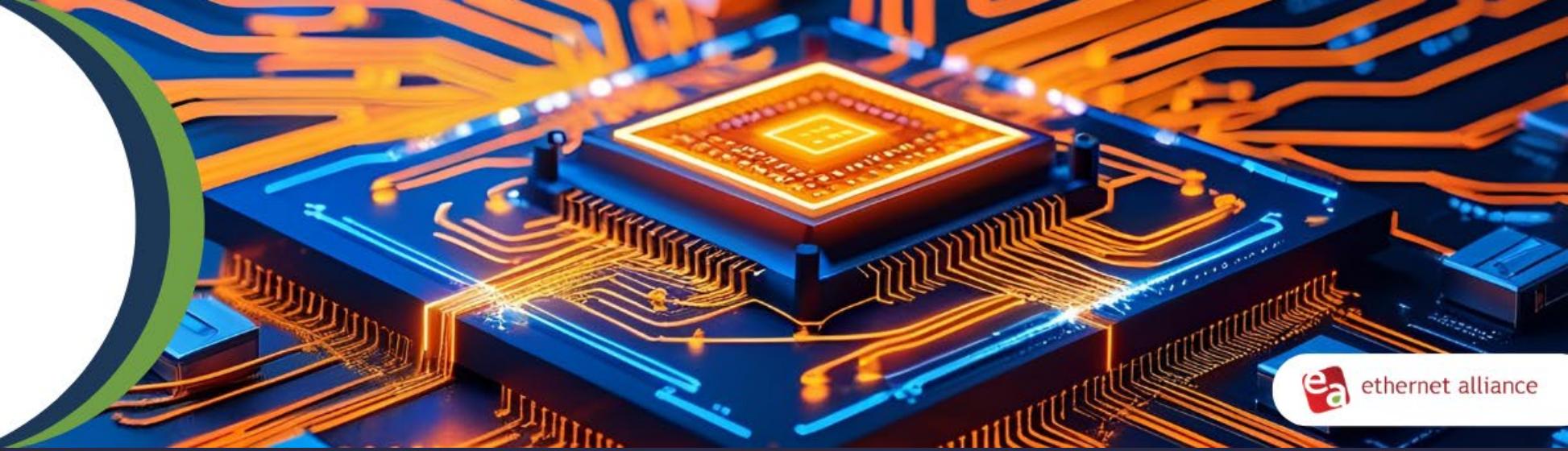


TEF 2025

Ethernet for AI

December 2-3, 2025
Hyatt Centric Mountain View, CA, USA



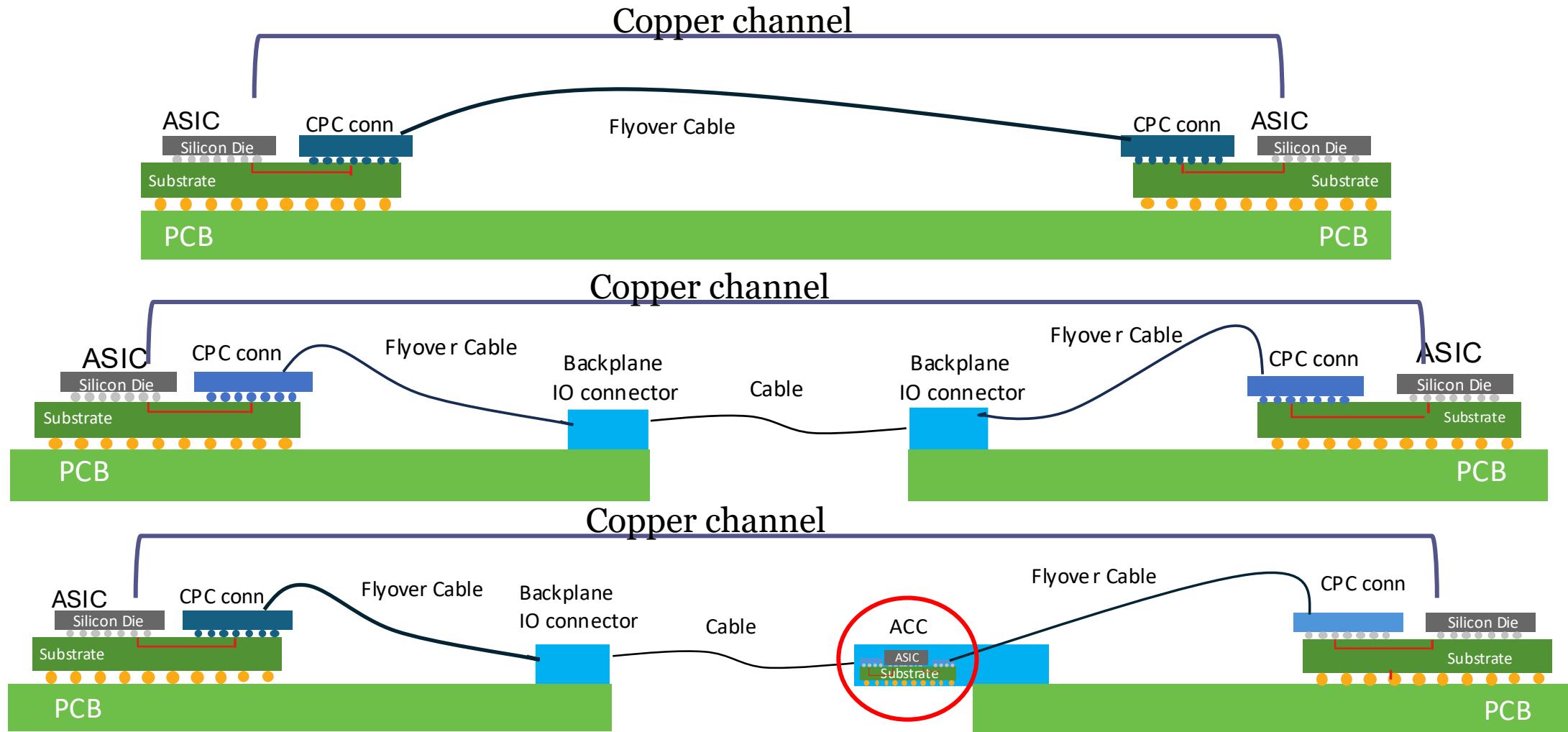
Tom Palkert, Samtec
Chair, SNIA/SFF Transceiver Group
12/03/25



