Unconfirmed Meeting Minutes: IEEE P802.3bp 1000BASE-T1 Task Force
November 4-6, 2014
San Antonio

Prepared by Brett McClellan

IEEE P802.3bp 1000BASE-T1 Task Force meeting convened at 08:00 AM, Tuesday, November 4, 2014 by Steven B. Carlson, 802.3bp Task Force Chair.

Attendance is listed in Appendix A

ADMINISTRATIVE MATTERS
Presentation: http://www.ieee802.org/3/bp/public/nov14/agenda_3bp_1114.pdf
Presenter: Steven B. Carlson, Chair.

Appointment of Recording Secretary – Brett McClellan, Marvell
The Chair called for introductions and affiliations, and participants introduced themselves.
The Chair reviewed the agenda.

Motion #1:   **Move to accept the agenda.**

M: Mehmet Tazebay   S:Brett McClellan
Approved by voice vote without objection (Procedural > 50%)

Motion #2:   Approve the minutes from the September 2014 meeting
(http://www.ieee802.org/3/bp/public/sep14/minutesu_3bp_0914.pdf)

M: Mehmet Tazebay   S:Sasha Babenko
Approved by voice vote without objection (Procedural > 50%)

Task Force Decorum slide was shown. Chair asked if persons from the press are in the room: No press in the room recognized.
The Chair reviewed the goals for the meeting, access to the reflector and website, and ground rules.
Attendance: Chair advised the group of the IEEE meeting attendance tool and procedures, including both the attendance sheet and the web attendance tracking tool.
IEEE Patent Policy: At 8:11 the Chair showed slides 0 to 4 patent policy from agenda_3bp_1114.pdf.
Chair read aloud slides from 1 through 4. Chair made the call for potentially essential patents at 8:13 AM with no response.
The Chair then continued review of the presentation, including overview of the IEEE standards organization and the standards development process.
The Chair noted that we may need an additional interim after January to prepare a working group draft for March.

PRESENTATIONS

The Chair then moved to the presentations for the meeting.

Title: Clarifications of PCS 80B/81B Control Block for 1000BASE-T1
(http://www.ieee802.org/3/bp/public/nov14/chen_3bp_01_1114.pdf)
Abstract: Proposed clarifications to 80/81 block code for cases not currently defined.
Presenter: Steven Chen, Broadcom
Discussion: no questions

Title: Generator polynomials for 1000BASE-T1 FEC
(http://www.ieee802.org/3/bp/public/nov14/shen_3bp_01_1114.pdf)
Abstract: Proposed specific generator polynomial for the baseline RS (450,406) FEC.
Presenter: BZ Shen, Broadcom
Discussion: BZ proposed a motion, Chair asked to hold motions until Thursday.

Title: FEC and PAM3 mapping for 1000BASE_T1_D3
(http://www.ieee802.org/3/bp/public/nov14/shen_3bp_02_1114.pdf)
Abstract: Text for proposed generator polynomial for the baseline RS (450,406) FEC.
Presenter: BZ Shen, Broadcom
Discussion: Steve commented on general text proposals, adopt the baseline and handle word-smithing in draft review.

Title: Proposal for an OAM channel v.0.1
(http://www.ieee802.org/3/bp/public/nov14/Matheus_3bp_01_1114.pdf)
Abstract: OEMs would like to use the reserved 9-bit OAM field for diagnostics, network control.
Presenter: Kirsten Matheus, BMW
Discussion: Steve – there is no objective for OAM, but could be a feature, Task force needs to decide whether to tackle this given large work already in progress. William supports generally, would like specific requirements on bytes and latency. Mehmet supports with similar comments. Steve indicated this should be handled by the PHY ad hoc.

Title: PCS Transmit and Receive Bit Ordering for 1000BASE-T1
(http://www.ieee802.org/3/bp/public/nov14/tu_3bp_01_1114.pdf)
Abstract: Proposal for data mode scrambler and transmit bit order.
Presenter: Mike Tu, Broadcom
Discussion:

Title: PAM2 Training States and InfoField for 1000BASE-T1
(http://www.ieee802.org/3/bp/public/nov14/tu_3bp_02b_1114.pdf)
Abstract: .Proposal for training sequence and definition for training infofield.
Presenter: Mike Tu, Broadcom
Discussion: .

