Unapproved Minutes
IEEE 802.3bm 40 Gb/s and 100 Gb/s Fiber Optic Task Force
Interim meeting
Jan 22-23, 2013
Phoenix, AZ

Prepared by: Kapil Shrikhande

Jan 22, 2013

The meeting was called to order at 8:00 a.m. on Jan 22.
Kapil Shrikhande volunteered as Recording Secretary.

Round of introductions

All meeting materials for the Jan 2013 interim meeting can be found at:
http://www.ieee802.org/3/bm/public/jan13/index.html

Agenda and General Information presentation
By: Dan Dove, Chair
See: http://www.ieee802.org/3/bm/public/jan13/dove_01b_0113_optx.pdf (file with updated agenda for Jan 23 was uploaded at the end of the meeting on Jan 22)

The Chair asked if there was any opposition to approving the agenda for the meeting. The agenda was approved with no opposition.

The Chair asked if there was any opposition to approving the minutes from the November 2012 Task Force meeting. The November 2012 meeting minutes were approved with no opposition.

The Chair presented the Task Force decorum.
The Task Force was reminded that photographs or recordings are not allowed without permission.

The Chair asked if there were any reporters or if someone present might report on the activities of the meeting. No one responded.

The Chair read the IEEE patent policy. The Chair made a call for potentially essential patents. No one responded to the call for patents.

The Proposed Timeline for the Task Force was presented for review. No questions received.

Start of technical presentations

Presentation # 1

Title: SMF Ad Hoc report

By: Pete Anslow, Ciena (SMF Ad Hoc Chair)
See: http://www.ieee802.org/3/bm/public/jan13/anslow_01_0113_optx.pdf

Presentation # 2
Title: Editor's report
By: Pete Anslow, Ciena (Chief Editor, 802.3bm)
See: http://www.ieee802.org/3/bm/public/jan13/anslow_02_0113_optx.pdf

Presentation # 3
Title: MMF ad hoc report
By: Jonathan King, Finisar (MMF Ad Hoc Chair)
See: http://www.ieee802.org/3/bm/public/jan13/king_01_0113_optx.pdf

Presentation # 4
Title: CAUI-4 ad hoc summary
By: Ryan Latchman, Mindspeed (CAUI4 Ad Hoc Chair)
See: http://www.ieee802.org/3/bm/public/jan13/latchman_02_0113_optx.pdf

Presentation #5
Title: BER for 100GBASE-SR4
By: Pete Anslow, Ciena
See: http://www.ieee802.org/3/bm/public/jan13/anslow_03_0113_optx.pdf

Break at 10 a.m.
Reconvened at 10:15 a.m.

Presentation # 6
Title: 100m MMF reach objective baseline proposal
By: Jonathan King, Finisar
See: http://www.ieee802.org/3/bm/public/jan13/king_02_0113_optx.pdf

Presentation # 7
Title: 100G SR4 Link Model Update & TDP
By: John Petrilla, Avago Technologies
See: http://www.ieee802.org/3/bm/public/jan13/petrilla_01_0113_optx.pdf

Presentation # 8
Title: Feasibility of Unretime 100Gbase-SR4
By: Ali Ghiasi, Broadcom
See: http://www.ieee802.org/3/bm/public/jan13/ghiasi_02_0113_optx.pdf (new version with editorial change uploaded post presentation)

Presentation # 9
Title: Unretimed PHY for the 20 m MMF objective
By: Piers Dawe, Iptronics
See: http://www.ieee802.org/3/bm/public/jan13/dawe_01a_0113_optx.pdf

Presentation # 10
Title: CAUI-4 Chip to Chip Simulations
By: Ali Ghiasi, Broadcom
See: http://www.ieee802.org/3/bm/public/jan13/ghiasi_01a_0113_optx.pdf (revised file with technical

changes uploaded post presentation)

The Chair reminded the group that there was time allocated in the P802.3bj Task Force after lunch for presentations of common interest to both 802.3bj and 802.3bm, and that the Task Force would reconvene after this common time with 802.3bj, at 3 p.m.

