

Accredited Standards Committee  
X3, Information Processing Systems

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Reply to: John Scheible

To: X3T10 Membership  
From: John Scheible  
Subject : Minutes of the January 1994 X3T10 SSP study group meeting (Meeting #1)

Agenda:

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Agenda:

1. Opening Remarks

Since the SSP project proposal has not yet been formally approved, the group met as a study group. John Scheible, acting whatever, called the meeting to order at 9:10 am on Thursday January 13th, 1994. Vitro is thanked for hosting the meeting.

2. Approval of Agenda

The agenda was created at approved.

3. Attendance

The attendees: (Please let me know if I misspelled your name).

Ken Hallam	ENDL
Stephen Finch	Silicon Systems
Ed Haske	CMD Technology
Erich Oetting	StorageTek

Jeff Williams	Hewlett Packard
Tak Asami	Western Digital
Rene Macare	Future Domain Corp.
Earl J. Perera	P.E. Logic Corp.
Alan R. Olson	3M Co (observer)
Edward A. Gardner	Digital Equipment Corporation
Robert Liu	Fujitsu
Bob Kembel	IBM
John Moy	Tandem Computers
Sam Karunanithi	Hitachi
Ralph Weber	Digital Equipment Corporation
Jeff Stai	Western Digital
Paul Boulay	Hitachi
Jerrieh L. Allen	Amdahl
Clifford "Skip" Strang	BusLogic
John Scheible	IBM

4. Document distribution (no documents distributed, the SSA-SSP was in the last X3T9.2 mailing)

5. New Business

#### 5.1 Education

John Scheible spent about an hour doing an interactive education session on SSA-PH and SSA-SSP. Concerns were raised that the Tag and LUN fields were too small, the vendor unique fields were controversial (no consensus), and untagged queueing may need to be supported. The Split field was renamed OOT (Out of Order Transfer) since split was misleading (Split=0) still allowed segmented data transfer (split).

#### 5.2 Documentation format

The format of the document was discussed. In the last X3T9.2 mailing was the Proposed working draft SSA-SSP (X3T9.2/93-0181r0). John Scheible acknowledged that the document was the SSA-SCSI (SCSI-2 mapping) document with a new cover sheet. It is recognized that the document will need to undergo considerable work to make a SCSI-3 document. A discussion followed as to the proper format. Jeff Tsai wanted PageMaker (for Sun workstation people), ANSI wants Microsoft Word. John Scheible agreed to attempt to have the SSA-SSP document updated and converted to Ami-Pro by next meeting. There was a concern expressed that the import/export filters are less than perfect. John Scheible will investigate using Word at a later date. A discussion of tables and boxes not converting to text files for Email was done. Ralph Weber gave John Scheible a C program to convert box characters to bars and equal signs for text files, and John will investigate. John will remove the SCSI Status appendix, change the SSA-SCSI references, remove the ACA write-up, and make the changes agreed to later in the meeting, and re-release the document. The document will remain undergoing considerable change, and will not be proposed to X3T10 as a Working Draft for some time. The terminology and services format will need to be changed for SAM compliance.

#### 5.3 Alternative Pathing

SSA-PH has the concept of alternative pathing which is not handled well in SCSI. We discussed the problem of out of order-ness when using more than one path. We discussed the concept that an Abort message may only affect operations on the path used by the Abort. However, this still causes problems on Clear\_queue and Device\_reset operations. People will think about this issue and discuss at the next meeting.

## 5.4 Auto Sense

Auto sense options were discussed. The winning proposal was to use the Data\_ready and Data\_reply messages with a bit in byte 1 indicating Auto Sense. The auto sense Data\_reply message operates differently from the normal Data\_reply message in that a change in the byte\_count results in less data being sent rather than being followed by another Data\_reply message to transfer the remainder. This allows the initiator to throw away unwanted auto sense data. The auto sense data transfer uses the same tag value as the associated command, and will occur prior to the SCSI\_status message (which frees the Tag). Multiple auto sense transfers will be allowed. *Editor's note: as I am writing this I realize that the status codes will need to be the same for multiple sense data transfers. We need to discuss this next time.* Auto sense is allowed for more than just Check Condition Status. The ACA bit in the control byte of the CDB will still control the resetting of the ACA. A bit in the SCSI\_command message will enable auto sense on a command by command basis. It was desired that the auto sense data transfer not terminate, affect, or even stop the normal data transfer. Stephen Finch discussed the possibility of getting the status code early with the auto sense data, but this was rejected due to the problems of what happens if the early status code disagrees with the SCSI\_status status code. John Scheible will document.

