

Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

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Date: May 6, 2004

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- May 4-5, 2004
Seaside, CA

Agenda

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2. Approval of Agenda
3. Attendance and Membership
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 - 4.1 SAM-4:Converting to UML part 1 (04-023) [Penokie]
 - 4.2 SAM-3 Multiple Target Port Model (04-088) [Binford]
 - 4.3 Response to T10 Letter Ballot comments on SAM-3 (04-116) [Weber]
 - 4.4 SAM-3; SPC-3; Allowing only Task Management Functions through ACA (04-141) [Penokie]
5. Command Set Topics
 - 5.1 Reservations Proposals
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 - 5.1.2 SPC-3 Third party persistent reservations (03-337) [Penokie]
 - 5.1.3 SPC-3 Persistent Reservation Fix Fix (04-105) [Penokie]
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 - 5.2.2 SPC-3 Report LUNS Clarification (03-386) [Binford]
 - 5.2.3 SPC-3 SES-2 SBC-2 Miscellaneous diagnostic page topics (04-031) [Elliott]
 - 5.2.4 SPC-3 Changes for OSD Quota Enforcement & Other Errors (04-059) [Weber]
 - 5.2.5 SPC-3 Add Preference to Report Target Port Groups (04-122) [Binford]
 - 5.2.6 SSC-3 DTD Status Log Page (04-119) [Banther]
 - 5.3 SBC-2 Proposals
 - 5.3.1 Changing Logical Block Sizes (04-011) [Penokie]
 - 5.3.2 SPC-3 SBC-2 Nonvolatile caches (03-388) [Elliott]
 - 5.3.3 SBC-2 Obsolete more features (04-075) [Elliott]
 - 5.3.4 SBC-2 Obsolete Notch and Partition mode page (04-082) [Elliott]
 - 5.3.5 SBC-2 - Protection Information Checking within Service Delivery Subsystem (04-111) [Penokie]
 - 5.4 SES-2 Proposals
 - 5.4.1 SES-2 - Array Device element Status and Control page Clarifications (04-130) [Marks]
 - 5.5 End-to-End Data Protection Proposals
 - 5.5.1 SBC, 32 Byte Commands for End-to-End Data Protection (03-307) [Coomes]
 - 5.5.2 SBC-2 option to check only the Logical Block Guard (04-114) [Holt]
 - 5.6 Other Proposals
 - 5.6.1 MSC Report Bridge Mapping command (03-364) [Elliott]
 - 5.6.2 OSD Letter Ballot Topics (04-108) [Weber]
6. SCSI Protocol Topics
 - 6.1 SAS-1, FCP-3, SRP-2 Per-Command Priority Tagging (04-099) [Penokie]
7. Old Business

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8. New Business
 - 8.1 Overview of IEEE Security In Storage WG (04-146) [Fabio Maino] {Tuesday p.m.}
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, May 4, 2004. He thanked Bob Snively of Brocade for hosting the meeting.

As is customary, the people attending introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no additions or changes.

No agenda items were added/revised 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. Tim Symons | P | Adaptec, Inc. | Timothy_Symons at adaptec dot com |
| Ms. Pat Thaler | P | Agilent Technologies | pat_thaler at agilent dot com |
| Mr. Robert Snively | P | Brocade Comm. Systems, Inc. | rsnively at brocade dot com |
| Dr. Claudio DeSanti | P | Cisco Systems, Inc. | cds at cisco dot com |
| Mr. David Peterson | P | CNT | david_peterson at cnt dot com |
| Mr. Dexter Anderson | P | Crossroads Systems, Inc. | danderson at crossroads dot com |
| Mr. James A. Lott, Jr. | P | Dallas Semiconductor | jim dot lott at dalsemi dot com |
| Mr. Kevin Marks | P | Dell, Inc. | kevin_marks at dell dot com |
| Mr. David Black | A | EMC Corp. | black_david at emc dot com |
| Mr. Gary S. Robinson | P | EMC Corp. | robinson_gary at emc dot com |
| Mr. Kenneth Hirata | A | Emulex | Ken dot Hirata at Emulex dot com |

