

Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

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Date: July 13, 2004

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SAS Protocol WG -- July 12, 2004
Colorado Springs, CO

Agenda

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 - 5.13 SAS - SATA Enhanced Signal Proposal (04-224) [Johnson]
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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Monday, July 12, 2004. He thanked LSI Logic for hosting the meeting. As usual, the people present introduced themselves.

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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

2. Approval of Agenda

The draft agenda was approved with no changes.

The following item was added or revised during the course of the meeting:

5.13 SAS - SATA Enhanced Signal Proposal (04-224) [Johnson]

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. Tim Symons	P	Adaptec, Inc.	Timothy_Symons at adaptec dot com
Mr. Doug Cole	A	Dallas Semiconductor	doug dot cole at dalsemi dot com
Mr. Kevin Marks	P	Dell, Inc.	kevin_marks at dell dot com
Mr. Robert H. Nixon	P	Emulex	bob dot nixon at emulex dot com
Mr. Ralph O. Weber	P	ENDL Texas	roweber at ieee dot org
Mr. Gary Stephens	V	FSI Consulting Services	grsfsi at aol dot com
Mr. Mike Fitzpatrick	P	Fujitsu	mfitzpatrick at fcpa dot fujitsu dot com
Mr. Rob Elliott	P	Hewlett Packard Co.	Elliott at hp dot com
Mr. Steven Fairchild	V	Hewlett Packard Co.	Steve dot Fairchild at hp dot com
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.	daniel dot colegrove at hgst dot com
Mr. George O. Penokie	P	IBM / Tivoli Systems	gop at us dot ibm dot com
Mr. Robert Sheffield	P	Intel Corp.	robert dot l dot sheffield at intel dot com
Mr. Brian Day	V	LSI Logic Corp.	brian dot day at lsil dot com
Mr. Tim Hوجلund	V	LSI Logic Corp.	tim dot hoglund at lsil dot com
Mr. Steve Johnson	V	LSI Logic Corp.	sjohnson at lsil dot com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeyer at t10 dot org
Mr. Steven Schauer	V	LSI Logic Corp.	steve dot schauer at lsil dot com
Mr. David Steele	V	LSI Logic Corp.	david dot steele at lsil dot com
Mr. Martin Czekalski	A	Maxtor Corp.	marty_czekalski at maxtor dot com
Mr. Mark Evans	P	Maxtor Corp.	mark_evans at maxtor dot com
Mr. Jeff Mastro	A	Microsoft Corp.	jmastro at microsoft dot com

Mr. Edward A. Gardner	V	Ophidian Designs	eag at ophidian dot com
Mr. Craig W. Carlson	A#	QLogic Corp.	craig dot carlson at qlogic dot com
Mr. Don Carothers	V	QLogic Corp.	don dot carothers at qlogic dot com
Mr. Greg Elkins	V	QLogic Corp.	greg dot elkins at qlogic dot com
Mr. Jim Jones	A	Quantum Corp.	jim dot jones at quantum dot com
Mr. Gerald Houlder	P	Seagate Technology	gerry dot houlder at seagate dot com
Mr. Vit Novak	P	Sun Microsystems, Inc.	vit dot novak at sun dot com
Mr. Yutaka Arakawa	P	Toshiba	yutaka dot arakawa at tais dot toshiba dot com
Mr. Gregory Tabor	AV	Vitesse Semiconductor	greg at vitesse dot com

30 People Present

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

4. Old Business

4.1 SAS 1.1, adding the Terminate Data Transfer protocol service (03-245) [Evans]

Mark Evans requested that discussion of this topic be deferred to the next meeting.

4.2 SAS-1.1, protocol for changing driver amplitude (03-285) [Evans]

Mark Evans requested that discussion of this topic be deferred to the next meeting.

4.3 SAS-1.1: Close Port Selector Detection Gap (04-029) [Sheffield]

Bob Sheffield presented a proposal to use a new BROADCAST(CHANGE) primitive to interlock handling of port selectors and a new LINK RATE NOT NEGOTIATED value for the NEGOTIATED PHYSICAL LINK RATE field in the DISCOVER Response to establish positive reporting of port selector presence (04-029r3).

