

# IEEE P802.3dj Electrical Ad Hoc Report

Kent Lusted, Intel  
Electrical Track Ad Hoc Chair

# Report

- 3 ad hoc call2 since March 2023 meeting
  - 6 April, 20 April, 4 May 2023
  - 50+ attendees each time
  - 16 contributions, 2 straw polls
    - 2 additional channel contributions
- Next meeting TBD:
  - Announced over the electrical track email reflector

# Presentations (1/2)

- Meeting minutes and presentation materials:  
<https://www.ieee802.org/3/dj/public/adhoc/electrical/index.html>
- 6 April
  - “State of IEEE P802.3dj and Future Schedule”, John D’Ambrosia
  - “Supporting Channel Analysis for a Backplane Objective”, Nathan Tracy and Megha Shanbhag
  - “212Gb/s Per Lane PAM4 KR Cabled Backplane Channels”, Jim Weaver
  - “200 Gb/s PAM4 Channel Sweep Designs for “Near Package Connector (NPC) KR Cabled Backplane” and “C2C with 1 Connector” Topologies ”, Rich Mellitz
  - “BER considerations for 200 Gb/s per lane AUIs”, Matt Brown
  - “COM MLSE and DFE Simulation”, Bill Kirkland

# Presentation (2/2)

- 20 April
  - “BER budget allocation for AUIs”, Adee Ran
  - “AUI BER and MAC link latency considerations recap”, Matt Brown
  - “Food for thought on active copper cables”, Adee Ran
- 4 May
  - “Action Item: Project Scope Issues: Active Cables”, John D’Ambrosia
  - “Analysis of Noise Coloring Effect on MLSE COM Using Error Events”, Hossein Shakiba
  - “Error Propagation Analysis of MLSE”, Hossein Shakiba
  - “212 Gb/s PAM4 per Lane C2M Channels Frequency Range and Rx Filter”, Rick Rabinovich
  - “200 Gb/s PAM4 Channel Sweep Designs for “Near Package Connector (NPC) KR Cabled Backplane” and “C2C with 1 Connector” Topologies with crosstalk update”, Rich Mellitz
  - “200 Gb/s per lane KR Backplane Objective Proposal”, Rich Mellitz
  - “200 Gbps/lane AUI C2M Channel Selection Criteria”, Kent Lusted

# Straw Polls

- 20 April 2023

## Straw Poll #1 and 2 -- directional

At this time, I prefer the 200 Gbps/lane AUI BER target option per brown\_3dj\_elec\_01\_230420 slide 18:

- Option A: C2M and C2C AUI BER 1E-5
- Option B: C2M and C2C AUI BER 2E-5
- Option C: C2M and C2C AUI BER 5E-5
- Option D: C2M and C2C AUI BER 1E-4
- Option E: C2M AUI BER 8E-5 and C2C AUI BER 2E-5

SP#1 Results (Chicago rules): A: 29 B: 19 C: 25 D: 8 E: 24

SP#2 Results (Choose one): A: 12 B: 4 C: 17 D: 0 E: 12 NMI: 11

# Key Themes

- If active cables are considered by the TF, a potential path and challenges were conveyed
- AUI BER targets are prickly
  - More dependent on inputs from Logic and Optic tracks than in the past
  - Whole link tradeoffs
- MLSE noise and error propagation effects were studied, and COM changes outlined
- Backplane objective consensus norming to 40 dB die-die.
  - No objection on objective expressed
  - Much more work needed to get to baseline proposals
- A relative comparison of AUI C2M channels using COM shows:
  - Some channels work with medium complexity EQ assumed for medium loss AUI C2M
  - Almost all channels work with higher complexity EQ assumed for high loss AUI C2M

**THANKS!**