

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

**Doc. No.:** T10/08-276r0

**Date:** July 17, 2008

**Reply to:** John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- July 16-17, 2008  
Anchorage, AK

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SCSI Architecture Model Topics
  - 4.1 SAM-5 Response Fence for protocol services (06-341) [Elliott]
  - 4.2 SAM-5 SCSI Initiator and Target Port capability attributes (07-429) [Elliott]
5. Command Set Topics
  - 5.1 SCSI Primary Commands Proposals
    - 5.1.1 SPC-4: Group Persistent Reservations - Proposal (08-025) [Butt]
    - 5.1.2 SPC-4 SBC-3 SAS-2.1 Power condition enhancements (08-126) [Elliott]
    - 5.1.3 SPC-4 SBC-3 Adding more low power options (08-184) [Houlder]
    - 5.1.4 SPC-4 Protocol Specific diagnostic page (08-254) [Elliott]
    - 5.1.5 SPC-4 Parsing variable-length parameter lists and data (08-261) [Elliott]
    - 5.1.6 SAI, SQN, IV, & Data must be contiguous (08-262) [Weber]
    - 5.1.7 Too much to do ... Not enough Progress Counters (08-263) [Weber]
    - 5.1.8 SPC-4 ATA Information VPD page nits (08-287) [Elliott]
    - 5.1.9 Revoking the provisional TrustedFlash Security Protocol Assignment (SPC-4) (08-289) [Geldman]
  - 5.2 SCSI Block Commands Proposals
    - 5.2.1 SBC-3 Set pseudo format, a.k.a. DIF Granularity (08-044) [Sheffield]
    - 5.2.2 SBC-3 SPC-4: Protection Type 3 Reference Tag Clarification (08-116) [Penokie]
    - 5.2.3 SBC - Thin Provisioning (08-149) [Knight]
    - 5.2.4 SBC-3 Model for encrypting disk drives (08-192) [Houlder]
  - 5.3 SCSI Enclosure Services Proposals
  - 5.4 Other Proposals
    - 5.4.1 OSD-2 Conditional Attributes Setting (08-112) [Weber]
    - 5.4.2 SAS: Add low power transceiver options (08-015) [Houlder]
    - 5.4.3 Fixes for five OSD-2 bugs (08-179) [Weber]
    - 5.4.4 Set Attributes error handling in OSD-2 (08-181) [Weber]
    - 5.4.5 OSD-2 Snapshots and related enhancements (08-182) [Weber]
    - 5.4.6 SAT-2: NV Cache Translation (08-018) [Overby]
    - 5.4.7 OSD-2 CDB Continuations Definition and Usage (08-185) [Weber]
6. SCSI Protocol Topics
  - 6.1 USB Attached SCSI Proposals
    - 6.1.1 UAS Clause 4 (Model) (08-281) [Stevens]

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- 6.1.2 UAS Clause 6 (Usage) (08-282) [Stevens]
- 7. Old Business
- 8. New Business
  - 8.1 Long-standing keyword omitted from Style Guide (08-295) [Weber]
- 9. Review of Working Drafts
  - 9.1 USB Attached SCSI Working Draft (UAS) [Stevens]
- 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 9:00 a.m. Wednesday, July 16, 2008. He thanked Bob Nixon and Anne McDonald of Emulex for hosting the meeting. As usual, the people present introduced themselves.

### **2. Approval of Agenda**

The draft agenda was approved with no additions or changes.

