

# IEEE 802.3 Liaison Report

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# IEEE 802.3 Standards in Force

- The current version in force is IEEE Std 802.3-2018!
  - This incorporates 802.3bw, 802.3bp, 802.3bq, 802.3br, 802.3by, 802.3bz, 802.3bn, 802.3bu, 802.3bv, 802.3bs, 802.3cc, and Corrigendum 1.

## IEEE 802.3 Projects, Study Groups, CFIs

### ~~802.3 Revision Project (P802.3)~~

- P802.3bt DTE Power via MDI over 4-Pair Task Force
- P802.3ca 25 Gb/s, 50 Gb/s, and 100 Gb/s Ethernet Passive Optical Networks Task Force
- P802.3cb 2.5 Gb/s and 5 Gb/s Backplane and Copper Cables Task Force
- P802.3cd 50 Gb/s, 100 Gb/s, and 200 Gb/s Ethernet Task Force
- P802.3cf (802.3.2) YANG Data Models Task Force
- P802.3cg 10 Mb/s Single Balanced Pair Ethernet Task Force
- P802.3ch Multi-Gig Automotive PHY Task Force
- P802.3ck 100 Gb/s per Lane Electrical Task Force
- P802.3cm Next Generation 400 Gb/s Ethernet over Multimode Fiber Task Force
- **P802.3cn** Beyond 10km Optical PHYs Task Force\*
- Bidirectional 10 Gb/s, ~~and~~ 25 Gb/s, **and 50 Gb/s** Optical Access PHYs Study Group
- **Ethernet Access PMDs for Central Office Consolidation Study Group**
- Next Generation Ethernet Applications Ad Hoc

# P802.3cd 50 Gb/s, 100 Gb/s, and 200 Gb/s Ethernet Task Force

- 13<sup>th</sup> Task Force meeting 22-23 May 2018, Pittsburgh, PA
  - Meeting Materials: <http://www.ieee802.org/3/cd/public/May18/>
  - Meeting Minutes: [http://www.ieee802.org/3/cd/public/May18/minutes\\_3cd\\_0518\\_unapproved.pdf](http://www.ieee802.org/3/cd/public/May18/minutes_3cd_0518_unapproved.pdf)
- 14<sup>th</sup> Task Force meeting 9-10 July 2018, San Diego, CA
  - Meeting Materials: <http://www.ieee802.org/3/cd/public/July18/>
  - Meeting Minutes: [http://www.ieee802.org/3/cd/public/July18/minutes\\_3cd\\_0718\\_unapproved.pdf](http://www.ieee802.org/3/cd/public/July18/minutes_3cd_0718_unapproved.pdf)
- Resolved 61 comments against Draft 3.2 in Pittsburgh meeting and agreed to produce Draft 3.3 for sponsor ballot recirculation
- Resolved 46 comments against Draft 3.3 in San Diego meeting and agreed to produce Draft 3.4 for sponsor ballot recirculation
- Continued work on ERL and consequences of TDECQ changes is converging more slowly than hoped. Current expectation is to request conditional approval to go to RevCom in the September interim meeting, hoping for a “clean” recirculation of Draft 3.6

# P802.3cd Objectives – 1/3

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support optional Energy-Efficient Ethernet operation
- Provide appropriate support for OTN
- Support a MAC data rate of 50 Gb/s and 100 Gb/s
- Support a BER of better than or equal to  $10^{-12}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 50 Gb/s and 100 Gb/s operation
- Support a MAC data rate of 200 Gb/s
- Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) for 200 Gb/s operation

# P802.3cd Objectives – 2/3

## 50 Gb/s Ethernet PHYs

- Define single-lane 50 Gb/s PHYs for operation over
  - copper twin-axial cables with lengths up to at least 3m.
  - printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz.
  - MMF with lengths up to at least 100m
  - SMF with lengths up to at least 2km
  - SMF with lengths up to at least 10km

## 100 Gb/s Ethernet PHYs

- Define a two-lane 100 Gb/s PHY for operation over
  - Copper twin-axial cables with lengths up to at least 3m
  - Printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz
  - MMF with lengths up to at least 100m
- Define a single-lane 100 Gb/s PHY for operation over duplex SMF with lengths up to at least 500m, consistent with IEEE P802.3bs clause 124

# P802.3cd Objectives – 3/3

## 200 Gb/s Ethernet PHYs

- Define four-lane 200 Gb/s PHYs for operation over
  - copper twin-axial cables with lengths up to at least 3m.
  - printed circuit board backplane with a total channel insertion loss of  $\leq 30\text{dB}$  at 13.28125 GHz.
- Define a 200 Gb/s PHY for operation over MMF with lengths up to at least 100m

