

Accredited Standards Committee*

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Date: September 16, 2004

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- Sept 14-15, 2004
Nashua, NH

Agenda

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 - 5.2.5 SPC: Time Of Day Settings (04-271) [Butt]
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 - 5.2.7 SPC-3 Pre Letter Ballot statement from the editor
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 - 5.2.9 SPC-3 Power conditions wording changes (04-282) [Elliott]
 - 5.2.10 SPC-3 Device Type definition (04-291) [Weber]
 - 5.2.11 SPC-3 Self-Test and I_T nexus loss (04-295) [Weber]
 - 5.2.12 Remove PREVENT ALLOW MEDIUM REMOVAL command from SPC-3 (04-191) [McFerrin]
 - 5.2.13 SPC-3: Mandatory REPORT LUNS Support (04-313) [Peterson]
 - 5.3 SBC-2 Proposals
 - 5.3.1 Background Media Scan (04-198) [Houlder]
 - 5.3.2 SBC-2 Revision 15 T10 letter ballot comment resolution as of revision 15a (04-274) [Elliott]
 - 5.4 SES-2 Proposals
 - 5.5 Other Proposals
6. SCSI Protocol Topics
 - 6.1 FCP-3

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INCITS Secretariat, Information Technology Industry Council (ITI)

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

Email: incits@itic.org Telephone: 202-737-8888 FAX: 202-638-4922

6.1.1 Return CHECK CONDITION when FCP_DL too small (03-393) [Oetting]

7. Old Business
8. New Business
 - 8.1 ATA Command Pass-Through (04-262) [Stevens]
 - 8.2 Project Proposal: OSD-2 New Project Proposal (04-173) [Weber]
 - 8.3 Project Proposal for SCSI Primary Commands - 4 (SPC-4) (04-252) [Weber]
 - 8.4 Common Storage Management Interface (04-284) [Fairchild]
 - 8.5 Project Proposal: SCSI Media Changer Command Set -3 (SMC-3) (04-279) [Banther]
9. Review of Documents
 - 9.1 SRP-2 Review (SRP-2) [Simpson]
10. Review of Recommendations to the Plenary
11. Meeting Schedule
12. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 1:30 p.m. Tuesday, September 14, 2004. He thanked Zane Daggett of Hitachi Cable Manchester for hosting the meeting.

As is customary, the people attending introduced themselves.

2. Approval of Agenda

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

- 8.5 Project Proposal: SCSI Media Changer Command Set -3 (SMC-3) (04-279) [Banther]

The following items were added/revised during the course of the meeting:

- 4.7 SAM-3 SPC-3 SBC-2 Implicit HEAD OF QUEUE and ORDERED task attributes (04-310) [Elliott]
- 5.2.13 SPC-3: Mandatory REPORT LUNS Support (04-313) [Peterson]

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
Ms. Pat Thaler	P	Agilent Technologies
Mr. Haluk Aytac	V	AMCC
Mr. Robert Snively	P	Brocade Comm. Systems, Inc.
Mr. David Peterson	P	CNT
Mr. John Tyndall	A	Crossroads Systems, Inc.
Mr. James A. Lott, Jr.	P	Dallas Semiconductor
Mr. Kevin Marks	P	Dell, Inc.
Mr. David Black	A	EMC Corp.

Mr. Kenneth Hirata	A	Emulex
Mr. Robert H. Nixon	P	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Neil Wanamaker	V	Finisar
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Nathan Hastad	P	General Dynamics
Mr. Michael Banther	V	Hewlett Packard Co.
Mr. Vinod Bhat	V	Hewlett Packard Co.
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Steven Fairchild	V	Hewlett Packard Co.
Mr. Zane Daggett	P	Hitachi Cable Manchester
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. George O. Penokie	P	IBM / Tivoli Systems
Mr. Kevin Butt	V	IBM Corp.
Mr. Robert Sheffield	P	Intel Corp.
Mr. Brad Besmer	V	LSI Logic Corp.
Mr. Steve Johnson	V	LSI Logic Corp.
Mr. John Lohmeyer	P	LSI Logic Corp.
Mr. Mark Evans	P	Maxtor Corp.
Ms. Emily Hill	P	Microsoft Corp.
Mr. Greg Elkins	V	QLogic Corp.
Mr. Paul Entzel	P	Quantum Corp.
Mr. Jim Coomes	A	Seagate Technology
Dr. Paul Suhler	V	Seagate Technology
Mr. William Martin	V	Sierra Logic
Mr. Charles Binford	A	Sun Microsystems, Inc.
Mr. Curtis Stevens	P	Western Digital
Mr. Nigel Hart	V	Xyratex
Mr. Rich Ramos	V	Xyratex

37 People Present

Status Key: P - Principal
 A,A# - Alternate
 AV - Advisory Member
 L - Liaison
 V - Visitor

4. SCSI Architecture Model Topics

4.1 SAM-4:Converting to UML part 1 (04-023) [Penokie]

George Penokie requested that discussion of this topic be deferred to the next meeting.

