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

Doc. No.: T10/06-124r0

Date: March 7, 2006
Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SAS Protocol WG -- March 6, 2006
Hilton Head, SC

Agenda

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3. Attendance and Membership
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    4.6 SAS-2 Expander Configuration Supervisor and SMP CHANGE Request (06-029) [Weber and Johnson]
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    5.2 SAS-2 Transitions from SL_CC1:ArbSel (06-099) [Day]
    5.3 SAS-2 Minor correction to STP flow control formula (06-101) [Day]
    5.4 SAS-2 Zoning - Phy Features (06-122) [Weber]
    5.5 SAS-2 BREAK_REPLY (06-119) [Hoglund]
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8. Adjournment

Results of Meeting

1. Opening Remarks

George Penokie called the meeting to order at 9:00 a.m. Monday, March 6, 2006. He thanked Chris Lyon of the SCSI Trade Association for hosting the meeting.

2. Approval of Agenda

The draft agenda was approved with no changes.

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

5.8   SAS-2 Zoning-related SMP functions (06-082) [Weber]

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:

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            Name                  S          Organization
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Mr. Paul von Stamwitz             P   AMCC
Mr. Ron Roberts                   A   Broadcom Corp.
Mr. Kevin Marks                   P   Dell, Inc.
Mr. Ramez Rizk                    V   Emulex
Mr. Ralph O. Weber                P   ENDL Texas
Mr. Walt Hubis                    V   Engenio Information Tech.
Mr. Steven Fairchild              V   Hewlett Packard Co.
Mr. Eric Hibbard                  V   Hitachi Data Systems
Mr. Dan Colegrove                 P   Hitachi Global Storage Tech.
Mr. George O. Penokie             P   IBM Corp.
Mr. Pak Seto                      V   Intel Corp.
Mr. Robert Sheffield              P   Intel Corp.
Mr. Dennis Moore                  AV  KnowledgeTek, Inc.
Mr. John Geldman                  P   Lexar Media, Inc.
Mr. Praveen Viraraghavan          V   LSI Logic Corp
Mr. Brad Besmer                   V   LSI Logic Corp.
Mr. Brian Day                     V   LSI Logic Corp.
Mr. Tyson Hartshorn               V   LSI Logic Corp.
Mr. Tim Hoglund                   V   LSI Logic Corp.
Mr. Steve Johnson                 V   LSI Logic Corp.
Mr. John Lohmeyer                 P   LSI Logic Corp.
Mr. David Geddes                  P   Marvell Semiconductor, Inc.
Mr. Mark Evans                    P   Maxtor Corp.
Mr. Tim Symons                    P   PMC-Sierra
Mr. Gerald Houlder                P   Seagate Technology
Mr. William Martin                P   Sierra Logic, Inc.
Mr. Vit Novak                     P   Sun Microsystems, Inc.
Mr. Anders Liverud                AV  Tandberg Storage
Mr. Doug Loree                    V   Toshiba
Mr. Ed D'Avignon                  V   Vitesse Semiconductor
Mrs. Zenta Darnell                V   Vitesse Semiconductor
Mr. Gregory Tabor                 P   Vitesse Semiconductor
Mr. Jeff Williams                 P   Xiotech Corp.
Mr. Bob Hansen                    V   Xyratex

34 People Present
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Status Key:  P    -  Principal
             A,A# -  Alternate
             AV   -  Advisory Member
             L    -  Liaison
             V    -  Visitor
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4. Old Business

4.1   SAS-2 protocol for changing driver amplitude (03-285) [Evans]

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

4.2   SAS-2 Zoning (06-019) [Symons, Laio and Grieff]

George Penokie requested that discussion of this topic be deferred until the configuration examples covered in agenda item 4.10 are agreed upon.

4.3   SAS-2 Multiplexing (05-381) [Elliott]

Rob Elliott presented a proposal to add link-level dword multiplexing (05-381r2). Rob noted that the state machines are not updated yet, but that stabilization of the operational rules will allow him to complete the state machine updates in the next revision. The group suggested several improvements in the proposal and Rob noted needed changes.

Rob agreed to revise the proposal for consideration at the next meeting.

4.4   SAS-2 Wide SSP target port simultaneous connection rules (05-322) [Elliott]

Rob Elliott presented a proposal to add recommendations regarding target usage of simultaneous connections on wide links (05-322r2). As requested at the last meeting, the proposal contained figures showing the SSP and STP cases. The group discussed the correctness of the figures.

Rob agreed to revise the proposal to clarify the figures and present the results for consideration at the next meeting.

4.5   SAS2 BROADCAST (SCSI ASYNCHRONOUS EVENT) (06-044) [Fairchild]

Steve Fairchild presented a proposal define a broadcast primitive indicating a unit attention condition has been established (06-044r1). The group discussed whether all unit attention conditions or just reset unit attention conditions should generate the broadcast.

Steve agreed to revise the proposal for consideration at the next meeting.

4.6   SAS-2 Expander Configuration Supervisor and SMP CHANGE Request (06-029) [Weber and Johnson]

George Penokie requested that discussion of this topic be deferred until the configuration examples covered in agenda item 4.10 are agreed upon.

4.6.1   Deferred motion on general supervisor or zoning-specific supervisor

When the motion that was deferred in Phoenix was brought back to the floor, the original maker of the motion, George Penokie, and the seconder, Kevin Marks, agreed that the motion should be withdrawn based on the actions agreed upon under agenda item 5.4.

