Unconfirmed Meeting Minutes: IEEE P802.3ch Multi-Gigabit Automotive Ethernet PHY Task Force

Sept 10-11, 2018
Spokane, WA USA

Prepared by Jon Lewis

IEEE P802.3ch Multi-Gigabit Automotive Ethernet PHY Task Force meeting convened at 9:00 AM, Monday, September 10, 2018 by Steve Carlson, Task Force Chair.

Attendance is listed in Appendix A

Administrative Matters

Mr. Carlson called for introductions and affiliations then reviewed

Motion #1: Move to approve the agenda as shown in agenda_3ch_1_0818.pdf
M: George Zimmerman S: Bob Grow

Approved by voice without opposition (Procedural > 50%)
Motion Passes

Motion #2: Move to approve the minutes of the July 2018 IEEE P802.3ch Multi-Gigabit Automotive Ethernet PHY Task Force Meeting.

M: Natalie Wienckowski S: Paul Langner
Approved by voice without opposition (Procedural > 50%)

Motion Passes

Mr. Carlson displayed the agenda in agenda_3ch_1_0818.pdf.

- Mr. Carlson noted that there should be no recording or photography.
- Mr. Carlson asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.

The WG Chair reviewed the goals for the meeting, big ticket items, access to the reflector and website, and ground rules for the meeting.

Attendance, Mr. Carlson advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool. Mr. Carlson pointed out that the new attendance book contains GDPR notice.

The WG Chair reviewed the IEEE structure for standards development and the bylaws by which the Task Force is governed.

IEEE Patent Policy, at **9:25 AM**, Mr. Carlson showed the patent slides and proceeded to read aloud slides 1 and 2. Mr. Carlson made the call for potentially essential patents at **9:27 AM**, and none responded. Mr. Carlson then read aloud slides 3 and 4.

Mr. Carlson showed slide 16 entitled "Participation in IEEE 802 Meetings" and proceeded to read the slide aloud. Mr. Carlson asked if there was any discussion on the slide, none responded.

The Chair reviewed the IEEE 802.3 Standards process and where the Task Force was in the process and the process by which we will develop the standard.

Liaisons:

- MIPI Alliance to IEEE 802.3 on establishing a liaison

The Chair then showed the locations of the approved project documents for the Task Force and reviewed the objectives for the Task Force.

Mr. Carlson reviewed slide 27-28 on presentation issues and noted that generally the group was following these guidelines.

PRESENTATIONS:

Mr. Carlson then moved to the presentations for the meeting.

Title: Ad-Hoc Report (zimmerman_3ch_01_0918.pdf)
Presenter: George Zimmerman, Commscope, Aquantia, CME Consulting, Cisco, ADI, BMW, APL Group

Mr. Carlson noted that for future ad hoc meetings the calendar invite would not contain the teleconference details and that those would be published in the P802.3ch private area.

Motion #3: Move to confirm minutes for ad hocs on 7/26, 8/22, and 9/5/18 as posted.

M: George Zimmerman S: Chris Mash

Approved by voice without opposition (Procedural > 50%)
Motion Passes

Wednesday, 7-9AM Pacific Time every 2 weeks.
The next Ad hoc meeting will be announced via the reflector.

Title: Actual Cable Data (vernickel_3ch_01b_0918.pdf)
Presenter: Ricky Vernickel, LEONI Kabel GmbH

Title: Pulses in Automotive Environments (krieger_3ch_01_0818.pdf)
Presenter: Olaf Krieger, Volkswagen

Title: A Proposed Specification for RFI Ingress Limit in 802.3ch Automotive Links (farjarad_3ch_01b_0918.pdf)
Presenter: Ramin Farjardrad, Aquantia

The meeting broke for short break at 10:30 AM.

The meeting resumed at 11:00 AM.

Presentations continued.

Title: Findings on MDI Return Loss Measurement (bhagwat_3ch_01a_0918.pdf)
Presenter: Gitesh Bhagwat, Analog Devices

Title: Optional Fixed Precoder (souvignier_3ch_02_0918.pdf)
Presenter: Tom Souvignier, Broadcom

Title: Transcode, FEC & Interleaver Optimization (tu_3ch_01a_0918.pdf)
Presenter: Mike Tu, Broadcom

The meeting broke for lunch at 12:09 PM.

The meeting resumed at 1:35 PM.

The Chair called the meeting back to order and presentations for the meeting continued.

Title: 802.3ch PCS + FEC Design (langner_3ch_01_0918.pdf)
Presenter: Paul Langner, Aquantia

Title: PCS Changes For Asymmetrical Data Transmission (souvignier_3ch_01_0918.pdf)
Presenter: Tom Souvignier, Broadcom

Title: EEE for 802.3ch (benyamin_3ch_01_0918.pdf)
Presenter: Paul Langner, Aquantia

The meeting broke for short break at 2:55 PM.

