

Approved Minutes

IEEE 802.3 Beyond 10 km Optical PHYs Study Group Interim Meeting

November 8 - 9, 2017

Orlando, FL, USA

Prepared by John D'Ambrosia

All times EST

Location: Caribe Royale, Orlando, FL, USA.

The meeting called to order at 9:03am, November 8 ,2017.

Chaired by John D'Ambrosia, Futurewei, Subsidiary of Huawei

Presentation – Agenda and General Information

Presenter: John D'Ambrosia, Futurewei, Subsidiary of Huawei

URL: http://www.ieee802.org/3/B10K/public/17_11/agenda_b10k_01c_1117.pdf

Chair noted that additional data had been submitted by Xinyuan Wang in support of his presentation. There was no opposition to hearing the new data.

Motion #1: Move to approve the agenda

Moved by: Steve Trowbridge

Second by: Thananya Baldwin

Results: The motion passed by voice vote without opposition

Chair asked if there were any reporters in the room. Nobody identified themselves as representing the press.

Chair reviewed Study Group information, and reminded individuals to sign up for the reflector.

Chair showed IEEE802 Meetings Participation slide.

Motion #2: Approval of IEEE 802.3 Sept 2017 Study Group Meeting Minutes

http://www.ieee802.org/3/B10K/public/17_09/minutes_b10k_01_0917_unapproved.pdf

Moved by: Pete Anslow

Second by: Thananya Baldwin

Results: The motion passed by voice vote without opposition

Chair read the Pre-PAR Patent Policy for IEEE-SA meetings.

Chair continued with the introductory presentation IEEE Structure, Bylaws & Rules.

Chair reviewed the overview of the IEEE 802.3 Standards Process.

Chair reviewed Study Group Chartering Motion –

Move that the IEEE 802.3 Ethernet Working Group authorizes the formation of a study group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) responses for “Beyond 10km Optical PHYs for 50 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet”

Chair reviewed goals for week -

- Consensus building on PAR / Objectives / CSD
- 6 technical presentations
- Consider liaisons
 - From ITU-T: [ITU-T SG15 to IEEE 802.3 regarding coherent 100 Gb/s DWDM interfaces](#)
 - From COBO: http://www.ieee802.org/3/minutes/nov17/incoming/COBO_to_IEEE_802d3_Oct_2017.pdf
 - From OIF: http://www.ieee802.org/3/minutes/nov17/incoming/OIF_to_IEEE_802d3_Nov_2017.pdf
- Consider inclusion of 100G Beyond 10km

Chair reviewed liaisons and took the following actions.

- From ITU-T: Chair would write response, requesting draft of G.698.2, and that a follow-up ad hoc call would be organized to discuss call in further detail.
- From COBO: Mark Nowell indicated that a general response had been created in the 802.3cd Task Force, and no further review from the Study Group was necessary.
- From OIF: Chair appointed Jeff Maki to lead ad hoc and generate response to liaison.

General Introductions were held.

Time: 9:30am

Presentation # 1 - 50 GbE40 km Objective

Presenter: David Lewis, Lumentum

URL: http://www.ieee802.org/3/B10K/public/17_11/lewis_b10k_01_1117.pdf

General Discussion

Break at 10:10am

Reconvened at 10:31am

Time: 10:33am

Presentation # 2 - Analysis on Feasibility to Support a 40km Objective in 50/200/400GbE

Presenter: Xinyuan Wang, Xu Yu, Huawei

URL: http://www.ieee802.org/3/B10K/public/17_11/wang_b10k_01d_1117.pdf

General Discussion

Time: 11:07am

Presentation # 3 - Investigation of the technical feasibility for 50G/200G/400G beyond 10km optical PHY

Presenter: Yoshiaki Sone, NTT

URL: http://www.ieee802.org/3/B10K/public/17_11/sone_b10k_01a_1117.pdf

General Discussion

Time: 11:27am

Presentation #4 - Leveraging 400G ZR FEC Technology

Presenter: Ilya Lyubomirsky, Inphi

URL: http://www.ieee802.org/3/B10K/public/17_11/lyubomirsky_b10k_01_1117.pdf

General Discussion

Break at 11:48am

Reconvened at 1:16pm

Time: 1:23pm

Presentation # 5 - Coherent Feasibility and Interop

Presenter: Tom Williams, Acacia

URL: http://www.ieee802.org/3/B10K/public/17_11/williams_b10k_01b_1117.pdf

General Discussion

Time: 1:40pm

Presentation # 6 – Considerations on X00 Gb/s 40-80km interfaces with appropriate support for DWDM systems

