

Voting Results on T10 Letter Ballot 01-291r0 on  
Forwarding SPI-4 to first public review

Organization	Name	S	Vote	Add'l	Info
Adaptec, Inc.	Ron Roberts	P	Yes		
Amphenol Interconnect	Michael Wingard	P	Yes		
Ancot Corp.	Bart Raudebaugh	P	Yes		
Andiamo Systems, Inc.	Claudio DeSanti	P	Yes		
BREA Technologies, Inc.	Bill Galloway	P	YesC		Cmnts
Brocade Comm. Systems, Inc.	Robert Snively	P	Abs		Cmnts
Cisco Systems, Inc.	David Peterson	P	Yes		
Compaq Computer Corp.	Robert C. Elliott	P	No		Cmnts
Congruent Software, Inc.	Peter Johansson	P	Yes		
Crossroads Systems, Inc.	Robert Griswold	P	Yes		
Dallas Semiconductor	Ti tkwan Hui	P	Yes		
Dell Computer Corp.	Kevin Marks	P	Yes		
EMC	Gary S. Robinson	P	Yes		
Emul ex	Robert H. Nixon	P	Abs		Cmnts
ENDL Texas	Ralph O. Weber	P	No		Cmnts
Exabyte Corp.	Joe Breher	P	Yes		
FCI	Douglas Wagner	P	Yes		
Fujitsu	Eugene Lew	P	Yes		
General Dynamics	Nathan Hastad	P	Yes		
Genroco, Inc.	Donald Woelz	P	Yes		
Hewlett Packard Co.	Bill Hooper	A	Yes		
Hitachi Cable Manchester	Randy Wasylak	A	Yes		
IBM / Tivoli Systems	George O. Penokie	P	Yes		
Intel Corp.	Cris Simpson	P	Yes		
Iomega Corp.	Tim Bradshaw	P	Yes		
KnowledgeTek, Inc.	Dennis Moore	P	Yes		
LSI Logic Corp.	John Lohmeyer	P	Yes		
Maxtor Corp.	Mark Evans	P	YesC		Cmnts
Microsoft Corp.					DNV
Mol ex Inc.	Glen Griessler	A	Yes		
Nishan Systems Inc.	Charles Monia	P	Yes		
Ophi dian Designs	Edward A. Gardner	P	Yes		
Panasonic Technologies, Inc	Terence J. Nelson	P	Yes		
Phillips Electronics/CD Edge	William P. McFerrin	P	Yes		
Pirus Networks	Charles Binford	P	Yes		
QLogic Corp.	Richard Moore	A	YesC		Cmnts
Quantum Corp.	Paul Entzel	P	Yes		
Seagate Technology	Gerald Houl der	P	Yes		
Storage Technology Corp.	Erich Oetting	P	Yes		
Sun Microsystems, Inc.	Kenneth Moe	P	Yes		
Texas Instruments	Paul D. Aloisi	P	YesC		Cmnts
Toshiba America Elec. Comp.	Tasuku Kasebayashi	P	Yes		
Troi ka Networks, Inc.	William C. Terrell	P	Yes		
TycoElectronics	Charles Brill	P	Yes		
Veritas Software	Roger Cummings	P	Abs		Cmnts
Woven Electronics	Doug Pi per	P	Yes		

Ballot totals: (40: 2: 3: 1=46)

40 Yes

2 No

3 Abstain

1 Organization(s) did not vote

46 Total voting organizations

9 Ballot(s) included comments

This 2/3rds majority ballot passed.

40 Yes is at least a majority of the membership [greater than 23] AND

40 Yes is at least 28 (2/3rds of those voting, excluding abstentions [42])

Key:

P Voter is principal member

A Voter is alternate member

YesC Yes with comments vote

Abs Abstain vote

DNV Organization did not vote

Cmnts Comments were included with ballot  
 NoCmnts No comments were included with a vote that requires comments  
 DUP Duplicate ballot (last ballot received from org. is counted)  
 PSWD The password was not correct (vote not counted)  
 ORG? Organization is not voting member of T10 (vote not counted)

\*\*\*\*\*

Comments attached to YesC ballot from Mr. Bill Galloway of BREA Technologies, Inc.:

I will email you the comments tonight.

\*\*\*\*\*

Comments attached to Abs ballot from Mr. Robert Sni vely of Brocade Comm. Systems, Inc.:

This document is outside the scope of our company's business. Our organization has not reviewed this document.

\*\*\*\*\*

Comments attached to No ballot from Mr. Robert C. Elliott of Compaq Computer Corp.:

CPQ #1 Page i (comment 1 on page)

General

Acrobat reports this file uses a mix of Type 1 and TrueType fonts:

- Arial, bold
- Arial
- Arial, italic
- Arial, bold italic
- Helvetica-oblique
- TimesNewRoman
- Symbol type 1
- Symbol TrueType
- MSTT31cbnnnn (several)

Please change them all to TrueType or all to Type 1, e.g.

Change Helvetica-oblique to Arial, Italic

Change Type 1 Symbol to TrueType Symbol

Try to eliminate the the MSTTcbnnnn fonts (special encoded versions of some font)

CPQ #2 Page i (comment 2 on page)

General

Change the PDF title to SCSI Parallel Interface-4 (SPI-4)

Change the author's name from IBM\_User

Run Acrobat 5 Optimize PDF before final distribution (this works better than just fixing the FrameMaker named destinations setting)

CPQ #3 Page 1 (comment 1 on page)

General

Include this proposal in SPI-4:

01-290r0 Report transfer capabilities port control submode page for SPI-5

CPQ #4 Page 1 (comment 2 on page)

Section 1

SCSI-2, SPI-2, and SPI-3 are listed.

Why is SPI-1 not listed? SPI-2 is not in the list of normative references.

CPQ #5 Page 2 (comment 1 on page)

Section 1

Figure 1

change:

device-Type  
to:  
Device-Type

CPQ #6 Page 3 (comment 1 on page)  
Section 1  
Delete:  
Serial Storage Architecture SCSI-2 Protocol [X3.294-1996]

CPQ #7 Page 3 (comment 2 on page)  
Section 1  
Since CAM is a SCSI-2 standard, it might be best to remove references to it  
in this SCSI-3 standard

CPQ #8 Page 4 (comment 1 on page)  
Section 2.3  
Add acronyms after each standard reference  
(SAM-2)  
(SPC-3)  
(PIP)  
(SSM-2)  
(SDV) (on next page)

CPQ #9 Page 5 (comment 1 on page)  
Section 3.1.8  
Change:  
Bulk cable  
to:  
bulk cable

CPQ #10 Page 5 (comment 2 on page)  
Section 3.1.9  
Section 3.1.10  
Section 3.1.24  
Section 3.1.50  
Section 3.1.53  
Section 3.1.70  
Section 3.1.84  
Section 3.1.90  
Section 3.1.94  
Section 3.1.103  
Section 3.1.113  
Section 3.1.114  
Change the style of the : from heading text to normal text so the : doesn't  
show up in the PDF bookmark

CPQ #11 Page 11 (comment 1 on page)  
Section 3.2  
Sort the acronyms list

CPQ #12 Page 11 (comment 2 on page)  
Section 3.2  
SPC-3 is in normative references  
SPC-2 is in acronyms  
SPC-2 is used in the text  
Pick one

CPQ #13 Page 14 (comment 1 on page)  
Section 4.2  
Change:  
Cables, Connectors, Signals, Transceivers  
to:  
Cables, connectors, signals, transceivers

CPQ #14 Page 73 (comment 1 on page)  
Section 6.1

Change:  
used to connect the TERMPWR, terminators, and SCSI devices in a SCSI bus  
segment.

to:  
used to connect the TERMPWR, terminators, expanders, and SCSI devices in a SCSI bus segment.

This change includes expanders (which are not SCSI devices according to the definitions in SPI-4)

CPQ #15 Page 73 (comment 2 on page)  
Section 6.1

Change:  
c) to provide continuity between reserved pins and ground pins between SCSI devices and terminators.

to:  
c) to provide continuity between reserved pins and ground pins between SCSI devices, expanders, and terminators.

CPQ #16 Page 73 (comment 3 on page)  
Section 6.1

Change:  
The interconnect shall meet the specified characteristics to ensure that compliant worst case transmitted signals result in received signals that meet the requirements in clause 7.

to:  
The interconnect shall meet the specified requirements for bulk cable and shall transport compliant worst case transmitted signals in a manner that results in received signals that meet the requirements in clause 7.

Suggested response: implement the comment

CPQ #17 Page 73 (comment 4 on page)  
Section 6.1

Change:  
intended to produce interchangeable components while achieving the required signal transmission properties.

to:  
intended to aid in producing interchangeable interconnect components while achieving the required signal transmission properties.

CPQ #18 Page 74 (comment 1 on page)  
Section 6.3.1

Change:  
For length dependent parameters both total and per unit length requirements are specified. This ensures performance compliance when concatenating cables in the same SCSI bus segment. Implementors have the practical option to use only the total requirements and to loosen the per unit length requirements in non-concatenated applications; however, this practice creates non-conforming cables. Any bulk cable not meeting the per unit length requirements shall be labeled in a manner indicating that it is not suitable for use in cable assemblies that may be used in a concatenated manner.

to:  
Only total, end to end, requirements are specified. It is recommended that for bulk cable intended to be used in cable assemblies that are concatenated with other cable assemblies in the same bus segment that the per unit length specifications also be met. This reduces the risk that the concatenated cable assembly combination will not meet the signal transport requirements. Any bulk cable not meeting the per unit length requirements shall be labeled in a manner indicating that it may not be suitable for use in cable assemblies that are used in a concatenated manner.

CPQ #19 Page 76 (comment 1 on page)  
Section 6.3.9

Delete:

Both the per meter and the length equivalent to the terminator to terminator spacing requirements in table 21 shall be simultaneously met.

just above table 21 and delete the same wording in table 21.

CPQ #20 Page 77 (comment 1 on page)  
Section 6.6

Change:

The maximum distance between terminators when using SE transceivers shall be as defined in table 22.

to:

The distances specified in table 22 are recommended maximums. Any length that satisfies the requirements in sub clauses 6.1 through 6.5 may be used.

CPQ #21 Page 78 (comment 1 on page)  
Section 6.6

Change table title:

Table 22 - SE maximum bus segment path length between terminators

to:

Table 22 - SE maximum recommended bus segment path length between terminators

CPQ #22 Page 78 (comment 2 on page)  
Section 6.6

Delete footnote b:

b It is recommended that the SCSI devices be uniformly spaced between terminators with the end SCSI devices located as close as possible to the terminators.

CPQ #23 Page 78 (comment 3 on page)  
Section 6.6

Change:

The stub length when using SE transceivers shall not exceed 0,1 m. The stub length is measured from the transceiver to the connection of the SCSI bus segment path (see figure 4).

to:

The stub length when using SE transceivers should not exceed 0,1 m. The stub length is measured from the end of the electrical stub path, commonly on a transceiver, to the stub connection on the SCSI bus segment path (see figure 4).

CPQ #24 Page 78 (comment 4 on page)  
Section 6.8

Change:

The maximum distance between terminators when using LVD transceivers shall be as defined in table 23.

to:

The distance achievable between terminators when using LVD terminators depends on the details of the choices for device position, bulk cable properties, system noise, and other system design properties. Table 23 shows some distances that should be achievable with good system design and commonly available components.

CPQ #25 Page 79 (comment 1 on page)  
Section 6.9

## Change

The stub length when using LVD transceivers shall not exceed 0,1 m. The difference in stub length shall be less than 1,27 cm for the REQ, ACK, DB(15,0), P\_CRCA and DB(P1) signals. Stub length differences on the plus and minus signals of the same differential line should be minimized. The stub length is measured from the stub connection (see 4.5) to the end of the stub. The spacing of SCSI devices on the SCSI bus segment path shall be as indicated in table 24.

to:

The stub length is measured from the stub connection (see 4.5) to the end of the stub. The stub length when using LVD transceivers should not exceed 0,1 m. The difference in stub length shall be less than 1,27 cm for the REQ, ACK, DB(15,0), P\_CRCA and DB(P1) signals to aid in reducing signal to signal skew. Stub length differences on the plus and minus signals of the same differential signal should be minimized. The spacing of SCSI devices on the SCSI bus segment path is determined by the details of the system design. Table 24 shows some guidelines that may be used as a starting point for creating bus segments that meet the signal requirements at the device receiver. Using the spacings in Table 24 without a complete system design process may not yield compliant bus segments.

CPQ #26 Page 79 (comment 2 on page)  
Section 6.9

Change:

Table 24 - Minimum stub connection spacing rules for LVD SCSI devices

to:

Table 24 - Minimum stub connection spacing guidelines for LVD SCSI devices

CPQ #27 Page 25 (comment 1 on page)  
Section 4.12.1

Change:

messages are

to:

messages (see 16.3.12, 16.3.16, and 16.3.18) are

CPQ #28 Page 108 (comment 1 on page)  
Section 8.2 Signal descriptions  
Wording for P\_CRCA is still awkward.

Change:

When referred to as DB(P\_CRCA) it is a signal sourced by the SCSI device driving the DATA BUS during the SELECTION phase, RESELECTION phase, ST DATA phase, COMMAND phase, MESSAGE phase, and STATUS phase. The P\_CRCA signal is associated with the DB(7-0) signals and is used to detect the presence of an odd number of bit errors within the byte. The P\_CRCA bit is driven such that the number of logical ones in the byte plus the parity bit is odd.

When referred to as P\_CRCA and data group transfers are enabled (see 4.12.4.6.3) it is a signal sourced by a SCSI target port during DT DATA phases to control whether a data group field is a pad field, pCRC field, or data field (see 10.7.3.3.5). When asserted the data group field shall be pad or pCRC fields that shall not be transferred to the application client. When negated the data group field shall be a data field that shall be transferred to the application client.

When referred to as P\_CRCA and information unit transfers are enabled it is a signal sourced by the SCSI target port. Depending on the negotiated condition of read streaming and write flow control the SCSI initiator port and SCSI target port usage for P\_CRCA is different. When information unit transfers are enabled the SCSI target port and SCSI initiator port shall use the P\_CRCA signal as indicated in table 39.

to:

During the SELECTION phase, RESELECTION phase, ST DATA phase, COMMAND

phase, MESSAGE phase, and STATUS phase, this signal is referred to as DB(P\_CRCA) and is sourced by the SCSI device driving the DATA BUS. The DB(P\_CRCA) signal is associated with the DB(7-0) signals and is used to detect the presence of an odd number of bit errors within the byte. The DB(P\_CRCA) bit is driven such that the number of logical ones in the byte plus the parity bit is odd.

