

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

**Doc. No.:** T10/08-352r0

**Date:** September 9, 2008

**Reply to:** John Lohmeyer

To: T10 Membership  
From: Ralph Weber and John Lohmeyer  
Subject: SAS Protocol WG -- September 8, 2008  
Colorado Springs, CO

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Miscellaneous topics
5. SAS-2 letter ballot comment resolution topics
  - 5.1 SAS-2 revision 14 letter ballot comment resolution as of sas2r14 (08-212) [Elliott]
  - 5.2 SAS2r14c: Fixes for confirmations and requests (08-343) [Penokie]
  - 5.3 SAS-2 ZONE GROUP VALID bit (08-360) [Symons]
  - 5.4 SAS-2 SNW-3 SATA port selector confusion (08-283) [Elliott]
  - 5.5 SAS-2 SL\_CC transition wording fixes (08-293) [Penokie]
6. Zoning topics
7. Non-zoning Expander topics
8. SAS Protocol Layer (SPL) 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 SPC-4 Differentiate between ACK NAK timeout reasons (08-064) [Elliott]
  - 8.7 Questions about SAS Interface Power Management proposal, 08-015 (08-370) [Houlder]
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, September 8, 2008. He thanked LSI 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.

The following additions and changes were made during the course of the meeting:

- 8.7 Questions about SAS Interface Power Management proposal, 08-015 (08-370) [Houlder]

## 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. Ralph O. Weber	P	ENDL Texas
Mr. Mike Fitzpatrick	P	Fujitsu
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. Pak Seto	V	Intel Corp.
Mr. Dennis Moore	P	KnowledgeTek, 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. Gregory Tabor	P	Maxim Integrated Products
Mr. Chris Fore	A	NetApp
Mr. Tim Symons	P	PMC-Sierra
Mr. Alvin Cox	A	Seagate Technology
Mr. Gerald Houlder	P	Seagate Technology
Mr. Halvard Eriksen	AV	Tandberg Storage
Mr. Mark Evans	P	Western Digital
Mr. Bill Pagano	V	Xiotech Corp.
Mr. Alan Westbury	V	Xyratex

22 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 seven open protocol issues that remained to be processed from Letter Ballot comments against SAS-2 (08-212r4). Rob agreed to prepare a new revision to reflect the agreements reached during this meeting.

### **5.2 SAS2r14c: Fixes for confirmations and requests (08-343) [Penokie]**

Rob Elliott and George Penokie reviewed the issues raised by 08-343r0 and updated the SAS-2 Letter Ballot comments resolution based on the agreements reached.

### **5.3 SAS-2 ZONE GROUP VALID bit (08-360) [Symons]**

The group requested that 08-360r1 be modified to more closely resemble 08-360r0. Tim agreed to prepare a new revision and Rob agreed to incorporate 08-360r2 in the SAS-2 Letter Ballot comments resolution.

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

Rob Elliott noted that 08-283r0 is incorporated in the SAS-2 r14c Letter Ballot responses, and asked that discussion of this topic be removed from future agendas.

### **5.5 SAS-2 SL\_CC transition wording fixes (08-293) [Penokie]**

George Penokie noted that 08-293r0 is incorporated in the SAS-2 r14c Letter Ballot responses, and asked that discussion of this topic be removed from future agendas.

## **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 Protocol Layer (SPL) 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 (08-015r4) be deferred to the next meeting.

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

Since the SAS-2.1 project proposals have been approved by INCITS, John Lohmeyer asked that this topic be removed from future agendas.

#### **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]**

Brian Day lead a review of a detailed SAS Link Layer Power Management proposal (08-249r1). He noted that the proposal is designed to dovetail with the Phy Layer information in the 08-206 proposal (see item 8.4) and the overarching transceiver low-power options proposal (08-015, see item 8.2).

Several corrections were requested, and Brian agreed to prepare a new revision of the proposal for discussion during the 17 September conference call.

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

Rob Elliott requested that discussion of his proposal to define new additional sense codes to indicate when different timeouts have been detected (08-064r0) be deferred to the next meeting.

#### **8.7 Questions about SAS Interface Power Management proposal, 08-015 (08-370) [Houlder]**

The group provided responses to the questions shown an e-mail message from Amit Shah (Intel), and Gerry Houlder agreed to post a document (08-370r0) that contained the questions. The answers to Amit's questions were noted by the authors of the various detailed proposals under development (see items 8.2, 8.4, and 8.5)

### **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 Interface Power Management conference call was scheduled for Wednesday, September 17 from 10:00 a.m. until noon Central Daylight Time, with the dial-in and other information to be announced promptly on the T10 Reflector.

A SAS Protocol Working Group meeting is scheduled for:

Monday, November 3, 2008 commencing at 9:00 a.m. in Santa Ana, CA at the Embassy Suites Hotel (Reservations: <http://embassysuites.hilton.com/en/es/groups/personalized/STAESES-XWD-20081031/index.jhtml>) hosted by Western Digital Technologies, Inc.

### **12. Adjournment**

The meeting was adjourned at 6:05 p.m. on Monday September 8, 2008.