Accredited Standards Committee*
InterNational Committee for Information Technology Standards (INCITS)

Doc. No.: T10/04-215r0

Date: July 15, 2004
Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- July 13-14, 2004
           Colorado Springs, CO

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SCSI Architecture Model Topics
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    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]
    4.5   SAM-3: Resolving Head Of Queue Inconsistencies (04-187) [Penokie]
5. Command Set Topics
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        5.2.1 SPC-3 SES-2 SBC-2 Miscellaneous diagnostic page topics (04-031) [Elliott]
        5.2.2 SPC-3 Security Commands proposal (04-140) [Houlder]
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        5.3.1 Changing Logical Block Sizes (04-011) [Penokie]
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        5.3.3 SBC-2 Make FORMAT UNIT, READ (16), and WRITE (16) optional (04-171) [Elliott]
        5.3.4 SBC-2 Defect descriptor wording corrections (04-164) [Elliott]
        5.3.5 SBC-2 New CRC figure and example C code (04-176) [Elliott]
        5.3.6 Log page code assignment for Non-volatile cache log page [Weber]
        5.3.7 Read Long clarification (04-184) [Houlder]
        5.3.8 SBC-2 Commands during format operation (04-192) [Elliott]
        5.3.9 Background Media Scan (04-198) [Houlder]
    5.4   SES-2 Proposals
    5.5   Other Proposals
        5.5.1 Response to T10 Letter Ballot comments on OSD (04-108) [Weber]
6. SCSI Protocol Topics
    6.1   FCP-3
        6.1.1 Return CHECK CONDITION when FCP_DL too small (03-393) [Oetting]
7. Old Business

Results of Meeting

1.   Opening Remarks

John Lohmeyer called the meeting to order at 1:30 p.m. Tuesday, July 13, 2004. He thanked LSI Logic 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:

    6.1.1   Return CHECK CONDITION when FCP_DL too small (04-393) [Oetting]

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

    5.2.6   ASC IT8 Graphic arts pre-press devices [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:

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        Name              S      Organization          Electronic Mail Address
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Mr. Tim Symons        P   Adaptec, Inc.           Timothy_Symons at
                                                  adaptec dot com
Mr. Niels Reimers     A   Agilent Technologies    niels_reimers at agilent
                                                  dot com
Mr. Haluk Aytac       V   AMCC                    haytac at amcc dot com
Mr. Robert Snively    P   Brocade Comm. Systems,  rsnively at brocade dot
                          Inc.                    com
Mr. David Peterson    P   CNT                     david_peterson at cnt
                                                  dot com
Mr. Kevin Marks       P   Dell, Inc.              kevin_marks at dell 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. Keith Holt        A   Engenio Information Tech. keith dot holt at lsil
                                                  dot com
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Mr. Walt Hubis          V  Engenio Information Tech. whubis at lsil dot com
Mr. Mike Fitzpatrick    P  Fujitsu                   mfitzpatrick at fcpa dot
                                                     fujitsu dot com
Mr. Rob Elliott         P  Hewlett Packard Co.       Elliott at hp dot com
Mr. Dan Colegrove       P  Hitachi Global Storage    daniel dot colegrove at
                           Tech.                     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. Joe Breher          V  Lingua Data               joe at lingua-data dot
                                                     com
Mr. John Lohmeyer       P  LSI Logic Corp.           lohmeyer at t10 dot org
Mr. Mark Evans          P  Maxtor Corp.              mark_evans at maxtor dot
                                                     com
Ms. Emily Hill          P  Microsoft Corp.           emhill at microsoft dot
                                                     com
Mr. Jeff Mastro         A  Microsoft Corp.           jmastro at microsoft dot
                                                     com
Mr. Edward A. Gardner   V  Ophidian Designs          eag at ophidian dot com
Mr. Bill Galloway       P  Pivot3, Inc.              billg at pivot3 dot com
Mr. Greg Elkins         V  QLogic Corp.              greg dot elkins at
                                                     qlogic dot com
Mr. Paul Entzel         P  Quantum Corp.             paul dot entzel at
                                                     quantum dot com
Mr. Gerald Houlder      P  Seagate Technology        gerry dot houlder at
                                                     seagate dot com
Dr. Paul Suhler         V  Seagate Technology        Paul dot A dot Suhler at
                                                     certance dot com
Mr. Erich Oetting       P  Storage Technology Corp.  erich_oetting at stortek
                                                     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. Steven Sletten      V  Sun Microsystems, Inc.    steven dot sletten at
                                                     sun dot com
Mr. Yutaka Arakawa      P  Toshiba                   yutaka dot arakawa at
                                                     tais dot toshiba dot com
Mr. Nigel Hart          V  Xyratex                   nigel_hart at xyratex
                                                     dot com
Mr. Rich Ramos          V  Xyratex                   rich_ramos at us dot
                                                     xyratex dot com