What is needed for AI interconnects?

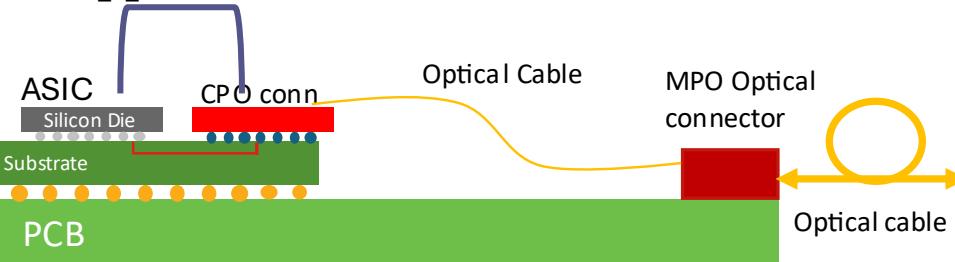
- Longest Copper reach possible
- Support for DAC, Linear ACC, Retimed AEC, Linear/Retimed AOC
- Support for CPO and CPC
- High density connectors
- High BW connectors
- Link budgets utilizing Host DSP capabilities
 - CTLE, FFE, DFE, MLSE
- Support for Low BER
- Low Latency

Example channels for 448G AI interconnects

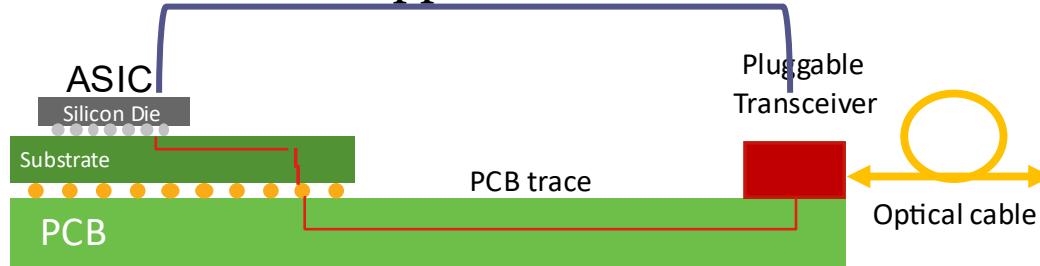


More Example channels for 448G (C2M may be done by other standards groups)

