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

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Reply to:	John Lohmeyer

To: T10 Membership
From: Ralph Weber / George Penokie
Subject: SPC-2 Working Group Meeting -- January 28, 1999
Seaside, CA

Agenda

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Results of Meeting

1. Opening Remarks

George Penokie, the T10 Vice-Chair, called the meeting to order at 9:15 a.m., Thursday, January 28, 1999. He thanked Larry Lamers of Adaptec for hosting the meeting. George reported that T10 Chair John Lohmeyer would be unable to attend the meeting due to a family emergency.

Owing to the small attendance, introductions were brief and attendance was taken by the chair.

2. Approval of Agenda

The agenda was drafted and approved. No agenda items were added during the course of the meeting.

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:

Name	S	Organization	Electronic Mail Address
Mr. Lawrence J. Lamers	P	Adaptec, Inc.	ljlamers@ieee.org
Mr. Robert C. Elliott	P	Compaq Computer Corp.	Robert.Elliott@compaq.com
Mr. Ben-Koon Lin	A	Fujitsu (FCPA)	blin@fcpa.fujitsu.com
Mr. George Penokie	P	IBM Corp.	gop@us.ibm.com
Mr. Ralph O. Weber	A#	LSI Logic Corp.	roweber@acm.org
Mr. Mark Evans	P	Quantum Corp.	mark.evans@quantum.com
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Gerald Houlder	A	Seagate Technology	Gerry_Houlder@notes.seagate.com
Mr. Robert N. Snively	P	Sun Microsystems Computer	bob.snively@sun.com

9 People Present

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

4. SPC-2 Topics

4.1 REPORT LUNS Should Ignore Unit Attentions Conditions [Snively]

Bob Snively asked the group to consider the possibility of making the REPORT LUNS command behave like the INQUIRY command with respect to unit attention conditions. Ralph Weber reported that the REPORT LUNS command had not been made a vital product data page for reasons related to desires not to have it follow the INQUIRY command behavior. George Penokie asked that he be given time to discuss the proposal with his engineers, but was otherwise favorably disposed toward the proposal.

Bob agreed to write a formal proposal for consideration at the next meeting. The group offered Bob advice regarding the wording of the proposal. Reference was made to the specific applicable words in the INQUIRY command definition. Concerns were raised about the choice between ignoring just unit attention conditions or all CHECK CONDITION situations except those directly related to the command. Bob reserved comment on what will appear in the actual proposal.

The group expressed approval for the concept and tentatively agreed to recommend to proposal at the next working group meeting.

4.2 REPORT LUNS State Change ASC/ASCQ [Snively]

Bob Snively asked what ASC/ASCQ a device should use to report changes in the data returned by the REPORT LUNS command. Ralph Weber indicated that the REPORTED LUNS DATA HAS CHANGED (3Fh/0Eh) had been added for EPI usage by bridging expanders in situations like this. Bob asked why that ASC/ASCQ didn’t appear in SPC-2 revision 7 and Ralph promised to correct the oversight.

George Penokie suggested that the STATE CHANGE HAS OCCURRED (6Bh/00h) code was added for SCC devices to use in these situations. The group discussed which of the codes Bob should propose for addition to the

definition of the REPORT LUNS command, and agreed that REPORTED LUNS DATA HAS CHANGED should be used.

4.3 Inquiry Bits for SPI-3 (98-180r5) [Penokie}

George Penokie asked that the bits described in T10 approved 98-180r5 be added to Standard Inquiry Data byte 56 in SPC-2. Ralph Weber explained that he had not included the bits because the T10 motion didn't mention changes to SPC-2 and he was unaware that there were in the proposal, but agreed that the change could be considered editorial if the group felt that such an action would be appropriate.

Larry Lamers asked that the CRCS bit be expanded to a 2-bit field so that multiple CRC algorithms might be supported. Mark Evans questioned the wording of the definition of CRCS, noting that 'DT' is not defined in SPC-2. The group agreed that the CRCS definition should reference SPI-3, where DT is defined. George noted that the QAS (Quick Arbitrate and Select) bit in 98-180r5 had since been changed to QA (Quick Arbitrate). Bob Snively raised questions about the terms 'single-transition' and 'double-transition' in the Clocking field, and was sent to SPI-3 as a reference.

After all this discussion, George agreed to draft a new proposal for changes to the Standard Inquiry Data and to bring that proposal to the next working group meeting for consideration.

4.4 Obsolete 32-bit Bus Inquiry Bits [Elliott]

Rob Elliott questioned the presence of several bits in the Standard Inquiry Data that are specific to the 32-bit parallel SCSI bus, which the last T10 meeting voted to make obsolete. Ralph responded that he decided not to change the bits because he felt certain that this working group meeting would give him expert guidance regarding the needed changes. The group fulfilled Ralph's expectations, making several edits in the Standard Inquiry Data definition table as well as recommending substantial changes to the content of clause 7.4.2.

It was noted that all references to SIP must be changed to SPI-3, and there are several references to SIP in SPC-2. Ralph agreed to make a global search and replace on SIP. Likewise, Ralph agreed to change SPI to SPI-3.

4.5 Unexpected Bus Free Timer (99-102r0) [Lamers]

Larry Lamers presented a proposal to add a timer defining how long a bus can experience a lack of REQ and ACK signals before the target must do an unexpected bus free operation. Bob Snively questioned the use of the Control mode page for the timer, suggesting that the protocol-specific mode page (18h or 19h) would be a better location. Gerry Houlder suggested the Disconnect-Reconnect mode page as another alternative. The pros and cons of the various mode pages were presented by all present.

