

400 Gbps per lane Signaling Study Group

Closing Report

Kent Lusted, Synopsys

July 2026 Plenary Meeting, Montreal, Quebec, Canada

IEEE 802.3 400 Gb/s/Lane Signaling Study Group Information

- Organization
 - Kent Lusted, Chair
 - Mark Nowell, Vice Chair
 - Beth Kochuparambil, Recording Secretary
- Study Group Web and Reflector Information
 - Home Page: <https://www.ieee802.org/3/400GPL/index.html>
 - Reflector Info: stds-802-3-400GPL@listserv.ieee.org
- Project Documentation
 - Draft PAR: <https://mentor.ieee.org/802-lmsc/dcn/26/lmsc-26-0120-01-LMSC-ieee-p802-3dv-draft-par.pdf> (updated 15 July 2026)
 - Draft CSD: <https://mentor.ieee.org/802-lmsc/dcn/26/lmsc-26-0121-01-LMSC-ieee-p802-3dv-draft-csd.pdf> (updated 15 July 2026)
 - Draft Objectives:
https://www.ieee802.org/3/400GPL/public/project_docs/400GPL_Objectives_260610.pdf

Activities This Week

- Met Wednesday AM1 (42 minutes)
 - Resolved comments against the PAR and CSD from IEEE 802.1 and IEEE 802.11
 - Approved the responses to the comments as well as updates to the PAR and CSD
- Updated PAR and CSD documentation.
 - Objectives unchanged from June electronic teleconference meeting

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.
- 4. Compatibility Slide 5. Suggest changing bullet point 1 to: a) Yes. Align the other bullet points with the b) c) d) or equivalent nomenclature.
- 4. 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”.
- 4. 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 ~~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.

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.

PAR

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 P802.3dv 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:

Physical Layers and Management Parameters for 400 Gb/s, 800 Gb/s, and 1.6 Tb/s
Electrical and Single-Mode Fiber (SMF) Optical Interfaces Based on 400 Gb/s/lane
Signaling

Help text: The title of the base standard is uneditable. Please enter the amendment title in the text box. The title should be sufficiently unambiguous, 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:

09/2028

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:

09/2029

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:

100

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:

The scope of the project is to specify additions to 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.

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:

Networks that enable the scaling of Artificial Intelligence (AI) and Machine-Learning infrastructure deployments require high-radix, high-bandwidth interconnections. Traditional Ethernet data center deployments 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 both deployments.

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 Ethernet systems and components for high-bandwidth applications, such as networks for compute clusters used in AI data centers, AI servers, AI accelerators, network storage, networking systems, enterprise and cloud-scale data centers, service providers, and high-performance computing.

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)?

No

If yes, please explain:

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

PAR item 8.1 – Additional notes

Additional Explanatory Notes:

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.

IEEE 802.3 400GPL Study Group WG

Motion - PAR

Move that the IEEE 802.3 Working Group approve the IEEE P802.3dv 400 Gb/s/lane Signaling PAR, in

<https://mentor.ieee.org/802-lmsc/dcn/26/lmsc-26-0120-01-LMSC-ieee-p802-3dv-draft-par.pdf>

M: Kent Lusted

S: Mark Nowell

(Technical $\geq 75\%$)

CSD

IEEE 802.3 Criteria for Standards Development (CSD)

The IEEE 802 Criteria for Standards Development (CSD) are defined in Clause 14 of the IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual. The criteria include project process requirements (“Managed Objects”) and 5 Criteria (5C) requirements. The 5C are supplemented by subclause 4.5 ‘Criteria for Standards Development’ of the ‘IEEE 802.3 Ethernet Working Group Operations Manual’.

The following are the CSD Responses in relation to the IEEE P802.3dv PAR

Items required by the IEEE 802 CSD are shown in Black text and supplementary items required by IEEE 802.3 are shown in **blue** text.

Managed Objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

- a) The definitions will be part of this project.
- b) The definitions will be part of a different project and provide the plan for that project or anticipated future project.
- c) The definitions will not be developed and explain why such definitions are not needed.

☐ The definition of protocol independent managed objects, to be included in Clause 30 of IEEE Std 802.3, will be part of this project.

Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment (CA) document unless it is not applicable.

- a) Will the WG create a CA document as part of the WG balloting process as described in Clause 13? (yes/no)
- b) If not, explain why the CA document is not applicable.

- No. A CA document is not applicable because the proposed project is not a wireless project.

Broad Market

Potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

a) Broad sets of applicability.

b) ~~Multiple vendors and numerous users.~~

- ☐ The principle of building equipment that supports IEEE 802.3 networks operating at different Ethernet rates has been amply demonstrated by a broad set of product offerings.
- ☐ 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 infrastructure deployment require high-radix, high-bandwidth interconnections. The traditional Ethernet data center application use case can also leverage high-radix, high-bandwidth interconnections.
 - the definition of interfaces based on 400 Gb/s/lane signaling will address the bandwidth density, cost, and power requirements of these markets.
- ☐ The evolving needs of aggregating computing devices will be addressed by higher data rate physical layers that enable high radix and high bandwidth connectivity.
- ☐ There has been wide attendance and participation in both the study group and the IEEE 802.3 New Ethernet Applications Industry Connections “Ethernet for AI” Assessment by subject matter experts familiar with the needs of end users, equipment manufacturers and component suppliers. It is anticipated that there will be sufficient participation to effectively complete the standardization process.

