

P802.3df

Type of Project: Amendment to IEEE Standard 802.3-2018

Project Request Type: Initiation / Amendment

PAR Request Date: 01 Oct 2021

PAR Approval Date:

PAR Expiration Date:

PAR Status: Submitted

Root Project: 802.3-2018

1.1 Project Number: P802.3df

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Project Title: Standard for Ethernet

Amendment: Media Access Control Parameters, Physical Layers and Management Parameters for 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Operation

3.1 Working Group: Ethernet Working Group(C/LM/802.3 WG)

3.1.1 Contact Information for Working Group Chair:

Name: David Law

Email Address: david_law@ieee.org

3.1.2 Contact Information for Working Group Vice Chair:

Name: Adam Healey

Email Address: adam.healey@broadcom.com

3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LM)

3.2.1 Contact Information for Standards Committee Chair:

Name: Paul Nikolich

Email Address: p.nikolich@ieee.org

3.2.2 Contact Information for Standards Committee Vice Chair:

Name: James Gilb

Email Address: gilb@ieee.org

3.2.3 Contact Information for Standards Representative:

Name: James Gilb

Email Address: gilb@ieee.org

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Sep 2024

4.3 Projected Completion Date for Submittal to RevCom: Sep 2025

5.1 Approximate number of people expected to be actively involved in the development of this project: 150

5.2.a Scope of the complete standard: This standard defines Ethernet local area, access and metropolitan area networks. Ethernet is specified at selected speeds of operation; and uses a common media access control (MAC) specification and management information base (MIB). The Carrier Sense Multiple Access with Collision Detection (CSMA/CD) MAC protocol specifies shared medium (half duplex) operation, as well as full duplex operation. Speed specific Media Independent Interfaces (MIIs) provide an architectural and optional implementation interface to selected Physical Layer entities (PHY). The Physical Layer encodes frames for transmission and decodes received frames with the modulation specified for the speed of operation, transmission medium and supported link length. Other specified capabilities include: control and management protocols, and the provision of power over selected twisted pair PHY types.

5.2.b Scope of the project: Define Ethernet MAC parameters, physical layer specifications, and management parameters for the transfer of Ethernet format frames at 800 Gb/s and 1.6 Tb/s over copper, multi-mode fiber, and single-mode fiber, and use this work to define derivative physical layer specifications and management parameters for the transfer of Ethernet format frames at 200 Gb/s and 400 Gb/s.

5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: This document will not include a purpose clause.

5.5 Need for the Project: The project is necessary to provide solutions to meet the growing bandwidth needs for computing and network interconnect application areas, such as cloud-scale data centers, internet

exchanges, co-location services, content delivery networks, wireless infrastructure, service provider and operator networks, and video distribution infrastructure.

5.6 Stakeholders for the Standard: Stakeholders include users and producers of systems and components for high-bandwidth applications, such as cloud-scale data centers, internet exchanges, co-location services, content delivery networks, wireless infrastructure, service provider and operator networks, and video distribution infrastructure.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? Yes

Explanation: There are no other IEEE standards or projects with a completely similar scope.

There are two other industry efforts outside of IEEE 802 that may partially overlap the 800 Gb/s Ethernet portion of the scope of the proposed project:

The Ethernet Technology Consortium released D1.1 of "800G Specification" on 06 August 2021, which defined an 800G MAC and physical coding sub-layer (PCS).

The IEEE 802.3 Working Group received a liaison from the Optical Internetworking Forum (OIF), which communicated the start of the "800G Coherent Project." The project includes a campus objective that would define fixed wavelength unamplified 2-10km links that would support Ethernet clients up to 800G aggregate bandwidth, which may address some of the application spaces that the proposed project would address. The OIF 800G Coherent Project does not define 800 Gb/s Ethernet nor any of the related attachment unit interfaces.

Stakeholders for the proposed project have expressed the desire for this effort to define the MAC parameters, physical layer specifications, and management parameters for 800 Gb/s Ethernet operation (as well as 200 Gb/s, 400 Gb/s, and 1.6 Tb/s Ethernet) that are consistent and completely integrated with existing IEEE 802.3 Ethernet specifications.

7.1.1 Standards Committee Organization: Ethernet Technology Consortium

Project/Standard Number: N/A

Project/Standard Date: 06 Aug 2021

Project/Standard Title: 800G Specification

7.1.2 Standards Committee Organization: Optical Internetworking Forum

Project/Standard Number: N/A

Project/Standard Date: 06 Nov 2020

Project/Standard Title: 800G Coherent Project

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: