P802.3dj Draft 0.2
Chief Editor's Report

Matt Brown, Alphawave, P802.3dj Editor-In-Chief
Gary Nicholl, Cisco, Logic Track Lead Editor
Adee Ran, Cisco, Electrical Track Lead Editor
Tom Issenhuth, Huawei, Optical Track Lead Editor

IEEE P802.3dj Task Force

March 2024

Introduction

- Introduce complete IEEE 802.3dj editorial team
- Summarize draft structure
  - updated since D0.2
- Summarize baseline status
- Summarize significant specification gaps

Editorial Team

Editor	Duties
Matt Brown	Chief Editor, clause editor FM, 1, 69, 116, 120, 169, 174
Gary Nicholl	Logic lead editor; clause editor 118, 119, 170, 171
Adee Ran	Electrical lead editor; clause editor 120F, 120G, 176E (C2M), 179 (xBASE-CR)
Tom Issenhuth	Optical lead editor, 185 (800GBASE-LR1), 187 (800GBASE-ER1)
Arthur Marris	Clause editor 4, 4A, 30, 31B, 45, 73, 73A, 90, 90A
Eugene Opsasnick	Clause editor 175 (1.6TBASE-R PCS)
Kapil Shrikhande	Clause editor 176 (xBASE-R SM-PMA)
Xiang He	Clause editor 177 (xBASE-R Inner FEC)
Leon Bruckman	Clause editor 184 (800GBASE-LR1 Inner FEC), 176A (electrical link training)
Jeff Slavick	Logic advisor/reviewer
Howard Heck	Clause editor 178 (xBASE-KR), 176D (C2M)
Chris Diminico	Clause editor 179 (xBASE-CR cable assembly), 179A/B/C/D
Adam Healey	Clause editor 178A (COM redux)
Mike Dudek	Electrical advisor/reviewer
Tom Huber	Clause editor 186 (800GBASE-ER1 PCS/PMA)
Peter Stassar	Clause editor 180 (DR PMDs), 181 (FR-500 PMD), 182 (DR-2 PMDs)
Roberto Rodes	Clause editor 183 (FR4/LR4 PMDs)
John Johnson	Optical advisor/reviewer

Draft 0.2 Overview

- Members of the editorial team contributed Draft 0.2 as a prelude to Draft 1.0 based on the baselines adopted thus far.
- The draft is a work in progress.
- A separate presentation is provided to discuss some of the architecture considerations made by the editorial team.

List of D0.2 reviewers (in addition to editorial team)

We would like to recognize following individuals outside of the editorial team who provided review feedback on the draft prior to posting:

- Arnon Loewenthal, Alphawave
- Nir Sheffi, Alphawave
- Omri Levey, Alphawave
- Shawn Nicholl, AMD
- Brian Welch, Cisco
- Bernd Huebner, Cisco
- Lenin Patra, Marvell
- Mike Dudek, Marvell
- Zvi Rechtman, Nvidia

Draft structure and baseline status

Legacy clauses to amend (part 1)

Clause #	Clause title	Baseline status	Notes
FM	Front matter	N/A	new front matter
1	Definitions, abbreviations,etc.	N/A	new defs., abbrs., etc.
4	MAC	Complete	Add 1.6T
4A	Simplified full duplex media access control	Complete	Add 1.6T
30	Management Objects	N/A	New content for 200G, 400G, 800G, and 1.6T
31B	MAC Control PAUSE operation	Complete	new content for 1.6T
45	MDIO	N/A	New content for 200G, 400G, 800G, and 1.6T
69	Backplane	Complete	New content for 200G, 400G, 800G, and 1.6T
73	AN	Complete	New content for 200G, 400G, 800G, and 1.6T
73A	AN message codes	Complete	New content for 200G, 400G, 800G, and 1.6T
90	Ethernet time synchronization	Complete	New content for 1.6T
90A	Ethernet time synchronization timestamp accuracy	Complete	New content for 1.6T

Legacy clauses/annexes to amend (part 2)

Clause #	Clause title	Baseline status	Notes
116	400GE/200GE introduction	N/A	add new 200G and 400G PHY types and sublayers
118	200G/400G extender, XS	Complete	add new 200GAUI-1, 400GAUI-2, symbol-mux PMA
119	200G/400G PCS	Complete	add stateless encoder/decoder for 200 Gb/s PHYs
120F	100GAUI-1, 200GAUI-2, 400GAUI-4, 800GAUI-8 C2C	Complete	add 1.6TAUI-16
120G	100GAUI-1, 200GAUI-2, 400GAUI-4, 800GAUI-8 C2M	Complete	add 1.6TAUI-16
169	Introduction to 800GE	N/A	add new 800G PHY types and sublayers
170	800G RS, MII	Complete	add 1.6T RS and 1.6TMII
171	800G MII extender, XS	Complete	add 1.6T extender and XS, 800GAUI-4, 1.6TAUI-16/8

