

Unapproved Minutes
IEEE 802.3 400 Gb/s Ethernet Study Group
Interim Meeting
May 17, 2013
Victoria, BC, Canada
Prepared by Ghani Abbas

David Law, IEEE 802.3 Working Group Chair called IEEE 802.3 400 Gb/s Study Group Interim to order at 08:02am, Friday, 17, May 2013.

Mr. Law appointed Ghani Abbas to be a Recording Secretary for the meeting.

Mr Law announced his intent to appoint Mr. D'Ambrosia chair of the Study Group and asked for a motion where Study Group confirmed his appointment.

Motion #1: Confirm John D'Ambrosia as the IEEE 802.3 400Gb/s Ethernet Study Group Chair

- Moved by: R. Grow
- Second by: S. Carlson
- Approved by show of hands without opposition

Discussion

Mr. Law asked Mr. D'Ambrosia if he wished to speak. Mr. D'Ambrosia introduced himself and highlighted the standards work he has been involved with in the IEEE802.3

Mr. Law asked Mr. D'Ambrosia to leave the room. Mr. D'Ambrosia left the meeting room.

Mr. Law asked if anyone wished to speak. No one did.

Agenda & General Information

By – John D'Ambrosia

See - http://www.ieee802.org/3/400GSG/public/13_05/agenda_400_01_0513.pdf

- Chair reviewed the agenda.
- Introductions – Everyone introduced themselves and stated their affiliation.

Motion #2: Move to approve the agenda

- Moved by: S. Trowbridge
- Second by: P. Anslow
- Approved by voice vote without opposition

Chair asked if there were any reporters in the room. No reporters in the room. John D'Ambrosia will be talking with the press regarding IEEE activities but will only disclose high level details available from the published meeting minutes.

Chair continued with the introductory presentation

- Goals for the meeting:
 - Overview of Process
 - Hear presentations related to Objectives and 5 Criteria
 - Start developing consensus on Objectives
 - 3 Informal Communications – ITU-T, OIF, Euro-IX
 - Lay the ground work for the next meeting
- Ground Rules were reviewed
- IEEE Structure, Bylaws & Rules

Chair read the Guidelines for IEEE-SA meetings.

Chair gives an overview of the 802.3 Standards Process.

No comment or questions from the floor.

Presentation #1

Title: Overview of the Process

Presented By – David Law

See - http://www.ieee802.org/3/400GSG/public/13_05/diab_400_01_0513.pdf

Discussion

Presentation #2

Title: Review of the 5 Criteria

Presented By – Howard Frazier

See - http://www.ieee802.org/3/400GSG/public/13_05/frazier_400_01_0513.pdf

Mr.Frazier also gave a supplementary presentation

Title: Guidelines for project objectives

See - http://www.ieee802.org/3/400GSG/public/13_05/frazier_400_02_0513.pdf

Discussion

- Comments on technical feasibility and the importance of simulation work and technical diligence.

Presentation #3

Mr. D. Law assumed the chair while Mr. D'Ambrosia is giving the presentation below.

Title: The 400 GbE Project Ahead

Presented By – John D'Ambrosia

See - http://www.ieee802.org/3/400GSG/public/13_05/dambrosia_400_02_0513.pdf

Discussion

- A comment on the project time limit was raised. It was noted that there is no fixed project time limit as some projects have broader objectives and may take longer to achieve than those with narrower objectives.
- A comment on Broad Market Potential and noted that 400GE is likely to have a smaller market size than the lower GE bit rates market

Mr. D'Ambrosia assumed the chair again at 09.55 am

Presentation #4

Title: 400 GbE Logic Thoughts

Presented By – Mark Gustlin

See - http://www.ieee802.org/3/400GSG/public/13_05/gustlin_400_01b_0513.pdf

Discussion

Chair appoints Mark Gustlin to chair “Logic” Ad hoc. Charter: Evaluate 400GbE architecture implementations to make recommendations regarding possible objectives.

