

Accredited Standards Committee*
X3, Information Technology

Doc. No.: X3T10/97-111r1

Date: January 14, 1997

Project:

Ref. Doc.:

Reply to: John Lohmeyer

To: Membership of X3T10

From: Ralph Weber, Secretary X3T10
Larry Lamers, Vice-chair X3T10
John Lohmeyer, Chair X3T10

Subject: Minutes of SCSI Working Group Meeting
Dallas, TX -- January 7-8, 1997

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. EPI Topics
5. Physical Topics
 - 5.1 SPI Amendment (Project 0855-D A1) [Lamers/Lohmeyer]
6. Protocol Topics
 - 6.1 Add Mode Page for Fibre Channel features (96-195) [Houlder]
 - 6.2 Command Exception Conditions (95-352r3) [Monia]
7. Command Set Topics
 - 7.1 SES Review and Recommendation re LB comments [Snively]
 - 7.2 SPC-2
 - 7.2.1 SPC Link Event Timeout (96-240r1) [Stephens]
 - 7.2.2 REPORT LUNs Command Issue (reflector messages) [Weber]
 - 7.2.3 World Wide Names (97-101r1 and X3T11/96-467r1) [Snively]
 - 7.2.4 Proposed change in Qerr=1 Behavior in SPC-2 (96-274) [Weber]
 - 7.2.5 Prevent Allow Medium Removal Issue (96-266) [Basham]
 - 7.3 Resolution of SBC letter ballot comments [Milligan]
 - 7.4 SAM-2 [Monia]
 - 7.5 Commands required by SCSI-2 and optional in SCSI-3 (96-230r0) [Frazier]
 - 7.6 Proposal to add a new modifier to SCSI Write commands (97-127) [Coughlan]
8. Other Topics
 - 8.1 High-Availability Profile [Hagerman]
 - 8.2 Reconsideration of SCSI-2 based on the ISO corrigendum [Milligan]
9. Meeting Schedule
10. Adjournment

*Operating under the procedures of The American National Standards Institute.

X3 Secretariat, Information Technology Industry Council (ITI)

1250 Eye Street NW, Suite 200, Washington, DC 20005-3922

Email: x3sec@itic.nw.dc.us Telephone: 202-737-8888 FAX: 202-638-4922

Results of Meeting

1. Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 9:00 a.m., Tuesday January 7, 1997. He thanked Jim McGrath and Mary Turco of Quantum for hosting and arranging the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated. Copies of the draft agenda and general information on X3T10 were made available to those attending.

2. Approval of Agenda

The draft agenda was approved with the following additions:

7.2.5 Prevent Allow Medium Removal Issue (96-266) [Basham]

3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10 membership. Working group meetings are open to any person or organization directly and materially affected by X3T10's scope of work.

The following people attended the meeting:

Name	S	Organization	Electronic Mail Address
Mr. Norm Harris	P	Adaptec, Inc.	nharris@eng.adaptec.com
Mr. Lawrence J. Lamers	A	Adaptec, Inc.	ljlammers@aol.com
Ms. Lisa Huff	V	AMP, Inc.	lisa.huff@amp.com
Mr. Edward Haske	P	CMD Technology	haske@cmd.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@shr.dec.com
Mr. Douglas Hagerman	A#	Digital Equipment Corp.	hagerman@starch.enet.dec.com
Dr. William Ham	A#	Digital Equipment Corp.	ham@subsys.enet.dec.com
Mr. Tom Coughlan	V	Digital Equipment Corp.	tom.coughlan@zko.mts.dec.com
Mr. Roger Cummings	P	Distributed Processing Tech.	cummings_roger@dpt.com
Mr. Edward Lappin	P	Exabyte Corp.	tedl@exabyte.com
Mr. Anthony Yang	O	Hitachi America Ltd.	yang_a@hal.sp.hitachi.com
Mr. George Penokie	P	IBM Corp.	gop@rchvmp3.vnet.ibm.com
Mr. Dan Colegrove	A#	IBM Corp.	colegrove@vnet.ibm.com
Mr. Robert Basham	O	IBM Corp.	robbyb@vnet.ibm.com
Mr. Dennis Moore	P	KnowledgeTek, Inc.	dmoore@netcom.com
Mr. Dean Wallace	P	Linfinity Micro	75671.3443@compuserve.com
Mr. Pete McLean	P	Maxtor Corp.	pete_mclean@maxtor.com
Mr. Jay Neer	A	Molex Inc.	jneer@molex.com
Mr. E. Jake Berzon	P	NEC Electronics, Inc.	jberzon@asi.c.mtv.nec.com
Mr. Edward A. Gardner	P	Ophiidian Designs	gardner@acm.org
Mr. Skip Jones	P	QLogic Corp.	sk_jones@qlc.com
Mr. James McGrath	P	Quantum Corp.	JMCGRATH@QNTM.COM
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Gerald Houlder	A	Seagate Technology	Gerry_Houlder@notes.seagate.com
Mr. Erich Oetting	P	Storage Technology Corp.	erich_oetting@stortek.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@eng.sun.com

