

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

**Doc. No.:** T10/08-274r0

**Date:** July 15, 2008

**Reply to:** John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SAS Protocol WG -- July 14, 2008  
Anchorage, AK

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Miscellaneous topics
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  - 5.1 SAS-2 revision 14 letter ballot comment resolution as of sas2r14 (08-212) [Elliott]
  - 5.2 SAS-2 Redundant primitive sequence error handling (07-089) [Elliott]
  - 5.3 SAS-2 SPC-4 Differentiate between ACK NAK timeout reasons (08-064) [Elliott]
  - 5.4 SAS-2 Add device slot numbering fields to DISCOVER (08-183) [Elliott]
  - 5.5 SAS2.0 - Retry to Open Limit timer fix (08-216) [Day]
  - 5.6 SAS-2 SNW-3 SATA port selector confusion (08-283) [Elliott]
6. Zoning topics
7. Non-zoning Expander topics
8. SAS-2.1 topics
  - 8.1 SAS-2 Far-end retimed loopback phy test function (07-119) [Elliott]
  - 8.2 SAS: Add low power transceiver options (08-015) [Houlder]
  - 8.3 Review of new SAS Project Proposals (08-110, 08-117, 08-118) [Elliott and Butt]
  - 8.4 SAS-2+, low power transceiver options, phy and link states (08-206) [Evans]
  - 8.5 SAS 2.+ Link Layer Power Management (08-249) [Day]
  - 8.6 SAS-2: Domain Management Zoning Interaction (08-267) [Besmer]
9. New Business
10. Review of Recommendations
11. Meeting Schedule
12. Adjournment

## Results of Meeting

### 1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Monday, July 14, 2008. He thanked Bob Nixon and Anne McDonald of Emulex for hosting the meeting. As usual, the people present introduced themselves.

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## 2. Approval of Agenda

The draft agenda was approved with no additions and changes.

No additions and changes were made 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. Paul von Stamwitz	P	AMCC
Mr. Kevin Marks	P	Dell, Inc.
Mr. William Martin	P	Emulex
Mr. Robert H. Nixon	A	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. David Freeman	P	Finisar Corp.
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Eric Hibbard	V	Hitachi Data Systems
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Dr. Mark Seidel	P	Intel Corp.
Mr. Pak Seto	V	Intel Corp.
Mr. Dennis Moore	P	KnowledgeTek, Inc.
Mr. John Geldman	P	Lexar Media, Inc.
Mr. Brad Besmer	A	LSI Corp.
Mr. Brian Day	A	LSI Corp.
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. Chris Fore	A	NetApp
Mr. Tim Symons	P	PMC-Sierra
Mr. Michael Rogers	A	Samsung
Mr. Alvin Cox	A	Seagate Technology
Mr. Gerald Houlder	P	Seagate Technology
Mr. Jorgen Walle-Jensen	V	Tandberg Storage
Dr. Sanjay Sethi	V	Toshiba
Mr. Mark Evans	P	Western Digital
Mr. Curtis Stevens	A	Western Digital
Mr. Bill Pagano	V	Xiotech Corp.

30 People Present

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

#### 4. Miscellaneous topics

No miscellaneous topics were presented to the group.

#### 5. SAS-2 letter ballot comment resolution topics

##### 5.1 SAS-2 revision 14 letter ballot comment resolution as of sas2r14 (08-212) [Elliott]

Rob Elliott led the group through a discussion of the letter ballot comments against SAS-2 (08-212r3). About two dozen comments were resolved. Rob agreed to prepare a new revision based on the agreements reached during the week. Rob closed by noting that 25 protocol-oriented Letter Ballot comments remain to be processed.

##### 5.2 SAS-2 Redundant primitive sequence error handling (07-089) [Elliott]

Rob Elliott asked that this topic be removed from future agendas.

##### 5.3 SAS-2 SPC-4 Differentiate between ACK NAK timeout reasons (08-064) [Elliott]

Rob Elliott presented a proposal to define new additional sense codes to indicate when different timeouts have been detected (08-064r0). Concerns were raised about making changes of this magnitude this late in SAS-2.

