Idle when backing off, remove the XL0:Idle steps; go directly to XL5

Page: 351  
Sequence number: 1  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.8 Connection close - single step  
Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 352  
Sequence number: 1  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.9 Connection close - simultaneous  
Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 353  
Sequence number: 1  
Date: 3/8/2003 12:22:29 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.10 Break handling during arbitration  
Add spaces to all the req/rsp and cnf/ind message names. Change "wait on device" to "(Waiting On Device)"

Page: 358  
Sequence number: 1  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Note  
ACCEPT - DONE  
G.15 STP connection close - originated by expander  
Get rid of whitespace in XL req/rsp column

Page: 359  
Sequence number: 1  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight  
ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359  
Sequence number: 2  
Date: 3/1/2003 4:38:28 PM -06'00'  
Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 3

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 4

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 5

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 6

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 7

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 8

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change Connection Manager to ECM

Page: 359

Sequence number: 9

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example  
Change  
expander  
to  
expander device

Page: 359

Sequence number: 10

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Highlight

ACCEPT - DONE  
G.16 Pathway blocked and recover example



Change  
recover  
to  
recovery

Page: 359

Sequence number: 11

Date: 3/1/2003 4:38:28 PM -06'00'

Type: Note

ACCEPT - DONE

G.16 Pathway blocked and recover example

add request, confirmation, etc. after each signal reference

Page: 360

Sequence number: 2

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

H.1 Overview

Change

Overview

to

Primitive encoding overview

Page: 360

Sequence number: 3

Date: 5/12/2003 10:16:25 AM

Type: Highlight

ACCEPT - DONE

Annex H

H.1 Overview

Table H.1 - Primitives with Hamming distance of 8

In the first row, ALIGN (3) should be ALIGN (2). (the real ALIGN (3) is below)

Page: 363

Sequence number: 1

Date: 2/9/2003 6:09:08 PM -06'00'

Type: Highlight

ACCEPT - DONE

I.1 Overview

Change

Overview

to

Discover process example implementation overview

Page: 363

Sequence number: 2

Date: 3/8/2003 12:34:35 PM -06'00'

Type: Note

ACCEPT - DONE

I.2 Header file and I.3 Source file

make sure Courier font is used

Page: 382

Sequence number: 5

Date: 3/15/2003 4:53:23 PM -06'00'

Type: Note

ACCEPT - DONE

J SAS Logo

Change "logo" to "icon"

## Author: SEG Coomes

---

Page: ix

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

1.19 Revision sas-r02c (21 November 2002)

"sas-r02c"

s.b.

"sas-r03"

Page: 11

Sequence number: 6

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

Global: To be compatible with ATA terminology

STP initiator port

s.b.

STP host port

Page: 11

Sequence number: 7

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

Global: To be compatible with ATA terminology

STP target port

s.b.

STP device port

Page: 13

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Strikeout

ACCEPT - DONE (drop the - 3)

3.2 Symbols and abbreviations

The - 3 in the abbreviation for SCSI s.b. dropped to be consistent with 1 Scope.

Page: 21

Sequence number: 7

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (reword to: This creates a wide link if more than two phys are so attached or a narrow link if only two phys are so attached.)

4.1.3 Ports (narrow ports and wide ports)

Change:

are

To:

is

Page: 30

Sequence number: 8

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.1.11 Connections

Change:

to

To:

the

Page: 88

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.3.3.1 Definitions

Change:

an primitive

To:

a primitive

Page: 97

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 Out of band (OOB) signals

Change:

proceeding

To:

preceding

Page: 101

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (reworded if phrases to the front of each of a) and b))

6.6.4.1 SAS OOB sequence

Change:

COMSAS,

To:

COMINIT;

Page: 102

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (with arrow from A's COMINIT not B's COMINIT to B's COMSAS)

6.5 Out of band (OOB) signals Figure 51Scenario 2:

The figure shows a sequence, COMINIT from B to COMSAS from A to COMSAS from B. By definition, B may send its COMSAS after sending and receiveing COMINIT. B may send COMSAS even if it does not receive a COMSAS from A.

The figure should be changed:

Remove the arrow from A's COMSAS to B's COMSAS and

add an arrow form B's COMINIT to B's COMSAS.

Page: 102

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (a dfiferent scenario 3 is needed)

6.5 Out of band (OOB) signals Figure 51Scenario 3:

This scenario is not very interesting. It is just a flip of senario 2. Delete?

Page: 104

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (SATA WG confirms this is really a minimum not a maximum and it should be based on 32768 UI(OOB))

SATA uses both 440 and 880 for this value. Question sent to Knut about which is correct. Might call it "Await ALIGN Timeout".

6.6.4.2 SAS speed negotiation sequence, Table 49 — SAS speed. .

The value of ALIGN detect timeout maximum needs a tolerance. A minimum value is also required. The current requirement would allow a phy to not wait.

Page: 104

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted note a)

6.6.4.2 SAS speed negotiation sequence, Table 49 — SAS speed. .

Note "a" is not referenced in the table.

Page: 121

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT (fix in SAS-2 perhaps)

6.9 SAS phy dword synchronization (SP\_DWS) state machine

The DWS state machine starts with a state 0. Other state machines start with state 1.

Page: 131

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT (Jan WG)

7.1.2 Primitive summary, Table 54

It would be better if the 2nd character of the CLS primitives were unique from BREAK, ERROR, and HARD\_RESET. Since there are multiple CLS primitives, the 3rd and 4th characters will be used to distinguish the types. It would be simpler for the hardware if the 2nd character for CLS (D02.0) was unique from the other primitives.

Page: 131

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT (Jan WG - too many OPEN\_REJECTs to fit in one set of encodings)

7.1.2 Primitive summary, Table 54

It would be better if the 2nd character of the OPEN\_REJECT primitives were the same rather than D31.4 and D29.7.

Page: 133

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT (Jan WG)

7.1.2 Primitive summary, Table 55

It would be better if the 2nd character of the NAK primitives were unique from ACK, CREDIT\_BLOCKED, and RRDY. Since there are multiple NAK primitives, the 3rd and 4th characters will be used to distinguish the types. It would be simpler for the hardware if the 2nd character for CLS was unique from the other primitives.

Page: 143

Sequence number: 5

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (with transmitting not originating)

7.2 Clock skew management

Change: "devices" to: "originating devices"

Page: 144

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.4.1 CRC Overview

3rd paragraph

"Annex B contains. . ."

s.b.

"Annex C contains. . ."

Page: 145

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT - such an "initial value" assumes a certain implementation. This section has generic equations which do assume any implementation.

7.4.2 CRC generation

Add a subclause:

7.4.x CRC initial value

The CRC value shall be initialized with a value of FFFFFFFFh before the calculation begins.

Page: 147

Sequence number: 8

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (Replace paragraph and table with: The polynomial shall be applied to the lower 16 bits of the 32-bit dword being transmitted or received first; the polynomial is then applied to the upper 16 bits. See 7.6 for details on how ... Move the STP bit ordering figures into 7.6 from the informative annex. Move the STP CRC figure into 7.x too.)

7.5 Scrambling

There is no endianness to the scrambling process. Scrambling operates on the parallel 32 bits of a dword. Both SAS and SATA process the bits of a dword without regard to the byte significates the same way, lower 16 bits followed by the upper 16 bits.

Delete this sentence and Table 69— Scrambling endianness.

Page: 147

Sequence number: 9

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (removed paragraph)

7.4.3 CRC Checking

"Annex B contains. . ."

s.b.

"Annex C contains. . ."

Page: 147

Sequence number: 10

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (Jan WG: accept without the e.g.)

7.5 Scrambling

Scrambling works for all repeating patterns.

Change:

long strings of zeros or ones

To:

long strings of repeating patterns, e.g., all zeros and ones,

Page: 147

Sequence number: 11

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted entire i.e. since it's hard to describe all the cases)

7.5 Scrambling

change

(i.e., between

frames),

to:

(i.e., between

frames and not sending primitives)

Page: 147

Sequence number: 12

Date: 3/15/2003 11:35:20 AM -06'00'

Type: Highlight

ACCEPT - DONE (incorporated 03-129 which rewords this section.)

7.5 Scrambling

The initialize value is determined by the scrambler implementation, serial or parallel. Also, a clarification:

Change to:

The data scrambling value shall be initialized at each SOF, SOAF, and SATA\_SOF by both the transmitter and receiver. The data being transmitted shall be XORed with the data scrambling value by the transmitter, and the data being received shall be XORed with the data scrambling value by the receiver. The initial value is selected to produce the required scrambling value for the first value following a reset, e.g., any SOF or device reset (see Annex E). For a given dword displacement from the last data scrambling value reset, the data scrambling value is the same.

Page: 153

Sequence number: 1

Date: 2/17/2003 5:15:13 PM -06'00'

Type: Highlight

ACCEPT - DONE (in 4.1.11 Connections, add an introduction to connection rate and include this rule with Jim's comment. Point to 4.1.11 from here and from 7.15 Rate matching).

7.7.3 OPEN address frame

for clarification add:

This support may use rate matching.

Page: 154

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (keep this wording. Make a table with 0000, 7FFF, 8000, maybe 8001h, and FFFFh values in it.. Check rest of document for SCALE bit and AWT field references.)

7.7.3 OPEN address frame

The concept of the scale bit is confusing to implementors. Suggest dropping the scale bit and describing the behavior of a 16 bit AWT by range:

The ARBITRATION WAIT TIME field indicates how long the port transmitting the OPEN address frame has been waiting for a

connection request to be accepted. For values from 0000h to 7FFFh the AWT increments in 1 usec steps. For values from 8000h to FFFFh the AWT increments in 1 msec steps. The maximum value represents 32 767 ms + 32 768 µs.  
Also, delete table 77, the scale bit in table 74.