Mr. John Lohmeyer	P	Symbios Logic Inc.	john.lohmeyer@symbios.com
Mr. Rod DeKoning	A#	Symbios Logic Inc.	rod.dekoning@symbios.com
Mr. Ralph O. Weber	A	Symbios Logic Inc.	roweber@acm.org
Mr. Arlan P. Stone	A	UNISYS Corporation	arlan.stone@mv.unisys.com
Mr. Paul D. Aloisi	P	Unitrode Corporation	alosi@unitrode.com
Mr. Gregory Kapraun	V	Western Digital Corp.	kapraun@wdroc.wdc.com
Mr. Jeffrey L. Williams	P	Western Digital Corporation	jwilliam@wdroc.wdc.com

33 People Present

Status Key: P - Principal
 A, A# - Alternate
 O - Observer
 L - Liaison
 V - Visitor

4. EPI Topics

Bill Ham presented a revised table on configurations and length limits. He noted that there is very little data available on high-voltage differential. The table on LVD is not completed yet.

Bill announced that EPI revision 8 will be in the next committee mailing.

The group discussed several concepts to be included in EPI. The fifth rule of domains was stated: No loops will be allowed. If a loop is formed, a lockup may occur.

A simple expander is limited to a maximum of 20 mega-transfers per second. Bill described his ideas for next generation expanders, in particular expanders that support 40 mega-transfers per second. He said that he will continue to use "expander" as the term for non-intelligent devices but will use a different term for intelligent devices.

Bill described "SCSI Bridges". He noted that a SCSI Bridge will occupy a SCSI ID position on all sides. He stated the belief that SCSI Bridge should be capable of being implemented in a single chip. A SCSI Bridge handles speed negotiation on all sides, and takes the initiator role on only one side. Several other aspects of SCSI Bridges were discussed by the group, including comparisons to storage arrays, devices that implement SCSI Controller Commands (SCC).

Bill noted that he wishes to discuss dynamically adding and removing segments at the next meeting.

5. Physical Topics

5.1 SPI Amendment (Project 0855-D A1) [Lamers/Lohmeyer]

John Lohmeyer and Larry Lamers reported that revision 2 of the SPI Amendment was in the last committee mailing. Everybody was admonished to review revision 2. John stated that a forwarding motion will be taken at the plenary meeting this week.

The group digressed into a discussion of SCAM. The matter of changing device IDs resulting from SCAM produced a mini-debate between Roger Cummings, Larry Lamers, and John Lohmeyer. John suggested that a mechanism might be devised where the host adapter would provide the operating system with 'fixed identifiers' for SCAM devices; such identifiers would be invariant for that host adapter regardless of the changes in SCAM-generated bus ID values. These identifiers probably would need to be rather large as compared to today's 3- or 4-bit device identifiers.

George Penokie pointed out that there is one missing additional reference in clause 7. Larry noted that the change will result in the creation of revision 3 of the SPI Amendment.

6. Protocol Topics

6.1 Add Mode Page for Fibre Channel features (96-195) [Houlder]

Gerry Houlder presented 96-195r1, a proposal defining six bits in the Disconnect-Reconnect mode page to control functions related to the SCSI-3 Fibre Channel Protocol (FCP) and other Fibre Channel standards. The group rejected addition of bit definitions in SPC-2 that would force SPC-2 to add normative references to several additional Fibre Channel standards documents.

The group considered and rejected the definition of several bits in the Disconnect-Reconnect mode page as protocol-specific. The problem with the Disconnect-Reconnect mode page was that defining sufficient numbers of protocol-specific bits would require adding to the defined length of the mode page.