Concerns were raised about clearing the attached port selector bit when a SATA drive is replaced by a SAS drive and Bob agreed to prepare a new revision of the proposal.

Bob Sheffield moved that 04-029r4 (r3 as revised) be recommended for inclusion in SAS-1.1. Tim Hoglund seconded the motion. In the absence of any objections, the motion passed unanimously.

4.4 SAS 1.1 UML Corrections (04-042) [Penokie]

George Penokie led the group in a discussion of corrections needed in the SAS-1.1 UML (04-042r2).

The group requested several changes and George agreed to prepare a new revision for consideration at the next meeting.

4.5 SAS-1.1: Fix SP Hang States (04-030) [Sheffield]

Bob Sheffield presented a proposal to clearly identify SP state diagram transitions to COMINIT (04-030r4).

Bob Sheffield moved that 04-030r4 be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

4.6 SAS-1.1 Miscellaneous changes (04-115) [Elliott]

Rob Elliott led the group in a review of several unrelated SAS-1.1 changes (04-115r2). He noted that the contentious topics had been moved to separate proposals.

Rob Elliott moved that 04-115r2 be recommended for inclusion in SAS-1.1. Bob Sheffield seconded the motion. In the absence of any objections, the motion passed unanimously.

4.7 SAS-1.1, ST_T (transport layer for SSP target ports) state machines (04-137) [Evans]

Mark Evans presented a proposal to clarify and reorganize the SSP target port state machines (04-137r1).

Mark raised a concern about the handling of Response frames when the connection needed to send the response cannot be made. The group agreed with Mark that the target should ignore such errors and approved modifying the state machine descriptions accordingly. Mark agreed to prepare a new revision of the proposal reflecting the agreed changes.

Mark Evans moved that 04-137r2 (r1 as revised) be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

The group discussed a new proposal that covers the same concepts on the initiator side. Mark agreed to post the new proposal to the agenda for the September meeting.

5. New Business

5.1 SAS 1.1: Number of Pad Bytes Fix (04-170) [Penokie]

George Penokie presented a proposal to allow the number of fill bytes to be non-zero in Response frames (04-170r1)

George Penokie moved that 04-170r1 be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SAS-1.1 SMP functions for SGPIO (04-165) [Elliott]

Rob Elliott presented a proposal to create SAS-1.1 SMP references to and usage of SFF-8485 (Serial GPIO (SGPIO) Bus).

Rob Elliott moved that 04-165r0 be recommended for inclusion in SAS-1.1. Kevin Marks seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3 SAS-1.1 Invalid dword handling (04-167) [Elliott]

Rob Elliott presented a proposal to clarify the handling of invalid dwords (04-167r0).

The group raised numerous concerns regarding the glossary entries in the proposal that led to major changes in the state machine definitions.

Rob agreed to prepare a new revision of the proposal for consideration at the next meeting.

5.4 SAS-1.1 RRDY and CREDIT_BLOCKED clarifications (04-168) [Elliott]

Rob Elliott presented a proposal to clarify the handling of RRDY and CREDIT_BLOCKED (04-168r0). The group requested changes and Rob agreed to prepare a new revision of the proposal.

Rob Elliott moved that 04-168r1 (r0 as revised) be recommended for inclusion in SAS-1.1. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.5 SAS-1.1 REPORT MANUFACTURER INFORMATION changes (04-175) [Elliott]

Rob Elliott presented a proposal to modify the Report Manufacturer Information SMP response to include fields for both board and ASIC information (04-175r1).

The use of an IEEE OUI to identify the ASIC was questioned and Rob agreed to revise the proposal to use the T10 vendor ID instead.

Rob Elliott moved that 04-175r2 (r1 as revised) be recommended for inclusion in SAS-1.1. Kevin Marks seconded the motion. The motion passed 13:0:5.