During the SELECTION phase, RESELECTION phase, ST DATA phase, COMMAND phase, MESSAGE phase, and STATUS phase, this signal is referred to as DB(P\_CRCA) and is sourced by the SCSI device driving the DATA BUS. The DB(P\_CRCA) signal is associated with the DB(7-0) signals and is used to detect the presence of an odd number of bit errors within the byte. The DB(P\_CRCA) bit is driven such that the number of logical ones in the byte plus the parity bit is odd.

During DT DATA phases when information unit transfers are enabled this signal is referred to as P\_CRCA and is sourced by the target. Depending on the negotiated condition of read streaming and write flow control the initiator and target usage for P\_CRCA is different. When information unit transfers are enabled the target and initiator shall use the P\_CRCA signal as indicated in table 29.

CPQ #29 Page 109 (comment 1 on page)

Section 8.2

Item P1 (PARITY 1)

Change:

When data group transfers are enabled (see 4.12.4.6.3)

to:

During DT DATA phases when data group transfer are enabled (see ),

CPQ #30 Page 109 (comment 2 on page)

Section 8.2

Item P1 (PARITY 1)

Change:

When information unit transfers and synchronous transfers are enabled

to:

During DT DATA phases when information unit transfers and DT synchronous transfers are enabled

CPQ #31 Page 110 (comment 1 on page)

Section 8.2

Item P1 (PARITY 1)

Change:

When information unit transfers and paced transfers are enabled

to:

During DT DATA phases when paced transfers are enabled,

CPQ #32 Page 110 (comment 2 on page)

Section 8.2

Item P1 (PARITY 1)

Change:

indicate whether the data valid or data invalid state during paced transfers

to:

indicate the data valid or data invalid state during paced (remove "whether")

CPQ #33 Page 114 (comment 1 on page)

Section 9.1 SCSI parallel bus timing values

Tables 42, 43, 44, 45 (various) timing values

Change "Timing values" header to "Timing values for negotiated transfer rate"

CPQ #34 Page 122 (comment 1 on page)

Section 9.2.16 pCRC receive hold time

Section 9.2.17 pCRC receive setup time

Section 9.2.18 pCRC transmit hold time

Section 9.2.19 pCRC transmit setup time

on Page 122

Section 9.2.28 Receive assertion period

on Page 123  
[etc. - make this change in all 9.2.x sections]  
Change:  
while pCRC protection is enabled (see 4.12).  
to:  
during data group transfers.

CPQ #35 Page 123 (comment 1 on page)  
Section 9.2.29 Receive hold time  
Remove (two times):  
while using synchronous transfers,

CPQ #36 Page 124 (comment 1 on page)  
Section 9.2.35 Receive REQ assertion period with P\_CRCA transitioning  
Section 9.2.36 Receive REQ negation period with P\_CRCA transitioning  
Change:  
synchronous transfers  
to:  
data group transfers

CPQ #37 Page 124 (comment 2 on page)  
Section 9.2.39  
Change:  
data transfer rate  
to:  
transfer rate

CPQ #38 Page 127 (comment 1 on page)  
Section 9.2.59 Transmit REQ assertion period with P\_CRCA transitioning  
Section 9.2.60 Transmit REQ negation period with P\_CRCA transitioning  
Change:  
synchronous transfer DT DATA phase  
to:  
data group transfer

CPQ #39 Page 144 (comment 1 on page)  
Section 9.6.2 DT data transfer calculations  
Figure 77  
Change:  
data rate  
to:  
transfer period

CPQ #40 Page 147 (comment 1 on page)  
Section 10.3 Expected and unexpected bus free phases  
item n)  
Change:  
message negotiation  
to:  
negotiation

CPQ #41 Page 148 (comment 1 on page)  
Section 10.4.3 QAS protocol  
Crossing page 148-149  
Change:  
that has information unit transfers enabled (see 4.12.4.6.4)  
to:  
with an information unit transfer agreement in effect

CPQ #42 Page 149 (comment 1 on page)  
Section 10.4.3 QAS protocol  
Change:  
Any time the data transfer agreement is in an indeterminate state (see 4.12) before the SCSI initiator port may use QAS that SCSI initiator port shall renegotiate to enable QAS.  
to:  
Any time an initiator's negotiation required flag is true, that initiator shall renegotiate to enable QAS.

CPQ #43 Page 151 (comment 1 on page)



## Section 10.5.2.3 Information unit transfers enabled

Check this:

If the first message received by the SCSI target port during the MESSAGE OUT phase is not a TARGET RESET message or a PPR message the SCSI target port shall change to a MESSAGE IN phase and issue a MESSAGE REJECT message followed by a WDTR message with TRANSFER WIDTH EXPONENT field set to 00h. If the SCSI target port does not support the WDTR message it shall follow the MESSAGE REJECT message with a SDTR message with the REQ/ACK OFFSET field set to 00h.

CPQ #44 Page 152 (comment 1 on page)

Section 10.5.3.1

Change:

(If IU not in effect...) 13.2.2

to

(If IU not in effect...) 13.2.1

CPQ #45 Page 152 (comment 2 on page)

Section 10.5.3.1

Change:

true. In this case, the SCSI initiator port shall create

to:

true, create

CPQ #46 Page 152 (comment 3 on page)

Section 10.5.3.1

bottom of page

Change:

should do a selection

to:

shall do a selectio

CPQ #47 Page 152 (comment 4 on page)

Section 10.5.3.1

bottom of page

Change:

and negotiate

to:

and should negotiate

CPQ #48 Page 154 (comment 1 on page)

Section 10.7.1

Change:

negotiated data transfer width (see 16.3.18).

to:

negotiated transfer width exponent (see 4.x.4.5)

CPQ #49 Page 157 (comment 1 on page)

Section 10.7.3.1

Change:

agreement

to:

transfer agreement

CPQ #50 Page 157 (comment 2 on page)

Section 10.7.3.1

Remove

minimum

CPQ #51 Page 158 (comment 1 on page)

Section 10.7.3.3.2

Change:

information unit transfers are enabled

to:

information unit transfer agreement has been established

CPQ #52 Page 160 (comment 1 on page)

Section 10.7.3.3.5, 6, 7

Check capitalization of section headers  
e.g.  
Data Group data field transfer

CPQ #53 Page 163 (comment 1 on page)  
Section 10.7.3.3.7  
Change:  
negotiated values  
to:  
negotiated transfer period

CPQ #54 Page 164 (comment 1 on page)  
Section 10.7.4.1  
Change:  
The agreement  
to:  
The transfer agreement

CPQ #55 Page 165 (comment 1 on page)  
Section 10.7.4.2.1 Training pattern overview  
Change:  
the retain training information is disabled  
to:  
retain training information is disabled

CPQ #56 Page 165 (comment 2 on page)  
Section 10.7.4.2.1 Training pattern overview  
Change:  
vender  
to:  
vendor

CPQ #57 Page 165 (comment 3 on page)  
Section 10.7.4.2.2 DT DATA IN phase training pattern  
Change:  
A;  
to  
A:

CPQ #58 Page 166 (comment 1 on page)  
Section 10.7.4.2.3  
item 10  
Change:  
negotiated offset.  
to:  
negotiated REQ/ACK offset.

CPQ #59 Page 170 (comment 1 on page)  
Section 10.7.5  
Change:  
wide data transfer  
to:  
wide transfers  
(in section name and first line of text)

CPQ #60 Page 170 (comment 2 on page)  
Section 10.7.5  
Change:  
non-zero wide data transfer agreement  
to:  
wide transfer agreement

CPQ #61 Page 170 (comment 3 on page)  
Section 10.7.5  
Delete:  
These messages determine  
the use of wide mode by both SCSI devices and establish a data path width  
to be used during the ST  
DATA phase.

CPQ #62 Page 170 (comment 4 on page)

Section 10.7.5

Change:

A wide data transfer of 16-bits may be established. All SCSI devices shall support 8-bit data transfers.

to:

All SCSI devices shall support narrow data transfers.

CPQ #63 Page 170 (comment 5 on page)

Section 10.7.5

Change:

8-bit data transfers

to:

narrow transfers

CPQ #64 Page 170 (comment 6 on page)

Section 10.7.5

Change:

16-bit wide data transfers

to:

wide transfers

CPQ #65 Page 171 (comment 1 on page)

Section 10.8.1

Change:

data byte of information unit

to:

last data byte of an information unit

CPQ #66 Page 183 (comment 1 on page)

Section 13.2.1

Change:

not effect

to:

not in effect

CPQ #67 Page 183 (comment 2 on page)

Section 13.2.1

Change:

is;

to:

is:

CPQ #68 Page 187 (comment 1 on page)

Section 14.1

There should be a table listing all the IU types and their names in 14.1 or 14.3.1 (a new overview section)

CPQ #69 Page 192 (comment 1 on page)

Section 14.3.1

need to prohibit BUS FREE if the task management function is not supported, or it will be treated as a successful function. (target cannot just always go bus free and parse the function later)

CPQ #70 Page 192 (comment 2 on page)

Section 14.3.1

Change:

not equal 00h

to:

not equal to 00h

CPQ #71 Page 193 (comment 1 on page)

Section 14.3.1

Table 50

This formula is incorrect given how n is defined:

additional cdb length =  $(n-19)/4$

As pictured, n has to be 20 or higher. If there is no data, n must be 20, but  $(20-19)/4$  is not 0.

It's unclear if n should be 19 for no data (the last CDB byte) or 20 (the first CRC byte). This affects whether n-19 or n-20 should be

used  
 To fix:  
 Remove the 20 on the left  
 Replace n with n-1 on the left side.  
 Label CRC with n through n+3. The CRC always starts with n, so is always 20 or higher.  
 Replace 19 with 20 in the equation

CPQ #72 Page 193 (comment 2 on page)  
 Section 14.3.1  
 Table 50  
 Consider changing:  
 ADDITIONAL CDB  
 to:  
 ADDITIONAL CDB DATA  
 It's not an additional CDB, it's additional data for the same CDB.  
 (admittedly FCP, SRP, etc. all use the same wording)

CPQ #73 Page 206 (comment 1 on page)  
 Section 16.3.1  
 Table 64  
 Clear Attention Condition column  
 Change:  
 Yes=SCSI initiator port shall clear the attention condition before last ACK of the MESSAGE OUT phase.  
 to:  
 Clear Attention Condition \*  
 \* = when Direction is Out

This is unclear for messages with both In and Out directions. It could be interpreted as prohibiting attention conditions at the end of a MESSAGE IN.

CPQ #74 Page 309 (comment 1 on page)  
 Section G.4 Enabling ECP  
 Change:  
 default agreement  
 to:  
 default transfer agreement

CPQ #75 Page 347 (comment 1 on page)  
 SPI-3  
 should be "SPI-4"  
 in Annex M title and in Table M.1 caption

CPQ #76 Page 347 (comment 2 on page)  
 Annex M  
 and Table M.1  
 Change:  
 SPI-3 to SCSI-2 terminology mapping  
 to:  
 SPI-4 to SCSI-2 terminology mapping

CPQ #77 Page 347 (comment 3 on page)  
 Annex M  
 horizontal lines in table M.1 would be nice

CPQ #78 Page 348 (comment 1 on page)  
 Section N.1.2  
 Section N.1.3  
 These show up at the same level of hierarchy in PDF bookmarks as N.1

\*\*\*\*\*

Comments attached to Abs ballot from Mr. Robert H. Nixon of Emulex:

Our organization can not assign proper expertise to establish a supportable

position on this issue

\*\*\*\*\*

Comments attached to No ballot from Mr. Ralph O. Weber of  
ENDL Texas:

The ENDL 'No' vote will be changed to 'Yes' provided the following  
comments are resolved acceptably: 6, 118, 119, 139, 140, 229, 250,  
326, 328, 330, 332, 333, 335, 336, 338, and 339.

ENDL 1

PDF page 30

Introduction, P 1

"... the bus width (8 or 16)." Should be "... the bus width (i.e., 8  
or 16 bits)."

ENDL 2

PDF page 31

Clause 1, P 1 after list b)

"The interface protocol includes provision for the connection of  
multiple SCSI initiator ports (SCSI devices capable of initiating  
an I/O process) and multiple SCSI target ports (SCSI devices  
capable of responding to a request to perform an I/O process)."  
should be

"The interface protocol includes provision for the connection of  
multiple SCSI initiator ports (i.e., SCSI devices capable of  
initiating an I/O process) and multiple SCSI target ports (i.e.,  
SCSI devices capable of responding to a request to perform an I/O  
process)."

ENDL 3

PDF page 31

Clause 1 2nd list a)

Since there is only a list entry a), the use of the list format  
should be removed and a single sentence constructed.

ENDL 4

PDF page 31

Clause 1 2nd list a)

"... (COMMAND, MESSAGE, and STATUS)." should be "... (i.e., COMMAND,  
MESSAGE, and STATUS)."

ENDL 5

PDF page 32

Figure 1

"Shared Command Set (for all SCSI device types)" should be "Shared  
Command Set for all SCSI device types"

ENDL 6

PDF page 32

Clause 1 near bottom of page after Figure 1

"Transport Protocols:" should be "SCSI Protocols:"

ENDL 7

PDF page 33

2.1 P 1

"... standards listed below." should be "... standards listed in  
clause 2."

ENDL 8

PDF page 33

2.1 P 2

"... (ISO, IEC, CEN/CENELEC, ITUT)," should be "... (e.g., ISO, IEC,  
CEN/CENELEC, ITUT),"

ENDL 9

PDF page 33

2.1 P 2

"... foreign standards (including BSI, JIS, and DIN)." should be  
"... foreign standards, including BSI, JIS, and DIN."

ENDL 10

PDF page 33

2.1 P 3

"... is provided below as needed." should be "... is provided as  
needed."

ENDL 11

PDF page 34

2.4 P 1

"... listed document(s)," should be "... listed documents,"

ENDL 12

PDF page 35

3.1.4

"The total (peak to peak) time difference..." should be "The total  
peak to peak time difference..."

