IEEE 802 Nov 2021
Electronic Plenary

IEEE 802.3 Ethernet WG
Opening Plenary
08 Nov 2021

IEEE 802.3
Beyond 400 Gb/s Ethernet SG
Opening 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 Since Jul 2021 Plenary

- **Aug 2021 Electronic Session – Finalized Project Objectives**
  - **https://www.ieee802.org/3/B400G/public/21_08/index.html**
  - **Multiple electronic meetings – 8/12, 8/19, 8/26**
- **Sept 2021 Electronic Session – Generated proposed project documentation**
  - **https://www.ieee802.org/3/B400G/public/21_09/index.html**
  - **Multiple electronic meetings – 9/2, 9/9, 9/28**
- **Oct 14 Electronic Meeting – Reviewed draft Overview presentation.**
  - **https://www.ieee802.org/3/B400G/public/21_1014/index.html**
- **Oct 28 Electronic Meeting – Overview presentation.**
  - **https://www.ieee802.org/3/B400G/public/21_1028/index.html**

Progress to Date

- **Adopted Objectives – see backup slides**
  - https://www.ieee802.org/3/B400G/proj_doc/objectives_b400g_210826.pdf
- **Adopted PAR / CSD**
  - PAR: https://mentor.ieee.org/802-ec/dcn/21/ec-21-0224-01-00EC-par-ieee-p802-3df.pdf
  - CSD: https://mentor.ieee.org/802-ec/dcn/21/ec-21-0225-00-00EC-csd-ieee-p802-3df.pdf
- **Gave overview presentation of IEEE P802.3df Project to 802.3 WG.**

802.3 Nov Plenary Plans

- **Nov 2021 Plenary Meeting (11/16, 10am to 12 noon, ET)**
- **Goals –**
  - **Request SG Rechartering**
  - **Consider comments submitted against Project Documentation**
  - **Consider liaison responses**
    - **to OIF - https://www.ieee802.org/3/minutes/sep21/incoming/OIF_liaison_letter_IEEE802.3_800G_10Sept21_Redacted.pdf**
    - **to ITU-T SG15 - https://www.ieee802.org/3/minutes/sep21/incoming/SG15-LS324_Redacted.pdf**
  - **GET IEEE P802.3df Project Documentation Approved!**

THANK YOU!

BACKUP OBJECTIVES

Objectives
IEEE 802.3 Beyond 400 Gb/s Ethernet Study Group

John D'Ambrosia,
Chair, IEEE 802.3 Beyond 400 Gb/s Ethernet Study Group
Futurewei, U.S. Subsidiary of Huawei

August 26, 2021

B400G Adopted Objectives

See Page #12 for Adoption History
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 copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - 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 copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over 2 pairs of SMF with lengths up to at least 500 m ##

B400G Adopted Objectives

See Page #5 for Adoption History
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 4 pairs of copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - over eight lanes of twin axial copper cables with a reach up to at least 2 meters @
    - over eight lanes over electrical backplanes supporting an insertion loss ≤ 28dB at 26.56GHz @
    - 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 *

B400G Adopted Objectives

See Page #5 for Adoption History
Approval by 802.3 WG Pending

- **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 copper twin-axial cables in each direction with a reach of up to at least 1.0 meter ^
    - 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 #

Adoption History

*	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
@	Adopted by B400G SG Aug 12, 2021
^	Adopted by B400G SG Aug 26, 2021