

The meeting opened at 9:05 am, Tuesday July 13, 2004.

Introductions:

Attendance:

Mr. Tim Symons	Adaptec, Inc.
Mr. Haluk Aytac	AMCC
Mr. Doug Cole	Dallas Semiconductor
Mr. Kevin Marks	Dell, Inc.
Mr. Douglas Wagner	FCI
Mr. Elwood Parsons	Foxconn Electronics
Mr. Mike Fitzpatrick	Fujitsu
Mr. Rob Elliott	Hewlett Packard Co.
Mr. Barry Olawsky	Hewlett Packard Co.
Mr. George O. Penokie	IBM / Tivoli Systems
Mr. Andrew Cable	Intel Corporation
Mr. Martin Czekalski	Maxtor Corp.
Mr. Bill Lye	PMC-Sierra
Mr. Alvin Cox	Seagate
Mr. Vit Novak	Sun Microsystems, Inc.
Mr. Dan Gorenc	Tyco Electronics
Mr. Robert Kando	Texas Instruments
Mr. ?	Vitesse
Mr. Chuck Hill	Consultant

19 People Present

2. Approval of agenda

- Miscellaneous physical layer changes (04-131) [Elliott]
- Internal wide connector and cable [Elliott]
- Review proposals concerning OOB @ 1,5G only
- 04-150 TCTF update proposal
- 4x internal electrical performance characteristics [Olawsky]
- Impact of SATA Gen2 on SAS 1.1 PHY section.
- Review of FC-MJSQ and its applicability to SAS [Ham]
- Determination if CJTPAT is being used properly in SAS [Ham]
- Possible consolidations within tables.
- External cable electrical requirements.
- New items

SAS 1.1 letter ballot in November or January

3. Discussion items

3.1 Miscellaneous physical layer changes (04-131) [Elliott]
Recommend inclusion in SAS 1.1 13Y, 0N, 1A

<http://www.t10.org/ftp/t10/document.04/04-131r1.pdf>

3.2 Internal wide connector and cable [Elliott]

<http://www.t10.org/ftp/t10/document.03/03-240r3.pdf>

Straw pole 10/4/2 to keep designator prefixes in the internal multi-lane tables and suggest that SATAii CABCON Volume 2 and SFF-8484 use the same letter prefixes as SAS 1.1.

Add information regarding "octopus cables".

Significant decision that the sideband signals **shall** contain an SGPIO initiator interface (see SFF-8485). Decision to change SGPIO to informative. Too many changes to recommend inclusion in SAS 1.1 at this time.

Rob will provide a new draft to be reviewed during upcoming teleconferences.

3.3. Review proposals concerning OOB @ 1,5G only

04-128 withdrawn by author.

Reviewed 04-177r2. Unanimous recommendation for inclusion in SAS 1.1.

<http://www.t10.org/ftp/t10/document.04/04-177r2.pdf>

3.4. 04-150 TCTF update proposal. Unanimous recommendation for inclusion of revised version in SAS 1.1.

Reviewed 04-150r2. Revised to remove statement concerning "deemed compliant" and correct reference number in preface.

<ftp://ftp.t10.org/t10/document.04/04-150r3.pdf>

3.5. 4x internal electrical performance characteristics [Olawsky]

Barry Olawsky provided a background information document 04-182r0.

<http://www.t10.org/ftp/t10/document.04/04-182r0.pdf>

Proposal with table and associated notes:

04-195r0 SAS-1.1 Internal Wide Connector/Cable Electrical Requirements

<http://www.t10.org/ftp/t10/document.04/04-195r1.pdf>

Barry to do the following:

Revise Note A to clarify meaning.

Review insertion loss numbers versus compliance channel. Current graph includes backplane and host PCB traces plus cable assembly loss.

Rise time is 70 ps with no tolerance. Define a tolerance.

3.6. External cable electrical requirements.

Alvin Cox will coordinate a draft proposal.

3.7. Impact of SATA Gen2 on SAS 1.1 PHY section.

Serial ATA PHY specification for 3Gbps is not available from the Serial ATA web site prior to the July 13, 2004. This document will be used for information regarding impact to SAS 1.1 PHY to

include SATA at 3 Gbps. Most of work to be handled on conference calls before the next T10 week.

Andrew Cable has taken the action to provide an initial draft of the proposal.

3.8. Review of FC-MJSQ and its applicability to SAS [Ham]

Bill has made a first cut, but no proposal yet. Some editorial will be required as well as determining applicability to SAS 1.1. References to optical may not be applicable to SAS. Need to coordinate with FC-MJSQ inclusions in SAS 1.1 and work with Bill on posting a proposal.

3.9. Determination if CJTPAT is being used properly in SAS [Ham]

Add picture and editorial changes to Annex A to clarify text regarding transmission of CJTPAT. Bill Ham to draft proposal. (Carry over)

3.10. Possible consolidations within tables.

Items to consider while looking at incorporation of FC-MJSQ and SATA 3Gbps:

1. The only difference between compliance points IR and CR seems to be in 2xZ1 at 1.5 Gbps:

325 mV(P-P) at IR

275 mV(P-P) at CR

All the other signal characteristics (table 27 in sas1r04), maximum allowable jitter numbers (table 28), and receiver jitter tolerance (table 29) numbers are identical.

Is the standard missing some distinctions, are the environments really this close? If they're so similar, it seems like they should just share one set of numbers. At 3 Gbps, both IR and CR use 275 mV. Since 1.5 Gbps SAS-only interconnects are unlikely, it seems reasonable that IR be 275 mV too.

ACTION FOR ALL: Does this change to 275 mV impact any existing designs?

2. (as mentioned on the first physical WG call) The only difference between XR and IR is the SATA column - all the 1.5 Gbps and 3 Gbps SAS numbers are the same, as are all the jitter numbers.

Assuming that 04-131 is accepted, the only difference that will remain between the XR SATA and XR 1.5 Gbps SAS columns is:

225 mV(P-P) at XR for SATA

275 mV(P-P) at XR for 1.5 Gbps SAS

If this is the only difference, it might be better handled as a footnote to the 275 mV number.

3.11. New items

None.

4. Future Conference call schedule: bi-weekly starting Thursday 7/29 at 10 am CDT

Next call:

Date: Thursday, July 29, 2004

Time: 10:00 am, Central Daylight Time (GMT -05:00, Chicago)

All Participants should use the following information to reach the conference call:

Toll Free Dial in Number: (866) 279-4742

International Access/Caller Paid Dial In Number: (309) 229-0118

PARTICIPANT CODE: 3243413

WEBEX information:

url: seagate.webex.com (no www)

Topic: SAS PHY WG

Date: Thursday, July 29, 2004

Time: 10:00 am, Central Daylight Time (GMT -05:00, Chicago)

Meeting number: 825549498

Meeting password: section5

5. Recommendations to plenary:

Proposal	Action	WG disposition:
04-128	Withdrawn by author	--
04-131r1	Include in SAS 1.1	13Y, 0N, 1A
04-177r2	Include in SAS 1.1	Unanimous approval
04-150r3	Include in SAS 1.1	Unanimous approval

6. Adjournment:

Meeting adjourned at 2:50 pm, Tuesday July 13, 2004.