Page: 155

Sequence number: 6

Date: 3/5/2003 8:38:07 AM -06'00'

Type: Highlight

ACCEPT - DONE(per 2/25; reworded)

7.8.3 Fanout expander device specific rules

The identify sequence completes of a port by port basis and there is no global indication of when it complete for all ports on the expander.

Suggest:

"After completing the identify sequence on a port, the expander connection manager within a fanout expander device shall process connection requests from the attached device on the port. The connection manager may return OPEN\_REJECT (NO DESTINATION) if internal initialization is not complete."

Page: 155

Sequence number: 7

Date: 3/5/2003 8:38:15 AM -06'00'

Type: Highlight

ACCEPT - DONE (per 2/25; reworded)

7.8.4 Edge expander device specific rules

same comment as for 7.8.3 -The identify sequence completes of a port by port basis and there is no global indication of when it complete for all ports on the expander.

Suggest:

"After completing the identify sequence on a port, the expander connection manager within a edge expander device shall process connection requests from the attached device on the port. The connection manager may return OPEN\_REJECT (NO DESTINATION) if internal initialization is not complete."

Page: 161

Sequence number: 6

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT (Jan WG removed NEA altogether)

7.10 Near-end analog loopback test

Targets should be allowed to perform loopback also.

change to:

"This test mode may be invoked in initiator or target devices using vendor-specific means."

also add a paragraph:

"Once the test is completed in a target device, the target phy shall start a phy reset sequence."

Page: 163

Sequence number: 12

Date: 2/17/2003 5:46:48 PM -06'00'

Type: Highlight

REJECT (deleting whole paragraph which is incomplete and unnecessary)

7.12.2.2 Connection request responses

The OPEN may require a rate match that is not support by the receipient.

Add: "if the requested connection rate is supported."

Page: 163

Sequence number: 13

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (make it required for everyone)

7.12.3 Arbitration fairness

may should be shall. Optional implementation may/will lead to non-interoperable devices. Also if optional, the behavior has to be described in the rest of the document.

Page: 163

Sequence number: 14

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (but weakened the shall set to zero since unfairness is allowed)

7.12.3 Arbitration fairness

The AWT has to be mandatory.

Chnane to:

Initiator ports and target ports shall set the arbitration wait timer to zero for fair operation and start the timer when they transmit the

first OPEN address frame for the connection request.

Page: 163

Sequence number: 15

Date: 3/5/2003 3:27:17 PM -06'00'

Type: Highlight

REJECT (7.7.3 describes the field values in an OPEN address frame; this section describes the counter itself.)

7.12.3 Arbitration fairness

This is duplicated in 7.7.3. Delete here.

The arbitration wait timer shall count in microseconds from 0  $\mu$ s to 32 767  $\mu$ s and in milliseconds from 32 768  $\mu$ s to 32 767 ms + 32 768  $\mu$ s.

Page: 163

Sequence number: 16

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (but as  $\geq$  8000h rather than  $>$  7FFFh)

7.12.3 Arbitration fairness

In conjunction with a comment in 7.7.3 to remove the scale bit:

Change to:

However, unfair ports shall not set the ARBITRATION WAIT TIME field to a value greater than 7FFFh; this limits the amount of unfairness and helps prevent livelocks.

Page: 163

Sequence number: 17

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (per Jan WG)

7.12.2.2 Connection request responses

\*\*\*The retry delay timer greatly complicates selecting another transfer request for a queue. If a request to a different destination has to be selected, a good deal of hardware is required. If done by a processor, the performance would be poor.

Suggest deleting the retry delay. If the expander gets congested, buy more capacity.

Page: 164

Sequence number: 3

Date: 3/11/2003 4:14:43 PM -06'00'

Type: Highlight

ACCEPT - DONE (removed connection rate altogether)

7.12.2.2 Connection request responses

change:

matching PROTOCOL and CONNECTION RATE fields.

to:

a matching PROTOCOL field and a supported connection rate.

Page: 164

Sequence number: 4

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3 Arbitration fairness

Change:

the timer

To:

The arbitration wait timer

Page: 164

Sequence number: 5

Date: 2/19/2003 1:47:50 PM -06'00'

Type: Highlight

ACCEPT - DONE (winner of longest comment?)

7.12.3.1.1 Arbitration overview

This subclause uses "primitive" in a different meaning than the rest of the draft. Also, it is an overview and should not present the attribute/confirmation details. Suggest a rewrite to:

The expander connection manager shall arbitrate and assign or deny path resources for connection attempts requested by each expander phy in response to receiving valid OPEN address frames.

Arbitration includes adherence to the SAS arbitration fairness algorithm and path recovery. Path recovery is used to avoid potential deadlock scenarios within the SAS topology by deterministically choosing which partial pathway(s) to tear down to allow at least one connection to complete.

The expander connection manager responds to connection request with arbitration won, lost, and reject to the requesting phy.

Each path request contains the Arbitration Wait Time and the Source SAS Address arguments from the received OPEN address frame.

If two path requests contend, the winner shall be determined by comparing OPEN address frame field values in this order:

- 1) largest Arbitration Wait Time;
- 2) largest Source SAS Address; and
- 3) largest Connection Rate.

The expander connection shall generate the arbitration reject response when any of the following conditions are met:

- a) the request does not map to a valid phy;
- b) the request specifies an unsupported connection rate; or
- c) the request specifies a destination port which contains at least one partial pathway and pathway recovery rules require this connection request to release path resources.

When two phys receive an OPEN address frame destined for each other, the expander connection manager shall provide an arbitration lost response to the phy that received the lowest priority OPEN address frame when all of the following conditions are met:

- a) the request is for an available phy at a supported connection rate; and
- b) the destination phy of this connection request has received a higher priority OPEN address frame with this phy as its destination.

The expander connection manager shall generate the arbitration won response when all of the following conditions are met:

- a) the request maps to an available phy at a supported connection rate; and
- b) no higher priority connection requests are present with this phy as the destination.

Page: 164

Sequence number: 6

Date: 2/19/2003 12:42:45 PM -06'00'

Type: Highlight

ACCEPT - DONE (added "from the destination SAS port" rather than name specific OPEN\_REJECTs.)

7.12.3 Arbitration fairness

The AWT is not reset on OPEN\_REJECT (PATHWAY BLOCKED). This appears to be the only exception to resetting the timer.

Add:

(except OPEN\_REJECT (PATHWAY BLOCKED) )

Page: 164

Sequence number: 7

Date: 2/19/2003 1:49:11 PM -06'00'

Type: Highlight

REJECT (yes they could be the same for two incoming requests from the same direction - e.g. a wide SAS port making two simultaneous requests both with AWTs of zero. This rule ensures that the faster one wins.)

7.12.3.1.1 Arbitration overview

Why is largest Connection Rate used for compare? Does this mean that AWT and Source SAS address are the same?

Page: 165

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.12.3.1.2 Arbitration status

Change: value

To: type

Page: 170

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

REJECT

7.13 SAS link layer state machine for initiator phys and target phys (SL)

The SL state machine starts with 0 state. Most others start with 1.

Page: 186

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.14.6.1 State description

Spelling:

This should be "This"

Page: 190

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight



ACCEPT - DONE

7.15 Rate matching

The termination of inserting ALIGNs is not covered.

Add a sentence:

The source shall stop inserting ALIGNs for rate matching with the first dword of CLOSE.

Page: 191

Sequence number: 1

Date: 2/18/2003 3:40:46 PM -06'00'

Type: Strikeout

ACCEPT - DONE

7.16.3 SSP frame transmission

Delete:

NAK means the frame was received with an error;

NAK (CRC ERROR) is the only defined NAK.

Page: 207

Sequence number: 3

Date: 2/19/2003 10:58:08 AM -06'00'

Type: Highlight

REJECT (whole paragraph deleted)

7.17.3 Preparing to close an STP connection

Change:

detected, after

To:

detected or after

Page: 209

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (can do in this picture by just making it square. Trouble for some other pictures though.)

7.18.4.1 Overview, Table 88

Round corners of white box to match format of other state machines

Page: 214

Sequence number: 4

Date: 3/21/2003 8:39:38 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.2 Bus inactivity time limit timer

This timer is optional by definition in SCSI.

Add text:

Support for the bus inactivity timer is optional. The Disconnect-Reconnect mode page may be accessed to determine support for this timer. When this timer is not supported, the bus inactivity timer shall not be treated as expired in this standard.

Page: 214

Sequence number: 5

Date: 3/21/2003 8:39:33 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.3 Maximum connect time limit timer

Add text:

Support for the maximum connect time limit timer is optional. The Disconnect-Reconnect mode page may be accessed to determine support for this timer. When this timer is not support, the maximum connect time limit timer shall not be treated as expired in this standard.

Page: 214

Sequence number: 6

Date: 3/21/2003 8:39:26 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.2.4 I\_T nexus loss timer

Add text:

Support for the I\_T nexus loss timer is optional. The Protocol-Specific Port mode page may be accessed to determine support for this timer see 10.1.6.2. When this timer is not support, the I\_T nexus loss timer shall not be treated as expired in this standard.

Page: 215

Sequence number: 3

Date: 3/21/2003 8:40:24 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.2.5 Arbitration wait time (AWT) timer  
Add a sentence:  
Support of the AWT is mandatory.

Page: 215

Sequence number: 4

Date: 3/21/2003 8:40:17 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.2.6 Pathway blocked count (PBC) counter  
Add a sentence:  
Support of the PBC is mandatory.