ENDL 13

PDF page 35

3.1.7

"3.1.7 auto-contingent allegiance:" should be "3.1.7 auto-  
contingent allegiance (ACA):"

ENDL 14

PDF page 35

3.1.14

"3.1.14 contingent allegiance:" should be "3.1.14 contingent  
allegiance (CA):"

ENDL 15

PDF page 36

3.1.22

"... cable lengths (also see 3.1.99 SE)." should be "... cable  
lengths. Differential signaling contrasts with single-ended  
signaling (see 3.1.99)."

ENDL 16

PDF page 38

3.1.58

This definition "3.1.58 multimode single-ended (MSE): A signaling  
alternative for LVD SCSI devices that employs MSE (see 7.4) drivers  
and receivers..." is circular, saying in effect MSE is MSE.  
Change to "3.1.58 multimode single-ended (MSE): A signaling  
alternative for LVD SCSI devices that combines LVD SCSI and single-  
ended SCSI (see 7.4) drivers and receivers..."

ENDL 17

PDF page 38

3.1.61

"... odd number (1, 3, 5, 7, or 9)." should be "odd number (e.g., 1,  
3, 5, 7, or 9)."

ENDL 18

PDF page 40

3.1.98

"The act of allowing the cable terminators to bias the signal to  
the false state (by placing the driver in the high impedance  
condition)."

should be

"The act of allowing the cable terminators to bias the signal to  
the false state by placing the driver in the high impedance  
condition."

ENDL 19

PDF page 40

3.1.99

The definition "3.1.99 single-ended (SE): A signaling alternative

that uses SE (see 7.2) drivers and receivers..." is circular, saying in effect single-ended is single-ended.  
Change to "3.1.99 single-ended (SE): A signalling alternative that uses single drivers and receivers (see 7.2) ..."

ENDL 20  
PDF page 40  
3.1.99

"...and receivers (also see 3.1.22, differential)." should be "...and receivers. Single-ended signaling contrasts with differential signaling (see 3.1.22)."

ENDL 21  
PDF page 40  
3.1.113  
"(e.g., a bit, field, code value)" is missing an and/or and should be "(e.g., a bit, field, or code value)"

ENDL 22  
PDF page 42  
3.4 P 9  
"... (i.e., item 1 must occur..." should be "... (i.e., item 1 is required to occur..."

ENDL 23  
PDF page 44  
Table 1 table notes (Key)  
"No" should not be capitalized

ENDL 24  
PDF page 44  
Table 1 table footnote a  
"table 26" should not be underlined.

ENDL 25  
PDF page 44  
4.2 1st P after Table 1  
"(see 5)." should be "(see clause 5)." in two places.

ENDL 26  
PDF page 45  
Figure 2 and Figure 3  
"TRANSCIEVER (DRIVER + RECEIVER)" should be "TRANSCIEVER (i.e., DRIVER and RECEIVER)", once in each of the two figures.

ENDL 27  
PDF page 48  
4.7 P 2  
"One way of disabling a terminator is to disconnect all the signal lines (optionally including DIFFSENS) by an electronic switch." should be  
"One way of disabling a terminator is to disconnect all the signal lines, optionally including DIFFSENS, by an electronic switch."

ENDL 28  
PDF page 52  
Figure 9  
AAF is not in the acronyms glossary.

ENDL 29  
PDF page 53  
4.11.3.2 P 5  
"(16.3.4)" should be "(see 16.3.4)"

ENDL 30  
PDF page 60  
Table 6  
Second and subsequent lines of each table note paragraph should be indented as is the case in other tables such as table 16.

ENDL 31

PDF page 61

4.12.4.5 Table 8

"Specifies 8 bit data bus (narrow transfer agreement)." should be  
"Specifies 8 bit data bus (i.e., narrow transfer agreement)."  
Also, "Specifies 16 bit data bus (wide transfer agreement)." should  
be "Specifies 16 bit data bus (i.e., wide transfer agreement)."

ENDL 32

PDF page 69

Figure 13

"...shall create a bus free condition (unexpected)." should be  
"...shall create an unexpected bus free condition."

ENDL 33

PDF page 71

Figure 15

"...shall create a bus free condition (unexpected)." should be  
"...shall create an unexpected bus free condition."

ENDL 34

PDF page 73

Figure 17

"...shall create a bus free condition (unexpected)." should be  
"...shall create an unexpected bus free condition."

ENDL 35

PDF page 74

Figure 18

"...shall create a bus free condition (unexpected)." should be  
"...shall create an unexpected bus free condition."

ENDL 36

PDF page 76

Figure 20

"...shall create a bus free condition (unexpected)." should be  
"...shall create an unexpected bus free condition."

ENDL 37

PDF page 80

5.1 P 2

"The connector mechanical drawings conform to the ISO 1660  
(technical drawings - dimensioning and tolerancing) standard."  
should be

"The connector mechanical drawings conform to the ISO 1660,  
technical drawings - dimensioning and tolerancing standard."

ENDL 38

PDF page 80

5.1 P 3

"(see 2)." should be "(see clause 2)."

ENDL 39

PDF page 80

5.1 bullet a)

"Use IEC 512-2 (low-level contact resistance test procedure for  
electronic connectors) as a reference procedure."  
should be

"Use IEC 512-2, low-level contact resistance test procedure for  
electronic connectors as a reference procedure."

ENDL 40

PDF page 80

5.1 bullet c) and bullet e)

Use either "item (a)" or "item a)" but not both.

ENDL 41

PDF page 80

5.1 bullet c)

"...above (this is an optional step);" should be "...above. This is



an optional step;"

ENDL 42

PDF page 80

5.1 bullet d)

"Use IEC 512-11-7 (standard practice for conducting mixed flowing gas environmental tests) as a reference procedure;" should be

"Use IEC 512-11-7, standard practice for conducting mixed flowing gas environmental tests as a reference procedure;"

ENDL 43

PDF page 80

5.2.1 P 1 & 2

"(0,05 in)" should be "(i.e., 0,05 in)". This occurs once in paragraph 1 and once in paragraph 2.

ENDL 44

PDF page 80

5.2.2 P 1 & P 2

"(0,05 in)" should be "(i.e., 0,05 in)". This occurs once in paragraph 1 and once in paragraph 2.

ENDL 45

PDF page 81

5.2.3 P 1 & 2 and 5.2.4 P1 & P2

"(0,05 in)" should be "(i.e., 0,05 in)". This occurs once in each of the four paragraphs in the two subclauses.

PDF page 87

5.3.2 P 1 & P 2 and 5.3.4 P 1 & P2

"(0,05 in)" should be "(i.e., 0,05 in)". This occurs once in each of the four paragraphs in the two subclauses.

ENDL 46

PDF page 87

5.3.3 P 1 & P 2

"(0,085 in)" should be "(i.e., 0,085 in)" once in each of the two paragraphs in the subclause.

ENDL 47

PDF page 87

5.3.5 P 1 & P 2

"(0,0315 in)" should be "(i.e., 0,0315 in)" once in each of the two paragraphs in the subclause.

ENDL 48

PDF page 99

Table 15

The column headings contain two instances of "(note 3)". There is no "note 3" and if there were, the reference as written is not in ISO format.

ENDL 49

PDF page 102

Table 18

The column headings contain two references "(note 2)". There is no "note 2" and if there were the reference would not be in ISO format.

ENDL 50

PDF page 103

6.1 P 1

"This clause defines..." should be "Clause 6 defines..." Note that this usage has already been corrected in 6.2, the 3rd to the last P before 6.3.

ENDL 51

PDF page 103

6.1 last P before 6.2

"...in this clause..." should be "...in clause 6..." Note that this

usage has already been corrected in 6.2, the 3rd to the last P before 6.3.

ENDL 52

PDF page 104

6.3.1 P 1, 2nd to last P and last P before 6.3.2

"...in this clause..." should be "...in 6.3...", once in each of three paragraphs.

ENDL 53

PDF page 104

6.3.1 P 2

"...whose performance is affected by the attached (sometimes unused) connectors as well as by the non-uniformity in the bulk cable."

should be

"...whose performance is affected by the attached connectors, even if they are unused, as well as by the non-uniformity in the bulk cable."

ENDL 54

PDF page 104

"...areas (e.g. the..." is missing a comma and should be "...areas (e.g., the..."

ENDL 55

PDF page 105

Table 19 table footnote a

"will meet" should be "should meet" or "meets"

ENDL 56

PDF page 105

6.3.4 P 1

"The swept frequency (extended distance) differential impedance limits shall be a maximum peak-to-peak variation of..."

should be

"The swept frequency differential impedance limits used in extended distance transmission lines shall be a maximum peak-to-peak variation of..."

ENDL 57

PDF page 105

6.3.7 P 2

"The differential propagation time skew (pair to pair) shall be..."

should be "The differential propagation time pair to pair skew shall be..."

ENDL 58

PDF page 106

6.3.10 1st P after equation

"...the induced absolute peak noise (deviation from zero differential) ..." should be "...the induced absolute peak noise (i.e., deviation from zero differential) ..."

ENDL 59

PDF page 107

Note 10

"...(135 ohms maximum cable impedance at 7,3 mA max driver current)." should be "(i.e., 135 ohms maximum cable impedance at 7,3 mA max driver current)."

ENDL 60

PDF page 108

Table 22 table note a

"(cables, device interfaces, environmental noise and other values)" should be "(e.g., cables, device interfaces, and environmental noise)", note the removal of "and other values" since it is implied by e.g.

ENDL 61

PDF page 110

7.1 2nd P after a,b,c list

"... the above transmitter implementations..." should be "... the transmitter implementations described in this subclause..."

ENDL 62

PDF page 110

7.1 2nd P after note 12

"...in this clause," should be "...in clause 7,"

ENDL 63

PDF page 110

7.1 3rd P after note 12

"...in the remaining subclauses of this clause..." should be "...in clause 7...". At a minimum the word 'remaining' needs to be clarified to show what occurs before the 'remaining' part begins.

ENDL 64

PDF page 111

Table 25 row 1 and row 2

"SE (passive negation) input voltage" should be "SE passive negation input voltage".

Likewise, "SE (active negation) input voltage" should be "SE active negation input voltage"

ENDL 65

PDF page 111

Table 25 row 3 & Table 26 row 1 and row 2

For consistency, the phrase "+ or -" should be replaced with the plus or minus sign, THREE instances total.

ENDL 66

PDF page 111

Table 25 table note

"could" should be "may"

ENDL 67

PDF page 112

Table 27

Two instances of "(signal asserted)" should be "for signal asserted" or "(i.e., signal asserted)" and two instances of

"(signal negated)" should be "for signal negated" or "(i.e., signal negated)"

ENDL 68

PDF page 112

7.2.2 2nd P after table 27

"The output characteristics (signal negated) for active-negation drivers shall..." should be "The signal negated output characteristics for active-negation drivers shall..."

ENDL 69

PDF page 113

Note 14

"which" should be "that"

ENDL 70

PDF page 113

7.2.2 1st P after note 14

"could" should be "may"

ENDL 71

PDF page 113

7.2.2 last line on PDF pg 113

"... the first group of signals (ACK and REQ)..." should be "... the first group of signals (i.e., ACK and REQ)..."

ENDL 72

PDF page 114

7.2.2 bullets a) and b) above figure 41

"520 mV per ns maximum (0,7 V D.C. to 2,3 V D.C.);" should be "520

mV per ns maximum at 0,7 V D.C. to 2,3 V D.C.;" and "520 mV per ns maximum (2,3 V D.C. to 0,7 V D.C.)." should be "520 mV per ns maximum at 2,3 V D.C. to 0,7 V D.C."

ENDL 73

PDF page 114

1st P after a,b list on PDF pg 114

"The slew rates specified above are..." should be "The slew rates specified in this subclause are..."

ENDL 74

PDF page 114

7.2.3 P1

"...on each signal (including both receivers and disabled drivers)." should be "...on each signal, including both receivers and disabled drivers."

ENDL 75

PDF page 115

Table 28

Three instances of "(signal true)" should be "for signal true" or "(i.e., signal true)" and three instances of "(signal false)" should be "for signal false" or "(i.e., signal false)"

ENDL 76

PDF page 115

Table 28

The expansion of the acronyms VIL, VIH, IIL, and IIH need not be repeated in the second and third rows of the table, to wit "VIL" not "VIL (low-level input voltage)".

ENDL 77

PDF page 115

Table 28 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 78

PDF page 115

7.2.3 1st P after table 28

"...may occur (e.g. with some..." is missing a comma and should be "...may occur (e.g., with some..."

ENDL 79

PDF page 115

1st P after a,b list on PDF pg 115

"...should meet the above IIL and IIH electrical characteristics..." should be "...should meet the IIL and IIH electrical characteristics specified in this subclause..."

ENDL 80

PDF page 116

Table 29

Two instances of "(high-impedance state);" should be "for the high-impedance state;" or "(i.e., high-impedance state);"

ENDL 81

PDF page 116

Table 29

"(Leakage current)" should be "(leakage current)"

ENDL 82

PDF page 116

Table 29

Expansion of the acronym IL (Leakage current) need not be repeated in the third row of the table.

ENDL 83

PDF page 116

Table 29 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 84

PDF page 117

7.3.1 1st P after figure 43

"The terminator bias voltage V BIAS (V BIAS is the voltage measured when I = 0 in figure 44)..."

should be

"The terminator bias voltage V BIAS (i.e., the voltage measured when I = 0 in figure 44)..."

ENDL 85

PDF page 118

7.3.1 1st P after figure 45

"The terminator bias voltage V BIAS (V BIAS is the voltage measured when I = 0 in figure 44)..."

should be

"The terminator bias voltage V BIAS (i.e., the voltage measured when I = 0 in figure 44)..."

ENDL 86

PDF page 119

Table 30

In the column headings, three instances of "(figure xx)" should be "(see figure xx)"

ENDL 87

PDF page 119

Table 30 table footnote a

"(figure 43)" should be "(see figure 43)"

ENDL 88

PDF page 122

Table 32 table notes P 1

"In all the above examples..." should be "In all the examples in this table..."

ENDL 89

PDF page 122

Table 32 table notes P 1

There should be a period at the end of the sentence in the first table note, (i.e., "01b." not "01b").

ENDL 90

PDF page 122

Table 32 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 91

PDF page 122

Table 32 table notes P 3

"...shall follow the above rules..." should be "...shall follow the rules described in this subclause..."

ENDL 92

PDF page 127

Table 33 row 7 and row 8

"(same signal)" should be "when testing the same signal", once in each row

ENDL 93

PDF page 128

Table 34 row 2

"phase (note)" should be "phase"

ENDL 94

PDF page 128

Table 34 row 4

Two instances of "x (bus settle delay)" should be "times bus settle delay".