| | | | |
|-----------------------|----|------------------------------|---------------------------------------------|
| Mr. Robert H. Nixon | P | Emulex | bob dot nixon at emulex dot com |
| Mr. Ralph O. Weber | P | ENDL Texas | roweber at ieee dot org |
| Mr. Mike Fitzpatrick | P | Fujitsu | mfitzpatrick at fcpa dot fujitsu dot com |
| Mr. Tim Mackley | A | General Dynamics | timothy dot mackley at gd-ais dot com |
| Mr. Dan Colegrove | P | Hitachi Global Storage Tech. | daniel dot colegrove at hgst dot com |
| Mr. George O. Penokie | P | IBM / Tivoli Systems | gop at us dot ibm dot com |
| Mr. Kevin Butt | V | IBM Corp. | kdbutt at us dot ibm dot com |
| Mr. Robert Sheffield | P | Intel Corp. | robert dot l dot sheffield at intel dot com |
| Mr. Brad Besmer | V | LSI Logic Corp. | brad dot besmer at lsil dot com |
| Mr. Keith Holt | A | LSI Logic Corp. | keith dot holt at lsil dot com |
| Mr. John Lohmeyer | P | LSI Logic Corp. | lohmeier at t10 dot org |
| Mr. Mark Evans | P | Maxtor Corp. | mark_evans at maxtor dot com |
| Mr. Paul Entzel | P | Quantum Corp. | paul dot entzel at quantum dot com |
| Mr. Jim Coomes | A | Seagate Technology | jim dot coomes at seagate dot com |
| Dr. Paul Suhler | V | Seagate Technology | Paul dot A dot Suhler at certance dot com |
| Mr. Dave Deming | AV | Solution Technology | ddeming at soltechnology dot com |
| Mr. Charles Binford | A | Sun Microsystems, Inc. | Charles dot Binford at sun dot com |
| Mr. Vit Novak | P | Sun Microsystems, Inc. | vit dot novak at sun dot com |
| Mr. Ron Mathews | P | UNISYS Corporation | ronald dot mathews at unisys dot com |
| Mr. Roger Cummings | P | Veritas Software | roger dot cummings at veritas dot com |
| Mr. Rich Ramos | V | Xyratex | rich_ramos at us dot xyratex dot com |

32 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 presented an introduction to UML followed by one example of proposed changes for SAM-3 to replace hierarchy drawings with the more standard UML in SAM-4 (04-023r1).

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

Charles Binford presented a discussion of occurrences of 'initiator port' that probably should be 'I_T nexus'. He noted that the effort is a work in progress, seeking and receiving guidance from the group on how best to word specific changes.

Charles agreed to bring a detailed proposal to the next meeting.

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

Ralph Weber led the group in an effort to resolve SAM-3 letter ballot comments (04-116r0). Ralph noted the recommendations of the group for inclusion in 04-116r1.

4.4 SAM-3; SPC-3; Allowing only Task Management Functions through ACA (04-141) [Penokie]

George Penokie presented a proposal to limit the actions taken during an ACA condition to sending task management functions (04-141r0).

Concerns were raised about the usefulness of ACA under such a definition and countered with concerns about implementing ACA on serial protocols when the number of XFER_RDY resources is limited.

A side discussion developed about the XFER_RDY resources needed to process a PREEMPT AND ABORT command, as is currently required during an ACA condition. This led to a discussion of a SAM-3 letter ballot comment suggesting that a CLEAR ACA task management function should be allowed from any initiator port, as opposed to the current restriction that CLEAR ACA come only from the faulted initiator port.

The group requested numerous changes in the proposal and George agreed to prepare a new revision for consideration at the next meeting.

5. Command Set Topics

5.1 Reservations Proposals

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

Dave Peterson requested that discussion of this proposal be deferred to the next meeting.

Dave asked if there was still interest in continued work on the annex. Ralph stated that he thought the annex was important because it will reduce resistance to implementing persistent reservations. Roger Cummings offered to help draft the proposal.

5.1.2 SPC-3 Third party persistent reservations (03-337) [Penokie]

George Penokie presented a proposal to define the ability to move reservations from the initiator managing an extended copy to the copy manager and back again (03-337r5).

The group requested several changes in the proposal and George agreed to prepare a new revision for consideration at the next meeting.

5.1.3 SPC-3 Persistent Reservation Fix Fix (04-105) [Penokie]

George Penokie presented a proposal to correct the wording about an initiator preempting itself (04-105r1). Concerns were raised about the potential for the proposal to eliminate two initiators sharing the same reservation key meaning that one initiator could not preempt the other.

The group requested a minor change and George agreed to prepare a new revision of the proposal.

