

IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY Report

Steve Carlson
High Speed Design, Inc.
Robert Bosch GmbH
Ethernovia
Montreal, Canada
Hybrid meeting
July 14, 2022

IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF Project information

Task Force Organization

Steve Carlson, Chair

Natalie Wienckowski, Vice Chair and Ad Hoc Chair

Marek Hajduczenia, Chief Editor

Jon Lewis, Recording Secretary

Task Force web and reflector information

Reflector information: <http://www.ieee802.org/3/B10GAUTO/reflector.html>

Home page: <http://ieee802.org/3/cy/index.html>

PAR http://ieee802.org/3/cy/P802d3cy_PAR.pdf

CSD <https://mentor.ieee.org/802-ec/dcn/20/ec-20-0094-00-ACSD-p802-3cy.pdf>

Updated Objectives

https://grouper.ieee.org/groups/802/3/cy/P802d3cy_OBJ_UPDATED_06_07_22.pdf

Private area: <http://ieee802.org/3/cy/private/index.html>

Note: The draft, and any other content, is posted for your review only, and neither the content nor access information should be copied or redistributed to others in violation of document copyrights

IEEE P802.3 IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF

Activities this week

- 21 in-person, 27 remote Monday 13h00-17h00
- Presentations
 - Two technical presentations
 - Voting and Commenting for WG ballot
- Big ticket items moving forwards
 - Working group approval of objective changes
 - Working group approval to advance the draft to WG ballot

A little history...

- August 19, 2020: 802.3cy specifies a 25 Gb/s PMA and link segment, which are reused as 2x or 4x for the 50 Gb/s and 100 Gb/s objectives, leaving issues of how to lane and all other parameters of the laned 25 Gb/s PMA open for future proposals
- November 12, 2020: Reported decision to lane to IEEE 802.3 WG
- February 21, 2022: Initial discussion of possible architectures from George Zimmerman, with input from Marek Hajduczenia, Glen Kramer, and Natalie Wienckowski
- May 4, 2022: Refined to no changes below the MII – PHY bonding concept inspired by Clause 143 architecture could apply to any IEEE 802.3 PHY
- June 7, 2022: Industry consensus was that the 25GBASE-T1 PHY was needed now, however, the TF noted that bringing in the expertise at the higher layers of the PHY stack from other IEEE 802.3 TFs might add 9-12 months to the timeline
- No changes needed to CSD

Task Force approved objective changes

IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF Objectives

- Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface
- Preserve minimum and maximum frame size of the current IEEE 802.3 standard
- Support full duplex operation only
- Define optional startup procedure which enables the time from power_on=FALSE to a state capable of transmitting and receiving valid data to be less than 100ms
- Support a BER better than or equal to 10⁻¹² at the MAC/PLS service interface (or the frame loss ratio equivalent)
- Support a data rate of 25 Gb/s, ~~50 Gb/s and 100 Gb/s~~ at the MAC/PLS service interface
- Support optional Auto-Negotiation
- Support optional Energy Efficient Ethernet optimized for automotive applications
- Support operation in automotive environments (e.g., EMC, temperature)
- Do not preclude meeting FCC and CISPR EMC requirements

Task Force approved objective changes

IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF Objectives

- Define the performance characteristics of an automotive link segment and an electrical PHY to support 25 Gb/s point-to-point operation over this link segment supporting up to 2 inline connectors for at least 11 m on at least one type of automotive cabling
- ~~• Define the performance characteristics of an automotive link segment and an electrical PHY to support 50 Gb/s point-to-point operation over this link segment supporting up to 2 inline connectors for at least 11 m on at least one type of automotive cabling~~
- ~~• Define the performance characteristics of an automotive link segment and an electrical PHY to support 100 Gb/s point-to-point operation over this link segment supporting up to 2 inline connectors for at least 11 m on at least one type of automotive cabling~~
- Support optional Clause 104 power over data lines on appropriate media

Task Force Motion

Motion #2: Move to approve the updated objectives as shown on slides 2 and 3 of https://ieee802.org/3/cy/public/may22/wienckowski_3cy_02_05_24_22.pdf.

M: Ragnar Jonsson

S: Sujan Pandey

Motion Passed by unanimous consent (Technical > 75%)

June 7, 2022

P802.3cy WG Motion

Move that the IEEE 802.3 Working Group approve the updated objectives as shown on slides 2 and 3 of https://ieee802.org/3/cy/public/may22/wienckowski_3cy_02_05_24_22.pdf.

**M: Steve Carlson on behalf of the task force
(Technical > 75%)**

Y: N: A:

Passes/Fails

P802.3cy WG Motion

- No changes have been made to the presubmitted draft
- Task Force Vote:

Motion #4 Move to request the IEEE 802.3 Working Group advance the D2.0 draft to working group ballot.

M: Marek Hajduczenia

S: Haysam Kadry

Technical $\geq 75\%$

Motion Passes by unanimous consent

June 30, 2022

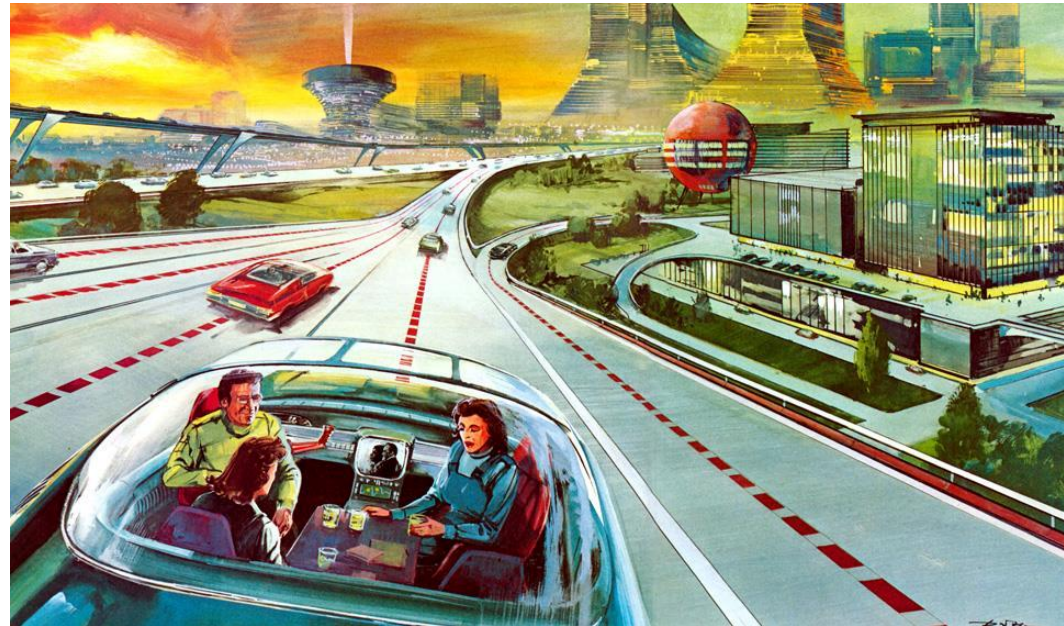
P802.3cy WG Motion

Move that the IEEE 802.3 Working Group advance the P802.3cy draft to working group ballot

**M: Steve Carlson on behalf of the task force
(Technical > 75%)**

Y: N: A:
Pass/Fail

Questions?



Thank you!