Unapproved Minutes
IEEE P802.3AP - Backplane Ethernet
September 27 - 29, 2004
Ottawa, Ontario, Canada

Prepared by: John D'Ambrosia

Meeting convened at 8:36 am, September 27, 2004.

Agenda / Housekeeping Issues

- Introductions
- Agenda (agenda_01_0904)
  - Three presentations were not received by Friday deadline
    - Tom Palkert OIF update (invited presentation)
    - Joel Goergen – new data from new test boards just completed
  - Order of Auto-Negotiation presentations be rearranged
  - Motion to adopt agenda as modified including update to Joel Goergen's presentation
  - Approved by voice vote without objection
- Motion to approve minutes from May meeting that are posted on web
  - Change Adam Healey, healey_01_0704, from #27 to #28
  - Moved by – Joel Goergen
  - Second – Tom Palkert
  - Minutes were accepted by voice vote without objection
- Goals for meeting discussed
  - Development of Draft 1.0
  - Presentations
  - Formalize points of agreement with motions
  - Discussion
    - Format of document
      - Has been written so that it can be split into multiple clauses
      - Needs to fit within IEEE guidelines and style
      - Currently 5 potential clauses
        - 3 (1 per PMD)
        - Auto-negotiation
        - Introductory / system
- 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
- 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
- Review of Project Objectives
  - Objective to add a 4-lane 10 Gb/s PHY has been added per approval at last plenary

- Port Naming convention discussed
- Project schedule discussed
  - See agenda_1_0904 for Project Timeline
- Chair requested
  - All questions on presentation be held to end
  - All questions relevant to content and clarification of content

Presentation #1

Title – "OIF Report"
By – Tom Palkert, Xilinx
See – palkert_01_0904.pdf

Discussion

- Test point demarcation - CAP is part of the receiver

Presentation #2

Title – "T11.2 and SFF Report to IEEE 802.3ap"
By – Schelto van Doorn, Intel
See vandoorn_01_0904.pdf

Discussion

- Timeline for 8G / 16G
  - Opinions 8G by 2005 and would take 16G at same time if they could
  - Estimated dates have fluctuated, current thinking
    - 2006 for 8G standard to complete
    - 2008 for 16G standard to complete
- Equalization being discussed, but based on 26" channel
- Historically - Doubling of performance at same price every two years

Presentation #3

Title – "Draft Document Backplane Signaling Proposal"
By – Schelto van Doorn, Intel
See vandoorn_02_0904.pdf

Presentation #4

Title – "Informative Back Plane Channel Sept 04 Ad Hoc Recommendations"
By – Joel Goergen, Force10 Networks
See goergen_03_0904.pdf

Break 9:50
Reconvened at 10:13

Presentation #5

Title – "Signaling Ad Hoc Report"
By – Mike Altmann, Intel
See altmann_01_0904.pdf

Discussion

- Low priority of "common platform" – from set of initial targets for Signaling Ad Hoc conference call. Ad Hoc needs to work through.
- Whatever tool gets selected needs to address all signaling schemes
- StatEye is open source and things can be added.
- Currently, no clear winner for proposed methodologies. All need work.
- Interest in having an extra hour meeting this week for the Signaling Ad Hoc

Presentation #6

Title – Backplane Signaling Proposal for 1 Gb/s Serial PMD
By – Jeff Lynch, IBM
See lynch_01_0904.pdf

Discussion

- Mike Lerer – what are differences between this and PICMG specification for Gig E
    a. Voltage swing
    b. Return loss
- PICMG uses TP2 / TP3
    a. Does this accommodate TP1 / TP4?
    b. Under discussion
- How resilient to changes in channel model?
    a. Maybe
    b. Most current channel model is more stringent than what was used for this proposal

Presentation #7

Title – Proposal for 1 Gb/s Serial PMD
By – Justin Gaither, Xilinx
See gaither_01_0904.pdf

Discussion

- 300 mV picked based on minimum eye opening / loss of channel
    - Could use 200 mV
- Allows for multi-rate transceiver
- Does it make sense to have another channel model for 1G?
    - Justin's personal opinion there should only be 1 channel
    - Justin thinks that channels more worst case than channel model should work
- No ref clock specified, debate as to whether the specification should define it
    - Clause 36 to define TBI ref clock tolerance
- How does a standard (Gig E, 4 lane) reference different ref clocks? Justin- standard won't say how to implement multi-rate

- Justin feels the two proposals differ mostly by the way things are defined. Jeff Lynch agreed.

