Accredited Standards Committee*
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Date: March 24, 1998
Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber / John Lohmeyer
Subject: SCSI Working Group Meeting -- March 17-18, 1998
             San Diego, CA

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SPI-2 Topics
    4.1   0.5 pF capacitance balance for LVD SCSI (98-131) [Aloisi/Kapraun]
    4.2   LVD ESD Concerns [Kapraun]
    4.3   Removal of overlapped commands (duplicate queue tags) checking in SPI-2 (98-123r0) [Williams]
    4.4   Terminator Power voltage level (98-134) [Wallace]
    4.5   SPI-2 Proposed letter ballot response review (98-108r1) [Penokie]
        4.5.1   EIA - 485 versus ISO/IEC 8482 versus SPI-2 [Milligan]
        4.5.2   SPI-2 Differential Cable Common Mode Voltage Requirements (98-136r0) [Milligan]
5. Enhance Parallel Interface (EPI) Technical Report
    5.1   EPI Review [Ham]
6. Protocol Topics
    6.1   LFP INQUIRY and MODE SENSE data format (97-241r2) [Lamers]
    6.2   End to End CRC Proposal (97-283) [Basham]
7. Command Set Topics
    7.1   SCSI Socket/SSL Services (SSS) Review (98-130r0) [Parker]
    7.2   QErr Recovery in HAP (97-187) []
    7.3   High-Availability Profile (HAP) [Hagerman]
    7.4   GET CONFIGURATION command and feature descriptions for SPC-2 (98-xxx) [Sims]
    7.5   Proposal for Contingent Allegiance / ACA (97-225r2) [Milligan]
    7.6   Making the Terminate Task Management Function Obsolete [Milligan]
    7.7   FCP-2 [Snively]
    7.8   Proposal for Writable Device Identifiers (98-112r0) [Coughlan]
    7.9   SAM-2 Issues [Weber]
    7.10 Sundry Minor Enhancements for SPC-2 (98-115r2) [Weber]
    7.11 ASC/ASCQ for RBC Threshold Exceeded (97-265r1) [Weber]
    7.12 Add PLPB feature to mode page 19h (98-106r0) [Houlder]
    7.13 Persistent Reservation Questions (reflector messages) [Houlder]
    7.14 Persistent Reservations clarifications for SPC-2 (98-124/98-xxx) [Snively/Coughlan]
    7.15 New Log Page Requirements (98-128r0) [Snively]
8. Other Business
    8.1   Packetized Protocol review (97-230r6) [Penokie/Williams]
9. Meeting Schedule
10. Adjournment

Results of Meeting

1.   Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Monday March 17, 1998. He thanked Skip Jones and QLogic for arranging and hosting the meeting.

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

2.   Approval of Agenda

The following items were added to the draft agenda as carryover items from the SPI-3 working group meeting:

4.   SPI-2 Topics
4.1   0.5 pF balance capacitance for LVD SCSI (98-131) [Aloisi/Kapraun]
4.2   LVD ESD Concerns [Kapraun]
4.3   Removal of overlapped commands (duplicate queue tags) checking in SPI-2 [Williams]
4.4   Terminator Power voltage level [Wallace]
4.5   SPI-2 Proposed letter ballot response review (98-108r1) [Penokie]
4.5.1   EIA - 485 versus ISO/IEC 8482 versus SPI-2 [Milligan]
4.5.2   SPI-2 Differential Cable Common Mode Voltage Requirements [Milligan]

The draft agenda was approved with no other additions or changes.

