Unapproved Minutes
IEEE P802.3AP - Backplane Ethernet
May 16-18, 2005
Austin, TX

Prepared by
John D'Ambrosia (May 16)
Brian Seemann (May 17 – 18)

Meeting convened at 8:35 am, May 16, 2005

Agenda / Housekeeping Issues

- Introductions
- Agenda (agenda_01_0505)
    - Discussion –
    - Approved by voice vote without objection
        - Moved by Justin Gaither
        - Seconded by Schelto van Doorn
        - Agenda approved by voice vote without objection
- Review of Minutes from March meeting
    - Motion to approve minutes from March meeting
        - Moved by Fulvio Spanga
        - Seconded by Charles Moore
        - Minutes were Approved by voice vote without objection
- Goals for meeting discussed
    - Development of Draft 1.0
        - Adopt proposals to fill holes in baseline text.
        - Big Ticket Items
            - Backplane channel specifications
            - 10GBASE-KR transmitter specifications
            - compliance test methodologies (receiver testing)
        - Resolve comments against Draft 0.9
    - Presentations
    - Formalize points of agreement with motions
- IEEE rules read to the body by Chair
- IEEE Patent policy read to the body by Chair
- Inappropriate Topics for IEEE meetings read to the body by Chair
- IEEE Project Flow Discussed
- Project Details
    - Approved PAR - http://standards.ieee.org/board/nes/projects/802-3ap.pdf
    - 5 Criteria - http://ieee802.org/3/ap/802_3_ap_5criteria.pdf
    - Objectives - http://ieee802.org/3/ap/802_3_ap_objectives.pdf
- Project schedule discussed
    - See agenda_1_0505 for Project Timeline
    - An additional June Interim meeting is in the process of being setup
- Chair requested

o   All questions on presentation be held to end
o   All questions relevant to content and clarification of content

Presentation #1
Title –   Editor's Report
By –   Schelto van Doorn
See –   vandoorn_01_0505.pdf

Discussion
- Group has a shared responsibility to review the submitted editorial comments to see if any should be elevated for broad consideration

Presentation #2
Title –   Channel Model Ad Hoc Report
By –   Charles Moore
See -   moore_02_0505.pdf

Presentation #3
Title –   Improved HVM ATCA Models Update
By –   Bill Peters
See -   peters_01_0505

Discussion
- Trace impedance approximately within 5%
- All data measured or referred to is TP1 to TP4 only, no cascading with packaging
- Crosstalk data has not been obtained yet

Presentation #4
Title –   Informative Model Methodology Update
By –   John D'Ambrosia
See -   dambrosia_01_0505

For sake of schedule it was agreed to re-order the presentations 5 & 6.

Presentation #5
Title –   KX & KX4 Informative Channel Models
By –   John D'Ambrosia
See -   dambrosia_02_0505

Discussion
- Current interpretation of the model is that it applies across all channels
- Interpretation of the specification by some is that it is not clear whether the channel model does apply to all PHY's
- This approach would be a simple way to add informative models

- The goal of the presentation was to make the specification less ambiguous.

Break – 10:10am
Reconvened at 10:30 am

Presentation #6
Title –   Channel Model Correlation Update and Trends
By –   Rich Mellitz
See -   mellitz_01_0505.pdf

Presentation #7
Title –   Root Power Sum of Energy Integrals
By –   Charles Moore
See -   moore_01_0505.pdf

Discussion
- For informative - Use ACR as limit on crosstalk
- For normative – calculated RPSEI number would then be used in the Link Budget
- In reference to the statement to use Healey presentation – specify worst case aggressor and total xtalk by the ACR
- The use of limit curves has history in IEEE

Break for Lunch at 11:55
Meeting Reconvened at 1:25 pm

Presentation #8
Title –   AN Data Detect Timer Values
By –   Andre Szczepanek
See -   szczepanek_01_0505.pdf

Discussion
- Some discussion regarding whether +/- 25% was too much time for implementations to guarantee to accept a transition from the center of the DME cell.

Presentation #9
Title –   An Eye on Return Loss: The Mathematical and Real Implications of RL Specs
By –   Rich Mellitz
See -   mellitz_02_0505.pdf

Presentation #10   (deferred to next day)
Title –   Improved ATCA Channel Equalization with Package Impacts
By –   Xiao Ming Gao
See -   gao_01_0505.pdf

Presenter had not arrived to give at time of presentation #10, so group moved onto next presentation.

Presentation #11

Title –	Bit Error Distribution on a DC-Coupled Backplane Channel
By –	Andre Szczepanek
See	szczepanek_03_0505.pdf

Discussion
- Assumptions of noise sources used in experiment may not be representative of all applications, and thus may not be showing burst
- Test setup used a simplified model of crosstalk.

Presentation #12

Title –	DFE Error Propagation Spreadsheet Introduction
By –	Andre Szczepanek
See	szczepanek_04_0505.pdf

Discussion
- How do we handle bursts of errors?
- Constraints can be used as a way to choose the channel. However, the performance of the channels noted (Reference presentation - OIF2003.260.00), is unknown, so concern was expressed regarding these tap weights as is without comparing the channels against the channels being considered by 802.3ap.

