Minutes IEEE 802.3 Multigig Automotive Ethernet PHY SG AdHoc meeting February 15, 2017

Prepared by George Zimmerman

Proposed Agenda:

1. Agenda/Admin: George Zimmerman, agenda_3NGAUTOah_01_021517.pdf
2. SG Chair's comments: Steve Carlson, no presentation
3. Thoughts on 802.3 Asymmetric Rates, George Zimmerman, CME Consulting, zimmerman_NGAUTOah_01_021517.pdf (updated after presentation as zimmerman_NGAUTOah_01a_021517.pdf)
4. Proposal to include all-glass fiber Objective for Multi-Gig Ethernet, Michael Yadlowsky, Corning, yadlowsky_NGAUTO_01_0201.pdf
5. A PHY Perspective on Speeds and Cabling, Michael Leung, Marvell, Leung_NGAUTO_01_0217.pdf
6. Next steps

Presentations were posted to the adhoc webpage the evening before

Agenda/Admin George Zimmerman:

Meeting began at 7:00am PT.

Introductions & Affiliations.

Presented file: agenda_3NGAUTOah_01_021517.pdf

1. Reviewed the Attendance information related to the ad hoc.
2. Displayed pre-par patent slide deck, and reviewed it.
3. Reminded participants to indicate full names and employer/affiliation for the meeting minutes.

The reflector and website are now up, and we are now using the NGAUTO reflector. Instructions for subscribing to the reflector may be found at http://www.ieee802.org/3/NGAUTO/reflector.html. If you cannot subscribe to the reflector for some reason, and need additional assistance please contact the study group chair.

Presentations/Discussion:

Chair's Comments & Discussion Steve Carlson, Chair, Multigig Automotive Ethernet PHY Study Group: Steve noted that for the upcoming interim in Warren, MI, he wants to have an 8AM start.

Participants are advised that they should have already notified Natalie and Steve that they plan to attend. Meeting space is limited. Participants are advised to arrive 30 minutes early to register and be cleared.

Presentation: Thoughts on 802.3 Asymmetric Rates, George Zimmerman, CME Consulting, zimmerman_NGAUTOah_01a_021517.pdf (updated during the

The presenter discussed various ways asymmetric data rates were embodied in IEEE 802.3-2015 as well as ways asymmetry could be implemented in PHYs. These included EEE, half-duplex, mac-rate matching w/variable rate phys, and using different MAC interfaces for upstream and downstream (EPON-like). Half duplex was not recommended, as all MACs greater than 1Gb/s are defined full duplex only. Updates were made to the presentation to clarify that the EPON model used 2 MAC interfaces (not 2 MACs) and that was at the subscriber end, because multiple mac copies were used at the service provider end of the link. The presenter offered the opinion that an asymmetric rate objective, even a "do not preclude" one, was unneeded and undesired unless there was something specific that we were trying to avoid – Ethernet was, by its nature asymmetric. This did not mean we couldn't add something specific later if it proved to be necessary in task force, based on technical decisions made.

Presentation: Proposal to include all-glass fiber Objective for Multi-Gig Ethernet, Michael Yadlowsky, Corning, yadlowsky_NGAUTO_01_0201.pdf

The presenter discussed characteristics and technical feasibility for a 10Gbps or greater fiber objective, and proposed an objective for a fiber option in addition to the copper option. There was discussion on several points:

- Distinct identigy - how did proposed objective might differ from existing 802.3 fiber PHYs. The presenters suggested that the wavelengths used for existing 802.3 fiber PHYs might not work in the automotive environment.
- The 40m fiber reach in the proposed objective - The SG Chair reminded the group that there had been discussion in Huntington Beach that a 40m reach, as proposed, would be out of scope as he considered it, and beyond the automotive reach limitations.
- Should this be a separate project - Some participants suggested this might be a need for a new CFI, but the presenter held that it may be made appropriate for this task force.
- Mixing fiber and copper PHYs in a single objective - Other participants suggested that the proposal, which merged copper and optical 10Gb/s PHYs (in the style of optical projects) into a single objective, might be better separated into 2 objectives so that it was clear these could be two separate PHYs (in the style of BASE-T projects).