Title: Training & EEE Baseline Proposal
(http://www.ieee802.org/3/bp/public/nov14/Lo_3bp_01b_1114.pdf)
Abstract: Proposed a single 15-bit sidestream scrambler LFSR for both training and data that is synchronized during training,
Presenter: William Lo, Marvell
Discussion: Question-asked about the transition process from PAM2 to PAM3.

Title: EEE Update for 1000BASE-T1
                (http://www.ieee802.org/3/bp/public/nov14/graba_3bp_01a_1114.pdf   )
Abstract: Proposed updated EEE parameters, passing OAM in refresh, and a EEE refresh monitor
Presenter: Jim Graba, Broadcom
Discussion:

Title: SEND_S Signaling for 1000BASE-T1 Initial Synchronization
                (http://www.ieee802.org/3/bp/public/nov14/wang_3bp_01_1114.pdf   )
Abstract: proposed Master/Slave synchronization when auto-negotiation is not used, presented
                specific signaling scheme,
Presenter: Mehmet Tazebay, Broadcom
Discussion:

Title: Summary of Proposed PCS Baseline Text
                (http://www.ieee802.org/3/bp/public/nov14/McClellan_3bp_04_1114_proposed_PCS_text_summary.pdf   )
Abstract: Summarized 97.3 Physical Coding Sublayer (PCS) Proposed Baseline Text
                (http://www.ieee802.org/3/bp/public/nov14/mcclellan_3bp_02_1114_8023bp_proposed_PCS_text_5.pdf),
Presenter: Brett McClellan, Marvell
Discussion:

Called break from 10:05 to 10:20

Title: Improvements on DME-based Autoneg Signaling
                (http://www.ieee802.org/3/bp/public/nov14/cordaro_3bp_01_1114.pdf   )
Abstract: Proposed change of DME T3 to 45ns, and change start delimiter to a 26-bit Golay
                sequence.
Presenter: Mike Tu, Broadcom
Discussion: Questions about the selection of 45ns and performance.

Title: Auto-Negotiation Baseline Proposal
                (http://www.ieee802.org/3/bp/public/nov14/McClellan_3bp_01a_1114.pdf)
Abstract: Proposed change of DME T3 to 30ns, and change start delimiter to a 32-bit PRBS
                sequence. Referred to P802.3bp 1000BASE-T1 Auto-Negotiation on Single Twisted Pair
                Baseline Text Proposal
                (http://www.ieee802.org/3/bp/public/nov14/mcclellan_3bp_03_1114_%20Autoneg_baseline_text_proposal_v0p4.pdf),
Presenter: Brett McClellan, Marvell
Discussion: Questions on how to generate DME signal from 750MHz clock and performance vs
                narrow band interference.

Title: TX distortion measurement and limit for 1000BASE-T1
                (http://www.ieee802.org/3/bp/public/nov14/chini_3bp_01_1114.pdf   )
Abstract: Proposal for test mode, procedure and limits for transmit distortion.
Presenter: Ahmad Chini, Broadcom
Discussion: Question about proposed test vs 1000BASE-T and 10GBASE-T and requirement for
                testing across phases.

Title: Design Challenges for PoDL Coupling Circuit in 100BASE-T1 and 1000BASE-T1
                (http://www.ieee802.org/3/bp/public/nov14/chini_3bp_02_1114.pdf   )
Abstract: Overview on how system requirements affect PoDL inductors size, cost and feasibility
Presenter: Ahmad Chini, Broadcom
Discussion: Question: can the inductor get bigger in Z direction? Typically height is limited by size of
                width.

Break for lunch 11:49
PHY ad hoc will meet at 3:30.
Task force will reconvene at 1:15 PM for comment resolution.

Task force reconvened at 1:15 PM for comment resolution. Comment resolution finished at 2:45 PM.

MEETING RECESSED TO RESUME AT 8AM THURSDAY

THE MEETING RECONVENED THURSDAY NOVEMBER 6, 2014 AT 8:00 AM
Called to order at 8:10
The chair noted that attendance goes live at 1PM and sent out the sign in sheet.
The chair thanked the PHY ad hoc for the significant progress on Wednesday.