George Penokie moved that 04-105r2 (r1 as modified) be recommended for inclusion in SPC-3. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SPC-3 Proposals

5.2.1 Command Classification Field (03-361) [Penokie]

George Penokie presented a proposal to add a classification field to specified SBC-2 commands (03-361r3). The group requested minor changes and George agreed to prepare a new revision of the proposal.

George Penokie moved that 03-361r4 (r3 as modified) be recommended for inclusion in SBC-2. Bob Nixon seconded the motion. The motion passed 5:2:8.

5.2.2 SPC-3 Report LUNS Clarification (03-386) [Binford]

Charles Binford presented a proposal to clarify the contents of the logical unit inventory reported by the REPORT LUNS command (03-386r3). The group requested minor changes in the proposal and Charles agreed to prepare a new revision.

Charles Binford moved that 03-386r4 (r3 as modified) be recommended for inclusion in SPC-3. George Penokie seconded the motion. The motion passed 7:0:4.

5.2.3 SPC-3 SES-2 SBC-2 Miscellaneous diagnostic page topics (04-031) [Elliott]

Rob Elliott led the group in a review of miscellaneous issues related to diagnostic pages (04-031r1). The group responded to several questions posed by Rob's proposal.

Rob agreed to prepare a revised version of the proposal based on the inputs received at this meeting and to bring the revised proposal to the group for consideration at the next meeting.

5.2.4 SPC-3 Changes for OSD Quota Enforcement & Other Errors (04-059) [Weber]

Ralph Weber asked that this topic be removed from this and future agendas.

5.2.5 SPC-3 Add Preference to Report Target Port Groups (04-122) [Binford]

Charles Binford presented a proposal to add a "preferred path" bit to the REPORT TARGET PORT GROUPS parameter data (04-122r0). The group requested changes and Charles agreed to prepare a new revision of the proposal.

Charles Binford moved that 04-122r1 (r0 as modified) be recommended for inclusion in SPC-3. Rob Elliott seconded the motion. The motion passed 8:0:4.

5.2.6 SSC-3 DTD Status Log Page (04-119) [Banther]

Michael Banther presented a proposal to request the addition of tapes to the device types supporting the DTD status log page in SPC-3 Annex C (04-119r0).

Michael Banther moved that 04-119r0 be recommended for inclusion in SPC-3. Ralph Weber seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3 SBC-2 Proposals

5.3.1 Changing Logical Block Sizes (04-011) [Penokie]

George Penokie presented a proposal to clarify the interaction of the mode parameters block descriptor and FORMAT UNIT (04-011r2).

The group requested numerous, complex changes and George agreed to prepare a new revision of the proposal for consideration at the next meeting.

5.3.2 SPC-3 SBC-2 Nonvolatile caches (03-388) [Elliott]

Rob Elliott presented a proposal to add discussion of nonvolatile caches in SBC-2 (03-388r2). The group requested changes and Rob agreed to prepare a new revision.

Rob Elliott moved that 03-388r3 (r2 as modified) be recommended for inclusion in SBC-2 and SPC-3. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.3 SBC-2 Obsolete more features (04-075) [Elliott]

Rob Elliott presented a proposal to obsolete the interleaving field in the FORMAT UNIT command, the disable saving parameters bit in the FORMAT UNIT command, and the device status input and output diagnostic pages in SBC-2 (04-075r2).

Rob Elliott moved that 04-075r2 be recommended for inclusion in SBC-2. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.4 SBC-2 Obsolete Notch and Partition mode page (04-082) [Elliott]

Rob Elliott presented a proposal to obsolete the notch and partition mode page (04-082r1).

Rob Elliott moved that 04-082r1 be recommended for inclusion in SBC-2. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.5 SBC-2 - Protection Information Checking within Service Delivery Subsystem (04-111) [Penokie]

George Penokie presented a proposal to remove the logical block guard (a.k.a. CRC) as a reason that out of order delivery can cause errors (04-111r0).

George Penokie moved that 04-111r0 be recommended for inclusion in SBC-2. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

5.4 SES-2 Proposals

5.4.1 SES-2 - Array Device element Status and Control page Clarifications (04-130) [Marks]

Kevin Marks proposed adding two bits in the Array Status and Control pages (04-130r0). The group agreed with a request to include a third bit (Device Off) bit and Kevin displayed the revised proposal.