Page: 226

Sequence number: 11

Date: 3/21/2003 8:46:28 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.4.4.1 State description  
second to last paragraph  
The shall in the following sentence is misleading for an optional timer.  
the bus inactivity time limit timer shall be initialized  
suggest:  
the bus inactivity time limit timer if supported shall be initialized

Page: 226

Sequence number: 12

Date: 3/21/2003 8:46:22 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)  
8.4.4.1 State description  
last paragraph  
The shall in the following sentence is misleading for an optional timer.  
the maximum connect time timer shall be initialized  
suggest:  
initializedthe maximum connect time timer if supported shall be initialized

Page: 229

Sequence number: 5

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (it's the bit mislabeled TIMEOUT in the table)  
9.2.1 SSP frame format  
The RETRANSMIT bit is in the text but not in Table 88. Is the function out?

Page: 230

Sequence number: 4

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Strikeout

ACCEPT - DONE (moved most of the definition to 9.2.2.4 and put xrefs here to there and there to here. Deleted the redundant sentence.)  
9.2.1 SSP frame format  
Delete. This sentence is redundant with the last paragraph in 9.2.2.4 DATA information unit.

Page: 233

Sequence number: 3

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (see IBM comment)  
9.2.2.3 XFER\_RDY information unit - Table 94 — XFER\_RDY information unit  
The use of the same field name, RELATIVE OFFSET, in the header and XFR\_RDY is confusing. Suggest:  
XFR\_RDY\_OFFSET,  
REQUEST\_OFFSET,  
STARTING\_OFFSET,  
etc.  
RELATIVE OFFSET

Page: 233  
Sequence number: 4  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.2.3 XFER\_RDY information unit  
reference to 10.1.1.1.5  
should be 10.1.6.1.5

Page: 233  
Sequence number: 5  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.2.3 XFER\_RDY information unit  
reference to 10.1.1.1.5  
should be 10.1.6.1.5

Page: 234  
Sequence number: 1  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
9.2.2.4 DATA information unit  
Delete: This sentence is redundant with the first paragraph on the page.

Page: 239  
Sequence number: 1  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Strikeout  
REJECT - that is indeed the intention. There are no more frame transmissions allowed if ACK or NAK are not balanced.  
9.2.4.1 COMMAND frame  
Delete:  
in the next connection  
This would mean the initiator would have to shutdown any queued transfer request to satisfy the next connection requirement.

Page: 260  
Sequence number: 3  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.4.2 SMP\_REQUEST frame  
Why is this not 1 024?

Page: 261  
Sequence number: 4  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.4.3 SMP\_RESPONSE frame  
Why is this not 1 024?

Page: 263  
Sequence number: 3  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (removed here, and mentioned later in Transmit Frame () call that it must be set to FFFFh)  
9.4.4.2.2 Transition MT\_ID1:Idle to MT\_ID2:Send  
Why is the initiator connection tag included when the SMP transfer is interlocked?

Page: 287  
Sequence number: 5  
Date: 2/16/2003 11:41:02 AM -06'00'  
Type: Highlight  
REJECT  
10.1.8 SCSI power condition states  
SA\_PC state machine numbering is not consistent with other state machines. SA\_PC state machine start with "0", others start with "1".

Page: 305

Sequence number: 4

Date: 2/28/2003 3:31:42 PM -06'00'

Type: Highlight

ACCEPT - DONE (tie it to Enable Disable Link Layer output of the SP state machine.)

10.3.1.5 REPORT PHY ERROR LOG function

The meaning of "outside of phy reset sequences" is not specific.

Suggest substituting:

"while PhyReady is valid from the SP state machine" each counter in this clause to be more specific.

Page: 324

Sequence number: 5

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

B.1 SAS phy reset sequence examples

Figure A.1

S.B.

Figure B.1

Page: 324

Sequence number: 6

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

B.1 SAS phy reset sequence examples

Figure A.2

S.B.

Figure B.2

Page: 327

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

C.3 CRC implementation with XORs

Change:

These equations generate the 32 bit CRC for frame transmission.

To:

These equations generate the multiplier function shown in figures C.1 and C.2.

Page: 339

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

F.1 STP differences from SATA

Add:

h) BIST activated frames not supported.

Page: 341

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

F.3 Byte and bit ordering, Figure F2

change byte order to:

(4th : 3rd : 2nd : 1st)

to match Figure F.3

Page: 341

Sequence number: 2

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

F.3 Byte and bit ordering, Figure F2

change byte order to:

(1st : 2nd : 3rd : 4th)

to match Figure F.3

Page: 343

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

G.1 Overview, Table G.1

For completeness, continue table to include representations for PHYs W & Z...should be a cut-and-paste of what's there with a replacement of X->W and Y->Z plus device A -> C and B->D.

Page: 345

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE (in table G.1 instead of here)

G.2 Connection request - Open accept, Figure G.2

Add reference Fig 26 and Fig 27 to help the reader understand how to interpret req/rsp and cnf/ind columns in the figures.

Page: 371

Sequence number: 1

Date: 2/16/2003 11:41:02 AM -06'00'

Type: Highlight

ACCEPT - DONE

I.3 Source file

Should:

header file

Be:

code file

## Author: SEG Cox

---

Page: 67

Sequence number: 7

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE (per PHY WG - with only added to prev line too)

5.3.3 SAS internal cable receptacle connector

"only" is unnecessary in this sentence and should be removed.

Page: 67

Sequence number: 8

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

5.3.4 SAS backplane receptacle connector

"only" is unnecessary in this sentence and should be removed.

Page: 70

Sequence number: 2

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Circle

ACCEPT - DONE (per phy WG)

5.4.1 SAS internal cables

Figure 34 — SAS internal cable assembly and destination pin assignments

P11 is not bidirectional should only have one arrow on the far end.

Page: 70

Sequence number: 3

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Circle

ACCEPT - DONE

5.4.1 SAS internal cables

Figure 34 — SAS internal cable assembly and destination pin assignments

These grounds should have an arrow on both ends as they are a shield rather than a directional signal or power function.

Page: 70

Sequence number: 4

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Circle

ACCEPT - DONE

5.4.1 SAS internal cables

Figure 34 — SAS internal cable assembly and destination pin assignments

These grounds should have an arrow on both ends as they are a shield rather than a directional signal or power function.

Page: 70

Sequence number: 5

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Circle

ACCEPT - DONE

5.4.1 SAS internal cables

Figure 34 — SAS internal cable assembly and destination pin assignments

These grounds should have an arrow on both ends as they are a shield rather than a directional signal or power function.

Page: 72

Sequence number: 4

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG)

5.7.2 General interface specification

Change "interoperability" to "compliance"

Page: 72

Sequence number: 5

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG)

5.7.2 General interface specification

Change "conforming" to "compliant"

Page: 72

Sequence number: 6

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.1 Compliance points

Change "physical definition" to "description" as this is consistent with the column label in Table 33.

Page: 77

Sequence number: 3

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.7.4 Transmitted signal characteristics

Table 35 — Transmitted signal characteristics at Tx compliance points

\*\*\*

Change 133 to 67

Page: 93

Sequence number: 1

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Circle

ACCEPT - DONE

6.4 Bit order

Figure 44 — SAS bit transmission logic

Correct figure so that 16 is horizontal like the rest of the numbers instead of vertical.

Page: 96

Sequence number: 1

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (also added cross reference to first use of transmitter, receiver, and state machine, and changed "SAS phy" to "SP" after this)

6.5 Out of band (OOB) signals

Change "SP" to "SAS phy (SP)", as this is the first occurrence.

Page: 97

Sequence number: 4

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 Out of band (OOB) signals

This is more clear if the two cases are put in the opposite order and "then" should be "than". Replace the highlighted text with:  
"A receiver shall not detect the same OOB signal again until it has detected lack of transitions for a time greater than the proceeding idle time (i.e., a COMINIT negation time for a COMINIT idle time or a COMSAS negation time for a COMSAS idle time) or has detected a different OOB signal (e.g., if the idle time changes).

Page: 98

Sequence number: 2

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.5 Out of band (OOB) signals

Change "SAS phy (SP)" to "SP"

Page: 98

Sequence number: 3

Date: 4/4/2003 6:22:32 PM -06'00'

Type: Circle

ACCEPT - DONE (actually the 3 blue lines are pointing to the wrong burst as well... the receiver detects idle/bursts not bursts/idles so after the 4th pair the first arrow should be located)

6.5 Out of band (OOB) signals

Figure 47 — OOB signal detection

Bracket 6 is on the wrong side of the burst. It should be at the trailing edge instead of the leading edge.

Page: 100

Sequence number: 4

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Strikeout

ACCEPT - DONE

6.6.3 SAS to SATA phy reset sequence

This does not have to be a "legacy" device.

Page: 106

Sequence number: 2

Date: 2/21/2003 3:50:48 PM -06'00'

Type: Highlight

ACCEPT - DONE (made the change)

6.6.5 Phy reset sequence after device is attached

Gender is wrong. Change "into a receptacle." to "onto a plug."

Page: 106

Sequence number: 3

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

REJECT (a phy does not ignore incoming COMINITs while waiting through its hot-plug timeout)

6.6.5 Phy reset sequence after device is attached

This explanation needs additional detail to be clear. Make the following changes to the text by adding additional information and deleting "after the attachment".

In this example, SAS phy B is attached to SAS phy A some time before SAS phy B's second hot-plug timeout occurs, but while SAS phy A is still in a hot-plug timeout and unable to detect a valid COMINIT from SAS phy B. SAS phy A completes its hot-plug timeout and transmits COMINIT. SAS phy B's OOB detection circuitry detects a COMINIT, ...

Page: 107

Sequence number: 3

Date: 2/16/2003 11:41:24 AM -06'00'

Type: Highlight

ACCEPT - DONE (the labels are broken; "Rx" on the left is not true until time y... I don't think it matters if A is attached to B or B is attached to A. Tx and Rx lines separated.)