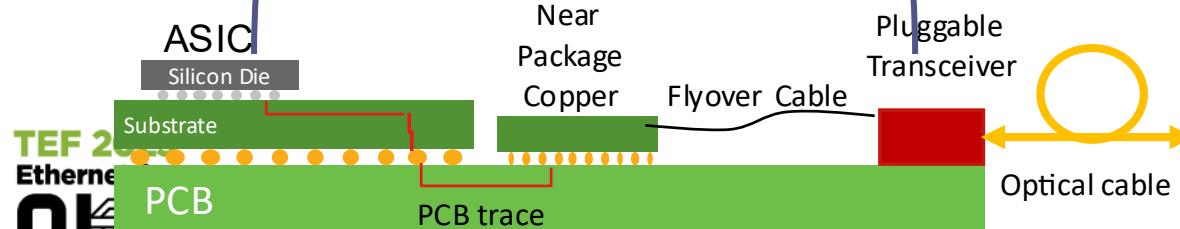
Copper channel



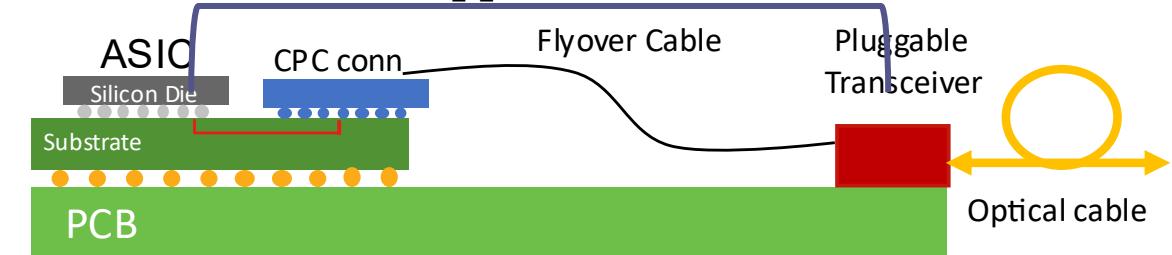
Copper channel



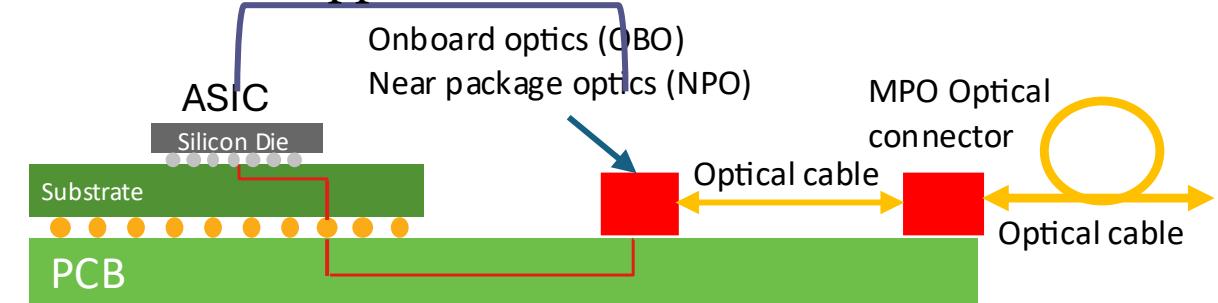
Copper channel



Copper channel



Copper channel



SFF project goals

- Define channels (S parameters)
 - C2C with CPC on both ends
 - C2C with NPC on one end CPC on other end
 - ‘Backplane’ Cable, connectors
 - PCB channels
- Define EM boundaries for channels, packages, connectors
- Refine COM parameters
 - Use ‘aggressive’ and ‘conservative’ COM spreadsheets to show impacts of different COM parameters
- Run COM on channels
- Show both PAM4 and PAM6 results (no PAMM8)
- Specify compliance ports for cabled backplane ports?

Additional project scope

- **Storage/compute/backplane focus**
 - Investigate the use of 448G technology to increase the reach of 112G and 224G interconnects
 - Connector Mechanical specifications are out of scope for this project
 - Separate project at later date

Summary of presentations

- Package:
 - Package trace IL provided using ‘current’ advanced materials
 - Ongoing work to define glass core package routing IL
 - New COM models proposed
 - Probe/measurement methods being investigated
- CPC to CPC connections:
 - Channel provided (uploaded to SFF channel folder)
 - Discussions about appropriate EM boundary for channel model
 - Simulations showing excellent performance
 - Additional work to include updated COM parameters
- Flyover cables
 - IL data looks acceptable for some AWG cables
 - IL vs density tradeoffs will have to be made
- Backplane connections/cables
 - Channels requested

COM status

- Proposed spreadsheet uploaded to IEEE Gitlab
 - Decision to develop separate ‘aggressive’ and ‘conservative’ sheets
 - No nominal sheet
 - Connector model still under discussion
 - Further discussions on additional COM parameters on Dec 8 call

QUESTIONS?