

Accredited Standards Committee*
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Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- July 10&12, 2000
Colorado Springs, CO

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SCSI Architecture Model Topics
 - 4.1 SAM-2 Review [Weber]
 - 4.2 Comments on SAM multi-port model (rev 8 vs. rev 11) (99-265) [Ericson/Weber]
 - 4.3 Multi-Port Model Discussion (00-268r0) [Penokie]
 - 4.4 Target-Controlled Congestion Relief (00-127) [Elliott]
 - 4.5 Task Aborted - SAM changes (00-229r1) [Binford]
 - 4.6 SAM-2 Task Identifier Readability Enhancements and Addition of Nexus to SAM-2 (00-140r2) [Weber]
 - 4.7 SAM-2 Byte Count That's Really Buffer Size (00-213r1) [Weber]
 - 4.8 Multi-port vs. Multi-target SCSI Devices (00-265) [Gardner]
 - 4.9 Long SCSI Device IDs (00-279) [Gardner]
5. SCSI Protocol Topics
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6. Command Set Topics
 - 6.1 Device locks command (98-225) [Houlder]
 - 6.2 Object-Based Storage Devices (99-315) [Milligan]
 - 6.3 Suggested changes to OSD model in osd-r01 (00-262) [Hafner]
 - 6.4 Asymmetrical SCSI Behavior (00-232) [Snively]
 - 6.5 SBC-2 issues (00-248) [Elliott]
 - 6.6 Discussion of editorial changes to Access Controls, 99-245r9 (00-261r0) [Hafner]
 - 6.7 SCSI Socket Services status report (00-282) [Parker]
 - 6.8 Transport ID for Access Controls (00-287r0) [Hafner]
 - 6.9 SBC-2 [Milligan]
 - 6.10 SES Amendment number 1 letter ballot comment resolution [Elliott]
7. New Business
8. Meeting Schedule
9. Adjournment

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NCITS Secretariat, Information Technology Industry Council (ITI)
1250 Eye Street NW, Suite 200, Washington, DC 20005-3922
Email: ncits@itic.org Telephone: 202-737-8888 FAX: 202-638-4922

Results of Meeting

1. Opening Remarks

George Penokie, the T10 Vice-Chair, called the meeting to order at 1:00 p.m., Monday, July 10, 2000. He thanked John Lohmeyer and LSI Logic for 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 draft agenda was approved with the following changes:

- 6.7 SCSI Socket Services status report (00-282) [Parker]

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

- 4.9 Long SCSI Device IDs (00-279) [Gardner]
- 6.8 Transport ID for Access Controls (00-287r0) [Hafner]
- 6.9 SBC-2 [Milligan]
- 6.10 SES Amendment number 1 letter ballot comment resolution [Elliott]

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. Ron Roberts	A	Adaptec, Inc.	Ron_Roberts@adaptec.com
Mr. Matt Wakeley	O	Agilent Technologies	matt_wakeley@agilent.com
Mr. Bill Mable	P	Amphenol Interconnect	mableaipc@aol.com
Mr. Bill Galloway	P	BREA Technologies, Inc.	billg@breatech.com
Mr. Robert Snively	P	Brocade Communications	rsnively@brocade.com
Mr. Edward Haske	P	CMD Technology	haske@cmd.com
Mr. Robert C. Elliott	P	Compaq Computer Corp.	Rob_Elliott@compuserve.com
Mr. Neil Wanamaker	P	Crossroads Systems, Inc.	ntw@crossroads.com
Mr. John Tyndall	A	Crossroads Systems, Inc.	jtyndall@crossroads.com
Mr. Titkwan Hui	A.	Dallas Semiconductor	tk.hui@dalsemi.com
Mr. Keith W. Parker	V	Diogenes SCSI	diogenes@europa.com
Mr. Gary S. Robinson	P	EMC	robinson_gary@emc.com
Mr. Bob Nixon	V	Emulex	bob.nixon@emulex.com
Mr. I. Dal Allan	P	ENDL	endlcom@acm.org
Mr. Ralph O. Weber	A	ENDL Texas	roweber@acm.org
Mr. Eugene Lew	P	Fujitsu	elew@fcpa.fujitsu.com
Mr. Mike Fitzpatrick	O	Fujitsu	mfitzpatrick@fcpa.fujitsu.com
Mr. Nathan Hastad	P	General Dynamics	nathan.j.hastad@gd-is.com
Mr. Stewart Wyatt	P	Hewlett Packard Co.	stewart_wyatt@hp.com
Mr. Thomas J. Kulesza	P	Honda Connectors	tkulesza@hondaconnectors.com