8:16 Start of Motions

Motion 3
Move that the IEEE P802.3bp Task Force adopt 9-bit field generator polynomial and (450, 406) RS code generator polynomial as defined on Page 2 and page 3 respectively in shen_3bp_01_1114.pdf for 1000BASE-T1 FEC
M: BZ Shen   S: William Lo
No discussion
All participants in the room
Y:30   N: 0   A:3
802.3 voters only (technical: 75% is required)
Y:20   N: 0   A:4
MOTION PASSES

Motion 4
Move that the IEEE P802.3bp Task Force adopt the first paragraph as shown in page 9 of chen_3bp_01_1114.pdf to the PCS 80B/81B Encoder.
M: Steven Chen   S: William Lo
No discussion
All participants in the room
Y:28   N: 0   A:4
802.3 voters only (technical: 75% is required)
Y:20   N:0   A:4
MOTION PASSES

Motion 5
Move that the IEEE P802.3bp Task Force adopt the PAM2 training format as shown on page 5 of
tu_3bp_02b_1114.pdf
M: Mike Tu   S: William Lo
No discussion
All participants in the room
Y:28   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y:20   N: 0   A:5
MOTION PASSES

Motion 6   Move that the IEEE P802.3bp Task Force adopt the 96-bit InfoField format and valid
InfoField messages as shown on pages 7, 8, 9 of tu_3bp_02b_1114.pdf
M: Mike Tu   S: Zhenyu Liu
No discussion
All participants in the room
Y:30   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y:20   N: 0   A:5No discussion
MOTION PASSES

Motion 7   Move that the IEEE P802.3bp Task Force adopt the state transition rules as shown on
page 10 of tu_3bp_02b_1114.pdf
M: Mike Tu   S: Zhenyu Liu
No discussion
All participants in the room
Y: 28   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y: 20   N: 0   A:5
MOTION PASSES

Motion 8   Move that the IEEE P802.3bp Task Force adopt the additive data mode scrambler after
the RS encoder, shown as "Scrambler Option #2" on page 4 of tu_3bp_01_1114.pdf
M: Mike Tu   S: William Lo
Mike Tu found an error in the motion, the page number is wrong
MOTION WITHDRAWN.

Motion 9   Move that the IEEE P802.3bp Task Force adopt the additive data mode scrambler after the RS encoder, shown as "Scrambler Option #2" on page 7 of tu_3bp_01_1114.pdf
M: Mike Tu   S: William Lo
No discussion
All participants in the room
Y:26   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y:20   N: 0   A:5
MOTION PASSES

Motion 10   Move that the IEEE P802.3bp Task Force adopt diagrams shown on page 9, 10, 11, 12 of tu_3bp_01_1114.pdf into the corresponding PCS subclauses.
M: Mike Tu   S: Brett McClellan
No discussion
All participants in the room
Y:28   N: 0   A:4
802.3 voters only (technical: 75% is required)
Y:19   N: 0   A:4
MOTION PASSES

Motion 11   Move that the IEEE P802.3bp Task Force adopt the following text: The receiver shall force a retrain if Refresh is unreliably detected within a moving window of 50 Q/R cycles (4.32ms).
M: Mehmet Tazebay   S: William Lo
No discussion
All participants in the room
Y: 27   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y: 20   N: 0   A:5
MOTION PASSES

Motion 12   Move that the IEEE P802.3bp Task Force adopt a 1 second delay between the end of training and the start of LPI mode as detailed in graba_3bp_01a_1114.pdf (page #7).
M: Mehmet Tazebay   S: Mandeep Chadha
No discussion
All in room
Y: 25   N: 0   A: 5
802.3 voters only (technical: 75% is required)
Y: 18   N: 0   A: 5
MOTION PASSES

Motion 13   Move that the IEEE P802.3bp Task Force adopt TX distortion measurement method and test limit for 1000BASE-T1 as defined in chini_3bp_01_1114.pdf
M: Ahmad Chini   S: Shaoan Dai
No discussion
All participants in the room
Y: 28   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y: 18   N: 0   A:4
MOTION PASSES

Motion 14 Move that the IEEE P802.3bp Task Force adopt scrambler polynomials
Master Scrambler Polynomial : $X^{15}+X^{4}+1$
Slave Scrambler Polynomial : $X^{15}+X^{11}+1$
during data mode and EEE mode as defined in chini_3bp_01a_0914.pdf (page #9)
M: Ahmad Chini   S: William Lo
No discussion
All participants in the room
Y: 26   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y: 20   N: 0   A:4
MOTION PASSES