As a result, the group strongly recommended defining one mode page code for protocol-specific use. Gerry and George Penokie agreed that a protocol-type byte should be defined in a location common to all uses of the newly defined mode page, with the description of the protocol-type byte appearing in SPC-2.

George Penokie and Roger Cummings discussed details of the bit definitions in Gerry's proposal. Gerry agreed to work with George, Roger, and Ralph Weber to create revised draft of his proposal for the next working group meeting.

6.2 Command Exception Conditions (95-352r3) [Monia]

Charles Monia reported that no new presentation was available for this meeting.

7. Command Set Topics

7.1 SES Review and Recommendation re LB comments [Snively]

Bob Snively and Ralph Weber reported that an editorial meeting had generated a detailed list of work items to finalize addressing the letter ballot comments to produce SES revision 8a. They reported their mutual agreement that 8a addresses the letter ballot comments and is the document that should be sent forward for first public review. In the absence of any objections, the working group recommended accepting SES revision 8a as addressing the letter ballot commands and recommended forwarding revision 8a for further processing toward first public review.

7.2 SPC-2

7.2.1 SPC Link Event Timeout (96-240r1) [Stephens]

Gary Stephens was not present. Gerry Houlder noted that this proposal concerns issues similar to those raised by his proposal, 96-195. He agreed to keep the relationship in mind while working of future revisions of his proposal.

7.2.2 REPORT LUNs Command Issue (reflector messages) [Weber]

George Penokie described his concern that different protocols format LUN values differently, e.g., one byte for SIP and two bytes for FCP. George proposed that the SCC LUN format be adopted for the REPORT LUNS command, and by implication for SPC-2 and all of SCSI. The group discussed the issue. One conclusion agreed to by all was that the issue concerns SAM-2, not SPC-2. George said that he may write a proposal for changing SAM-2 to describe the LUN format as being the format described in SCC.

The other generally agreed conclusion was that a real problem exists for application clients. Unless something is done, an application client may not be able to translate the 8 bytes of a full-width LUN to whatever number of LUN value bits are used by the applicable protocol. For example, how should an application client translate an 8-byte LUN to the 6-bit LUN required by parallel SCSI?

7.2.3 World Wide Names (97-101r1 and X3T11/96-467r1) [Snively]

Bob Snively asked if the group wished to see a second presentation of the proposal for new FC-PH identifiers based on IEEE company_ids (X3T11/96-467). The group, having seen the presentation previously, decided to skip a repeat of the presentation.

Bob then presented a tutorial for SCSI use of IEEE registered company_id (97-101). Bob noted that the tutorial becomes an IEEE document. X3T10 participation is limited to developing the tutorial, IEEE holds approval authority for the tutorial.

Gene Milligan asked about how the tutorial will be used by IEEE and how that use will appear to people who request new IEEE company_id values. Several other questions caused the group to digress to unrelated topics such as how IEEE 1394 and SBP use the IEEE unique ID values that Peter Johansson received from IEEE last year.

In the absence of any objections, the working group recommended that X3T10 offer 97-101r1 to IEEE as the recommended tutorial for SCSI usage of IEEE company_id values.

7.2.4 Proposed change in Qerr=1 Behavior in SPC-2 (96-274) [Weber]

The group discussed Ralph Weber's proposal. The notion of redefining the behavior of a long-time defined bit was abhorrent to the working group and Ralph accepted the group's reasoning. George Penokie, Jeff Williams, Tom Coughlan, and Rod DeKoning provided several valuable suggestions. Ralph agreed to revise the proposal based on the best ideas discussed during the meeting. Ralph will bring a revised proposal to the next working group meeting.

7.2.5 Prevent Allow Medium Removal Issue (96-266) [Basham]

Robert Basham described a problem where, after some types of failures, the PREVENT ALLOW MEDIUM REMOVAL command leaves the operator permanently unable to remove the medium. He sketched out a revision of his proposal that adds new function modifier bits to the command. The group provided Robert with important feedback regarding the proposal. Robert agreed to provide a revised proposal on the SCSI Reflector for further consideration at the May meeting (he will be unavailable in March).

