

Proposed Objectives – P802.3dj PAR

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 ≤ 28 dB at 26.56 GHz~~
 - ~~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

CLEAN VERSION

Proposed IEEE P802.3dj Objectives (1 of 2)

- **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

Proposed IEEE P802.3dj Objectives (2 of 2)

- **800 Gb/s Related**

- Support a MAC data rate of 800 Gb/s
- 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 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 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