Motion 15 Move that the IEEE P802.3bp Task Force adopt PHY synchronization baseline proposal
with timing parameters, SEND_S signaling, Master & Slave Synchronization state
machines (wang_3bp_01a_1114.pdf [pages 3, 6, 9 and 10]) for the case of Auto-
negotiation being bypassed.
M: Mehmet Tazebay   S: Kirsten Matheus
No discussion
All participants in the room
Y: 27   N: 0   A:4
802.3 voters only (technical: 75% is required)
Y: 20   N: 0   A:5
MOTION PASSES

Motion 16 Move that the IEEE P802.3bp Task Force adopt DME as the underlying signaling for
autoneg timing parameters (McClellan_3bp_01a_1114.pdf page 12) and the Golay-26
preamble (cordaro_3bp_01_1114.pdf page 9)
M: Brett McClellan   S: Mike Tu
No discussion
All participants in the room
Y: 26   N: 0   A:5
802.3 voters only (technical: 75% is required)
Y: 21   N: 0   A:4
MOTION PASSES

Motion 17 Move that the 802.3bp Task Force adopt the proposed baseline autonegotiation text in
mcclellan_3bp_03_1114_ Autoneg_baseline_text_proposal_v0p4.pdf subject to changes
by the approved motions of this Task Force.
M: Brett McClellan   S: Mehmet Tazebay
No discussion
All participants in the room
Y: 28   N: 0   A:4
802.3 voters only (technical: 75% is required)
Y: 20   N: 0   A:5
MOTION PASSES

Motion 18 Move that the IEEE P802.3bp Task Force adopt OAM (operation, administration,
management) channel definition as described in Matheus_3bp_01_1114.pdf
M: Kirsten Matheus   S: Efstathios Larios
No discussion
All participants in the room
Y: 29   N: 0   A: 5
802.3 voters only (technical: 75% is required)
Y: 23   N: 0   A:5
MOTION PASSES

Motion 19   Move that the 802.3bp Task Force adopt the proposed baseline PCS text in mcclellan_3bp_02_1114_8023bp_proposed_PCS_text_5.pdf subject to changes by the approved motions of this Task Force.

M: Brett McClellan   S: Mehmet Tazebay
No discussion
All participants in the room
- **Y: 28   N: 0   A:4**

802.3 voters only (technical: 75% is required)
- **Y: 24   N: 0   A:4**

MOTION PASSES

Title: Training & EEE Baseline
              (http://www.ieee802.org/3/bp/public/nov14/Lo_3bp_02a_1114.pdf   )
Abstract: Reviewed changes in presentation in preparation for motion 20. Change to bit order in transmit slide 4. Slide 10 moved descrambler before FEC decoder.
Presenter: William Lo, Marvell
Discussion: .

Motion 20   Move that the IEEE P802.3bp Task Force adopt the training and EEE framework as defined by Lo_3bp_02a_1114.pdf pages 2 to 11.

M: William Lo S: Mandeep Chadha
No discussion
All participants in the room
Y: 30   N: 0   A:3
802.3 voters only (technical: 75% is required)
Y: 24   N: 0   A:2
MOTION PASSES

Motion 21   The IEEE P802.3bp 1000BASE-T1 Task Force accept the comment resolutions to D1.0 as detailed in http://www.ieee802.org/3/bp/comments/8023bp_D10_approved.pdf along with the results of motions accepted at the November 2014 Task Force meeting and charter the editor to produce D1.1 for review and comment**.**

 M: McClellan   S: Tazebay
 No discussion
All participants in the room
Y: 32   N: 0   A:2
802.3 voters only (technical: 75% is required)
Y:29   N: 0   A:1
MOTION PASSES
Passed/Fail Timestamp   9:01 AM

Motion 22   The IEEE P802.3bp 1000BASE-T1 Task Force hold an out-of-cycle interim (to be co-located with IEEE P802.3bw) the week of February 9, 2015, for the purpose of advancing the drafts, hosted by Freescale in Austin, TX.

 M: Mandeep Chadha   S: Tazebay
 Procedural (>50%)
 All participants in the room
Y: 31   N: 0   A:9
802.3 voters only (technical: 75% is required)
Y:23   N: 0   A:8
MOTION PASSES
Passed/Fail Timestamp   9:03 AM

End of motions

The chair informed the task force that there was a late request for presentation related to the 40 meter optional link segment. The chair asked if there was any opposition to hearing this presentation. There was no opposition.

