

Accredited Standards Committee*

InterNational Committee for Information Technology Standards (INCITS)

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Date: September 9, 2003

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SAS Protocol WG -- September 8-9, 2003
Seattle, WA

Agenda

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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 1:30 p.m. Monday, September 8, 2003. He thanked Rob Haydt of Microsoft Corp. for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no changes.

No items was added or revised during the course of the meeting.

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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

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. Walter Rassbach	V		rassbach@nilenet.com
Mr. Ron Roberts	P	Adaptec, Inc.	rkroberts@aol.com
Mr. Tim Symons	A	Adaptec, Inc.	Timothy_Symons@adaptec.com
Ms. Pat Thaler	P	Agilent Technologies	pat_thaler@agilent.com
Mr. James A. Lott, Jr.	P	Dallas Semiconductor	jim.lott@dalsemi.com
Mr. Kevin Marks	P	Dell, Inc.	kevin_marks@dell.com
Mr. Robert H. Nixon	P	Emulex	bob.nixon@emulex.com
Mr. Ralph O. Weber	P	ENDL Texas	roweber@acm.org
Mr. Mike Fitzpatrick	P	Fujitsu	mfitzpatrick@fcpa.fujitsu.com
Mr. Rob Elliott	P	Hewlett Packard Co.	Elliott@hp.com
Mr. Steven Fairchild	V	Hewlett Packard Co.	Steve.Fairchild@hp.com
Mr. George O. Penokie	P	IBM / Tivoli Systems	gop@us.ibm.com
Mr. Pak Seto	V	Intel Corp.	pak-lung.seto@intel.com
Mr. Robert Sheffield	A	Intel Corp.	robert.l.sheffield@intel.com
Mr. Brian Day	V	LSI Logic Corp.	brian.day@lsil.com
Mr. Tim Hogleund	V	LSI Logic Corp.	tim.hogleund@lsil.com
Mr. Steve Johnson	V	LSI Logic Corp.	sjohnson@lsil.com
Mr. John Lohmeyer	P	LSI Logic Corp.	lohmeier@t10.org
Mr. Steven Schauer	V	LSI Logic Corp.	steve.schauer@lsil.com
Mr. Andrew Kuo	V	Marvell Semiconductor	akuo@marvell.com
Mr. Martin Czekalski	A	Maxtor Corp.	marty_czekalski@maxtor.com
Mr. Mark Evans	P	Maxtor Corp.	mark_evans@maxtor.com
Mr. Rob Haydt	A	Microsoft Corp.	robhay@microsoft.com
Mr. Jim Henson	V	NEC Electronics	jimHenson@qwest.net
Mr. Seow Tan	V	NEC Electronics	seow_tan@el.nec.com
Ms. Rachelle Trent	V	PMC-Sierra	rachelle_trent@pmc-sierra.com
Dr. Heng Liao	V	PMC-Sierra, Inc.	Liaoheng@pmc-sierra.com
Mr. Craig W. Carlson	A#	QLogic Corp.	craig.carlson@qlogic.com
Mr. Don Carothers	V	QLogic Corp.	don.carothers@qlogic.com
Mr. Arie Krantz	V	QLogic Corp.	l_krantz@qlc.com
Mr. Jim Jones	A	Quantum Corp.	jim.jones@quantum.com
Mr. Jim Coomes	A	Seagate Technology	jim.coomes@seagate.com
Mr. Gerald Houlder	P	Seagate Technology	gerry.houlder@seagate.com
Mr. Vit Novak	P	Sun Microsystems, Inc.	vit.novak@sun.com
Mr. Ron Mathews	P	UNISYS Corporation	ronald.mathews@unisys.com
Mr. Nitish Amin	V	Vitesse Semiconductor	namin@vitesse.com
Mr. Sam Barnett	V	Vitesse Semiconductor	samb@vitesse.com
Mr. Mark Jander	V	Vitesse Semiconductor	jander@vitesse.com
Mr. Gregory Tabor	V	Vitesse Semiconductor	greg@vitesse.com
Mr. Kenneth Hirata	P	Vixel Corp.	Ken.Hirata@Vixel.com
Mr. Rich Ramos	V	Xyratex	rich_ramos@us.xyratex.com

41 People Present

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

4. Old Business

4.1 SAS-1.1: Transport Layer Retries (03-186) [Elliott/Jones]

Rob Elliott presented a review of the proposed transport layer retry rules (03-186r2). He reported that Jim Jones had revised the series of ladder diagrams contained in 03-229r1. Rob noted that the presentation would focus on 03-186r2 because it contains the first attempt at exact wording changes for incorporation in SAS-1.1.

The group requested several changes. Rob agreed to include the changes in the proposal presented next time. He noted that the next revision of the proposal will also include proposed changes in the state diagrams.

4.2 SAS-1.1: SATA II Port Selector Interoperability (03-155) [Sheffield]

Bob Sheffield reviewed the latest revision of the SATA II Port Selector proposal (03-155r2) as preparation for discussing item 5.8.

5. New Business

5.1 Results of SAS Public Review [Lohmeyer]

John Lohmeyer reported that the second Public Review on SAS closed on 1 September. No Public Review comments have been received.

