

**IEEE P1394b CONNECTOR TASK GROUP
COPPERHEADS
Monterey, CA**

December 8, 1998

Max Bassler – Chairman (Not Present)
Bill Northey – Secretary, Acting Chair
- Dave Brunker – Acting Secretary

AGENDA

Review and approval of last meetings minutes

New Items

- Presentations
 - Discussion of electrical requirements for S800-S1600
 - Develop ongoing action items
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SUMMARY OF OCTOBER MINUTES

1. S1600 cable presentation made by Bill Northey (Full presentation posted to web)
 - 6 cables tested @ 1600 Mb/s (3 @ 4.5 meters, 3 short cables)
 - Cables were commercially available and made by several manufacturers
 - All but one cable supported S1600 speeds
 - 100% cable testing would be required to find failed cables, at least until the manufacturing process were determined to be consistently good for all cables
 - S800 speeds would certainly not be a problem with tested cables
 - Question was raised regarding data run length. Bill Northey to determine
 - Response: Run length (Word size) was (2**23)-1
 - Question also raised that only eye pattern tests were performed and no other parameters were tested; additional information requested.
 - Response: Follow up presentation by Bill Northey will address this today
2. Open Discussion
 - D. Wooten questioned whether currently defined masks have enough margin to accommodate losses between TP-3 and TP-4. Response is out of scope, but if modified masks are provided, we could accommodate.
 - D. Wooten to question editor on this point
 - Each signaling rate should reflect a specification level consistent with its' respective performance level (cost Issue)
 - Clarification requested...resolved that the Copperheads group expressed a concern that S1600 requirements not be reflected into S1600
 - Cable ID requirement unconfirmed @S800; confirmed @S1600
 - Further empirical/theoretical evaluation required for S800
 - Action: Northey/Brunker
 - Dave B. volunteered to consider the many variables that could be adjusted to make a cable that barely meets the 1394-95 performance requirements. (DB reported that work is in progress to define variables)
 - Bill N. Indicated that he would be willing to test this cable on the test connectors (i.e. S400 minimally compliant cable from D. Brunker).

- Colin Whitby-Strevens has requested that this group provide NEXT information for the 6 ckt I/O system. This is needed to understand the total electrical budget. Requested info is based on work done in Fibre Channel.
 - Based on the draft electrical chapter today we propose the following changes to meet the NEXT and total electrical budget for connectors and cables:
 - S800 - 200 ps risetime (250ps for EMC concerns)
 - S1600 - 100 ps risetime (under review)
 - Based on -26dB crosstalk, skew values in P1394b
 - Total budget = 80mv maximum launch (NEXT 40mv, noise 15mv, off transmitter 20mv, margin 5mv)
 - These values must be reflected in the electrical criteria section of the 1394b draft
3. Ongoing proposal to change shape/geometry of existing contacts in socket
- Action Item for Bill Northey – Follow up presentation required on durability and reliability numbers

PRESENTATIONS AND DISCUSSIONS FOR DECEMBER

- Follow up presentation by Bill Northey showing TDR, NEXT, FEXT and shielding Effectiveness of modified connector and mated cables. This was an extension of the eye pattern information from last meeting.
 - Bill N. to provide test conditions. Also to post presentation to web.
 - A question was raised whether 6.6% NEXT @ 100 ps risetime was acceptable. (Is -26dB needed? The spec calls for 5%)
 - Is 100 ps really needed or could a value > 100 ps be adequate?
 - Is -26dB needed
 - We need Colin Whitby-Streven's input for the above performance criteria
- Continued discussion on electrical requirements for S800-1600 – Dave Brunker
 - Floor discussion on cable “corner cases”.
 - Two cables exhibiting worst case conditions to be developed; one long for attenuation, one short for reflections.
 - Dave Wooten discussed possibility of S800 working on S400 cable.
- Kyozo Saito of Alps made a follow up presentation on cable ID using a switch system. He started with a review of his April presentation which showed how to implement up to 4 switches and actuators. The new proposal shows two actuators that are placed more ideally in the connector to minimize impact on electrical characteristics in the connector.
 - Saito san to submit PDF file of his new presentation to web site.
 - There was a desire expressed by F. Liburdi to not install if not needed
 - Dave Wooten indicated that the burden of proof was to prove that the existing cable systems will work at higher speeds
- Open Discussion

Develop Ongoing Action Items

- EMI/RFI Baseline test method – No new action, consider dropping
 1. Presentation posted to web.
 2. Call for test method input and review of details
 3. New version posted on the web, reported by Mike Fogg that there was no IP involved with this technology

- Cable detect pin in copper connector
 - Proposal under review
 - After much discussion (October meeting) it was concluded:
 1. S800 may not need a detect device (to be confirmed by additional testing and empirical evaluation)
 2. S1600 will need new cable/mod. Connector and detect device
 3. A study of the impact on pinout/ functionality of the connector/cable and PHY is needed
 - Bulk Cable specification methodology complete and given to editor
 - Matrix of physical interfaces
 1. Updated from last meeting
 2. Post next meeting
 - Connector contact design modifications - Awaiting durability/reliability data from Bill Northey

- Additional action items from discussions:
 - Dave Brunker to define cable variables for edge cases for marginally performing cables and to assemble two examples
 - Bill Northey to test the cables from Dave Brunker
 - Bill Northey to post his presentation from today and test conditions to web.
 - Kyozo Saito to submit PDF file of his new presentation to web site.
 - Colin Whitby-Stevens to be queried regarding test data from Bill Northey's presentation to determine if the performance is adequate.