Title: **Industrial Automation Ethernet Usage**
                 (http://www.ieee802.org/3/bp/public/nov14/brandt_3bp_01a_1114.pdf)
Abstract: Overview of applications and characteristics of Ethernet in Industrial Automation
Presenter: **David Brandt, Rockwell Automation**
Discussion: .Chris Diminico commented on the work started in TIA for industrial application. There was discussion about why single pair is needed for the industrial application. The desire is for unused pairs to supply power.
The presentation ended at 9:33

OTHER ADMINISTRATIVE BUSINESS
The chair noted that the task force will resume at the Interim meeting starting January 12th.

ADJOURNMENT
Motion #23: Move to adjourn the meeting.
M: Brett McClellan S: Mehmet Tazebay
MOTION PASSES by voice without opposition
The Meeting was adjourned at 9:40 AM, Thursday, November 6, 2014.

Appendix A - Attendance

P802.3bp Task Force Sign-In Sheet — November 2014

Name	Company	Affiliation	T	W	Th
Brett McClellan	Marvell	Marvell	✓		BM
WILLIAM Lo	MARVELL	MARVELL	✓		
Natalie Wienckowski	GM	GM	Naw		Naw
Kirsten Mathes	BMW	BMW	KC		KC
BZ Shen	Broadcom	Broadcom	BZS		BZS
Victor Berglund	Vitesse	Vitesse	VPB		VPB
Alex Tan	Marvell	Marvell	✓		AT
XIAOFENG WANG	Qualcomm	Qualcomm	XFW		XFW
SUJAN PANDEY	NXP	NXP	SP		SP
ALON REGEV	IXIA	IXIA	AR		AR
SEYED HAMIDI	Broadcom	Broadcom	S.H		S.H
Ahmad chini	Broadcom	Broadcom	A.ch.		A.ch
Mehmet Tazebo	Broadcom	Broadcom	W.	HSS	✓
HENRY MUYSHONDT	MICROCHIP	MICROCHIP	JEM		
Yencheng (Steven) Chen	Broadcom	Broadcom	S.C		S.C
Mike Tu	Broadcom	Broadcom	M		M
Dale Amason	Freescale	Freescale	DA		DA
James Malkemus	General Cable	General Cable	JM		
EFSTATHIOS LARIOS	JAGUAR LAND ROVER	JAGUAR LAND ROVER	EL		EL
Sasha Babenko	Molex	Molex	SB		SB
LARRY MATOLA	DELPHI	DELPHI	LFM		LFM
Theo Brillhart	Fluke	Fluke	TB		
Zhenyu Liu	Marvell	Marvell	ZL		ZL
Shaoan Dai	Marvell	Marvell	SD		SD
Larry Yonge	Qualcomm	Qualcomm	LY		

P802.3bp Task Force Sign-In Sheet _November 2014_

Name	Company	Affiliation	T	W	Th
DAVID BRANDT	ROCKWELL AUTOMATION	ROCKWELL AUTOMATION	DCB		PCM
MANDEEP CHADHA	VITESSE	VITESSE	AM		AM
STEVE CARLSON	HSD	BRCM/MARVELL HUAWE	SC		SC
Jim Graba	Broadcom	Broadcom	JG		
DAVE DWELLEY	LTC	LTC	DWD		
Benson Huang	Realtek	Realtek	lw		lw
Neven Pischl	Broadcom	Broadcom	NP		
Antony Joseph	NXP	NXP	AJ		
THUYEN DINH	PULSE	PULSE	TM		
Shadi AbuGhazaleh	Hubbell	Hubbell			SAb
Peter Wu	Marvell	Marvell			Dew
Curtis Donahue	UNH-IOL	UNH-IOL			CKD
BRYAN SPARROWHAWK	LEVITON	LEVITON			TS
Tom Souvignier	BROADCOM	BROADCOM			
Alex Tan	Marvell	Marvell			
Alex Seig V	UNH-IOL	UNH-IOL			AWS
Mike Klempa	UNH IOL	UNH IOL			MIC
GARY YURKO	TE	TE	gary		gary
Tom Brown	Vitesse	Vitesse			TKB
CHRIS DIMINICO	MC COMM/PANDUIT MC COMMUNICA	PANDUIT			C.D.
Radhakrishna Canchi	Kyocera	Kyocera			CW