

Accredited Standards Committee\*  
**National Committee for Information Technology Standards (NCITS)**

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Date: January 19, 2000

Reply to: John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SCSI Protocol Working Group Meeting -- January 12, 2000  
Surfers Paradise, Queensland, Australia

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. SCSI Architecture Model and Protocol Topics
  - 4.1 SAM-2 Review [Weber]
  - 4.2 Comments on SAM multi-port model (rev 8 vs. rev 11) (99-265) [Ericson/Weber]
  - 4.3 Task Set Full Clarification (99-343) [Snively]
  - 4.4 Multi-Port Model Discussion [Penokie]
  - 4.5 Target-Controlled Congestion Relief (00-127) [Elliott]
  - 4.6 Commands Cleared by Another Initiator (99-311) [Binford]
5. Command Set Topics
  - 5.1 Device locks command (98-225) [Houlder]
  - 5.2 Adding Read/Write Attribute commands to SPC-2 (99-148) [Jerman]
  - 5.3 A detailed proposal for access control in SPC-2 (99-245, 99-278, 99-314) [Hafner]
  - 5.4 Beyond two terabytes (99-259) [Penokie]
  - 5.5 How to handle the dwindling number of assignable operation codes [Weber]
  - 5.6 READ/WRITE BUFFER Behavior During Domain Validation (99-306) [Lamers]
  - 5.7 SCSI Socket Services (99-251, 99-252, 99-253, 99-254, 99-255, 99-256, 99-257) [Parker]
  - 5.8 Proposal to Support Partial Loading & Unloading (99-263) [Suhler]
  - 5.9 Commands Cleared by Another Initiator (99-311) [Binford]
  - 5.10 Large LBA addressing using variable length CDB structures (00-125) [Houlder]
  - 5.11 LUST to DST [Milligan]
  - 5.12 Object-oriented Storage Devices [Milligan]
  - 5.13 SPC-3 Echo Buffer Size (00-109) [Lamers]
  - 5.14 Access Controls Alternative (00-123) [Weber]
  - 5.15 Persistent Reservations Unit Attention Fix (00-114) [Penokie]
6. New Business
7. Meeting Schedule
8. Adjournment

## Results of Meeting

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## 1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Wednesday January 12, 2000. He thanked Dal Allan of ENDL Pacific Technologies 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 and changes:

- 4.4 Multi-Port Model Discussion [Penokie]
- 4.5 Target-Controlled Congestion Relief (00-127) [Elliott]
- 4.6 Commands Cleared by Another Initiator (99-311) [Binford]
- 5.10 Large LBA addressing using variable length CDB structures (00-125) [Houlder]
- 5.11 LUST to DST [Milligan]
- 5.12 Object-oriented Storage Devices [Milligan]
- 5.13 SPC-3 Echo Buffer Size (00-109) [Lamers]
- 5.14 Access Controls Alternative (00-123) [Weber]

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

- 5.15 Persistent Reservations Unit Attention Fix (00-114) [Penokie]

## 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. Vincent Bastiani	A#	Adaptec, Inc.	bastiani@corp.adaptec.com
Mr. Robert C. Elliott	P	Compaq Computer Corp.	Robert.Elliott@compaq.com
Mr. Neil Wanamaker	P	Crossroads Systems, Inc.	ntw@crossroads.com
Mr. I. Dal Allan	P	ENDL	endlcom@ibm.net
Mr. George O. Penokie	P	IBM Corp.	gop@us.ibm.com
Dr. Jim Hafner	V	IBM Corp.	hafner@almaden.ibm.com
Mr. Dennis Moore	P	KnowledgeTek, Inc.	dmoore@ix.netcom.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@t10.org
Mr. Ralph O. Weber	A	LSI Logic Corp.	roweber@acm.org
Mr. Jay Neer	P	Molex Inc.	jneer@molex.com
Mr. Mark Evans	P	Quantum Corp.	mark.evans@quantum.com
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes. seagate.com
Mr. Bill Gintz	V	Seus, Inc.	wcgintz@ix.netcom.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@sun.com
Mr. Vit Novak	A	Sun Microsystems, Inc.	vit.novak@sun.com
Mr. Paul D. Aloisi	P	Texas Instruments	Paul_Aloisi@ti.com

16 People Present

Status Key: P - Principal  
A,A# - Alternate  
O - Observer  
L - Liaison  
V - Visitor

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

### **4.1 SAM-2 Review [Weber]**

Ralph Weber asked that this topic be deferred to the next meeting.