Presentation #8

Title – 10G 4-Lanes Ethernet over Backplane Proposal
By – Dimitry Taich, Mysticom
See taich_01_0904.pdf

Discussion

- Use existing XAUI devices where they have capabilities to meet the channel, but there are issues
    - Launch voltage (1200 vs 1600)
    - Peak-to-peak voltage mask at the Tx
- Further offline discussion to prevent any backwards compatibility need to happen
- 44% pre-emphasis? See Slide #8 for definition
- 1600mV is peak,
- Why wasn't xtalk considered when changing pre-emphasis levels? It was a theoretical example.
- Pre-emphasis in 2nd slide? Lower than 44% exact value not known, but probably 15% to 20%
- Channel impulse response – looks like scaling issue with magnitude

Break for Lunch 11:55am
Reconvened at 1:10pm

Presentation #9

Title – Proposal for 4x3.125G Lane Backplane PHY
By – Justin Gaither, Xilinx
See gaither_02_0904.pdf

Discussion

- Meeting to be held to drive consensus between different proposals and proposed verbiage for document.
- Maintaining compliancy of current XAUI drivers was deemed important by the group.

Presentation #10

Title – "Improving Auto-Negotiation Efficiency, Page Extension for 802.3ap"
By – Pat Thaler, Agilent
See thaler_01_0904.pdf

Discussion

- Similar presentation to be given to 10G-Base-T, which is clause 28 based
- All auto negotiation assumed to be running approximately 1Gb/s

- Will there be a mode to turn off auto-negotiation? Presentation is neutral but Clause 28 and 37 both support turning off auto-negotiation

Presentation #11

Title – "802.ap Auto-Negotiation with Clause 28 State Machines- Baseline Proposal"
By – Ilango Ganga, Intel
See ganga_01_0904.pdf

Discussion

- Ali expressed concerns for backwards compatibility
- Customers use of auto-neg
    - Jeff Cain- no auto-negotiation used in Cisco backplanes
    - Jeff Lynch – don't use today, but would consider if available
    - Dave – use with Base-T, not Base-x, would consider if available
    - Joel – agrees with Jeff Cain
- Training at 10G – done with auto negotiation or a separate mechanism? Use the SSP's for training
    - Training used for adaptive equalization
    - 1000Base-t after auto neg goes into pmd startup which is training
    - Just because something is not done in a proposal, it does not mean it can not be done
    - Solution not contained within the proposal, but seems to be going towards training be separate of auto-neg
- Use of signal detect?
    - Defined in ssp levels

Meeting bring at 2:47pm
Break at 3:12 pm

Presentation #12

Title – "Synchronous Auto-Negotiation Proposal"
By – Howard Baumer, Broadcom
See baumer_02_0904.pdf

Discussion

- Pat Thaler – simpler to have everything talking clause 36 than different things
- Brad Booth – no backwards compatibility and will require a new clause
- Pat Thaler – new state machines in new clause would have to be done

Presentation #13

Title – EoBP Auto-Negotiation Requirements
By – Howard Baumer, Broadcom
See baumer_01_0904.pdf

Discussion

- There are timers in clause 37 needed for management that would impact the importance of fast parameter passing
- Potential issues seen with a pairing of devices where lowest speed of device is not common between the two devices

Presentation #14

Title – "Auto-negotiation Selection"
By – Brad Booth, Intel
See boothi_01_0904.pdf

Discussion

- Ali – what about use of repeaters?
    - Implementation specific.
    - IEEE specifies MAC to MAC.
    - Regardless of Clause 28 & 37, IEEE specifies MAC to MAC
- Link bring up
    - 0.25 to 0.5 second – doing good
    - Jeff Cain – approaching 3 to 5 seconds and users begin to get nervous

Straw Poll #1: Indicate your preference for auto negotiation-
Option A – Clause 28 based per proposal per ganga_01_0904
Option B – Clause 37 based per proposal baumer_02_0904
Option C – Auto negotiation, but either option A or B
Option D – Don't want auto negotiation

Results: Option A - 28
Option B - 7
Option C - 10
Option D - 2

Meeting adjourned for day 5:29pm

Tuesday, September 28, 2004
Meeting reconvened 8:35 am

Presentation #15

Title – "Vitesse Measurements of Channel Ad Hoc Test Boards"
By – Majid Barazande-Pour, Vitesse
See barazande_pour_01_0904