Kevin Marks moved that 04-130r1 (r0 as modified) be recommended for inclusion in SES-2. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

5.5 End-to-End Data Protection Proposals

5.5.1 SBC, 32 Byte Commands for End-to-End Data Protection (03-307) [Coomes]

Jim Coomes presented a proposal detailing the changes needed to support application-specified data block reference tag and application tag values (03-307r7).

Jim Coomes moved that 03-307r7 be recommended for inclusion in SBC-2 and SPC-3. Bob Snively seconded the motion. The motion passed 14:3:4.

5.5.2 SBC-2 option to check only the Logical Block Guard (04-114) [Holt]

Keith Holt presented a proposal to allow checking of only the logical block guard field (a.k.a. CRC) by defining new xxprotect coded values (04-114r0).

Keith Holt moved that 04-114r0 be recommended for inclusion in SBC-2. Jim Coomes seconded the motion. The motion passed 11:1:7.

5.6 Other Proposals

5.6.1 MSC Report Bridge Mapping command (03-364) [Elliott]

Rob Elliott presented a proposal for the initial technical content of MSC (03-364r1).

Rob Elliott moved that 03-364r1 be recommended for inclusion in MSC with the editor given significant latitude to reorder the text. George Penokie seconded the motion. In absence of any objections, the motion passed unanimously.

5.6.2 OSD Letter Ballot Topics (04-108) [Weber]

Ralph Weber lead a discussion of four OSD letter ballot comments ENDL 3, HP 3, HP 65, and Lingua 42 in 04-108r2 and recorded the group's recommendations for inclusion in next revision.

It was noted that the implementation requirements column in the SPC-3 response codes table no longer contains any useful information and the group agreed to the removal of the column.

6. SCSI Protocol Topics

6.1 SAS-1, FCP-3, SRP-2 Per-Command Priority Tagging (04-099) [Penokie]

George Penokie presented a proposal to add per-command priority information to the information units in SAS-1.1, FCP-3, and SRP-2 (04-099r0). The group requested changes and George agreed to prepare a new revision

George Penokie moved that 04-099r1 (r0 as modified) be recommended for inclusion in SPC-3, SAS-1.1, FCP-3, and SRP-2. Bob Nixon seconded the motion. The motion passed 6:3:6.

7. Old Business

All old business was covered under specific agenda items.

8. New Business

8.1 Overview of IEEE Security In Storage WG (04-146) [Fabio Maino]

Fabio Maino presented a overview of the work of the IEEE 1619 group regarding securing data at rest (04-146r0). The group discussed the relationship of the data-at-rest security work and the on going end-to-end data protection efforts.

It was agreed that any changes to SCSI standards would be make via specific proposals brought to the attention of this group.

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 inclusion in SPC-3:

04-105r2 (SPC-3 Persistent Reservation Fix Fix) [Penokie]

03-386r4 (SPC-3 Report LUNS Clarification) [Binford]

04-119r0 (SSC-3 DTD Status Log Page) [Banther]

04-122r1 (SPC-3 Add Preference to Report Target Port Groups) [Binford]

For inclusion in SPC-3, SAS-1.1, FCP-3, and SRP-2:

04-099r1 (SAS-1, FCP-3, SRP-2 Per-Command Priority Tagging) [Penokie]

For inclusion in SPC-3 and SBC-2:

03-388r3 (SPC-3 SBC-2 Nonvolatile caches) [Elliott]

03-307r7 (SBC, 32 Byte Commands for End-to-End Data Protection) [Coomes]

For inclusion in SBC-2:

03-361r4 (Command Classification Field) [Penokie]

04-075r2 (SBC-2 Obsolete more features) [Elliott]

04-082r1 (SBC-2 Obsolete Notch and Partition mode page) [Elliott]

04-111r0 (SBC-2 - Protection Information Checking within Service Delivery Subsystem) [Penokie]

04-114r0 (SBC-2 option to check only the Logical Block Guard) [Holt]

For inclusion in SES-2:

04-130r1 (SES-2 - Array Device element Status and Control page Clarifications) [Marks]

For inclusion in MSC:

03-364r1 (MSC Report Bridge Mapping command) [Elliott]

11. Meeting Schedule

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Tuesday, July 13, 2004 commencing at 1:30 p.m. and continuing Wednesday, July 14, 2004 from 9 a.m. to 6 p.m. (or until all agenda items are completed). The meeting will be in Colorado Springs, CO at the Doubletree World Arena Hotel (719-576-8900), hosted by LSI Logic.

12. Adjournment

The meeting was adjourned at 6:00 p.m. on Wednesday May 5, 2004.