Accredited Standards Committee*
National Committee for Information Technology Standards (NCITS)

Doc. No.: T10/98-147r0

Date: May 12, 1998
Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber / John Lohmeyer
Subject: SCSI Working Group Meeting -- May 5-6, 1998
            Colorado Springs, CO

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Enhance Parallel Interface (EPI) Technical Report
    4.1 EPI Editorial Review [Ham]
    4.2 New Expander Proposal (98-158r0) [McGrath]
    4.3 REQ/ACK Counting (98-166r0) [Guss]
5. Protocol Topics
    5.1 LFP INQUIRY and MODE SENSE data format (97-241r2) [Lamers]
    5.2 End to End CRC Proposal (97-283) [Basham]
6. Command Set Topics
    6.1 SCSI Socket/SSL Services (SSS) Review () [Parker]
    6.2 QErr Recovery in HAP (97-187) []
    6.3 High-Availability Profile (HAP) [Hagerman]
    6.4 GET CONFIGURATION command and feature descriptions for SPC-2 (98-169 and 98-170) [Sims]
    6.5 Making the Terminate Task Management Function Obsolete in SPI-3 [Snively]
    6.6 FCP-2 [Snively]
        6.6.1 Enhancements for Tape (98-165r0) [Wanamaker]
    6.7 Proposal for Writable Device Identifiers (98-112r0) [Coughlan]
    6.8 SAM-2 Issues [Weber]
    6.9 Which port changes for SPC-2 (98-145r0) [Weber]
    6.10 Add PLPB feature to mode page 19h (98-106r1) [Houlder]
    6.11 Persistent Reservations clarifications for SPC-2 (98-124r1) [Snively]
    6.12 New Log Page Requirements (98-128r1) [Snively]
    6.13 SCSI Extensions for Networked Attached Storage (98-163) [Houlder]
    6.14 Command Behavior Under Reservations (98-164r0) [Snively]
7. Other Topics
    7.1 Optical Memory Card International Issues (98-151) [Smith]
    7.2 Proposed Double Edge/CRC Signal Usage [McGrath]
8. Meeting Schedule
9. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Tuesday May 5, 1998. He thanked Symbios for allowing him to host the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated.

2. Approval of Agenda

The draft agenda was approved with the following additions and changes:

    4.2 New Expander Proposal (98-158r0) [McGrath]
    4.3 REQ/ACK Counting (98-166r0) [Guss]
    6.6.1 Enhancements for Tape (98-165r0) [Wanamaker]
    6.13 SCSI Extensions for Networked Attached Storage (98-163) [Houlder]

The following agenda items were added during the course of the meeting:

    6.14 Command Behavior Under Reservations (98-164r0) [Snively]
    7.2 Proposed Double Edge/CRC Signal Usage [McGrath]

3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 membership. Working group meetings are open to any person or organization directly and materially affected by T10's scope of work. The following people attended the meeting:

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        Name            S      Organization          Electronic Mail Address
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Mr. Lawrence J. Lamers P  Adaptec, Inc.            ljlamers@ix.netcom.com
Mr. Ron Roberts        A  Apple Computer           rkroberts@aol.com
Mr. Douglas Wagner     P  Berg Electronics         wagnerdl@bergelect.com
Mr. Edward Haske       O  CMD Technology           haske@cmd.com
Mr. Robert C. Elliott  P  Compaq Computer Corp.    Robert.Elliott@compaq.com
Mr. Bill Galloway      A  Compaq Computer Corp.    Bill.Galloway@compaq.com
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Mr. Tom Jackson        A  Exabyte Corp.            thomasj@exabyte.com
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Mr. Edward A. Gardner  P  Ophidian Designs       eag@ophidian.com
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Mr. Ting Li Chan       A  QLogic Corp.           t_chan@qlc.com
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Mr. Richard Uber       V  Quantum Corp.          duber@tdh.qntm.com
Mr. Gene Milligan      P  Seagate Technology     Gene_Milligan@notes.
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Mr. Gerald Houlder     A  Seagate Technology     Gerry_Houlder@notes.
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Mr. Dave Guss          P  Silicon Systems, Inc.  dave.guss@tus.ssi1.com
Mr. Erich Oetting      P  Storage Technology Corp. erich_oetting@stortek.com
Mr. Doug Charnley      A  Storage Technology Corp. doug_charnley@stortek.com
Mr. Robert N. Snively  P  Sun Microsystems       bob.snively@sun.com
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Mr. John Lohmeyer      P  Symbios, Inc.          lohmeyer@ix.netcom.com
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Mr. Doug Piper         P  Woven Electronics      doug.piper@internetmci.
                                                 com