Break for lunch
Reconvened at 3:15 p.m.

Presentation # 11
Title: CAUI-4 chip to chip baseline discussion
By: Ryan Latchman, Mindspeed
See: http://www.ieee802.org/3/bm/public/jan13/latchman_01_0113_optx.pdf

Presentation # 12
Title: A CAUI-4 Chip-to-Chip Link Study
By: Mike Li, Altera
See: http://www.ieee802.org/3/bm/public/jan13/li_01_0113_optx.pdf

Technical presentations scheduled for the day were completed, and the floor was opened for motions and polls.

Motion # 1
Move that the Task Force: Submit the amended PAR (P802_3bm_PAR_0113.pdf) to the 802.3 Working Group for approval. Request that the 802.3 Working Group chair pre-submit the amended PAR and previously approved 5 criteria responses to the 802 Executive Committee for consideration at the March 2013 Plenary Session.
Mover: Dan Dove Seconded: Pete Anslow
Technical >= 75%
Yes: 58 No: 0 Abstain: 2

Motion # 2
Move to adopt the proposal in slides 5 to 10 of king_02_0113_optx.pdf as the baseline for "a 100 Gb/s PHY for operation up to at least 100 m of MMF" (100GBASE-SR4).
Mover: Jonathan King Seconded: John Petrilla
Technical >= 75%
Yes: 53 No: 5 Abstain: 22

Seeing that there were no more motions or straw polls from the floor, the meeting was recessed for the day.

Jan 23, 2013

The meeting resumed at 8:30 a.m.
The Chair noted that the agenda for Jan 23 was updated and available on the meeting web-page.

Round of introductions

The Chair presented the Task Force decorum.

The Task Force was reminded that photographs or recordings are not allowed without permission.

The Chair asked if someone was planning to publicly speak, blog or write about this meeting. Chris Bergey said he would be discussing this meeting with parties interested in Silicon Photonics. Dan Dove said he would be presenting at the Linley conference soon and was likely to discuss material seen in this meeting.

The Chair presented the agenda for the day, Task Force decorum and ground rules.

The Chair read the patent policy and made the call for potentially essential patents. Nobody responded to the call.

Start of technical presentations

Presentation # 13
Title: An Economic Comparison of PSM4, PAM, and LR4
By: Brian Welch, Luxtera
See: http://www.ieee802.org/3/bm/public/jan13/welch_01b_0113_optx.pdf (revised file with technical content change was uploaded post presentation)

Presentation # 14
Title: 100G PSM4 Link Model Results Update
By: John Petrilla
See: http://www.ieee802.org/3/bm/public/jan13/petrilla_02_0113_optx.pdf

Presentation # 15
Title: 100G PSM4 Power, Size & Cost Estimates & Comparisons
By: John Petrilla
See: http://www.ieee802.org/3/bm/public/jan13/petrilla_03a_0113_optx.pdf

Presentation # 16
Title: PAM8 Baseline Proposal
By: Vipul Bhatt, Cisco
See: http://www.ieee802.org/3/bm/public/jan13/bhatt_01_0113_optx.pdf

Presentation # 17
Title: FEC Coding and Analysis for 100G PAM8 System
By: Zhongfeng Wang, Broadcom
See: http://www.ieee802.org/3/bm/public/jan13/wang_01a_0113_optx.pdf (revised file with technical content change was uploaded post presentation)

Presentation # 18
Title: 100 GbE PAM Power Dissipation
By: Ali Ghiasi, Broadcom
See: http://www.ieee802.org/3/bm/public/jan13/ghiasi_03_0113_optx.pdf

Break for lunch

Reconvened at 1:15 p.m.