### **4.2 Comments on SAM multi-port model (rev 8 vs. rev 11) (99-265) [Ericson/Weber]**

George Penokie and Ralph Weber agreed to defer this topic to the next meeting. If no more progress is made on this topic by the time of the next meeting, discussion of this topic may be dropped.

### **4.3 Task Set Full Clarification (99-343) [Snively]**

Bob Snively asked that this topic be deferred to the next meeting.

### **4.4 Multi-Port Model Discussion [Penokie]**

The group discussed several proposals that would have the effect of eliminating the SCSI Multi-port Unit object name from SAM-2. George Penokie initiated the discussion by noting that the DMTF (Desktop Management Task Force) model for multi-port devices equates target and port. Ralph Weber objected to equating target and port in SCSI, but equating SCSI Device and SCSI Multi-port Unit was more acceptable. Ralph Weber and George Penokie agreed to continue this discussion in future meetings.

### **4.5 Target-Controlled Congestion Relief (00-127) [Elliott]**

Rob Elliott presented a proposal whose effect would be giving the target a direct mechanism for notifying an initiator when command processing resources are unavailable, and when, those resources become available after a period of unavailability. Concerns were raised about the usefulness of the proposal in a multi-port environment. The fact that the target would be the entity choosing which initiator received the notification in a multi-initiator environment also drew criticism. Rob stated that he would reflect on the comments of the group and decide whether to bring the proposal to the next meeting.

### **4.6 Commands Cleared by Another Initiator (99-311) [Binford]**

Ralph Weber asked that discussion of this topic be handled as a SAM-2 topic. He stated that Charles Binford had provided no new materials for consideration at this meeting and asked that this topic be deferred to the next meeting.

## **5. Command Set Topics**

### **5.1 Device locks command (98-225) [Houlder]**

At the November meeting, Gerry Houlder reported that work on the Device Locks command will proceed toward a review of a revised proposal at the March working group meeting.

## **5.2 Adding Read/Write Attribute commands to SPC-2 (99-148) [Jerman]**

In the absence of Steve Jerman, the group agreed to defer discussion of this topic to the next meeting. John Lohmeyer noted that a new revision of the proposal has been made available in late December.

## **5.3 A detailed proposal for access control in SPC-2 (99-245, 99-278) [Hafner]**

Jim Hafner presented an overview (99-278r1) of changes in the most recent revision of the access control proposal (99-245r4). Jim stated that he is still in the process of finalizing the proposal and asked the group to comment on any matter of interest. Jim received inputs from the group regarding the issues he presented. At the conclusion of Jim's presentation, the group discussed related item 5.14.

## **5.4 Beyond two terabytes (99-259) [Penokie]**

George Penokie reviewed the details the latest proposal for new commands to support disks with more than two terabytes (99-259r2). He started by noting that 9 operation codes previously ear-marked for the proposal are no longer needed as those commands will not be covered by the proposal. Gene Milligan noted that his proposal (00-125, discussed in item 5.10) will cover the XOR commands, and could be extended to cover any command not included in 99-259. George agreed that any command not given a 16-byte CDB definition could be given a variable length CDB definition, thus preserving the maximum number of unassigned 16-byte operation codes.

Concerns were raised over the definition of a new READ CAPACITY command using a 16-byte CDB. It was suggested that the current READ CAPACITY CDB format be modified to work with large capacity disks. George took notes for READ CAPACITY revisions, based on the group's recommendations.

Ralph Weber noted that Digital has (in the past) used the READ LONG and WRITE LONG commands in a way that would necessitate keeping them in the list of commands proposed in 99-259. The group agreed that Tom Coughlan should be notified of plans to leave READ LONG and WRITE LONG out of 99-259. It was noted that variable length CDB versions of READ LONG and WRITE LONG might be acceptable to Tom and his disk drive vendors.

George said that a revised version of the proposal will be brought to the next meeting, with the possibility that approval for inclusion in SPC-2 and SBC-2 will be sought at that time.

## **5.5 How to handle the dwindling number of assignable operation codes [Weber]**

Ralph Weber and George Penokie agreed that this issue has been resolved and asked that this item be dropped from future agendas.

## **5.6 READ/WRITE BUFFER Behavior During Domain Validation (99-306) [Lamers]**

Vince Bastiani asked that discussion of this topic be deferred to the next meeting.

## **5.7 SCSI Socket Services (99-251, 99-252, 99-253, 99-254, 99-255, 99-256, 99-257) [Parker]**

In the absence of Keith Parker, action on this item was deferred to the next meeting.

