IEEE P802.3dj Task Force

May 2023 Interim
18 May 2023

John D'Ambrosia,
Chair, IEEE P802.3dj Task Force
Futurewei, U.S. Subsidiary of Huawei

IEEE P802.3dj Task Force Project information

- **Organization**
  - John D'Ambrosia, Chair, IEEE P802.3dj Task Force
  - Mark Nowell, Vice-Chair, IEEE P802.3dj Task Force; Chair, Optics Track
  - Kent Lusted, Secretary, Chair, Electrical Track
  - Matt Brown, IEEE P802.3dj Chief Editor
  - Mark Gustlin, Chair, Architecture and Logic Track
- **Task force web and reflector information:**
  - Home page: https://www.ieee802.org/3/df/index.html
  - Reflector Info - https://www.ieee802.org/3/df/reflector.html
    - TF Reflector: stds-802-3-b400g@listserv@ieee.org
    - Logic Reflector: stds-802-3-b400g-logic@listserv@ieee.org
    - Optical Reflector: stds-802-3-b400g-optx@listserv@ieee.org
    - Electrical Reflector: stds-802-3-b400g-elec@listserv@ieee.org
- **Project Documentation –**
  - PAR : https://www.ieee802.org/3/dj/projdoc/P802d3dj_PAR.pdf
  - CSD: https://mentor.ieee.org/802-ec/dcn/22/ec-22-0256-00-ACSD-p802-3dj.pdf
  - Objectives: https://www.ieee802.org/3/dj/projdoc/objectives_P802d3dj_221117.pdf
  - Adopted Timeline: https://www.ieee802.org/3/dj/projdoc/timeline_3dj_230116.pdf

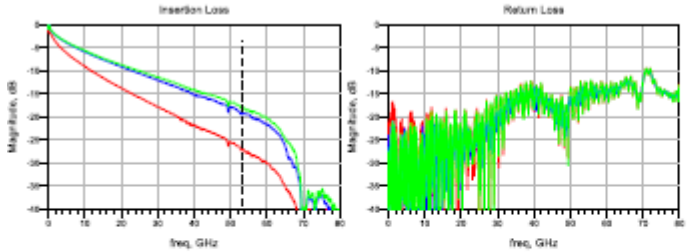
Action Items

- Request to approve new backplane objectives for 200 GbE / 400 GbE / 800 GbE / 1.6 TbE
  - Task Force – approved by unanimous consent

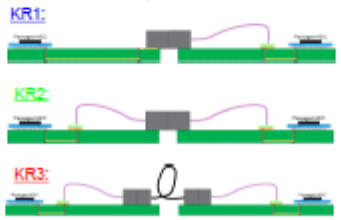
- Request to approve liaison response to ITU-T SG-15
  - Task Force – approved by unanimous consent

Feasibility based on P802.3dj contributions illustrate a variety of 200 G KR configurations