No 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
Mr. Noud Snelder	V	BDT
Mr. Kevin Marks	P	Dell, Inc.
Mr. Sean Dolan	A	EMC Corp.
Mr. William Martin	P	Emulex
Mr. Robert H. Nixon	A	Emulex
Mr. I. Dal Allan	A	ENDL
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Curtis Ballard	A	Hewlett Packard Co.
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Junji Kinoshita	V	Hitachi America, Ltd.
Mr. Eric Hibbard	V	Hitachi Data Systems
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. Kevin Butt	P	IBM Corp.
Mr. Pak Seto	V	Intel Corp.
Mr. Joel Silverman	P	Kawasaki Microelectronics Am
Mr. Dennis Moore	P	KnowledgeTek, Inc.
Mr. John Geldman	P	Lexar Media, Inc.
Mr. John Lohmeyer	P	LSI Corp.
Mr. George Penokie	A	LSI Corp.
Mr. Robert Sheffield	A	LSI Corp.
Mr. David Geddes	P	Marvell Semiconductor, Inc.
Mr. Takaharu Ai	V	Matsushita
Mr. Robert Griswold	A	Microsoft Corp.
Mr. Chris Fore	A	NetApp
Mr. Frederick Knight	P	NetApp
Mr. Mark Overby	P	Nvidia Corp.
Mr. Geoffrey Barton	V	Overland Storage
Dr. Paul Suhler	P	Quantum Corp.
Mr. Michael Rogers	A	Samsung
Mr. Dave Landsman	A	SanDisk Corporation
Mr. Avraham Shimor	P	SanDisk Corporation
Mr. Gerald Houlder	P	Seagate Technology
Mr. Sami Iren	V	Seagate Technology
Mr. Roger Cummings	P	Symantec
Mr. Jorgen Walle-Jensen	V	Tandberg Storage
Mr. Mark Evans	P	Western Digital
Mr. Curtis Stevens	A	Western Digital
Mr. Bill Pagano	V	Xiotech Corp.

## 39 People Present

Status Key: P - Principal  
A - Alternate  
AV - Advisory Member  
E - Emeritus  
L - Liaison  
V - Visitor

## **4. SCSI Architecture Model Topics**

### **4.1 SAM-5 Response Fence for protocol services (06-341) [Elliott]**

Rob Elliott requested that discussion of the proposal to reflect transport layer ordering of commands and task management functions in SAM-5 (06-341r1) be deferred to the next meeting.

### **4.2 SAM-5 SCSI Initiator and Target Port capability attributes (07-429) [Elliott]**

Rob Elliott requested that discussion of this topic be deferred to the next meeting.

## **5. Command Set Topics**

### **5.1 SCSI Primary Commands Proposals**

#### **5.1.1 SPC-4: Group Persistent Reservations - Proposal (08-025) [Butt]**

Kevin Butt asked that discussion of the proposal to define team reservations (08-025r3) be deferred to the next meeting.

#### **5.1.2 SPC-4 SBC-3 SAS-2.1 Power condition enhancements (08-126) [Elliott]**

Rob Elliott asked that the proposal to define a new power management model for SCSI (08-126r1) be deferred to the next meeting.

#### **5.1.3 SPC-4 SBC-3 Adding more low power options (08-184) [Houlder]**

Gerry Houlder presented a proposal to add a small number of new low power options in the Power Conditions Mode Page (08-184r1). The group requested numerous and significant changes, including the addition of an additional Standby low power mode. Gerry agreed to prepare a new revision for consideration at the Power Management interim meeting.

#### **5.1.4 SPC-4 Protocol Specific diagnostic page (08-254) [Elliott]**

Rob Elliott presented a proposal to add a common format for protocol specific diagnostic pages (08-254r0). Ralph Weber moved that 08-254r0 be recommended for inclusion in SPC-4. Rob Elliott seconded the motion. In the absence of objections, the motion passed unanimously.

#### **5.1.5 SPC-4 Parsing variable-length parameter lists and data (08-261) [Elliott]**

Rob Elliott presented a proposal to add a new SPC-4 model subclause describing length field handling behaviors for application clients and device servers (08-261r0). The group requested several minor changes and Rob agreed to prepare a new revision.

Rob Elliott moved that 08-261r1 (r0 as revised) be recommended for inclusion in SPC-4. Kevin Butt seconded the motion. In the absence of objections, the motion passed unanimously.

#### **5.1.6 SAI, SQN, IV, & Data must be contiguous (08-262) [Weber]**

Ralph Weber presented a proposal to swap reserved bytes with SAI bytes in several ESP-SCSI data formats to facilitate contiguous computation of integrity check values (08-262r0).

Ralph Weber moved that 08-262r0 be recommended for inclusion in SPC-4. Kevin Butt seconded the motion. In the absence of objections, the motion passed unanimously.

### **5.1.7 Too much to do ... Not enough Progress Counters (08-263) [Weber]**

Ralph Weber presented a proposal to define a way for Request Sense to report multiple progress counters. (08-263r0). The group requested that the proposed descriptor format be modified to include a sense key value, and that one descriptor be used for each progress counter (instead of multiple progress counters in one descriptor). Altering the proposal to provide the maximum level of backwards compatibility was also requested.