35 People Present

Status Key:  P    -  Principal
             A,A# -  Alternate
             AV   -  Advisory Member
             L    -  Liaison
             V    -  Visitor
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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). George noted several areas where the UML drawings need significant work. The group noted problems with UML representation of target/initiator devices. George received several helpful suggesting for improving the drawings from the group.

George noted that the UML work is ongoing and that a new revision of the proposal will be prepared for consideration at the next meeting.

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

Charles Binford presented a marked up version SAM-3 r13 showing changes that instantiate the differences between initiator ports and I_T nexuses. He noted that the effort is a work in progress.

The group advised Charles on several specific aspects of the proposed changes.

Charles agreed to revise the proposed changes and add more details to the proposal for consideration at 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 (04-116r2).

All but one of the Veritas comments identified as needing group input were resolved. The one remaining Veritas comment will be resolved as part resolving HP comments on hierarchical logical unit addressing.

Concerns were raised regarding the response to comments Brocade 7 and Brocade 9. It was agreed that the dependencies of all command and protocol standards on the definitions cited for change preclude making an abrupt change in argument names this late in SAM-3 development. An intermediate change will be proposed in 04-116r3 with the expectation that interested parties will bring forward a detailed proposal for more sweeping changes in SAM-4.

All the Sun Microsystems comments identified as needing group input were resolved.

Ralph noted that additional letter ballot comment resolution meetings will be held later in the week and that all the comments resolutions agreed during this meeting week will be reflected in 04-116r3.

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 (04-141r2).

George Penokie moved that 04-141r3 (r2 as revised) be recommended for inclusion in SPC-3 and that the SAM-3 editor be instructed to incorporate 04-141r3 in the SAM-3 Letter Ballot resolution. Mark Evans seconded the motion. The motion passed 12:0:2.

4.5   SAM-3: Resolving Head Of Queue Inconsistencies (04-187) [Penokie]

George Penokie presented a proposal to correct inconsistencies in the definition of Head Of Queue tasks (04-187r0). The group requested a few changes and George agreed to prepare a new revision.

George Penokie moved that the SAM-3 editor be instructed to incorporate 04-187r1 (r0 as revised) in the SAM-3 Letter Ballot resolution. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

The group continued the head of queue topic by discussing comment Brocade 23 and agreed to accept the comment with additional changes to represent the effects of 04-187r1.

Ralph Weber noted the agreed resolution for comment Brocade 23 for inclusion in 04-116r3.

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. Later George Penokie informed Dave of the acceptance of 03-337r7 for inclusion in SPC-3, suggesting that completion of that effort laid the groundwork for Dave's 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 (03-337r6). The group requested changes and George agreed to prepare a new revision.

George Penokie moved 03-337r7 (r6 as revised) be recommended for incorporation in SPC-3. Bill Galloway seconded the motion. The motion passed 8:0:6.

5.2   SPC-3 Proposals

5.2.1   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 (04-031r2). The group requested minor editorial changes and Rob agreed to prepare a new revision.

Rob Elliott moved that 04-031r3 (r2 as revised) be recommended for incorporation in SPC-3, SES-2, and SBC-2. Bill Galloway seconded the motion. In the absence of objections, the motion passed unanimously.

5.2.2   SPC-3 Security Commands proposal (04-140) [Houlder]

Gerry Houlder presented a proposal to set aside two 12-byte CDB operation codes for use by the Trusted Computing Group (04-140r1). Concerns were raised that the level of detail in the proposal was premature.