6.6.5 Phy reset sequence after device is attached

Figure 55 — Hot-plug and the phy reset sequence

Change "SAS phy A attached to SAS phy B" to "SAS phy B attached to SAS phy A. Phy A and Phy B Rx signals are not present until this time."

Page: 107  
Sequence number: 4  
Date: 2/21/2003 3:45:13 PM -06'00'  
Type: Circle  
ACCEPT - DONE  
6.6.5 Phy reset sequence after device is attached  
Figure 55 — Hot-plug and the phy reset sequence  
The "Time y" arrowhead should be on the other side of the squiggle to have the event illustrated later in the timing sequence.

Page: 321  
Sequence number: 1  
Date: 2/16/2003 11:41:24 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
A.1 Compliant jitter test pattern (CJTPAT)  
Case of the next to the last character is incorrect. 35B5A9Edh should be 35B5A9EDh

Page: 322  
Sequence number: 1  
Date: 2/16/2003 11:41:24 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
A.1 Compliant jitter test pattern (CJTPAT)  
Case of the next to the last character is incorrect. 8CF328Eah should be 8CF328EAh

Page: 323  
Sequence number: 1  
Date: 2/16/2003 11:41:24 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
A.1 Compliant jitter test pattern (CJTPAT)  
Case of the next to the last character is incorrect. AFF087Ebh should be AFF087EBh

Page: 323  
Sequence number: 2  
Date: 2/16/2003 11:41:24 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
A.1 Compliant jitter test pattern (CJTPAT)  
Case of the next to the last character is incorrect. E21035Efh should be E21035EFh

## Author: SEG Houlder

---

Page: 6  
Sequence number: 8  
Date: 2/16/2003 11:41:08 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE (delete it. That will mean no special meaning)  
3.1.25 device: A physical entity.  
Delete this definition of device. SAM-x, SPC-x, SPI-x, etc. have gotten along fine without defining device even though they all use the word hundreds of times. The given definition is so broad that it isn't helpful anyway.

Page: 6  
Sequence number: 9  
Date: 2/16/2003 11:41:08 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
Synonymous with SAS domain.  
The definition for domain should be more general purpose because several types of domains are referred to in SAS. Use the definition of domain from SAM-2 -- "An I/O system consisting of a set of devices that interact with one another by means of a service delivery subsystem" with the acronym SCSI removed so the definition can be applied to "ATA domain" which also appears in this draft.

Page: 7  
Sequence number: 7  
Date: 2/16/2003 11:41:08 AM -06'00'



Type: Highlight

ACCEPT - DONE

expander connection router (ER):

Change ER to ECR to be consistent with other references to this item.

Page: 8

Sequence number: 8

Date: 3/2/2003 1:00:56 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted the alias - use SAS initiator device everywhere)

3.1.64 initiator device

Synonymous with

This is not accurate or useful. use the generic "initiator device" description here (which can also be applied to ATA initiator device) and change "SAS initiator device" to "an initiator device in SAS domain".

Page: 8

Sequence number: 9

Date: 3/2/2003 1:00:51 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted the alias - use SAS initiator port everywhere)

3.1.66 initiator port

Synonymous with

This is not accurate or useful. use the generic "initiator port" description here (which can also be applied to ATA initiator port) and change "SAS initiator port" to "an initiator port in SAS domain".

Page: 9

Sequence number: 9

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

REJECT - this is the correct direction

higher layer state machine to a lower layer

This wording is identical to "request" definition!! I think you mean "lower layer state machine to higher layer"

Page: 10

Sequence number: 5

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

REJECT - it's referring to the SATA document

defined by SATA.

replace with "protocol defined by SATA industry group".

Page: 11

Sequence number: 4

Date: 3/2/2003 1:01:19 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted the alias - use SAS target device everywhere)

3.1.138 target device

Synonymous with

This is not accurate or useful. use the generic "target device" description here (which can also be applied to ATA target device) and change "SAS target device" to "a target device in SAS domain".

Page: 11

Sequence number: 5

Date: 3/2/2003 1:01:37 PM -06'00'

Type: Highlight

ACCEPT - DONE (deleted the alias - use SAS target port everywhere)

3.1.140 target port

Synonymous with

This is not accurate or useful. use the generic "target port" description here (which can also be applied to ATA target port) and change "SAS target port" to "a target port in SAS domain".

Page: 13

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (also fixed millivolt and nanofarad)

millisecond (10-6 seconds)

Should be 10-3 seconds.

Page: 14

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

not::

remove the extra : after the word not.

Page: 15

Sequence number: 3

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Strikeout

ACCEPT - DONE

Fields containing only one bit are usually referred to as the name bit instead of the name field.

Remove this sentence - it is redundant with sentence 2 paragraphs earlier (paragraph starting with "Names of fields are ..").

Page: 21

Sequence number: 4

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (added "8b10b coding" to definitions)

8b10b coded

This term should be defined in definitions clause (3.1).

Page: 21

Sequence number: 5

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

REJECT (the attached phys might have the same SAS address in a physical loopback configuration, so "different" is not necessarily true. Note 6 describes that scenario.)

4.1.3 Ports

Replace "a SAS" with "a different SAS".

Page: 27

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (new "bridge" object created as requested; paragraph deleted, new picture added including bridge)

4.1.9 Domains

are not required to

Change to "do not". I contend that something that translates SSP to SATA is a bridge device, not an expander.

Page: 29

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Note

ACCEPT - DONE (added note that the top edge expander devices are using subtractive routing to each other)

Should there be more rules to define an "edge expander device set"? For instance, it is not clear to me why this group of 6 edge expander devices is considered to be two edge expander device sets instead of one edge expander device set. I'm sure there must be a way to connect the 6 edge expander devices so that they are considered to be one expander device set.

Page: 30

Sequence number: 6

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (overcome by rewrite)

port(s);

change to "port(s) using SSP;".

Page: 30

Sequence number: 7

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (list removed; generic SSP, STP, and SMP references put in place)

Should an example d) be added to describe a SCSI initiator port to expander port(s) using SMP?

If this is interpreted as a complete list of allowed connection types, the example must be added.

Page: 69

Sequence number: 2

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

REJECT (per PHY WG Reject. Table 31 is sufficient reference.)

5.3.6 SAS external cable plug connector

Table 31 defines

change to "Table 31 in clause 5.3.8 defines .." for clarity. Change both occurrences on this page.

Page: 70

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

internal

spelling should be "internal".

Page: 71

Sequence number: 11

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

The LED and the current limiting resistor may be external to the target device.

\*\*\*Change this to read " The LED and the current limiting circuitry shall be external to the target device." The standard must definitely state where the current limiting circuitry and the LED are located.

Page: 72

Sequence number: 2

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (changed to "exceed")

operate within

\*\*\*Change to "meet". The word within is ambiguous.

Page: 72

Sequence number: 3

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

that

Replace with "this".

Page: 73

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Note

REJECT (per phy WG)

Figures 35 and 36 seem out of place here. Should they be moved to the Test Loads clause or somewhere else?

Page: 74

Sequence number: 2

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (per phy WG)

5.7.3.1 Eye masks overview

change to "limits imposed on the signal at that particular compliance point". The added clarification is considered significant by Al Kramer.

Page: 79

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.7.7 page 79

Table 38

Accept both Seagate comments but implement as follows:

Combine notes b/d and c/e as suggested but separate the applied frequency ranges to separate footnotes and reference the new footnotes in the columns where they apply. References to b, c, d, and e will now need two reference designators: one for the text and one for the frequency range. 4 notes changed into 6 notes.

\*\*\*The requirements of both notes b and d should be worded the same except for the swept frequency range (first sentence of

each note). Combining requirements of both should make both notes look like this:

The jitter values given are normative for a combination of deterministic jitter, random jitter, and sinusoidal jitter that receivers shall be able to tolerate without exceeding a BER of 10<sup>-12</sup>. Receivers shall tolerate sinusoidal jitter of progressively greater amplitude at lower frequencies, according to the mask in figure 39 with the same deterministic jitter and random jitter levels as were used in the high frequency sweep.

Page: 79

Sequence number: 2

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

SAS PHY WG

5.7.7 page 79

Table 38

Accept both Seagate comments but implement as follows:

Combine notes b/d and c/e as suggested but separate the applied frequency ranges to separate footnotes and reference the new footnotes in the columns where they apply. References to b, c, d, and e will now need two reference designators: one for the text and one for the frequency range. 4 notes changed into 6 notes.

\*\*\*Again the requirements of notes c and e should be combined and applied to both notes:

No value is given for random jitter. For compliance with this

standard, the actual random jitter amplitude shall be the value that brings total jitter to the stated value at a probability of 10<sup>-12</sup>.

The additional 0,1 UI of sinusoidal jitter is added to

ensure the receiver has sufficient operating margin in the presence of external interference.

Page: 97

Sequence number: 2

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

then

Replace with "than".

Page: 98

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (also deleted the references in the SP receiver)

COMINIT Completed

This transition is defined here, but is not used anywhere in the SP state machine (figure 56, page 133). Why?

Page: 106

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

REJECT (Figure 53 shows a G2-only phy B talking to a G1, G2, G3 phy A)

The specification is not clear and does not have an example (either here or in Annex B) of a Phy that may only supports G2, but not G1. Thus, the speed negotiation window may be as following: G2 rate, G3 rate, then G2 rate (negotiated rate). Or is this protocol allowed?

Page: 107

Sequence number: 1

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

COMINIT Completed;

This parameter is not used anywhere in SP state machine.

Page: 109

Sequence number: 4

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE

Figure 56 SP OOB state machine

COMSAS Should be "COMINIT".

