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

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SAS Protocol WG -- Sept 13, 2004
           Nashua, NH

Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
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   4.2   SAS-1.1, protocol for changing driver amplitude (03-285) [Evans]
   4.3   SAS 1.1 UML Corrections (04-042) [Penokie]
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   4.7   SAS Signal Class Proposal (04-220) [Fairchild]
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5. New Business
   5.1   SAS-1.1, Annex A modifications (04-243) [Evans]
   5.2   SAS-1.1, clarification for completion of a START STOP UNIT command (04-251) [Evans]
   5.3   SAS-1.1, ST_I (transport layer for SSP initiator ports) state machines (04-277) [Evans]
   5.4   Common Storage Management Interface (04-284) [Fairchild]
   5.5   SAS-1.1 XL6 and idle dwords (04-247) [Elliott]
   5.6   SAS-1.1 READY LED MEANING bit is always shared (04-305) [Elliott]
   5.7   SAS-1.1 Send AIP multiple times (04-246) [Elliott]
   5.8   SAS-1.1, phy reset problem count clarification (04-245) [Evans]
6. Review of Recommendations
7. Meeting Schedule
8. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Monday, July 12, 2004. He thanked Zane Daggett of Hitachi Cable Manchester for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no changes.

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

    5.7   SAS-1.1 Send AIP multiple times (04-246) [Elliott]
    5.8   SAS-1.1, phy reset problem count clarification (04-245) [Evans]

3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 member-ship. 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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Ms. Pat Thaler                    P  Agilent Technologies
Mr. Haluk Aytac                   V  AMCC
Mr. John Tyndall                  A  Crossroads Systems, Inc.
Mr. James A. Lott, Jr.            P  Dallas Semiconductor
Mr. Kevin Marks                   P  Dell, Inc.
Mr. Robert H. Nixon               P  Emulex
Mr. Ralph O. Weber                P  ENDL Texas
Mr. Neil  Wanamaker               V  Finisar
Mr. Mike Fitzpatrick              P  Fujitsu
Mr. Nathan Hastad                 P  General Dynamics
Mr. Vinod Bhat                    V  Hewlett Packard Co.
Mr. Vinod Bhat                    T  Hewlett Packard Company
Mr. Rob Elliott                   P  Hewlett Packard Co.
Mr. Steven Fairchild              V  Hewlett Packard Co.
Mr. Zane Daggett                  P  Hitachi Cable Manchester
Mr. Dan Colegrove                 P  Hitachi Global Storage Tech.
Mr. George O. Penokie             P  IBM / Tivoli Systems
Mr. Pak Seto                      V  Intel Corp.
Mr. Robert Sheffield              P  Intel Corp.
Mr. Dennis Moore                  V  KnowledgeTek, Inc.
Mr. Brian Day                     V  LSI Logic Corp.
Mr. Steve Johnson                 V  LSI Logic Corp.
Mr. John Lohmeyer                 P  LSI Logic Corp.
Mr. Steven Schauer                V  LSI Logic Corp.
Mr. Mark Evans                    P  Maxtor Corp.
Mr. Bruce Leshay                  V  Maxtor Corp.
Mr. Greg Elkins                   V  QLogic Corp.
Mr. Jim Coomes                    A  Seagate Technology
Mr. William Martin                V  Sierra Logic
Mr. Gregory Tabor                 AV Vitesse Semiconductor
Mr. Bob Hansen                    V  Xyratex

31 People Present


Status Key:  P    -  Principal
             A,A# -  Alternate
             AV   -  Advisory Member
             L    -  Liaison
             V    -  Visitor
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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 UML Corrections (04-042) [Penokie]

George Penokie led the group in a discussion of corrections needed in the SAS-1.1 UML (04-042r3). The group requested changes and George agreed to prepare a new revision.

George Penokie moved that 04-042r4 (r3 as modified) be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. The motion passed 14:0:2.

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

Rob Elliott presented a proposal to clarify the handling of invalid dwords (04-167r1). The group requested several minor wording changes and Rob agreed to prepare a new revision of the proposal.

Rob Elliott moved that 04-167r2 (r1 as modified) be recommended for inclusion in SAS-1.1. Ralph Weber seconded the motion. In the absence of any objections the motion passed unanimously.

4.5 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 (04-181r1). The group requested corrections and Mark agreed to prepare a new revision of the proposal.

Mark Evans moved that 04-181r2 (r1 as modified) be recommended for inclusion in SAS-1.1 and SPC-3. Greg Elkins seconded the motion. In the absence of any objections the motion passed unanimously.

