P802.3de

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Type of Project: Amendment to IEEE Standard 802.3-2018
Project Request Type: Initiation / Amendment
PAR Request Date: 23 Jul 2021
PAR Approval Date: 23 Sep 2021
PAR Expiration Date: 31 Dec 2025
PAR Status: Active
Root Project: 802.3-2018

1.1 Project Number: P802.3de
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: Standard for Ethernet
Amendment: Enhancements to the MAC Merge function and the Time Synchronization Service Interface (TSSI) to Include Point-to-Point 10 Mb/s Single Pair Ethernet

3.1 Working Group: Ethernet Working Group(C/LM/802.3 WG)
3.1.1 Contact Information for Working Group Chair:
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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LM)
3.2.1 Contact Information for Standards Committee Chair:
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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: Mar 2022
4.3 Projected Completion Date for Submittal to RevCom: Sep 2022

5.1 Approximate number of people expected to be actively involved in the development of this project: 30
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: Specify additions to and appropriate modifications of the IEEE Std 802.3 MAC Merge function and the Time Synchronization Service Interface (TSSI) to support 10 Mb/s Single Pair Ethernet point to point PHYs.

Extend IEEE Std 802.3 to add 10 Mb/s Single Pair Ethernet point to point PHYs to the PHYs supporting the MAC Merge function and the Time Synchronization Service Interface (TSSI).

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: IEEE Std 802.3cg-2019 defined point-to-point 10Mb/s PHYs with characteristics suitable for use in automotive, building and industrial automation environments. Many of the targeted application areas require Time-Sensitive Networking (TSN) functionality and benefit from support of IEEE 802.3 functions used by frame preemption as specified by IEEE Std 802.1Q and the generalized precision time protocol as specified by IEEE Std 802.1AS. This project seeks to enable the use of MAC Merge and TSSI with these PHYs. The 10 Mb/s point-to-point PHYs specified in IEEE Std 802.3cg-2019 are currently excluded from one or both of these functions.
5.6 Stakeholders for the Standard: End-users, vendors, system integrators, and providers of systems and components (e.g., sensors, actuators, instruments, controllers, network infrastructure, user interfaces, and servers) for networks including enterprise and data center networking, automotive, other transportation, industrial, and building automation.

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

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8.1 Additional Explanatory Notes: (Sec 2.1) While ‘MAC’ (Medium Access Control) is an acronym, the term 'MAC Merge' in the title is the proper name of a function within IEEE Std 802.3 and the term used in the title of the candidate clause for amendment, Clause 99, "MAC Merge sublayer." Using it as a proper name, not expanded, improves clarity and the ability of the reader of the PAR to find the appropriate clause in IEEE 802.3 which is being modified, as named above. The proposed project would consider amendments to Clause 99 specification for this function in IEEE Std 802.3 to support 10 Mb/s single-pair Ethernet point-to-point PHYs.

(Sec 5.5) IEEE Std 802.3cg-2019 is IEEE Standard for Ethernet Amendment 5: Physical Layers Specifications and Management Parameters for 10 Mb/s Operation and Associated Power Delivery over a Single Balanced Pair of Conductors

(Sec 5.5) IEEE 802.1Q - IEEE Standard for Local and Metropolitan Area Networks-Bridges and Bridged Networks

(Sec 5.5) IEEE 802.1AS - IEEE Standard for Local and Metropolitan Area Networks--Timing and Synchronization for Time-Sensitive Applications