John reported that Steve Fairchild has posted a document suggesting a change to the algorithm for filling in expander tables (see item 5.11). John noted that proposal presents the possibility of needing a third Public Review.

Rob Elliott noted that the SAS Phy group is discussing changes to the pin-out, but that they are not in a position to effect that change this week.

5.2 SAS-1.1 Transport Layer Retries Ladder Diagrams (03-229) [Jones/Elliott]

This topic was discussed under item 4.1. Jim indicated that this topic should be removed from future agendas.

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

Mark Evans presented a proposal for canceling outstanding protocol service transactions in both the initiator and target (03-245r1). Rob Elliott raised questions about the ways that tasks get aborted other than task management functions and Mark agreed that the issue would need to be discussed in the CAP working group.

Mark agreed to bring a revised proposal to the next meeting.

5.4 SAS-1.1 First Burst Simplification (03-249) [Nixon]

Bob Nixon presented a proposal to allow SAS HBA implementations greater control over the use of First Burst in (03-249r1). Bob Nixon moved that 03-249r2 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 Delay AIP (NORMAL) in XL state machine (03-266) [Elliott]

Rob Elliott moved that 03-266r0 be recommended for inclusion in SAS-1.1. Tim Hoglund seconded the motion. In the absence of any objections, the motion passed unanimously.

5.6 SAS-1.1 New BROADCAST (SES) primitive (03-267) [Elliott]

Rob Elliott presented a proposal to add a new broadcast primitive for SES (03-267r0).

Rob Elliott moved that 03-267r0 be recommended for inclusion in SAS-1.1. Tim Hoglund seconded the motion. In the absence of any objections, the motion passed unanimously.

5.7 SAS-1.1 BROADCAST (CHANGE) on virtual phys enable and disable (03-268) [Elliott]

Rob Elliott presented a proposal to clarify handling of the BROADCAST (CHANGE) primitive in relationship to virtual phys (03-268r0).

Rob Elliott moved that 03-268r0 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 Support for SATA Port Selector (03-273) [Sheffield]

Bob Sheffield presented a proposal to integrate the SATA II port selector in SAS 1.1 (03-273r0). The group requested a several technical changes and numerous editorial changes in the proposal. Bob agree to discuss the proposal with the SAS editor offline and return with a revised proposal next time.

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

Mark Evans presented proposed protocol changes that would allow changing driver signal amplitude (03-285r0). He noted that the proposal is not ready for approval. The plan is for this meeting to review the overall protocol requirements. If the overall protocol can be agreed at this meeting, Mark plans to bring a detailed proposal to the next meeting.

The group discussed several aspects of the protocol and advised Mark regarding important enhancements and corrections.

5.10 SAS-1.1, new additional sense code for NOTIFY (ENABLE SPINUP) REQUIRED (03-287) [Evans]

Mark Evans presented a proposal to define an specific additional sense code for when a NOTIFY (ENABLE SPINUP) is required for the drive to be accessible (03-287r0). The group discussed the proposal.

Mark Evans moved that 03-287r0 be recommended for inclusion in SAS-1.1. Gerry Houlder seconded the motion. In the absence of any objections, the motion passed unanimously.

5.11 SAS Discover Algorithm Modification (03-298) [Fairchild]

Steve Fairchild led the group in a discussion of a proposal to make the expander discovery algorithm more efficient (03-298r0). During the discussion of the proposal, it was noted that the preferred solution is not backwards compatible and that if two hosts use two different algorithms some of the SAS domain may not be accessible.

Steve was pressed to describe a backwards compatible solution and he complied by describing a step that checks the programmed routing tables and falls back to the older algorithm if the comparison fails.

Steve was asked to return with a proposal that includes the backwards-compatible algorithm.

5.12 BackoffRetry priority for XL state machine (03-311) [Hoglund]

Tim Hoglund presented a proposal to resolve a potential livelock condition with OPENs (03-311r0).

Tim Hoglund moved that 03-311r0 be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

6. Review of Recommendations

The following documents were recommended for approval during this meeting:

- SAS-1.1 First Burst Simplification (03-249r2) [Nixon] {unanimous}
- SAS-1.1, new additional sense code for NOTIFY (ENABLE SPINUP) REQUIRED (03-287r0) [Evans] {unanimous}
- BackoffRetry priority for XL state machine (03-311r0) [Hoglund] {unanimous}
- Delay AIP (NORMAL) in XL state machine (03-266r0) [Elliott] {unanimous}
- New BROADCAST (SES) primitive (03-267r0) [Elliott] {unanimous}
- BROADCAST (CHANGE) on virtual phy enable and disable (03-268r0) [Elliott] {unanimous}

7. Meeting Schedule

A SAS Protocol Working Group meeting is scheduled for:

Monday, November 3, 2003 commencing at 9:00 a.m. in Austin, TX at the Driskill Hotel (512-474-5911), hosted by Crossroad Systems.

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

8. Adjournment

The meeting was adjourned at 10:10 a.m. on Tuesday September 9, 2003.