

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

Doc. No.: T10/02-299r0
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Date: July 30, 2002

Reply to: John Lohmeyer

To: T10 Membership  
From: John Lohmeyer  
Subject: SAS Protocol Teleconference -- July 30, 2002

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Old Business
  - 4.1 SAS Working Draft Review [Elliott]
  - 4.2 SAS Port Control State Diagram Update (02-202) [Worden]
  - 4.3 SAS COMMAND ID Removal (02-259) [Day]
  - 4.4 Initiator based discovery and configuration of the SAS topology, proposal (02-279) [Fairchild]
  - 4.5 Arbitration clarification (02-222) [Galloway]
  - 4.6 SAS SSP target transport layer state machines (02-287) [Evans]
5. New Business
  - 5.1 2-bit proposal on LED driver [Lohmeyer]
  - 5.2 SAS - OOB and DWS state machines update (02-300) [Grieff]
  - 5.3 SAS Combined Request-Configuration List (02-276) [Worden]
  - 5.4 Additional R-RDY primitives [Penokie]
  - 5.5 Rate Change Delay in speed negotiation window [Grieff]
6. Review of Recommendations to the Plenary
7. Meeting Schedule
8. Adjournment

## Results of Meeting

### 1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m., Tuesday, July 30, 2002.

### 2. Approval of Agenda

The draft agenda was approved with the following changes:

- 5.1 2-bit proposal on LED driver [Lohmeyer]
- 5.2 SAS - OOB and DWS state machines update (02-300) [Grieff]
- 5.3 SAS Combined Request-Configuration List (02-276) [Worden]
- 5.4 Additional R-RDY primitives [Penokie]
- 5.5 Rate Change Delay in speed negotiation window [Grieff]

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**INCITS Secretariat, Information Technology Industry Council (ITI)**  
1250 Eye Street NW, Suite 200, Washington, DC 20005-3922  
Email: incits@itic.org Telephone: 202-737-8888 FAX: 202-638-4922

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

none

### 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. Ron Roberts	P	Adaptec, Inc.	Ron_Roberts@adaptec.com
Mr. Bill Galloway	P	BREA Technologies, Inc.	billg@breatech.com
Mr. Lafe Moon	V	Data Transit Corp.	lafe@data-transit.com
Mr. Steven Fairchild	V	Hewlett Packard Co.	Steve.Fairchild@hp.com
Mr. Thomas Grieff	V	Hewlett Packard Co.	Thomas.Grieff@hp.com
Mr. Jim Reif	V	Hewlett Packard Co.	jim.reif@hp.com
Mr. Matt Otto	V	I-TECH Corp.	matt_otto@i-tech.com
Mr. Steven Wirtz	V	I-TECH Corp.	steve_wirtz@i-tech.com
Mr. George O. Penokie	P	IBM / Tivoli Systems	gop@us.ibm.com
Mr. Dan Colegrove	V	IBM Corp.	dcolegro@us.ibm.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@t10.org
Mr. Brian Day	V	LSI Logic Corp.	brian.day@lsil.com
Mr. Mark Evans	P	Maxtor Corp.	mark_evans@maxtor.com
Mr. David Cressman	V	Maxtor Corp.	dave_cressman@maxtor.com
Mr. Ting Li Chan	V	QLogic Corp.	ting.chan@qlogic.com
Mr. Arie Krantz	V	QLogic Corp.	l_krantz@qlc.com
Mr. Jim Coomes	V	Seagate Technology	jim_coomes@seagate.com
Mr. John Worden	V	Seagate Technology	john.worden@seagate.com

18 People Present

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

### 4. Old Business

#### 4.1 SAS Working Draft Review [Elliott]

In the absence of Rob Elliott, this topic was deferred.

#### 4.2 SAS Port Control State Diagram Update (02-202) [Worden]

John Worden reviewed the port control state diagram (02-202r1e). He made changes based on the group's input and agreed to post rev 2.

### **4.3 SAS COMMAND ID Removal (02-259) [Day]**

Brian Day asked that this item be deferred.

