May 2021 Summary Review

IEEE 802.3 Beyond 400 Gb/s Ethernet Study Group Electronic June 3, 2021 Meeting

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Futurewei, U.S. Subsidiary of Huawei
03 June 2021 Electronic Meeting

Key Anticipated Dates

- Jan 14, 2021: 1st Meeting of B400G Study Group
- Mar 2021: B400G SG Rechartered by IEEE 802 EC to July 2021 Plenary
- Jul 14, 2021:
  - B400G SG extension deadline
  - Recharter by IEEE 802 EC to Nov 2021 Plenary
- Sept 2021
  - SG - Finish / approve project documentation (PAR / CSD / Objectives)
- 30 days before start of Nov 2021 Plenary (Est – Oct 5, exact date pending)
  - Submit PAR / CSD to 802
- Oct 18 – NesCom Submittal Deadline
- Between NesCom Submittal and Nov Plenary – consider presenting project / project documentation to 802.3 WG for review
- Nov 2021 Plenary
  - 802.3 WG Approval
  - 802 EC Approval
- Dec 6 -8 – IEEE SA Standards Board Meeting
- Jan 2022 – 1st TF Meeting

Review - May 2021 Session Presentations

- **4/26/21 Presentations**
  - Study Group Timeline, John D'Ambrosia
  - Development of Project Documentation, John D'Ambrosia
  - Thoughts on the BER objective, Mark Gustlin
  - FEC Architectures of B400GbE to Support BER Objective, Xiang He
  - Discussion / Straw polls / Motions (Time permitting)

- **5/3/21 Presentations**
  - Status of the technical feasibility of optical 200G/lane, Maxim Kuschnerov
  - On the Broad Market Potential of the 800 Gb/s 4 wavelength up to 2km on single mode fiber objective, Rob Stone
  - 8x100G Objectives, Scott Schube
  - Further considerations regarding OTN support for Beyond 400 Gb/s Ethernet, Steve Trowbridge
  - Discussion / Straw polls / Motions (Time permitting)

- **5/17/21 Presentations**
  - LN-on-Insulator modulator Technology for B400G Application, Guangcan Mi
  - Technical Feasibility of Copper Cables for 4-lane 800 Gb/s operation, Leesa Noujeim
  - Electrical Objective Wording, Kent Lusted
  - Consideration on electrical interface objectives, Yunchun (Louis) Lu
  - Discussion / Straw polls / Motions (Time permitting)

- **5/24/21 Presentations**
  - Future DC Network Considerations, Brad Booth
  - Server & end point connectivity needs, Kent Lusted
  - The Case for 1.6 Terabit Ethernet, John D'Ambrosia
  - Discussion / Straw polls / Motions (Time permitting)

Decisions Made During May 2021 Session

- Following objectives were adopted
  - Support a BER of better than or equal to 10 -13 at the MAC/PLS service interface (or the frame loss ratio equivalent)
  - Provide support to enable mapping over OTN
  - Support optional eight-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications
  - Support optional four-lane 800 Gb/s attachment unit interfaces for chip-to-module and chip-to-chip applications

- Updated list of objectives - https://www.ieee802.org/3/B400G/proj_doc/objectives_210517.pdf

Summary of Remaining Issues from May

1. **Scott Schube**
   – Proposed new objective - 800 Gb/s operation over 8 pairs of SMF with lengths up to at least 2 km

2. **Rob Stone**
   – Proposed objective modification: 800 Gb/s 4 wavelength up to 3km on single mode fiber objective

3. **Kent Lusted / Adam Healey**
   – AUIs related to 200 Gb/sand 400 Gb/s Ethernet rate of operation

4. **Brad Booth**
   – New Objective related to Ethernet MAC Parameters for >= 800 Gb/s

5. **John D'Ambrosia**
   – Proposed new objectives related to 1.6 Tb/s

▪ **Leesa Noujeim**
   – Proposed copper cable interface at 200 Gbps/lane

Topic #1: Proposed new objective - 800 Gb/s operation over 8 pairs of SMF with lengths up to at least 2 km

- **Reference:**
  https://www.ieee802.org/3/B400G/public/21_05/schube_b400g_01_210503.pdf
- **Prior Strawpoll (Strawpoll #2 taken 5/3)**

I would support adopting the following objective: Define a physical layer specification that supports 800 Gb/s operation over 8 pairs of SMF with lengths up to at least 2 km	Results
a) Yes	44
b) No	13
c) Need more information	8
d) Abstain	15

Topic #2 - Proposed objective modification: 800 Gb/s 4 wavelength up to 3km on single mode fiber objective

- **Reference: https://www.ieee802.org/3/B400G/public/21_05/stone_b400g_01_210503.pdf**
- **No prior straw polls or motions taken**

Topic #3 - AUIs related to 200 Gb/sand 400 Gb/s Ethernet rate of operation

- **Reference: https://www.ieee802.org/3/B400G/public/21_05/lusted_b400g_01_210517.pdf**

- **Motion to adopt objectives related to 800 Gb/s (4 and 8 lane) approved. 88 / 1/ 14**

- **No physical layer specification objectives related to 200 Gb/s or 400 Gb/s Ethernet operation approved at this time.**

- **Delay "200 Gb/s or 400 Gb/s AUI's" related straw polls and / or motions at this time.**

- **Interest in 200 Gb/s or 400 Gb/s Ethernet physical layer specifications?**

Topic #4 - New Objective related to Ethernet MAC Parameters for >= 800 Gb/s

- **Reference: https://www.ieee802.org/3/B400G/public/21_05/booth_b400g_01b_210524.pdf**
- **No prior straw polls or motions taken**

Topic #5 - Proposed new objectives related to 1.6 Tb/s

- ▣ **Reference: https://www.ieee802.org/3/B400G/public/21_05/dambrosia_b400g_01b_210524.pdf**
- ▣ **No prior straw polls or motions taken.**

Topic #6 - Proposed copper cable interface at 200 Gbps/lane

- **Reference: https://www.ieee802.org/3/B400G/public/21_05/noujeim_b400g_01_210517.pdf**
- **No prior straw polls or motions taken**