5.6 SAS-1.1, SAS phy test functions diagnostic page (04-181) [Evans]

Mark Evans presented a proposal add a diagnostic page for SAS phy test functions (04-181r0).

The group discussed defining the new page in SPC-3 instead of SBC-2. Mark agreed to prepare a revised proposal for consideration at the next meeting.

5.7 SAS-1.1 BROADCAST (CHANGE) on virtual phy resets (04-183) [Elliott]

Rob Elliott presented a proposal to make it clear that the SMP PHY CONTROL function LINK RESET and HARD RESET phy operations on a virtual phy do result in BROADCAST (CHANGE) primitive (04-183r0). The group requested the addition of Disabled to one of the lists and Rob agreed to prepare a new revision.

Rob Elliott moved that 04-183r1 (r0 as revised) be recommended for inclusion in SAS-1.1. Tim Hoglund seconded the motion. In the absence of any objections, the motion passed unanimously.

5.8 SAS-1.1 More counters (04-172) [Elliott]

Rob Elliott presented a proposal to add several new counters in SAS-1.1, to improve the ability to identify configuration setup problems (04-172r0). The proposal contained options for reporting counter values in descriptors or in arrays of values.

The group discussed both reporting options as well as using normal log page value formats.

The problems of resetting counters verses just allowing counters to wrap were also discussed.

Rob agreed to prepare a new revision of the proposal for consideration at the next meeting.

5.9 SAS: SM-HBA Overview (04-217) [Sheffield]

Bob Sheffield introduced the group to the T11.5 SM-HBA project whose goal is extension of the Fibre Channel HBA API to encompass SAS HBAs (04-217r0).

Rob Elliott requested that the T11.5 SM-HBA working group schedule meetings during T10 week. The SM-HBA chair, George Penokie noted the request.

5.10 SAS Signal Class Proposal (04-220) [Fairchild]

Steve Fairchild presented a proposal to add simple signal transmission quality information to the Identify Address frame (04-220r0). The group raised numerous questions about the operational details of the proposal. Steve agreed to discuss the issues offline and return next time.

5.11 SAS Transceiver Control Mode Page Proposal (04-221) [Fairchild]

Steve Fairchild presented a proposal to define a mode page that allows control of transceiver characteristics (04-221r0). Some members of the group strongly resisted the proposal. Steve agreed to discuss the issues offline and return next time.

5.12 SAS Pattern Generation Mode Page Proposal (04-222) [Fairchild]

Steve Fairchild requested that discussion of this topic be deferred to the next meeting.

5.13 SAS - SATA Enhanced Signal Proposal (04-224) [Johnson]

Steve Fairchild described how the signal class and transceiver control proposals discussed in items 5.10 and 5.11 were being presented to the SATA II group too (04-224r0). Steve asked that this topic be removed from future agendas.

6. Review of Recommendations

The following documents were recommended for inclusion in SAS-1.1 during this meeting:

- 04-029r4 (Close Port Selector Detection Gap) [Sheffield]
- 04-030r4 (Fix SP Hang States) [Sheffield]
- 04-115r2 (SAS-1.1 Miscellaneous changes) [Elliott]
- 04-137r2 (ST_T (transport layer for SSP target ports) state machines) [Evans]
- 04-170r1 (Number of Pad Bytes Fix) [Penokie]
- 04-165r0 (SMP functions for SGPIO) [Elliott]
- 04-168r1 (RRDY and CREDIT_BLOCKED clarifications) [Elliott]
- 04-175r2 (REPORT MANUFACTURER INFORMATION changes) [Elliott]
- 04-183r1 (BROADCAST (CHANGE) on virtual phy resets) [Elliott]

7. Meeting Schedule

A SAS Protocol Working Group meeting is scheduled for:

Monday, September 13, 2004 commencing at 9:00 a.m. in Nashua, NH at the Crowne Plaza Hotel (603-886-1200), hosted by Hitachi Cable Manchester.

Teleconference calls may be announced on the T10 reflector as needed.

8. Adjournment

The meeting was adjourned at 6:05 p.m. on Monday July 12, 2004.