Discussion

- Touchstone files in both formats of *.s4p data has been provided to the chair to be posted in the channel model section by Joel.
- Vitesse can post their results as well to the web page
- John D'Ambrosia – similar results for comparing different IF's for SDD21, but off mode measurements exhibited differences.
- Brian Brunn – phase delay has been suggested in place of group delay
    - Jeff Sinsky – different smoothing algorithms can affect the measurement of the group delay

Presentation #16

Title – "Channel Compliance to Proposed Test Cards Part III
By – Joel Goergen, Force10 Networks
See goergen_02_0904.pdf

Discussion

- Richard Melitz – As insertion loss goes down, then return loss becomes as issue
    - Can we come up with an equation
- Shannon Sawyer – SMA vs microwave probe –
    - Joel – he thought it came from Johnson. 4 post

Presentation #17

Title – "AdvancedTCA Channel Data Comparison"
By – Bill Peters, Intel
See peters_01_0904

Discussion

- Impedance variation needs to be taken into consideration. Also manufacturing and environmental influences. Richard indicated that IPC has data, but there are some concerns about the data.
- SDD11 / 22 measurements are impacted by stub on launch.
- NEXT measurements
    - Worst case for the backplane, not per the ATCA pin-out
    - Shortest lengths exhibited worst NEXT.

Break 10:17
Reconvened at 10:35

Presentation #18

Title – "Channels for Consideration by the Signaling Ad Hoc"
By – John D'Ambrosia, Tyco Electronics
See dambrosia_01_0904.pdf

Discussion

- Exact points of measurements on test backplanes can be provided

Presentation #19

Title – "Proposed Changes to SDD11 / SDD22 Return Loss Masks"
By – John D'Ambrosia, Tyco Electronics
See dambrosia_02_0904.pdf

Discussion

- Can the relationship between SDD11 and SDD21 be exploited?
    - Data shows that there is some relationship
    - John – the issue is more complex than that
- An equation based solution can be envisioned, but would need work.
- Channel Ad Hoc needs to discuss further
- It is a system issue, and we can come up with cases that will break whatever limits we set

Presentation #20

Title – "Proposed Changes to NEXT / FEXT Informative Mask Set"
By – John D'Ambrosia, Tyco Electronics
See dambrosia_03_0904.pdf

Discussion

- System level issue
- Is Power sum correct methodology
- How does it compare to Stat Eye? Time domain analogous
- Look at the concept, because the mask needs to take other data into suggestion

Presentation #21

Title – "Basic Design Constraints in Describing Informative TP5"
By – Joel Goergen, Force10 Networks
See Goergen_01_0904.pdf

Presentation #22

Title – "10 Gb/s Duobinary Signaling over ATCA PICMC 3.0 Backplanes - Measured Results and Cross-talk Simulations"
By – Jeff Sinsky, Lucent
See sinsky_01_0904.pdf

Discussion

- Lucent willing to work with any companies to test with duobinary
- Concept that being above SDD21 line means you have better performance is incorrect
- Concern that the impact of crosstalk and return loss wasn't being seen. Statistical analysis?
- For channel measurements should go to 10 GHz
- Could use a DFE after the duobinary to binary converter, as it is NRZ
- There was no noise filtering in the demo letting in stuff above 5 GHz.

Lunch Break at 12:30 pm
Reconvened at 1:35 pm

Presentation #23

Title – Partial response signaling for Backplane Applications
By – Mike Altmann, Intel
See altmann_02_0904.pdf

Discussion

- PR4 is being proposed as a candidate, but there are some details being left out of the proposal at this stage.
    - 64/66 PCS in line
    - inherit whatever training sequence from other schemes
        - additional training possibilities as well

Presentation #24

Title – Duobinary and NRZ Compatibility
By – Glen Koziuk, Vitesse
See koziuk_01_0904.pdf

Presentation #25

Title – Edge-Equalized NRZ and Duo-Binary
By – Brian Brunn, Xilinx
See brunn_01_0904.pdf

Discussion

- What is minimum roll-off for Sdd21? Not known.
- Brian Seemann – little difference between signal processing for duobinary and EE-NRZ

Presentation #26

Title – Performance of NRZ and PAM-4 with 802.3ap Test Channels
By – Cathy Liu, LSI
See liu_01_0904.pdf

Discussion

- John D'Ambrosia – need the signaling ad hoc to drive conditions for simulation so camps do the work based on their proposals, so implementation of different signaling schemes doesn't impact results and hence conclusions.
    - Various implementations are in the presentation.
- Crosstalk is being calculated as gaussian, and extrapolating out. Only electronic noise is being treated as Gaussian.