The meeting resumed at 3:31 PM.

Title: PHY Link Synchronization (SEND_S) Modification Proposal for Multi-Giga PHY (Wu_3ch_01a_0918.pdf)
Presenter: Peter Wu, Marvell

Title: OAM Proposal (wienckowski_3ch_01a_0918.pdf)
Presenter: Natalie Wienckowski, General Motors

Title: OAM Details (Lo_3ch_01_0918.pdf)
Presenter: William Lo, Axonne Inc.

Straw Poll #1:
Attendance:
Attend November 2018 802 Bangkok, Thailand plenary:
Y: 30 N: 10 M: 7
Attend January 2019 interim, Aruba, Long Beach, CA, USA:
Y: 34 N: 1 M: 14

The Chair reviewed the comment resolution process that would be followed and pointed the Task Force to the Comments received on P802.3ch drafts location on the P802.3ch website.

The meeting recessed for the day at 4:37 PM.

The meeting resumed at 9:06 AM.

The Chair brought the meeting to order and reminded the group to sign into IMAT and the attendance log.

The Chair noted that several Motions and presentations were received overnight and the meeting would go through the presentations and move to the motions and straw polls.

Title: Link segment requirements for 2.5Gbps operation (DenBesten_3ch_01b_0918.pdf)
Presenter: Gerrit W. den Besten, NXP

Title: Coupling & shielding attenuation (DenBesten_3ch_02b_0918.pdf)
Presenter: Gerrit den Besten, NXP

Title: 802.3ch PCS + FEC Design (langner_3ch_01a_0918.pdf)
Presenter: Paul Langner, Aquantia

Motion #4: Move to adopt PCS block coding 64B/65B as defined in Clause 55.
M: Mike Tu S: Paul Langner
(Technical >= 75%)
Y: 24 N: 0 A: 18
Motion Passes

Motion #5: **Move to adopt RS FEC (N=360, K=326, m=10), consisting of 50 PCS 64B/65B blocks, a 10-bit field formerly known as OAM, and 34 parity symbols, as the baseline.**
M: Mike Tu S: William Lo
(Technical >= 75%)
Y: 19 N: 1 A: 23
Motion Passes

Motion #6: **Move to adopt the PCS transmit diagram shown on slide #7 of "tu_3ch_01a_0918.pdf", after removing "Optional Fixed Precoder" as the baseline for interleaving depth=1.**
M: Mike Tu S: Brett McClellan
(Technical >= 75%)
Y: 15 N: 0 A: 25
Motion Passes

Motion #7: **Move to adopt PAM2 as the modulation for training and the training side-stream scrambler polynomials from 97.3.4 (same as Clause 55)**
Master $g_M(x) = 1 + x^{13} + x^{33}$
Slave $g_S(x) = 1 + x^{20} + x^{33}$
M: Mike Tu S: William Lo
(Technical >= 75%)
Y: 19 N: 0 A: 22
Motion Passes

Motion #8: **Move to adopt data mode scrambler polynomials (same as 55.3.2.2.16) for 10G and 5G.**

- **Side-stream scramblers**
- **Master $G_M(x) = 1 + x^{39} + x^{58}$**
- **Slave $G_S(x) = 1 + x^{19} + x^{58}$**

M: Mike Tu S: Peter Wu
Motion was withdrawn.

Motion #9: **Move to adopt PAM4 mapping from Clause 94.2.2.5 and 94.2.2.7**

- **{0, 0} maps to 0, {0, 1} maps to 1, {1, 1} maps to 2, and {1, 0} maps to 3.**
- **0 maps to –1, 1 maps to –1/3, 2 maps to +1/3, and 3 maps to +1.**

M: Mike Tu S: Brett McClellan
(Technical >= 75%)
Y: 21 N: 0 A: 16
Motion Passes

Motion #10: **Move to adopt the interleaver as depicted on slide #9 of "tu_3ch_01a_0918.pdf" as the baseline.**
M: Mike Tu S: Paul Langner

(Technical >= 75%)
Y: 19 N: 0 A: 20
Motion Passes

Motion #11: Move to adopt the interleaver depth up to 8, as the baseline.
M: Mike Tu S: Paul Langner
(Technical >= 75%)
Motion withdrawn.