Straw Poll #1

I will be attending the IEEE 802.3 400Gb/s Ethernet Study Group Meeting in July 2013 (Geneva)

Yes	42
Probably Yes	28
Probably No	14
No	11

Break at 10.16

Reconvened at 10.32

Presentation #5

Title: The BER Objective for 400GE

By – David Ofelt

See - http://www.ieee802.org/3/400GSG/public/13_05/ofelt_400_01a_0513.pdf

Discussion

- The chair indicated that the FEC will be a topic for the “Logic” Ad hoc
- It was requested that the ad hoc meetings should avoid being held in parallel with the TF meetings. The chair stated that close coordination between the various TF chairs is planned.

Presentation #7

Title: Objectives for 400GbE

By – Steve Trowbridge

See - http://www.ieee802.org/3/400GSG/public/13_05/trowbridge_400_03_0513.pdf

Discussion

It was stated that copper cable/backplane is important to Data centers and broad market potential

Presentation #8

Title: Scalable 400GbE Architecture

By – Ali Ghiasi

See - http://www.ieee802.org/3/400GSG/public/13_05/ghiasi_400_01a_0513.pdf

Discussion

- It was noted that the sharing at 10/40 GE and 100/400GE is at the PMD and lane rates but not PCS. However, sharing at the PMD level is nice to have rather than the driving consideration
- The reliability of the Market data on slide 5 was questioned

Presentation #9

Title: 400G Architecture Considerations

By – Brad Booth

See - http://www.ieee802.org/3/400GSG/public/13_05/booth_400_01_0513.pdf

Discussion

- A question was raised on slide 3 regarding the current MLG standards does not support 2X10G
- It was stated that breaking the 400G into 10X40G is favourable but 4X100G is also interesting.

Break at 11.55 am

Reconvened at 13.05

Presentation #10

Title: 400 Gb/s PMD Roadmap

By – Chris Cole

See - http://www.ieee802.org/3/400GSG/public/13_05/cole_400_01a_0513.pdf

Discussion

- Correct Slide 9 to indicate that KR4 FEC means 100G KR4 FEC

Presentation #11

Title: Initial Thoughts on Architecture and PMD Objectives for 400GE

By – Gary Nicholl

See - http://www.ieee802.org/3/400GSG/public/13_05/nicholl_400_01a_0513.pdf

Discussion

- Updated slides with minor editorial are to be uploaded
- No definition of “Long Tem” is provided but it is taken as more than 4 years. Difficult to know how technology or market develop over time
- Perhaps the project should focus on the initial application (not multiple PMDs) which is likely to be a low volume

Presentation #12

Title: Considerations on options for 400GE Optical Interface

By – Xiaolu Song

See - http://www.ieee802.org/3/400GSG/public/13_05/song_400_01_0513.pdf

Discussion

Slide 9, the FEC RS(544,514) applies to copper systems not fibre systems. No simulation is done.

Presentation #13

Title: 400GE at the Cost of 4 x 100GE

By – Jeff Maki

See - http://www.ieee802.org/3/400GSG/public/13_05/maki_400_01a_0513.pdf

Discussion

CFP/Form factor progression on slides 4 and 5 was clarified.

Break at 15.00

Reconvened at 15.23

Presentation #14

Title: Copper Cable at 400 Gbps

By – Mark Bugg

See - http://www.ieee802.org/3/400GSG/public/13_05/bugg_400_01_0513.pdf

Presentation #15

Title: CFP2 / CFP4 connector SI capability for 400Gb/s Ethernet

By – Takeshi Nishimura

See - http://www.ieee802.org/3/400GSG/public/13_05/nishimura_400_01a_0513.pdf

Discussion

Questions raised regarding connector loss and the trace loss (slides 10 & 15). It was stated that these are simulation results. Measurement results were requested.

Presentation #16

Title: Using Ensemble NRZ Coding for 400Ge Electrical Interfaces

By – Brian Holden

See - http://www.ieee802.org/3/400GSG/public/13_05/holden_400_01_0513.pdf

Discussion

A question is raised regarding the microstrip differential pairs on slide 15 and it was stated that this slide shows the wrong diagram.