7.3 Resolution of SBC letter ballot comments [Milligan]

Gene Milligan reported that one negative vote (and several comments) were received in the letter ballot voting to forward SBC to first public review. Gene then reviewed the comments resolution for the SBC forwarding letter ballot.

As part of the discussion of the Flexible Disk Geometry mode page, it was suggested that the page be made obsolete. However, the group ultimately agreed to give Digital time to consider how best to handle the page, in light of claims of extensive use in Digital software products.

In response to a letter ballot comment from Western Digital, the group agreed to add the READ DEFECT DATA(12) command, described in the optical section, to the direct access block command set as an optional command.

In the absence of any objections, the working group agreed to accept the comment resolutions discussed by the working group (96-123) as resolving the letter ballot comments on SBC and agreed with Gene's plan for resolving the Flexible Disk Geometry mode page, provided Gene would produce the wording of the plenary motion.

7.4 SAM-2 [Monia]

Charles Monia stated that no noteworthy information could be reported for SAM-2.

7.5 Commands required by SCSI-2 and optional in SCSI-3 (96-230r0) [Frazier]

Giles Frazier presented his concerns with detecting support for commands that were mandatory in SCSI-2 and have been made optional in SCSI-3. His particular concern revolved around testing for support for the RESERVE(10) command. He noted that issuing a RESERVE(10) to test for support for RESERVE(10) has the undesirable effect of rendering the logical unit dysfunctional for other initiators. Jeff Williams pointed out that one could use the RELEASE(10) command as a test for support for the RESERVE(10). Giles questioned the certainty of such a test. The group assured him that, although the standards do not contain requirements making the relationship certain, the practical circumstances assure that his needs will be met.

7.6 Proposal to add a new modifier to SCSI Write commands (97-127) [Coughlan]

Tom Coughlan presented a review of his proposal to add a function modifying bit to the WRITE command and its reception to date. George Penokie described a very strong IBM objection to adding any bits that modify the operation of the WRITE command. Since Tom prefaced his remaining remarks with a statement that the proposal will be withdrawn based on the continued support for the READ LONG and WRITE LONG commands, the discussion was brief and cordial.

8. Other Topics

8.1 High-Availability Profile [Hagerman]

Doug Hagerman distributed revision 3 of X3T10/1224-DT. At the request of Gene Milligan, the group discussed the goals of the project: what are the goals?; are the goals addressed by the document as written?; should goals be added or removed from the project? Bob Snively questioned why he should contribute the information that his company considers to be a key value-added element of its product toward the task of writing the high-availability profile. After a lengthy discussion, the group turned to John Lohmeyer for advice. John stated a belief that a Technical Report need not describe all possible ways of achieving an end; it is not a standard. He based his statement on the two facts: 1) approval of a Technical Report does not require a consensus of all committee members; and 2) voting for approval of a Technical Report does not commit organizations to implementing its contents. Other high-availability solutions are allowed. After listening to John's analysis, the group agreed to continue working on the HAP document.

The group discussed many technical concerns with the draft Technical Report. Terms needing definition and their relationship to existing SCSI terms were discussed. The group suggested that the Technical Report use specifically worded definitions whenever a need is identified, as opposed to relying on supposedly well known existing definitions. Specific requirements included in the technical description (such as use of the SCA-2 connector, or lack thereof, and how mode page data is managed by a target) were discussed.

8.2 Reconsideration of SCSI-2 based on the ISO corrigendum [Milligan]

Larry Lamers and Gene Milligan reviewed progress on developing a corrected version of SCSI-2 based on the errors reported via ISO. Larry stated a belief that the Japanese were to be asked if they want a corrigendum. Gene expressed the opinion that, if X3T10 wants to make changes based on the ISO comments, then we should act without requesting input from the authors of the ISO comments.

There was general agreement with Larry's proposal that the ISO version of SCSI-2 be amended and that we pursue having the amended ISO SCSI-2 be adopted as the American version of SCSI-2. Larry accepted Gene's reasoning with respect to the question of whether the Japanese need to be consulted before X3T10 proceeds.

9. Meeting Schedule

The next meeting of SCSI Working Group will be March 11-12, 1997, in San Diego, CA at the Hyatt Islandia Hotel (619-224-1234), hosted by QLogic.

10. Adjournment

The meeting was adjourned at 5:03 p.m. on Wednesday January 8, 1996.