Motion #12: Primitive polynomial defined to be x10+x3+1.
M: William Lo S: Paul Langner
Approved by voice without opposition (Technical >= 75%)
Y: 19 N: 0 A: 21
Motion Passes

Motion #13: Move to adopt baseline insertion loss limit for 2.5Gbps operation:

$$IL < 0.0023 * f + 0.5907 * \sqrt{f} + \frac{0.0639}{\sqrt{f}}$$

for f = 5-800 MHz

M: Gerrit den Besten S: Ricky Vernickel
Motion postponed until November by Motion #15.

Motion #14: Move to table Motion #13 until November plenary.
M: Brett McClellan S: Masood Shariff
Motion withdrawn

Motion #15: Move to postpone Motion #13 until the November plenary.
M: Geoff Thompson S: Masood Shariff
(Procedural > 50%)
Y: 24 N: 4 A: 4
Motion Passes

The meeting broke for short break at 10:34 AM.

The meeting resumed at 11:00 AM.

Title: Precoder constellation expansion (zimmerman_3ch_02_0918.pdf)
Presenter: George Zimmerman, Commscope, Aquantia, CME Consulting, Cisco, ADI, BMW, APL Group

Motion 16: Move to adopt selectable fixed precoder as shown on slide #5 and #6 of "souvignier_3ch_02_0918.pdf".
M: Tom Souvignier S: George Zimmerman
(Technical >= 75%)
Y: 16 N: 0 A: 22

Motion Passes

Motion 17: Move to adopt a shielding attenuation requirement for 5/10Gbps operation of 45dB for f=5-5500MHz
M: Gerrit den Besten S: Mau-Lin Wu
(Technical >= 75%)
Y: 3 N: 11 A: 21
Motion Fails

Title: OAM Proposal (wienckowski_3ch_01b_0918.pdf)
Presenter: Natalie Wienckowski, General Motors

The meeting broke for lunch at 11:52 PM.

The meeting resumed at 1:23 PM.

The Chair called the meeting to order and reminded the group to sign into IMAT.

LIAISONS:
MIPI Alliance to IEEE 802.3 on establishing a liaison

Motion 18: Move to approve the draft liaison response as shown in "IEEE_802d3_to_MIPI_0908_draft_R03.docx" and instruct the Task Force Chair to take to the WG meeting.
M: Natalie Wienckowski S: Bob Grow
Approved by voice without opposition (Technical >= 75%)
Motion Passes

Title: Editors Report (wienckowski_3ch_03a_0918.pdf)
Presenter: Natalie Wienckowski, General Motors

The Chief Editor asked if there was any objection to hearing the 2 late comments, none responded.

Comment resolution
Decisions during comment resolution were made by consensus, except where noted that motions were taken. For details on comment resolution see the posted comment database.

The meeting broke for short break at 3:08 PM.

The meeting resumed at 3:31

Title: Options for 98B.3 Technology Ability Field bit assignments (wienckowski_3ch_02a_0918.pdf)
Presenter: Natalie Wienckowski, General Motors

Comment resolution concluded

The Chief Editor resumed the Editors Report (wienckowski_3ch_03_0918.pdf)

Motion 19: Accept the resolutions to all P802.3ch d0p5 comments marked with the Topic "EZ" and posted as, '"EZ Bucket" comments with proposed resolutions sorted by clause/subclause', excluding none.
M: Natalie Wienckowski S: George Zimmerman
(Technical >= 75%)
Y: 31 N: 0 A: 0
Motion Passes

Motion 20: Merge clause 150 into 149 with editorial license granted to the Chief Editor.
M: Natalie Wienckowski S: George Zimmerman
(Technical >= 75%)
Y: 33 N: 0 A: 0
Motion Passes

The Chief Editor then reviewed the remaining work required to get to D1.0 out of the November plenary.

Motion #21: Move to accept the changes shown in slides 16, 18, 19, 20 and 22 from "wienckowski_3ch_03a_0918.pdf" with editorial license granted to the Chief Editor.
M: Natalie Wienckowski S: George Zimmerman
(Technical >= 75%)
Y: 31 N: 0 A: 0
Motion Passes

Motion #22: Move to instruct the Chief Editor to create D0.6 from D0.5 from closed comments received on D0.5, adopted baseline from passed motions and the Chief Editors report from the September interim.
M: Natalie Wienckowski S: George Zimmerman
(Technical >= 75%)
Y: 32 N: 0 A: 0
Motion Passes

Motion #23: Move to adjourn the meeting.
M: Brett McClellan S: Gerrit den Besten
Approved by voice without opposition
Motion Passes

The meeting was adjourned at 5:15 PM.

Appendix A: Attendees at the IEEE P802.3ch Multi-Gigabit Automotive Ethernet PHY Task Force Meeting, September 10-11, 2018.

