

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

**Doc. No.:** T10/08-429r0

**Date:** November 6, 2008

**Reply to:** John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- November 5-6, 2008  
Santa Ana, CA

## 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 Too much to do ... Not enough Progress Counters (08-263) [Weber]
    - 5.1.5 Revoking the provisional TrustedFlash Security Protocol Assignment (SPC-4) (08-289) [Geldman]
    - 5.1.6 SPC-4 Remove restrictions on sense data valid bits (08-321) [Houlder]
    - 5.1.7 Restrict SPC-4 and SAM-5 codes to FC-SB-4 use (08-327) [Butt]
    - 5.1.8 SPC-4: Reporting SPC-2 Reservation Holder (08-342) [Butt]
    - 5.1.9 SPC-4: Correction to IKEv2-SCSI Certificate Request Payload (08-346) [Suhler]
    - 5.1.10 SPC-4, SBC-3: Reporting Thin Provisioning Support (08-357) [Black]
    - 5.1.11 SPC-4: Reporting support for all DIF types (08-396) [Penokie]
    - 5.1.12 SPC-4: Cache hits and power on statistics (08-386) [Penokie]
    - 5.1.13 SPC-4: IKEv2-SCSI Authentication (08-423) [Black]
  - 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 - Thin Provisioning (08-149) [Knight]
    - 5.2.3 SBC-3 Letter Ballot Target Dates [Evans]
    - 5.2.4 SBC-3: TRIM: Behavior of subsequent READs (08-347) [Black, Knight]
    - 5.2.5 SBC-3: WRITE SAME unmap bit (08-356) [Black]
    - 5.2.6 Thin Provisioning - Management Commands (08-341) [Knight]
    - 5.2.7 SBC-3: Adding a Protection Information Interval (08-415) [Penokie]
  - 5.3 SCSI Enclosure Services Proposals
  - 5.4 Other Proposals
    - 5.4.1 OSD-3 Conditional Attributes Setting (08-112) [Weber]
    - 5.4.2 SAT-2: NV Cache Translation (08-018) [Overby]
    - 5.4.3 Response to T10 Letter Ballot comments on OSD-2 (08-380) [Weber]

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- 5.4.4 Supplemental changes for OSD-2 Letter Ballot comments (08-395) [Weber]
- 6. SCSI Protocol Topics
  - 6.1 USB Attached SCSI Proposals
    - 6.1.1 UAS Clause 4 (Model) (08-281) [Stevens]
    - 6.1.2 UAS Clause 6 (Usage) (08-282) [Stevens]
- 7. Old Business
- 8. New Business
  - 8.1 Add Restricted keyword to the Style Guide (08-450) [Weber]
  - 8.2 TrustedFlash-SCSI Mapping - Informational Post (08-431) [Landsman]
- 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, November 5, 2008. He thanked Curtis Stevens of Western Digital 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.

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

- 8.2 TrustedFlash-SCSI Mapping - Informational Post (08-431) [Landsman]

### 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. Kevin Marks	P	Dell, Inc.
Mr. David Black	A	EMC Corp.
Mr. Sean Dolan	A	EMC Corp.
Mr. William Martin	P	Emulex
Mr. Robert H. Nixon	A	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Nathan Hastad	AV	General Dynamics
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Dr. Mark Seidel	P	Intel Corp.
Mr. Pak Seto	V	Intel Corp.
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. Robert Griswold	P	Microsoft Corp.
Mr. Frederick Knight	P	NetApp
Mr. Thomas Friend	V	Oxford Semiconductor Ltd.
Mr. Takaharu Ai	V	Panasonic
Mr. Tim Symons	P	PMC-Sierra
Dr. Paul Suhler	P	Quantum Corp.
Mr. John Osterlund	A	Samsung
Mr. Dave Landsman	A	SanDisk Corporation
Mr. Gerald Houlder	P	Seagate Technology
Mr. Dale LaFollette	P	Sun Microsystems, Inc.
Mr. Roger Cummings	P	Symantec Corporation
Mr. Mark Evans	P	Western Digital
Mr. Michael Rogers	A	Western Digital
Mr. Curtis Stevens	A	Western Digital

30 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 (08-184r6). The group requested several changes, including restructuring of the power conditions table into a series of subclauses.

Concerns were raised about defining the Standby1 state to be the lowest (not the highest) power consuming Standby state. The problem was that the Idle1 state was defined to be the highest power consuming Idle state. A straw poll was requested regarding continuing to use this nomenclature.