4.7 SAS-2 zoning enhancements (06-048) [Hoglund]

In consideration of the group's handling of agenda item 5.4, Tim Hoglund asked that discussion of this topic be removed from future agendas.

4.8 SAS-2 SMP Lists (06-037) [Johnson]

George Penokie requested that discussion of this topic be deferred until the configuration examples covered in agenda item 4.10 are agreed upon.

4.9 Discovery - Configuring bit (06-097) [Symons]

George Penokie requested that discussion of this topic be deferred until the configuration examples covered in agenda item 4.10 are agreed upon.

4.10 Self configuiring devices (06-098) [Symons]

Tim Symons presented example configurations for self-configuration (06-098r2). The group discussed the configurations and how best to have expanders self configure in them. Steve Fairchild raised concerns about neighbor-to-neighbor configuration in self configuring expanders.

4.11 SAS-2 Zoning sans Management (06-107) [Weber]

In consideration of the group's handling of agenda item 5.4, Ralph Weber asked that discussion of this topic be removed from future agendas.

5. New Business

5.1 SAS2: Handle STP CLOSE and SATA_X_RDY crossing on the wire (06-083) [Sheffield]

Bob Sheffield presented a proposal to clarify handling of STP CLOSE primitives (06-083r0). Rob Elliott questioned the degree of precision in the proposed numbered list and Bob agreed to revise the proposal.

Bob Sheffield moved that 06-083r1(r0 as revised) be recommended for inclusion in SAS-2. Kevin Marks seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SAS-2 Transitions from SL_CC1:ArbSel (06-099) [Day]

Brian Day presented a proposal to clarify how a requirement not to terminate address frames early is instanciated in the state machine descriptions (06-099r0).

Brian Day moved that 06-099r0 be recommended for inclusion in SAS-2. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

5.3 SAS-2 Minor correction to STP flow control formula (06-101) [Day]

Brian Day presented a proposal to correct the STP flow control formula (06-101r0).

Brian Day moved that 06-101r0 be recommended for inclusion in SAS-2. Bob Sheffield seconded the motion. In the absence of any objections, the motion passed unanimously.

5.4   SAS-2 Zoning - Phy Features (06-122) [Weber]

Ralph Weber presented the newest SAS-2 Zoning changes that affect the phy and link layers (06-122r1). The group requested corrections to the phy reset subclause and other minor changes. Ralph agreed to prepare a new revision.

Ralph Weber moved that 06-122r2 (r1 as revised) be recommended for inclusion in SAS-2. Ed D'Avignon seconded the motion. In the absence of any objections, the motion passed unanimously.

5.5   SAS-2 BREAK_REPLY (06-119) [Hoglund]

Tim Hoglund presented a proposal to close the link layer race condition related to breaks by changing Break from a signal-oriented function to a request-response transaction (06-119r0). The group requested several minor changes and raised issues regarding the degree to which backwards compatibility is covered by the proposal.

Tim agreed to prepare a new revision for consideration at the next meeting.

5.6   SAS-2 Renumber phy event information codes (06-134) [Elliott]

Rob Elliott presented a proposal to consistently number phy event code values (06-134r0).

Rob Elliott moved that 06-134r0 be recommended for inclusion in SAS-2. Bob Sheffield seconded the motion. In the absence of any objections, the motion passed unanimously.

5.7   Sticky Zone Groups (06-130) [Marks]

Kevin Marks presented a proposal to allow zone groups to ignore phy reset events (06-130r0). Kevin noted that editorial changes are required to make 06-130r0 consistent with the latest changes in 06-122r2 and the group requested other minor changes as well as the removal of all management discussion.

Kevin Marks moved that 06-130r1 (r0 as revised) be recommended for inclusion in SAS-2. Ralph Weber seconded the motion. The motion passed on a vote of 12:0:4.

5.8   SAS-2 Zoning-related SMP functions (06-082) [Weber]

Ralph Weber presented a proposal to define the ORIGINATE BROADCAST PRIMITIVES SMP function (06-082r1). He noted that the definition of the CHANGE SMP function would be removed from the proposal. The group requested several corrections and updates to align the proposal with 06-122r2 and Ralph agreed to prepare a new revision.

Ralph Weber moved that 06-082r2 (r1 as revised) be recommended for inclusion in SAS-2. Ed D'Avignon seconded the motion. The motion passed on a vote of 11:0:6.

6.   Review of Recommendations

The following document was recommended for inclusion in SAS-2 during this meeting:

    For inclusion in SAS-2:
    06-122r2 (Zoning - Phy Features) [Weber]
    06-130r1 (Sticky Zone Groups) [Marks]
    06-082r2 (Zoning-related SMP functions) [Weber]
    06-083r1 (Handle STP CLOSE and SATA_X_RDY crossing on the wire) [Sheffield]
    06-099r0 (Transitions from SL_CC1:ArbSel) [Day]

06-101r0 (Minor correction to STP flow control formula) [Day]
06-134r0 (Renumber phy event information codes) [Elliott]

7. Meeting Schedule

A SAS Protocol Working Group meeting is scheduled for:

Monday, May 8, 2006 commencing at 9:00 a.m. in San Jose, CA the Fairmont Hotel (1-408-998-1900) hosted by Nvidia Corp.

Teleconference calls for SAS-2 Zoning will be held weekly on Thursday and announced on the T10 reflector. Other teleconference calls will be announced on the T10 reflector as needed.

8. Adjournment

The meeting was adjourned at 6:00 p.m. on Monday March 6, 2006.