Further discussion and modification of the proposal occurred as part of item 5.1.

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

Rob Elliott requested that discussion of this topic be deferred to the next meeting.

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

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

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

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

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

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

5.   New Business

5.1   SAS-1.1, Annex A modifications (04-243) [Evans]

Mark Evans presented a proposal to clarify the two test patterns described in Annex A (04-243r0).

As a result of discussing the proposal additional changes were requested in 04-181r1.

Mark Evans moved that the additional changes in 04-181r1 be approved for inclusion in 04-181r2 (the new proposal revision agreed during the discussion of item 4.5). Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

Mark Evans moved that 04-243r0 be recommended for inclusion in SAS-1.1. Greg Elkins seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2   SAS-1.1, clarification for completion of a START STOP UNIT command (04-251) [Evans]

Mark Evans presented a proposal to clarify that START STOP UNIT commands may complete with a status other than Good (04-251r0).

Mark Evans moved that 04-251r0 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, ST_I (transport layer for SSP initiator ports) state machines (04-277) [Evans]

Mark Evans presented a proposal to update the SSP initiator transport layer state machines (04-277r0). The group requested several changes and Mark agreed to prepare a new revision of the proposal.

Mark Evans moved that 04-277r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

5.4   Common Storage Management Interface (04-284) [Fairchild]

Steve Fairchild introduced the group to a plan to define a SAS IOCTL API (04-284r0). This proposal is also on the agenda for consideration at the CAP working group meeting (see 04-288).

5.5   SAS-1.1 XL6 and idle dwords (04-247) [Elliott]

Rob Elliott presented a proposal to clarify that the XL6 state may either forward or transmit (i.e., regenerate) Idle dwords (04-247r0).

Rob Elliott moved that 04-247r0 be recommended for inclusion in SAS-1.1. Brian Day seconded the motion. In the absence of any objections, the motion passed unanimously.

5.6   SAS-1.1 READY LED MEANING bit is always shared (04-305) [Elliott]

Rob Elliott presented a proposal to clarify that there is only one Ready LED value to control with the Protocol-Specific Port mode page (04-305r0), even if other fields in the mode page are not shared. The group requested changes and Rob agreed to prepare a new revision of the proposal.

Rob Elliott moved that 04-305r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Dan Colegrove seconded the motion. In the absence of any objections, the motion passed unanimously.

5.7 SAS-1.1 Send AIP multiple times (04-246) [Elliott]

Rob Elliott presented a proposal to move toward sending AIP multiple times to ensure receipt (04-246r0). Concerns were raised about the lack of support for the receipt of multiple AIPs. Rob agreed modify the proposal based on the discussion of the issues.

Rob Elliott moved that 04-246r1 (r0 as modified) be recommended for incorporation in SAS-1.1. Jim Coomes seconded the motion. The motion passed 17:0:2.

5.8 SAS-1.1, phy reset problem count clarification (04-245) [Evans]

Mark Evans presented proposal to clarify the definition of the phy reset problem count in the Report Phy Error Log response (04-245r0). The group requested that the field not be renamed and Mark agreed to prepare a new revision of the proposal.

Mark Evans moved that 04-245r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Kevin Marks seconded the motion. In the absence of any objections, the motion passed unanimously.

6. Review of Recommendations

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

For inclusion in SAS-1.1:
    04-167r2 (Invalid dword handling) [Elliott]
    04-243r0 (Annex A modifications) [Evans]
    04-042r4 (UML Corrections) [Penokie]
    04-247r0 (XL6 and idle dwords) [Elliott]
    04-251r0 (Clarification for completion of a START STOP UNIT command) [Evans]
    04-305r1 (READY LED MEANING bit is always shared) [Elliott]
    04-277r1 (ST_I (transport layer for SSP initiator ports) state machines) [Evans]
    04-245r1 (Phy reset problem count clarification) [Evans]
    04-246r1 (Send AIP multiple times) [Elliott]

For inclusion in SAS-1.1 and SPC-3
    04-181r2 (SAS phy test functions diagnostic page) [Evans]

7. Meeting Schedule

A SAS Protocol Working Group meeting is scheduled for:

    Monday, November 8, 2004 commencing at 9:00 a.m. in Austin, TX at the Driskill Hotel (512-474-5911), hosted by Crossroads Systems.

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

8. Adjournment

The meeting was adjourned at 4:30 p.m. on Monday September 13, 2004.