Ralph Weber moved CAP recommend to the plenary that the SPC-3 editor be instructed to identify operation code A2h for the TRUSTED COMPUTING IN command and operation code B5h for the TRUSTED COMPUTING OUT command. Gerry Houlder seconded the motion. The motion passed 6:0:4.

5.2.3   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 (04-186r0).

The group requested addition of a model description for the drive failure analysis log described by the proposal. Concerns were raised about the usefulness of the vendor specific data included in the proposed formats. Several other significant enhancements and changes were requested.

George agreed to prepare a new revision of the proposal for consideration at the next meeting.

5.2.4   SSC-3 and SPC-3 WORM support for streaming devices (04-211) [Banther]

Noting that the only SPC-3 change being proposed was addition of a new ASC/ASCQ code, Kevin Butt moved that 04-211r1 be recommended for inclusion in SPC-3. Bill Galloway seconded the motion. In the absence of any objections, the motion was approved unanimously.

5.2.5   SPC-3 TEST UNIT READY reservations correction (04-213) [Elliott]

Rob Elliott presented a proposal to allow TEST UNIT READY through persistent reservations (04-213r0).

The group discussed adding a 'may' to the proposed table footnote. Rob agreed to revise the proposal.

Rob Elliott moved that 04-213r1 (r0 as revised) be recommended for inclusion in SPC-3. Bill Galloway seconded the motion. In the absence of any objections, the motion was approved unanimously.

5.2.6   ASC IT8 Graphic arts pre-press devices [Elliott]

The group discussed the history of the ASC IT8 graphic arts pre-press device type codes. John Lohmeyer noted that the standards referencing the codes were reported withdrawn in an issue of ANSI *Standards Action*.

Rob Elliott moved CAP recommend that T10 instruct the SPC-3 editor to mark device types 0Ah and 0Bh Obsolete in SPC-3. Bill Galloway 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 (04-011r4). The group requested several changes and George agreed to prepare a new revision.

George Penokie moved that 04-114r5 (r4 as revised) be recommended for inclusion in SPC-3 and SBC-2. Gerry Houlder seconded the motion. In the absence of objections, the motion passed unanimously.

5.3.2   SBC-2: SPC-3: Protection Information Fixes (04-169) [Penokie]

George Penokie presented a proposal to correct over a dozen problems in the End-to-End Data Protection definitions (04-169r2). The group requested editorial changes and George agreed to prepare a new revision.

George Penokie moved that 04-169r3 (r2 as revised) be recommended for inclusion in SPC-3 and SBC-2. Gerry Houlder seconded the motion. The motion passed 11:0:2.

5.3.3   SBC-2 Make FORMAT UNIT, READ (16), and WRITE (16) optional (04-171) [Elliott]

Rob Elliott presented a proposal to change the mandatory/optional status of several SBC-2 commands (04-171r0).

The group requested that the proposal cover just the FORMAT UNIT command and that FORMAT UNIT support remain mandatory but that two of the currently mandatory function options be changed to optional. Rob agreed to prepare a new revision.

Rob Elliott moved that 04-171r1 (r0 as revised) be recommended for inclusion in SBC-2. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.4   SBC-2 Defect descriptor wording corrections (04-164) [Elliott]

Rob Elliott presented a proposal to reorganize and clarify the defect descriptor SBC-2 specifications (04-164r0). The group requested changes in the PLIST, CLIST, DLIST, GLIST description and other minor changes. Rob agreed to prepare a new revision.

Rob Elliott moved that 04-164r1 (r0 as revised) be recommended for inclusion in SBC-2. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.5   SBC-2 New CRC figure and example C code (04-176) [Elliott]

Rob Elliott presented a proposal to add a CRC generation figure and example C code in (04-176r0).

Rob Elliott moved that 04-176r10 be recommended for inclusion in SBC-2. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.6   Log page code assignment for Non-volatile cache log page [Weber]

Ralph Weber moved that the SBC-2 editor be instructed to change the non-volatile cache log page code to 17h. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously

5.3.7   Read Long clarification (04-184) [Houlder]

Gerry Houlder presented a proposal to clarify that user data returned by a Read Long command may not match user data returned by a Read command (04-184r0). The group requested significant changes and Gerry agreed to prepare a new revision.

