

Summary of Comments Received Against P802.3dv Project Documentation and Proposed Responses

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Introduction

- This presentation summarizes the comments received against the P802.3dv project documentation and proposed responses
- Multiple reviews received via LMSC reflector:
 - 802.1 (2 comments)
 - 802.11 (6 comments)
 - 802.15 (no comment)

Comments against 3dv PAR

802.11 Comments

1. 5.2b – Change to

“This project **specifies** modifications of IEEE Std 802.3 to add Physical Layer specifications and Management Parameters for 400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects, and single-mode fiber optical interconnects with reaches up to 500 meters”

802.1 Comments

2. 5.2.b Scope Concerns include: Future tense.

An amendment by default adds to the base standard and can modify existing content.

Suggest changing “This project is to specify additions to, and appropriate modifications of, IEEE Std 802.3 to add” to “This amendment adds to, and appropriately modifies, Physical”.

Add a period at the end of the scope.

3. 5.5 Need for the project Suggest breaking apart the (AI/ML) to (AI) after Artificial Intelligence. The (ML) acronym is not used, so is not currently needed.

Inconsistent terminology: The first sentence is targeted against deployments, second against use cases, third against these markets. Deployments and use cases are not markets. Suggest changing “use cases” to “deployments” in the second sentence.

Suggest changing “markets” to “both deployments” in the third sentence.

Comments against 3dv CSD

802.1 Comments

4. Broad Market Potential Slide 4. Suggest breaking apart the (AI/ML) to (AI) after Artificial Intelligence. The (ML) acronym is not used, so is not currently needed. Add hyphens between high-radix and high-bandwidth to keep consistent with the PAR.
5. Compatibility Slide 5. Suggest changing bullet point 1 to: a) Yes.
Align the other bullet points with the b) c) d) or equivalent nomenclature.
6. Distinct Identity Slide 6. Align phrasing with the PAR: After “defining” suggest changing the text to read: “400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects and single-mode fiber optical interconnects with reaches up to 500 meters”.
7. Technical Feasibility Slide 7. Bullet point 3: project should be amendment.

802.11 Comments

8. Technical Feasibility:

Change “Contributions have been made (in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment) that presented data....”

to

“Contributions **were** made in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI Assessment”, which presented data....”

Comment 1: PAR 5.2b

- Comment:
Change to

“This project **specifies** modifications of IEEE Std 802.3 to add Physical Layer specifications and Management Parameters for 400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects, and single-mode fiber optical interconnects with reaches up to 500 meters”

- Proposed Response

- Accept in Principle. The proposed change avoids repetitive wording. See also resolution to comment 2.

5.2.b Scope of the project: ~~This project~~ **The scope of the project** is to specify ~~additions to, and appropriate~~ modifications of, IEEE Std 802.3 to add Physical Layer specifications and Management Parameters for 400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects and single-mode fiber optical interconnects with reaches up to 500 meters.

Comment 2: PAR 5.2b

- Comment:

5.2.b Scope Concerns include: Future tense.

An amendment by default adds to the base standard and can modify existing content.

Suggest changing “This project is to specify additions to, and appropriate modifications of, IEEE Std 802.3 to add” to “This amendment adds to, and appropriately modifies, Physical”.

Add a period at the end of the scope.

- Proposed Response

- Accept in Principle. Resolved in part, with the resolution of comment 1.
- Adding the period at the end of the sentence
- To align with recently SASB approved P802.3ds & P802.3dt PARs, and the draft P802.3dw PAR, an additional change was made.

5.2.b Scope of the project: ~~This project~~ **The scope of the project** is to specify ~~additions to, and appropriate~~ modifications of, IEEE Std 802.3 to add Physical Layer specifications and Management Parameters for 400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects and single-mode fiber optical interconnects with reaches up to 500 meters.

Comment 3: PAR 5.5

- Comment:

- 5.5 Need for the project

- Suggest breaking apart the (AI/ML) to (AI) after Artificial Intelligence. The (ML) acronym is not used, so is not currently needed.

- Inconsistent terminology: The first sentence is targeted against deployments, second against use cases, third against these markets. Deployments and use cases are not markets. Suggest changing “use cases” to “deployments” in the second sentence.

- Suggest changing “markets” to “both deployments” in the third sentence.

- Proposed Response

- Accept.