Presentation # 19
Title: PSM4 Technology & Relative Cost Analysis Update
By: Jon Anderson, Oclaro
See: http://www.ieee802.org/3/bm/public/jan13/anderson_01_0113_optx.pdf

Presentation # 20
Title: 100GBASE-WDM4 Baseline Proposal
By: Yurii Vlasov, IBM
See: http://www.ieee802.org/3/bm/public/jan13/vlasov_01_0113_optx.pdf

Presentation # 21
Title: System vendor perspective to NG100GE SMF interface
By: Tek Ming Shen, Huawei
See: http://www.ieee802.org/3/bm/public/jan13/shen_01_0113_optx.pdf

Presentation # 22
Title: Optical Transmitter and Receiver in Optical 100GbE DMT
By: Toshiki Tanaka, Fujitsu Labs
See: http://www.ieee802.org/3/bm/public/jan13/tanaka_01_0113_optx.pdf

Break at 3:00 p.m.
Reconvened at 3:30 p.m.

Presentation # 23
Title: Power Budget for Discrete Multi-Tone
By: Tomoo Takahara, Fujitsu Labs
See: http://www.ieee802.org/3/bm/public/jan13/takahara_01a_0113_optx.pdf

Presentation # 24
Title: Relative cost estimation of TOSA&ROSA for DMT
By: Tomoo Takahara, Fujitsu Labs
See: http://www.ieee802.org/3/bm/public/jan13/takahara_02_0113_optx.pdf

Presentation # 25
Title: Analytical Model for 100 Gb/s Discrete Multi-Tone Modulation
By: Ilya Lyubomirsky, Finisar
See: http://www.ieee802.org/3/bm/public/jan13/lyubomirsky_01_0113_optx.pdf

End of technical presentations

The Chair opened the floor for motions, straw polls and discussion.

Straw Poll # 1

I would support a baseline proposal for a SMF PMD based on:

a) CWDM
b) C-BAND
c) DMT
d) PSM4
e) PAMn
f) none of the above - rely on LR4 with CAUI-4.

a) 23 b) 1 c) 12 d) 16 e) 19 f) 11

Room count = 97

Straw Poll # 2

Do you believe that PSM4 is technically feasible:

a) Yes
b) No
c) Undecided

a) 66 b) 0 c) 12

Straw Poll # 3

I believe PSM4 based solutions will reduce module cost by:

a) 75% or greater compared to LR4
b) 50% or greater compared to LR4
c) 25% or greater compared to LR4
d) Will not reduce cost relative to LR4

Choose only the greatest cost reduction that you think will apply

a) 9 b) 24 c) 18 d) 2

Straw Poll # 4

I believe PSM4 power consumption can be:

a) Less than 2.5 W
b) 2.5-3.0 W
c) 3.0-3.5 W
d) 3.5-4.0 W
e) Greater than 4.0 W

a) 4 b) 9 c) 12 d) 10 e) 9

Straw Poll # 5

I believe that a PSM4 solution will fit in the following form factor:

a) QSFP
b) CFP4
c) CFP2
d) CFP

Choose only the smallest form factor that you think will apply

a) 25 b) 11 c) 5 d) 0

Straw Poll # 6

I believe that the PSM4 solution has broad market potential as a data center solution for the 100m to 500m distance.

Yes: 21
No: 22
Abstain: 28

Straw Poll # 7

Based on the information I received to date, on the topic of a baseline proposal for a SMF PMD based on CWDM as presented in vlasov_01_0113_optx

I would:

(1) support it;
(2) consider to support it, but need more information and analysis;
(3) stay neutral.
(4) not support it;

1) 18 2) 17 3) 18 4) 20

Straw Poll # 8

To decide on whether I would support a baseline proposal based on CWDM, as presented in vlasov_01_0113_optx, I need more information on:

(1) technical feasibility
(2) cost reduction relative to 100GBASE-LR4
(3) power reduction relative to 100GBASE-LR4
(4) link optical power budget analysis

Chicago Rules

1) 14 2) 33 3) 18 4) 11

Straw Poll # 9

I would support a baseline proposal for a SMF PMD based on:

a) CWDM
b) C-BAND
c) DMT
d) PSM4
e) PAMn
f) none of the above - rely on LR4 with CAUI-4.

Chicago Rules

a) 35 b) 0 c) 36 d) 37 e) 36 f) 26

Straw Poll # 10

I would NOT support a baseline proposal for a SMF PMD based on:

a) CWDM
b) C-BAND
c) DMT
d) PSM4
e) PAMn
f) none of the above - rely on LR4 with CAUI-4.