- 4 people favored keeping the current nomenclature.
- 4 people favored changing Standby1 to have the highest power consumption of Standby states.

Gerry was instructed to add appropriate SPL changes to the next revision of the proposal.

Gerry agreed to prepare a new revision for consideration at a future meeting or conference call.

#### 5.1.4 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. (08-263r2). The group requested a clarifying change in the definition of the Progress Indication field, and Ralph agreed to prepare a new revision.

Ralph Weber moved that 08-263r3 (r2 as revised) be recommended for inclusion in SPC-4. Rob Elliott seconded the motion. In the absence of objections, the motion passed unanimously.

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

Based on the discussion held under agenda item 8.2, John Geldman asked that discussion of the proposal that requested removal of the SD Card TrustedFlash specification security protocol code (08-289r0) be deferred to the next meeting.

#### 5.1.6 SPC-4 Remove restrictions on sense data valid bits (08-321) [Houlder]

Gerry Houlder presented a proposal to allow descriptor format sense data to contain descriptors with the Valid bit set to zero (08-321r1).

Curtis Stevens moved that the working group recommends that discussion of 08-321 be ended immediately and that backwards incompatibilities with previous standards argue against ever approving a proposal of this type. George Penokie seconded the motion. The motion 7:2:6.

**5.1.7 Restrict SPC-4 and SAM-5 codes to FC-SB-4 use (08-327) [Butt]**

On behalf of Kevin Butt, Ralph Weber presented a proposal to allocate Logical Unit Number and SPC-4 service action codes for use by FC-SB-4 (08-327r2).

Ralph Weber moved that 08-327r2 be recommended for inclusion in SAM-5 and SPC-4. Bob Nixon seconded the motion. The motion passed 4:0:11.

**5.1.8 SPC-4: Reporting SPC-2 Reservation Holder (08-342) [Butt]**

Kevin Butt sent an e-mail message requesting that this topic be removed from future agendas.

**5.1.9 SPC-4: Correction to IKEv2-SCSI Certificate Request Payload (08-346) [Suhler]**

Paul Suhler presented a proposal to correct a vague (and erroneous) definition of the Certificate Request payload in IKEv2-SCSI (08-346r1). The group discussed extensibility issues, and concluded no changes were needed. The group requested that implementations not be required to store four certificate authority values. Several small changes were requested too, and Paul agreed to prepare a new revision.

Paul Suhler moved that 08-346r2 (r1 as revised) be recommended for inclusion in SPC-4. David Black seconded the motion. In the absence of objections, the motion passed unanimously.

**5.1.10 SPC-4, SBC-3: Reporting Thin Provisioning Support (08-357) [Black]**

Due to the late hour, David Black requested that discussion of a proposal to assign an Inquiry data bit to indicate support for Thin Provisioning (08-357r0) be deferred to the next meeting.

**5.1.11 SPC-4: Reporting support for all DIF types (08-396) [Penokie]**

George Penokie presented a proposal add all possible types of DIF support (08-396r1). Rob Elliott noted that the proposed changes break SBC-3 table 20. George agreed to prepare a revised proposal for consideration at the next meeting.

**5.1.12 SPC-4: Cache hits and power on statistics (08-386) [Penokie]**

George Penokie presented a proposal to add a Cache Statistics and Performance log page (08-386r1). The group requested numerous changes. Moving the page definition to SBC-3 was also suggested.

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

**5.1.13 SPC-4: IKEv2-SCSI Authentication (08-423) [Black]**

David Black presented a proposal to clarify shared key versus digital signature authentication handling (08-423r1). The group requested numerous changes and David agreed to prepare a new revision for consideration at the next meeting or teleconference.

**5.2 SCSI Block Commands Proposals****5.2.1 SBC-3 Set pseudo format, a.k.a. DIF Granularity (08-044) [Sheffield]**

Bob Sheffield stated that discussion of this proposal should be removed from future agendas in favor of 08-415 (see agenda item 5.2.7).

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

Fred Knight presented a proposal to define thin provisioning in SBC-3 (08-149r4). The group requested numerous change, and Fred agreed to prepare a new revision for consideration at the next meeting or teleconference.

### **5.2.3 SBC-3 Letter Ballot Target Dates [Evans]**

Mark Evans asked that discussion of the SBC-3 target dates be deferred until the new DIF formats, power management, and the Thin Provisioning I/O path proposals are closer to completion.