48 People Present

Status Key:  P   -  Principal
             A,A# -  Alternate
             O   -  Observer
             L   -  Liaison
             V   -  Visitor
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4.　Enhance Parallel Interface (EPI) Technical Report

4.1　EPI Editorial Review [Ham]

Bill Ham conducted a review of EPI revision 14. Concerns were raised about the patent statement and Bill agreed to insert the correct patent statement. SBC was cited as a source of the patent statement to be used when no patents have been claimed. The latest revision of SPI-2 was cited as a source of the patent statement to be used when a patent has been claimed.

Bill noted that his goal is moving EPI toward first public review. In that vein, he accepted editorial comments as well as technical comments. Noticing the tedious progress, Bill suggested that an editing meeting be scheduled. June 12, 1998 in St. Petersburg Beach, FL with T11 was agreed to by the interested parties. John Lohmeyer agreed to contact Chuck Brill regarding meeting room arrangements and to set up a conference call for those who cannot attend in person.

Bill then changed the focus of the review to technical issues.

4.2 New Expander Proposal (98-158r0) [McGrath]

Jim McGrath reviewed his notes from the SPI-3 Working Group meeting (minutes in 98-146) regarding the desired contents of a proposal for managing bus expanders in an environment that uses both single- and double-edge clocking. He noted the critical need is to provide for the two clocking schemes and suggested other areas where notification to bus expanders might be useful (e.g., QAS, CRC for double-edge clocking, packetized, Fast-80, and possible others).

Jim reviewed the use of the IUTR (Information Unit Transfer Request, see 98-230r5) message for establishing communications parameters between initiators and targets. He then described the concept of adding a message communication specifically for new bus expanders that informs the bus expanders of the results of the successful negotiation. The group discussed the relationships between IUTR messages, the new expander message, and proposed communications test messages. Jim reviewed all the steps in the IUTR negotiation, bus expander notification, testing, and completion IUTR sequence.

Jim concluded by reviewing the bus expander's perspective. The bus expander is responsible for setting up the correct bus conditions (double-edge clocking, etc.) on each selection. The bus expander can use the information communicated in the new message to assist in meeting its responsibilities.

Jim agreed to provide a first revision of the proposal in time for the May 22, 1998 SPI-3 ad hoc meeting (see 98-146 meeting schedule).

4.3 REQ/ACK Counting (98-166r0) [Guss]

Dave Guss described the history of his proposal on counting REQ and ACK pulses (previously 97-216) and then described the new, one page proposal (98-166r0). The group discussed incorporating 98-166 into EPI or a draft standard (e.g., SPI-3) and agreed that it should not be incorporated in any formal committee documents, but rather remain a committee document. The group thanked Dave for his efforts.

5. Protocol Topics

5.1 LFP INQUIRY and MODE SENSE data format (97-241r2) [Lamers]

Larry Lamers requested that discussion of this item be deferred to the July meeting.

5.2 End to End CRC Proposal (97-283) [Basham]

George Penokie requested that this item be removed from this and future agenda.

6. Command Set Topics

6.1 SCSI Socket/SSL Services (SSS) Review () [Parker]

In the absence of Keith Parker, discussion of this item was deferred to the July meeting.

6.2 QErr Recovery in HAP (97-187) []

Based on the minutes of the March meeting, Ralph Weber reported that the issue in this area is a specific QErr code value that should not be used in multi-initiator environments.

