“Splitting IEEE P802.3df”

Proposed Draft IEEE P802.3df
PAR Modification Responses
400 GbE and 800 GbE Objectives

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Introduction

- Emerging baseline status indicates that 100 Gbps/lane , 200 Gbps/lane, and LR / ER objectives are on different timelines
  - 100 Gbps/lane based Std: Est Std June 2024
  - 200 Gbps/lane based Std +10/40km: Est Std Mar 2026
- This presentation proposes modifications to the 802.3df PAR
  - Proposed Updated Objectives - dambrosia_3df_02_2207.pdf
  - Proposed CSD Responses - dambrosia_3df_04_2207.pdf
- Proposed Documentation
  - Proposed deleted text indicated by double crossout.
  - Additional text, as necessary, indicated by GREEN text.

IEEE 802.3 Major PAR form questions

The PAR form is completed on-line in though the myProject system. Many of the PAR question are proforma and are automatically complete by selecting a IEEE 802.3 amendment project. These items include Standards Committee and the Working Group officers. This slideset therefore provides the major items from the PAR form to assist in consensus building leading up to approving a completed draft PAR form.

All acronyms shall be spelled out at first use.

The following are the Major PAR responses for the IEEE P802.3**df** draft PAR

To add a continuation slide: CTRL-M -> right click new slide -> Layout -> select ‘Continued’ layout

PAR item 2.1 – Project title

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

Help text: The title of the base standard is uneditable. Please enter the amendment title in the text box. The title should be sufficiently unambigious, understandable by NesCom member not from the society that submitted the PAR. All acronyms shall be spelled out in the title.

PAR item 4.2 and 4.3 Project dates

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Standards Association Ballot:

~~Sep 2024~~ Sept 2023

Help text: Enter the date the draft standard is planned to be submitted to IEEE-SA for Initial Standards Association Ballot.

4.3 Projected Completion Date for Submittal to RevCom:

~~Sep 2025~~ June 2024

Help text: Enter the date the draft standard is planned to be submitted to RevCom for processing (not to exceed four years from the date of PAR submission). **It is suggested to allow at least six months after Initial Standards Association Ballot for the ballot process.** Cutoff dates for submitting draft standards to RevCom can be found in the yearly calendar located: http://standards.ieee.org/about/sasb/meetings.html.

PAR item 5.1 – Project participation

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

150

Help text: This includes Working Group members, additional non-voting participants.

PAR item 5.2A – Standard scope

5.2A 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.

Help text: If this Amendment will change the scope statement of the complete document (base + Amendment), it can be edited and should be explained in the Additional Explanatory Notes field at the end of the PAR form. If this Amendment will not change the scope statement of the complete document the pre-populated text should be left as is.

PAR item 5.2B – Project scope

5.2B 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 based on 100 Gb/s signaling technology, 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.

Help text: State what the Amendment is changing or adding.

PAR item 5.3 – Project contingency

5.3 Is the completion of this standard contingent upon the completion of another standard (Yes or No)? If yes, please explain below:

No

5.3.1 If yes, please explain:

Help text: Your explanation should include how the standard is dependent upon the completion of another standard. Also, if applicable, why a PAR request is being submitted if the standard currently under development is not yet complete. The title and number of the standard which this project is contingent upon shall be included in the explanation.

PAR item 5.4 – Project purpose

5.4 Will the completed document (base + amendment) contain a purpose clause:

○ Yes ◉ No

Note: IEEE Std 802.3 does not contain a Purpose Clause.

PAR item 5.5 – Project need

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.

The need for the project details the specific problem that the standard will resolve and the benefit that users will gain by the publication of the standard. The need statement should be brief, no longer than a few sentences.

PAR item 5.6 – Stakeholders

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.

The stakeholders (e.g., telecom, medical, environmental) for the standard consist of any parties that have an interest in or may be impacted by the development of the standard.

PAR item 7.1 – Similar scope

7.1 Are there other standards or projects with a similar scope? (Yes or No)?

Yes

If yes, please explain:

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.

Help text: Identify any standard(s) or project(s) of similar scope(s), both within or outside of the IEEE, and explain the need for an additional standard in this area.

For any standard(s) or project(s) of similar scope(s) add 'Project slide(s)'
To add: CTRL-M -> right click new slide -> Layout -> select 'Project' layout

Related to 7.1

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~~

PAR item 8.1 – Additional notes

Additional Explanatory Notes:

Items 2.1, 4.2, 4.3, 5.2B ,5.5, 5.6, 7.1, 8.1:

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 signaling technologies greater than 100 Gb/s. 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 standard that would leverage new signaling technologies greater than 100 Gb/s has been removed from the IEEE P802.3df amendment PAR and placed in the new IEEE P802.3dj amendment PAR.

If there is any further information that may assist NesCom in recommending approval for this project, include this information here. The title of any documents referenced in the PAR should be listed here.