

Accredited Standards Committee\*

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

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Date: July 10, 2003

Reply to: John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- July 8-9, 2003  
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 Optional INQUIRY command processing before entering task set (03-243) [Penokie]
  - 4.3 SAM-3, two new transport protocol services (03-244) [Evans]
5. Command Set Topics
  - 5.1 Persistent Reserve Out Functionality for Reserve/Release Replacement (02-141) [Peterson]
  - 5.2 Ordered SCSI proposal (02-283) [Peterson]
  - 5.3 Two persistent Reservations Problems - Update & Decision Required (02-483) [Cummings]
  - 5.4 RBC Defect Report (03-021) (RBC-A) [Atkinson, Roberts]
  - 5.5 SPC-3: New Inquiry VPD Page - Management Network Address (03-183) [Binford]
  - 5.6 SPC-3: TransportID Cleanup (03-203) [Weber]
  - 5.7 Limiting the MD5 logical unit identifier to logical units (03-209) [Weber]
  - 5.8 PERSISTENT RESERVE OUT SPEC\_I\_PT additional parameter data (03-210) [Weber]
  - 5.9 Add additional sense code value to SPC-3 for ADC (03-227) [Entzel]
  - 5.10 Persistent All Registrants Fix (03-230) [Penokie]
  - 5.11 SES-2 Array Control and Status changes (03-215) [Elliott]
  - 5.12 SES-2 Updated SAS Device Element Status descriptor (03-214) [Elliott]
  - 5.13 MSC Presentation (03-242) [Penokie]
  - 5.14 Queue algorithm modifier default [Weber]
6. SCSI Protocol Topics
7. End-to-End Data Protection Topics
  - 7.1 End-to-End Data Protection Proposal (03-110, 03-111) [Houlder]
  - 7.2 Simplified End-to-End Data Protection (03-176) [Penokie]
  - 7.3 End-to-End Error Cases (03-207) [Penokie]
  - 7.4 CAP Data Integrity Usage Models (03-222) [Sheffield, Holt, Rassbach]
  - 7.5 End-to-End Data Protection justification (03-224) [Holt]
8. Old Business
9. New Business
10. Review of Documents
  - 10.1 SRP-2 Review (SRP-2) [Simpson]
  - 10.2 SSC-2 Letter Ballot Comments Resolution (SSC-2) [Peterson]
11. Review of Recommendations to the Plenary
12. Meeting Schedule
13. Adjournment

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## Results of Meeting

### 1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 1:30 p.m., Tuesday July 8, 2003. He thanked LSI Logic for hosting the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated.

### 2. Approval of Agenda

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

5.14 Queue algorithm modifier default [Weber]

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

10.2 SSC-2 Letter Ballot Comments Resolution (SSC-2) [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	Electronic Mail Address
Mr. Walter Rassbach	V		rassbach@nilenet.com
Mr. Richard Chen	V	Acard Technology	rchern@acard.com
Mr. Daniel Weng	V	Acard Technology	dweng@acard.com
Mr. Ron Roberts	P	Adaptec, Inc.	rkroberts@aol.com
Ms. Pat Thaler	V	Agilent Technologies	pat_thaler@agilent.com
Mr. Robert Snively	P	Brocade Comm. Systems, Inc.	rsnively@brocade.com
Mr. James A. Lott, Jr.	P	Dallas Semiconductor	jim.lott@dalsemi.com
Mr. Kevin Marks	P	Dell Computer Corp.	kevin_marks@dell.com
Mr. Gary S. Robinson	P	EMC Corp.	robinson_gary@emc.com
Mr. David Black	A	EMC Corp.	black_david@emc.com
Mr. Robert H. Nixon	P	Emulex	bob.nixon@emulex.com
Mr. Ralph O. Weber	P	ENDL Texas	roweber@acm.org
Mr. Rob Elliott	P	Hewlett Packard Co.	Elliott@hp.com
Mr. Michael Banther	V	Hewlett Packard Co.	michael_banther@hp.com
Mr. George O. Penokie	P	IBM / Tivoli Systems	gop@us.ibm.com
Mr. Kevin Butt	AV	IBM Corp.	kdbutt@us.ibm.com
Mr. Cris Simpson	P	Intel Corp.	cris.simpson@intel.com
Mr. Robert Sheffield	A	Intel Corp.	robert.l.sheffield@intel.com
Mr. Dennis Moore	P	KnowledgeTek, Inc.	dmoore@ix.netcom.com
Mr. Joe Breher	AV	Lingua Data	joe@q-music.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@t10.org
Mr. Keith Holt	V	LSI Logic Corp.	keith.holt@lsil.com
Mr. Raymond 'Scott'	V	LSI Logic Corp.	scott.rowhuff@lsil.com