# P802.3ck 100 Gb/s per lane Electrical Task Force

- 1<sup>st</sup> Task Force meeting 24-25 May 2018, Pittsburgh, PA
  - Meeting Materials:  
[http://ieee802.org/3/ck/public/18\\_05/index.html](http://ieee802.org/3/ck/public/18_05/index.html)
  - Meeting Minutes:  
[http://ieee802.org/3/ck/public/18\\_05/minutes\\_3ck\\_0518\\_unapproved.pdf](http://ieee802.org/3/ck/public/18_05/minutes_3ck_0518_unapproved.pdf)
- 2<sup>nd</sup> Task Force meeting 11-12 July 2018, San Diego, CA
  - Meeting Materials:  
[http://ieee802.org/3/ck/public/18\\_07/index.html](http://ieee802.org/3/ck/public/18_07/index.html)
  - Meeting Minutes:  
[http://ieee802.org/3/ck/public/18\\_07/minutes\\_3ck\\_0718\\_unapproved.pdf](http://ieee802.org/3/ck/public/18_07/minutes_3ck_0718_unapproved.pdf)
- Numerous straw polls, action items assigned. Still in proposal selection phase



# P802.3ck 100 Gb/s per lane Electrical Task Force Adopted Objectives (1 of 2)

- Support a MAC data rate of 100 Gb/s, 200 Gb/s, and 400 Gb/s
- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support the existing bit error ratios (BERs) at the MAC/PLS service interface (or the frame loss ratio equivalent) for 100 Gb/s, 200 Gb/s, and 400 Gb/s Ethernet
- Define a single-lane 100 Gb/s Attachment Unit interface (AUI) for chip-to-module applications, compatible with PMDs based on 100 Gb/s per lane optical signaling
- Define a single-lane 100 Gb/s Attachment Unit Interface (AUI) for chip-to-chip applications
- Define a single-lane 100 Gb/s PHY for operation over electrical backplanes supporting an insertion loss  $\leq 28$  dB at 26.56 GHz.
- Define a single-lane 100 Gb/s PHY for operation over twin-axial copper cables with lengths up to at least 2m

# P802.3ck 100 Gb/s per lane Electrical Task Force

## Adopted Objectives (2 of 2)

- Define a two-lane 200 Gb/s Attachment Unit interface (AUI) for chip-to-module applications, compatible with PMDs based on 100 Gb/s per lane optical signaling
  - Define a two-lane 200 Gb/s Attachment Unit Interface (AUI) for chip-to-chip applications
  - Define a two-lane 200 Gb/s PHY for operation over electrical backplanes supporting an insertion loss  $\leq 28$  dB at 26.56 GHz.
  - Define a two-lane 200 Gb/s PHY for operation over twin-axial copper cables with lengths up to at least 2m
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- Define a four-lane 400 Gb/s Attachment Unit interface (AUI) for chip-to-module applications, compatible with PMDs based on 100 Gb/s per lane optical signaling
  - Define a four-lane 400 Gb/s Attachment Unit Interface (AUI) for chip-to-chip applications
  - Define a four-lane 400 Gb/s PHY for operation over electrical backplanes supporting an insertion loss  $\leq 28$  dB at 26.56 GHz.
  - Define a four-lane 400 Gb/s PHY for operation over twin-axial copper cables with lengths up to at least 2m

# P802.3cm – Next generation 400 Gb/s MMF PHYs Task Force

- 1<sup>st</sup> Task Force meeting 21 May 2018, Pittsburgh, PA
  - Meeting Materials:  
<http://www.ieee802.org/3/cm/public/May18/>
  - Meeting Minutes: Not yet posted
- 2<sup>nd</sup> Task Force meeting 10-11 July 2018, San Diego, CA
  - Meeting Materials:  
<http://www.ieee802.org/3/cm/public/July18/>
  - Meeting Minutes: **Not yet posted**
- Adopted baseline for 8-pair objective in Pittsburgh interim
- Adopted BiDi approach for 4-pair objective in San Diego plenary
- Discussed additional items needing clarification and editor's next steps to prepare Draft 0.x for discussion at September interim

## P802.3cm – Next generation 400 Gb/s MMF PHYs Task Force Adopted Objectives (1 of 2)

1. Support full-duplex operation only
2. Preserve the Ethernet frame format utilizing the Ethernet MAC
3. Preserve the minimum and Maximum FrameSize of the current Ethernet standard
4. Provide appropriate support for OTN
5. Specify optional Energy Efficient Ethernet (EEE) capability
6. Support a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent)
7. Support a MAC data rate of 400 Gb/s

## P802.3cm – Next generation 400 Gb/s MMF PHYs Task Force Adopted Objectives (2 of 2)

8. Define a physical layer specification that supports 400 Gb/s operation over 8 pairs of MMF with lengths up to at least 100m
9. Define a physical layer specification that supports 400 Gb/s operation over 4 pairs of MMF with lengths up to at least 100m

# Future IEEE 802.3 Meetings

Meeting	Location	Dates
IEEE 802.3 interim	Spokane, WA	10-14 September 2018
IEEE 802 plenary	Bangkok, Thailand	12-15 November 2018
IEEE 802.3 interim	Long Beach, CA	14-18 January 2019
IEEE 802 plenary	Vancouver, BC, Canada	11-14 March 2019
IEEE 802.3 interim	TBD	20-24 May 2019
IEEE 802 plenary	Vienna, Austria	15-18 July 2019
IEEE 802.3 interim	TBD	9-13 September 2019
IEEE 802 plenary	Waikoloa, HI	11-14 November 2019

Upcoming meeting details at: <http://ieee802.org/3/interims/index.html>