Presenter: Peter Stassar, Huawei

URL: http://www.ieee802.org/3/B10K/public/17_11/stassar_b10k_01a_1117.pdf

General Discussion

Time: 2:34pm

Presentation # 7 - OTN Support for Beyond 10km Optical PHYs

Presenter: StevemTrowbridge, Nokia

URL: http://www.ieee802.org/3/B10K/public/17_11/trowbridge_b10k_01_1117.pdf

General Discussion

Break @ 2:54pm

Reconvened at 3:17pm

Adam Healey took over chairing meeting to let D'Ambrosia present.

Presentation # 8 – The Path Forward

Presenter: John D'Ambrosia, Futurewei, Subsidiary of Huawei

URL: http://www.ieee802.org/3/B10K/public/17_11/dambrosia_b10k_01_1117.pdf

General Discussion- General agreement with D'Ambrosia proposal to define a single project, and revisit project organization after technical decisions were made in Task Force, assuming PAR was approved.

Straw Poll #1

- If the “Beyond 10km 100GbE CFI” is successful, I would support modifying the scope of the IEEE 802.3 Beyond 10km Optical PHYs Study Group to include 100Gb/s.
- Results
 - Yes 84
 - No 0
 - Abstain 4

Break for day at 4:26pm

Reconvened 9:06am, Thursday, November 9, 2017.

Chaired by John D'Ambrosia, Futurewei, Subsidiary of Huawei

Chair showed Pre-PAR Patent Policy

Chair initiated the following straw polls

Straw Poll #2

- I believe a PAM4 approach, based on 50 Gb/s PAM4, targeting 40km would be technical feasible at
- Results
 - 50 Gb/s Yes 56 No 0 Need more info 6
 - 200 Gb/s Yes 41 No 1 Need more info 17
 - 400 Gb/s Yes 24 No 3 Need more info 34

Straw Poll #3

- I think there is broad market potential for a coherent solution at 50 Gb/s
- Results
 - Yes 40km 2 80km 3
 - No 41 36
 - Don't Care 7 9

Straw Poll #4

- I would support adopting the following objective
 - Provide physical layer specifications which support 50 Gb/s operation over at least 40 km of SMF
- Results
 - Yes 59
 - No 0
 - Abstain 8

Straw Poll #5

- I believe at 200 Gb/s, there would be broad market potential to develop two approaches targeting 40km reach
 - 4x50Gb/s PAM4
 - coherent (which might be used as a PHY for DWDM channels)
- Results
 - Yes - 0
 - No - 23
 - Need more information - 28

Break at 9:55am

Reconvened at 10:25am

Chair showed proposed response to ITU-T SG 15. Review and modification of proposal occurred.

Proposed Study Group response at

http://www.ieee802.org/3/B10K/public/17_11/IEEE_802d3_to_SG15_B10k_1117_draft.pdf.

Chair showed proposed response from ad hoc led by Jeff Maki. Review and modification of proposal occurred. Proposed Study Group response at

http://www.ieee802.org/3/B10K/public/17_11/IEEE_802d3_to_OIF_400ZR_1117_draft.pdf.

Motion #3

Move that the IEEE 802.3 Beyond 10km Study Group approve:

- IEEE_802d3_to_SG15_B10k_1117_draft
- IEEE_802d3_to_OIF_400ZR_1117_draft

with editorial license granted to the Chair (or his appointed agent) as liaison communications from the IEEE 802.3 Working Group to ITU-T SG 15 and OIF.

- Technical (>75%)
- M:Trowbridge
- S: Ofelt
- Motion approved by voice without opposition

Motion #4

- Move that the Study Group requests the re-chartering of the Beyond 10 km Optical PHYs Study Group for 50Gb/s, 200 Gb/s, and 400Gb/s Ethernet, unless the formation of a new study group for Beyond 10 km Optical PHYs for 50Gb/s, 100Gb/s, 200 Gb/s, and 400Gb/s Ethernet is approved.
- Procedural (>50%)
- M: Pete Anslow
- S: Mark Nowell
- Results: Approved by voice vote without opposition

Discussion

The wording of the motion and the procedural reasons for this motion were explained to the Study Group.