### **4.4 Initiator based discovery and configuration of the SAS topology, proposal (02-279) [Fairchild]**

Steve Fairchild presented 02-279r2, Initiator based discovery and configuration of the SAS topology, proposal. George Penokie asked about the architecture of the edge expander. Ron Roberts was concerned about changing the SMP frame formats.

There are two issues: 1) changing the SMP frame formats to support a per PHY structure; 2) adopting the concept of the edge router. Steve agreed to separate his proposal to address each issue separately. For now, the group agreed that the SMP fields associated with the edge router proposal would be considered 'ignored' in the SMP frame change proposal.

Steve reviewed the detailed changes in his proposal associated with the SMP frame changes. He received input and agreed to revise his proposal, leaving out configuration information specific to edge routers.

### **4.5 Arbitration clarification (02-222) [Galloway]**

Bill Galloway asked that this item be deferred.

### **4.6 SAS SSP target transport layer state machines (02-287) [Evans]**

Mark Evans asked that this item be deferred.

## **5. New Business**

### **5.1 2-bit proposal on LED driver [Lohmeyer]**

John Lohmeyer reviewed the LED driver discussion from the 7/29/02 PHY teleconference. The PHY group had proposed that the LED driver pin become a programmable current sink with nominal values of 0, 5, 10 and 20 mA. Russ Brown posted a reflector message on 2002/07/29 documenting the idea. The protocol group suggested that only one value be supported of approximately 15 mA nominal. John Lohmeyer agreed to communicate this back to the PHY group.

### **5.2 SAS - OOB and DWS state machines update (02-300) [Grieff]**

Tom Grieff presented 02-300r0, SAS - OOB and DWS state machines update. He received input and agreed to revise his proposal.

### **5.3 SAS Combined Request-Configuration List (02-276) [Worden]**

John Worden presented 02-276r1, SAS Combined Request-Configuration List. This is the result of the discussion at the last face-to-face meeting.

### **5.4 Additional R-RDY primitives [Penokie]**

George Penokie suggested that an additional flavor of R-RDY be defined that gives the initiator permission to send data, but not commands. This might avoid some QUEUE FULL situations. The target guys liked the idea, but the initiator guys would not quite so enthusiastic. More discussion revealed that task management functions probable should not be blocked. George agreed to prepare a proposal.

Bill Galloway said that he plans to prepare a proposal to add some additional flavors of primitives that today mean exactly the same thing as the base primitive. In the future, we could add additional meaning to these flavors.

### 5.5 Rate Change Delay in speed negotiation window [Grieff]

Tom Grieff noted that he thought a change proposed from the PHY working group in the RCD in the speed negotiation window was not completely thought out. He suggested that the PHY group look again at the lockup time, which should be a larger portion of the window. He agreed to participate on the next PHY teleconference.

## 6. Review of Recommendations to the Plenary

John Lohmeyer noted that the following recommendations have been made to the T10 plenary:

none

## 7. Meeting Schedule

SAS Protocol Working Group meetings are scheduled for:

Wednesday-Friday, August 21-23, 2002 commencing at 9:00 am on Wednesday and ending at noon on Friday in Shrewsbury, MA at Maxtor. Host contact: Mark Evans.

Monday-Tuesday, September 9-10, 2002 commencing at 1:00 p.m. on Monday and ending at 5:00 p.m. on Tuesday in Minneapolis, MN at the Hilton Minneapolis/St. Paul Airport Hotel (952-854-2100).

A SAS Protocol teleconference is scheduled for:

Tuesday August 13, 2002  
11:00 am -- 2:00 pm EDT  
10:00 am -- 1:00 pm CDT  
9:00 am -- noon MDT  
8:00 am -- 11:00 am PDT

USA Toll Free Number: 877-417-9828  
Toll Number: +1-706-679-9028  
Conference Code: 719 533 7560

WebEx Session: <http://seagate.webex.com/>  
Meeting Name: SAS Protocol teleconference  
Password: to be announced on T10 reflector

John Lohmeyer suggested that we tentatively plan for an editing meeting sometime during the week of October 14th (probably toward the end of the week).

## 8. Adjournment

The meeting was adjourned at 12:03 p.m. on Tuesday, July 30, 2002.