IEEE SA STANDARDS ASSOCIATION

IEEE

P802.3df

Type of Project: Amendment to IEEE Standard 802.3-2018
Project Request Type: Modify / Amendment
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft
Root PAR: P802.3df
Root PAR Approved on: 07 Dec 2021
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 for 800 Gb/s and Physical Layers and Management Parameters for 400 Gb/s and 800 Gb/s Operation
Change to Title: Standard for Ethernet Amendment: Media Access Control Parameters ~~,~~ for 800 Gb/s and Physical Layers and Management Parameters for ~~200 Gb/s,~~ 400 Gb/s ~~, 800 Gb/s,~~ and ~~1.6~~ 800 ~~Tb~~ Gb /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
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:
Change to Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: ~~Sep 2024~~ Nov 2023
4.3 Projected Completion Date for Submittal to RevCom: Jun 2024
Change to Projected Completion Date for Submittal to RevCom: ~~Sep~~ Jun ~~2025~~ 2024

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 over copper, multi-mode fiber, and single-mode fiber physical medium dependent (PMD) sublayers based on 100 Gb/s per lane signaling technology.

Using these new definitions for 800 Gb/s, define physical layer specifications and management parameters for the transfer of Ethernet format frames at 400 Gb/s.

Change to 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 _physical medium dependent (PMD) sublayers based on 100 Gb/s per lane signaling technology._

Using these new definitions for 800 Gb/s, ~~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-ontent 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 is one other industry effort 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).
    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 physical layer specifications and management parameters for 400 Gb/s Ethernet) that are consistent and completely integrated with existing IEEE 802.3 Ethernet specifications.
    Change to Explanation: There are no other IEEE standards or projects with a completely similar scope. There ~~are~~ _is_ ~~two~~ _one_ other industry ~~efforts~~ _effort_ 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~~ _physical_ ~~Gb/s,~~ _layer_ ~~400 Gb/s,~~ _specifications_ and ~~1.6~~ _management parameters for 400_ ~~Tb~~ _Gb_ /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
7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: Items 2.1, 4.2, 4.3, 5.2B, 7.1:
It became apparent to the IEEE 802.3 Working Group that a portion of the project would leverage existing 100 Gb/s per lane signaling technologies developed for existing standards and projects, while the other portion of the project would leverage new 200 Gb/s or greater per lane signaling technologies. It was also recognized that the development of a standard based on existing technologies would occur on a faster timeline than a standard based on the development of new signaling technologies. As a result, the portion of the project that would leverage new 200 Gb/s or greater per lane signaling technologies has been removed from the IEEE P802.3df amendment PAR and placed in the new IEEE P802.3dj amendment PAR.

Change to Additional Explanatory Notes: Items 2.1, 4.2, 4.3, 5.2B, 7.1: It became apparent to the IEEE 802.3 Working Group that a portion of the project would leverage existing 100 Gb/s signaling technologies developed for existing standards and projects, while the other portion of the project would leverage new 200 Gb/s or greater per lane signaling technologiessignaling technologies. It was also recognized that the development of a standard based on existing technologies would occur on a faster timeline than a standard based on the development of new signaling technologies. As a result, the portion of the project that would leverage new 200 Gb/s or greater per lane signaling technologies signaling technologies has been removed from the IEEE P802.3df amendment PAR and placed in the new IEEE P802.3dj amendment PAR.