6.3 High-Availability Profile (HAP) [Hagerman]

Doug Hagerman reported that no HAP topics were ready for discussion at this meeting.

6.4 GET CONFIGURATION command and feature descriptions for SPC-2 (98-169 and 98-170) [Sims]

Rob Sims presented an overview of the Get Configuration command (98-169r0) and distributed a proposal to add the Get Configuration command to SPC-2 (98-170). The group was generally receptive to adding the Get Configuration command to SPC-2. It was noted the 98-170 proposal includes another new command Get Event/Status Notification and changes to the Prevent/Allow Medium Removal command. Rob stated that the latter two items are not being proposed for addition to SPC-2 at this time and agreed to revise the proposal to remove them.

6.5 Making the Terminate Task Management Function Obsolete in SPI-3 [Snively]

Bob Snively asked if making Terminate Task obsolete would hurt anyone. Gene Milligan reported on a similar request he made on the T10 Reflector a few months ago. The Reflector request for opposition to making Terminate Task obsolete produced only one response. The response offered no existent use of Terminate Task while stating, "but, I can see a use for it."

Requests were made for a paper proposal. Gene referenced his letter ballot comment on forwarding of SPI-2, which was rejected due to inappropriate timing (see 98-108r2 Seagate comment number 127).

In the absence of any objections, the working group unanimously recommended that Terminate Task be made obsolete in SAM-2, SPC-2, SPI-3, FCP-2, and other SCSI standards that have not been forwarded.

6.6 FCP-2 [Snively]

Bob Snively asked if everybody had seen the document reviewing initial changes for FCP-2 (97-266). He noted that work on tape support may produce additional proposals for FCP-2, such as mechanisms for detecting out of order command delivery and status confirmation (i.e. the "ACK signal" on the status phase).

6.6.1 Enhancements for Tape (98-165r0) [Wanamaker]

The group was unable to address this item in time and it was deferred to the July meeting.

6.7 Proposal for Writable Device Identifiers (98-112r0) [Coughlan]

Ralph Weber reported that Tom Coughlan will not attend this meeting and asked that this item be deferred to the July meeting.

6.8 SAM-2 Issues [Weber]

Ralph Weber presented a couple dozen specific editor's notes from SAM-2 revisions 4 and 5 and solicited group input on the resolution of the issues they raise. All the issues were resolved and Ralph agreed to prepare SAM-2 revision 6 that reflects the group's decisions. Ralph also announced that SAM-2 revision 7 will have the object definitions replaced by equivalent English text.

6.9 Which port changes for SPC-2 (98-145r0) [Weber]

Ralph reported that substantial objections were raised reclaiming the vendor-specific bit. He discussed other options with the group and collected advice for the second revision of the proposal.

6.10 Add PLPB feature to mode page 19h (98-106r1) [Houlder]

Gerry Houlder presented a request for a new bit in the Fibre Channel Control mode page to manage an aspect of loop bypass capabilities.   The group discussed the current thinking of the Fibre Channel group regarding loop bypass. Concerns were raised about how multiple logical units in a single target would be handled with respect to the proposed bit, since the bit must apply to all logical units accessed via a given port. Following from this, the group recognized the need for a proposal for SPC-2 to cover the cases specifically identified. Gerry agreed to draft a proposal for the July working group meeting.

In the absence of any objections, the working group recommended that the plenary accept 98-106r1 for inclusion in FCP-2.

6.11 Persistent Reservations clarifications for SPC-2 (98-124r1) [Snively]

Bob Snively proposed several specific changes needed to clarify the operation of persistent reservations. The group suggested edits in the proposal. In the absence of any objections, the working group unanimously recommended that the plenary approve 98-124r2 (r1 as revised) for inclusion in SPC-2.

6.12 New Log Page Requirements (98-128r1) [Snively]

Bob Snively presented the "energy efficient" log page extension proposal, noting that revisions agreed at the last meeting have been made. Concerns were raised about the start-stop cycle lifetime information. Separating the start/stop cycle information based on power-off versus use of the Start/Stop was discussed and rejected. The group agreed to changes in the temperature log page.