5.5 Need for the Project: Networks that enable the scaling of Artificial Intelligence (AI) and Machine-Learning ~~(AI/ML)~~ infrastructure deployments require high-radix, high-bandwidth interconnections. Traditional Ethernet data center ~~deployments use cases~~ can also leverage high-radix, high-bandwidth interconnections. Defining interfaces based on 400 Gb/s/lane signaling will address the bandwidth density, cost, and power requirements of ~~these markets~~ **both deployments**.

Comment 4: CSD Broad Market Potential

- Comment:
 - Broad Market Potential Slide 4.
 - Suggest breaking apart the (AI/ML) to (AI) after Artificial Intelligence. The (ML) acronym is not used, so is not currently needed.
 - Add hyphens between high-radix and high-bandwidth to keep consistent with the PAR.
- Proposed Response
 - Accept.

Per contributions to the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment, networks that enable the scaling of Artificial Intelligence (AI) / Machine-learning (~~AI/ML~~) infrastructure deployment require high-radix, high-bandwidth interconnections. The traditional Ethernet data center application use case can also leverage high-radix, high-bandwidth interconnections.

Comment 5: CSD - Compatibility

- Comment:
 - Compatibility Slide 5.
 - Suggest changing bullet point 1 to: a) Yes.
 - Align the other bullet points with the b) c) d) or equivalent nomenclature.

- Proposed Response

- Reject. Response provides answers to all of the questions. The suggested formatting doesn't improve clarity of the responses. No change.

Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor.

- a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?
- b) If the answer to a) is "no", supply the response from the IEEE 802.1 WG.
- c) Compatibility with IEEE Std 802.3
- d) Conformance with the IEEE Std 802.3 MAC

- ☐ As an amendment to IEEE Std 802.3 the proposed project shall comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q.
- ☐ As was the case in previous IEEE Std 802.3 amendments, new physical layers will be defined for 400 Gb/s, 800 Gb/s, and 1.6 Tb/s operation.
- ☐ As an amendment to IEEE Std 802.3, the proposed project will conform to the full-duplex operating mode of the IEEE 802.3 MAC.
- ☐ By utilizing the existing IEEE Std 802.3 MAC protocol, this proposed amendment will maintain compatibility with the installed base of Ethernet nodes.
- ☐ The definition of protocol independent managed objects, to be included in Clause 30 of IEEE Std 802.3, will be part of this project.

Comment 6: CSD - Distinct Identity

- Comment:
 - Distinct Identity Slide 6.
 - Align phrasing with the PAR: After “defining” suggest changing the text to read: “400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects and single-mode fiber optical interconnects with reaches up to 500 meters”. .
- Proposed Response
 - Reject. There are currently no other IEEE 802.3 specifications or projects that are defining 400 Gb/s/lane signaling. No change.



Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

[Substantially different from other IEEE 802.3 specifications/solutions.](#)

- ☐ The proposed amendment will be the first IEEE 802.3 standard defining 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet physical layer specifications based on 400 Gb/s/lane electrical and optical signaling technologies.

Comment 7: CSD - Technical Feasibility

- Comment:
 - Technical Feasibility Slide 7.
 - Bullet point 3: project should be amendment. .
- Proposed Response
 - Accept. See also comment 8.

The proposed ~~project~~ **amendment** will build on the array of Ethernet component and system design experience, and the broad knowledge base of Ethernet network operation.

- Contributions ~~have been~~ **were** made ~~(in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment”)~~ that presented data on 400 Gb/s/lane signaling technologies over copper and single-mode fiber. Proposals, which either leverage existing technologies or employ new technologies, have been provided.
- For 400 Gb/s/lane electrical and optical signaling some combination of the following approaches could include pulse-amplitude modulation, equalization techniques, and forward error correction.

Comment 8: CSD - Technical Feasibility

- Comment:

- Technical Feasibility:

Change “Contributions have been made (in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment) that presented data....”

to “Contributions **were** made in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI Assessment”, which presented data....”

- Proposed Response

- Accept. See also comment 7.

The proposed **amendment project** will build on the array of Ethernet component and system design experience, and the broad knowledge base of Ethernet network operation.

- Contributions ~~have been~~ **were** made ~~(in the Study Group and in the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment”)~~ that presented data on 400 Gb/s/lane signaling technologies over copper and single-mode fiber. Proposals, which either leverage existing technologies or employ new technologies, have been provided.
- For 400 Gb/s/lane electrical and optical signaling some combination of the following approaches could include pulse-amplitude modulation, equalization techniques, and forward error correction.