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

8.1   Packetized Protocol review (97-230r6) [Penokie/Williams]

3.   Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 member-ship. 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. Tak Asami          V  Adaptec, Inc.            asami@itc.adaptec.com
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Mr. Edward Haske       O  CMD Technology           haske@cmd.com
Mr. Robert C. Elliott  O  Compaq Computer Corp.    relliott@compaq.com
Mr. Bill Galloway      O  Compaq Computer Corp.    Bill.Galloway@compaq.com
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Mr. Keith W. Parker      P  Diogenes SCSI          diogenes@europa.com
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Mr. Chris Nieves         P  Fujitsu                cnieves@fcpa.fujitsu.com
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Mr. Francesco Liburdi    O  Hollingsworth Corp.    liburdif@hollingsworth.
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Mr. George Penokie       P  IBM Corp.              gop@us.ibm.com
Mr. Dennis Moore         P  KnowledgeTek, Inc.     dmoore@ix.netcom.com
Mr. Dean Wallace         P  Linfinity Micro        75671.3443@compuserve.com
Mr. Robert Bellino       P  Madison Cable Corp.    robert_bellino@
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Mr. Brian McKean         P  Mylex Corp.            brianm@mylexboulder.com
Mr. Edward A. Gardner    P  Ophidian Designs       eag@ophidian.com
Mr. Gary Dickinson       V  QLogic Corp.           g_dickinson@qlc.com
Mr. James McGrath        A# Quantum Corp.          JMCGRATH@QNTM.COM
Mr. John A. Fobel        O  Rancho Technology, Inc.  johnf@rancho.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. Erich Oetting        P  Storage Technology Corp.  erich_oetting@stortek.com
Mr. Robert N. Snively    P  Sun Microsystems       bob.snively@sun.com
                            Computer Co
Mr. Vit Novak            A  Sun Microsystems, Inc.  vit.novak@sun.com
Mr. John Lohmeyer        P  Symbios, Inc.          lohmeyer@ix.netcom.com
Mr. Ralph O. Weber       A  Symbios, Inc.          roweber@acm.org
Mr. Steve Stefek         V  Symbios, Inc.          steve.stefek@symbios.com
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Mr. Jeffrey L.           P  Western Digital        Jeffrey.L.Williams@wdc.
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Mr. Gregory Kapraun      A  Western Digital        Gregory.D.Kapraun@wdc.com
                            Corporation

45 People Present

Status Key:  P   -  Principal
             A,A# - Alternate
             O   -  Observer
             L   -  Liaison
             V   -  Visitor
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4. SPI-2 Topics

4.1 0.5 pF capacitance balance for LVD SCSI (98-131) [Aloisi/Kapraun]

Greg Kapraun reviewed the history of concerns about the ability to meet the 0.5 pF capacitance balance require-
ment found LVD in SPI-2. Then, he reviewed a series of capacitance measurements for various host bus adapters,

disk drives, and other LVD products. He noted instances where the 0.5 pF capacitance balance requirements were not being met. Instances where the requirements have been met also were noted.

Next, Greg described his test setup for measuring the effects of capacitance imbalance. He noted that capacitance imbalances of 0.0, 1.0, 2.0, and 3.4 pF were used. Greg showed a dozen signal traces, and noted the effects of capacitance imbalance. He expressed opinion that 1.0 and 2.0 pF of imbalance have no or minimal effect on the signals.

In the absence of any objections, the group agreed to recommend to the plenary that the 0.5 pF |C1-C2| requirement in SPI-2 be increased to 1.5 pF and that 0.5 pF be recommended. George agreed to include this change in SPI-2 revision 20.

Larry Lamers requested that the bottom six entries in SPI-2 Table 29 fall under the 0.5 pF recommendation. The group then agreed to recommend that implementations strive for the minimum possible values for properties characterized in the table.

4.2 LVD ESD Concerns [Kapraun]

Greg Kapraun described problems where system hangs result from an electrostatic-static discharge to a disk drive in a test configuration (on a bench grounded by an unshielded cable). The same drive in single-ended mode only fails at higher voltages. He felt that the problem comes from a smaller number of grounds in the LVD cable. Greg did not request any changes in SPI-2; he only wanted people to think about their ESD grounding strategies for LVD devices. The group took no formal action on Greg's concerns.

4.3 Removal of overlapped commands (duplicate queue tags) checking in SPI-2 (98-123r0) [Williams]

Jeff Williams presented two specific changes in SPI-2 that have the effect of removing any requirements that SCSI devices check for duplicate queue tags. Concerns were raised that the proposal did not include in recommendations for what a device should do if it does check for duplicate queue tags and finds one. At the request of the group, Jeff agreed to delete the second of his specific changes, with the effect being that instruction is provided to devices that do check for and find duplicate queue tags. Concerns also were raised regarding the wording of a note that seemed to suggest that devices do check for duplicate tags. Jeff agreed to consider changing the note.

In the absence of any objections, the working grouped recommended that the plenary approve 98-123r1 (r0 as revised) for inclusion in SPI-2.