In the absence of any objections, the working group recommended that 98-128r2 (r1 as revised) be approved for inclusion in SPC-2.

6.13 SCSI Extensions for Networked Attached Storage (98-163) [Houlder]

Gerry Houlder presented a review of issues identified relative to the development NASD (Network Attach Secure Devices) and SAN (Storage Area Network) devices. The need to deliver command-associated data with byte counts between 80 and 128 bytes was the main issue of current concern. Gerry presented four options for moving the command-associated data:

    1) Increase CDB size to 128 bytes,
    2) Allow both data-in and data-out phases on a single command,
    3) Use pairs of linked commands, or
    4) Some mechanism that matches pairs of commands without linking.

Reservations were expressed about the unnecessary restrictions in the proposed device model that preclude consideration of other options. Suggestions were offered for device model definitions that might avoid all of the options (since all of the options were distasteful to some).

In straw poll, the group showed a preference for option 1. But, requests for details of the device model persisted.

6.14 Command Behavior Under Reservations (98-164r0) [Snively]

Bob Snively asked for opinions regarding a proposal with respect to extent reservations (in Reserve and Release). After some discussion, the group agreed that extent reservations could be made obsolete for Reserve, Release, and Persistent Reservations. Bob agreed to announce the proposal at the T10 Plenary and on the T10 Reflector. Ralph Weber agreed to make the change in SPC-2 without specific instructions from a written proposal, should T10 decide to make the change at all.

7.　Other Topics

7.1　Optical Memory Card International Issues (98-151) [Smith]

Hayden Smith and Gene Milligan presented a review of the history of optical memory cards and standards efforts for them.

The group agreed to assign device type code 0Fh to ISO/IEC 14776-381 "SCSI Specification for Optical Card Reader/Writer". Ralph Weber took an action item to assign device type code 0Fh to ISO/IEC 14776-381 "SCSI Specification for Optical Card Reader/Writer" in SPC-2.

Concerns were raised about the use of sector/track addressing, with a preference for logical block addressing such as used by block devices. However, it was also noted that some SCSI device models use addressing similar to the sector/track method.

In tables 364 and 365, it was recommended that the byte numbers be changed from "0, 1, 2, and 3" to "n, n+1, n+2, and n+3".

In the discussion of mode pages, it was suggest that the WP bit be used to indicate read-only media, instead of medium-type code. The medium-type code was recommended as the mechanism for reporting the type of media supported by the hardware (apparently there are two non-interchangeable types of optical card memory).

Concerns were raised about the AT bit in the device-specific parameter in the mode page header. Generally, writing bits in the mode header has adverse effects with some operating systems. The group recommended creation of a Optical Memory Card Reader/Writer mode page (page code 03h), with the AT bit or equivalent being the first entry in the new mode page.

The group recommended that the Peripheral device page be removed from the list in table 376. It was also noted that the clause reference for the Medium type support page should be 9.3.3.4 not 8.3.3.4.

The Read Capacity command was discussed.

The group agreed to collect additional comments from the T10 Reflector. Gerry Houlder agreed to act as the manager for comment collection. The group agreed that comments must be delivered to Gerry by May 19, 1998.

7.2　Proposed Double Edge/CRC Signal Usage [McGrath]

Jim McGrath summarized discussions about using the previously undefined phases as the CRC_Valid signal and double edge identifier for bus expanders. The group provided Jim advice regarding the content of the specific

written proposal Jim agreed to prepare for the May 22 meeting. *(Chair's note: This discussion was a continuation of work to resolve the problem discussed in item 4.2 and occurred on the second day of the meeting, whereas the item 4.2 discussion occurred on the first day of the meeting.)*

8. Meeting Schedule

The next meeting of SCSI Working Group will be July 14-15, 1998 in Portland, ME at the Holiday Inn By the Bay (207-775-2311), hosted by Digital Equipment Corp. The meeting will begin at 9:00 a.m. on Tuesday.

9. Adjournment

The meeting was adjourned at 6:10 p.m. on Wednesday May 6, 1998.