Gerry Houlder moved that 04-184r1 (r0 as revised) be recommended for inclusion in SBC-2. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3.8   SBC-2 Commands during format operation (04-192) [Elliott]

Rob Elliott presented a proposal to clarify the behavior of commands in the queue when a Format Unit command is received (04-192r0).

Rob Elliott moved that 04-192r10 be recommended for inclusion in SBC-2. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously.

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

Gerry Houlder presented a proposal that defines a mode page and log page to manage background media scan functions (04-198r0).

Several present expressed the concern that all the necessary controls are already defined as part of the SPC-3 background self-test function and Gerry agreed to review the available controls and propose changes to those controls as changes to SPC-3 at the next meeting.

5.4 SES-2 Proposals

No SES-2 proposals were brought before the group.

5.5   Other Proposals

5.5.1   Response to T10 Letter Ballot comments on OSD (04-108) [Weber]

Ralph Weber led a discussion of four OSD letter ballot comments in 04-108r5. Ralph noted that four previously rejected comments had been accepted in 04-108r5, a revision of 04-108r4 that has been posted within the last two weeks.

In response to discussion of several rejected Brocade comments regarding requirements to implement attributes pages, Ralph agreed to modify 04-193r4 to include a Support Requirements column in the table listing attributes pages defined by this standard. Ralph also reviewed changes in 04-193r4 requested by the SNIA OSD technical working group. Rob Elliott noted that the change of attribute page name from "Security" to "Policy/Security" had not been reflected throughout 04-193r4 and Ralph agreed to modify the proposal.

Ralph Weber moved that 04-108r5 (04-108r4 as revised), 04-095r4, 04-189r2, and 04-193r5 (r4 as revised) be recommended to T10 as resolving the Letter Ballot comments on OSD from 04-064r0 and that T10 forward OSD r10 containing the Letter Ballot comment resolution to INCITS for further processing. Greg Elkins seconded the motion. The motion passed 7:1:2.

6.   SCSI Protocol Topics

6.1   FCP-3

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

Erich Oetting presented a proposal to enhance the sense key specific data to identify which field is invalid in an information unit (03-393r1).

The group discussed additional enhancements for identifying the type of IU found to be in error.

Erich agreed to consider the ideas offered by the group and return with a proposal for additional consideration at the next meeting.

7.   Old Business

All old business was covered under specific agenda items.

8.   New Business

No new business was brought before the 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:
04-141r3 (Allowing only Task Management Functions through ACA) [Penokie]
03-337r7 (SPC-3 Third party persistent reservations) [Penokie]
these minutes (Identify A2h for TRUSTED COMPUTING IN B5h for TRUSTED COMPUTING OUT) [Weber]
04-211r1 (WORM support for streaming devices ASC/ASSQ) [Banther]
04-213r1 (TEST UNIT READY reservations correction) [Elliott]
these minutes (Mark device types 0Ah and 0Bh Obsolete) [Elliott]

For inclusion in SPC-3, SES-2, and SBC-2:
04-031r3 (Miscellaneous diagnostic page topics) [Elliott]

For inclusion in SPC-3 and SBC-2:
04-011r5 (Changing Logical Block Sizes) [Penokie]
04-169r3 (Protection Information Fixes) [Penokie]

For inclusion in SBC-2:
04-171r1 (Make FORMAT UNIT operating modes optional) [Elliott]
04-164r1 (Defect descriptor wording corrections) [Elliott]
04-176r0 (New CRC figure and example C code) [Elliott]
04-192r0 (Commands during format operation) [Elliott]
these minutes (Change the non-volatile cache log page code to 17h) [Weber]
04-184r1 (Read Long clarification) [Houlder]

11. Meeting Schedule

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Tuesday, September 14, 2004 commencing at 1:30 p.m. and continuing Wednesday, September 15, 2004 from 9 a.m. to 6 p.m. (or until all agenda items are completed). The meeting will be in Nashua, NH at the Crowne Plaza Hotel (603-886-1200), hosted by Hitachi Cable Manchester.

12. Adjournment

The meeting was adjourned at 5:25 p.m. on Wednesday July 14, 2004.