

Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

Doc. No.: T10/02-448r0

Date: October 29, 2002

Reply to: John Lohmeyer

To: T10 Membership
From: John Lohmeyer
Subject: SAS Protocol Teleconference -- October 29, 2002

Agenda

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2. Approval of Agenda
3. Attendance and Membership
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 - 4.3 SAS Rules for Sequence Count (02-442) [Penokie]
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 - 4.6 CRC on Frame Header [Roberts] {November 4}
 - 4.7 SAS SATA_ERROR primitive definition (02-418) [Hoglund]
 - 4.8 Project proposal for Serial Attached SCSI - 2 (SAS-2) (02-429) [Elliott]
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5. New Business
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 - 5.2 SAS SSP vendor-specific frame types (02-450) [Elliott]
 - 5.3 SAS bit and byte ordering overview (02-451) [Elliott]
 - 5.4 SAS wide port IDENTIFY error handling (02-445) [Elliott]
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 - 5.7 Tweaks on tweaks (02-424) [Worden]
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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. MST, Tuesday, October 29, 2002. He thanked LSI Logic for hosting the teleconference call and John Worden of Seagate for hosting the WebEx session.

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2. Approval of Agenda

The draft agenda was approved with the following changes:

- 5.7 Tweaks on tweaks (02-424) [Worden]
- 4.2 SAS Data Corruption Problem (02-323) [Gardner/Sheffield] {Deleted}
- 4.3 SAS Rules for Sequence Count (02-442) [Penokie] {Deleted}

The following items was added or 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. Kyle Sterling	V	Adaptec, Inc.	ksterlin@corp.adaptec.com
Mr. Bill Galloway	P	BREA Technologies, Inc.	billg@breatech.com
Mr. Lafe Moon	V	Data Transit Corp.	lafe@data-transit.com
Mr. Rob Elliott	P	Hewlett Packard Co.	Elliott@hp.com
Mr. Steven Fairchild	V	Hewlett Packard Co.	Steve.Fairchild@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. Edward Younk	V	IBM Corp.	ehyounh@us.ibm.com
Mr. Robert Sheffield	A	Intel Corp.	robert.l.sheffield@intel.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@t10.org
Mr. Brian Day	V	LSI Logic Corp.	brian.day@lsil.com
Mr. Tim Hogleund	V	LSI Logic Corp.	tim.hogleund@lsil.com
Mr. Brad Besmer	V	LSI Logic Corp.	brad.besmer@lsil.com
Mr. Steve Johnson	V	LSI Logic Corp.	sjohnson@lsil.com
Mr. Mark Evans	P	Maxtor Corp.	mark_evans@maxtor.com
Mr. Bruce Leshay	V	Maxtor Corp.	bruce_leshay@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
Mr. Scott Younger	V	Seagate Technology	Scott.Younger@seagate.com

24 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]

Due to the late hour, this item was deferred.

4.2 SAS Data Corruption Problem (02-323) [Gardner/Sheffield]

Bob Sheffield asked that this item be deleted from future agendas.

4.3 SAS Rules for Sequence Count (02-442) [Penokie]

George Penokie asked that this item be deleted from future agendas.

4.4 SAS Disconnect-Reconnect Mode Parameters (02-324) [Gardner]

In the absence of Ed Gardner, this item was deferred.

4.5 Informative Annex on Expanders (02-291) [Hoglund]

Tim Hoglund presented 02-291r2, Informative Annex on Expanders. Tim Hoglund moved and Bill Galloway seconded that 02-291r2 be recommended for inclusion in SAS. The motion passed unanimously.

4.6 CRC on Frame Header [Roberts] {November 4}

Ron Roberts asked that this item be deferred to the November 4 meeting.

4.7 SAS SATA_ERROR primitive definition (02-418) [Hoglund]

Tim Hoglund presented 02-418r1, SAS Remove SATA_ERROR primitive. He received input and agreed to revise his proposal. Tim Hoglund moved and Bill Galloway seconded that 02-418r2 (r1 as revised) be recommended for inclusion in SAS. The motion passed unanimously.

