Minutes of SAS PHY Working Group conference call June 28, 2007

Attendance:

Ms. Fei Xie               Agilent Technologies, Inc.
Mr. Jesse Jaramillo       Amphenol
Mr. Greg McSorley         Amphenol
Mr. Kevin Witt            Dallas Semiconductor
Mr. Mickey Felton          EMC
Mr. Ramez Rizk            Emulex
Mr. Douglas Wagner        FCI
Mr. Barry Olawsky         Hewlett Packard Co.
Mr. Rob Elliott           Hewlett Packard Co.
Mr. Harvey Newman         Infineon Technologies
Dr. Mark Seidel           Intel Corp.
Mr. Michael Schnecker     LeCroy
Mr. Gabriel Romero        LSI Logic Corp.
Mr. Galen Fromm           Molex Inc.
Mr. Hock Seow             NEC Electronics America, Inc.
Mr. Rick Hernandez        PMC-Sierra
Mr. Guillaume Fortin      PMC-Sierra
Mr. Yuming Tao            PMC-Sierra
Mr. Joseph Chen           Samsung
Mr. Alvin Cox             Seagate Technology
Mr. Daniel Smith          Seagate Technology
Mr. Stephen Finch         STMicroelectronics
Mr. Mahbubul Bari         Vitesse Semiconductor

23 in attendance

1. CJTPAT versus JTPAT
   Should we stick with CJTPAT as the required pattern and not allow JTPAT as an equivalent?
   Discussion leaned toward CJTPAT being a more stringent test since it includes a wider spectral content.

   CJTPAT remains the required jitter test pattern as per SAS 1.1. This gives consistency and a single pattern for testing per the specification.

   Question to all:
   Do the header and CRC need to be valid? If these are generated by a tester that just makes up fake data, is that acceptable for the test?

   If the receiver is outside of a connection (in a test mode), it typically counts invalid headers and CRC’s as errors. The validity requirement applies if inside a connection. The SOF and EOF helps test equipment identify where the pattern is located. Training is an issue for SAS-2.

   Might possibly fix the header for a data transfer so the CRC is constant. Address and destination hashing complicates this. (Test equipment to testing a target receiver is the purpose for a fixed header.)

   Rob will draft a proposal.

2. Review of Annex B since de-embedding has a significant impact at 6Gbps.
   Need to review offline. Please comment to the reflector if you do or do not find anything wrong regarding SAS-2 test requirements.
3. Interim meeting
An interim SAS-2 PHY working group face-to-face meeting is planned for August 15-16 in Lisle, IL. The meeting will be held at the Molex facility and area hotel information will posted soon. The meeting will be all day on 8/15 and a half day on 8/16.

4. StatEye update
Harvey presented an updated table for 07-227 page 7. He will post the update on 6/30.

5. New items
SAS-2 10 Meter Cable Specification Issues [Olawsky]

Barry demonstrated a relationship between the termination proximity to ports and amplitude mismatch. Others have seen similar readings but have not known the cause. Questions resulting from this:
• How does intra-pair amplitude mismatch reduce receiver margins?
• Will the termination method be an issue?
• Does common mode signal levels of (~20%) create a new problem for the receiver?

SAS-2 Zero-Length Test Load Characterization [Olawsky]
Barry showed proposed text and an “inverse TCTF graph to represent valid zero-length test load characteristics. Barry will post text for review along with an improved figure and SDD equation since there was general agreement with the concept. See below for sketched graph.

![Sketch of a graph showing a curve labeled 'Sample valid zero-length test load' with a note 'Where SDD21(f) <= ...']

Next call July 5.

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Webex information:
https://seagate.webex.com/seagate
Topic: SAS-2 PHY WG
Date: Thursday
Time: 10:00 am, Central Daylight Time (GMT -05:00, Chicago)
Meeting number: 826 515 680
Meeting password: 6gbpsSAS