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

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SAS Protocol WG -- Nov 8, 2004
            Austin, TX

Agenda

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Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Monday, November 8, 2004. He thanked Dexter Anderson and Rosa Flanders of Crossroads Systems for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no changes.

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. Tim Symons                    P  Adaptec, Inc.
Mr. Gunter Knestele               V  CERTANCE
Mr. Dexter Anderson               P  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. Rob Elliott                   P  Hewlett Packard Co.
Mr. Steven Fairchild              V  Hewlett Packard Co.
Mr. Chris Martin                  V  Hewlett Packard Co.
Mr. George O. Penokie             P  IBM / Tivoli Systems
Mr. Bill Bissonette               V  Intel Corp.
Mr. Robert Sheffield              P  Intel Corp.
Mr. Brian Day                     V  LSI Logic Corp.
Mr. Steve Johnson                 V  LSI Logic Corp.
Mr. John Lohmeyer                 P  LSI Logic Corp.
Mr. Mark Evans                    P  Maxtor Corp.
Mr. Jeff Mastro                   A  Microsoft Corp.
Mr. Craig W. Carlson              A  QLogic Corp.
Mr. Don Carothers                 V  QLogic Corp.
Mr. Greg Elkins                   V  QLogic Corp.
Mr. Jim Coomes                    A  Seagate Technology
Mr. William Martin                V  Sierra Logic
Mr. David Springberg              V  Vitesse Semiconductor

26 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 presented a proposal to add the Terminate Data Transfer protocol service to SAS-1.1. The group requested some changes and Mark agreed to prepare a new revision.

Mark Evans moved that 03-245r6 (r5 as modified) be recommended for incorporation in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

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 More counters (04-172) [Elliott]

Rob Elliott requested that discussion of this topic be deferred to the next meeting and he noted that the proposal may be deferred to SAS-2.

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

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

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

Steve Fairchild requested that discussion of this topic be removed from this and future agendas.

4.6 SAS-1.1 More phy test patterns (04-222) [Elliott and Fairchild]

Rob Elliott presented a proposal to allow any dword and a pseudo-random pattern to be sent as a phy test pattern (04-222r1). Concerns were raised about the difficulties of implementing the proposal in existing hardware. Some of those present viewed requiring hardware to generate any (and/or every) dword value as an unreasonable requirement.

Rob agreed to discuss the proposal with the SAS Phy working group in order to better justify the changes.

5. New Business

5.1 SAS 1.1 - Missing Protocol Identifier field (04-329) [Penokie]

George Penokie presented a proposal to add a protocol identifier field to the Phy Control And Discover subpage (04-329r0).

George Penokie moved that 04-329r0 be recommended for incorporation in SAS-1.1. Rob Elliott seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SAS-1.1: PHY VACANT SMP Function Response (04-333) [Sheffield]

Bob Sheffield presented a proposal to address issues with phy numbering (04-333r0). Steve Fairchild, George Penokie, and others noted that many of the phy numbering issues should not exist in SAS-1.1. Additional research confirmed those claims.

Steve Fairchild noted that allowing gaps in the phy numbering, as proposed, requires changes in the discovery algorithm.

Bob agreed to study the issues with allowing gaps in phy numbering and potentially to revise the proposal. He requested that the agenda item be kept for the next meeting.

5.3 SAS-1.1 Remove minimum ALIGN counts from summary table (04-339) [Elliott]

Rob Elliott presented a proposal to remove the minimum align counts from SAS-1.1 (04-339r0). The group asked Rob to select option B in the A,B choice offered and Rob agreed to revise the proposal.

Rob Elliott moved that 04-339r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Bob Sheffield seconded the motion. In the absence of any objections, the motion passed unanimously.

5.4 SAS-1.1 OPEN_REJECT BAD DESTINATION handling (04-340) [Elliott]

Rob Elliott presented a proposal to change expander handling of inaccessible addresses (04-340r0). The group discussed the retry verses instant error reporting aspects of the proposal at length, but no changes were made.

Rob Elliott moved that 04-340r0 be recommended for inclusion in SAS-1.1. Steve Johnson seconded the motion. The motion failed 4:6:4.

Rob requested that this item be placed on the plenary agenda in spite of the failed motion to recommend it for approval.