4.4 Terminator Power voltage level (98-134) [Wallace]

Dean Wallace asked that this item be deferred to the SPI-3 agenda in the May meeting.

4.5 SPI-2 Proposed letter ballot response review (98-108r1) [Penokie]

George Penokie reviewed the SPI-2 letter ballot responses, many but not all of which concerned typos.

In response to Seagate comment 32, it was agreed to copy the SBC wording to SPI-2, SPC-2, SAM-2, and other new standards containing a definition for the 'reserved' keyword.

The specification for parity error handling during Synchronous Data Transfer Request (SDTR) message transactions was revised to clarify the methods for handling retry failures so that the initiator is informed when the target gives up on retry attempts and the SDTR negotiation is declared a failure. The differences between the handling when the target started the SDTR negotiation and the initiator starts the SDTR negotiation also were segregated and clarified.

The group reviewed in detail the requirements intended to prevent bus release glitches. Ultimately, everybody agreed that suitable protection is provided against bus release glitches.

In the absence of any objections, the working group recommended that 98-108r2 be approved as resolving letter ballot comments and that SPI-2 rev 20 be approved as incorporating the letter ballot comments resolutions and be forwarded for further processing toward a first public review.

4.5.1   EIA - 485 versus ISO/IEC 8482 versus SPI-2 [Milligan]

Gene Milligan described a letter ballot comment requesting that the SPI-2 normative reference to EIA-485 be changed to a normative reference to ISO/IEC 8482. George and Gene noted that the letter ballot comment has been accepted and the reference will be to ISO/IEC 8482.

4.5.2   SPI-2 Differential Cable Common Mode Voltage Requirements (98-136r0) [Milligan]

Gene Milligan presented a comparison of EIA-485 and ISO/IEC 8482. Based on the information presented, the group agreed that Gene should prepare a list of specific changes in SPI-2 that will have the effect of removing over-lapping requirements between SPI-2 and ISO/IEC 8482. The group worked through the list and made several changes.

5.   Enhance Parallel Interface (EPI) Technical Report

5.1   EPI Review [Ham]

Bill Ham described what he called the final technical addition to EPI, switching expanders (98-135r0). The group discussed device addressing issues and data path switching aspects of the proposed new wording. Bill announced that the next revision of EPI will contain this information.

Bill requested time during the May meeting week to conduct an editorial review of EPI.

6.   Protocol Topics

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

Larry Lamers reported that a new revision of the proposal is available, but further discussion is dependent on the assignment of code values. Action on this item was deferred to the May meeting.

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

Rob Basham was unable to attend the meeting and action on this topic was deferred to the May meeting.

7.   Command Set Topics

7.1   SCSI Socket/SSL Services (SSS) Review (98-130r0) [Parker]

Keith Parker reported on plans for the SSS draft. He noted particularly the inclusion of Posix standard sockets in the plans. He described the services to be supported and a performance mechanism for using DMA transfers to move large blocks of remote procedure call data.

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

Tom Coughlan reported that the issue in this area is a specific QErr code value that should not be used in multi-initiator environments.

7.3   High-Availability Profile (HAP) [Hagerman]

Doug Hagerman requested that the target forwarding date be changed to November 1998.

7.4   GET CONFIGURATION command and feature descriptions for SPC-2 (98-xxx) [Sims]

At the request of the MMC-2 working group, this item was deferred to the May agenda.

7.5   Proposal for Contingent Allegiance / ACA (97-225r2) [Milligan]

Gene Milligan reported 97-225r1 was discussed in detail during the November meeting. 97-225r2, containing all the changes discussed during the November meeting, was posted on the web site shortly after the last meeting and is in the last mailing. Gene asked that 97-225r2 be accepted for inclusion in SPC-2 and SAM-2. The group recommended that the plenary accept 97-225r2 for inclusion in SPC-2 and SAM-2 on a vote of 6:2.

7.6   Making the Terminate Task Management Function Obsolete [Milligan]

George Penokie reported that he had rejected the Sun SPI-2 letter ballot requesting that the Terminate Task Management Function be made obsolete. George said that he would entertain a proposal to the same effect for inclusion in SPI-3.