Break at 3:00
Meeting reconvened at 3:35

Presentation #13

Title –	Simulated DFE Error Propagation Results for Intel Channels
By –	Andre Szczepanek
See	szczepanek_05_0505.pdf

Discussion
- The way things were measured might indicate that there were two or more events of errors, as opposed to one inter-related group
- The importance of DFE error propagation to BE may be in channel selection.
- All NRZ solutions proposed used some form of DFE, but there was discussion on whether the specification should be more implicit. This is countered; however, by the fact that other implementations may come forward.
- Wouldn't DFE error propagation cause other problems that would catch it?
- Further data with a clearer definition of a burst of errors is needed.

Presentation #14

Title –	DFE Coefficient Constraints
By –	Andre Szczepanek
See	szczepanek_01_0505.pdf

Discussion
- Discussion on what the CRC checker would catch in relation to burst errors

Presentation #15

Title –   Receiver Interoperability Testing
By –   Joe Abler (Presented by Brian Seemann)
See   abler_01_0505.pdf

Discussion
- Presentation calls for normative tx, channel, rx specifications
- Proposal is really an ISI generator
- Conceptually this presentation addresses test repeatability
- Channel would be a clean channel where reflections are treated as another form of interference

Presentation #16

Title –   Digital Signal Detect
By –   Pat Thaler
See   thaler_01_0505.pdf

Discussion
- Analog signal detect would still be optional (legacy applications), it may not make sense
  - For KX, KX4 it would be useful
- Once the digital detect establishes the link, we shouldn't let the analog detector bring it down
- Pat came up with a solid proposal that would not come up due to crosstalk.

Meeting break for day at 5:32pm

Meeting Reconvened Tuesday at 8:30am
Acting Secretary: Brian Seemann

Presentation #10   (moved from previous day)

Title –   Improved ATCA Channel Equalization with Package Impacts
By –   Xiao Ming Gao
See   gao_01_0505.pdf

Discussion
- Q: What was noise source? A: Signaling Ad Hoc level
- Q: "Channel Aware Package" ? A: Presenter explained that package could be optimized for channel.

Presentation #17

Title –   Transmitter Compliance Criteria
By –   Justin Gaither
See   gaither_01_0505.pdf

Discussion
- Questions about exact simulation conditions were answered using a detail slide that wasn't part of the distributed set. It will be distributed.
- DFE settings were not re-set for the quantized Tx settings.

Presentation #18

Title –   10GBASE-KR Transmit Equalizer Requirements
By –   Adam Healey
See   healey_01_0505.pdf

Discussion
- Discussion around how to reduce the setting count. Following presentation cited as possibility of getting there.

Break at 9:50
Meeting reconvened at 10:15

Presentation #19

Title –   10GBASE-KR Transmitter Compliance Methodology Proposal
By –   Rob Brink
See   brink_01_0505.pdf

Discussion
- Presenter noted that this presentation and Healey presentation disagree with Gaither presentation in whether 4 Tx states is sufficient.
- Discussed whether states need to be deterministically defined and tested or whether up/down relative settings could be used. Presenter recommends deterministic.

Presentation #20

Title –   Proposal for Enhancements to the 10GBASE-KR Start-Up Protocol
By –   Rob Brink
See   brink_02_0505.pdf

Discussion
- Discussed value of Rx knowing that Tx actually got the next setting.
- General agreement that main cursor adjustability would be valuable.
- Suggestions about an overall watchdog timeout function that could reduce the amount of lower level interactions and acks.
- Concerns expressed that the protocol needs to be extendable for future, when more taps of equalization may be needed.

Comment Resolution

Motion #1   General Session Motion
Description: **Move to adopt Thaler_01_05 as the basis for resolution of comment 93 (C bits will not be moved, Analog Signal Detect will be optional).**
Motion Type: Technical 75 % required
Moved By: Pat Thaler
Seconded By   Ilango Ganga
Results: All   Yes – 32   No –   0   Abstain – 7

P/F   **Motion Passes**

Break for lunch @ 12:45pm
Meeting reconvened at 2:00

Straw Poll #1   **Should the channel be the same between 1000BASE-KX, 10GBASE-KX4, and 10GBASEKR?**

                   Yes - 20
                   No – 8
                   Abstain – 7

Motion numbering in error (#2 skipped). Numbering of motions as recorded kept to maintain continuity with motions / straw polls as recorded during meeting.

Motion #3   General Session Motion
Description: **Move to use the same informative channel model for 1000BASE-KX, 10GBASE-KX4 and 10GBASEKR.**
Motion Type: Technical 75 % required
Moved By: Schelto van Doorn
Seconded By   Mike Lerer
Results: All   Yes – 20   No – 7   Abstain – 10
                   802.3   Yes - 11   No - 4   Abstain - 8
P/F   **Motion Fails**

Motion #4   General Session Motion
Description: **Move to amend Motion #3. Use compatible channel model with unique frequency ranges for 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR.**
Motion Type: Technical 75 % required
Moved By: Dave Koenen
Seconded By   Pat Thaler
Results: All   Yes – 10   No – 13   Abstain – 14
                   802.3   Yes - 6   No - 9   Abstain - 9
P/F   **Motion Fails**

Break at 3:00 pm
Reconvened at 3:23 pm

@ 5:08 pm…
Healey asked if there were any objections to hearing an emerging presentation and possible proposals. No objections were voiced.