4.2 SAM-3 Multiple Target Port Model (04-088) [Binford]

This topic was discussed under item 4.3.

4.3 Response to T10 Letter Ballot comments on SAM-3 (04-116) [Weber]

Ralph Weber led the group in a discussion of the SAM-3 Letter Ballot comments resolution (04-116r4). Several changes were requested and Ralph agreed to prepare a new revision of the Letter Ballot comments resolution document.

Ralph Weber moved that 04-116r5 (r4 as modified) be recommended as resolving the SAM-3 Letter Ballot comments. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

4.4 SAM-3 SPC-3 SBC-2 SSC-3 SES-2 OSD-2 Condition and event definitions (04-290) [Elliott]

Rob Elliott presented a proposal to cleanup the definitions of conditions and events (04-290r0). The group requested changes and Rob agreed to prepare a new revision of the proposal.

Rob Elliott moved that the SAM-3 editor be instructed to add incorporating 04-290r1 (r0 as modified) in the SAM-3 Letter Ballot comment resolution, that the SBC-2 editor be instructed to add incorporating 04-290r1 (r0 as modified) in the SBC-2 Letter Ballot comment resolution, and that 04-290r1 (r0 as modified) be recommended for inclusion in SPC-3, SSC-3, SES-2, and OSD-2. Ralph Weber seconded the motion. In the absence of any objections, the motion passed unanimously.

4.5 SAM-3 SAS-1.1 FCP-3 - Retry Delay (04-297) [Penokie]

George Penokie requested that discussion of this topic be deferred to the next meeting.

4.6 SAM-3, SPC-3, SAS-1.1, et. al., numbering conventions description (04-296) [Evans]

Mark Evans presented a proposal to more precisely define the number usage conventions in T10 standards, particularly SAM-3 (04-296r0). The group requested changes and Mark agreed to prepare a new revision.

Mark Evans moved that the SAM-3 editor be instructed to add incorporating 04-296r1 (r0 as modified) in the SAM-3 Letter Ballot comment resolution, that the SBC-2 editor be instructed to add incorporating 04-296r1 (r0 as modified) in the SBC-2 Letter Ballot comment resolution, and that 04-296r1 (r0 as modified) be recommended for inclusion in SPC-3, SAS-1.1, and the Style Guide. Pat Thaler seconded the motion. In the absence of any objections, the motion passed unanimously.

4.7 SAM-3 SPC-3 SBC-2 Implicit HEAD OF QUEUE and ORDERED task attributes (04-310) [Elliott]

Rob Elliott presented a proposal to resolve a SBC-2 Letter Ballot comment regarding Implicit Head Of Queue (04-310r0). Three options were presented and the group selected the option that adds recommendations against application clients sending potential Implicit Head Of Queue comments with the Ordered task attribute. Rob agreed to revise the proposal.

Rob Elliott moved that the SAM-3 editor be instructed to add incorporating 04-310r1 (r0 as modified) in the SAM-3 Letter Ballot comment resolution, that the SBC-2 editor be instructed to add incorporating 04-310r1 (r0 as modified) in the SBC-2 Letter Ballot comment resolution, and that 04-310r1 (r0 as modified) be recommended for inclusion in SPC-3. Bob Snively seconded the motion. The motion passed 8:2:3.

5. Command Set Topics

5.1 Reservations Proposals

5.1.1 Persistent Reserve Out Functionality for Reserve/Release Replacement (02-141) [Peterson]

This topic was discussed under item 5.1.3.

5.1.2 Change 'mapping' to 'associating' in Persistent Resv. Registration Model (04-268) [Weber]

Ralph Weber presented a proposal to clarify what it means to register an I_T nexus for persistent reservations (04-268r2). The group requested changes and Ralph agreed to prepare a new revision.

Ralph Weber moved that 0r-268r3 (r2 as modified) be recommended for inclusion in SPC-3. Kevin Marks seconded the motion. In the absence of any objections, the motion passed unanimously.

5.1.3 Persistent Reserve Out Functionality for Reserve/Release Replacement (04-269) [Peterson]

Dave Peterson presented a proposal to add an SPC-3 informative annex to specify the PERSISTENT RESERVE OUT functionality necessary to replace the reserve/release management method and to provide guidance on how to perform a third party reservation using persistent reservations. The group requested minor changes and Dave agreed to prepare a new revision of the proposal.