Ralph agreed to prepare a new revision for consideration at a future meeting.

### **5.1.8 SPC-4 ATA Information VPD page nits (08-287) [Elliott]**

Rob Elliott presented a proposal align the ATA Information VPD page requirements with SAT-2. The group asked for minor changes and Rob agreed to prepare a new revision.

Rob Elliott moved that 08-287r1 (r0 as revised) be recommended for inclusion in SPC-4. Mark Overby seconded the motion. In the absence of objections, the motion passed unanimously.

### **5.1.9 Revoking the provisional TrustedFlash Security Protocol Assignment (SPC-4) (08-289) [Geldman]**

John Geldman presented a proposal that requested removal of the SD Card TrustedFlash specification security protocol code (08-289r0). The group requested modifications in the proposal and John agreed to prepare a new revision. Before John could make a motion regarding the proposal, Rob Elliott invoked the Two-Week Rule.

John agreed to upload the revised proposal in sufficient time for consideration at the next meeting.

## **5.2 SCSI Block Commands Proposals**

### **5.2.1 SBC-3 Set pseudo format, a.k.a. DIF Granularity (08-044) [Sheffield]**

Bob Sheffield presented a proposal to define a pseudo-format mechanism to allow two DIF formats to exist on a single disk (08-044r2). Concerns were raised about the model representation of multiple pseudo forms and/or different DIF types in the different formats.

The group recommended numerous changes and Bob agreed to prepare a new revision. At least one teleconference was scheduled to advance consideration of the proposal.

### **5.2.2 SBC-3 SPC-4: Protection Type 3 Reference Tag Clarification (08-116) [Penokie]**

George Penokie presented a proposal to clarify that the Type 3 Reference Tag is the same as the Application Tag (08-116r2). The group requested several minor changes and George agreed to prepare a new revision.

George Penokie moved that 08-116r3 (r2 as revised) be recommended for inclusion in SBC-3 and SPC-4. Bill Martin seconded the motion. In the absence of objections, the motion passed unanimously.

### **5.2.3 SBC - Thin Provisioning (08-149) [Knight]**

Fred Knight presented a proposal to define thin provisioning in SBC-3 (08-149r0). The group requested that the read/write usage aspects of the proposal were clearly separated from the management aspects. Several lesser changes were suggested.

Fred agreed to prepare a new revision for consideration at the next meeting.

### **5.2.4 SBC-3 Model for encrypting disk drives (08-192) [Houlder]**

Gerry Houlder presented a proposal to defined an encryption/locking model for SBC-3 (08-192r0). The group strongly recommended moving the proposed concepts to an informative annex. Gerry agreed to consider this advice and bring a revised proposal to the next meeting.

### **5.3 SCSI Enclosure Services Proposals**

No SES proposals were present to the group.

### **5.4 Other Proposals**

#### **5.4.1 OSD-2 Conditional Attributes Setting (08-112) [Weber]**

Ralph Weber asked that discussion of this topic be deferred to OSD-3.

#### **5.4.2 SAS: Add low power transceiver options (08-015) [Houlder]**

Gerry Houlder asked that discussion of this topic be removed from future CAP agendas.

#### **5.4.3 Fixes for five OSD-2 bugs (08-179) [Weber]**

Ralph Weber presented a proposal which contained corrections for five bugs in OSD-2 (08-179r3).

Ralph Weber moved that 08-179r3 be recommended for inclusion in OSD-2. Sami Iren seconded the motion. In the absence of objections, the motion passed unanimously.

#### **5.4.4 Set Attributes error handling in OSD-2 (08-181) [Weber]**

Ralph Weber presented a proposal which expanded the explanation of OSD Set Attributes error handling to cover all four cases, instead of the currently described two cases (08-181r0). He noted that the proposal simplified most instances of the explanation by replacing them with a reference to a new subclause which the proposal added.

Roger Cummings moved that 08-181r0 be recommended for inclusion in OSD-2. Sami Iren seconded the motion. In the absence of objections, the motion passed unanimously.