Presentation #21
Title –   Tx/Ch/Rx Methodology
By –   Tom Palkert
See   palkert_01_0505.pdf

Motion #5   General Session Motion

Description: **Move that channel characterization be defined using:**
- **Attenuation limits as in Draft 0.9**
- **Deviation Limits as in Draft 0.9**
- **Crosstalk methodology as in D'Ambrosia_01_0505**
  - **Single Aggressor**
  - **ACR**

Motion Type: Technical 75 % required
Moved By: Tom Palkert
Seconded By Fulvio Spagna
Results: All   Yes – 32   No – 0   Abstain – 5
P/F **Motion Passes**

Motion #6   General Session Motion
Description: **Move that Receiver testing in Clause 72A be modified per Palkert_01_0505.**
Motion Type: Technical 75 % required
Moved By: Fulvio Spagna
Seconded By Joel Goergen
Results: All   Yes – 27   No – 0   Abstain – 12
P/F **Motion Passes**

Motion #7   General Session Motion
Description: **Move that 802.3ap compliance methodology be based on 2/3 approach:**
- **Tx: Normative**
- **Channel: Informative**
- **Rx: Normative**

Motion Type: Technical 75 % required
Moved By: Joel Goergen
Seconded By Ali Ghiasi
Results: All   Yes – 28   No – 1   Abstain – 7
           802.3   Yes - 20   No - 0   Abstain - 5
P/F **Motion Passes**
Discussion
- Need compliance testing proposals and channel characterization data for the June interim.

Meeting adjourned at 5:46 pm

Meeting convened at 8:25am, Wednesday, May 18.

Comment Resolution continued.

Straw Poll # 2   **Do you think we should adopt the Clause 72A Receiver testing methodology for KX and KX-4.**

         Yes - 14

No – 0
Abstain

Motion # 8   General Session Motion
Description: **Move to use the same Receiver compliance methodology for KX and KX4 as described in Clause 72A and modified by Palkert_01_0505.**
Motion Type: Technical 75 % required
Moved By: Charles Moore
Seconded By Yuval Bachar
Results: All   Yes – 23   No – 1   Abstain – 10
            802.3   Yes - 19   No - 0   Abstain - 6
P/F **Motion Passes**

Meeting break at 9:31
Meeting reconvened at approximately 10am

Presentation #22
Title –   10GBASE-KR Transmitter Compliance Methodology Proposal and Modifications to the Startup protocol
By –   Rob Brink
See   brink_04_0505.pdf

Motion #9   General Session Motion
Description: **Move to accept the Transmitter Equalization Ratio Test (ERT) Methodology as described in slides 3-5 of brink_04_0505.**
Motion Type: Technical 75 % required
Moved By: Rob Brink
Seconded By Justin Gaither
Results: All   Yes – 27   No – 1   Abstain – 5
            802.3   Yes - 20   No - 0   Abstain - 0
P/F **Motion Passes**

Motion #10   General Session Motion
Description: **Move to accept the Transmitter Equalization Solution Space and test methodology as described on slides 7 and 8 of brink_04_0505.**
Motion Type: Technical 75 % required
Moved By: Rob Brink
Seconded By Justin Gaither
Results: All   Yes – 26   No – 0   Abstain – 9
P/F **Motion Passes**

Motion #11   General Session Motion
Description: **Motion to accept the updates to the startup protocol as described on slides 11 and 12 in brink_04_0505.**
Motion Type: Technical 75 % required
Moved By: Rob Brink
Seconded By Brian Brunn

Results: All   Yes – 23   No – 1   Abstain – 10
                802.3   Yes - 20   No - 0   Abstain - 5
P/F   **Motion Passes**

Discussion
- Need to evaluate and address error susceptibility of the control channel.

Motion #12   General Session Motion
Description: **Move to add a table to subclause 69.3 binding f1 and f2 values to the port types.**
Motion Type: Technical 75 % required
Moved By: Joel Goergen
Seconded By   Charles Moore
Results: All   Yes – 26   No – 0   Abstain – 6
P/F   **Motion Passes**

Closing Business
- Reviewed Big Ticket Items
- Announced June Interim meeting at Embassy Suites Airport in Minneapolis.

Motion #13   General Session Motion
Description: **Accept proposed comment resolutions (with editorial comments to be addressed by the editor) and integrate into interim Draft 0.91.**
Motion Type: Technical 75 % required
Moved By: Fulvio Spagna
Seconded By   Charles Moore
Results: All   Yes – 33   No – 0   Abstain – 1
P/F   **Motion Passes**

Moved to adjourn by Rob Brink. Motion approved via voice vote without objection.
Meeting adjourned at 11:50am.