Dave Peterson moved that 04-269r1 (r0 as modified) be recommended for inclusion in SPC-3. Bob Snively seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SPC-3 Proposals

5.2.1 SPC-3: Standard Data Collection Trigger (04-186) [Penokie]

George Penokie presented a proposal to give application clients a method for entering information into drive failure analysis logs (04-186r1). The group requested several changes and George agreed to prepare a new revision.

George Penokie moved that 04-186r2 (r1 as modified) be recommended for inclusion in SPC-3. Rob Elliott seconded the motion. The motion passed 3:1:4.

5.2.2 WORM and Optical variable length CDB service actions (04-249) [Weber]

Ralph Weber presented a proposal to remove the variable length CDB service action codes for WORM and Optical devices from the SPC-3 informative annex that lists code assignments (04-249r0).

Kevin Butt moved that 04-249r0 be recommended for inclusion in SPC-3. Jim Coomes seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.3 Review of SPC-3 r20 changes made during incorporation of 03-337r7 (04-250) [Weber]

Ralph Weber led a discussion of allowed the specification of initiator ports on persistent reservations Register And Ignore Existing Key operations (04-250r0). In the absence of interest in the idea, Ralph requested that this topic be removed from future agendas.

5.2.4 SPC-3 - Mandatory Service Action Out (16) Command (04-257) [Banther]

Michael Banther presented a proposal to make Service Action Out(16) mandatory for ADC devices (04-257r0).

Michael Banther moved that 04-257r0 be recommended for inclusion in SPC-3. Paul Suhler seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.5 SPC: Time Of Day Settings (04-271) [Butt]

Kevin Butt presented a proposal to define common time of day information in SPC-3 (04-271r3).

Concerns were raised about the resolution, the drift of clock values, and the relationships between clock values in various devices and application clients. Numerous editorial concerns also were raised. Kevin agreed to modify the proposal.

Kevin Butt moved that 04-271r4 (r3 as modified) be recommended for inclusion in SPC-3. Paul Suhler seconded the motion.

Mark Evans and Bob Nixon expressed concern that the modified document be available for review.

Kevin withdrew the motion, with agreement from Paul.

5.2.6 SPC-3 Offline Additional Sense Code (04-273) [Banther]

Michael Banther presented a proposal to add an additional sense code for unit offline (04-273r0).

Michael Banther moved that 04-273r0 be recommended for inclusion in SPC-3. Paul Suhler seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.7 SPC-3 Pre Letter Ballot statement from the editor

Ralph Weber stated that the Thursday afternoon and Friday meetings will be used to conduct a pre-Letter Ballot review of SPC-3. Rob Elliott suggested that finding and fixing the uses of initiator port would be a good topic.

5.2.8 SPC-3: Group Supported Bit (04-281) [Penokie]

George Penokie presented a proposal to add a bit indicating group support to the Extended INQUIRY VPD page (04-281r1).

George Penokie moved that 04-281r1 be recommended for inclusion in SPC-3. Bob Snively seconded the motion. The motion passed 5:1:1.

5.2.9 SPC-3 Power conditions wording changes (04-282) [Elliott]

Rob Elliott presented a proposal to clarify the wording about power conditions (04-282r0).

Rob Elliott moved that 04-282r0 be recommended for inclusion in SPC-3. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.10 SPC-3 Device Type definition (04-291) [Weber]

Ralph Weber presented a proposal to enhance the device type glossary entry by adding text describing the usage of the Peripheral Device Type field in the standard INQUIRY data (04-291r0).

Kevin Butt moved that 04-291r0 be recommended for inclusion in SPC-3. Jim Coomes seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.11 SPC-3 Self-Test and I_T nexus loss (04-295) [Weber]

Ralph Weber presented a proposal to clarify the effects of I_T nexus loss on foreground and background self-test operations (04-295r0).

Ralph Weber moved that 04-295r0 be recommended for inclusion in SPC-3. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2.12 Remove PREVENT ALLOW MEDIUM REMOVAL command from SPC-3 (04-191) [McFerrin]

Bill McFerrin explained that the MMC working group had agreed to remove the definition of Prevent Allow Medium Removal from MMC-5, provided that SPC-3 is updated to include the MMC-4 definition. He noted that the changes are not present in SPC-3 today, and for that reason the MMC working group has declined to remove the Prevent Allow Medium Removal definition from MMC-4.