ENDL 95

PDF page 128

Table 34 row 8

"DATA BUS (SELECTION and RESELECTION phases)" should be "DATA BUS during SELECTION and RESELECTION phases" similar to row 7.

ENDL 96

PDF page 128

Table 34 row 9

"DATA BUS (During information transfers)" should be "DATA BUS during information transfers"

ENDL 97

PDF page 129

Table 35 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 98

PDF page 131

Table 36 last table note

"could" should be "may"

ENDL 99

PDF page 131

Note 17

"The DIFFSENS voltage filter time delay allows time for the DIFFSENS pin to settle after the initial power connection (in the case of insertion of a SCSI device into an active system), or..." should be

"The DIFFSENS voltage filter time delay allows time for the DIFFSENS pin to settle after the initial power connection in the case of insertion of a SCSI device into an active system, or..."

ENDL 100

PDF page 131

Bullet b) after table 36

"...after (a) is achieved." should be "...after item a) is achieved."

ENDL 101

PDF page 131

Table 36 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 102

PDF page 133

7.4.1 1st P on PDF pg 133

"...driver (similar to that described for multimode transceivers see 7.4.3)..." should be "driver, similar to that described for multimode transceivers (see 7.4.3)..."

ENDL 103

PDF page 133

Note 18

"...in MSE mode (caused by the SCSI devices and/or terminators that are single-ended)." should be "...in MSE mode, caused by the SCSI devices and/or terminators that are single-ended."

ENDL 104

PDF page 134

7.4.2 P 5

"If HVD operation is indicated by the DIFFSENS receiver all signals (except DIFFSENS) shall be set to a high impedance state (> 100 K ohms to the local ground)."

should be

"If HVD operation is indicated by the DIFFSENS receiver all

signals, except DIFFSENS, shall be set to a high impedance state (i.e., greater than 100 K ohms to the local ground)."

ENDL 105

PDF page 136

2nd P on PDF pg 136

"...TERMPWR source (for example if the TERMPWR source voltage..." should be "...TERMPWR source (e.g., if the TERMPWR source voltage..."

ENDL 106

PDF page 136

3rd P on PDF pg 136

"...maximum (short circuit) current..." should be "...maximum (i.e., short circuit) current..."

ENDL 107

PDF page 136

Note 23

"...(table 13)..." should be "... (see table 13)..."

ENDL 108

PDF page 136

Note 23

"...(28 AWG)..." should be "... (i.e., 28 AWG)..."

ENDL 109

PDF page 137

Last P before table 38

The following sentence "In table 38 a hyphen ("-") represents a logical zero bit resulting from the data bus bit being released." should be placed in table 38 as a key, something like "Key - = a logical zero bit resulting from the data bus bit being released"

ENDL 110

PDF page 137

8.2 P 1 thru 10

All of the periods in the following should be replaced with colons since not one of them is a sentence:

BSY (BUSY).

SEL (SELECT).

RST (RESET).

C/D (CONTROL/DATA).

I/O (INPUT/OUTPUT).

MSG (MESSAGE).

REQ (REQUEST).

ACK (ACKNOWLEDGE).

ATN (ATTENTION).

P\_CRCA (PARITY/CRC AVAILABLE) .

ENDL 111

PDF page 139

1st P after table 39

"P1 (PARITY 1)." should be "P1 (PARITY 1):" (i.e., use a colon not a period).

ENDL 112

PDF page 140

3rd & 4th P on PDF pg 140

"P1 (PARITY 1)." should be "P1 (PARITY 1):" and "DB(15-0) (16-bit DATA BUS)." should be "DB(15-0) (16-bit DATA BUS):" (i.e., use a colon not a period).

ENDL 113

PDF page 140

8.3.1 P 1

"Signals may be in a true (asserted) or false (negated) state." should be "Signals may be in a true (i.e., asserted) or false (i.e., negated) state."

ENDL 114

PDF page 142

Table 40 table notes

The table notes appear to be a key but are not labeled as such. Also, following the model of table 1, there should be no blank lines between key entries.

ENDL 115

PDF page 142

Table 40

"A unique data bit (the SCSI ID) shall..." should be "A unique data bit representing the SCSI ID shall..." or at least "A unique data bit (i.e., the SCSI ID) shall..."

ENDL 116

PDF page 142

Table 40

"The P\_CRCA and DB(P1) bit(s)..." should be "The P\_CRCA and DB(P1) bits..."

ENDL 117

PDF page 143

Table 41

The table footnote references in the rows for subclauses 9.2.23, 9.2.42 and 9.2.45 should not be underlined.

ENDL 118

PDF page 146

Table 44 "Transmit setup time" row

What is "(1,48) ns"? The use of parentheses in this way is not described in 3.4. Perhaps this is using the accountant's method of indicating a negative value, in which case "-1,48 ns" would make more sense and fit better with the use of the plus or minus sign elsewhere in the table.

ENDL 119

PDF page 147

Table 45

The "(0,08)" construct appears twice in this table without explanation either in the key or in 3.4. See a similar note regarding table 44 (ENDL 118).

ENDL 120

PDF page 148

Table 46 last two rows of table body

To match the notation in figure 66, "setup (int)" should be "SETUP (int)" and "hold (int)" should be "HOLD (int)"

ENDL 121

PDF page 148

Table 46

Table footnotes are identified by both letters and numbers.

ENDL 122

PDF page 148

Table 46 table footnote a

"Tolerance adjusted for half cycle (transfer period)" should be "Tolerance adjusted for half cycle (i.e., transfer period)"

ENDL 123

PDF page 149

9.2.4 bullet a

"the BUS FREE phase is detected (the BSY and SEL signals..." should be "the BUS FREE phase is detected (i.e., the BSY and SEL signals..."

ENDL 124

PDF page 149

9.2.5 P 1

"...BUS FREE phase (BSY and SEL..." should be "...BUS FREE phase (i.e., BSY and SEL..."



ENDL 125  
PDF page 152  
9.2.17 P 2  
"which" should be "that"

ENDL 126  
PDF page 152  
9.2.23 P 1  
"(See SCSI Primary Commands-3 standard)." should be "(See SCSI Primary Commands-3 standard.)"

ENDL 127  
PDF page 155  
9.2.42 P 1  
"(See SCSI Primary Commands-3 standard)." should be "(See SCSI Primary Commands-3 standard.)"

ENDL 128  
PDF page 155  
9.2.46 P1  
"The signal timing skew includes cable skew (measured with 0101... patterns) and..." should be "The signal timing skew includes cable skew that is measured with 0101... patterns and..."

ENDL 129  
PDF page 164  
Figure 67 title  
"LVD receiver mask (synchronous transfers)" should be "LVD receiver mask for synchronous transfers"

ENDL 130  
PDF page 166  
9.4.3 second bullet a  
"...after 100 ns continuous assertion (or negation) of the signal;" should be "...after 100 ns continuous assertion or negation of the signal;"

ENDL 131  
PDF page 167  
9.4.3 bullet a before note 32  
"...after 100 ns continuous assertion (or negation) of the signal;" should be "...after 100 ns continuous assertion or negation of the signal;"

ENDL 132  
PDF page 167  
Note 33  
"...meets the above requirements..." should be "...meets the requirements described in this subclause..."

ENDL 133  
PDF page 172  
Figure 75 title  
Since the title for figure 76 does not include "(all times in ns)" the parenthetical expression should be removed from the figure 75 title too.

ENDL 134  
PDF page 177  
10.4.1 P 3  
"which" should be "that"

ENDL 135  
PDF page 178  
10.4.2 1st bullet 2  
"...phase (i.e. after..." is missing a comma and should be "...phase (i.e., after..."

ENDL 136  
PDF page 178

## 10.4.2 bullet 4

"After waiting at least an arbitration delay (measured from its assertion of the BSY signal) the SCSI device..." should be

"After waiting at least an arbitration delay, measured from its assertion of the BSY signal, the SCSI device..."

## ENDL 137

PDF page 179

Last numbered list before 10.4.4

The first words on entries 2, 3, 4, and 5 in the list should be capitalized.

## ENDL 138

PDF page 179

Bullet 3 in the last numbered list before 10.4.4

"wait until the SCSI target port transitions to BUS FREE (this occurs after two QAS arbitration delays);" should be "Wait until the SCSI target port transitions to BUS FREE (i.e., after two QAS arbitration delays);"

## ENDL 139

PDF page 179

10.4.4 bullet 1

"...QAS REQUEST (55h) message..." should be "...QAS REQUEST message..."

## ENDL 140

PDF page 180

10.4.4 1st bullet 1 on PDF pg 180)

"...QAS REQUEST (55h) message..." should be "...QAS REQUEST message..."

## ENDL 141

PDF page 180

10.4.4 1st bullet 4 on PDF pg 180

"After waiting at least one QAS arbitration delay (measured from the detection of the MSG, C/D, and I/O signals being negated) the SCSI device..." should be

"After waiting at least one QAS arbitration delay, measured from the detection of the MSG, C/D, and I/O signals being negated, the SCSI device..."

## ENDL 142

PDF page 180

10.4.4 second bullet 3 on PDF pg 180

Regarding, "A SCSI device that loses arbitration may return to step (a)." It is not immediately obvious where to find step (a).

## ENDL 143

PDF page 181

10.5.2.1 P 1

"The SCSI initiator port shall create an attention condition (indicating that a MESSAGE OUT phase is to follow the SELECTION phase)." should be

"The SCSI initiator port shall create an attention condition, indicating that a MESSAGE OUT phase is to follow the SELECTION phase."

## ENDL 144

PDF page 182

10.5.2.4 bullet b

"could" should be "may"

## ENDL 145

PDF page 182

10.5.2.4 bullet b

"...an improper selection (two SCSI target ports..." should be

"...an improper selection (e.g., two SCSI target ports..."

ENDL 146

PDF page 182

10.5.3.1 P 1

"...clear the attention condition (indicating that a INFORMATION UNIT OUT phase is to follow the SELECTION phase)."  
should be

"...clear the attention condition, indicating that a INFORMATION UNIT OUT phase is to follow the SELECTION phase."

ENDL 147

10.5.3.2 bullet b

"could" should be "may"

ENDL 148

PDF page 183

10.5.3.2 bullet b

"...an improper selection (two SCSI target ports..." should be

"...an improper selection (e.g., two SCSI target ports..."

ENDL 149

PDF page 184

10.6.3 bullet b

"could" should be "may"

ENDL 150

PDF page 184

10.6.3 bullet b

"...an improper selection (two SCSI target ports..." should be

"...an improper selection (e.g., two SCSI target ports..."

ENDL 151

PDF page 184

10.7.1, 10.8.1, 10.9.1, 10.10.1, & 10.11.1 headings

The text in the above mentioned 10.x.1 headings is larger than the text in the 10.x.2 headings. The text in all headings at a given level should be the same size.

ENDL 152

PDF page 184

10.7.1 P 3

"...REQ or ACK handshake(s)..." should be "...REQ or ACK handshakes..."

ENDL 153

PDF page 186

10.7.2 P 2

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 154

PDF pages 186 & 187

10.7.2 P 2 and P 3

The last three words in each of these two paragraphs should be changed from "...as described above." to "...as described in this subclause."

ENDL 155

PDF page 186

10.7.2 P 3

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 156

PDF page 187

10.7.3.2 P 4

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

PDF page 187

ENDL 157

10.7.3.2 P 5

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 158

PDF page 188

10.7.3.3.2 1st P after a,b list

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 159

PDF page 188

10.7.3.3.2 1st P after 1st 1,2 list

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 160

PDF page 188

10.7.3.3.2 1st P after 2nd 1,2 list

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 161

PDF page 188

10.7.3.3.2 1st P after 3rd 1,2 list

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 162

PDF page 190

10.7.3.3.5 Note 42

"The requirement above ensures..." should be "The requirement in the preceding paragraph ensures..."

ENDL 163

PDF page 190

10.7.3.3.5 1st P after note 42

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 164

PDF page 191

10.7.3.3.5 1st P after 1st 1,2 list

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 165

PDF page 191

10.7.3.3.5 1st P after 2nd 1,2 list

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 166

PDF page 191

10.7.3.3.5 1st P after 3rd 1,2 list

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 167

PDF page 191

10.7.3.3.6 P 1

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 168

PDF page 192

1 P after both 1,2,3 lists on PDF pg 192

"After either of the above sequences..." should be "After either of

the sequences described in this subclause..."

ENDL 169

PDF page 193

10.7.3.3.7 P 1

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 170

PDF page 192

10.7.3.3.7 1 P after both 1,2,3 lists

"After either of the above sequences..." should be "After either of the sequences described in this subclause..."

ENDL 171

PDF page 195

10.7.4.2.2 bullet 4 in 2nd 1,2,3 list

The strikethrough should be removed from the "s" in "simultaneously"

ENDL 172

PDF page 199

10.7.4.4 P 2

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 173

PDF page 199

10.7.4.4 1st P after 1st 1,2 list

"...I/O signal is true (transfer to..." should be "...I/O signal is true (i.e., transfer to..."

ENDL 174

PDF page 199

10.7.4.4 last P on PDF pg 199

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 175

PDF page 200

10.7.4.4 1st P after 1st 1,2 list on PDF pg 200

"...I/O signal is false (transfer to..." should be "...I/O signal is false (i.e., transfer to..."

ENDL 176

PDF page 201

Table 48

Other tables use a double line in the way that this table uses a blank row.

ENDL 177

PDF page 201

Table 48 table notes P 1

"...as shown above." should be "...as shown in this table."

ENDL 178

PDF page 201

Table 48 table notes

Following the model shown in table 16, there should be no blank lines between table notes.

ENDL 179

PDF page 201

10.8.1 P 2

"...during the REQ/ACK handshake(s) of this phase." should be "...during the REQ/ACK handshakes of this phase."

ENDL 180

PDF page 201

10.8.2 P 1

"If the SCSI target port detects one or more parity error(s)..."

should be "If the SCSI target port detects one or more parity errors..."

ENDL 181

PDF page 202

10.9.2 P 2, 10.9.3 P 2, 10.9.4 P 2, and 10.9.5 P 2

"...during the REQ/ACK handshake(s) of this phase." should be  
"...during the REQ/ACK handshakes of this phase." FOUR OCCURRENCES

ENDL 182

PDF page 203

10.11.2 P 2 and 10.11.4 P 2

"...during the REQ/ACK handshake(s) of this phase." should be  
"...during the REQ/ACK handshakes of this phase.", one instance in  
each of the two paragraphs.