Mr. George O. Penokie	P	IBM Corp.	gop@us.ibm.com
Mr. Robert Basham	O	IBM Corp.	robbyb@us.ibm.com
Dr. Jim Hafner	V	IBM Corp.	hafner@almaden.ibm.com
Mr. Pak Seto	V	Interphase Corp.	pseto@iphase.com
Mr. Dennis Moore	P	KnowledgeTek, Inc.	dmoore@ix.netcom.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeyer@t10.org
Mr. Charles Binford	A	LSI Logic Corp.	Charles.Binford@lsil.com
Mr. Eskild Arntzen	V	LSI Logic Corp.	eskind.arntzen@lsil.com
Mr. Glenn Laskie	V	LSI Logic Corp.	gloskie@lsil.com
Mr. Dave Ford	O	Network Appliance	dford@orca.com
Mr. Edward A. Gardner	P	Ophidian Designs	eag@ophidian.com
Mr. Skip Jones	P	QLogic Corp.	sk_jones@qlc.com
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. Jim Coomes	V	Seagate Technology	jim_coomes@notes.seagate. com
Mr. Erich Oetting	P	Storage Technology Corp.	erich_oetting@stortek.com
Mr. David Peterson	O	StorageTek Network Sys. Grp	dap@network.com
Mr. Kenneth Moe	P	Sun Microsystems, Inc.	kenneth.moe@sun.com
Mr. Vit Novak	A	Sun Microsystems, Inc.	vit.novak@sun.com
Mr. Paul D. Aloisi	P	Texas Instruments	Paul_Aloisi@ti.com
Mr. Jerry Rossman	V	The JPM Co.	jrossman@jpmco.com

42 People Present

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

4. SCSI Architecture Model Topics

4.1 SAM-2 Review [Weber]

Ralph Weber reported that no work has been done on SAM-2 since the last meeting.

4.2 Comments on SAM multi-port model (rev 8 vs. rev 11) (99-265) [Ericson/Weber]

In the absence of George Ericson, Ralph Weber asked that this topic be dropped from future agendas.

4.3 Multi-Port Model Discussion (00-268r0) [Penokie]

George Penokie presented a preliminary proposal for modeling multi-port devices as multi-target devices. The group accepted the general direction of the proposal and agreed on some naming conventions. How to handle the Task Manager was discussed and George proposed putting a task router in the target port. George agreed to bring a new revision to the next meeting.

4.4 Target-Controlled Congestion Relief (00-127) [Elliott]

Rob Elliott asked that this topic be deferred to the next meeting.

4.5 Task Aborted - SAM changes (00-229r1) [Binford]

Charles Binford presented a proposal to introduce the TASK ABORTED status as revised based on comments from the last meeting (00-229r1). Substantial problems were found in the proposed specification for the operation of the persistent reservation PREEMPT AND ABORT service action. Charles agreed to prepare a new revision correcting the PREEMPT AND ABORT issues as well as other issues discovered during the discussion.

4.6 SAM-2 Task Identifier Readability Enhancements and Addition of Nexus to SAM-2 (00-140r2) [Weber]

Ralph Weber presented a revised proposal to add Nexus to SAM-2. The group asked that the concept of 'perspective' should be removed from the proposal and Ralph agreed to bring a new revision to the next meeting.

4.7 SAM-2 Byte Count That's Really Buffer Size (00-213r1) [Weber]

Ralph Weber presented a proposal to change the naming and description of the 'command byte count' so that the object represents the application client buffer size. Several minor corrections were requested. Ralph Weber moved that 00-213r2 (r1 as revised) be approved for inclusion in SAM-2. Bob Snively seconded the motion. In the absence of any objections, the motion passed unanimously.

4.8 Multi-port vs. Multi-target SCSI Devices (00-265) [Gardner]

Ed Gardner asked that this item be removed from the agenda in favor of the proposal put forward by George Penokie (see item 4.3).

4.9 Long SCSI Device IDs (00-279) [Gardner]

Ed Gardner presented a proposal whose effect would be to allow initiator identifiers and target identifiers to have a variable length (as opposed to the current maximum of 64 bits). Concerns were raised about the use of the EXTENDED COPY Inline data area for long SCSI Device ID data. Several alternatives were proposed. For the XOR commands, use of the currently defined TABLE ADDRESS bit was proposed and use of the variable length CDB was discussed as an alternative. The table appeared to be preferred. The concept of defining and using an 'alias table' seemed attractive and Ed felt that it should be investigated. Ed stated that one or more proposals would be brought to the next meeting.

5. SCSI Protocol Topics

5.1 FCP-2 Letter Ballot Comments Resolution (00-150) [Snively]

The group discussed the problem raised in 00-260r1 as it relates to FCP-2. The goal was to resolve the issue as a part of the processing the letter ballot comments on FCP-2. Additional problems were raised relative to the use of CRN (Command Reference Number). Although CRN is defined for use on a per logical unit basis, at least one system implementation all but requires use of CRN on a per target basis.

Options based on the solution proposed in 00-260r1 and enhancements to CRN were discussed and revised. Bob Nixon, Bob Snively, and Dave Baldwin were tasked to develop a specific proposal for consideration at the next Joint T10/T11.3 Working Group meeting (in August). Carl Zeitler asked that the proposal also be presented to the FC-FS (Fibre Channel Framing and Signaling) working group.