Rowhuff

Mr. Mark Evans	P	Maxtor Corp.	mark_evans@maxtor.com
Mr. Edward A. Gardner	AV	Ophidian Designs	eag@ophidian.com
Mr. Larrie Carr	V	PMC-Sierra, Inc.	carr@pmc-sierra.com
Mr. Paul Entzel	P	Quantum Corp.	paul.entzel@quantum.com
Mr. David Peterson	AV	SBS Technologies	dap@sbs.com
Mr. Gerald Houlder	P	Seagate Technology	gerry.houlder@seagate.com
Mr. Paul Sweazey	AV	Seagate Technology	sweazey@cdg.stsv.seagate.com
Mr. Jim Coomes	V	Seagate Technology	jim.coomes@seagate.com
Mr. Willis Whittington	V	Seagate Technology	Willis.Whittington@seagate.com
Mr. Erich Oetting	P	Storage Technology Corp.	erich_oetting@stortek.com
Mr. Vit Novak	P	Sun Microsystems, Inc.	vit.novak@sun.com
Mr. Charles Binford	A	Sun Microsystems, Inc.	Charles.Binford@sun.com
Mr. Kenneth Hirata	P	Vixel Corp.	Ken.Hirata@Vixel.com

36 People Present

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

## 4. SCSI Architecture Model Topics

### 4.1 SAM-3 SPC-3 SAS FCP-3 SRP-2 Device names and VPD data (02-419) [Penokie]

George Penokie presented a proposal to add SCSI Device Names in all active SCSI standards (02-419r4). The group discussed the uses for device names and how the proposed requirements relate to those uses.

While reviewing the detailed SPC-3 changes, the group requested specific changes and George agreed to consider the requests and prepare a new revision for consideration at the next meeting.

### 4.2 Optional INQUIRY command processing before entering task set (03-243) [Penokie]

George Penokie presented a proposal to allow processing of INQUIRY commands that might otherwise be blocked by tasks with the Ordered task attribute (03-243r0). The group asked George to broaden the list of commands that might be allowed under the conditions described in the proposal. The group asked George to consider rephrasing the proposal to allow processing of the identified tasks as if they had the Head Of Queue task attribute.

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

### 4.3 SAM-3, two new transport protocol services (03-244) [Evans]

Mark Evans presented a proposal to add transport protocol services for terminating port command processing and terminating port data transfer processing (03-244r0).

The group debated the appropriateness of the terminate command service in the SCSI architecture and concluded that changes to the task management functions descriptions would be preferable.

The group requested several changes in the data transfer termination portion of the proposal and Mark agreed to prepare a new revision for consideration at the next meeting.

## **5. Command Set Topics**

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

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

### **5.2 Ordered SCSI proposal (02-283) [Peterson]**

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

### **5.3 Two persistent Reservations Problems - Update & Decision Required (02-483) [Cummings]**

In the absence of Roger Cummings, discussion of this topic was deferred to the next meeting.

### **5.4 RBC Defect Report (03-021) (RBC-A) [Atkinson, Roberts]**

John Lohmeyer reported that the letter ballot on the RBC amendment had passed 37:0:3:2=42. He stated that since ballot passed with no negatives to resolve, the amendment has gone on to Public Review. Two editorial comments will be handled during the ANSI Editor's review.

### **5.5 SPC-3: New Inquiry VPD Page - Management Network Address (03-183) [Binford]**

Charles Binford presented a proposal to add a VPD page containing network address information for management applications (03-183r1). The group requested changes in the proposal and Charles agreed to prepare a new revision.