For the sake of time, discussion was cut short, since the presentation is being refined for Warren, further discussion to help refine the proposal was encouraged by email on the reflector or privately.

Presentation: A PHY Perspective on Speeds and Cabling, Michael Leung, Marvell, Leung_NGAUTO_01_0217.pdf

The presenter presented a viewpoint answering several questions posed on a previous ad hoc call regarding the relative cost, complexity, power and schedule for various PHY/media options. The presenter looked at 2.5Gb/s, 5Gb/s and 10Gb/s PHYs from his perspective, comparing development times, complexity and

power based on his assumptions. He also considered unshielded balanced media, shielded unbalanced media and shielded balanced media. He concluded by proposing an objective for a 2.5Gb/s PHY objective which would be written so that it could include unshielded balanced media (but did not require it). In discussion:

- The presenter clarified that this could be in addition to other rates in the objectives, that he was offering this contribution to support a 2.5Gb/s objective, not to speak against others.
- A participant offered that supporters of the objective might be better gathered if the presentation were split into 2 parts – one with the analysis and one with the proposed objective.

Closing Business: George Zimmerman, CME Consulting

Follow up items, items to resolve:

Presenters asked that supporters contact them to be listed for the Warren meeting.

Participants were reminded and asked to continue the discussions on the reflector to make progress ahead of the Warren meeting.

Future Meetings

Hopefully progress at the Warren meeting will be sufficient that we won't need an ad hoc between Warren and Vancouver. However, as a failsafe, we will schedule an adhoc in two weeks, on March 1 from 7-9am pacific time. See the email reflector (16 Feb 2017 from Natalie) http://www.ieee802.org/3/NGAUTO/email/msg00080.html for details of the meeting announcement. Watch the reflector after the Warren meeting for possible cancellation.

Meeting closed –9:00 am PT

Attendees (from Webex + emails) (TO BE ADDED)

First Name	Last Name	Affiliation
Shogo	Akasaki	Denso
Amir	Bar-Niv	Aquantia
Tobias	Belitz	Renesas
Rich	Boyer	Delphi
Phillip	Brownlee	Tdk
Stefan	Buntz	Daimler
Steve	Carlson	High Speed Design
Clark	Carty	Cisco
Mabud	Choudhury	OFS Optics
Eric	DiBiaso	TE
Chris	Diminico	MC Communications
Matthias	Fritsche	Harting
Mike	Gardner	Molex

Craig	Gunther	Harman
Juergen	Herrle	Audi
GG	Herrmann	Griller
Yasuhiro	Hyakutake	Adamant
Matthias	Jaenecke	Yazaki
Chad	Jones	Cisco
Peter	Jones	Cisco
Tomohiro	Kikuta	Adamant
David	Law	HP Enterprise
Michael	Leung	Marvell
Alex	LIn	Mediatek
Kirsten	Matheus	BMW
Brett	McClellan	Marvell
Greg	McSorley	Amphenol
Wes	Mir	Delphi
Bryan	Moffitt	Commscope
Nichole	Morgan	SSD
Thomas	Müller	Rosenberger
Sujan	Pandey	NXP
Carlos	Pardo	KDPOF
Rubén	Pérez-Aranda	KDPOF
Laura	Schweitz	Turck
Masood	Shariff	Commscope
Ariel	Sobelman	Valens
Ching-Yao	Su	Realtek
Steve	Swanson	Corning
Geoff	Thompson	GraCaSi (Independent)
Alex	Umnov	Corning
Natalie	Wienckowski	GM
Daniel	Wiesmayer	Draexl-Maier
R	Wong	Yazaki
Peter	Wu	Marvell
Mike	Yadlowsky	Corning
Sungjong	Yoo	Molex
John	Yurtin	Delphi
George	Zimmerman	CME Consulting