SNIA | SFF

Copper connections for AI Project start

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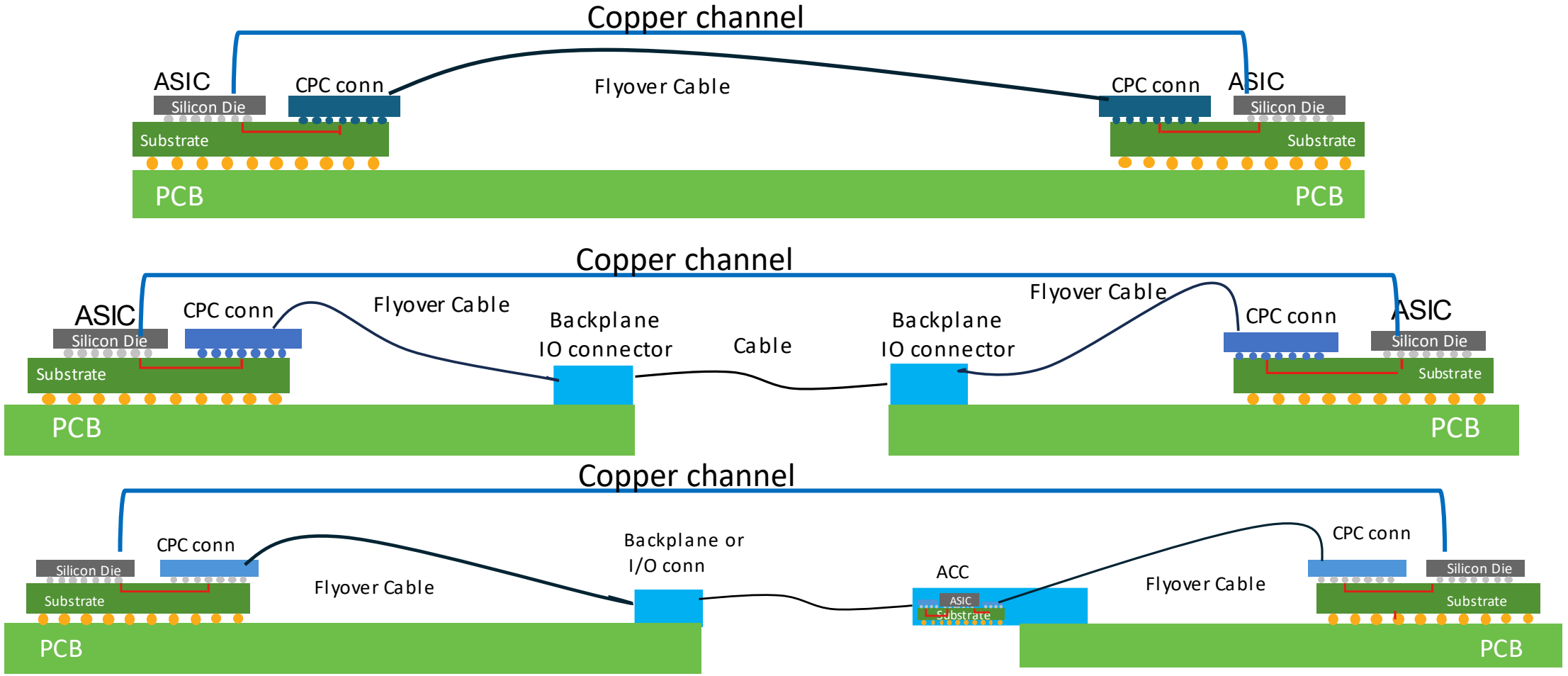
Supporters

- Sponsors:
  - Meta: Srinivas Venkataraman (over email)
  - Broadcom: Karl Muth (Jason Stuhlsatz in meeting confirmed)
  - Dell: David Piehler
  - Samtec: Tom Palkert, Rich Mellitz, Brandon Gore
- Sponsors but not present: John Marshal from AMD, Jim Weaver from Arista
- Editor: Tom Palkert

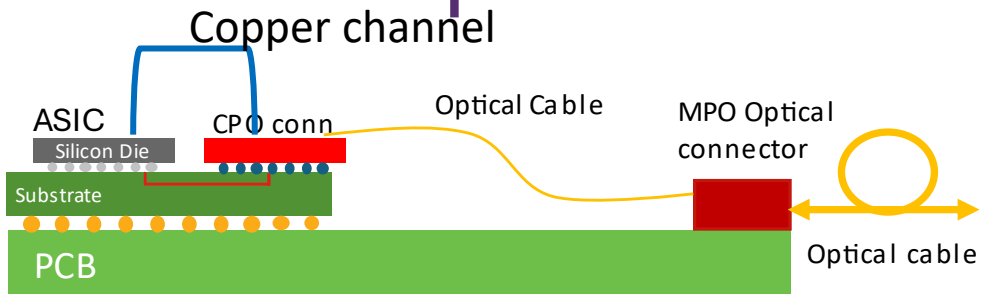
What is needed for AI interconnects?