Chair reviewed future meetings.

Attendance Strawpoll

- For the Beyond 10km SG at January 2018 Interim in Geneva
 - I will attend - 47
 - I may attend - 15
 - I won't attend – 9

Motion #5

Motion to adjourn

M: Steve Trowbridge

S: Ali Ghiasi

Motion approved by voice vote without objection.

Meeting adjourned at 11:04am.

Attendees

IEEE 802.3 Beyond 10km Optical PHYs Study Group				11/8	11/9
Last Name	First Name	Employer	Affiliation	Wed	Thurs
Abbott	John	Corning	Corning	x	x
Abbott	Justin	Lumentum	Lumentum	x	x
Anslow	Pete	Ciena Corporation	Ciena Corporation	x	x
Balasubramonian	Venu	Marvell	Marvell	x	
Baldwin	Thananya	Ixia	Ixia	x	
Baveja	Prashant	AOI	AOI	x	x
Bouda	Martin	Fujitsu	Fujitsu	x	x
Braun	Ralf-Peter	Deutsche Telekom	Deutsche Telekom	x	x
Brooks	Paul	Viavi Solutions	Viavi Solutions		x
Brown	Matt	Macom	Macom	x	
Burrell	Gary	Elenion Technologies	Elenion Technologies	x	x
Butter	Adrian	Global Foundries	Global Foundries		x
Calvin	John	VTM	VTM	x	x
Chang	Frank	Inphi	Inphi	x	x
Chang	Xin	Huawei	Huawei		x
Chen	C.C David	AOI	AOI	x	x
Cheng	Weiyang	Coriant	Coriant	x	x
Chien	James	ZTE	ZTE	x	x
Choudhury	Mabud	OFS	OFS	x	
Conroy	Keith	Acacia	Acacia	x	x
D'Ambrosia	John	Futurewei, subsidiary of Huawei	Futurewei, subsidiary of Huawei	x	x
Dawe	Piers	Mellanox	Mellanox	x	
Didde	Stephen	Keysight Technologies	Keysight Technologies	x	

Ellison	Jason	The Siemon Company	The Siemon Company	x	
Estes	Dave	Spirent Communications	Spirent Communications		x
Ewen	John	Global Foundries	Global Foundries	x	x
Fukutoku	Mitsuho	NTT	NTT	x	x
Ghiasi	Ali	Ghiasi Quantum, Ghiasi Quantum / Huawei	Ghiasi Quantum, Ghiasi Quantum / Huawei	x	x
Gong	Zhigang	D-Net	D-Net	x	x
Gorshe	Steve	Microsemi	Microsemi	x	x
Gustlin	Mark	Xilinx	Xilinx	x	x
Hayakawa	Akinori	Fujitsu Laboratories	Fujitsu Laboratories	x	x
Healey	Adam	Broadcom LTD	Broadcom LTD	x	x
Hegde	Raj	Broadcom	Broadcom	x	
Heynes	Hayden	UNH-IOL		x	
Hidaka	Yasuo	Independent	Independent	x	
Ho	Ilung	AOI	AOI	x	x
Horner	Rita	Synopsys	Synopsys	x	
Huang	Xi	Huawei	Huawei	x	x
Ingham	Jonathan	Foxconn Interconnect Technology	Foxconn Interconnect Technology	x	
Ishibe	Kazuhiko	Anristu	Anristu	x	
Isono	Hideki	Fujitsu Optical Components	Fujitsu Optical Components	x	x
Issenhuth	Tom	Issenhuth Consulting	Issenhuth Consulting, Huawei	x	x
Jackson	Kenneth	Sumitomo	Sumitomo	x	x
Johnson	John	Broadcom	Broadcom		x
Kawatsu	Yasuaki	Apresia Systems	Apresia Systems	x	x
Kimber	Mark	Semtech	Semtech	x	x
Klempa	Mike	UNH-IOL	UNH-IOL	x	

