Minutes SAS-1.1 PHY WG teleconference February 17, 2005 T10/05-076r0

Attendance:

Mr. Henry Wong	Agilent
Mr. Paul von Stamwitz	AMCC
Mr. Neil Wanamaker	Finisar
Mr. Rob Elliott	HP
Mr. Bill Ham	HP
Mr. George Penokie	IBM
Mr. Bill Bissonette	Intel Corporation
Mr. Mike Jenkins	LSI Logic
Mr. Dick Uber	Maxtor
Mr. Jay Neer	Molex
Mr. Bill Lye	PMC-Sierra
Mr. Alvin Cox	Seagate Technology
Mr. Bill Gintz	Sues
Mr. Kalev Sepp	Tektronix
Mr. Dan Gorenc	Tyco
Mr. Don Schulte	Vitesse

16 People Present

Agenda:

1) 05-019r1 SAS 1.1 OOB For SAS/SATA Support
http://www.t10.org/ftp/t10/document.05/05-019r1.pdf
White paper posted.
http://www.t10.org/ftp/t10/document.05/05-077r0.pdf

Change minimum hot plug timeout to 10mS minimum.
Voltage loss (pk-to-pk) is minimal at 1.5 Gbps.
Bill Bissonette to work with SATA-I/O group to get responses as soon as possible.

2) Bill Bissonette and Barry Olawsky are working on 3Gbps SATA simulation numbers. Barry expects to have enough data to draft a proposal by 2/24, the cut-off date to make the March plenary and inclusion in the SAS-1.1 ballot draft.

3) Use of words: "Maximum near-end crosstalk" [Olawsky]

History below:
Maximum near-end crosstalk has two different uses in the rev 8 SAS 1.1 specification. In Tables 28 and 29 (pages 151 and 152) it has its common usage referring to crosstalk measured within a cable. In Tables 33 and 35 (pages 171 and 174) is has a different meaning that is defined in note f as:
Near-end crosstalk is the unwanted signal amplitude at IR and CR coupled from signals and noise sources other than the desired signal. See SFF-8410.

This definition of near-end crosstalk is different than the standard usage and now that near-end crosstalk is specified for cable performance, it is more critical that the intent be made clear. I suggest we consider changing the name of the parameter in Tables 33 and 35 to something more appropriate.

The value is actually a noise budget number for system design with near-end crosstalk being a major contributor. Barry will review IEEE and other specifications to determine a better name for the parameter. Alvin will propose text that indicates this is a system noise budget and that the sum of worst-case specifications for each piece is likely to exceed the specified value.

Discussion on 2/17/05:
Does this fit in the TX table?
Does it really belong in the spec?
Should some comment be made about system noise relevant to spec requirements and the number be eliminated?
What is the impact of the measurement annex material?

4) 05-062r0 SAS 1.1 Signal Performance Measurements Annex [Penokie]
http://www.t10.org/ftp/t10/document.05/05-062r0.pdf

2/17/05:
Bill Ham to send George updates to correct test loads versus use of receiver device, etc. and reference particular sections and tables. Also review for name consistency.

5) New 4X connector proposals need to be drafted if they will be included in SAS 1.1
04-320r0 SAS-1.1 Reduced width internal connector [Neer]
04-321r0 SAS-1.1 Reduced width external connector [Neer]

SFF-8086 Interface
SFF-8087 Internal
SFF-8088 External

2/17/05:
SFF specs have been sent in the mailing and need to be updated.
Chose “compact multilane” for name in the SAS specification. Working the pinout tables but should go ahead and post rev 0 versions and then update as indicated within the text regarding tables and figures. Also need to clean up references to sidebands and signal paths.
Discussed possible use of extra sideband lines to indicate cable length. The external cables do not have sidebands so the intent may not be achieved, as this was the critical application for knowing length.
Keying needs to be defined. These connectors are also being presented to the SATA I/O group and keying for application (SAS versus SATA) has been requested.
External connectors should indicate what type of routing they are attached to (table or subtractive) so that working combinations may be indicated by the symbols on the connectors. Rob Elliott will supply Jay with the information.

6) Review draft proposal concerning transients during OOB [Cox]
http://www.t10.org/ftp/t10/document.05/05-069r0.pdf

Proposal 05-069r0 posted after discussion of initial draft. Text located in Section 5 and referenced in Section 6. Context in Section 5 resulted in significant editing of the main paragraph.

2/17/05: Please review and send any comments to Alvin or the reflector.

7) 05-059r0 05-023r0 SAS-1.1 Connector figures [Allan]
http://www.t10.org/ftp/t10/document.05/05-059r0.pdf

Dal Allan has posted 05-059r0 concerning the figure swap and figure names in 05-023r0. The figure swap was corrected in 05-023r1 to resolve the technical issue. The renaming issue suggests adding fixed and free designations to all referenced connectors, however the suggestion retains the plug and receptacle designations. To achieve the intended political correctness (the supposed explicit sexual references), any references using “plug” or “receptacle” also need to be removed from the connector descriptions. Fixed and free designations only reference physical aspects of the application of the connector (ideally, mounted in a fixed location or free to be mated in another location) rather than the connector type, thus being less descriptive

of the physical aspects of the connector itself. Depending on the application, a receptacle or plug may be either fixed or free.

2/17/05:
Carryover. Send comments to reflector.

8) SAS-1.1 rev 8 posted.
http://www.t10.org/ftp/t10/drafts/sas1/sas1r08.pdf

Review section 5.

2/17/05:
Rob brought up several concerns about the transmit tables. They may have information that should not be in them since they were basically copied from the original receive tables.

9) New items

9.1 05-075r0 OOB Signal Transmitter Requirements [Wanamaker]
http://www.t10.org/ftp/t10/document.05/05-075r0.pdf

2/17/05:
Proposal widens the window of the OOB signal burst and idle time for SAS devices.
Review next week and possibly change the tolerance of UIOOB if the timing interval should be wider. Drive, initiator, and expander suppliers should review product versus specification to determine if timing is too tight or if it is okay as is. Changing the tolerance of UIOOB is the preferred method rather than the table changes so that the document is consistent throughout.

9.2 SATA eye opening requirements in transmit table [Elliott/Marks]

2/17/05:
Transmit minimum eye opening of 225mV does not “meet SATA requirements” for a SATA target. Change to “See SATA”. May need an additional line in Table 33 for maximum pk-to-pk voltage for if SATA is attached. Difference in eye opening method (SAS) versus SATA amplitude measurement (SATA) does not necessarily imply compliance between SAS/SATA numbers. What does the SAS eye opening translate to in the SATA measurement method? There has been concern that the SATA 400mV transmit level may not yield a 225mV opening. Does the 225 mV eye opening for transmitting into a TCTF test load imply that the SATA minimum receive amplitude is met?

Next call: February 24, 2005
Thursday, 10 am CST.
Same webex and call number for all calls:

Webex:
seagate.webex.com (no www)
Topic: SAS PHY WG
Date: Every week on Thursday
Time: 10:00 am, Central Standard Time (GMT -06:00, Chicago)
Meeting number: 825 549 498
Meeting password: section5

Toll Free Dial in Number: (866) 279-4742
International Access/Caller Paid Dial In Number: (309) 229-0118
PARTICIPANT CODE: 3243413