

Unapproved Minutes
IEEE Energy Efficient Ethernet Study Group
April 17-18, 2007
Ottawa, ON, Canada

Prepared by: Bill Woodruff

Edited by: Mike Bennett

- added list of attendees
- added minutes taken by Mandeep Chadha

Meeting convened at 9:10 am, April 17, 2007.

Attendee List

Name	Affiliation	Employer
Mike Bennett	LBNL	LBNL
Bill Woodruff	Aquantia	Aquantia
Mandeep Chadha	Vitesse	Vitesse
Geoff Thompson	Nortel	Nortel
Bob Grow	Intel	Intel
Chris DiMinico	SolarFlare Communications	MC Communications
Kory Sefidvash	Broadcom	Broadcom
Hugh Barrass	Cisco	Cisco
Ilango Ganga	Intel	Intel
Jeff Cain	Cisco	Cisco
David Law	3Com	3Com

Agenda & General Information

By – Mike Bennett

See – agenda_2_0407.pdf

- Introductions
- Chair appointed secretary – Bill Woodruff for this meeting
- Ground Rules
- IEEE Patent policy read to the body by Chair. Chair issued call for patents. Bill Woodruff announced that he filed a Letter of Assurance.
- Inappropriate Topics for IEEE meetings read to the body by Chair.
- IEEE Standards Process Flow
- Presented possible Study Group Schedule
 - Extension granted at March Plenary.

Title – Feasibility of 1000-Base-T RPS Restart

By – Mandeep Chadha, Vitesse

See – chadha_1_0407.pdf

Discussion

- Froze adaptive filter elements, ran overnight error free. Initial indication of stability of filter state
- Timing recovery within 2.5ms in experiment. Not optimized for fast recovery.
- Temp change experiment. Want to see BER that correlate to MSE.
 - Temp change will drive need to retrain
- Timing re-acquisition, phase and freq in 2 to 2.5ms measured. 5ms may be sufficient
- The definition of worst case cabling plant is in the context of the higher speed.
- Adaptive filter retraining also discussed. Criteria for defining the limit was discussed given the challenge of measuring BER on an instantaneous (and improving) basis.
- Should retraining time be variable w/ signaling, or just set the max and always use that?
- Worst case timer is valid, that takes from RPS retrain to full retrain. “Heart beat” timer part of the 0-BASE-T discussion.
- Need to define test cases. Chris suggested we take this off line. What variations are important in the context of this task? What issues do we not care about?
- Three cases (Bob Grow)
 - Desktop
 - Home. Less controlled temperature
 - Datacenter. Most variable? Large localized heat sources

Break at 10:40

Reconvene at 11:00

Title – 10BT Amplitude Optimization

By – Mandeep Chadha, Vitesse

See – chadha_1_0407.pdf

- One add'l note is the 3.3V supply itself may only be required for 10BASE-T, eliminating the 3.3V rail has an additional savings.
- We should use 11801 as preferred reference
- Should this project define a change to 10BASE-T, or should it be an amendment? Is our charter related to energy? The charter specifically defines link speed.
- What about magnetics? If we open this topic, we examine if there are any issues covering the range for 10BASE-T thru 10GBASE-T.
- We should define “the right thing to do”, and the chair take it to .3.
- How do we do 0-BASE-T? Either add a non clocked mode to 100M, or modify 10M to reduce voltage.
- Adding a reduced voltage: will it increase testing requirements?

Break for lunch at 12:01

Reconvene at 3:00

Opened discussion on Broad Market Potential. Reviewed Nordman's notes from Ad hoc.

- The "amount of support" clause will be moved to an intro slide.
- BMP words added to refer to systems level benefits.

Compatibility

- Included pro-forma
- Discussed adding a clause outlining discussed modifications or added modes / conditions.
- Specific list of such modification can be detailed in a separate slide, as an example of the types of work that will be addressed.
- Does RPS impact 802.1D conformance? We need to avoid impacting spanning tree type functions. Change "conformance" to "compatible"?
- Held straw poll on added paragraph. Consensus to change to final form.

Distinct Identity

- How much detail in this section? Should distinct identity cover that we may introduce a new phy that is similar?

Meeting recessed for the day at 5:00.

Meeting convened at 9:00 Wed. April 18th..

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Ilango Ganga	Intel	Intel
Jeff Cain	Cisco	Cisco
David Law	3Com	3Com
Howard Frazier	Broadcom	Broadcom
Wael Diab	Broadcom	Broadcom

Discussion on Technical Feasibility

- Can system level issues be reduced to the topic of Latency?
- Discussion of including Optics and Backplane in the scope.

Discussion on the PAR. Refer to slides for resulting contents

For Scope for PAR, straw poll on a “Sleep” clause. Move Howard Frazier, 2nd Geoff Thompson Y:2, N:3, A:6

Amendment to re-address “Sleep” clause. Not friendly, not seconded.

Vote on Scope. Y:10, N:0, A:0

Vote on Need for PAR. Move by Bob Grow, 2nd by David Lau. Y:11, N:0, A:0

Vote on Purpose for PAR. Move by Bob Grow, 2nd by David Lau. Y:11, N:0, A:0

Vote on Broad Market Potential. Move by Howard Frazier, 2nd by Bill Woodruff. Y:11, N:0, A:0

Discussion on Compatibility clause. Mike Bennett has authority to add bullets and/or paragraphs to present at next meeting. This clause should be limited to 802 topics.

Continuation of meeting minutes – 4/18/07 (Mandeep Chadha for Bill Woodruff)

Discussion

- Technical Feasibility
 - Modified the sentence that mentions existing techniques are in use for energy efficiency in other.
 - Howard Frasier commented that we are not ready to close on Technical Feasibility and Compatibility. He plans to bring in additional work at the main meeting to substantiate these.
 - Howard Frasier commented that we do not have consensus on the bound for transition time
 - David Law commented that >10ms may not be acceptable for RPS based on feedback he has received
 - Howard Frasier commented that DVT testing will ramp the temp at a fast rate and the EEE device should be able to accommodate that.
 - Bob Grow commented that different applications will have different requirements with respect to startup times.
 - Proposed that we define two kinds of transitions – one from a high bandwidth state to a low bandwidth state with a low transition time and the second from a traffic state to a no traffic state where a higher transition time will be acceptable
 - Transition time between 100M and 1G could be managed where it is low but it will be harder to achieve that between 10G and 1G
 - Proposed that we have a control policy that performs a tradeoff between transition times and power savings

- David Law commented that we have all the data but in a disjoint form. Do we need to put it all together?
- Continued work to move Technical Feasibility to a more complete form but not bring it up to vote at this meeting.
- Economic feasibility
 - Do we need to address the issue to Cat-3 cable for 10BT in this slide? Proposed that we move that to the objectives to stay consistent with a previous decision to move sleep mode support to objectives.
 - Added statement that EEE PHYs may not work over all media types and cable installations
 - Did not bring to vote due to lack of time.

Chair notified study group of future meeting schedule

Chair moved to adjourn the meeting. Motion accepted by a voice vote.