#### **5.4.5 OSD-2 Snapshots and related enhancements (08-182) [Weber]**

Ralph Weber presented the proposal that embodied the Snapshots concept developed by the SNIA OSD TWG (08-182r2). The group requested several corrections and Ralph agreed to prepare a new revision.

Kevin Marks moved that 08-182r3 (r2 as revised) be recommended for inclusion in OSD-2. Roger Cummings seconded the motion. In the absence of objections, the motion passed unanimously.

#### **5.4.6 SAT-2: NV Cache Translation (08-018) [Overby]**

Mark Overby presented a proposal to define Non-volatile cache commands for SAT-3 (08-018r3). The group recommended that action on the proposal be deferred until the SAT-3 project proposal has been approved, and Mark agreed to revise the proposal for consideration at that time.

#### **5.4.7 OSD-2 CDB Continuations Definition and Usage (08-185) [Weber]**

Ralph Weber presented a proposal to extend the OSD-2 CDB into the data out buffer and use the extension for scatter/gather lists and a Copy User Objects command (08-185r4).

The group discussed removing the Copy User Objects command from the proposal and restoring it during Letter Ballot comments processing. This plan was scotched in favor of having the Copy User Object command available for Letter Ballot review, and improving it via Letter Ballot comments.

Several other corrections were requested and Ralph agreed to prepare a new revision.

Sami Iren moved that 08-185r5 (r4 as revised) be recommended for inclusion in OSD-2. Ralph Weber seconded the motion. In the absence of objections, the motion passed unanimously.

## 6. SCSI Protocol Topics

### 6.1 USB Attached SCSI Proposals

#### 6.1.1 UAS Clause 4 (Model) (08-281) [Stevens]

Curtis Stevens presented draft text for the UAS Model clause (08-281r1). The group requested numerous changes and Curtis agreed to prepare a new revision.

#### 6.1.2 UAS Clause 6 (Usage) (08-282) [Stevens]

Curtis Stevens presented draft text for the UAS Usage clause (08-282r0). The group requested numerous changes and Curtis agreed to prepare a new revision.

## 7. Old Business

There was no old business.

## 8. New Business

### 8.1 Long-standing keyword omitted from Style Guide (08-295) [Weber]

Ralph Weber presented a proposal to restore the 'expected' keyword to the T10 Style Guide (08-295r0). The group strongly objected to the change based on the current usage of 'expected' in several standards.

Bill Martin invoked the Two-Week Rule, and processing of the proposal was deferred until the next meeting.

## 9. Review of Working Drafts

### 9.1 USB Attached SCSI Working Draft (UAS) [Stevens]

Curtis Stevens asked whether proposals are needed to change the UAS working draft, and was told yes.

Curtis asked whether a Queue Depth Reporting function should be added to UAS. The group felt this would be inappropriate as a transport layer function, but might be acceptable as information in a protocol-specific VPD page.

Several other editor's notes were reviewed and Curtis noted editorial changes to make in the next revision.

## 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-4:

08-254r0 (Protocol Specific diagnostic page) [Elliott]

08-261r1 (Parsing variable-length parameter lists and data) [Elliott]

08-262r0 (SAI, SQN, IV, & Data must be contiguous) [Weber]

08-287r1 (ATA Information VPD page nits) [Elliott]

For inclusion in SPC-4 and SBC-3:

08-116r3 (Protection Type 3 Reference Tag Clarification) [Penokie]

For inclusion in OSD-2:

08-179r3 (Fixes for five OSD-2 bugs) [Weber]

08-181r0 (Set Attributes error handling in OSD-2) [Weber]

08-182r3 (Snapshots and related enhancements) [Weber]  
08-185r5 (CDB Continuations Definition and Usage) [Weber]

## **11. Meeting Schedule**

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Wednesday, September 10, 2008 from 9 a.m. until 7 p.m. and resuming Thursday, September 11, 2008 from 9 a.m. until noon. The meeting will be in Colorado Springs, CO at the Antlers Hilton Hotel (Reservations: <http://www.hilton.com/en/hi/groups/personalized/COSCSHF-LSI908-20080907/index.jhtml>) hosted by LSI Corp.

## **12. Adjournment**

The meeting was adjourned at 12:05 p.m. on Thursday July 17, 2008.