Minutes IEEE 802.3bp 1000BASE-T1 PHY Baseline Multivendor Conference Call February 12, 2014

Document status: Agenda

Conference Call February 12, 2014
Time 08:30AM PST – 10:00AM PST
802.3bp 1000BASE-T1 PHY Baseline Multivendor

Agenda for the 802.3bp 1000BASE-T1 PHY Baseline Multivendor Ad Hoc Conference Call

1. Opening & Patent Policy Review

2. Objective of the conference call (Mehmet Tazebay)

3. Contributions
   #1. "Stream FEC Proposal & Latency Model Proposal", Tom Brown, Vitesse

   #2. "Comparison of EMC Performance vs. Modulation Schemes", Shaoan Dai, Marvell

4. Discussions, Questions & Next Steps

5. Closure of the call

A. Participants
Mehmet Tazebay, Albert Kuo, Benson Huang, Edoardo Lauri, Mandeep Chadha, Meng Zeng, Rainer Pohmerer, Shaoan Dai, Stefan Buntz, Sujan Pandey, Thomas Muller, Tom Brown, Wes Mir, Will Bliss, Xiaofeng Wang, Stefano Valle, Ahmad Chini, Satoshi Ibuki, Curtis Donahue, Henry Muyshondt, Vijay Ceekala, Zhengzhong Gu, Sheng Lin, Kelly Maas.

B. Summary of Discussions

- Review of patent policy

- Presentations
  - "Stream FEC Proposal & Latency Model Proposal", Tom Brown, Vitesse
    - Based on the feedback from OEMs and discussions in the reflector, a proposal is made for a stream FEC.
    - According to the proposed stream FEC, all data and PCS symbols are protected equally.
    - End-to-end latencies (similar to RFC2544) cross the PHY and MAC boundaries, plus other layers need to be differentiated. 1000BASE-T1 can only speak to layers that we are defining. Need to agree on a model for latency specification for 1000BASE-T1 and the layers we control.
    - The group has discussed & agreed on the need for the immediate definition of the latency requirements in order to progress the FEC baseline.

- "Comparison of EMC Performance vs. Modulation Schemes", Shaoan Dai, Marvell
  - Time domain simulation results were presented for PAM2 & PAM3 modulation schemes against BCI noise.
  - Performance of PAM2 & PAM3 for different cable lengths and BCI current levels were analyzed. A decision-point-SNR of 15.9dB is required for PAM2 and 20.2dB for PAM3.
  - PAM3 has sufficient margin to pass BCI, it was argued that PAM3 has lower power consumption than PAM2. The higher BW requirement of PAM2 may be a concern for broadband cellular interference. Therefore, PAM3 is preferred choice for Marvell.
  - The group has discussed the assumptions of this analysis. The background noise is considered as -140dBm/Hz. There is no passive filtering effect considered in this presentation which may improve the BCI performance.
  - A comment was made for using a digital TX spectral shaping filter coupled to a low-cost and high performance TXDAC can be advantageous for 1000BASE-T1. The power penalty of that approach may not be prohibitive due to the known design techniques and current silicon process node.

- Continued discussion
  - Modulation choice for 1000BASE-T1
    - There is a sense of urgency in the group to make an immediate decision. The following points were made:
      - There were discussions for the exact BCI test setup. According to the standard, the BCI setup and testing is done with 2m cable.
      - The group has recognized the fact the IL difference is big between 2m UTSP channel and 15m channel due to higher BW utilization. This fact makes a significant difference for BCI results.
      - There was a proposal from OEMs in Indian Wells (1/14) for analyzing 15m channel @ temperature. This constraint was considered and the results were provided in Shaoan Dai's presentation.
      -
    - It was pointed out that an efficient mapping need to be discussed PAM3.
    - Some members in the group agreed to continue the discussion for modulation one more cycle. The group is committed to achieve a consensus for the modulation scheme ahead of March plenary. Therefore, the group has agreed to have another conference call. It will be scheduled in the week of 3/3.
  - Alien XTALK
    - Discussed the status of proposed Alien NEXT limitline for 1000BASE-T1. A few attendees have been looking at this. Xiaofeng Wang stated that he will make a contribution. We expect that other PHY vendors will also provide input in the next cycle.

C. Status of action points

#	**Description of Action**	**Priority**	**Responsible**	**Status**
1	Decision on modulation scheme	High	TF members	In progress
2	Decision on transceiver latency for FEC options	High	TF members	Open
3	Decision on PSD Mask	Medium	TF members	In progress
4	Completing the definition of noise sources	Medium	TF Members, PODL TF	In progress
5	1000BASE-T1 FEC	Medium	TF members	Dependent on #2
6	PCS & Framing definition	Medium	TF members	Open
7	PHY control & start-up procedure	Medium	TF members	Open
8	Energy Efficient Mode	Medium	TF members	Open
9	Other topics?			

D. The call was closed at 10:20am PST