

# Objectives

## IEEE P802.3df Task Force

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# IEEE P802.3 df Objectives

- **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
    - over 4 pairs of SMF with lengths up to at least 2 km \*

# IEEE P802.3 df Objectives

- **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  $\leq 28$ dB 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

# IEEE P802.3 df Objectives

- **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

## Description

Initial Approval

- \* Define a physical layer specification that supports 400 Gb/s operation over 4 pairs of SMF with lengths up to at least 2 km

## IEEE 802.3 WG Approved

19 Nov 2021

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