Rob Elliott, Ralph Weber, Mark Evans, and George Penokie agreed that keeping the Prevent Allow Medium Removal definition in MMC-4 will not prevent them from changing their No votes to Yes on the MMC-4 Letter Ballot.

5.2.13 SPC-3: Mandatory REPORT LUNS Support (04-313) [Peterson]

George Penokie presented a proposal to make the REPORT LUNS command mandatory in SPC-3 (04-313r0). The group requested that some of the standards listed in proposal be removed and George agreed to prepare a new revision of the proposal.

George Penokie moved that 04-313r1 (r0 as revised) be recommended for inclusion in SPC-3. Jim Coomes seconded the motion. The motion passed 8:1:1.

5.3 SBC-2 Proposals

5.3.1 Background Media Scan (04-198) [Houlder]

Jim Coomes requested that discussion of this topic be deferred to the next meeting.

5.3.2 SBC-2 Revision 15 T10 letter ballot comment resolution as of revision 15a (04-274) [Elliott]

Rob Elliott presented several issues requiring consensus in the resolution of the SBC-2 Letter Ballot comments.

Rob Elliott requested a straw poll (one vote per company) to instruct the editor to:

- a) Require all 16 byte CDBs to be supported,
- b) Remove requirements on all 16 byte CDBs,
- c) Leave the current requirements unchanged,
- d) If one 16 byte CDB is supported, all of them must be.

The votes were:

- a) 3
- b) 9
- c) 2
- d) 8

The second round, voting for the top two, produced votes for:

- b) 4
- d) 6

Rob Elliott moved that the SBC-2 editor be instructed to modify the dpANS so that, if Read(16) is implemented, the device shall implement the long LBA versions of each other command that it implemented (e.g., Write(16) if any write is implemented, Lock Unlock(16) if any Lock Unlock is implemented), and if Read(16) is not implemented, the device shall not implement any long LBA versions. Curtis Stevens seconded the motion.

George Penokie stated that the motion will make shipping products non-compliant. However, the argument appeared to concern initiators developers and objections were raised on the grounds that implementation requirements apply to targets, not initiators.

George Penokie moved to amend the motion to apply option b). Pat Thaler seconded the motion to amend.

Bob Snively suggested that the second paragraph of the original motion should have been stricken as an amendment.

The motion to amend passed 15:2:1.

The amended motion passed 14:4:0.

Bob Snively agreed to resolve one of his comments by copying a note about the usage of Read(6) to the table listing SBC-2 commands.

Mark Evans moved that Read Capacity(16) be made optional if the Protect bit is set to zero and mandatory if the Protect bit is set to one. Bob Snively seconded the motion. The motion passed 6:1:4.

Bob Snively moved that Report LUNs be made mandatory for all SBC-2 logical units. George Penokie seconded the motion. The motion passed 7:2:6.

Bob Snively moved the Letter Ballot comment regarding allowing non-32-byte commands to be used with non-zero values in the Protect field when RTO is one be accepted. Curtis Stevens seconded the motion. The motion failed 1:4:8.

Rob Elliott moved that SBC-2 be modified to state that device servers should establish a CAPACITY DATA HAS CHANGED whenever any of the READ CAPACITY data has changed. Curtis Stevens seconded the motion. The motion passed 9:2:3.

Rob Elliott moved that SPC-3 editor be instructed to assign an ASC/ASCQ to the CAPACITY DATA HAS CHANGED additional sense code. Curtis Stevens seconded the motion. The motion passed 12:0:3.

Curtis Stevens moved that the comment to remove filthy media be rejected. Bob Nixon seconded the motion. The motion passed 6:0:4.

George Penokie moved that no changes be made to SBC-2 based on the lomega comment regarding removable media. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

Curtis Stevens moved that the Lock Unlock Cache command be made obsolete. Mark Evans seconded the motion. The motion passed 10:0:3.

George Penokie moved that the comment to make Prefetch obsolete be rejected. John Tyndall seconded the motion. The motion passed 7:2:6.

Pat Thaler moved that the WRPROTECT field code 001b be changed from "shall not check" to "may check" for the Logical Block Application Tag field, that an equivalent change be made for the VRPROTECT field definition, and that other necessary related changes be made. Charles Binford seconded the motion. The motion passed 9:1:2.

George Penokie moved that his comment regarding the removal of quotation marks be accepted. Ralph Weber seconded the motion. The motion passed 9:1:6.

George Penokie moved that his comment changing "operations and/or vendor specific" to "vendor specific" in the Caching mode page subclause be accepted. Bob Snively seconded the motion. The motion passed 6:0:6.

Rob closed the review by stating that new revisions of the Letter Ballot comments resolutions files will be prepared and a motion to approve the Letter Ballot comments resolution will be considered during the November meeting week.

