Minutes IEEE P802.3ch Multigig Automotive Ethernet PHY TF AdHoc meeting September 5, 2018

Prepared by George Zimmerman

Proposed Agenda:

1. Agenda/Admin: George Zimmerman, agenda_3chah_01a_090518.pdf
2. SG Chair's comments: no presentation
3. Presentations:

Transcode, FEC & Interleaver Optimization	Mike Tu	Broadcom
802.3ch PCS + FEC Design	Paul Langner	Aquantia
EEE for 802.3ch	Saeid Benyamin	Aquantia
PCS Changes For Asymmetrical Data Transmission	Jim Graba, Tom Souvignier, Mike Tu	Broadcom
PHY Link Synchronization (SEND_S) Modification Proposal for Multi-Giga PHY	Peter Wu & Shaoan Dai	Marvell Semiconductor

4. Discussion & Next steps – All

See adhoc webpage for agenda deck and presentations

Agenda/Admin George Zimmerman acting as ad hoc chair:

Meeting began at 7:00 am PT.

Introductions & Affiliations.

Presented file: agenda_3chah_01a_090518.pdf

1. Reviewed the Attendance information related to the ad hoc.
2. Displayed the Participation slide and reviewed it.
3. Displayed patent slide deck, and reviewed it.
   Call for Patents was made at 7:05 am Pacific Time, none responded
4. Reminded participants to indicate full names and employer/affiliation for the meeting minutes.

Instructions for subscribing to the reflector may be found at http://www.ieee802.org/3/ch/reflector.html. If you cannot subscribe to the reflector for some reason, and need additional assistance please contact the Task Force chair.

Chair's/Chief Editor's Comments – Steve Carlson

Steve reminded the group to get him their presentations for the following week's interim in Spokane.

Presentations/Discussion:

Presentation: 802.3ch PCS + FEC Design, Mike Tu, Broadcom

tu_3ch_01_0918.pdf

The presenter discussed adding revising the FEC choices. Simplification of the burst error requirement enabled by the optional fixed precoder discussed in Souvignier_3ch_01_0818.pdf was the key. An N=360, K=326, m=10 Reed-Solomon FEC was proposed in conjunction with 64/65b encoding and 2 and 4 way interleaving for 5 Gbps and 10 Gbps respectively. The framing included a 10 bit OAM channel

Presentation: 802.3ch PCS + FEC Design, Paul Langner, Aquantia

8023ch_langner_04Sep.pdf

(corrected: langner_3chah_01a_090518.pdf)

The presenter discussed the use of larger transcoding blocks (512B/513B) allowing greater error correction in the PCS+FEC design, and optimize complexity plus total delay. An N=576, K=514, m=10 Reed-Solomon FEC was proposed in conjunction with a 512B/513B transcoding. The framing included a 10 bit vendor-reserved (or OAM) channel. The presenter noted a missing factor of 10 on slide 7 and promised an update to be posted.

Discussion – there was minimal discussion of the two presentations so the agenda moved to the next set of presentations.

Presentation: EEE for 802.3ch, Saied Benyamin, Aquantia

8023ch_benyamin_04Sep_pt.pdf

The presenter discussed EEE signaling for 802.3ch, supporting asymmetric EEE. Signal timing, refresh and alert signaling based on 10GBASE-T was discussed.

Questions were asked about the ratio of refresh time to quiet time.

Presentation: PCS Changes For Asymmetrical Data Transmission, Jim Graba, Broadcom

(authors include Jim Graba, Tom Souvignier, Mike Tu, Broadcom)

graba_3ch_01a_0918.pdf

In the initial version of the presentation there was a 'confidential and proprietary' footer. The presenter apologized and promised an updated version for the website (01a), confirming the material was not confidential and proprietary. The presenter discussed using MAC pause frames and EEE-like refresh to send (and receive) a reduced data rate in one direction than in the other direction. The operation would not require the usual alert/wake/sleep cycles involved in EEE operation and was envisioned to be negotiated at startup. Participants asked about the use of MAC Pause frames in the presentation vs. the signaling at the RS used in EEE, voicing concern that producing MAC frames in the PHY might be a layer violation. There was also discussion that control might be adapted for EEE, and possibly that profiles for asymmetric data rates might be tailored for the applications under consideration.

Presentation: PHY Link Synchronization (SEND_S) Modification Proposal for Multi-Giga PHY, Peter Wu, Marvell Semiconductor

(authors include Peter Wu and Shaoan Dai, Marvell Semiconductor)

Wu_3ch_01a_0918.pdf

The presenter reviewed a proposal to use a pulse width of 1.4222 ns on the SEND_S signal in link synchronization, with the same pulse width for all 3 speeds. There was little discussion on the presentation.

ADDITIONAL ITEM: OAM Proposal, Natalie Wienckowski, General Motors

(authors include Mike Potts and Natalie Wienckowski, GM)

wienckowski_3ch_01_090518.pdf

The group agreed without objection to reviewing the additional presentation from Natalie that was posted, but not on the original agenda due to time constraints.

The presenter reviewed the details of a proposal for format of the OAM channel data format. There were questions and discussion of the content of the OAM fields. Specifically, there were questions of whether having parity within the OAM was useful given that the entire field was protected by the RS FEC, and that parity might be better allocated to vendor discretionary use. Additionally, it was clarified that Reserved fields were not available for vendor discretionary use. Discussion also raised that usages such as power supply voltages were more product design specifications than things which would be normative in IEEE Std 802.3, suggesting inclusion as an informative annex if these fields were included in the standard.

Closing Business

Mr. Carlson reminded the group to get their presentations to him for the interim, and looked forward to starting at 9am on Monday, September 10. He indicated that an email would be forthcoming confirming the start time.

Meeting adjourned at 9:02 AM PT.

Attendees (from Webex + emails)

First	Last	Affiliation
Dale	Amason	NXP
Devaraju	Basappa	NXP
Jim	Bauer	Marvell
Saied	Benyamin	Aquantia
Youssef	Bouri	Aptiv
rich	boyer	Aptiv
Phillip	Brownlee	Cable One/TDK
Steven	Carlson	High Speed Design/Robert Bosch GmBh
Sean	Chiang	Mediatek
Al	Daniels	???
Gerrit	denBesten	NXP
Eric	DiBiaso	TE
German	Feyh	Broadcom
Claude	Gauthier	NXP
Jim	Graba	Broadcom
Marty	Gubow	Keysight
Taiji	Kondo	Megachips
Olaf	Krieger	Volkswagen
Manoj	Kumar	Cadence
Paul	Langner	Aquantia
David	Law	HPE
Bin	Lin	TE
William	Lo	Axonne
Larry	Matola	Aptiv
Brett	McClellan	Marvell
Wes	Mir	Aptiv
Josef	Ohni	MD Elektronik
Douglas	Oliver	Ford
Harsh	Patel	Molex
Vimalli	Raman	Yazaki-Europe
Torsten	Reuschel	Robert Bosch, GmbH
Tom	Souvignier	Broadcom
Yves	Stricot	Aptiv
Geoff	Thompson	Independent
Mike	Tu	Broadcom
Christoph	Wechsler	Audi
Natalie	Wienckowski	GM
Mau-Lin	Wu	Mediatek
peter	wu	Marvell
Allan	Zhu	Huawei
George	Zimmerman	CME Consulting/Aquantia, ADI, Cisco, Commscope
Kalpesh		Texas Instruments
TOTAL	**42**	**Attendees**