Break at 3:25 pm
Reconvened 3:45 pm

Presentation #27

Title – Further Stat Eye Analyses
By – Steve Anderson, Xilinx
See anderson_01_0904.pdf

Discussion

- See Slide #4 of Anderson_01_0904 given to the channel ad hoc

Presentation #28

Title – Simulation Results on Proposed Signaling Ad Hoc Test Channels
By – Joe Abler, IBM
See abler_01_0904

Discussion

- IBM tool takes into account error propagation effects
- Shown loss plots includes package effects
- John D'Ambrosia – Joe, can you provide any guidance for channels that are above the model but have ripple, as to how much ripple the DFE can tolerate?

Presentation #29

Title – Proposal for 10G serial backplane PHY using Unified Signaling
By – Justin Gaither, Xilinx
See taither_01_0904.pdf

Discussion

- Does receiver have to support both.
    - Tx must have 3 taps
        - Can fit into mask that is specified.

    - Justin - a duobinary pre-coder would be a hardship. There are a number of people in this room don't think a duobinary is necessary.
    - Others don't think so
    - The receiver does not have to support both rx modes.
    - The tx may not support both modes.
    - Tom Dineen – It is in the PAR single solution for a single problem. Trying to wrap two solutions into one would likely be objectionable to 802.3.
    - Pat Thaler – not sure if another PHY, but seems a lot more complex than what 802.3 has done before, so they may be resistive
- Mike Altmann – does seem like two different PHYs and we need to be careful about developing two pieces of silicon that can't talk to each other.
    - Justin – considers precoding another form of equalization
        - Small price to pay to allow flexibility for Rx design
    - Rx knowing number of taps – Justin agrees it may be necessary and could use more investigation
- Howard Baumer – single Clause 49 scheme is being proposed, but different modulation scheme
    - Tx and channel has to fit template – Justin – no may need different templates
- Brian Seemann – motivation for precoder potential for error propagation – if you don't have first error, you don't have error propagation
- Error can propagate and destroy effective error rate
    - Justin – put something in the idle to prevent
    - Precoder needed for duobinary to prevent error propagation
- Mike Altmann – the work of the Signaling Ad Hoc may find that one scheme is better than the other.
- Glen - how can we address whether this is a single or double PHY.
    - Adam – mode switch in Tx to accommodate both Rx types has a perception issue of two PHYs that would be better if we could avoid.

Presentation #30

Title – Proposed 802.3ap text for 10G Unified Signaling Proposal
By – Tom Palkert, Xilinx
See palkert_02_0904.pdf

Presentation #30 is proposed text in support of Presentation #29. It was agreed not to give presentation for scheduling issues.

Presentation #31

Title – Proposed Functional Additions to Support Receiver Eye Characterization
By – Tom Waschura, SyntheSys Research
See waschura_01_0904.pdf

Discussion

- Good work, but very complex.
- Test techniques specified into specification may impact implementations

Interim Meeting adjourned for day at 5:53pm

Thursday, July 15, 2004
Meeting reconvened at 8:34am

Discussion

- Review of proposed verbiage for serial 1G PMD
    - Values debated between different proposals have been left in red

Motion # 1 General Session Motion
Description: Accept the draft text as contained in Clause 69.2 in vandoorn_04_0904.pdf as a first draft for serial 1G PHY.
Motion Type: Technical 75 % required
Moved By: Schelto van Doorn, Intel
Seconded By: Jeff Lynch, IBM
Results: All Yes – 36 No – 0 Abstain - 4
P/F **Motion Passes**

Motion # 2 General Session Motion
Description: Accept the draft text as contained in Clause 69.3 in vandoorn_04_0904.pdf as a first draft for four lane 10G PHY.
Motion Type: Technical 75 % required
Moved By: Schelto van Doorn, Intel
Seconded By: Justin Gaither, Xilinx
Results: All Yes – 40 No – 0 Abstain - 5
P/F **Motion Passes**

Discussion

- Concern expressed that there may be discrepancies with XAUI. Needs to be reviewed further.