Performance Comparison



	TP0 – TP5 IL, dB @53.125GHz
KR1	19.3
KR2	18.3
KR3	27.4

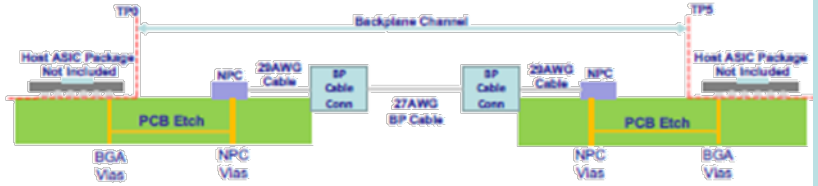


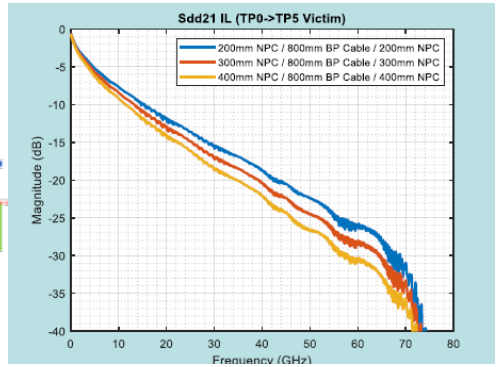
Crosstalk pinmap*

F F N N
F F N N
F V N N
F F N N

*BGA crosstalk contribution only includes FEXT

- Simulation of a typical KR cabled backplane architecture over various cable lengths
- Contributions:
  - BGA / PCB trace / NPC via escapes simulated with HFSS
  - NPC + BP cable assemblies: provided by Michael Rowlands, affiliated with Amphenol
- Ball-to-Ball topology: does not include package effects
- This presentation does NOT propose the following:
  - Specific aggregate or cable losses
  - Specific host architecture implementations

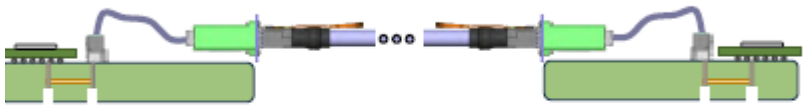




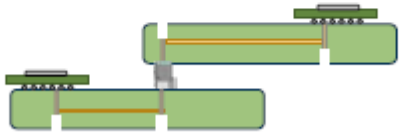
200 Gb/s PAM4 Channel Topologies

Length variations provide an amalgamation of products a with range of losses

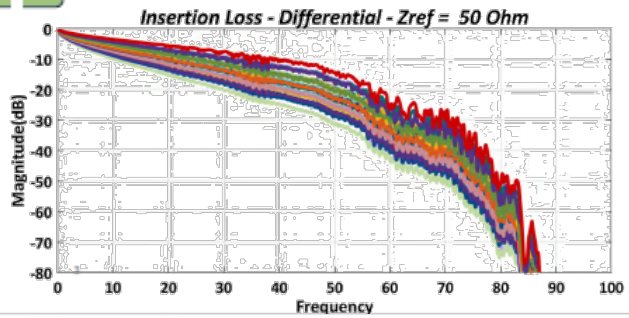
KR NPC Cabled Backplane



Chip to Chip (C2C) Mezzanine



IEEE P802.3dj Ethernet Task Force



Summary of KR reaches are up to

- 1 meter for a cabled backplane
- 300 mm of cable on a host plus a few inches for break out
  - Or between 5 to 7 inches of host PCB trace
- Subset of KR may include
  - orthogonal box designs
  - chip to chip

Details in References on slide 11

WG Motion:

- **Move to:**
- **Approve the following backplane objectives for 200GBASE-KR1, 400BASE-KR2, 800GBASE-KR4, and 1.6TBASE-KR8:**
  - **Define a physical layer specification that supports 200 Gb/s operation over 1 lane over electrical backplanes supporting a die-to-die insertion loss <= 40 dB at 53.125 GHz**
  - **Define a physical layer specification that supports 400 Gb/s operation over 2 lanes over electrical backplanes supporting a die-to-die insertion loss <= 40 dB at 53.125 GHz**
  - **Define a physical layer specification that supports 800 Gb/s operation over 4 lanes over electrical backplanes supporting a die-to-die insertion loss <= 40 dB at 53.125 GHz**
  - **Define a physical layer specification that supports 1.6 Tb/s operation over 8 lanes over electrical backplanes supporting a die-to-die insertion loss <= 40 dB at 53.125 GHz**
- **M: John D'Ambrosia**
- **S: Kent Lusted**
- **Technical (>=75%)**
- **802.3 voters only**
- **Results:**

WG Motion

- **Move that 802.3 WG approve:**
  - **IEEE_802d3_to_ITU_3df_2305_draft_redacted.pdf with editorial license granted to the Chair (or his appointed agent) as a liaison communication from the IEEE 802.3 Working Group to ITU-T SG 15.**

- **M: John D'Ambrosia**
- **S: Kent Lusted**
- **Technical (>=75%)**
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- **Results:**