### **5.2.4 SBC-3: TRIM: Behavior of subsequent READs (08-347) [Black, Knight]**

Due to the later hour, Fred Knight and David Black asked that discussion of a proposal which documented issues related to Reading blocks after they are Thin Provisioning Trimmed (08-347r0) be deferred to the next meeting.

### **5.2.5 SBC-3: WRITE SAME unmap bit (08-356) [Black]**

Due to the later hour, David Black asked that discussion of a proposal to define an Unmap bit in the Write Same command (08-356r2) be deferred the next meeting or teleconference.

### **5.2.6 Thin Provisioning - Management Commands (08-341) [Knight]**

Due to the late hour, the Fred Knight agreed to defer consideration of this proposal to the next meeting.

### **5.2.7 SBC-3: Adding a Protection Information Interval (08-415) [Penokie]**

George Penokie presented a proposal to add DIF information in the middle of logical blocks (08-415r0). The group requested several changes, and George agreed to prepare a new revision for consideration at 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-3 Conditional Attributes Setting (08-112) [Weber]**

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

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

In the absence of Mark Overby, the group agreed that discussion of his proposal to define Non-volatile cache commands for SAT-3 (08-018r3) be deferred to the next meeting.

### **5.4.3 Response to T10 Letter Ballot comments on OSD-2 (08-380) [Weber]**

Ralph Weber reviewed two unresolved OSD-2 letter ballot comments (08-380r2) and agreed to incorporate the group's recommendations into the next revision.

### **5.4.4 Supplemental changes for OSD-2 Letter Ballot comments (08-395) [Weber]**

Ralph Weber noted that discussion of this topic was included in the discussion of agenda item 5.4.4.

## **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 (08-281r3). The group requested numerous changes and Curtis agreed to prepare a new revision for consideration during a conference call.

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

Curtis Stevens presented draft text for the UAS Usage clause (08-282r2). The group requested several changes and Curtis agreed to prepare a new revision.

Curtis Stevens moved that 08-282r3 (r2 as revised) be approved for inclusion in UAS. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

## **7. Old Business**

There was no old business.

## **8. New Business**

### **8.1 Add Restricted keyword to the Style Guide (08-450) [Weber]**

Ralph Weber presented a proposal to add the commonly used keyword, *restricted*, to the T10 Style Guide (08-450r0). The group requested minor changes and Ralph agreed to prepare a new revision.

Ralph Weber moved that 08-450r1 (r0 as revised) be recommended for inclusion in the T10 Style Guide. David Black seconded the motion. In the absence of objections, the motion passed unanimously.

### **8.2 TrustedFlash-SCSI Mapping - Informational Post (08-431) [Landsman]**

David Landsman presented a draft SCSI Mapping proposal that had been transmitted SD Advanced Security working group (08-431r0). The group discussed the informational posting and its relationship to the proposal in 08-289 (see agenda item 5.1.5).

## **9. Review of Working Drafts**

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

Due to the late hour, Curtis Stevens asked that the review of the UAS working draft be 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-4:

08-263r3 (Too much to do ... Not enough Progress Counters) [Weber]

08-346r2 (Correction to IKEv2-SCSI Certificate Request Payload) [Suhler]

For inclusion in SAM-5 and SPC-4:

08-327r2 (Restrict SPC-4 and SAM-5 codes to FC-SB-4 use) [Butt]

For inclusion in UAS:

08-282r3 (UAS Clause 6 (Usage)) [Stevens]

For inclusion in the T10 Style Guide:

08-450r1 (Add Restricted keyword to the Style Guide) [Weber]

## **11. Meeting Schedule**

Conference calls were requested for:

- Power Management, sponsored by Gerry Houlder on November 19 10–noon CST
- IKEv2-SCSI Authentication, sponsored by David Black on November 24 1–3 EST
- One UAS conference call on December 2 10–noon PST
- At least one Thin Provisioning conference call November 19 1–3 PST and December 4 10–noon PST

A SCSI Commands, Architecture, and Protocols Working Group meeting is scheduled for:

Wednesday-Thursday, January 14-15, 2009 commencing at 9:00 a.m. on Wednesday and ending at noon on Thursday during T10 week.

## **12. Adjournment**

The meeting was adjourned at 12:10 p.m. on Thursday November 6, 2008.