ENDL 183

PDF page 203

10.11.4 P 2

"The SCSI target port shall handshake byte(s) in this phase..."  
should be "The SCSI target port shall handshake bytes in this  
phase..."

ENDL 184

PDF page 204

10.11.4 last P before 10.11.5

Two instances of "byte(s)" should be "bytes".

ENDL 185

PDF page 204

10.11.4 last P before 10.11.5

"... (i.e. no parity errors),..." is missing a comma and should be  
"... (i.e., no parity errors),..."

ENDL 186

PDF page 204

10.11.4 last P before 10.11.5

"... (e.g. after receiving)..." is missing a comma and should be  
"... (e.g., after receiving)..."

ENDL 187

PDF page 204

10.11.4 last P before 10.11.5

"...it shall indicate it will not retry by changing..." should be  
"...it shall indicate that no retry is being attempted by  
changing..."

ENDL 188

PDF page 204

10.11.5 P 1

Several uses of "(s)" should be just "s": "one or more parity  
error(s) on the message byte(s)", "message(s)", and "message byte(s)"

ENDL 189

PDF page 204

10.12 bullet f and bullet g

"... (initiator driving)..." should be "... (i.e., initiator  
driving)..." in two places in each bullet.

ALSO "... (target driving)..." should be "... (i.e., target  
driving)..." in two places in each bullet.

A total of 8 changes.

ENDL 190

PDF page 206

11.2 heading

"ST DATA BUS protection (parity)" should be "ST DATA BUS parity  
protection" or "ST DATA BUS protection using parity"

ENDL 191

PDF page 206

## 11.3 heading

"DT DATA BUS protection (CRC)" should be "DT DATA BUS CRC protection" or "DT DATA BUS protection using CRC"

ENDL 192

PDF page 206

## 11.3.1 heading

"DT DATA BUS protection (CRC) overview" should be "DT DATA BUS CRC protection overview" or "Overview of DT DATA BUS protection using CRC"

ENDL 193

PDF page 206

## 11.3.1 P 1

"...32-bit (four byte)..." should be "...32-bit (i.e., four byte)..."

ENDL 194

PDF page 207

## 11.3.3 top of PDF pg 207

The word "transmitted." should not be separated from the rest of the paragraph by a page break.

ENDL 195

PDF page 208

## 11.3.4 P 5

"...all ones (FFFFFFFFh)." should be "...all ones (i.e., FFFFFFFFh)."

ENDL 196

PDF page 209

## 12.2 P 6

"...which may result in an unexpected action." should be "...possibly resulting in an unexpected action."

ENDL 197

PDF page 210

## 12.2 bullet b

"...at the SCSI target port's earliest convenience (often, but not necessarily on a logical block boundary)."  
should be  
"...at the SCSI target port's earliest convenience (e.g., on a logical block boundary)."

ENDL 198

PDF page 210

## 12.2 bullet g

"...current SPI information unit (i.e. after receiving..." is missing a comma and should be "...the current SPI information unit (i.e., after receiving..."

ENDL 199

PDF page 210

## 12.3 P 2

"Environmental conditions (e.g. static discharge)..." is missing a comma and should be "Environmental conditions (e.g., static discharge)..."

ENDL 200

PDF page 210

## 12.4 P 1

"A SCSI device detecting a reset event shall release all SCSI bus signals (except the RST signal, if it is asserting RST) within a bus clear delay of the transition of the RST signal to true."  
should be  
"A SCSI device detecting a reset event shall release all SCSI bus signals except the RST signal if it is asserting RST within a bus clear delay of the transition of the RST signal to true."

ENDL 201

PDF page 211

## 12.5.1 heading

The text in the 12.5.1 heading should be the same size as the text in the 12.5.2 heading

ENDL 202

PDF page 217

14.1 P 4

Three instances of "pair(s)" should be "pairs".

ENDL 203

PDF page 223

Table 51

In keeping with the form used elsewhere, "(See SAM-2)" should be "(See the SCSI Architecture Model -2 standard.)" in four instances in this table.

ENDL 204

PDF page 226

Table 54 code 05h

"...information unit(s)..." should be "...information units..."

ENDL 205

PDF page 227

14.3.2 1st full P on PDF pg 227

"...information unit(s)." should be "...information units."

ENDL 206

PDF page 227

Table 55

"(table 54)" should be "(see table 54)"

ENDL 207

PDF page 228

14.3.3 1st P after table 56

"...(e.g., parameter lists, mode pages, user data, etc.)." should not include 'etc.' since that is implied by 'e.g.' to whitt  
 "... (e.g., parameter lists, mode pages, and user data)."

ENDL 208

PDF page 229

14.3.4 1st P after table 57

"...(e.g., parameter lists, mode pages, user data, etc.)." should not include 'etc.' since that is implied by 'e.g.' to whitt  
 "... (e.g., parameter lists, mode pages, and user data)."

ENDL 209

PDF page 230

Table 58

The point size on "(n-m)" in bytes 4-7 is smaller than the point size on "(m-11)" in bytes 8-11. It is possible that "(n-m)" is less than 9 points and thus too small for a T10 standard.

ENDL 210

PDF page 230

14.3.5 2nd P after table 58

"...the sense data valid bit (SNSVALID) shall be set to one..." should be "...the SNSVALID bit shall be set to one..." since the definition of SNSVALID already appears in the preceding paragraph.

ENDL 211

PDF page 230

14.3.5 3rd P after table 58

"...the sense data valid bit (SNSVALID) shall be set to zero." should be "...the SNSVALID bit shall be set to zero." since the definition of SNSVALID already appears two paragraphs above.

ENDL 212

PDF page 230

14.3.5 5th P after table 58

"...the packetized failures valid bit (RSPVALID) shall be set to zero." should be "...the RSPVALID bit shall be set to zero." since



the definition of the RSPVALID bit appears in the preceding paragraph.

ENDL 213

PDF page 231

14.3.5 top of PDF pg 231

The word "zero." should not be separated from the rest of the paragraph by a page break.

ENDL 214

PDF page 236

16.3.1 heading

The text in the 16.3.1 heading should be the same size as text in the 16.3.2 heading.

ENDL 215

PDF page 236

Table 64 table notes

Second and subsequent lines of each table note paragraph should be indented as is the case in other tables such as table 16.

ENDL 216

PDF page 238

16.3.3 1st line on PDF pg 238

"...physical disconnect privilege (DISCPRIV bit set to zero)..." should be "...physical disconnect privilege (i.e., DISCPRIV bit set to zero)..."

ENDL 217

PDF page 238

16.3.3 2nd P after a,b list on PDF pg 238

Remove the parentheses in "(See the DTDC field of the physical disconnect/reconnect mode page in the 18.1.2 for additional controls over physical disconnection.)" ALSO note that "DTDC" does not appear to be in small caps.

ENDL 218

PDF page 240

16.3.9 P 1 and 16.3.10 P 1

"...be added (two's complement) to the..." should be "...be added using two's complement arithmetic to the...". There is one instance in 16.3.9 P 1 and two instances 16.3.10 P 1 for a total of THREE CHANGES.

ENDL 219

PDF page 244

16.4.1 P 2

"could" should be "may"

ENDL 220

PDF page 245

Table 73

Second and subsequent lines of each table note paragraph should be indented as is the case in other tables such as table 16.

ENDL 221

PDF page 245

Table 73

Key entries for M, NS, Yes, and 80h+ are not required because those terms do not appear in the table.

ENDL 222

PDF page 247

Table 78

Second and subsequent lines of each table note paragraph should be indented as is the case in other tables such as table 16.

ENDL 223

PDF page 247

Table 78

Key entries for NS, In, and \*\*\* are not required because those entries do not appear in the table.

ENDL 224  
PDF page 247  
Note 50  
"item (f)" should be "item f")"

ENDL 225  
PDF page 247  
16.5.2 1st P after note 50  
"...identified (i.e. an I\_T\_L nexus..." is missing a comma and should be "...identified (i.e., an I\_T\_L nexus..."

ENDL 226  
PDF page 250  
Note 52  
Remove the parentheses from "(The SCSI devices on the bus or the SCSI ID assignments may have changed.)"

ENDL 227  
PDF page 251  
Note 53  
"could" should be "may"

ENDL 228  
PDF page 253  
2nd P on PDF pg 253  
"...defined below." should be "...defined in this subclause."

ENDL 229  
PDF page 253 & others  
Tables 81, 84, 85, 86, 88, & 89  
I believe that the page code values should not appear in the table titles. If the code values are retained in these titles, then they should be added in the titles for the message bytes formats.

ENDL 230  
PDF page 254  
18.1.2 6th P on PDF pg 254  
"...512 bytes (e.g. a value..." is missing a comma and should be "...512 bytes (e.g., a value..."

ENDL 231  
PDF page 254  
18.1.2 last P on PDF pg 254  
In "The DATA TRANSFER DISCONNECT CONTROL (DTDC) field..." the field name as it appears in the format table is DTDC, so "DATA TRANSFER DISCONNECT CONTROL" should not be in small caps.

ENDL 232  
PDF page 262  
Table 90  
"Unknown (device not capable of reporting bus mode)" should be "Unknown (e.g., device not capable of reporting bus mode)"

ENDL 233  
PDF page 269  
Table A.1 table footnote e  
"must" should be "shall"

ENDL 234  
A.2 heading  
This heading should not be at the bottom of a page with no text following it.

ENDL 235  
PDF page 271  
Table A.2 row 3 & Table A.3 row 3  
"All four above conditions" should be "All four conditions shown in

the previous rows of this table"

ENDL 236

PDF page 271

Table A.3

What does "(note)" mean in column 1 rows 1 and 2? If it is intending to reference the table note (i.e., "The test limits shall be within the shaded area of figure A.3.") then the example of Table A.2 should be followed and "(note)" should be deleted.

ENDL 237

PDF page 277

A.2.6 P 2

"...alternating logical states (one - zero,..." should be  
 "...alternating logical states (e.g., one - zero,..."

ENDL 238

PDF page 277

A.2.6 P 4

"The rise and fall times specified above are..." should be "The rise and fall times specified in this subclause are..."

ENDL 239

PDF page 281

A.3.5 P 1

"...operating at Fast-160..." should be "...operating at fast-160..."

ENDL 240

PDF page 285

B.2.2 P 1

"...between 1 000 ns (QAS arbitration delay) and 1 490 ns (QAS arbitration delay+bus settle delay+2 deskew delays) after..." should be  
 "...between 1 000 ns (i.e., QAS arbitration delay) and 1 490 ns (i.e., QAS arbitration delay+bus settle delay+2 deskew delays) after..."

ENDL 241

PDF page 285

B.3.4 P 1

"...can only be..." should be "...is only allowed to be..."

ENDL 242

PDF page 286

Note 57 top of PDF pg 286

"...will now be waiting..." should be "...is now waiting..."

ENDL 243

PDF page 286

Note 58

"(B.3.6)" should be "(see B.3.6)"

ENDL 244

PDF page 286

B.4 P 2

"could" should be "may"

ENDL 245

PDF page 288

C.3 2nd P after table C.2

"VOLTS signal(s)" should be "VOLTS signals"

ENDL 246

PDF page 290

Table C.4

Since it appears to apply to only one row, the table note should be a table footnote with cross reference.

ENDL 247

PDF page 290

## Table C.4 table note

"...12 V D.C. or 5 V D.C. source (or both)..." should be "...12 V D.C. or 5 V D.C. source or both..."; note the addition of spaces after both instances of "D.C." as well as the removal of the parentheses.

## ENDL 248

PDF page 292

1 P on PDF pg 292

"The signal requirements are indicated below, ..." should be "The signal requirements are indicated in subclause C.8, ..."

## ENDL 249

PDF page 296

Table E.1

The acronym TDR does not appear in the glossary and is not suitable defined by the 'e.g.' statements in this table.

## ENDL 250

PDF page 297

Table E.1

This table is continued on a second page without any indication that this is the case.

## ENDL 251

PDF page 297

Table E.1 row with E.4 as a reference

"(note 4)" is not a proper note reference

## ENDL 252

PDF page 297

Table E.1 row with E.5 as a reference

"(note 2)" is not a proper note reference

## ENDL 253

PDF page 297

Table E.1 row with E.6 as a reference

"(note 3)" is not a proper note reference IN TWO COLUMNS

## ENDL 254

PDF page 297

Table E.1 table notes

Second and subsequent lines of each table note paragraph should be indented as is the case in other tables such as table 16.

## ENDL 255

PDF page 298

E.1 5th P on PDF pg 298

"...straight (in a line)..." should be "...straight (i.e., in a line)..."

## ENDL 256

PDF page 298

E.1 5th P on PDF pg 298

"These types of bulk cable are considered to be part of a cable assembly (where connectors are attached)..." should be

"These types of bulk cable are considered to be part of a cable assembly where connectors are attached..."

## ENDL 257

PDF page 298

E.1 bullet 1 on PDF pg 298

"... (e.g. wires..." is missing a comma and should be "... (e.g., wires..."

## ENDL 258

PDF page 298

E.2.1.2 P 1

To be consistent with the notation in table E.1, "This test

requires type A samples (see table E.1) prepared..." should be  
"This test requires type (A) samples (see table E.1) prepared..."

ENDL 259

PDF page 299

E.2.1.2 bullet 6 on PDF pg 299

"...to the shield (for planar type cable, tie..." should be "...to  
the shield (e.g., for planar type cable, tie..."

ENDL 260

PDF page 299

E.2.1.4.2 heading

"Measurement system (with test fixture) calibration" should be  
"Measurement system with test fixture calibration"

ENDL 261

PDF page 300

E.2.1.4.3 P 1

"...proper signal transition (STD) time..." should be "...proper  
STD time..." since the acronym is correctly identified in the  
subclause header.

ENDL 262

PDF page 300

E.2.1.4.3 P 1

"...described below." should be "...described in this subclause."

ENDL 263

PDF page 301

E.2.4.1.3 1st P after 1st a,b list on PDF pg 301

"...amplitude (most instruments do this calculation  
automatically)." should be "...amplitude. Most instruments do this  
calculation automatically."

ENDL 264

PDF page 301

E.2.1.5 P 1

"...described below." should be "...described in this subclause."