Kochuparambil	Beth	Cisco Systems	Cisco Systems	x	x
Kolesar	Paul	CommScope	CommScope	x	x
Lackner	Hans	QoSCom	QoSCom		x
LeCheminant	Greg	Keysight Technologies	Keysight Technologies		x
Lewis	Dave	Lumentum	Lumentum	x	
Lim	Jane	Cisco	Cisco	x	x
Liu	Hai-Feng	Intel	Intel	x	
Lusted	Kent	Intel	Intel	x	x
Lyubomirsky	Ilya	Finisar	Finisar	x	
Malicoat	David	Malicoat Networking Solutions / Senko	Malicoat Networking Solutions / Senko	x	x
Mazzini	Marco	Cisco	Cisco	x	x
Mellitz	Richard	Samtec	Samtec	x	
Mitcheltree	Tom	US Conec	US Conec	x	x
Mooney	Paul	Spirent Communications	Spirent Communications		x
Murray	Dale	Light Counting	Light Counting	x	x
Nakamoto	Edward	Spirent Communications	Spirent Communications	x	x
Nicholl	Gary	Cisco	Cisco	x	
Nowell	Mark	Cisco	Cisco	x	
Ofelt	David	Juniper Networks	Juniper Networks	x	x
Palkert	Tom	Molex / Macom	Molex / Macom	x	x
Parthasarathay	Vasudevan	Broadcom	Broadcom	x	
Pepper	Gerald	Ixia	Ixia	x	
Pham	Phong	US Conec Ltd	US Conec Ltd	x	x
Piehler	David	Dell EMC	Dell EMC	x	
Pimpinella	Rick	Panduit Corp.	Panduit Corp.	x	
Pondillo	Peter	Corning	Corning		x

Rabinovich	Rick	IXIA	IXIA	x	x
Ran	Adee	Intel	Intel	x	
Ressl	Mike	Hitachi Cable America	Hitachi Cable America	x	x
Rotolo	Salvatore	STM Microelectronics	STM Microelectronics	x	x
Sakai	Toshiaki	Socionext	Socionext	x	
Sayre	Edward	Samtec	Samtec	x	x
Schube	Scott	Intel	Intel	x	x
Sekel	Steve	Keysight Technologies	Keysight Technologies	x	x
Shirao	Mizuki	Mitsubishi Electric	Mitsubishi Electric	x	x
Shrikhande	Kapil	Innovium	Innovium	x	x
Sommers	Scott	Molex	Molex	x	x
Sone	Yoshiaki	NTT	NTT	x	x
Sprague	Ted	Infinera	Infinera	x	x
Stassar	Peter	Huawei	Huawei	x	x
Stone	Rob	Broadcom	Broadcom	x	x
Sun	Liyong	Huawei	Huawei	x	
Sun	Phil	Credo Semiconductor	Credo Semiconductor	x	x
Tailor	Bharat	Semtech Corp	Semtech Corp	x	x
Tajima	Akio	NEC Corporation	NEC Corporation	x	x
Takahara	Tomoo	Fujitsu Laboratories	Fujitsu Laboratories	x	x
Tamura	Kohichi	Oclaro Japan	Oclaro Japan	x	
Tooyserkani	Pirooz	Cisco	Cisco	x	x
Traverso	Matthew	Cisco	Cisco	x	x
Trowbridge	Steve	Nokia	Nokia	x	x
Twombly	Jeff	Credo Semiconductor	Credo Semiconductor	x	
Ulrichs	Ed	Source Photonics	Source Photonics	x	x
Umeda	Daisuke	Sumitomo	Sumitomo		x

Villarruel	Fernando	Cisco	Cisco	x	
Vitali	Marco	Sicoya	Sicoya	x	x
Wang	Yi	AOI	AOI	x	x
Welch	Brian	Luxtera	Luxtera	x	
Williams	Tom	Acacia Acommunications	Acacia Acommunications	x	x
Wu	Peter	Marvell Semiconductor	Marvell Semiconductor	x	x
Xu	Yu	Huawei	Huawei	x	x
Yahagimachi	Shigeyuki	NEC	NEC	x	
Yamamoto	Shuto	NTT	NTT	x	x
Yang	Kai	Global Foundries	Global Foundries	x	x
Young	Adrian	Leviton Mfg	Leviton Mfg	x	
Young	James	Commscope	Commscope	x	x
Zhang	Kevin	IDT	IDT	x	x
Zivny	Pavel	Tektronix	Tektronix	x	x