David Black noted that T10 should not be assuming responsibility of URL protocol extension assignments. That function is performed by the IETF IANA and having two assignment authorities is a prescription for disaster.

Charles agreed to bring the revised proposal to the next meeting for consideration.

### **5.6 SPC-3: TransportID Cleanup (03-203) [Weber]**

Ralph Weber presented a proposal to clarify that TransportIDs identify initiator ports and address problems with current iSCSI TransportIDs that violate that principle (03-203r2).

Ralph Weber moved that 03-203r2 be recommended for inclusion in SPC-3. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

### **5.7 Limiting the MD5 logical unit identifier to logical units (03-209) [Weber]**

Ralph Weber presented a proposal to limit the use of the MD5 identification descriptor to logical units (03-209r0).

The group discussed the possibility of using the MD5 identifier for gateway product device names and concluded that a new proposal would be in order from an organization that discovers a need.

Ralph Weber moved that 03-209r0 be recommended for inclusion in SPC-3. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

### **5.8 PERSISTENT RESERVE OUT SPEC\_I\_PT additional parameter data (03-210) [Weber]**

Ralph Weber presented a proposal to address inconsistent usage of TransportIDs by the PERSISTENT RESERVE OUT command (03-210r0). Rob Elliott stated that his company is prepared to accept change 1 in the proposal. Keith Holt requested that consideration be deferred so that he can review the proposal with his engineers.

Ralph agreed to prepare a revised proposal containing only change 1 for consideration by the next meeting.

### **5.9 Add additional sense code value to SPC-3 for ADC (03-227) [Entzel]**

Paul Entzel presented a request for a new ASC/ASCQ assignment (03-227r0) and informed the group of an additional request to be added for missing cleaning cartridges. Paul agreed to prepare a new revision reflecting the additional code request.

Paul Entzel moved that 03-227r1 (r0 as modified) be recommended for inclusion in SPC-3. Erich Oetting seconded the motion. The motion passed on a vote of 18:0:2.

### **5.10 Persistent All Registrants Fix (03-230) [Penokie]**

George Penokie presented a proposal to correct problems in the persistent reservations definition (02-230r2). The group noted areas where the proposal needed corrections and George agreed to prepare a new revision of the proposal.

The degree of changes required to the proposed solution for problem 3 were so significant that George agreed to remove them from the revised proposal. George requested that the remaining two problems and their solutions be recommended by this meeting.

George Penokie moved that 03-230r3 (r2 as revised) be recommended for inclusion in SPC-3. Charles Binford seconded the motion. In the absence of any objections, the motion passed unanimously.

### **5.11 SES-2 Array Control and Status changes (03-215) [Elliott]**

Rob Elliott presented a proposal to remove the Array Control and Array Status pages from SES-2 (03-215r0). Rob noted that the functions of the Array Control and Array Status pages would be merged into the Enclosure Control and Enclosure Status pages.

Bob Snively raised concerns about array vendors that are familiar with SES and not SES-2. Rob agreed to post a message about the removal to the T10 Reflector.

Rob Elliott moved that 03-215r0 be recommended for inclusion in SES-2. George Penokie seconded the motion. The motion passed on a vote of 12:0:4.

### **5.12 SES-2 Updated SAS Device Element Status descriptor (03-214) [Elliott]**

Rob Elliott presented a proposal to update the SES-2 Device Element status descriptor for SAS devices (02-214r0).

Bob Snively raised questions about the added complexity of supporting SAS devices owing to the lack of information about all domains in which the SAS device is participating or information about the number of SES processors in the enclosure.

The group requested the addition of an "all phys described" bit in the proposed descriptor and Rob agreed to revise the proposal.

Rob Elliott moved that 03-214r1 (r0 as modified) be recommended for inclusion in SES-2. Walter Rassbach seconded the motion. The motion passed on a vote of 14:0:4.

### **5.13 MSC Presentation (03-242) [Penokie]**

George Penokie presented a review of possible topics to be covered by the MSC standard (03-242r0).