Gerry Houlder noticed that the proposed new timer had almost the same properties as the Bus Inactivity timer, already defined in the Disconnect-Reconnect mode page. Larry and George disagreed with this opinion.

Concerns were raised about whether to use the port protocol-specific mode page (19h) or the LUN protocol-specific mode page (18h). After much discussion, George concluded that the port protocol-specific mode page (19h) would be more appropriate. The exact bytes to use in the page were discussed and Larry agreed to prepare a revised proposal for the next working group meeting to consider.

Larry was very concerned that use of the port protocol-specific mode page (19h) would be confusing to software, since the until now the page has been used only by Fibre Channel devices. Larry insisted that a coded value identifying the protocol in use (fibre channel, parallel, etc.) be added to the page. Ralph Weber agreed to write a proposal to this effect.

It was noted that this proposal concerns one of the functions needed to implement domain validation.

4.6 Echo Mode for READ/WRITE BUFFER (98-184r5) [Lamers]

Larry Lamers described the changes requested by the SPI-3 working group in his proposed extensions to the READ BUFFER and WRITE BUFFER commands to meet the needs of domain validation. This group requested no further changes and agreed to recommend T10 approval of the proposal.

4.7 Optical Memory Cards [Weber/Milligan]

Ralph Weber noted that he has added the ASC/ASCQ values used by the optical memory cards draft ISO standard to his database, but has not yet added them to the tables in SPC-2. He explained that adding a new column to the SPC-2 tables will cause more text descriptions to word wrap. George Penokie suggested changing the font size to 9 point. Ralph suggested that the graphics command set column could be eliminated and Gene Milligan suggested removing the communications command set column. The latter suggestion was opposed because the communications command set has not yet been made obsolete in SCSI-3. George felt that changing the point size should be the first solution attempted. Ralph agreed to change the font size in the next SPC-2 draft.

4.8 Version Reporting (99-110r0 and 95-349r0) [Milligan]

Gene Milligan described the changes proposed in 99-110r0 for the ISO/IEC, ECMA, and ANSI Version fields in the Standard Inquiry Data. George Penokie and Bob Snively noted how Gene's proposal recovered as useful (but currently reserved) the version code values that were never used by the ISO/IEC and ECMA codes. Gene noted that the current version field scheme will not allow ISO/IEC representation of SPC-3 support, when that need arises. Ralph Weber noted that many entries are missing from the code value table in Gene's proposal and Gene agreed to review the code values.

Gene expressed concern about the remainder of the 99-110r0 proposal. First, he felt that using all the remaining reserved bytes in the Standard Inquiry Data for standard version information was not the best use of the available space. However, all the remaining reserved bytes would be needed (and maybe more) to represent the standards support information for the several standards normally implemented by a SCSI device, if ASCII text were to be used as requested by the last working group. Second, Gene felt that numerically coded (machine readable) values would be more useful to device drivers than ASCII text. Ralph Weber contested this point, indicating that most users of the information would be humans, for whom text is better than numbers.

Gene then presented the "old" coded value proposal in 95-349r0. The group faulted this proposal as too complex, redundant, and difficult to understand. The group then worked to develop a coded value proposal acceptable to all present. It was agreed that each coded value would require 2 bytes, because there are not enough code values in one byte to represent all anticipated standard/revision combinations. It was agreed to divide the 2 bytes in to 3 fields: a) standard group (protocol, architecture, commands, etc.), b) standard name (SPI, SPI-2, SPI-3, etc.), and c) revision. It was further agreed to explicitly identify the revisions that can be represented by a coded value, instead of simply letting the revision field contain a revision number.

Gene agreed to prepare a new revision of 99-110 for the next working group, reflecting the agreements reached in this meeting.

4.9 Fairness on Parallel Bus [Houlder]

Gerry Houlder asked that the group consider methods for disabling the fairness functions recently added to SPI-3. As a starting point, Gerry proposed using the Fair Arbitration Read (FARd), Fair Arbitration Write (FAWrt), and Fair Arbitration Status (FAStat) bits already defined in the Disconnect-Reconnect mode page. The group attempted to learn how these bits were introduced to the standard and how they are intended to be used. It was assumed that the bits were introduced to support Fibre Channel, but no one could clearly show how the bit could be used by a Fibre Channel device to achieved the described results.

The group discussed how a parallel SCSI device might be instructed to interpret the bits. Since there is only one fairness control in SPI-3, the group needed to chose between selecting just one bit to represent all three cases, or requiring that all three bits be given the same value. Using all three bits with the same value was the group's preferred option.

Gerry agreed to prepare a written proposal for the next meeting reflecting the consensus of this meeting.

4.10 Review of SPC-2 Rev 7 [Weber]

The group reviewed the first 50 pages of SPC-2 revision 7. In addition to the changes already noted, the need for corrections in the patent statement and several editorial corrections in the model description of persistent reservations were uncovered by the group. Ralph agreed to prepare SPC-2 revision 8 based on the editorial suggestions from this meeting.

5. Meeting Schedule

The next meeting of the SCSI Working Group (which will include SPC-2 topics) will be Wednesday, March 10, 1999 from 9 a.m. to 6 p.m. at the Radisson Penn Harris hotel in Camp Hill, PA hosted by AMP.

6. Adjournment

The meeting was adjourned at 5:10 p.m. on Thursday, January 28, 1999.