Other options discussed included sending auto sense data after SCSI\_status and command complete (problem: when is tag freed). Other options included a special message with auto sense data (problem: messages are only 32 bytes long, and would require a set of them). Other options included a pre-assigned channel for auto sense data at SCSI\_command time (channels can be critical resources and could result in buffer overflow is re-used).

## 5.5 AEN

AEN was also discussed. Two options were discussed (Async Alert, and Dara\_ready/reply). John Scheible did not like using the Async\_alert process used in SSA-PH because 1) all 255 bytes of sense data could not be sent and 2) AEN is a SCSI concept, not an SSA-PH concept. It was realized that we should not be using AEN as that is a particular SCSI-2 concept, but should call it Asynchronous Events. *Editor's note: SAM calls it Asynchronous Event Reporting.* The SCSI-2 method of AEN was discussed, but it was decided that SSA may define a new method. The concept of re-registering after each AE was discussed and rejected. The need to re-register in P1394 comes about due to the possibility of buffer overflow. In SSP, this does not apply since the Data\_ready / Data\_reply process cannot overflow (the initiator allocates the buffer space on the receipt of the Data\_ready before sending the Data\_reply). The AE data transfer will operate like the Auto Sense transfer in that a Data\_reply that changes the byte count will truncate data transfer and is not responsible for following up with another Data\_reply for the remainder. John Scheible will write up for the next meeting. The method of registering was not discussed.

## 5.6 Enlarged Split field

John Scheible proposed an enlarged split field to control out of order transfer over the interface (1 bit) and over the media (1 bit). The problem is the device could optimize performance of both reads and writes by performing out of order transfers on the media, even if the initiator did not support out of order transfers over the interface. However, there is an age old problem with Unix where the beginning and end of a record are timestamped. If the last part was written (end timestamp) and the first part was written (begin timestamp) but the device errored out before writing the middle, then an undetected error would result. Strong opinions were voiced that this is an old problem and the out of order on the media bit belonged in the Write CDB, and not in the protocol. No one committed themselves to the suggestion that a proposal for the Write command change be submitted.

## 5.7 Alternative Transport (ATM)

Ed Gardner asked the group to consider the possibility of defining SSP in such a way as to allow it to operate on both the SSA and ATM physical layers. ATM is a 48 byte packetized serial interface. Ed will teach an ATM tutorial next meeting.

## 6. Action Items:

The following action items are recorded.

- 1) SSA-SSP in standard word processor format (March - Scheible)
- 2) Rename Split field to OOT (Out of Order Transfer) (March - Scheible)
- 3) POTENTIAL proposal on larger LUN fields (?)
- 4) POTENTIAL proposal on larger Tag fields (?)
- 5) Update SSA-SSP document (change SSA-SCSI to SSA-SSP, remove status appendix and ACA write up) (March - Scheible)
- 6) POTENTIAL proposal on SAM terminology and services model write-up (?)
- 7) Alternative pathing discussion next meeting
- 8) Write up Auto Sense, Asynchronous Event Reporting method in next document. (March - Scheible)
- 9) ATM pitch next meeting (March - Ed Gardner)

## 7. Meeting schedule

The next meeting will be at 9:00 am - 12:00 noon on Thursday March 17th, 1994, and will hopefully be an approved project. The May meeting time has not been finalized at this time. The meetings are subject to change, and everyone should watch the X3T10 meeting schedule for the latest information.

## 8. Adjournment

The meeting was adjourned at 12:00 noon.

Sincerely,

John Scheible