ENDL 265

PDF page 301

E.2.1.5 bullet a

"...to 2 ns / div (total time axis span of 20 ns)." should be  
"...to 2 ns / div (i.e., total time axis span of 20 ns)."

ENDL 266

PDF page 302

E.2.1.5 bullet e

"... (cable from fixture to TDR)..." should be "... (i.e., cable from  
fixture to TDR)..."

ENDL 267

PDF page 302

E.2.1.5 1st P after list on PDF pg 302

"which" should be "that"

ENDL 268

PDF page 302

E.2.2.2 P 1

To be consistent with the notation in table E.1, "This test  
requires type B samples (see table E.1) prepared..." should be  
"This test requires type (B) samples (see table E.1) prepared..."

ENDL 269

PDF page 303

E.2.2.3.3 heading

"Measurement system (with test fixture) calibration" should be  
"Measurement system with test fixture calibration"

ENDL 270

PDF page 304

E. 2. 2. 3. 4 P 1

"...descri bed below." should be "...descri bed in thi s subcl ause."

ENDL 271

PDF page 304

E. 2. 2. 4 P 1

"...descri bed below." should be "...descri bed in thi s subcl ause."

ENDL 272

PDF page 304

E. 2. 4. 1. 3 1st P after 1st a, b list

"...ampli tude (most instrum ents do thi s calculati on automati cally)." should be "...ampli tude. Most instrum ents do thi s calculati on automati cally."

ENDL 273

PDF page 305

E. 2. 2. 4 P 1

"...descri bed below." should be "...descri bed in thi s subcl ause."

ENDL 274

PDF page 305

E. 2. 2. 4 bul let a

"...to 2 ns / div (total time axis span of 20 ns)." should be "...to 2 ns / div (i.e., total time axis span of 20 ns)."

ENDL 275

PDF page 305

E. 2. 2. 4 bul let e

"...(cable from fixture to TDR)..." should be "... (i.e., cable from fixture to TDR)..."

ENDL 276

PDF page 305

E. 2. 2. 4 last P before figure E. 6

"whi ch" should be "that"

ENDL 277

PDF page 306

E. 2. 3 head ing

"Di fferenti al extended di stance (bal anced) i mpedance (frequency domai n)" should be "Di fferenti al extended di stance bal anced i mpedance frequency domai n"

ENDL 278

E. 2. 3. 1 P 1

To be consistent with the notation in table E. 1, "Thi s test requi res type C sampl es (see table E. 1) prepared..." should be "Thi s test requi res type (C) sampl es (see table E. 1) prepared..."

ENDL 279

PDF page 306

E. 2. 3. 1 bul let 1

"...occur. (Approximately 30 m or greater.)" should be "...occur, approxi mately 30 m or greater."

ENDL 280

PDF page 307

E. 2. 3. 2. 5 P 1

In E. 2. 3. 2. 2 the reference format is "(test fixture 2 figure E. 7)" here the reference format is "(refer to test fixture 2 in figure E. 7)" pick a single reference format and use it consistently.

ENDL 281

PDF page 307

E. 2. 3. 2. 5 P 1

"A coaxial cable (same transmission line impedance as the test instrument) connects..." should be "A coaxial cable with the same transmission line impedance as the test instrument connects..."

ENDL 282

PDF page 307

Note 68

"...high frequency (650 MHz or greater)..." should be "...high frequency (i.e., 650 MHz or greater)..."

ENDL 283

PDF page 307

E. 2. 3. 3 P 1

"...200 Hz (averaging at a minimum of 2 averages)." should be "...200 Hz, averaging at a minimum of 2 averages."

ENDL 284

PDF page 308

E. 3. 1. 1 bullet 6 (2nd list)

"Connect one (1) conductor..." should be "Connect one conductor..."

ENDL 285

PDF page 308

E. 3. 1. 1 P 1

To be consistent with the notation in table E. 1, "This test requires type D samples (see table E. 1) prepared..." should be "This test requires type (D) samples (see table E. 1) prepared..."

ENDL 286

PDF page 309

E. 3. 1. 3 bullet 2

"Connect a wire (short) to the sockets of the test fixture and perform a "short" calibration as specified by the bridge." should be "Connect a wire short to the sockets of the test fixture and perform a short circuit calibration as specified by the bridge."

ENDL 287

PDF page 309

E. 3. 1. 4. 2 P 1

"...other side of the test fixture (ground)." should be "...other side of the test fixture (i.e., ground)."

ENDL 288

PDF page 309

E. 3. 2. 1 P 1

To be consistent with the notation in table E. 1, "This test requires type F samples (see table E. 1) prepared..." should be "This test requires type (F) samples (see table E. 1) prepared..."

ENDL 289

PDF page 310

E. 3. 2. 3. 2 bullet 5

"Minimum average points shall be two (2)." should be "Minimum average points shall be two."

ENDL 290

PDF page 310

E. 3. 2. 3. 3 bullet 2

"Connect wire (short) to test fixture head and perform "short" circuit calibration." should be "Connect wire short to test fixture head and perform short circuit calibration."

ENDL 291

PDF page 310

E. 3. 2. 4 P 2

"could" should be "may"

ENDL 292

PDF page 311

E. 4. 1 P 1

To be consistent with the notation in table E. 1, "This test requires type G samples (see table E. 1) prepared..." should be "This test requires type (G) samples (see table E. 1) prepared..."

ENDL 293

PDF page 311

E. 5.1 P 1

To be consistent with the notation in table E.1, "This test requires type H samples (see table E.1) prepared..." should be "This test requires type (H) samples (see table E.1) prepared..."

ENDL 294

PDF page 312

E. 5.3 bullet 20)A) and 21)A)

"Connect a wire (short) to the sockets of the test fixture and perform a "short" calibration as specified by the TDR scope." should be "Connect a wire short to the sockets of the test fixture and perform a short circuit calibration as specified by the TDR scope." TWO CHANGES

ENDL 295

PDF page 313

E. 5.4 bullet 10

"...launch step (signal transition);" should be "...launch step (i.e., signal transition);"

ENDL 296

PDF page 313

E. 6.1 P 1

"Using the time domain (through) measurement,..." should be "Using the time domain (i.e., through) measurement,..."

ENDL 297

PDF page 314

E. 7.1 1st P after figure E.11

"The series resistive loss of the conductors (copper)..." should be "The series resistive loss of the copper conductors..."

ENDL 298

PDF page 314

E. 7.1 1st P after figure E.11

"...will be affected..." should be "...is affected..."

ENDL 299

PDF page 315

E. 7.1 1st P on PDF pg 315

"...attenuation (>50 dB)..." should be "...attenuation (i.e., greater than 50 dB)..."

ENDL 300

PDF page 316

E. 7.4 1st P after figure E.13

"...to unmatched case above." should be "...to the unmatched case discussed previously in this subclause." Note the addition of "the" as well as the removal of "above".

ENDL 301

PDF page 317

E. 7.4 1st P after figure E.14

"...in the example below." should be "...in the following example."

ENDL 302

PDF page 318

E. 7.4 1st P after figure E.15

"Also an additional uncertainty is introduced because a small value (cable attenuation) is being subtracted from a large value (attenuator attenuation)."

should be

"Also an additional uncertainty is introduced because a small value (i.e., cable attenuation) is being subtracted from a large value (i.e., attenuator attenuation)."

ENDL 303



PDF page 319

E. 7.6 P 1

"whi ch" should be "that"

ENDL 304

PDF page 320

E. 7.7 P 1

"Connect the DUT to the test fixtures shown in figure E. 16 and figure E. 17 (including the board mounted connectors)."

should be

"Connect the DUT to the test fixtures shown in figure E. 16 and figure E. 17, including the board mounted connectors."

ENDL 305

PDF page 322

E. 8.1 P 2

"...noise (due to the mapping of the time and space as in the TDR tests), and..." should be "...noise, due to the mapping of the time and space as in the TDR tests, and..."

ENDL 306

PDF page 323

E. 8.1 2nd to last P before E. 8. 2

"could" should be "may"

ENDL 307

PDF page 323

E. 8.1 last P before E. 8. 2

"...peak noise (devi ation from zero di fferential)..." should be

"...peak noise (i. e., devi ation from zero di fferential)..."

ENDL 308

PDF page 323

E. 8. 2 P 1

To be consistent with the notation in table E. 1, "This test requires type B samples (see table E. 1) as..." should be "This test requires type (B) samples (see table E. 1) as..."

ENDL 309

PDF page 323

E. 8. 4 P 1

"... tests in E. 2. 2. 3 (using a short in place..." should be

"... tests in E. 2. 2. 3 (i. e., using a short in place..."

ENDL 310

PDF page 324

E. 8. 5 1st P after figure E. 22

"Note the largest peak (i. e. largest devi ation..." should be "The largest peak (i. e., largest devi ation..." Since this is not a note, the paragraph should not begin with the word "note" and a comma is missing after i. e.

ENDL 311

PDF page 326

F. 3 P 3

"... fi rst paragraph of thi s clause." should be "... fi rst paragraph of thi s subclause."

ENDL 312

PDF page 326

F. 3 bullet b

"... transcei ver type (LVD or SE)..." should be "... transcei ver type (e. g., LVD or SE)..."

ENDL 313

PDF page 327

F. 3 bullet e

"... transcei ver types (SE, LVD)." should be "... transcei ver types (e. g., SE and LVD)."

ENDL 314  
PDF page 327  
F.4 bullet h  
Two instances of "could" should be "may"

ENDL 315  
PDF page 328  
Figure F.1  
"EACH SEGMENT TYPE CAN AUTOSWITCH..." should be "EACH SEGMENT TYPE IS ALLOWED TO AUTOSWITCH..."

ENDL 316  
PDF page 328  
F.5 P 1  
"...conversions (e.g. SE to LVD)." is missing a comma and should be "...conversions (e.g., SE to LVD)."

ENDL 317  
PDF page 330  
Table F1 column 3 heading  
Since none of the references shown in this table are references to clause, this column heading should be "Subclause" not "Clause".

ENDL 318  
PDF page 330  
Table F.1 row 2  
"...that can be negotiated..." should be "...that is capable of being negotiated..."

ENDL 319  
PDF page 330  
Table F.1  
"...two wide LVD Fast-40 bus..." should be "two wide LVD fast-40 bus..."

ENDL 320  
PDF page 334  
F.8.7 P 1  
"...will not return to the negated state..." should be "...does not return to the negated state..."

ENDL 321  
PDF page 334  
F.8.7 P 1  
"...since it will continue to be driven..." should be "...since it continues to be driven..."

ENDL 322  
PDF page 335  
F.9 P 1  
"can" should be "may"

ENDL 323  
PDF page 336  
F.9 1st P after equation on PDF pg 336  
"...from the above equation..." should be "...from the minimum recommended offset value equation in this subclause..."

ENDL 324  
PDF page 341  
Table G.2 column 4 heading  
Since none of the references shown in this table are references to clause, this column heading should be "Subclause" not "Clause".

ENDL 325  
PDF page 341  
Table G.3 title  
It is highly unusual to have an acronym as the one text in a table title. Perhaps the acronym could be expanded in the title.

ENDL 326  
PDF page 341  
Table G.3  
Row lines should extend into multi-byte fields following the model shown in table 81.

ENDL 327  
PDF page 342  
G.6.1.1 P 4  
"...sub-clause..." should be "subclause..."

ENDL 328  
PDF page 343  
Table G.5  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 329  
PDF page 345  
G.6.2.1 3rd P on PDF pg 345  
"...sub-clause..." should be "subclause..."

ENDL 330  
PDF page 345  
Table G.7  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 331  
PDF page 346  
G.6.3.1 P 4  
"...sub-clause..." should be "subclause..."

ENDL 332  
PDF page 348  
Table G.10  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 333  
PDF page 349  
Table G.11  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 334  
PDF page 349  
G.6.4.1 P 4  
"...sub-clause..." should be "subclause..."

ENDL 335  
PDF page 350  
Table G.12  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 336  
PDF page 351  
Table G.13  
Row lines should extend into multi-byte fields, even reserved fields, following the model shown in table 81.

ENDL 337  
PDF page 352  
Table G.14  
"(B73384B8508F27h)" is in a larger font in table G.14 than it is in table G.12 or table G.1. Pick a font size and use it consistently.

ENDL 338  
PDF page 352

Table G.14 bytes 8-11, 120-123, and 232-235  
Reserved fields should not have MSB and LSB indications.

ENDL 339

PDF page 353

Table G.14

Table G.14 is continued on a second page with no indication that this has occurred.

ENDL 340

PDF page 354

Annex H P 3

"Two of the RESERVED lines (A cable contact numbers 23 and 24) and the OPEN line (A cable contact number 25) on the A cable are TERMPWR lines on the P cable (P cable contact numbers 33, 34, and 35)."

should be

"Two of the RESERVED lines (i.e., A cable contact numbers 23 and 24) and the OPEN line (i.e., A cable contact number 25) on the A cable are TERMPWR lines on the P cable (i.e., P cable contact numbers 33, 34, and 35)."

ENDL 341

PDF page 357

Annex I P 1

"...amount of capacitance (and its spacing) that..." should be  
"...amount of capacitance and its spacing that..."

ENDL 342

PDF page 357

Annex I P 2

"...an attenuation (or amplification) of..." should be "...an  
attenuation or amplification of..."

ENDL 343

PDF page 358

Annex I last P before figure I.1

"For example, a cabled bus segment with  $L = 295$  nH/m (90 nH/ft) and  $C = 41$  pF/m (12,5 pF/ft) and  $Z = 85$ ...no more than 85 pF/m (26 pF/ft) anywhere...loads spaced 0,3 m (1 ft) from each other, 50 pF spaced 0,6 m (2 ft) apart, or 12,5 pF spaced 0,15 m (0,5 ft) apart." should be

"For example, a cabled bus segment with  $L = 295$  nH/m (i.e., 90 nH/ft) and  $C = 41$  pF/m (i.e., 12,5 pF/ft) and  $Z = 85$ ...no more than 85 pF/m (i.e., 26 pF/ft) anywhere...loads spaced 0,3 m (i.e., 1 ft) from each other, 50 pF spaced 0,6 m (i.e., 2 ft) apart, or 12,5 pF spaced 0,15 m (i.e., 0,5 ft) apart."

ENDL 344

PDF page 361

Annex K a,b,c list

Three instances of "(figure K...)" should be "(see figure K...)"