7.7   FCP-2 [Snively]

Bob Snively reported that no work has been done on FCP-2. He asked that this item be included in future agenda.

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

Tom Coughlan presented a proposal that helps host software provide names for devices that are easier for humans to work with than world wide identifiers. Concerns were raised about having Mode Select cause changes in Inquiry data. The use of variable length mode pages also produced concerns. Some agreement was reached regarding the use of new commands to set and read the device name described by Tom. Tom agreed to revise the proposal based on working group comments and bring the revision to the May working group meeting.

7.9   SAM-2 Issues [Weber]

Ralph Weber reported that SAM-2 revision 4 will be in the next mailing. He noted the presence of a "Future Plans" section immediately following the Revision History and asked the group to review it. He described concerns about the object definition mechanism and stated a desire to change the object definitions to English. Concerns were raised about changing the contents of SAM-2 in ways that would force changes in other standards, such as SBC and SPC. He agreed that forcing changes in other standards would not be beneficial. Ralph thanked the group for their advice and promised to return with more in May.

7.10 Sundry Minor Enhancements for SPC-2 (98-115r2) [Weber]

Ralph Weber presented five minor issues and proposed corrections for SPC-2. Concerns were raised about the reporting of errors in reserved fields in the sense key specific sense data and corrections were made in the proposal. The statement of a requirement in the proposed changes to note 53 was discussed and editorial changes were made. In the absence of any objections, the working group recommended approval of 98-115r3 (r2 as revised) for inclusion in SPC-2.

7.11 ASC/ASCQ for RBC Threshold Exceeded (97-265r1) [Weber]

Issues were raised about the use of vendor-unique ASCQ values (80h - FFh) under the 5Dh ASCQ. Ralph Weber agreed to review the limitations with the RBC group and bring a revised proposal to the group. The review was completed and the ASCQ value range was reduced to 10h to 7Fh. Ralph agreed to revise the proposal. In the absence of any objections, the working group recommended approval of 97-265r2 (r1 as revised) for inclusion in SPC-2.

7.12 Add PLPB feature to mode page 19h (98-106r0) [Houlder]

Gerry Houlder presented a proposal that a Prevent Loop Port Bypass flag be added to the Fibre Channel mode page. Concerns were raised about being unable to store the mode page on the media. Gerry agreed to prepare a new revision based on the comments from the working group for consideration at the May meeting.

7.13 Persistent Reservation Questions (reflector messages) [Houlder]

Gerry Houlder reported that his reflector comments on persistent reservations have been rolled in to Bob Snively's proposal, 98-124. The issues will be discussed under 7.14.

7.14 Persistent Reservations clarifications for SPC-2 (98-124/98-xxx) [Snively/Coughlan]

Bob Snively proposed several specific changes needed to clarify the operation of persistent reservations. The group commented on the proposed changes. Bob agreed to revise the proposal and bring it to the May meeting for further consideration.

Tom Coughlan described a change in the reporting of duplicate persistent reservations (98-140r0). The change prohibits the reporting of duplicate persistent reservations from the same initiator. In the absence of any objections, the group recommended approval of 98-140r0 for inclusion in SPC-2.

7.15 New Log Page Requirements (98-128r0) [Snively]

Bob Snively proposed addition of log pages for device power-on and temperature information. The objective of both log pages was providing information that the host operating system can use to minimize power consumption. The group discussed the proposed mechanisms and how best to meet the stated goals. Bob agreed to revise the proposal based on working group comments and bring it to the May meeting for further consideration.

8.   Other Business

8.1   Packetized Protocol review (97-230r6) [Penokie/Williams]

George Penokie reviewed the changes made as a result of the SPI-3 working group discussion. George noted that editorial SPI-3 working group comments will be folded in r6 before it is officially distributed. George Penokie moved that the working group recommended that 97-230r6 be approved for inclusion in SPI-3. Gerry Houlder seconded the motion. The motion passed 7:2:2.

9.   Meeting Schedule

The next meeting of SCSI Working Group will be May 5-6, 1998 in Colorado Springs, CO at the Doubletree World Arena Hotel (719-576-8900), hosted by Symbios, Inc. The meeting will begin at 9:00 a.m. on Tuesday.

10. Adjournment

The meeting was adjourned at 4:50 p.m. on Wednesday March 18, 1998.