4.8 Project proposal for Serial Attached SCSI - 2 (SAS-2) (02-429) [Elliott]

John Lohmeyer noted that Rob Elliott had uploaded a SAS-2 project proposal.

4.9 SAS SATA 1.0e Support (02-437) [Sheffield]

Bob Sheffield presented 02-437r1, SAS SATA 1.0e Support. He received input and agreed to revise his proposal.

4.10 SAS Simplified Support for Multiple STP Initiators (02-430) [Sheffield]

Bob Sheffield said that he had not yet revised this proposal. He asked Bill Galloway for assistance on identifying primitives. He plans to have a revision for next week's meeting.

4.11 SAS SMP Phy Control Extensions (02-439) [Sheffield]

Bob Sheffield asked that this proposal be withdrawn.

4.12 SAS STP Buffering (02-435) [Sheffield]

Bob Sheffield presented 02-435r1, SAS STP Buffering. Bill Galloway said his understanding was that each expander would participate in the HOLD/HOLDA protocol. Thus, the buffering requirements would be spread across all expanders. An expander that needs additional buffering must provide enough buffering to cover its requirements. The initiator does not need to cover the buffering requirements for all the expanders.

Bob Sheffield agreed to revise his proposal to reflect this method.

4.13 SAS Interpretation of invalid SAS address (02-444) [Elliott]

Rob Elliott presented 02-444r0, SAS Interpretation of invalid SAS address. Rob Elliott moved and Bill Galloway seconded that 02-444r0 be recommended for inclusion in SAS. The motion passed unanimously.

4.14 Handling of protocol mismatches in a wide port [Elliott]

(Handled under agenda item 5.4)

5. New Business

5.1 SAS Handling Link Rate Not Supported (02-443) [Elliott]

Rob Elliott presented 02-443r0, SAS Handling Link Rate Not Supported. He received input and agreed to revise his proposal.

5.2 SAS SSP vendor-specific frame types (02-450) [Elliott]

Rob Elliott presented 02-450r0, SAS SSP vendor-specific frame types. Rob Elliott moved and Bill Galloway seconded that 02-450r0 be recommended for inclusion in SAS. The motion passed 6:1:4.

5.3 SAS bit and byte ordering overview (02-451) [Elliott]

Rob Elliott presented 02-451r0, SAS bit and byte ordering overview. He received input and agreed to revise the proposal. Rob Elliott moved and Tim Høglund seconded that 02-451r1 (r0 as revised) be recommended for inclusion in SAS.

George Penokie moved and Bill Galloway seconded to amend the motion to remove Table 1. The motion to amend passed 5:1:5.

The main motion passed unanimously.

5.4 SAS wide port IDENTIFY error handling (02-445) [Elliott]

Rob Elliott presented 02-445r0, SAS wide port IDENTIFY error handling. Rob Elliott moved and Bill Galloway seconded that 02-445r0 be recommended for inclusion in SAS. The motion passed unanimously.

5.5 SAS Simple Relative Offset (02-449) [Galloway]

Bill Galloway presented 02-449r0, SAS Simple Relative Offset. The proposal would solve the problem identified in 02-323 and lays the groundwork for a future full implementation of relative offset. George Penokie said that he would withdraw his 02-442 proposal in favor of the 02-449 proposal. George noted that bi-directional transfers need to be documented and Bill agreed to do so. Bill received additional input and agreed to revise his proposal.

There was a lengthy discussion of whether the checking of relative offset should be mandatory or optional. With the exception of Jim Coomes, there was consensus that checking should be mandatory.

5.6 SAS Protocol-Specific mode page - make short format optional [Elliott]

Rob Elliott proposed that if the SAS Protocol-Specific mode page is not implemented, that the target is expected to implement the I_T nexus loss timer using a default value of 2 seconds. George Panokie objected to requiring a timer if the mode page is not supported. He was not opposed to making the mode page optional. Rob agreed to write up a proposal.