Motion # 3 General Session Motion
Description: Accept the draft text as contained in Clause 69.1 in vandoorn_04_0904.pdf as a first draft for introductory text.
Motion Type Technical 75 % required
Moved By Schelto van Doorn, Intel
Seconded By John D'Ambrosia, Tyco Electronics
Results: All Yes – No – Abstain -
802.3 Yes – No – Abstain -
P/F **Motion Tabled, See Motion #4.**

Discussion

- Justin - Proposed verbiage may be perceived as an implication of how the group will proceed, and there are issues yet to be resolved in the channel ad hoc.
- Jeff Lynch – agreed with Justin.

Motion #4 General Session Motion
Description Move to table Motion #3.
Motion Type Procedural 50% required
Moved By Justin Gaither, Xilinx
Seconded by Jeff Lynch, IBM
Results: All Yes – 20 No – 11 Abstain - 19
P/F **Motion passed. Motion #3 Tabled**

Motion # 5 General Session Motion
Description: Adopt Clause 49 PCS and Clause 51 PMA for the serial 10G PHY.
Motion Type: Technical 75 % required
Moved By: Justin Gaither, Xilinx
Seconded By: Schelto van Doorn, Intel
Results: All Yes – No – Abstain -
802.3 Yes – No – Abstain -
P/F **Motion Split, See Motion #6**

Discussion

- Glen Koziuk - Since a serial 10G PHY doesn't exist, it may be premature to adopt PCS and PMA.

Motion # 6 General Session Motion
Description: Move to divide the question in Motion #5
Motion Type: Procedural 50 % required
Moved By: Ali Ghiasi, Broadcom
Seconded By: Thomas Joergensen, Vitesse
Results: All Yes – 23 No – 3 Abstain - 20
P/F **Motion Passes**

Motion # 7 General Session Motion
Description: Adopt Clause 49 PCS for the serial 10G PHY.
Motion Type: Technical 75 % required
Moved By: Justin Gaither, Xilinx
Seconded By: Schelto van Doorn, Intel
Results: All Yes – 30 No – 0 Abstain - 18
P/F **Motion Passes**

Motion # 8 General Session Motion
Description: Adopt Clause 51 PMA for the serial 10G PHY.
Motion Type: Technical 75 % required
Moved By: Justin Gaither, Xilinx
Seconded By: Schelto van Doorn, Intel

Results:	All	Yes – 21	No – 5	Abstain - 25
	802.3	Yes – 9	No – 3	Abstain - 10
P/F	**Motion Passes**			

Discussion

- Justin Gaither feels this has nothing in here that will affect the 10G signaling and channel
- Joe Abler – duo-binary implementations and some PHYs might need this.
- Justin Gaither feels this is an implementation issue.
- Glen agreed with Joe Abler.
- Bob Grow – this is not a mandatory interface, so compliance is not measured there.

Motion # 9 General Session Motion
Description: Adopt following nomenclature to describe PMD's

- 1000BASE-KX – serial 1G PHY
- 10GBASE-KX4 – 4-lane 10G PHY
- 10GBASE-KR – serial 10G PHY

Motion Type Technical 75 % required
Moved By Schelto van Doorn, Intel
Seconded By John D'Ambrosia, Tyco Electronics

Results:	All	Yes – 45	No – 0	Abstain - 5
P/F	**Motion Passes**			

Discussion

- Concern regarding "KR" characters and potential confusion. Group didn't feel an issue.

Motion # 10 General Session Motion
Description: Auto-negotiation based on baseline proposal ganga_01_0904.pdf is adopted as basis for generation of 802.3ap draft 1.0.
Motion Type: Technical 75 % required
Moved By: Thomas Joergensen, Vitesse
Seconded By: Andre Szczepanek, Texas Instruments

Results:	All	Yes – 30	No – 8	Abstain - 21
	802.3	Yes – 15	No – 4	Abstain - 7
P/F	**Motion Passes**			

Discussion

- Joe Abler – proposal did not provide definition for link initialization
    - Thomas – premature to put in training, so keep separate
    - Joe – the mechanisms you want to put in may affect auto-negotiation scheme
- Ali Ghiasi – link initialization time has been expressed as a potential issue and has not been addressed / considered

Motion # 11 General Session Motion
Description: Move to adopt the test point model for simulation reference diagram defined in goergen_03_0904, page 11, as informative.
Motion Type: Technical 75 % required
Moved By: Joel Goergen, Force10 Networks
Seconded By Jeff Cain, Cisco

Results:	All	Yes – 32	No – 2	Abstain - 21
	802.3	Yes – 13	No – 0	Abstain - 9
P/F	**Motion Passes**			

