

**IEEE 802 July 2021  
Electronic Plenary**

**IEEE 802.3 Ethernet WG  
Closing Plenary  
22 Jul 2021**

**IEEE 802.3  
Beyond 400 Gb/s Ethernet SG  
Closing Report**



# IEEE P802.3 B400G Study Group Project information

## ■ Study Group Organization

- John D'Ambrosia, Study Group Chair
- Tom Issenhuth, Study Group Recording Secretary

## ■ Task force web and reflector information

- Reflector information:  
<https://www.ieee802.org/3/B400G/reflector.html>
- Home page: <https://www.ieee802.org/3/B400G/index.html>

# Activities This Plenary Session

## ■ 13 July

- **Approved requesting rechartering of Study Group**
- **3 Technical Presentations**
  - **Project Documentation Revisited, John D'Ambrosia (Futurewei)**
  - **Case for inclusion of a 200GBASE-DR objective, Rob Stone (Facebook)**
  - **Enabling dense 200GbE and 400GbE, Kapil Shrikhande (Innovium)**
- **Adopted objectives related to 200 Gb/s and 400 Gb/s AUIs & PMDs (see next Pages)**

## ■ 20 July

- **3 Technical Presentations**
  - **Coherent-Lite for Beyond 400GigE, Cedric Lam (Google)**
  - **Considerations on the "10km @ 800Gb/s" objective, Tingting Zhang (Huawei)**
  - **16-lane 1.6TbE AUI Objective Proposal: A test & measurement perspective, Paul Brooks (Viavi)**
- **Adopted objective related to 16 lane AUI for 1.6 Tb/s (See next pages)**
- **Approved two liaisons (OIF / ITU-T SG15)**

# B400G Adopted Objectives

\* Adopted by B400G SG, Apr 2021  
\*\* Adopted by B400G SG Apr 26, 2021  
\*\*\* Adopted by B400G SG May 3, 2021  
\*\*\*\* Adopted by B400G SG May 17, 2021  
# Adopted by B400G SG Jun 3, 2021  
## Adopted by B400G SG Jul 13, 2021  
### Adopted by B400G SG Jul 20, 2021  
Approval by 802.3 WG Pending

- **Non-Rate Specific**

- 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 a BER of better than or equal to  $10^{-13}$  at the MAC/PLS service interface (or the frame loss ratio equivalent) \*\*
- Provide support to enable mapping over OTN \*\*\*

- **200 Gb/s Related**

- Support a MAC data rate of 200 Gb/s ##
- Support optional single-lane 200 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ##
- Define a physical layer specification that supports 200 Gb/s operation:
  - over 1 pair of SMF with lengths up to at least 500 m ##
  - over 1 pair of SMF with lengths up to at least 2 km ##

- **400 Gb/s Related**

- Support a MAC data rate of 400 Gb/s ##
- Support optional two-lane 400 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ##
- Define a physical layer specification that supports 400 Gb/s operation:
  - over 2 pairs of SMF with lengths up to at least 500 m ##

# B400G Adopted Objectives

\* Adopted by B400G SG, Apr 2021  
\*\* Adopted by B400G SG Apr 26, 2021  
\*\*\* Adopted by B400G SG May 3, 2021  
\*\*\*\* Adopted by B400G SG May 17, 2021  
# Adopted by B400G SG Jun 3, 2021  
## Adopted by B400G SG Jul 13, 2021  
### Adopted by B400G SG Jul 20, 2021  
Approval by 802.3 WG Pending

## • 800 Gb/s Related

- Support a MAC data rate of 800 Gb/s \*
- Support optional eight-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications \*\*\*\*
- Support optional four-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications \*\*\*\*
- Define a physical layer specification that supports 800 Gb/s operation:
  - over 8 pairs of MMF with lengths up to at least 50 m \*
  - over 8 pairs of MMF with lengths up to at least 100 m \*
  - over 8 pairs of SMF with lengths up to at least 500 m \*
  - over 8 pairs of SMF with lengths up to at least 2 km #
  - over 4 pairs of SMF with lengths up to at least 500 m \*
  - over 4 pairs of SMF with lengths up to at least 2 km \*
  - over 4 wavelengths over a single SMF in each direction with lengths up to at least 2 km \*
  - over a single SMF in each direction with lengths up to at least 10 km \*
  - over a single SMF in each direction with lengths up to at least 40 km \*

## • 1.6 Tb/s Related

- Support a MAC data rate of 1.6 Tb/s #
- **Support optional sixteen-lane 1.6 Tb/s attachment unit interfaces for chip-to-module and chip-to-chip applications ###**
- Support optional eight-lane 1.6 Tb/s attachment unit interfaces for chip-to-module and chip-to-chip applications #
- Define a physical layer specification that supports 1.6 Tb/s operation:
  - over 8 pairs of SMF with lengths up to at least 500 m #
  - over 8 pairs of SMF with lengths up to at least 2 km #

# WG Motion

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- Move that the IEEE 802.3 Working Group request the re-chartering of the IEEE 802.3 Beyond 400 Gb/s Ethernet Study Group.
  
- Moved by: John D'Ambrosia
- Second: Matt Brown
- Technical ( $\geq 75\%$ )
- Results (802.3 Voters) (y/n/a)
- Motion:

# WG Motion

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- Move that the IEEE 802.3 Working Group approve
  - IEEE\_802d3\_to\_ITU\_b400g\_0721\_draft.pdf
  - IEEE\_802d3\_to\_OIF\_b400g\_0721\_draft.pdf
- with editorial license granted to the Chair (or his appointed agent) as liaison communication from the IEEE 802.3 Working Group to ITU-T SG15 and OIF
  
- Moved by: John D'Ambrosia
- Second: Steve Trowbridge
- Technical ( $\geq 75\%$ )
- Results (802.3 Voters) (y/n/a)
- Motion:

# Future Meetings

## ■ July 2021 Session

~~– Tues, Jul 13, 10am to 1pm ET~~

~~– Tues, Jul 20, 10am to 1pm ET~~

– Thurs, Jul 29, 10am to 1pm ET

## ■ Aug 2021 Session

– Thurs, Aug 12, 10am to 1pm ET

– Thurs, Aug 19, 10am to 1pm ET (Tentative)

– Thurs, Aug 26, 10am to 1pm ET



**THANK YOU!**