New clauses/annexes (part 1)

Clause #	Clause title	Baseline status	Notes
174	Introduction to 1.6 Tb/s Ethernet	N/A	
174A	Error ratio specifications	Incomplete	
175	1.6TBASE-R PCS	Complete	
176	200G/400G/800G/1.6TBASE-R SM-PMA	Complete	
176A	Control function and start-up protocol for KR, CR, C2C, C2M	Incomplete	
176B	PMA instantiation options	Complete	
176C	200G/400G/800G/1.6TBASE-R SM-PMA coding examples	Incomplete	
176D	200GAUI-1, 400GAUI-2, 800GAUI-4, 1.6TAUI-8 C2C	Partial	
176E	200GAUI-1, 400GAUI-2, 800GAUI-4, 1.6TAUI-8 C2M	Partial	
177	200G/400G/800G/1.6TBASE-R Inner FEC	Complete	
178	200G/400G/800G/1.6TBASE-KR1/2/4/8 PMD	Partial	
178A	New COM methodology	Partial	
179	200G/400G/800G/1.6TBASE-CR1/2/4/8 PMD	Partial	
179A	200G/400G/800G/1.6TBASE-CR1/2/4/8 test points, budget, etc.	Partial	
179B	200G/400G/800G/1.6TBASE-CR1/2/4/8 test fixtures	Partial	
179C	200G/400G/800G/1.6TBASE-CR1/2/4/8 MDIs	Incomplete	
179D	200G/400G/800G/1.6TBASE-CR1/2/4/8 form factors	Incomplete	

New clauses/annexes (part 2)

Clause #	Clause title	Baseline status	Notes
180	200G/400G/800G/1.6TBASE-DR1/2/4/8 PMD	Complete	
181	800GBASE-FR4-500 PMD	Complete	
182	200G/400G/800G/1.6TBASE-FR1/DR2-2/DR4-2/DR8-2 PMD	Complete	
183	800GBASE-FR4/LR4 PMD	Complete	
184	800GBASE-LR1 Inner FEC (BCH)	Complete	
184A	800GBASE-LR1 Inner FEC coding examples	Incomplete	
185	800GBASE-LR1 PMD (coherent)	Complete	
186	800GBASE-ER1 PCS/PMA (oFEC)	Complete	
186A	800GBASE-ER1 PCS/PMA coding examples	Incomplete	
187	800GBASE-ER1 PMD (coherent)	Complete	20 km PMD may go here as well

New clauses/annexes (part 3)

Clause #	Clause title	Baseline status	Notes
annex	optical link training (if adopted)	Incomplete	common annex for multiple optical PMDs
annex	optical auto-negotiation (if adopted)	Incomplete	common annex for multiple optical PMDs

Baseline deficit

- To address the adopted objectives, we need the following:
    - Full set of parameters for KR/CR PMDs and AUIs
    - Measurement methodology for AUI-C2M
    - Link training for KR, CR, C2C, C2M
    - COM updates
    - Full baseline for 20 km SMF PMD
- Other features being discussed:
    - Optical link training
    - Optical auto-negotiation

Logic specification gaps

- Time synchronization accuracy in PTP networks (Clause 186 ?)
  - related to the MOPA liaison letter
- Encoding examples for 1.6TBASE-R PCS (Clause 175)
- Encoding examples for xBASE-R SM-PMA (Clause 176)
- Encoding examples for 800GBASE-LR1 Inner FEC (Clause 184)
- Encoding examples for 800GBASE-ER1 Inner FEC (Clause 186)

Electrical gaps

- CR: Host channel model and parameters for each host designations; Corresponding Tx parameters (R_{peak}, ERL…)
- CR/KR: test channel parameters for receiver tolerance tests
- Requirements for receiver tests - SER? BER? Other?
- C2M: module package model
- COM parameter values and corresponding Tx parameters (partial baselines adopted)
- MLSE implementation penalty
- Accounting for test fixture variations

Optical gaps

- Two-lane optical MDI
- 200G PAM4 reference receiver definition
- Transmitter quality metric for LR1 and ER1
    - EVM, TCC or something else

Other specification gaps

- FLR/BER specification methodologies

Summary

- Editorial team is introduced.
- Draft 0.2 was provided by the editorial team as a contribution.
- Structure and content for 802.3dj Draft 0.2 is summarized.
- Baseline status summarized
  - Some areas requiring baselines
- Specification gaps summarized

Thanks!