5.7 Tweaks on tweaks (02-424) [Worden]

John Worden presented 02-424r2a, SAS Additional Port Layer Tweaks. 02-424r2 had been recommended for inclusion in SAS at the meeting last week, but John had not posted it yet. John wanted to simplify the IT Nexus lost handshaking by only reporting timeouts and not passing values up and down between the port and transport layers. John Worden moved and Bill Galloway seconded that 02-424r2 be further modified as described. The motion passed unanimously.

6. Review of Recommendations to the Plenary

John Lohmeyer noted that the following recommendations were made during this meeting:

- that 02-291r2 be recommended for inclusion in SAS.
- that 02-418r2 (r1 as revised) be recommended for inclusion in SAS.
- that 02-444r0 be recommended for inclusion in SAS.
- that 02-450r0 be recommended for inclusion in SAS. [6:1:4]
- that 02-451r1 (r0 as revised) be recommended for inclusion in SAS.
- that 02-445r0 be recommended for inclusion in SAS.

The following recommendations were made at the October 24-25 meeting:

- that 02-360r3 (r2 as revised) be recommended for inclusion in SAS.
- that 02-363r3 (r2 as revised) be recommended for inclusion in SAS.
- that 02-397r0 be recommended for inclusion in SAS. [5:3:0]
- that 02-409r3 be recommended for inclusion in SAS. [6:1:2]
- that the SAS SMP margin control function be recommended for removal from SAS.
- that 02-424r2 (r1 as revised) be recommended for inclusion in SAS.
- that 02-427r1 (r0 as revised) be recommended for inclusion in SAS.
- that 02-433r1 (r0 as revised) be recommended for inclusion in SAS.
- that 02-441r1 (r0 as modified) be recommended for inclusion in SAS. [7:0:2]
- that 02-422r2 (r1 as revised) be recommended for inclusion in SAS.

The following recommendation was made on the October 22 conference call:

- that 02-396r2 (r1 as revised) be recommended for inclusion in SAS.
- that the Fallback and Increment Speed states be recommended for removal from the SP state machine in SAS.
- that 02-405r2 (r1 as revised) be recommend for inclusion in SAS.
- that it be recommended that a SAS address of all 0 bits is not a valid SAS address and may be used to indicate there is no device present or other meanings.

The following recommendation was made on the October 15 conference call:

- that 02-387r2 (r1 as revised) be recommended for inclusion in SAS.

that 02-383r2 (r1 as revised) be recommended for inclusion in SAS.
that 02-394r1 (r0 as revised) be recommended for inclusion in SAS.
that DEVICE TYPE numbers be changed to start at 1 and DEVICE TYPE 0 means no device is attached be recommended for included in SAS.

The following recommendation was made on the October 1 conference call:

that 02-359r3 (r2 as revised) be recommended for inclusion in SAS. [4:3:2]
that 02-393r1 (r0 as revised) be recommended for inclusion in SAS.

The following recommendation was made on the September 24 conference call:

that 02-318r1 be recommended for inclusion in SAS.
that 02-202r4 (r3 as revised) be recommended for inclusion in SAS.
that 02-276r3 (r2 as revised) be recommended for inclusion in SAS.
that we recommend to T10 that the SSP Task IU be changed to 28 bytes to match the command IU by removing the last 4 reserved bytes.

The following recommendation was made on the September 17 conference call:

that a statement saying STP initiators shall not generate BIST frames be recommended for inclusion in SAS.

7. Meeting Schedule

SAS Protocol Working Group meetings are scheduled for:

Monday-Tuesday, November 4-5, 2002 commencing at 1:00 p.m. on Monday and ending at 5:00 p.m. on Tuesday in Huntington Beach, CA at the Hilton Waterfront Hotel (714-960-7873).

A SAS STP Study Group meeting is scheduled for:

Monday, November 4, 2002 commencing at 9:00 a.m. on Monday and ending at noon in Huntington Beach, CA at the Hilton Waterfront Hotel (714-960-7873).

An editing meeting is planned for November 7-8, 2002 in Huntington Beach, CA. The meeting will start one hour following the plenary meeting and run through 1:00 p.m. on Friday.

8. Adjournment

The meeting was adjourned at 12:40 p.m. MST on Tuesday October 29, 2002.