IEEE 802.3 P802.3ch Multi-Gig Automotive Ethernet PHY Task Force IEEE 802.3 Sept 2018				Day 1 10 Sept	Day 2 11 Sept
By choosing to attend and sign in to this meeting, you acknowledge and agree that your personal data will be documented for IEEE standards development purposes to comply with policies and procedures, legal and accreditation requirements, and evaluation of patent claims by patent offices. See Front Page for additional information.					
Last Name	First Name	Employer	Other Affiliations	Mon	Tues
Baggett	Tim	Microchip	Microchip		X
Bains	Amrik	Cisco	Cisco	X	X
Bhagwat	Gitesh	Analog Devices	Analog Devices	X	X
Brownlee	Phillip	Independent	TDK	X	X
Carlson	Steve	High Speed Design	Robert Bosch	X	X
Dalmia	Kamal	Dryv.io	Dryv.io	X	X
Den Besten	Gerrit	NXP Semiconductors	NXP Semiconductors	X	X
Dinh	Thuyen	Pulse Electronics	Pulse Electronics		X
Donahue	Curtis	UNH-IOL	UNH-IOL	X	X
Dube	Kathryn	UNH-IOL	UNH-IOL	X	X
Farjadrad	Ramin	Aquantia	Aquantia	X	X
Fathi	Borhan	NVIDIA	NVIDIA	X	X
Fazlolahi	Amir	Futurewei Technologies	Futurewei Technologies	X	X
Fritsche	Matthias	Harting	Harting	X	X
Gardner	Mike	Molex, LLC	Molex, LLC	X	X
Gauthier	Claude	NXP Semiconductors	NXP Semiconductors	X	X
Graber	Steffen	Pepperl+Fuchs	Pepperl+Fuchs		X
Grau	Olaf	Robert Bosch	Robert Bosch	X	X
Grow	Robert	RMG Consulting	RMG Consulting	X	X
Hess	Dave	Cord Data	Cord Data		X
Hutchison	Guy	Dryv.io	Dryv.io	X	X
Iyer	Venkat	Microchip	Microchip		X
Jones	Chad	Cisco	Cisco	X	X

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Last Name	First Name	Employer	Other Affiliations	Mon	Tues
Kondo	Taiji	Megachips	Megachips	X	X
Krieger	Olaf	Volkswagon	Volkswagon	X	X
Lackner	Hans	QoSCom GmbH	QoSCom GmbH	X	
Langner	Paul	Aquantia	Aquantia	X	X
Law	David	Hewlett Packard Enterprise	Hewlett Packard Enterprise	X	X
Lawlis	James	Ford Motor Company	Ford Motor Company	X	X
Lewis	Jon	Dell | EMC	Dell | EMC	X	X
Lin	Bin	TE	TE	X	X
Lo	William	Axonne Inc	Axonne Inc	X	X
Maguire	Valerie	Siemon	Siemon		X
Mash	Chris	Marvell	Marvell	X	X
Masuda	Takeo	OITDA	OITDA		X
Mau-Lin	Wu	Mediatek	Mediatek	X	X
McClellan	Brett	Marvell	Marvell	X	X
Miller	Martin	Microchip	Microchip	X	X
Pardo	Carlos	KDPOF	KDPOF		X
Patel	Harsh	Molex, LLC	Molex, LLC	X	X
Pohl	Christopher	Beckhoff	Beckhoff	X	X
Remein	Duane	Huawei	Huawei	X	
Renteria	Victor	Bel Fuse Inc	Bel Fuse Inc	X	X
Savi	Olindo	Hubbell	Hubbell		X
Shariff	Masood	Commscope	Commscope	X	X
Souvignier	Tom	Broadcom Ltd.	Broadcom Ltd.	X	X
Stewart	Heath	Analog Devices	Analog Devices	X	X
Thompson	Geoff	GraCaSI SA.	Independent	X	X

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Last Name	First Name	Employer	Other Affiliations	Mon	Tues
Toshifiro	Ichimaru	SEI	SEI	X	X
Tu	Mike	Broadcom Ltd.	Broadcom Ltd.	X	X
Vernickel	Ricky	Leoni	Leoni	X	X
Voss	Bob	Panduit	Panduit	X	X
Wang	Xuehuan	Hawei	Hawei		X
Wendt	Matthias	Signify	Signify	X	X
Widger	Madelyn	UNH-IOL	UNH-IOL	X	X
Wienckowski	Natalie	GM	GM	X	X
Withey	James	Fluke	Fluke	X	X
Wu	Peter	Marvell	Marvell	X	X
Wu	Dance	Marvell	Marvell	X	X
Xuehuan	Wang	Huawei	Huawei	X	
Zimmerman	George	CME Consulting	Commscope, Aquantia, CME Consulting, Cisco, ADI, BMW, APL Group	X	X