ENDL 345

PDF page 367

L.1.8 P 1

"...figure L.7 and figure L.7..." should be "...figure L.6 and figure L.7..."

ENDL 346

PDF page 369

a P in the middle of PDF pg 369

"The method used to calculate these parameters is shown below." should be "The method used to calculate these parameters is as follows."

ENDL 347

PDF page 370

1st P after 1st a,b list on PDF pg 370

"As demonstrated above..." should be "As demonstrated in this

subclause. . . "

ENDL 348  
PDF page 372  
L. 1.11 P 1  
"...element (figure L.9) is..." should be "...element (see figure L.9) is..."

ENDL 349  
PDF page 373  
1st P after 1 a,b list on PDF pg 373  
The "above" in phrase "...based on the above equation,..." needs to be replaced but I cannot begin to guess which of the "above" equations is being referenced.

ENDL 350  
PDF page 378  
N. 1.2 P 1  
"For example, two wide SCSI devices connected with a narrow cable will discover that the cable does not support wide transfers during this checking. These SCSI devices will then re-negotiate to narrow transfers."  
should be  
"For example, two wide SCSI devices connected with a narrow cable \*are able to\* discover that the cable does not support wide transfers during this checking. \*Then\* these SCSI devices <> re-negotiate to narrow transfers." Two "will"s removed.

ENDL 351  
PDF page 379  
N. 2.2 both lists  
All list entries should start with a capital letter (e.g., "Crosstalk" not "crosstalk")

ENDL 352  
PDF page 379  
N. 2.2 first a,b,c list  
Each parenthetical expression should begin with "i.e.," for example "(i.e., 0001h, ...)" not "(0001h,...)"

ENDL 353  
PDF page 380  
N. 6 1st P after a,b,c list on PDF pg 380  
"...port (possibly as a result..." should be "...port (e.g., as a result..."

\*\*\*\*\*

Comments attached to YesC ballot from Mr. Mark Evans of Maxtor Corp.:

Maxtor's comments for the letter ballot of SPI-4, rev 7

Maxtor # 1. Global

It appears that the editor has corrected "initiator" and "target" to be "SCSI initiator port" and "SCSI target port" to be consistent with the latest SAM convention in almost every case. However, though "SCSI device" is used hundreds of times in the draft to mean, "either a SCSI initiator port or a SCSI target port", it has been changed to "SCSI device port" only once (see 18.1.4.1 Port control mode page overview). In addition, there are several instances of "SCSI device" where I think the intention is that it should be "driver", "receiver", or "transceiver". Each occurrence of "SCSI device" in the draft needs to be examined and modified as required.

Maxtor # 2. Global

Though the phrase "an SCSI..." was completely purged from SPI-3, it is used MANY times in SPI-4 (as is "a SCSI..."). Though I didn't perform a thorough search,

I only saw occurrences of "...a SCSI initiator..." and "...an SCSI initiator..." I found no instances of "...an SCSI target..." or "...an SCSI device..." By comparing instances in SPI-4 to instances in SPI-3 it appears this is an artifact of replacing "...an initiator..." with "...an SCSI initiator port..." I don't care which it is, but it should be the same throughout the document.

Maxtor # 3. Global

Sometimes there is a space between "REQ (ACK)", and sometimes there is no space between "REQ(ACK)". I don't care which it is, but it should be the same throughout the document.

Maxtor # 4. Global

When did we switch to the new "note in the table" format (i.e., no "Note:" and superscript references)?

Maxtor # 5. Global

There are several places where the phrase "...worse case..." should be changed to "...worst-case...".

Maxtor # 6. page iii (PDF page 3), Abstract, first sentence:

I recommend that the "the" be removed from the sentence or that "the"s be added in front of all of the elements being defined.

Maxtor # 7. page xxx (PDF page 30), Introduction, second sentence:

I recommend that this sentence be changed to read, "Data may be transferred asynchronously or synchronously at rates that depend on implementation."

Maxtor # 8. page 5 (PDF page 35), 3.1.4 asymmetry:

I recommend that this read, "The maximum time from any transition edge on a signal to the subsequent transition edge during a "1010..." pattern, as measured at their zero-crossing points, minus the data transfer period (see 9.2.52)."

Maxtor # 9. page 5 (PDF page 35), 3.1.9 bus segment path:

The word "directly" should be deleted.

Maxtor # 10. page 6 (PDF page 36), 3.1.22 differential:

I recommend that this read, "A signaling alternative that uses drivers and receivers with two complementary signals to improve signal-to-noise ratios."

Maxtor # 11. page 6 (PDF page 36), 3.1.24 driver:

I recommend that this read, "The circuitry used to control the state of a signal line in a bus segment."

Maxtor # 12. page 7 (PDF page 37), 3.1.39 I/O process:

I recommend that this read, "An I/O process consists of one initial connection

(or, if information units are enabled, the establishment of a nexus) and zero or more physical or logical reconnections, all pertaining to a single task or a group of tasks. An I/O process begins with the establishment of a nexus. If the SPI information unit transfers are disabled an I/O process normally ends with a COMMAND COMPLETE message. If information unit transfers are enabled an I/O process normally ends with a SPI L\_Q information unit with the type field set to status and the DATA LENGTH field set to zero."

Maxtor # 13. page 7 (PDF page 37), 3.1.44 intersymbol interference (ISI):

I think that the definition here is missing the element of proximity and would

recommend that it be replaced with, "the effect that a transition (or "symbol") on a signal line has on transitions before or after it on the same line."

Maxtor # 14. page 8 (PDF page 38), 3.1.56 message:

I recommend that this read, "One or more bytes transferred between a SCSI initiator port and a SCSI target port to perform link control or task management, or to associate task attributes with commands."

Maxtor # 15. page 9 (PDF page 39), 3.1.78 planar, first sentence:  
The word "substantially" should be deleted.

Maxtor # 16. page 9 (PDF page 39), 3.1.84 receiver:  
I recommend that this read, "The circuitry used to detect the electrical state of a signal line in a bus segment."

Maxtor # 17. page 9 (PDF page 39), 3.1.92 SCSI initiator device, first sentence:  
The phrase "target SCSI device" should be changed to "SCSI target device".

Maxtor # 18. page 9 (PDF page 39), 3.1.93 SCSI initiator port first sentence:  
This should read, "A SCSI initiator device object that acts as the connection between application clients and the service delivery subsystem through which requests and responses are routed."

Maxtor # 19. page 9 (PDF page 39), 3.1.94 SCSI target device:  
There should be a period or some other punctuation before "See the SCSI..."

Maxtor # 20. page 10 (PDF page 40), 3.1.106 task manager:  
The definition reads, "An agent within the device server that executes task management functions." However, the model in figures 14 and 16 in SAM-2 rev 20 shows that the task manager is an agent within the logical unit. This definition should be changed to be in concert with SAM-2 rev 20.

Maxtor # 21. page 10 (PDF page 40), 3.1.108 task set:  
The first sentence begins, "A group of tasks within a device server..." However, the model in figure 14 in SAM-2 rev 20 shows that the task set is within the logical unit. This definition should be changed to be in concert with SAM-2 rev 20.

Maxtor # 22. page 10 (PDF page 40), 4.6 Bus segment loading, fourth paragraph, second sentence:  
I think this sentence would be more clear if it read, "SCSI devices containing enabled bus segment termination shall present loading at the stub connection that is no more than the sum of the maximum allowed termination loading and the maximum allowed bus segment loading."

Maxtor # 23. page 18 (PDF page 48), 4.7 Termination requirements, second paragraph, first sentence:  
The comma should be deleted from the sentence

Maxtor # 24. page 19 (PDF page 49), 4.8 Clocking methods for data transfers, second paragraph, first sentence:  
I recommend that this read, "Regardless of whether ST or DT transfers are enabled the negotiated transfer period sets the maximum rate at which the data is clocked in megatransfers per second."

Maxtor # 25. page 19 (PDF page 49), 4.8 Clocking methods for data transfers, second paragraph, fourth sentence:  
I recommend that this read, "An example of a negotiated transfer period of 25 ns with DT transfers is shown in figure 7."

Maxtor # 26. page 19 (PDF page 49), 4.8 Clocking methods for data transfers, second paragraph, fifth sentence:  
I recommend that this read, "The rising edge to rising edge time for DT is 50 ns while the rising edge to rising edge time for ST is 25 ns."

Maxtor # 27. page 19 (PDF page 49), 4.8 Clocking methods for data transfers, second paragraph:  
I recommend that the following sentence be added at the end of this paragraph,

"For ST DATA and DT DATA synchronous transfers the clocking signal (REQ or ACK) occurs when the DATA BUS is in a steady state."

Maxtor # 28. page 19 (PDF page 49), 4.8 Clocking methods for data transfers, third paragraph:

I recommend that this read, "Figure 8 shows an example paced transfers with a negotiated transfer period of 6,25 ns at the receiving SCSI device's connector. For DT DATA paced transfers the clocking signal (REQ or ACK) occurs when the DATA BUS signals may also be changing state."

Maxtor # 29. page 21 (PDF page 51), 4.10 Paced transfer on a SCSI bus:

I think a couple of important elements of paced transfers are not included in this subclause. I recommend that something like the following be added, "During paced DT DATA transfers the clock signal (ACK or REQ) transitions at the negotiated transfer period and is qualified for clocking data by DB(P1)."

Maxtor # 30. page 23 (PDF page 53), 4.11.1.2 Synchronous transfers:

I think the first paragraph is redundant. I recommend deleting the first paragraph and adding the reference on transfer agreement to the paragraph on ST DATA phases.

Maxtor # 31. page 24 (PDF page 54), 4.11.3.2 Data group transfers, seventh paragraph, first sentence:

I recommend that "pCRC" be changed to "pCRC field".

Maxtor # 32. page 24 (PDF page 54), 4.11.3.3 Information unit transfers, first paragraph:

I recommend that the first sentence be made into two sentences, "Information unit transfers are permitted when a synchronous transfer agreement is in effect. Information unit transfers are mandatory when a paced transfer agreement is in effect."

Maxtor # 33. page 24 (PDF page 54), 4.11.3.3 Information unit transfers, third paragraph:

I recommend that the first sentence be modified to be as follows, "If the number of bytes in the SPI information unit is not a multiple of four, the transmitting SCSI device shall transmit one, two, or three pad bytes as is necessary to make the transfer a multiple of four bytes before transmitting an

i uCRC."

Maxtor # 34. page 24 (PDF page 54), 4.11.3.3 Information unit transfers, seventh paragraph:

I think that "...i uCRC interval,..." should be deleted from the sentence.

Maxtor # 35. page 26 (PDF page 56), Figure 11 - Error-free negotiation message sequences:

I think there is an arrow missing from the "SCSI target port originated" side.

As with the "SCSI initiator port originated" side of the figure, there should be an arrow straight down from "WDTR OUT".

Maxtor # 36. page 26 (PDF page 56), 4.12.3 When to negotiate, Note 7, first sentence

I think the phrase "...broken SCSI initiator device software..." should be replaced with something like "...less than optimum SCSI initiator device software implementations..."

Maxtor # 37. page 28 (PDF page 58), Table 3 - Responding message requirements:

There is are two errors in the "TRANSFER WIDTH EXPONENT" row: This value is negotiated with either the PPR or WDTR messages, NOT SDTR. Also, "any value" is not valid. 00h and 01h are valid, 02h is obsolete, and all other values are reserved. 00h and 01h could also be added as valid values for this field in Table 2 - Negotiable fields and effects of successful negotiation.

Maxtor # 38. page 28 (PDF page 58), Table 4 - Transfer agreements:

I think that some of the information in this table is misleading, but at least



it does reference Table 11. However, I've found at least four cells that I think contain incorrect values: in the first row TRANSFER PERIOD OFFSET should be TRANSFER PERIOD FACTOR; in the "ST synchronous" row the TRANSFER PERIOD FACTOR shall be "GE 0Ah"; in the "narrow" row the TRANSFER WIDTH EXPONENT shall be "00h"; in the "ST DATA" row the TRANSFER PERIOD FACTOR shall be "GE 0Ah".

Maxtor # 39. page 29 (PDF page 59), Table 5 - Transfer Period Factor: Table 32 is "precompensation". I don't see how this note relates as this is a requirement for Fast-160. I guess I'm confused about notes (a) and (b).

Maxtor # 40. page 36 (PDF page 66), Table 11 - Valid negotiable field combinations:  
I see two errors and three additions that should be added in the table: in the second and third rows, "00h - FFh" should be, "0Ah - FFh"; in the eighth and tenth rows, "Use DT DATA IN and DT DATA OUT phases with information unit transfers" should be changed to something like "Use DT DATA IN and DT DATA OUT phases with paced information unit transfers"; in the ninth row, "Use DT DATA IN and DT DATA OUT phases with information unit transfers" should be changed to something like "Use DT DATA IN and DT DATA OUT phases with synchronous information unit transfers"

Maxtor # 41. page 37 (PDF page 67), 4.12.6 Message restrictions, second paragraph, second sentence:  
The second sentence reads, "If a SCSI target port responds to PPR with values that are attainable via WDTR and SDTR, the SCSI initiator port should repeat negotiation with a WDTR and SDTR negotiation sequence." I think that the intent here is something like, "If a SCSI target port responds to PPR only with values that are attainable via WDTR and SDTR (i.e., all protocol option bits set to zero), the SCSI initiator port should repeat negotiation with a WDTR and SDTR negotiation sequence." This should be changed accordingly. Otherwise, the subsequent WDTR/SDTR negotiation would result in setting to zero any protocol option bit that had been set to one via the PPR negotiation.

Maxtor # 42. page 38 (PDF page 68), Figure 12 - SCSI initiator port originated PPR negotiation: SCSI initiator port response:  
The text in the SCSI initiator port response boxes next to everything other than "successful negotiation" read that the initiator "...shall..." "...originate..." something (like a negotiation). If this is true, and there is a faulty target a deadlock loop could result if the target port kept doing something other than "successful negotiation", and the initiator port kept trying to originate negotiation. After some point in time the initiator should be allowed to give up and/or cause a reset event. There are similar instances of this that should be corrected in figures 14, 16, and 19. There are similar instances of this for the target port in figures 13, 15, 17, 18, and 21. Of course the target port can't create a reset event when it's ready to give up, but it could go to BUS FREE. I think the concept of "giving up" should be included in these figures. It could be in the form of notes.