Straw Polls

Strawpoll #2 (Chicago Rules) Made by the Chair

Are you interested in an objective for this effort that would address:

- A. 400GbE Backplane PMD(s)
- B. 400GbE Twin-Ax PMD(s)
- C. 400GbE MMF PMD(s)
- D. 400GbE SMF PMD(s)
- E. No PMDs

Mr. D. Law assumed the chair at 16.45 while the above SP was discussed. Mr. D'Ambrosia assumed the chair back at 16.50.

Results

A	25
B	15
C	39
D	62
E	2

Room count : 86

Strawpoll #3 Made by the Chair

Are you interested in multi-rate support (backward compatibility from 400GE to 100GE and/or 40GE):

Results

Yes	50
No	10

Strawpoll #4 Made by Mark Gustlin

I believe that FEC should be an integral part of the 400GbE architecture

Results

Yes	44
No	1
Undecided	27

Strawpoll #5 Made by Mr.Frazier

Which PMD are you most interested in for this effort:

- A- 400GbE Backplane PMD(s)
- B- 400GbE Twin-Ax PMD(s)
- C- 400GbE MMF PMD(s)
- D- 400GbE SMF PMD(s)
- E- No PMDs

Results

A - 2
B - 2
C - 9
D - 49
E- 0

Liaisons & Informal Communications

Three proposed Informal Communications (IC) to review and approve. ICs are all informative in nature and are essentially same, just addressed to different organizations (ITU-T, OIF, Euro_IX).

- Proposed Informal Communication to ITU-T:
http://www.ieee802.org/3/400GSG/public/13_05/trowbridge_400_02a_0513.pdf

- Proposed Informal Communication to OIF:
http://www.ieee802.org/3/400GSG/public/13_05/trowbridge_400_01a_0513.pdf
- Proposed Informal Communication to Euro-IX:
http://www.ieee802.org/3/400GSG/public/13_05/dambrosia_400_01b_0513.pdf

Motion #3

Move that IEEE 802.3 400Gb/s Ethernet Study Group approve the text in:

- trowbridge_400_02C_0513.pdf
- trowbridge_400_01a_0513.pdf
- dambrosia_400_01b_0513.pdf

with editorial license granted to the Chair (or his appointed agent) as an informal communication by the Chair to respective organizations (ITU-T, OIF, Euro-IX).

- M: Steve Trowbridge
- S: Brian Holden
- Procedural (> 50%)
- Results: Approved by voice vote without opposition.

Future Meetings

- See: <http://www.ieee802.org/3/interims/index.html>
- July 2013 Plenary
 - Week of July 14
 - Location: Geneva, CH
- Sept 2013 Interim (hosted by ADVA)
 - Week of Sept 2
 - York, UK
- Nov 2013 Plenary
 - Week of Nov 10
 - Dallas, TX, USA
- January 2014 Interim
 - Week of January 20
 - Hyatt Regency Indian Wells, CA

The chair final remarks were to encourage consensus building and requested that Mark Gustlin give two weeks' notice for "Logic" ad hoc meetings.

Motion #4

Move to adjourn

- M: Mike Dudek
- S: David Ofelt
- Procedural (> 50%)
- Results: Approved by voice vote without opposition.