Page: 109

Sequence number: 17

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Note

REJECT (we don't show signals to trigger the timers... the state machine just somehow knows how to run them)

Figure 56 - SP OOB (split from another comment)

SP3:OOB\_AwaitCOMINIT\_Sent state: There is inconsistency between states: in SP1:OOB\_COMINIT state, there is an output "Transmit COMINIT" indicating to the SP transmitter to start transmit COMINIT and wait for COMINIT to be transmitted and/or received. However, this is no output parameter in the SP7:OOB\_AwaitCOMSAS state to start the COMSAS timer, or an output parameter in the SP2:OOB\_AwaitCOMX to start the hotplug timer.

Page: 113

Sequence number: 1

Date: 3/4/2003 6:33:12 PM -06'00'

Type: Note

ACCEPT - DONE (how should we specify sending "idle time" - a Transmit Idle parameter, or just say the SP transmitter does that when not instructed to do anything else? 1/17 WG decided to just describe in the SP transmitter.)

The descriptions for SP8:SAS\_Start and SP9:SAS\_RateNotSupported indicated that the idle shall be transmitted during these states. Some of the other state are self-explanatory. However, clearly defining whether idle should be transmitted for the SP14:SAS\_Fail or SP13:SAS\_Pass would be helpful.

Page: 113

Sequence number: 8

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Note

REJECT (per Jan WG; they were zero time states so didn't really represent hardware)

Figure 57 - SP SAS state machine (split from another comment)

Additionally, the states such as fallback state and inc\_speed states defined in sas\_r02.pdf make the speed negotiation state machine a lot more clear, but these states are removed in the current version.

Page: 114

Sequence number: 3

Date: 2/16/2003 11:41:08 AM -06'00'

Type: Highlight

ACCEPT - DONE (but when the editor's note is deleted this is moot)

(1) SP19:AwiatALIGN should be SP19:SATA\_AwiatALIGN [in the editor's note]

Page: 114

Sequence number: 29

Date: 3/7/2003 1:53:10 PM -06'00'

Type: Note

ACCEPT - DONE (Renamed Enable Disable Link Layer (Disable, SAS Enable, or SATA Enable) to Phy Layer Ready (SAS or SATA) and Phy Layer Not Ready. Merged expander device Phy Not Ready and the new Phy Layer Not Ready; they both work for all devices. Messages to the SP\_DWS are now Start DWS and Stop DWS.

Messages from SP\_DWS are DWS Lost (DWS had sync and lost it) and DWS Reset (DWS gave up). DWS0 chooses to send DWS\_Reset after a vendor-specific time waiting. Otherwise, DWS sends DWS Lost to SP, and SP decides whether to send a new Start DWS or not.

Incorporated editor's note pretty much as written.)

[split from another comment]

(2) This editor's note should be incorporated into the speed negotiation state machine. Additionally, this statement is not very clear whether the DWS state machine should be started for the speed negotiation window (G1 rate, G2 rate, G3 rate, G? rate (negotiated rate)), or the DWS state machine should be started only at the negotiated rate window?

## Author: SEG Worden

---

Page: 16

Sequence number: 1

Date: 2/28/2003 2:54:35 PM -06'00'

Type: Highlight

ACCEPT - DONE (capitalize Name only)

3.5.1 -State Machine Conventions overview

Figure 3 - State machine conventions

Change <State designator:State\_name>

to "STATE DESIGNATOR: State\_Name"

also change SMP state machine names to agree with this (Fig 88, 89) and associated text

Page: 16

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (the label is a brief description - not an "or")

### 3.5.2 Transitions

change <label, a brief>

to "label, or a brief"

Page: 21

Sequence number: 6

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (it should be 6.2.1 where "dword" is defined)

#### 4.1.2 Physical links and phys

change <(see 6.1)>

to ???

(the reference is to "dwords" but 6.1 is "Phy layer overview" and not about words)

Page: 24

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (STP target ports are allowed)(whole section being deleted anyway)

#### 4.1.6 Target devices

I think this wording <or STP> should be deleted,

Page: 24

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (STP target ports are allowed)(whole section being deleted anyway)

#### 4.1.6 Target devices

I think this wording <,and STP target ports> should be deleted

Page: 24

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (STP target ports are allowed)(whole section being deleted anyway)

#### 4.1.6 Target devices

I think this wording < ,STP> should be deleted

Page: 35

Sequence number: 1

Date: 2/27/2003 6:50:26 PM -06'00'

Type: Note

ACCEPT - DONE (add a similar picture for expanders and emphasize that this picture is for non-expander devices (SAS devices).)

#### 4.3.1 State machine overview \*\*\*

Figure 19 - State machines

Figure 20 - Transmit data path and state machines

Figure 23 - STP link STP transport and ATA application layers state machines

For the STP paths, these state machines are only valid for the initiator device. Also, the STP transport layer and the STP link layer are not documented in this document, and these layers are not the same as the SATA defined layers because they must interface to the SAS port layer in order to get a port assigned for the transmit function. This is a big hole in this document. In addition this figure is not valid for target devices. The target device can only be a SATA device with a SATA link layer (which does not support sending or receiving SAS address frames - which gets you in and out of the SAS link layer (SL)). There is also no port layer in a SATA device. the SATA devices have no concept of ports or SAS addressing. Note: These comments are also applicable to figures 20 and 23.

Page: 36

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Note

ACCEPT - DONE (crammed in a port layer box)

#### 4.3.2 Transmit data path

Figure 20 transmit data path and state machines

This picture should have a port layer box between each transport and link layer box

Page: 37

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (reworded all three figure intros to mention the port layer)

4.3.2 Transmit data path

chnge <link, SSP>

to "link, SSP port, SSP"

Page: 37

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.2 Transmit data path

Figure 21title

change <link, SSP>

to "link, SSP port, SSP"

Page: 38

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.2 Transmit data path

chnge <link, SMP>

to "link, SMP port, SMP"

Page: 38

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.2 Transmit data path

Figure 22title

change <link, SMP>

to "link, SMP port, SMP"

Page: 38

Sequence number: 3

Date: 3/2/2003 3:41:19 PM -06'00'

Type: Note

REJECT (the DONE primitive is not used in SMP connections)

4.3.2 Transmit data path

figure 22 SMP link, SMP transprt ...

Should't there be a "DONE" box and line like in figure 21 ???

Page: 39

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.2 Transmit data path

chnge <link, STP>

to "link, STP port, STP"

Page: 39

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.3.2 Transmit data path

Figure 23title

change <link, STP>

to "link, STP port, STP"

Page: 39

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Note

REJECT (this is valid for an STP target too. True it is not describing a pure SATA target + a STP/SATA bridge - but that combination should end up with a result that equals this)

4.3.2 Transmit data path

Figure 23 - STP link, STP transport and ATA application layer state machines

Only valid for initiator layer. Figure 23 states that the STP transport and link layer state machines are "based" on the SATA state machines but are not documented - especially on how they interface to the port layer. This figure doesn't really agree with figure 19 - State machines

Page: 42

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Note

ACCEPT - DONE

4.3.3.1 Signals between phy layer and other layers

Table 13 — Confirmations between SSP link layer, port layer, and SSP transport layer

add "ACK Transmitted" as a confirmation from the link to the port layer and from the port to the transport layer.

Page: 43

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Opened (SMP,Source Opened)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Closed (Close Timeout)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Closed (Close Timeout)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Closed (Break Received)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer  
Received)

Page: 43

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Closed (Link Broken)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 6

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout



ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Connection Closed (Normal)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 7

Date: 3/8/2003 12:29:34 PM -06'00'

Type: Highlight

REJECT (the SMP transport layers do use Connection Closed as a signal to go back to idle. This is different from SSP.)

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

change <Connection Closed> to "Transmission Status (Connection Lost)

Page: 43

Sequence number: 8

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Open Failed (Retry)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 43

Sequence number: 9

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

4.3.3.3 Signals between link layer, port layer, and transport layer for SMP

Table 15 — Confirmations between link layer, port layer, and SMP transport layer

remove <Open Failed (Port LayerRequest)>

(this signal is repeated in Table 16 — Confirmations between link layer and port layer

Page: 49

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.1 Expander device model overview

change <SL\_IR primitive processor (BPP);> to

"broadcast primitive processor (BPP);"

Page: 71

Sequence number: 12

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

Table 32 — Output characteristics of the READY LED signal

change <LED off> to

"LED off / negated"

Page: 71

Sequence number: 13

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

5.6 READY LED pin

Table 32 — Output characteristics of the READY LED signal

change <LED on> to

"LED on / asserted"

Page: 102

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.6.4.1 SAS OOB sequence  
change <as SAS phy.> to  
"as SAS phy B."

Page: 107

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Note

ACCEPT - DONE (Put in separate lines for Phy A Rx and Phy B Rx. There are already words above the figure describing it.).  
)

6.6.5 Phy reset sequence after device is attached

Figure 55 — Hot-plug and the phy reset sequence

This figure is not self explanatory. It needs some words to explain what you are trying to portray.

Page: 113

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

6.8.3 SAS speed negotiation states

Figure 57 — SAS phy (SP) state machine - SAS speed negotiation states

change <Await\_SNW> to

"AwaitSNW"

(will then be consistent with text)

Page: 138

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.6 EOAF (End of address frame)

change <7.4> to "7.7"

(section 7.4 is about crc)

Page: 138

Sequence number: 6

Date: 3/15/2003 4:35:33 PM -06'00'

Type: Highlight

ACCEPT - DONE (changed to point to XL. The SP\_DWS state machine had the text that says bad dwords are replaced by  
ERROR primitives, and was the correct reference for r03.)

7.1.4.7 ERROR

change <6.9> to "7.7"

(6.9 about SAS DWORD synchronization )

Page: 138

Sequence number: 7

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.9 NOTIFY

change <TBD> to a real reference

(Should be no TBD's in the spec.)

