

# Baseline proposal for 800 GbE Electrical Interfaces and PMDs using 100 Gbps/lane signaling

Kent Lusted, Intel Corporation

Adee Ran, Cisco

Matt Brown, Huawei

Beth Kochuparambil, Cisco

v1p0a

# Adopted Physical Layer Objectives

This Presentation's Focus

Technology Reuse

Ethernet Rate	Assumed Signaling Rate	AUI	BP	Cu Cable	MMF 50m	MMF 100m	SMF 500m	SMF 2km	SMF 10km	SMF 40km
200 Gb/s	200 Gb/s	Over 1 lane		Over 1 pair			Over 1 Pair	Over 1 Pair		
400 Gb/s	200 Gb/s	Over 2 lanes		Over 2 pairs			Over 2 Pair			
800 Gb/s	100 Gb/s	Over 8 lanes	Over 8 lanes	Over 8 pairs						
	200 Gb/s	Over 4 lanes		Over 4 pairs			Over 4 pairs	1) Over 4 pairs 2) Over 4 $\lambda$ 's		
	TBD								Over single SMF in each direction	Over single SMF in each direction
1.6 Tb/s	100 Gb/s	Over 16 lanes								
	200 Gb/s	Over 8 lanes		Over 8 pairs			Over 8 pairs	Over 8 pairs		

Leverage existing or work-in-progress 100 Gb/s per lane (e.g. 3cu, 3ck, 3db) to higher lane counts

Develop 200 Gb/s per lane electrical signaling for 1/2/4/8 lane variants of AUIs and electrical PMDs

Develop 200 Gb/s per optical fiber for 1/2/4/8 fiber based optical PMDs and 4 lambda WDM optical PMD

Potential for either direct detect and / or coherent signaling technology

Making it all work together

[https://www.ieee802.org/3/B400G/public/21\\_1028/B400G\\_overview\\_c\\_211028.pdf](https://www.ieee802.org/3/B400G/public/21_1028/B400G_overview_c_211028.pdf)

# Key Points

- Expand in-development 53.125 GBd (each lane) signaling rate interfaces and PMDs to preserve consistency with prior Ethernet standards (e.g. IEEE P802.3ck)
- 800G-DR8 and 800G-DR8+ PMDs adopted from [welch 3df 01a 220222](#) set the optical signaling rate as 53.125 GBd
- Update/revision of specifications will be applied, where deemed appropriate

# 800GbE (8x100) - Backplane

- Backplane
  - Align to the latest version of IEEE P802.3ck Clause 163
    - Note: Signaling rate, each lane (range) = 53.125 GBd
  - With editorial license, update text, figures and tables to reflect 800GBASE-KR8 (n=8, where applicable)
  - Update/revision of specifications will be applied, where deemed appropriate

# 800GbE (8x100) - AUI

- AUI C2M
  - Align to the latest version of IEEE P802.3ck Annex 120G
    - Note: Signaling rate, each lane (range) = 53.125 GBd
  - With editorial license, update text, figures and tables to reflect 800GAUI-8 C2M (n=8, where applicable)
  - Update/revision of specifications will be applied, where deemed appropriate
- AUI C2C
  - Align to the latest version of IEEE P802.3ck Annex 120F
    - Note: Signaling rate, each lane (range) = 53.125 GBd
  - With editorial license, update text, figures and tables to reflect 800GAUI-8 C2C (n=8, where applicable)
  - Update/revision of specifications will be applied, where deemed appropriate

# 800GbE (8x100) – Copper cable

- Copper cable
  - Align to the latest version of IEEE P802.3ck Clause 162, Annex 162A, Annex 162B, Annex 162C, Annex 162D
    - Note: Signaling rate, each lane (range) = 53.125 GBd
  - With editorial license, update text, figures and tables to reflect 800GBASE-CR8 (n=8, where applicable)
  - Update/revision of specifications will be applied, where deemed appropriate

# Other

- For Backplane and copper cable,
  - Auto-Negotiation (Clause 73) changes are work-in-progress and would be covered by a different baseline
  - Updates to PMD control function (Clause 162 “link training”) are work-in-progress and would be covered by a different baseline

# Proposed Straw Poll

- I support adopting the eight-lane 800GbE electrical interfaces and PMDs, per lusted\_3df\_01a\_220315.pdf, slides 4-6
  - Y, N, A
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- Possible motion to follow, pending straw poll results

Thanks!