The meeting adjourned at 17.25

Attendees

Last Name	First Name	Employer / Affiliation	Fri
Abbas	Ghani	Ericsson, UK	x
Anslow	Pete	Ciena Corporation	x
Baldwin	Thananya	Ixia	x
Barrass	Hugh	Cisco	x
Ben-Artzi	Liav	Marvell	x
Booth	Brad	Dell	x
Breuer	Dirk	Deutsche Telekom	x
Brown	Matt	Applied Micro	x
Bugg	Mark	Molex	x
Casher	Patrick	Molex	x
Chang	Xin	Huawei	x
Cole	Chris	Finisar	x
D'Ambrosia	John	Dell	x
Dawe	Piers	IPTronics	x
Donahue	Curtis	UNH-IOL	x
Dudek	Mike	QLogic	x
Erba	Simone	STM Microelectronics	x
Estes	Dave	UNH - IOL	x
Farhoodfar	Arash	Cortina Systems	x
Frazier	Howard	Broadcom	x
Ghiasi	Ali	Broadcom	x
Grow	Bob	RMG Consulting	x
Gustlin	Mark	Xilinx	x
Hall	Eric	Aurion	x
Hamano	Hiroshi	Fujitsu Labs	x
Healey	Adam	LSI	x
Hidaka	Yasuo	Fujitsu Laboratories of America	x
Holden	Brian	Kandou Bus	x
Irwin	Scott	Mosys	x
Isono	Hideki	Fujitsu Ltd.	x
Jiang	Hongtew	Broadcom	x
Kelsen	Michael	Time Warner Cable	x
Kish	Paul	Belden	x
Kochuparambil	Beth	Cisco	x
Kolesar	Paul	CommScope	x
Kono	Masashi	Hitachi	x
Law	David	HP	x
Lewis	Dave	JDSU	x
Li	Zeng	Huawei	x
Lingle, Jr.	Robert	OFS	x
Maki	Jeffery	Juniper Networks	x
Malkman	Yonaton	Mellanox	x

Mallette	Edwin	Bright House Networks	x
Marris	Arthur	Cadence	x
Misek	Brian	Avago Technologies	x
Moore	Charles	Avago Technologies	x
Moorwood	Andy	Infinera Corp	x
Muth	Karl	Texas Instruments	x
Nielsen	Torben	Acacia	x
Nishihara	Susumn	NTT	x
Nishimura	Takeshi	Yamaichi Electronics	x
Nolan	John	QLogic	x
Ofelt	David	Juniper Networks	x
Oguna	Ichiro	Petra	x
Palkert	Tom	Luxtera	x
Parthasarathay	Vasudevan	Broadcom	x
Patel	Pravin	IBM	x
Patel	Shashi	Brocade	x
Pepper	Gerald	Ixia	x
Petrilla	John	Avago Technologies	x
Rabinovich	Rick	Alcatel-Lucent	x
Rannow	Randy	APTC Corp	x
Ressl	Mike	Hitachi Cable America	x
Rotolo	Salvatore	STM Microelectronics	x
Sambasivan	Sam	AT&T	x
Shanbhag	Megha	TE Connectivity	x
Shang	Song	Semtech	x
Shrikhande	Kapil	Dell	x
Slavick	Jeff	Avago Technologies	x
Song	Xiaolu	Huawei	x
Stassar	Peter	Huawei	x
Stevens	Daniel	Fujitsu Semiconductors	x
Szeto	William	Xtera	x
Tailor	Bharat	Semtech Corp	x
Tajima	Akio	NEC Corporation	x
Takahara	Tomoo	Fujitsu Laboratories	x
Takahata	Koyoto	NTT	x
Tanaka	Toshiki	Fujitsu Laboratories	x
Tawa	Katsuhisa	Sumitomo Electric	x
Teipen	Brian	ADVA Optical Networking	x
Tooyserkani	Pirooz	Cisco	x
Tracy	Nathan	TE Connectivity	x
Tremblay	Francois	Semtech	x
Trowbridge	Steve	Alcatel-Lucent	x
Ugolini	Alan	US Conec	x
Ulrichs	Ed	Source Photonics	x

Vaden	Sterling	Optical Cable Corp.	x
Wang	Robert	Intel	x
Wang	Xinyuan	Huawei	x
Way	Winston	NeoPhotonics	x
Wertheim	Oded	Mellanox	x
Wong	CK	FCI USA LLC	x
Wong	Henry	Huawei	x
Xu	Yu	Huawei	x
Zambell	Andrew	FCI	x