Page: 140

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.11 OPEN\_REJECT

Table 62 — OPEN\_REJECT retry primitives

change <devices> to "device"

Page: 141

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.4.12 SOAF (Start of address frame)

change <7.4> to "7.7"

Page: 142

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.1.6.2 SATA\_PMACK, SATA\_PMNAK, SATA\_PMREQ\_P, and SATA\_PMREQ\_S (Power management acknowledgements and requests)

change <7.4> to ????

(7.4 is about CRC)

Page: 146

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (should be 7.6)

7.4.2 CRC generation

(last sentence)

change <6.5> to correct reference

(reference should be to dword flow, 6.5 is about OOB signals)

Page: 147

Sequence number: 6

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.4.3 CRC checking

change <6.5> to correct reference

(reference should be to dword flow, 6.5 is about OOB signals)

Page: 147

Sequence number: 7

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (reference is to 7.6 Bit order)

7.5 Scrambling

change <6.5> to correct reference

(reference should be to dword flow, 6.5 is about OOB signals)

Page: 156

Sequence number: 6

Date: 2/19/2003 5:38:50 PM -06'00'

Type: Note

ACCEPT - DONE

7.8.5 Identification and hard reset (SL\_IR) state machines

7.8.5.1 Overview

Figure 67 — SAS link layer identification and hard reset (SL\_IR) state machines

Add a pink "out arrow up" with the text "HARD\_RESET Received"

This will agree with Table 18

Page: 156

Sequence number: 7

Date: 2/19/2003 5:01:40 PM -06'00'

Type: Note

ACCEPT - DONE (but as "Identification Sequence Complete. Modified other uses to match.)

7.8.5 Identification and hard reset (SL\_IR) state machines

7.8.5.1 Overview

Figure 67 — SAS link layer identification and hard reset (SL\_IR) state machines

Add a pink "out arrow up" with the text "Identify Sequence Complete"

(this will agree with the text in section 7.8.6.3.3.1 and table 18)

Page: 157

Sequence number: 4

Date: 2/28/2003 6:25:10 PM -06'00'

Type: Highlight

ACCEPT - DONE (there's no way for this state machine to even ask for a primitive after Transmit Address Frame is sent, so this whole paragraph is unnecessary. Deleted it.)

7.8.6 SL\_IR transmitter and receiver

change <shall not transmit the indicated primitive>

to "shall transmit the indicated primitive"  
(section 7.7.1 says that primitives may be inserted inside an address frame)

Page: 174

Sequence number: 4

Date: 3/1/2003 6:10:07 PM -06'00'

Type: Highlight

ACCEPT - DONE (although I disagree with this. There is no good reason to allow BREAKs inside an OPEN address frame. It may lead to BREAK loops.)

7.13.2 SL transmitter and receiver

change <shall not transmit the indicated primitive>

to "shall transmit the indicated primitive"

(section 7.7.1 says you can)

Page: 174

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (deleted this paragraph. SL\_IR sends Phy Enabled upstream which should suffice. No need for SSP, SMP, and STP link layers to send anything themselves.)

7.13.3 SL0:Idle state

7.13.3.1 State description

<After an Enable Disable SSP Link (Enable) confirmation is received this state shall send an Enable Disable SSP Link (Enable) confirmation to the port layer.>

Three things:

1) Fig 72 says "SAS Link" (not SSP) and

2) these say confirmations and if so should be denoted by pink up and down arrows in figure 72

3) This confirmation is not on the Port layer state machines or mentioned in the port layer writeup.

Page: 174

Sequence number: 6

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (it's the first one listed in table 18)

7.13.2 SL transmitter and receiver

<shall send a Change Received

confirmation>

(this confirmation is not listed in table 18 - Confirmations between ... or application layer)

Page: 180

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Strikeout

ACCEPT - DONE

7.14 SAS link layer state machine for expander phys (XL)

7.14.1 Overview

remove <by receiving an>

(third paragraph - after k))

Page: 194

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (but later removed as there is just one state, no need to name it)

7.16.7 SSP link layer (SSP) state machines

7.16.7.1 Overview

change <The SSP\_TCM state machine contains the SP\_TCM1:Tx\_credit\_monitor state> to

"The SSP\_TCM state machine contains the SP\_TCM1:Tx\_Credit\_Monitor state"

Page: 194

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (both changes as requested. The SSP transmitter will have a section describing it.)

7.16.7 SSP link layer (SSP) state machines

7.16.7.1 Overview

<The SSP\_TF state machine's function is to control when the SSP\_T state machine>

two things:

1) change <it> to "is"

2) change <the SSP\_T state machine> to "a SSP transmitter"

(I can not find a <SSP\_T> state machine. Does it need to be defined ? We defined for the SL state machines in Figure 73)

Page: 197

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (but changed name of parameter to Transmit Frame)

7.16.7 SSP link layer (SSP) state machines

7.16.7.1 Overview

Figure 84 — SSP link layer (SSP) state machines (part 3 - primitive transmission)

change <Frame> to

"frame"

(see text on section 7.16.7.7)

Page: 197

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

REJECT (but changed name of parameter to Frame Transmitted)

7.16.7 SSP link layer (SSP) state machines

7.16.7.1 Overview

Figure 84 — SSP link layer (SSP) state machines (part 3 - primitive transmission)

change <Frame> to

"frame"

Page: 198

Sequence number: 1

Date: 2/19/2003 10:54:10 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.3 SSP\_TCM1:Tx\_credit\_monitor state

change <TCM1:Tx\_credit\_monitor state> to

CM1:Tx\_Credit\_Monitor state

Page: 199

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.5.3 Transition SSP\_TF1:Connected\_Idle to SSP\_TF4:Indicate\_Done\_Tx

change <Done> to

"DONE" \_

Page: 200

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx

change <Connection Closed> to "Close Connection"

Page: 200

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx

change <Done> to

"DONE"

Page: 200

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (also added SSP\_TF4)

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx

change <Done> to

"DONE"

Page: 200

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (also added SSP\_TF4)

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx  
change <Done> to  
"DONE"

Page: 200

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (also added SSP\_TF4)

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx  
change <Done> to  
"DONE"

Page: 200

Sequence number: 6

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (also added SSP\_TF4)

7.16.7.6.3 Transition SSP\_TF2:Tx\_Wait to SSP\_TF4:Indicate\_Done\_Tx  
change <Done> to  
"DONE"

Page: 200

Sequence number: 7

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.8 SSP\_TF4:Indicate\_Done\_Tx state  
change <Done> to  
"DONE"

Page: 201

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.8 SSP\_TF4:Indicate\_Done\_Tx state  
change <parameter> to  
"Wait For DONE (CREDIT TIMEOUT) parameter"

Page: 201

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.9 SSP\_RF1:Rcv\_Frame state  
change <Received Frame> to  
"Frame Received"

Page: 202

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state  
change <Received Frame> to  
"Frame Received"

Page: 202

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state  
change <Received Frame> to  
"Frame Received"

Page: 202

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.11 SSP\_RIM1:Rcv\_Interlock\_Monitor state  
change <Received Frame> to  
"Frame Received"

Page: 202

Sequence number: 5

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.16.7.13.1 State description  
change <CREDIT\_BLOCKED by sending> to  
"CREDIT\_BLOCKED be transmitted by sending"

Page: 208

Sequence number: 1

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE (renamed all the states to shorter, mixed-case names)

7.18.4 SMP link layer (SMP) state machines

7.18.4.1 Overview

change <Rcv\_response\_Frame> to

"Rcv\_Response\_Frame"

(in all other state diagrams the first letter of all state names are capitalized - this comment applies to all state names in the SMP section and SMP figures)

Page: 208

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

7.18.4 SMP link layer (SMP) state machines

7.18.4.1 Overview

change <(see 7.18.4.2)(initial state);> to

(see 7.18.4.2.1)(initial state);

Page: 217

Sequence number: 3

Date: 3/21/2003 8:41:58 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.3.3 PL\_OC2:Overall\_Control state

8.3.3.1 State description

8.3.3.1.1 State description overview

Delete <a) I\_T nexus loss time;>

and reorder the following arguments restarting at a)

Page: 218

Sequence number: 5

Date: 3/1/2003 4:13:05 PM -06'00'

Type: Strikeout

REJECT (these are port layer rules for SSP ports and definitely belong here. More xrefs might help, though.)

8.3.3.1.4 SSP wide port rules

(delete all of the following text. these are not wide port rules and none of the terms i.e., COMMAND, QUERY TASK, have been defined and are out of context)

<An initiator port that is a wide port may transmit COMMAND frames on multiple links simultaneously.

An initiator port shall not transmit a TASK frame requesting a task management function that only affects a single I\_T\_L\_Q nexus (e.g., ABORT TASK or QUERY TASK; see SAM-3) specifying an I\_T\_L\_Q nexus for which the initiator port is transmitting a frame or is waiting for a link layer acknowledgement for a frame.

An initiator port shall not transmit a TASK frame requesting a function that only affects an I\_T\_L nexus (e.g., ABORT TASK SET, CLEAR TASK SET, CLEAR ACA, or LOGICAL UNIT RESET; see SAM-3) specifying an

I\_T\_L nexus for which the initiator port is transmitting a frame or is waiting for a link layer acknowledgement for a frame.