Chicago Rules

a) 23 b) 59 c) 18 d) 27 e) 28 f) 30

Straw Poll # 11

Do you believe this proposal is technically feasible:

a) CWDM Y: 63 N: 5
b) DMT Y: 32 N: 20
c) PSM4 Y: 63 N: 0
d) PAMn Y: 28 N: 35

Straw Poll # 12

Do you believe this proposal is economically feasible:

a) CWDM Y: 36 N: 28
b) DMT Y: 30 N: 24
c) PSM4 Y: 45 N: 19
d) PAMn Y: 29 N: 34
e) LR4 Y: 18 N: 47

Straw Poll # 13

Do you believe this proposal has broad market potential:

a) CWDM Y: 32 N: 27
b) DMT Y: 32 N: 20
c) PSM4 Y: 29 N: 28
d) PAMn Y: 36 N: 23
e) LR4 Y: 15 N: 36

Straw polls #1 to #13 were taken specifically around the 500m SMF objective. After the 500m SMF polls were over, an additional request around the 20m MMF objective was received.

Straw Poll # 14

I believe that the 20m MMF solution should include:

1) Retiming and FEC
2) Retiming but no FEC
3) No retiming but FEC
4) No retiming and no FEC

1) 2 2) 3 3) 14 4) 25

The following polls were taken during the discussion of a potential additional interim meeting.
Count of how many people cannot make it to the March 2013 plenary meeting (owing to conflict with OFC 2013) = 35

Straw Poll # 15

I support an interim meeting in the San Jose bay area on April 18-19

Y: 27
N: 22

Straw Poll # 16

If an interim meeting is held in the San Jose bay area on April 18-19, I would attend it

Y: 57
N: 15

Straw Poll # 17

I support an interim meeting in Albuquerque on April 21-22 starting Sunday afternoon

Y: 12
N: 24

Straw Poll # 18
If an interim meeting is held in Albuquerque on April 21-22, I would attend it
Y: 23
N: 10

Straw Poll # 19
I support a face to face ad-hoc for single-mode fiber
Y: 6
N: 21

The Chair asked if there were further motions or straw polls. Seeing none, the Chair adjourned the meeting.

IEEE 802.3bm January 2013 Interim meeting attendance list

Last Name	First Name	Affiliation	22-Jan	23-Jan
Abbas	Ghani	Ericsson	Y	Y
Anderson	Jon	Oclaro	Y	Y
Anslow	Pete	Ciena	Y	Y
Bates	Stephen	PMC-Sierra	Y	Y
Ben-Artsi	Lia	Marvell		Y
Bergey	Chris	Luxtera	Y	Y
Bhatt	Vipul	Cisco	Y	Y
Bhoja	Sudeep	Inphi	Y	
Bower	Patricia	Fujitsu Semiconductor	Y	Y
Braun	Ralf-Peter	Deutsche Telekom	Y	Y
Chang	Xin	Huawei	Y	Y
Cole	Chris	Finisar	Y	Y
Conroy	Keith	Multi-Phy	Y	Y
Cui	Kai	Huawei	Y	Y
Dawe	Piers	IPtronics	Y	Y
Dedic	Ian	Fujitsu Semiconductor	Y	Y
Diab	Wael	Broadcom	Y	Y
Farhood	Arash	Cortina Systems	Y	Y
Ghiasi	Ali	Broadcom	Y	Y
Gustlin	Mark	XILINX	Y	Y
Hall	Eric	Aurrion	Y	Y
Hamano	Hiroshi	Fujitsu Labs	Y	Y
Ichiro	Ogura	PETRA	Y	Y
Isono	Hideki	Fujitsu Optical Components	Y	Y
Issenhuth	Tom	Microsoft	Y	Y
Jackson	Kenneth	Sumitomo	Y	Y
Jewell	Jack	Independent	Y	Y
Jiang	Wenbin	Cosemi	Y	Y
Katsuhisa	Tawa	Sumitomo Electric	Y	Y
King	Jonathan	Finisar	Y	Y
Kipp	Scott	Brocade	Y	Y
Kojima	Keisuke	Mitsubishi Electric	Y	Y
Kolesar	Paul	Commscope	Y	Y
Kono	Masahi	Hitachi		Y
Latchman	Ryan	Mindspeed	Y	
Law	David	HP	Y	Y
LeCheminant	Greg	Agilent Technologies	Y	Y
Lewis	Dave	JDSU	Y	Y