Bob Snively reviewed the changes required in FC-FS as a result of the FCP-2 letter ballot review (00-230r3). The group requested that one of the proposed FC-FS changes be removed and Bob agreed to create a new revision of the proposal.

Bob Snively reviewed the revised FCP-2 annex D (Error detection and recovery examples) contained in 00-266r0. Carl Zeitler described 00-266r0 as a faithful transcription of his proposal, only needing some editorial corrections. Bob collected the editorial corrections for 00-266r1.

5.2 SVP Review [Gardner]

Ed Gardner reviewed the status of the SVP (SCSI VI Protocol) project (00-278r0).

5.3 Margin Control (99-264) [Lamers]

This topic was discussed in the SCSI Domain Validation working group meeting (minutes in 00-284).

6. Command Set Topics

6.1 Device locks command (98-225) [Houlder]

Gerry Houlder reported that the group that developed the device locks proposal is now working on a totally different proposal to do an equivalent function. Gerry asked that this topic be dropped from future agendas, noting that new proposals will be brought forward when they are ready.

6.2 Object-Based Storage Devices (99-315) [Milligan]

Gene Milligan reported there will be an OSD working group meeting on Thursday (minutes in 00-296).

6.3 Suggested changes to OSD model in osd-r01 (00-262) [Hafner]

Jim Hafner and Gene Milligan agreed that this topic will be deferred to the OSD working group meeting on Thursday (minutes in 00-296).

6.4 Asymmetrical SCSI Behavior (00-232) [Snively]

Bob Snively presented an overview of the asymmetrical controller behavior proposal (00-264r0). He also reviewed the first few pages of current draft of the specific proposal (00-232r1). Bob stated that future work on the proposal will be handled by Ken Moe of Sun Microsystems.

6.5 SBC-2 issues (00-248) [Elliott]

Rob Elliott presented a collection of issues with the content of SBC-2 (00-248r0). Rob agreed to update the document showing decisions recommended by the group.

6.6 Discussion of editorial changes to Access Controls, 99-245r9 (00-261r0) [Hafner]

Jim Hafner reviewed the changed text approved in 99-245r9 noting that changes were approved for SPI-4 and FCP-2 among others. He noted that editors of the affected protocol documents had requested that information that 99-245r9 had specified as going in protocol standards be placed in SPC-3 instead. He then described how 00-261r0 produces that result. George Penokie moved that 00-261r0 be accepted as an amendment to 99-245r9. Erich Oetting seconded the motion. In the absence of any objections, the motion passed unanimously.

6.7 SCSI Socket Services status report (00-282) [Parker]

Keith Parker reported on the status of socket services (00-282). He noted that he is working on an implementation of SSS for Linux, but there are issues with Linux support for 16 byte CDBs. Gerry Houlder asked Keith to push for

Linux support of variable length CDBs. In response to questions from the group, Keith noted that draft standards proposals would not be brought to the group until the implementation is nearer completion.

6.8 Transport ID for Access Controls (00-287r0) [Hafner]

Jim Hafner presented problems in Access Controls based on complex SCSI Domain configurations particularly as related to the parallel SCSI bus. Jim agreed to prepare a specific proposal based on the comments from the group.

6.9 SBC-2 [Milligan]

Gene Milligan walked the group through the changes in revision 0 of SBC-2. The group discussed wording changes needed to correct editor detected "defects" in 99-258r2. In the absence of any objections, the group unanimously recommended acceptance of SBC-2 revision 0 as the committee working draft.

6.10 SES Amendment number 1 letter ballot comment resolution [Elliott]

John Lohmeyer announced that the letter ballot on forwarding the SES Amendment number 1 passed on a vote of 32:1:0:6=39 (see 00-019 for complete letter ballot results). Rob Elliott presented changes to the SES Amendment number 1 in response to the letter ballot comments. The group discussed the proposed changes.

Ralph Weber moved that the comment resolution for SES Amendment number 1 be approved. Paul Aloisi seconded the motion. Gene Milligan requested that the amendment have modified pages containing the corrections attached. Rob stated that the amendment is patterned on the T11 FC-PH amendments, which do not include correction pages. In the absence of any objections, the motion passed unanimously.

7. New Business

No new business was brought before this meeting.

8. Meeting Schedule

The Joint T10/T11.3 Working Group asked that the September CAP meeting occupy all day Monday without a Joint T10/T11.3 meeting in the morning.

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Monday, September 11, 2000 from 9 a.m. to 6 p.m., then reconvening Wednesday, September 13, 2000 from 9 a.m. to 7 p.m. (or until all agenda items are completed). The meeting will be at the Hilton Waterfront Hotel in Huntington Beach, CA (714) 960-7873, hosted by QLogic Corp.

9. Adjournment

The meeting was adjourned at 6:45 p.m. on Wednesday July 12, 2000.