An initiator port shall not transmit a TASK frame requesting a function that only affects an I\_T nexus (see SAM-3) specifying an I\_T nexus for which the initiator port is transmitting a frame or is waiting for a link layer acknowledgement for a frame.>

Page: 219

Sequence number: 2

Date: 3/21/2003 8:43:42 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.3.3.1.5 Filling in the Tx Frame arguments

4th paragraph (about I\_T nexus loss arguments.

add

"For each destination, the PL\_OC\_I\_T nexus loss timer is is stopped, set to zero, and assigned a stopped status after each Connection Opened confirmation is received and after each power-on reset or hard reset function is completed "

Page: 221

Sequence number: 3

Date: 3/21/2003 8:44:45 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine

8.4.1 Overview

change <PL\_OC state machine;> to

"transport layer;"

Page: 223

Sequence number: 4

Date: 3/21/2003 8:45:12 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine

8.4.1 Overview

Figure 93 — Port layer phy manager (PL\_PM) state machine (part 2)

add a pink "In Arrow" here with text of "DONE Received"

Page: 223

Sequence number: 5

Date: 3/21/2003 8:45:19 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine

8.4.1 Overview

Figure 93 — Port layer phy manager (PL\_PM) state machine (part 2)

add a pink "out Arrow " here with text of "DONE Received"

Page: 223

Sequence number: 6

Date: 3/21/2003 8:45:10 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4 Port layer phy manager (PL\_PM) state machine

8.4.1 Overview

Figure 93 — Port layer phy manager (PL\_PM) state machine (part 2)

add a pink down arrow with a "Close Connection" text

Page: 224

Sequence number: 3

Date: 3/21/2003 8:45:40 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4.3.1.3 Connection Opened handling

change <Tx Frame,> to

"Tx Frame parameter,"

Page: 225

Sequence number: 3

Date: 3/21/2003 8:46:04 AM -06'00'



Type: Highlight

REJECT (but port layer rewritten)

8.4.4 PL\_PM3:Connected state

8.4.4.1 State description

change <This state shall generate a Tx Frame request to the link layer when a Tx Frame parameter is received from the PL\_OC state machine.> to

"This state shall generate a Tx Frame (Balanced) request to the link layer when a Tx Frame parameter with a Balance Required argument is received from the PL\_OC state machine.

This state shall generate a Tx Frame (Nonbalanced) request to the link layer when a Tx Frame parameter with a Balance Not Required argument is received from the PL\_OC state machine."

Page: 225

Sequence number: 4

Date: 3/21/2003 8:45:59 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4.3.1.4 Open Failed handling

change <Tx Frame> to

"Tx Frame parameter"

Page: 226

Sequence number: 5

Date: 3/21/2003 8:46:36 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4.4.1 State description (-- for PL\_PM3: Connected state)

in the area started by <for SSP ports> add " For SSP and SMP ports, this state shall send a Transmission Status (Connection Lost) confirmation to the transport layer if a Connection Closed (Break Received), Connection Closed (Close Timeout) , or Conection Closed (Link Broken) confirmation is received from the link layer."

Page: 226

Sequence number: 6

Date: 3/21/2003 8:46:32 AM -06'00'

Type: Note

REJECT (but port layer rewritten)

8.4.4 PL\_PM3:Connected state

8.4.4.1 State description

insert between c) and d)

"d) DONE Received"

Page: 226

Sequence number: 7

Date: 3/21/2003 8:47:09 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4.4 PL\_PM3:Connected state

8.4.4.1 State description

change <d)> to "e"

Page: 226

Sequence number: 8

Date: 3/21/2003 8:47:05 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4.4 PL\_PM3:Connected state

8.4.4.1 State description

change <e)> to "f"

Page: 226

Sequence number: 9

Date: 3/21/2003 8:46:58 AM -06'00'

Type: Highlight

REJECT (but port layer rewritten)

8.4.4 PL\_PM3:Connected state

8.4.4.1 State description

change <Tx Frame> to

"Tx Frame Request"

Page: 226

Sequence number: 10  
Date: 3/21/2003 8:46:48 AM -06'00'  
Type: Highlight  
REJECT (but port layer rewritten)  
8.4.4 PL\_PM3:Connected state  
8.4.4.1 State description  
change <Tx Frame> to  
"Tx Frame Request"

Page: 228  
Sequence number: 4  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.1 SSP frame format  
Table 88 — SSP frame format  
change <TIMEOUT> to  
"RETRANSMIT"  
(will make definitions on next page and later text consistent)

Page: 244  
Sequence number: 6  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE (removed it entirely)  
9.2.6.2 Initiator device state machines  
9.2.6.2.1 Overview  
Figure 98 — SSP transport layer (ST) state machines - initiator device  
remove (ACK/NAK TIMEOUT)

Page: 244  
Sequence number: 7  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Note  
ACCEPT - DONE  
9.2.6.2 Initiator device state machines  
9.2.6.2.1 Overview  
Figure 98 — SSP transport layer (ST) state machines - initiator device  
add a pink in arrow with the nomenclature of "ACK Transmitted" on it  
(i.e. add a "ACK Transmitted " received confirmation here)

Page: 250  
Sequence number: 9  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Highlight  
ACCEPT - DONE  
9.2.6.2.8 ST\_IFR1:Initiator\_Frame\_Router state  
change <Data-in parameter> to  
"Data-in Arrived parameter"

Page: 250  
Sequence number: 10  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (removed all mention of parameter names here, since this is just the overview).  
9.2.6.3 Target device state machines  
9.2.6.3.1 Overview  
change <Data-Out  
Received> to  
"Data -Out Arrived or Response Data"  
( to be consisten with figure 99 - SSP Transport layer state machine - target device)

Page: 251  
Sequence number: 3  
Date: 2/16/2003 11:41:14 AM -06'00'  
Type: Note  
ACCEPT - DONE  
9.2.6.3 Target device state machines  
9.2.6.3.1 Overview

Figure 99 — SSP transport layer (ST) state machines - target device  
add a pink in arrow with the nomenclature of "ACK Transmitted" on it  
(i.e. add a "ACK Transmitted " received confirmation here)

Page: 256

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE

9.2.6.3.6 ST\_TTS4:Receive\_Data\_Out state

9.2.6.3.6.1 State description

change <ST\_TS1 to

"ST\_TTS1"

Page: 263

Sequence number: 1

Date: 3/8/2003 12:37:42 PM -06'00'

Type: Highlight

REJECT (needed to go back to idle)

9.4.4.2.1 Overview (for Initiator device state machine)

Figure 101 - SMP transport layer state machine - initiator device

change <Connection Closed> to "Transmission Status"

Page: 263

Sequence number: 2

Date: 3/8/2003 12:37:32 PM -06'00'

Type: Highlight

REJECT (need to go back to idle)

9.4.4.2 Initiator device state machine

9.4.4.2.1 Overview

Figure 101 — SMP transport layer state machine - initiator device (MT\_ID)

remove <Connection

Closed> and th pink arrow

Page: 264

Sequence number: 3

Date: 3/8/2003 12:37:05 PM -06'00'

Type: Highlight

REJECT (needed to go back to idle)

9.4.4.2.3.2 Transition MT\_ID2:Send to MT\_ID1:Idle

change <Connection Closed> to "Transmisssion Status (Connection Lost)"

Page: 264

Sequence number: 4

Date: 3/8/2003 12:37:16 PM -06'00'

Type: Highlight

REJECT (needed to go back to idle)

9.4.4.2.4.2 Transition MT\_ID3:Receive to MT\_ID1:Idle

change <Connection Closed> to "Transmission Status (Connection Lost)"

Page: 265

Sequence number: 1

Date: 3/8/2003 12:36:49 PM -06'00'

Type: Highlight

REJECT (needed to go back to idle)

9.4.4.3.3.2 Transition MT\_TD2:Respond to MT\_TD1:Idle

change <Connection Closed> to "Transmission Status (Connection Lost)"

Page: 265

Sequence number: 2

Date: 3/8/2003 12:36:26 PM -06'00'

Type: Strikeout

REJECT (this is needed for SMP to go back to idle)

9.4.4.3.1 Overview

Figure 102 — SMP transport layer (MT) state machines - target device

Remove <Connection Closed> and the input arrow

Page: 266

Sequence number: 1

Date: 2/28/2003 3:43:09 PM -06'00'

Type: Note

ACCEPT - DONE (section mentioning the new events notifications added at the end of 10.1. Transport Reset and Nexus Lost added from transport layer state machines. Event notification added to glossary and conventions.)  
This section does not talk about receiving from the transport layer the I\_T Nexus loss timer expired or not arguments or the connection lost arguments and what to do with them. It should be added.

Page: 288

Sequence number: 2

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE  
10.1.8.1.3 Transition SA\_PC\_0:Powered\_On to SA\_PC\_5:Active\_Wait  
change <SA\_PC\_5:Active state.> to  
"SA\_PC\_5:Active\_Wait state."

Page: 298

Sequence number: 3

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Note

ACCEPT - DONE (removed the field per Jan WG)  
10.3.1.3 REPORT MANUFACTURER INFORMATION function  
the <ADDITIONAL LENGTH field> location is not listed in table 133 - report manufacture information response

Page: 324

Sequence number: 4

Date: 2/16/2003 11:41:14 AM -06'00'

Type: Highlight

ACCEPT - DONE  
B.1 SAS phy reset sequence examples  
change <phy B> to  
"phy A" ?????

## Author: TXN

---

Page: 23

Sequence number: 4

Date: 2/16/2003 11:43:07 AM -06'00'

Type: Note

ACCEPT - DONE (In figures that show ports but no phys, the phy level of detail is not shown, but the ports always contain one or more phys.>>  
4.1.4 last sentence needs work.  
<<In figures that show ports but no phys, the ports still contain phys and may or may not be wide ports.>>  
should be:  
<<In figures that show ports but no phys, the phy level of detail is not shown, the ports actually contain one or more phys.>>

Page: 23

Sequence number: 5

Date: 2/16/2003 11:43:07 AM -06'00'

Type: Note

ACCEPT - DONE (removed whole section)  
4.1.5 and 4.16 first sentence does not make sense in a SAS standard, unless it is explained better.  
SCSI and ATA port that support SMP can be used  
in SAS domains. If a device supports SCSI or ATA without SMP is outside of  
the scope of this standard.