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.

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.

Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:

- a) Demonstrated system feasibility.
 - b) Proven similar technology via testing, modeling, simulation, etc.
 - c) Confidence in reliability.
- ☐ The principle of building equipment that supports IEEE 802.3 networks operating at different Ethernet rates has been amply demonstrated by a broad set of product offerings.
 - ☐ IEEE 802.3 has already established 400 Gb/s, 800 Gb/s and 1.6 Tb/s Media Access Control (MAC) specifications suitable for 400 Gb/s/lane Physical Layer operation in previous IEEE 802.3 projects.
 - ☐ The proposed amendment will build on the array of Ethernet component and system design experience, and the broad knowledge base of Ethernet network operation.
 - Contributions 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.
 - ☐ Based on prior experience with developing higher speed solutions, the reliability of Ethernet components and systems is understood and can be projected in the target environments with a high degree of confidence.

Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:

- a) Known cost factors.
 - b) ~~Balanced cost factors.~~
 - c) Consideration of installation costs.
 - d) Consideration of operational costs (e.g., energy consumption).
 - e) Other areas, as appropriate.
-
- ☐ Prior experience scaling IEEE 802.3 indicates the cost distribution between compute devices, switches, routers, and the infrastructure will remain acceptably balanced for 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Ethernet.
 - ☐ The cost factors for Ethernet components and systems are well known. The proposed project may introduce new cost factors which are understood and can be quantified.
 - ☐ The deployment of 400 Gb/s, 800 Gb/s and 1.6 Tb/s Ethernet standards based on 400 Gb/s/lane signaling will result in optimizations that will allow economies of scale to reduce cost for all solutions.
 - ☐ In consideration of installation costs, the project is expected to use proven and familiar media.
 - ☐ Network design, installation and maintenance costs are minimized by preserving network architecture, management, and software.
 - ☐ In consideration of operational costs associated with power consumption, the project will examine alternatives that trade off physical layer complexity, power, latency, and implementation constraints.

IEEE 802.3 400GPL Study Group WG

Motion - CSD

Move that the IEEE 802.3 Working Group approve the IEEE P802.3dv 400 Gb/s/lane Signaling CSD, in

<https://mentor.ieee.org/802-lmsc/dcn/26/lmsc-26-0121-01-LMSC-ieee-p802-3dv-draft-csd.pdf>

M: Kent Lusted

S: Beth Kochuparambil

(Technical $\geq 75\%$)

OBJECTIVES

400GPL SG Objectives (1/4)

Non-Rate Specific

- Support full-duplex operation only
- Preserve the Ethernet frame format utilizing the Ethernet MAC
- Preserve minimum and maximum FrameSize of current IEEE 802.3 standard
- Support a BER of better than or equal to 10^{-13} at the MAC/PLS service interface (or the frame loss ratio equivalent)

400GPL SG Objectives (2/4)

400 Gb/s Related

- Support a MAC data rate of 400 Gb/s
- Support optional single-lane 400 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications
- Define a physical layer specification that supports 400 Gb/s operation over 1 pair of SMF with lengths up to at least 500 m
- Define a single-lane, 400 Gb/s PHY for operation over twin-axial copper cables with lengths up to at least 1 meter

400GPL SG Objectives (3/4)

800 Gb/s Related

- Support a MAC data rate of 800 Gb/s
- Support optional two-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications
- Define a physical layer specification that supports 800 Gb/s operation over 2 pairs of SMF with lengths up to at least 500 m
- Define a two-lane, 800 Gb/s PHY for operation over twin-axial copper cables with lengths up to at least 1 meter

400GPL SG Objectives (4/4)

1.6 Tb/s Related

- Support a MAC data rate of 1.6 Tb/s
- Support optional four-lane 1.6 Tb/s attachment unit interfaces for chip-to-module and chip-to-chip applications
- Define a physical layer specification that supports 1.6 Tb/s operation over 4 pairs of SMF with lengths up to at least 500 m
- Define a four-lane, 1.6 Tb/s PHY for operation over twin-axial copper cables with lengths up to at least 1 meter

IEEE 802.3 400GPL Study Group WG

Motion - Objectives

Move that the IEEE 802.3 Working Group approve the IEEE P802.3dv 400 Gb/s/lane Signaling Objectives, in

https://www.ieee802.org/3/400GPL/public/project_docs/400GPL_Objectives_260610.pdf

M: Kent Lusted

S: Matt Brown

(Technical $\geq 75\%$)

IEEE 802.3 400GPL Study Group WG

Motion – 1st Recharter

Move that the IEEE 802.3 Working Group request 1st rechartering of IEEE 802.3 400 Gb/s/lane Signaling Study Group

M: Kent Lusted

S: Mark Nowell

(By Rule >50%)

THANK YOU!