5.5 SAS-1.1 Do not reset Arbitration Wait Time timer on incoming OPEN (04-341) [Elliott]

Rob Elliott presented a proposal to correct a livelock condition related to the arbitration wait timer (04-341r0). The disk drive manufacturers were very concerned about mixing credit statements with arbitration. The group requested that everything in 8.2.2.3.2 not be changed by this proposal and that everything after the 'until' in the modified sentence be removed. Rob agreed to revise the proposal.

Rob Elliott moved that 04-341r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Mark Evans seconded the motion. In the absence of any objections, the motion passed unanimously.

5.6 SAS-1.1: Another Port Selector Detection Gap (04-357) [Sheffield]

Bob Sheffield described a race condition in the definition of the port selector detection process in terms of SAS-1.1 state machines (04-357r0). The group noted minor editorial problems and requested the specific text changes. Bob agreed to prepare a new revision of the proposal.

Bob Sheffield moved that 04-357r1 (r0 as modified) be recommended for inclusion in SAS-1.1. Bill Martin seconded the motion. In the absence of any objections, the motion passed unanimously.

5.7 SAS-1.1 Phy test functions for SMP (04-352) [Elliott]

Rob Elliott presented a proposal to define phy test functions for SMP (04-352r0). The group requested changes and Rob agreed to revise the proposal.

Rob Elliott moved that 04-352r1 (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.

5.8 SAS-1.1 SMP initiator state machine corrections (04-346) [Elliott]

Rob Elliott presented a proposal to correct several errors in the SMP initiator state machine (04-346r0).

Rob Elliott moved that 04-352r0 be recommended for inclusion in SAS-1.1. Brian Day seconded the motion. In the absence of any objections, the motion passed unanimously.

5.9 SAS-1.1 DONE Timeout vs ACK NAK Timeout race condition note (04-363) [Elliott]

Rob Elliott presented a proposal to add a 'big fat' note describing a race condition in SAS-1.1 (04-363r0).

Rob Elliott moved that 04-363r0 be recommended for inclusion in SAS-1.1. Mark Evans seconded the motion. The motion passed 8:2:4.

5.10 SAM-4 SAS-1.1 I_T NEXUS LOSS task management function (04-372) [Elliott]

Rob Elliott presented a proposal to define a task management function to simulate logout for SAS (04-372r0). The group requested that the name of the task management function be changed to differentiate it from the I_T nexus loss event and Rob agreed to revise the proposal.

Rob stated that the proposal will be presented to CAP, where a recommendation will be sought.

5.11 SAM-4 SAS-1.1 Task priority cleanup (04-376) [Elliott]

Rob Elliott presented a proposal to incorporate task priority in the SAS state machines and protocol services (04-376r0). He closed by noting that the proposal mainly concerns CAP issues.

5.12 SES-2 Defined SAS Expander element (04-374) [Elliott]

Rob Elliott led the group through a short course in SES history and data structures, culminating in a couple of choices for changing the existing structures to support SAS expanders (04-374r0). The group offered suggestions regarding what data needs to be included in the SES structures and less radical changes in the structure that will provide the critical data.

Rob stated that the revised proposal will be presented to the CAP working group.

6.   Review of Recommendations

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

For inclusion in SAS-1.1:

    03-245r6 (SAS 1.1, adding the Terminate Data Transfer protocol service) [Evans]
    04-329r0 (SAS 1.1 - Missing Protocol Identifier field) [Penokie]
    04-357r1 (SAS-1.1: Another Port Selector Detection Gap) [Sheffield]
    04-339r1 (SAS-1.1 Remove minimum ALIGN counts from summary table) [Elliott]
    04-341r1 (SAS-1.1 Do not reset Arbitration Wait Time timer on incoming OPEN) [Elliott]
    04-352r1 (SAS-1.1 Phy test functions for SMP) [Elliott]
    04-346r0 (SAS-1.1 SMP initiator state machine corrections) [Elliott]
    04-363r0 (SAS-1.1 DONE Timeout vs ACK NAK Timeout race condition note) [Elliott]

7.   Meeting Schedule

A SAS Protocol Working Group meeting is scheduled for:

   Monday, January 17, 2005 commencing at 9:00 a.m. in Las Vegas, NV at the Tropicana Hotel (800-643-4000), hosted by Hitachi GST.

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

8.   Adjournment

The meeting was adjourned at 3:20 p.m. on Monday November 8, 2004.