Rob Elliott moved that 08-064r0 be included in the SAS-2 Letter Ballot resolution and recommended for inclusion in SPC-4. The motion died for lack of a second.

Bill Martin moved that discussion of 08-064r0 be deferred to SAS-2.1 topics. The motion died for lack of a second.

##### 5.4 SAS-2 Add device slot numbering fields to DISCOVER (08-183) [Elliott]

Rob Elliott presented a proposal to add slot numbering information to the DISCOVER SMP function (08-183r0). The group requested several changes and Rob agreed to prepare a new revision.

Rob noted that the revised document will be referenced by the SAS-2 Letter Ballot comment resolution (see agenda item 5.1).

##### 5.5 SAS2.0 - Retry to Open Limit timer fix (08-216) [Day]

Brian Day presented a proposal to change the relationship between Open Limit timer(s) and transport layer events (08-216r0). He noted that changes requested by the May working group generated additional problems, and a conference call agreed that the original changes were better. Therefore, the unrevised proposal was on the agenda.

The group requested a few changes and Brian agreed to prepare a new revision.

Brian and Rob noted that the revised document will be referenced by the SAS-2 Letter Ballot comment resolution (see agenda item 5.1).

##### 5.6 SAS-2 SNW-3 SATA port selector confusion (08-283) [Elliott]

Rob Elliott presented a proposal to resolve a condition where SNW-3 causes things to appear as if a SATA Port Selector is present (08-283r0). The group requested several changes and Rob agreed to prepare a new revision.

Rob noted that the revised document will be referenced by the SAS-2 Letter Ballot comment resolution (see agenda item 5.1).

## **6. Zoning topics**

The group suspended the categorization of topics as zoning until the SAS-2 Letter Ballot work was completed.

## **7. Non-zoning Expander topics**

The group suspended the categorization of topics as non-zoning until the SAS-2 Letter Ballot work was completed.

## **8. SAS-2.1 topics**

### **8.1 SAS-2 Far-end retimed loopback phy test function (07-119) [Elliott]**

Rob Elliott asked that discussion of the proposal to define a far-end loopback testing mechanism for SAS (07-119r4) be deferred to the next meeting.

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

Gerry Houlder asked that discussion of his document whose purpose was building consensus regarding the SAS protocol efforts to lower power consumption on inactive SAS links or SAS links with reduced activity (08-015r2) be deferred to the next meeting.

### **8.3 Review of new SAS Project Proposals (08-110, 08-117, 08-118) [Elliott and Butt]**

Due to the late hour, discussion of the several SAS-2.1 project proposals was deferred to the next meeting.

### **8.4 SAS-2+, low power transceiver options, phy and link states (08-206) [Evans]**

Due to the late hour, Mark Evans asked that discussion of 08-206r0 be deferred to the next meeting.

### **8.5 SAS 2.+ Link Layer Power Management (08-249) [Day]**

Due to the late hour, discussion of the Link Layer Power Management was deferred to the next meeting.

### **8.6 SAS-2: Domain Management Zoning Interaction (08-267) [Besmer]**

Brad Besmer presented a proposal to enhance the interaction between Zoning and SMP functions by defining Zone 4 for management functions (08-267r0). Brad noted that the goal of his presentation was paving the way to mandating the new feature in SAS-2.1. Tim Symons asked that the SAS-2 behavior in effect before Letter Ballot be preserved, regardless of the changes made in response to this proposal.

The group revised the proposal substantially to accommodate Brad's and Tim's views. Brad agreed to prepare a new revision.

Rob noted that the revised document will be referenced by the SAS-2 Letter Ballot comment resolution (see agenda item 5.1).

## **9. New Business**

There was no new business.

## **10. Review of Recommendations**

The following documents were recommended for consideration by the Plenary:

For inclusion in SAS-2: None

## **11. Meeting Schedule**

A SAS Protocol Working Group meeting is scheduled for:

Monday, September 8, 2008 commencing at 9:00 a.m. 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 6:00 p.m. on Monday July 14, 2008.