5.4 SES-2 Proposals

No SES-2 proposals were brought before the group.

5.5 Other Proposals

No other proposals were brought before the group.

6. SCSI Protocol Topics

6.1 FCP-3

6.1.1 Return CHECK CONDITION when FCP_DL too small (03-393) [Oetting]

In the absence of Erich Oetting, Dave Peterson presented a proposal to return a Check Condition status when the FCP_DL value is too small (03-393r2). Rob Elliott raised concerns about the changes in SPC-3 not being complete. The group requested changes and Dave agreed to prepare a new revision of the proposal.

Dave Peterson moved that 03-393r3 (r2 as modified) be recommended for inclusion in SPC-3 and FCP-3. Bob Snively seconded the motion.

George Penokie asked that discussion of the proposal be deferred based on the two-week rule.

7. Old Business

All old business was covered under specific agenda items.

8. New Business

8.1 ATA Command Pass-Through (04-262) [Stevens]

Due to the late hour, discussion of this topic was deferred to the next meeting.

8.2 Project Proposal: OSD-2 New Project Proposal (04-173) [Weber]

Ralph Weber presented a new project proposal for OSD-2 (04-173r1).

Ralph Weber moved that 04-173r1 be recommended as a new project proposal for OSD-2. Jim Coomes seconded the motion. In the absence of any objections, the motion passed unanimously.

8.3 Project Proposal for SCSI Primary Commands - 4 (SPC-4) (04-252) [Weber]

Ralph Weber presented a new project proposal for SPC-4 (04-252r0).

Ralph Weber moved that 04-252r0 be recommended as a new project proposal for SPC-4. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

8.4 Common Storage Management Interface (04-284) [Fairchild]

Due to the late hour, discussion of this topic was deferred to the next meeting.

8.5 Project Proposal: SCSI Media Changer Command Set -3 (SMC-3) (04-279) [Banther]

Michael Banther presented a new project proposal for SMC-3 (04-279r0).

Michael Banther moved that 04-279r0 be recommended as a new project proposal for SMC-3. Paul Suhler seconded the motion. In the absence of any objections, the motion passed unanimously.

9. Review of Documents

9.1 SRP-2 Review (SRP-2) [Simpson]

In the absence of Cris Simpson, reviewing SRP-2 was deferred to the next meeting.

10. Review of Recommendations to the Plenary

Ralph Weber noted that the following recommendations have been made to the T10 plenary:

For SAM-3:

04-116r5 (Response to T10 Letter Ballot comments on SAM-3) [Weber]

For inclusion in SPC-3:

04-257r0 (Mandatory Service Action Out (16) Command) [Banther]

04-273r0 (Offline Additional Sense Code) [Banther]

04-310r1 (Implicit HEAD OF QUEUE and ORDERED task attributes) [Elliott]

04-228 (Assign an ASC/ASCQ for CAPACITY DATA HAS CHANGED)

04-269r1 (Persistent Reserve Out Functionality for Reserve/Release Replacement) [Peterson]

04-268r3 (Change 'mapping' to 'associating' in Persistent Resv. Registration Model) [Weber]

04-249r0 (WORM and Optical variable length CDB service actions) [Weber]

04-291r0 (SPC-3 Device Type definition) [Weber]

04-295r0 (SPC-3 Self-Test and I_T nexus loss) [Weber]

04-282r0 (SPC-3 Power conditions wording changes) [Elliott]

04-313r1 (Mandatory REPORT LUNS Support) [Peterson]

04-281r1 (Group Supported Bit) [Penokie]

04-186r2 (Standard Data Collection Trigger) [Penokie]

For inclusion in SPC-3, SSC-3, SES-2, and OSD-2:

04-290r1 (Condition and event definitions) [Elliott]

For inclusion in SPC-3, SAS-1.1, Style Guide:

04-296r1 (Numbering conventions description) [Evans]

Project Proposals:

04-279r0 (SCSI Media Changer Command Set -3 (SMC-3)) [Banther]

04-173r1 (OSD-2 New Project Proposal) [Weber]

04-252r0 (SCSI Primary Commands - 4 (SPC-4)) [Weber]

11. Meeting Schedule

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Tuesday, November 9, 2004 commencing at 1:30 p.m. and continuing Wednesday, November 10, 2004 from 9 a.m. to 6 p.m. (or until all agenda items are completed). The meeting will be in Austin, TX at the Driskill Hotel (512-474-5911), hosted by Crossroads Systems.

12. Adjournment

The meeting was adjourned at 7:40 p.m. on Wednesday September 10, 2004.