Meeting Break – 9:44 am
Reconvened at – 10:15 am

Motion # 12 General Session Motion
Description: Move to adopt the recommended channel ad-hoc SDD21 limit mask defined in goergen_03_0904, page 13, as informative.
Motion Type: Technical 75 % required
Moved By: Joel Goergen, Force10 Networks
Seconded By: Jeff Cain, Cisco Systems

Results:	All	Yes – 27	No – 11	Abstain - 21
	802.3	Yes – 11	No – 3	Abstain - 11
P/F	**Motion Fails**			

Discussion

- John D'Ambrosia expressed concern since the signaling ad hoc discussed excluding channels for simulation that go beneath the Channel Model.
- Joe Abler – separate issues
- John D'Ambrosia – If signaling Ad hoc proceeds with excluding channels below the model, then we need to lower the model now.
- Joel – we should be looking at channels that go above and below the proposed model
- Adam - The model can move, but would require 75% vote.
- John – Discussion in signaling ad hoc would prevent the model from moving lower, since such channels would be excluded from simulation
- Jeff Sinsky – will channels that go below the line be excluded
- John to Joel – Should we simulate models that go below the model, Joel – yes.

Straw Poll **Chicago Rules**
By John D'Ambrosia
Description: Use the channels defined in dambrosia_01_0904, anderson_Rev6_Model, and goergen_02_0904 (1, 2, 3, 6, 7, 8, 14, 17, and 18), Peters_01_0904 as a basis for the Signaling Ad Hoc to begin simulation and analysis.

Dambrosia_01_0904	Yes	31	No 18
Anderson_Rev6_Model	Yes	36	No 4
Goergen_02_0904	Yes	44	No 1
Peters_01_0904	Yes	28	No 16

Straw Poll
By John D'Ambrosia
Description: Should the Signal Ad hoc consider models that fail the proposed Channel Ad Hoc SDD21 channel model mask?

Yes - 29
No - 15

Motion # 13 General Session Motion
Description: Move to adopt that the channels defined in anderson_Rev6_Model, and goergen_02_0904 (1, 2, 3, 6, 7, 8, 14, 17, and 18), as members of the simulation set to be used by the Signaling Ad Hoc for evaluation.
Motion Type: Technical 75 % required
Moved By: Mike Lerer, Rapid Prototypes
Seconded By: Justin Gaither, Xilinx
Results: All Yes – 17 No – 27 Abstain - 12
P/F **Motion Fails**

Discussion

- **Mike Altmann – goes against the strawpoll, since this subset limits the data set to channels are above the model.**

Motion # 14 General Session Motion
Description: Move to amend Motion #13
"adopt that the channels defined in anderson_Rev6_Model, goergen_02_0904 (1, 2, 3, 6, 7, 8, 14, 17, and 18), *dambrosia_01_0904, and peters_01_0904* as members of the simulation set to be used by the Signaling Ad Hoc for evaluation. "
Motion Type: Technical 75 % required
Moved By: Charles Moore, Agilent
Seconded By: John D'Ambrosia, Tyco Electronics
Results: All Yes – 29 No – 18 Abstain - 8
802.3 Yes – No – Abstain -
Motion **Fails**

Discussion

- Justin – feels that the additional files should not be included since they dipped below the model
- Glen – feels nothing should be excluded
- John – Anderson_01_0904 should be excluded since it also violates the model
- Jeff – you have to tell me where it breaks
- Richard Melitz – should be included since work since things could be learned from the signaling ad hoc
- Ali Ghiasi –
    - return loss
    - dambrosia_01_0904 is not available for download off the web
- Henrik – should not exclude information
- Mike Adler – no "weighing" proposals have been provided
- Tom – files should be posted – John – IEEE was consulted
- Bob – this should be left to the Signaling Ad Hoc.

Straw Poll Chicago Rules
By Tom Palkert
Description Which 10G Serial Signaling Proposal do you favor?

1. Unified signaling – gaither_01_0904.pdf
2. PR4 signaling – altmann_02_0904.pdf
3. PAM-4 signaling – brink_02_0704.pdf

1	43
2	18
3	12

Straw Poll Chicago Rules
By Fulvio Spagna, Intel
Description Which 10G serial signaling scheme do you favor?

1. Duo-Binary
2. NRZ
3. EE-NRZ (differs in pulse response to NRZ)
4. PR-4
5. PAM-4

1	38
2	37
3	26
4	20
5	9

Motion to adjourn - Passed by voice approval without objection.
Meeting adjourned at 12pm.