Page: 25

Sequence number: 15

Date: 3/3/2003 5:58:48 PM -06'00'

Type: Note

ACCEPT - DONE (but differently. Changed the title of 4.1.8 to be "Expander devices (edge expander devices and fanout expander devices)" and just introduce the basic devices there. Moved the edge expander device set discussion into the later "Expander device topologies" section).  
3. Technical 4.1.8 should have a Fan out expander section and a description of the relationship between the expanders in a large configuration. I have seen it in presentations, but there is no clear description of it in the standard.  
There should be a clear definition of a fan out expander as a section.

- 4.1.8.1 Expander device overview
- 4.1.8.2 Edge expander device set
- 4.1.8.3 Configurable expander device

Page: 70

Sequence number: 8

Date: 2/16/2003 11:43:07 AM -06'00'

Type: Note

ACCEPT - DONE

4. Figure 34 the title has internal misspelled

Page: 114

Sequence number: 26

Date: 2/16/2003 11:43:07 AM -06'00'

Type: Note

ACCEPT - DONE (track with other comment)

5. Technical 6.8.3.3.1, 9.2.4.5 and 9.2.3.9.1 still have an editors note,  
this should have been addressed before the letter ballot.

## Author: VIXL

---

Page: 5

Sequence number: 12

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

Clause 3.1.3

Clause 3.1.5

Clause 3.1.6

Clause 3.1.8

Clause 3.1.9

Add -7 to ATAPI

Page: 5

Sequence number: 13

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.5 ATA initiator device

ATAPI should be ATAPI-7

Page: 5

Sequence number: 14

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.6 ATA initiator port

ATAPI should be ATAPI-7

Page: 5

Sequence number: 15

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.9 ATA target port

ATAPI should be ATAPI-7

Page: 5

Sequence number: 16

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

3.1.9 ATA target port

ATAPI should be ATAPI-7

Page: 9

Sequence number: 22  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (defaults clause deleted altogether)  
Clause 3.1.92  
Should be "minimum"

Page: 15  
Sequence number: 5  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Strikeout  
ACCEPT - DONE  
Clause 3.4  
Remove this sentence.  
Duplicate of last sentence in 3rd paragraph of this section.

Page: 20  
Sequence number: 2  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Note  
REJECT - The arrows are correct.  
Clause 4.1.1, Figure 4  
Change direction of all arrows (inheritance) in diagram. They appear to point the wrong way.

Page: 20  
Sequence number: 3  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Note  
REJECT (SAS device may be inside an expander device)  
Clause 4.1.1, Figure 4  
Clarify. What is this modeling, the fact that the Expander is a SAS device, or that an SMP application must reside in an Expander device?  
If this illustrates that an Expander is a SAS device, this line should be an "association", not an "aggregation".

Page: 20  
Sequence number: 4  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (2..128 per 03-064)  
Clause 4.1.1, Figure 4  
Change to "2..64". see clause 4.1.8.1.

Page: 20  
Sequence number: 5  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (0..127 with 03-034)  
Clause 4.1.1, Figure 4  
Change to "0..63", should have upper bounds as specified in later clause.

Page: 20  
Sequence number: 6  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Highlight  
ACCEPT - DONE (1..128 per 03-064)  
Clause 4.1.1, Figure 4  
Change to "1..64".

Page: 23  
Sequence number: 6  
Date: 2/16/2003 11:43:01 AM -06'00'  
Type: Highlight  
REJECT (clause 3 has state machine conventions)  
Clause 4.1.4.  
Move to clause 3.4.

Page: 23  
Sequence number: 7  
Date: 2/16/2003 11:43:01 AM -06'00'

Type: Strikeout

REJECT (the SP state machine supports being a SATA initiator) (whole section deleted anyway)

Clause 4.1.5

Remove this. This is outside the scope of the standard.

Page: 23

Sequence number: 8

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Strikeout

REJECT (it says it is outside the scope) (whole section deleted anyway)

Clause 4.1.5

Remove this. This is outside the scope of the standard.

Page: 34

Sequence number: 6

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

REJECT (when a wide-capable port is split into two domains, it ends up with two ports with the same address. This violates the SCSI definition of port name which requires "unique within the protocol". However, did rewrite the note a little bit to explain this scenario better and removed the mention of logins.)

Clause 4.2.4

Change to "Port names are not defined in SAS, because there is no login process in SSP to exchange port names."

Removed part that conflicts with clause 4.2.2, "SAS address shall be worldwide unique."

Page: 36

Sequence number: 3

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Note

ACCEPT - DONE (added key: dashed means control signal; solid means data path)

Clause 4.3.2, figure 20.

Define what the dashed blue lines mean in these figures, they appear to be used in a different manner than defined in clause 3.5.

Page: 49

Sequence number: 17

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE ("... port. Each phy may then participate in new phy reset sequences and start transmitting.")

Clause 4.4.2

This needs clarification. Does this mean the phy that received the hard reset, or each phy in the port?

Page: 49

Sequence number: 18

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE (should be broadcast primitive processor)

Clause 4.6.1

Clause 4.6.5 (2 instances)

Please provide a definition for "SL\_IR primitive".

Page: 51

Sequence number: 3

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

4.6.5 Broadcast primitive processor

Change SL\_IR to BPP

Page: 54

Sequence number: 1

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

REJECT (changed the Links to Phys in 4.6.7 instead)

Clause 4.6.8, table 23

(3 instances)

Change "Phy" to "Link" to match terminology used in clause 4.6.7, figure 27 (3 times)

Page: 57

Sequence number: 3

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

Clause 4.6.11.1

Change "may only" to "shall". "may only " not in list of keywords.

Page: 58

Sequence number: 1

Date: 3/5/2003 2:33:54 PM -06'00'

Type: Highlight

REJECT (but deleted the two "cascaded" paragraphs here altogether. The definition of expander device topologies already has rules preventing fanouts from being attached to fanouts, so this is redundant.)

Clause 4.6.11.3

This sentence should be clarified, add "together" to the sentence.

Page: 58

Sequence number: 2

Date: 3/5/2003 2:32:37 PM -06'00'

Type: Strikeout

REJECT (Jan WG. But reworded in terms of "when constructing a set, this rule shall be honored." and moved into the edge expander set definition.)

Clause 4.6.11.3

This requirement is an implementation issue and should not be in the standards. Remove this.

Page: 59

Sequence number: 5

Date: 3/5/2003 2:36:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (Deleted. This is totally broken. Fanout expanders do this all the time; so do edge routers. It was intended to disable route entries if two edge expander sets are attached without subtractive ports. That's covered in another area.)

Clause 4.6.11.3

This needs clarification. What is the purpose of setting the DISABLE ROUTE ENTRY bit here? This would seem to preclude using the expander SAS address for expander internal ports.

Page: 61

Sequence number: 4

Date: 3/8/2003 5:30:09 PM -06'00'

Type: Highlight

REJECT (makes the table too big for the page. But moved ... over to the right for phy numbers, and to the left for devices, and added some entries to the figure itself)

Clause 4.6.11.4

For clarity and completeness, include expanders X and Y in this example.

Page: 63

Sequence number: 3

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE (add phy 0 to the introduction)

Clause 4.6.11.4

Add a clarification that the route table in the table is for one phy on expander E0.

Page: 64

Sequence number: 2

Date: 3/5/2003 10:26:26 AM -06'00'

Type: Highlight

ACCEPT - DONE (add a picture with several levels of mixed expanders and devices, numbering them, to clarify what "level-order" means.)

Clause 4.6.11.5

Add an example to clarify these rules for order of traversal.

Page: 138

Sequence number: 16

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE

Clause 7.1.4.6

Clause 7.1.4.12

Change reference to clause 7.7 .

Page: 154



Sequence number: 7

Date: 3/1/2003 6:19:27 PM -06'00'

Type: Highlight

ACCEPT - DONE (use "SMP initiator port" and management application client)

Clause 7.8.2

Does this requirement preclude an expander from performing the discover process? Does this require an expander to implement a full SCSI initiator if it only intends to perform the discover process?

If so, this needs to be clarified so that an expander can perform the discover process without implementing a full SCSI initiator.

Page: 180

Sequence number: 7

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Strikeout

ACCEPT - DONE

Clause 7.14.1

Extraneous, remove.

Page: 190

Sequence number: 10

Date: 2/18/2003 3:32:21 PM -06'00'

Type: Highlight

ACCEPT - DONE (add another level of expanders ... sample picture will be provided. Add a sentence mentioning that receivers just discard extra ALIGNS that show up.)

Clause 7.15

It's ambiguous which faster phy does the insertion. Should be the transmitting faster phy?

Also doesn't mention removal of ALIGNS. This should be described.

Page: 297

Sequence number: 5

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Strikeout

REJECT - DONE (but change "equal to the number of phys" to "equal to the number of addressable phys")

Clause 10.3.1.2

This requirement is an implementation issue and should not be in the standards. Remove this.

Page: 297

Sequence number: 6

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Strikeout

ACCEPT - DONE (Jan WG vote)

Clause 10.3.1.2

This fanout expander requirement is an implementation issue and should not be in the standards. Remove this.

Page: 301

Sequence number: 5

Date: 2/16/2003 11:43:01 AM -06'00'

Type: Highlight

ACCEPT - DONE (use the term "method" in the table Descriptions. Change the Name column to use "attribute" too. Then delete this sentence)

Clause 10.3.1.4

This sentence is confusing because of the sentence it immediately follows. It appears to describe something that is not related to the table. It would be clearer if this sentence was made a separate paragraph, or a note.