The group discussed how to proceed with development or withdrawal of the MSC project. It was tentatively agreed to announce pending withdrawal of the project in November both now and during the September meeting week.

### **5.14 Queue algorithm modifier default [Weber]**

Ralph Weber asked the group to consider changing a requirement on queue algorithm modifier value from 'shall' to 'should'. After a brief discussion, Ralph Weber moved that a recommendation be made to T10 that the SPC-3 editor be instructed to change the 'shall' to a 'should' in the definition of the Control mode page Queue algorithm modifier field in SPC-3. Erich Oetting seconded the motion.

Bob Snively moved to amend the motion to delete the whole sentence. Ed Gardner seconded the motion to amend. The motion to amend passed on a vote of 11:5:3.

George Penokie requested that consideration of the motion be deferred based on the proposal not having been posted two weeks prior to the meeting.

## **6. SCSI Protocol Topics**

No SCSI protocol topics were brought to the group.

## **7. End-to-End Data Protection Topics**

### **7.1 End-to-End Data Protection Proposal (03-110, 03-111) [Houlder]**

Gerry Houlder reported that there have been no changes in these documents since the last meeting. He asked that discussion of this topic be deferred to the next meeting.

### **7.2 Simplified End-to-End Data Protection (03-176) [Penokie]**

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

### **7.3 End-to-End Error Cases (03-207) [Penokie]**

George Penokie presented several error cases and showed how they are (or are not) detected by end-to-end error protection (03-207r1).

### **7.4 CAP Data Integrity Usage Models (03-222) [Sheffield, Holt, Rassbach]**

Robert Sheffield presented the proposed CDBs, mode pages, and usage models for the Seagate, Intel, LSI Logic, and Agilent end-to-end data protection proposal (03-222r0).

### **7.5 End-to-End Data Protection justification (03-224) [Holt]**

Keith Holt presented a justification for end-to-end data protection (03-224r0).

## 8. Old Business

All old business was covered under specific agenda items.

## 9. New Business

There was no new business.

## 10. Review of Documents

### 10.1 SRP-2 Review (SRP-2) [Simpson]

Cris Simpson presented an interim revision of SRP-2 containing First Burst support (SRP-2 r00a). Cris presented an overview of the multiple-channel work planned for inclusion in SRP-2. The group provided Cris with comments on the presented information.

### 10.2 SSC-2 Letter Ballot Comments Resolution (SSC-2) [Peterson]

Dave Peterson moved 02-081r8 be recommended as the resolution for the SSC-2 Letter Ballot and that SSC-2 r09 be recommended for first Public Review as containing the Letter Ballot comments resolution. Erich Oetting seconded the motion. The motion passed on a vote of 20:0:2.

## 11. 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:

SPC-3: TransportID Cleanup (03-203r0) [Weber] {unanimous}

Limiting the MD5 logical unit identifier to logical units (03-209r0) [Weber] {unanimous}

Add additional sense code values to SPC-3 for ADC (03-227r1) [Entzel] {r0 as modified, 18:0:2}

Persistent All Registrants Fix (03-230r3) [Penokie] {r2 as modified, unanimous}

For inclusion in SSC-2:

02-081r8 as resolution for the SSC-2 Letter Ballot comments and SSC-2 r09 for first Public Review

For inclusion in SES-2:

SES-2 Array Control and Status changes (03-215r0) [Elliott] {12:0:4}

SES-2 Updated SAS Device Element Status descriptor (03-214r1) [Elliott] {r0 as modified, 14:0:4}

## 12. Meeting Schedule

A face-to-face meeting on the topic of end-to-end to data protection will be held on Tuesday-Wednesday August 19-20, 2003, in Denver, CO. LSI Logic will host.

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Tuesday, September 9, 2003 commencing at 1:30 p.m. and continuing Wednesday, September 10, 2003 from 9 a.m. to 7 p.m. (or until all agenda items are completed). The meeting will be in Seattle, WA at the Renaissance Hotel (800-278-4159), hosted by Microsoft.

### **13. Adjournment**

The meeting was adjourned at 6:10 p.m. on Wednesday July 9, 2003.