Li	Mike	Altera	Y	Y
Lingle	Robert	OFS	Y	Y
Little	Paul	Fujitsu Semiconductor	Y	Y
Liu	Hai-Feng	Intel	Y	
Lucas	Rob	Bandwidth IO	Y	Y
Lutz	Sharon	US Conec Ltd	Y	Y
Lyubomirsky	Ilya	Finisar	Y	Y
Maki	Jeffery	Juniper	Y	Y
Martin	Arlon	Kotura	Y	Y
McDonough	John	NEC America	Y	Y
Menachem	Abraham	Multi-Phy	Y	Y
Mohajeri	Hessam	Ensphere Solutions	Y	Y
Murray	Dale	Lightcounting	Y	Y
Muth	Karl	Texas Instruments	Y	Y
Nicholl	Gary	Cisco	Y	Y
Nielson	Torben	Acacia Communications	Y	Y
Nobuhiko	Kikuchi	Hitachi Ltd	Y	Y
Nolan	John	Qlogic	Y	
Nowell	Mark	Cisco	Y	Y
Ofelt	David	Juniper	Y	
Palkert	Tom	Xilinx, Molex, Luxtera	Y	Y
Patel	Neel	ClariPhy	Y	
Perrie	Randy	Onechip Photonics	Y	Y
Petrilla	John	Avago Technologies	Y	Y
Rabinovich	Rick	Alcatel Lucent	Y	Y
Ressl	Michael	Hitachi Cable America	Y	Y
Salunke	Vineet	Cisco	Y	Y
Shen	Tek-Ming	Huawei Technologies	Y	Y
Sheth	Siddharth	INPHI	Y	Y
Shrikhande	Kapil	Dell	Y	Y
Smith	Brad	OPSIS, U. Delaware	Y	
Song	Xiaolu	Huawei	Y	Y
Sparacin	Daniel	Aurrion	Y	
Sprague	Ted	Infinera	Y	Y
Stassar	Peter	Huawei	Y	Y
Stevens	Daniel	Fujitsu Semiconductor Europe	Y	Y
Sugawara	Toshiki	Hitachi	Y	
Swanson	Steve	Corning Inc	Y	Y
Swenson	Norman	Clariphy	Y	Y
Szczepanek	Andre	Inphi	Y	Y
Tajima	Akio	NEC Corporation		Y
Takahata	Kiyoto	NTT	Y	Y

Tanaka	Toshiki	Fujitsu Laboratories	Y	Y
Teipen	Brian	ADVA Optical	Y	Y
Theodoros	Jim	Adva Optical Networking	Y	Y
Tomoo	Takahara	Fujitsu Lab	Y	Y
Tooyserkani	Pirooz	Cisco	Y	Y
Tremblay	David	HP	Y	
Tremblay	Francois	Semtech	Y	Y
Trowbridge	Steve	Alcatel Lucent	Y	Y
Ulrichs	Ed	Sourcephotonics	Y	Y
Vishwanath	Sriram	Agilux Systems	Y	
Vlasov	Yuri	IBM	Y	Y
Wang	Zhongfeng	Broadcom	Y	Y
Warland	Tim	Applied Micro	Y	Y
Warren	David	HP	Y	Y
Way	Winston	Neophotonics	Y	Y
Weirich	Andy	OneChip Photonics	Y	Y
Welch	Brian	Luxtera	Y	Y
Wong	CK	FCI Mergeoptics	Y	Y
Xi	Huang	Huawei		Y
Xu	Yu	Huawei	Y	Y
Xueyan	Zheng	Huawei	Y	
Yurko	Garoid	TE Connectivity	Y	Y
Zeng	Li	Huawei	Y	Y