## **5.8 Proposal to Support Partial Loading & Unloading (99-347) [Suhler]**

Gene Milligan presented an overview (00-129) of proposed Control mode pages changes to SPC-2 to support partial loading and unloading of media to facilitate Media Auxiliary Memory access. Gene then reviewed the specific proposal (99-347r2). Ralph Weber was not satisfied with the ASCQ codes assigned under the 3Ah ASC and asked for revisions. In the absence of any objections, the group recommended that 99-347r3 (r2 as modified) be approved for inclusion in SPC-2.

### **5.9 Commands Cleared by Another Initiator (99-311) [Binford]**

This SAM-2 topic was covered under item 4.6 above.

### **5.10 Large LBA addressing using variable length CDB structures (00-125) [Houlder]**

Gene Milligan presented a proposal (00-125) from Gerry Houlder for handling disks with greater than two terabytes. This proposal complemented 99-259 in that Gerry's proposal uses the variable length CDB format (operation code 7Fh) to represent the new commands, whereas George's proposal uses fixed length 16-byte CDBs.

Gene noted that 00-125 could cover all disk commands although the current proposal covers only the XOR commands. This proposal was developed because several of the XOR commands are ignored in 99-259. The group agreed that it was a good idea to use the variable length CDB format for infrequently used commands such as the XOR commands. Some concerns were raised about whether the variable length CDB commands will be implemented expeditiously. Still, the idea of trading variable length service action codes for 16-byte operation codes was viewed positively by the group since the latter are relatively scarce.

In the absence of any objections, the group recommended that 00-125 be approved for inclusion in SBC-2 and with service action code assignments being cataloged in an SPC-2 annex.

### **5.11 LUST to DST [Milligan]**

Gene Milligan requested that the acronym LUST be expunged from SPC-2. Mark Evans reported that it does not appear in SPC-2 revision 14.

### **5.12 Object-oriented Storage Devices (99-315) [Milligan]**

Gene Milligan reviewed the HP comments on the draft Object-based Storage Devices command set document. As a by-product of the review, the group asked that the definition of "Requestor" be removed and "Application Client" be used in its place. The group reviewed several of the HP comments and offered advice to Gene regarding the changes proposed by them. The group was unable to review all of the HP comments.

### **5.13 SPC-3 Echo Buffer Size (00-109) [Lamers]**

Rob Elliott presented a proposal to add a bit the Echo Buffer Descriptor that indicates support for the ECHO BUFFER OVERWRITTEN additional sense code. The proposal also included an increase in the echo buffer size, but several of those present expressed opposition to increasing the echo buffer size. Rob stated that a revised proposal will be brought to the next meeting.

### **5.14 Access Controls Alternative (00-123) [Weber]**

Ralph Weber presented a very high level overview of an access controls proposal that differs in about 25% of the details from the access controls described in 99-245r4 (see item 5.3). Bob Snively raised concerns about the limits on the ability of host software to clear the access controls specified by either proposal, with Ralph and Jim Hafner taking notes. Jim was very supportive of many of the ideas in Ralph's proposal, particularly the ability to map logical units to different LUN values for different hosts. He indicated that he would have proposed such idea himself, if he had felt more comfortable with the existing SCSI definitions and mechanisms. Ralph indicated that, if he were to develop his proposal in greater detail, he would be copying much of the text in Jim's proposal.

Jim and Ralph agreed to work cooperatively between now and March to revise Jim's proposal for consideration at the next meeting.

### **5.15 Persistent Reservations Unit Attention Fix (00-114) [Penokie]**

George Penokie presented proposal to correct a requirement in SPC-2 that some persistent reservations service actions require delivery of a unit attention condition to the initiator that sent the command that caused the unit attention condition. In the absence of any objections, the group unanimously recommended that 00-114r0 be approved for inclusion in SPC-2.

### **6. New Business**

No new business was brought before this meeting.

### **7. Meeting Schedule**

The next meeting of the SCSI Protocol Working Group will be **Monday, March 6, 2000 from 1:30 p.m. to 6 p.m., then reconvening Wednesday, March 8, 2000 from 9 a.m. to 7 p.m.** (or until all agenda items are completed). The meeting will be at the Crowne Plaza Suites Hotel (972-233-7600) in Dallas, TX hosted by Texas Instruments.

### **8. Adjournment**

The meeting was adjourned at 5:00 p.m. on Wednesday January 12, 2000.