Maxtor # 43. page 48 (PDF page 78), Figure 22 - SCSI Parallel Interface service reference mode:  
This figure shows a SCSI Application Client relating to another SCSI Application Client via the SCSI Application Protocol. I think this is based on "Figure 25 - Protocol service reference model" in SAM-2 rev 20. The figure in SAM-2 shows "SCSI Application [in initiator]" relating to "SCSI Application [in target]". The application in the target is NOT an application client. If the application in the initiator is an application client, then the thing in the target is a device server. One way or another, this figure needs to be corrected.

Maxtor # 44. page 48 (PDF page 78), Figure 23 - Model for a four step confirmed service:

The word "Manager" is missing from the upper right hand box and should be added after, "SCSI device Server or Task".

Maxtor # 45. page 76 (PDF page 106), I think that "...as measured in Annex subclause E.8." should be changed to "... (see E.8)."

Maxtor # 46. page 76 (PDF page 106), 7.1 SCSI parallel interface electrical characteristics overview, seventh paragraph (last on the page), first sentence:

I think that, "In addition to the SCSI device electrical requirements defined in the remaining subclauses of this clause..." should be changed to, "In addition to the SCSI device electrical requirements defined in this clause..."

Maxtor # 47. page 76 (PDF page 106), Figure 40 - Active negation current vs. voltage:

For some reason the shaded portions of the diagram didn't come out as being shaded in my .PDF version. They should be shaded.

Maxtor # 48. page 86 (PDF page 116), 7.2.4 SE input and output characteristics, Note 15:

This note just says to me, "Things work better if you design stuff good." The note could be deleted as this is obvious.

Maxtor # 49. page 97 (PDF page 127), 7.3.4.1 Management of LVD release glitches, second paragraph, second sentence:

The word "usage" should be changed to "use".

Maxtor # 50. page 103 (PDF page 133), 7.4.1 LVD/MSE multimode termination, fifth paragraph, first sentence:

The phrase, "...for purposes of..." should be changed to, "...for the purpose of..."

(unless there are other purposes not described here - if so, the other purposes should be described).

Maxtor # 51. page 103 (PDF page 133), 7.4.1 LVD/MSE multimode termination, Note 18:

The term "hard ground" is used twice in this note. How is this different from ground? Does this mean earth ground?

Maxtor # 52. page 108 (PDF page 138), 8.2 Signal descriptions, ATN: "ATTENTION" should not be capitalized.

Maxtor # 53. page 108 (PDF page 138), Table 39 - P\_CRC signal usage requirements:

There are a couple of empty boxes that could be removed from the table.

Maxtor # 54. page 111 (PDF page 141), LVD signals, second paragraph:

I think we discussed the following for SPI-3: the terms "+ signal" and "- signal" are used in some places and "+ SIGNAL" and "- SIGNAL" in others. I don't care which it is, but it should be the same throughout the document.

Maxtor # 55. page 113 (PDF page 143), Table 41 - SCSI bus control timing values:

I don't think the little note reference "b's" should be underlined, nor should there be a little underline before them.

Maxtor # 56. page 118 (PDF page 148), Table 46 - SCSI Fast-160 timing budget template:

"REQ/ACK period / 2" should be changed to "REQ(ACK) period / 2".

Maxtor # 57. page 118 (PDF page 148), Table 46 - SCSI Fast-160 timing budget template:

In note (b), "cross-talk" should be changed to "crosstalk".

Maxtor # 58. page 121 (PDF page 151), 9.2.12 Flow control receive hold time and 9.2.13 Flow control receive setup time:

What does, "Specified to ease receiver timing requirements." mean or add to this? Couldn't this be deleted? Where something like this is included in other clauses, there is more meat to it (see 9.2.17 and 9.2.19). Even in those cases I think that they should be notes.

Maxtor # 59. page 124 (PDF page 154), 9.2.39 REQ (ACK) period, first paragraph, third sentence:

The word "cross-talk" should be changed to "crosstalk" (this is the only other occurrence of this in the standard).

Maxtor # 60. page 128 (PDF page 158), 9.3.1 Measurement points overview, first paragraph, first sentence:

The phrase, "...the following subclauses..." should be changed to "...in this clause..."

Maxtor # 61. page 128 (PDF page 158), 9.3.2 SE fast-5 and fast-10 measurement points, first paragraph, second sentence:

This should be changed to, "The rise and fall times for the SE REQ and ACK signals shall..."

Maxtor # 62. page 134 (PDF page 164), 9.4.2 Paced transfers with precompensation enabled

There are several places where it looks like there is a space between the "+" and "-" signs and the following number. This could be an artifact of the pdf process.

Maxtor # 63. page 144 (PDF page 174), Figure 77 - System setup and hold timings for fast-160 DT paced transfers:

There are line feeds missing between the text of the notes.

Maxtor # 64. page 146 (PDF page 176), Expected and unexpected bus free phases:

This is a nit, but I think these should be separate subclauses (e.g., 10.2.1 and 10.2.2) under the BUS FREE phase clause.

Maxtor # 65. page 147 (PDF page 177), 10.4.1 Arbitration and QAS overview, third paragraph, last sentence:

I recommend that this be changed to, "Fairness is always enabled when QAS is enabled."

Maxtor # 66. page 148 (PDF page 178), 10.4.2 NORMAL ARBITRATION phase, item (4) in the bulleted list:

The phrase "...an arbitration delay..." could be changed to "...one arbitration delay...".

Maxtor # 67. page 152 (PDF page 182), 10.5.3.1 Information unit transfers disabled or enabled, fifth paragraph, first sentence:

I think this sentence should be change to something like, "The SCSI initiator port shall release the SEL signal and may change the DATA BUS any time after two system deskew delays have elapsed after the SCSI initiator port detects that BSY signal is true."

Maxtor # 68. page 155 (PDF page 185), 10.7.1 Information transfer phases overview, fourth paragraph, second sentence:

The phrase, "...the REQ/ACK signals..." should be changed to "...the REQ and ACK signals...".

Maxtor # 69. page 157 (PDF page 187), 10.7.3.1 Synchronous transfer overview, third paragraph, first sentence:

The phrase, "...the following subclauses..." should be changed to "...in this clause..."

Maxtor # 70. page 162 (PDF page 192), 10.7.3.3.6 Data Group Pad field and pCRC field transfer to SCSI initiator port, sentence after the second bulleted

list:

The phrase, "...ended a data group." should be changed to "...ended a data group transfer."

Maxtor # 71. page 163 (PDF page 193), 10.7.3.3.7 Data Group Pad field and pCRC field transfer to SCSI target port, sentence after the second bulleted list:

The phrase, "...ended a data group." should be changed to "...ended a data group transfer."

Maxtor # 72. page 164 (PDF page 194), 10.7.4.1 Paced transfer overview, seventh paragraph, first sentence:

The phrase, "... the REQ/ACK signals..." should be changed to "... the REQ and ACK signals..."

Maxtor # 73. page 167 (PDF page 197), 10.7.4.3.1 P1 data valid/invalid state transitions overview, first sentence of the first three paragraphs:

The word, "...device..." should be change to the phrase, "...SCSI device port..."

Maxtor # 74. pages 188 through 191 (PDF page 218 through 221), Figures 85 through 88:

There is an odd dotted line in each of these figures (going to MESSAGE OUT). Does this have some meaning I don't get or is it extra?

Maxtor # 75. page 195 (PDF page 225), 14.3.2 SPI L\_Q information unit, first paragraph, first sentence:

There is an extra "to" between "unit" and "that" that should be deleted.

Maxtor # 76. page 196 (PDF page 226), 14.3.2 SPI L\_Q information unit, Table 54 - TYPE:

In the box in the third column, third row, there are two places where, "...SCSI target device..." should be changed to, "...SCSI target port..."

Maxtor # 77. page 196 (PDF page 226), 14.3.2 SPI L\_Q information unit, Table 54 - TYPE:

In the boxes in the third column, rows two, three and six: should the last words in each sentence be changed to, "...SCSI device port..."?

Maxtor # 78. page 211 (PDF page 241), 16.3.12 PARALLEL PROTOCOL REQUEST:

I know that much of what was here before has been moved to clause 4, but, because it so important it is worth repeating, I would like to add back in a sentence like, "A PARALLEL PROTOCOL REQUEST message negotiation shall only be initiated by a SCSI initiator port."

Maxtor # 79. page 220 (PDF page 250), 17.1 Command processing considerations and exception conditions overview:

The phrase, "... the following subclauses..." should be changed to "This clause..."

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Comments attached to YesC ballot from Mr. Richard Moore of QLogic Corp.:

QLOGIC LETTER BALLOT COMMENTS ON SPI-4R7:

1. "Asynchronous transfer" is defined in the glossary but not "synchronous transfer".
2. 4.12.1, second paragraph: Insert the word "messages" between "PPR, SDTR and WDTR" and "are called...". This is more consistent with usage elsewhere in the standard, where a message of type XXX is referred to as "XXX message" rather than just "XXX".

3. 4.12.2, second paragraph, beginning with "e.g.": This passage is too wordy, and could be shortened to, "e.g., if the originating port asks for a REQ/ACK offset of 32 and the responding port only supports a REQ/ACK offset of 16, then the responding port replies with an offset of 16", with no loss of meaning.
4. 4.12.3: The fifth and sixth paragraphs mention "default transfer agreement", which hasn't been defined prior to this point. There should be a reference to Table 3, where this agreement is defined.
5. 4.12.3, Note 7: The last sentence is confusing. If an unexpected COMMAND phase notifies the initiator "that negotiation is required", why does it then say "so extra negotiation is not needed"?
6. Table 3: In the Message column, for TRANSFER WIDTH EXPONENT, the entry should read "PPR, WDTR".
7. Table 4: Replace "TRANSFER PERIOD OFFSET" with "TRANSFER PERIOD FACTOR".
8. Table 4: Including a separate row for "synchronous" (to include both ST and DT cases) is confusing, when transfer agreements for "ST synchronous" and "DT synchronous" are listed individually on the next two lines. For clarity, only the individual cases should be listed.
9. 4.12.4.5, second paragraph: Change "the only" to "then only".
10. Figures 12-21: Including the "reasons" in the third column of each figure can be confusing. Sometimes, it is an explanation of the response in the second column, such as "SCSI target port detected a parity error". At other times, the "reason" is a result, such as "successful negotiation". At still other times, it is a conclusion drawn by one device about the other, such as "SCSI target port faulty". Either better labeling is needed, such as "result" or "conclusion" in the last two cases, or the "reasons" should just be deleted.
11. Figures 12-21: Some of the third column entries describe actions beyond "SCSI initiator port response" or "SCSI target port response". These descriptions are redundant since they are described under "second response" in the following figure in each case.
12. Figure 21: "If every value port shall set its transfer agreement to the default transfer agreement" doesn't make sense.
13. 9.2.2: The setup time is described for data groups and DT or paced information units, but it is not described for asynchronous and ST transfers (which use neither data groups nor information units).
14. 9.2.3: The setup time is described for data groups and DT or paced information units, but it is not described for asynchronous and ST transfers (which use neither data groups nor information units).
15. 10.4.4, item (1) in the first list: "waits" should be "wait".
16. 10.7.3.3.6, item (6) in the first list: "without waiting for the previous ACK transition" is not correct wording. The previous ACK transition has already happened so not waiting for it is meaningless. If the intended meaning is, "without waiting for the ACK transition corresponding to the previous REQ transition", then we recommend this simplified wording: "without waiting for the synchronous offset to reach zero".
17. F.1, second paragraph: "SCSI initiator ports shall implement the basic integrity check method for physical layer integrity checking described in Annex N" does not seem to belong in this annex (Simple expander requirements). What's more, Annex N is informative, so "shall" is inappropriate.
18. Paragraph 4 of G.5 "Communicative expander function structures" states incorrect data structure size of multiple function data buffer. The correct size is 176 (16-byte header plus ten 16-byte SEDB = 11\*16 = 176).

19. Paragraph 1 of G. 6. 2. 2 "CONTROL" identifies the data structure shown in Table G. 7 "CONTROL data structure" as a SEDB (short expander descriptor block). However, since CONTROL is a single function, its data buffer should be a LEDB (long expander descriptor block).

20. No single function should require a USED bit, since each provides an EXPANDER ADDRESS in the data buffer and the INITIATOR ADDRESS in the function header (G. 6. 2 "Outbound single functions" and G. 6. 4 "Inbound single functions").

21. G. 5 "Communicative expander function structures" states that, for outbound functions, the MODE field of the WRITE BUFFER command shall be set to write data, echo buffer or echo buffer plus enable ECP mode, and for inbound functions, the MODE field of the READ BUFFER command shall be set to write data, echo buffer or echo buffer plus enable ECP mode. However, G. 6. 1. 1, G. 6. 2. 1, G. 6. 3. 1 and G. 6. 4. 1 specify " a WRITE BUFFER command with the MODE field set to one of the values specified in table G. 2" ("Expander functions"). The latter statement should be corrected by referencing the expander function code field of the expander function header ("Table G. 1").

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Comments attached to YesC ballot from Mr. Paul D. Aloisi of Texas Instruments:

SPI-4 - TI Letter ballot comments  
Paul Aloisi

Definitions added

SCSI Terminator: The terminator is at each end of a SCSI bus segment. The terminator provides impedance match and biasing, holding the bus in a negated state when it is not driven.

4.1 states

This standard defines the cables, connectors, signals, transceivers, and protocol used to interconnect parallel SCSI devices and the services provided to the application client.

Change to:

This standard defines the cables, connectors, signals, transceivers, Terminators, and protocol used to interconnect parallel SCSI devices and the services provided to the application client.

Add a paragraph after the second paragraph of 4.5

The SCSI protocol requires the bus to be held at a negated state when no drivers are active on the bus. The terminators hold the bus to a negated state when there are no active drivers on the bus and provide impedance matching.

4.10 Figure 9 uses the term AAF, but it is not used or defined in the paragraphs just before the figure.

Add to the first paragraph the following sentence.

The optional receiver adjustment is known as Adaptive Active Filter (AAF).

Figure 40 the shading is gone, the text refers to shaded and non shaded areas.

Table 33 note

a It is recommended that implementors design capacitive loads to be as small as practical.

Change to:

a It is recommended that implementors design capacitive loads to be balanced and as small as practical.

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Comments attached to Abs ballot from Mr. Roger Cummings of Veritas Software:

Not within our organization's area of expertise

\*\*\*\*\* End of Ballot Report \*\*\*\*\*