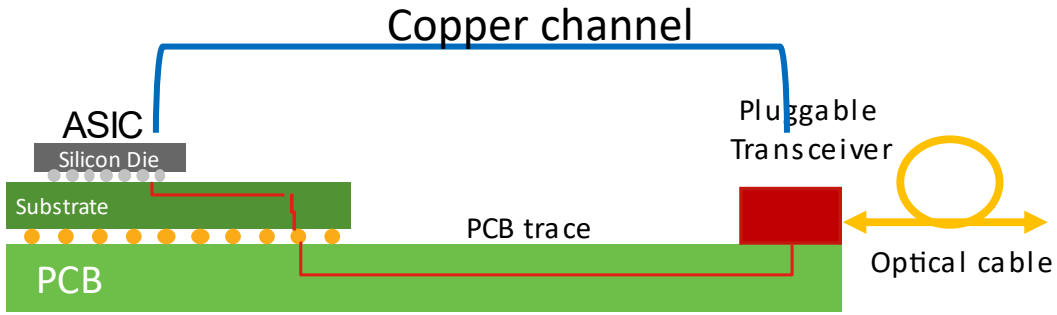
- Longest Copper reach possible (PAM?)
- Support for DAC, Linear ACC, Retimed AEC, Linear, Retimed AOC
- Support for CPO and CPC
- High density connectors
- High BW connectors
- Link budgets utilizing Host DSP capabilities
  - CTLE, FFE, DFE, MMSE, ?
- Support for Low BER
- Low Latency

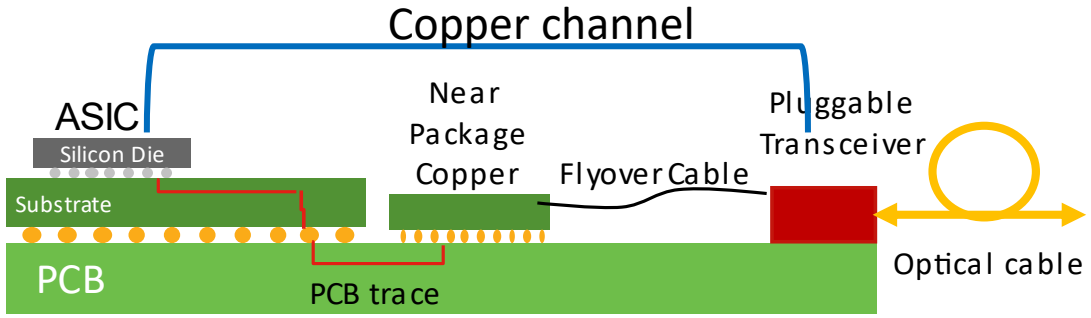
Example channels for 448G

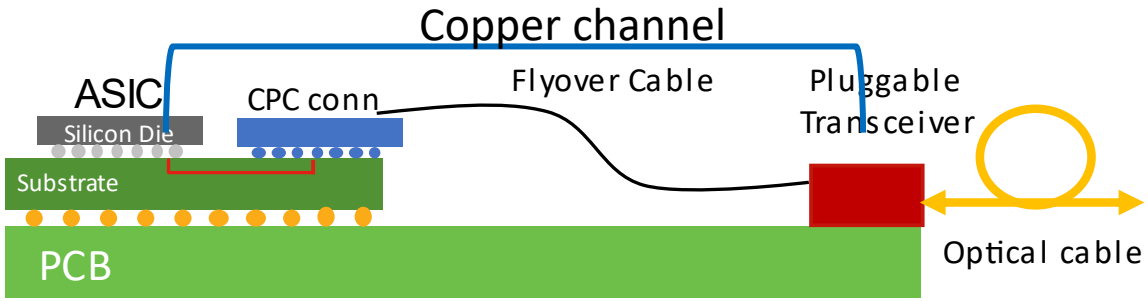


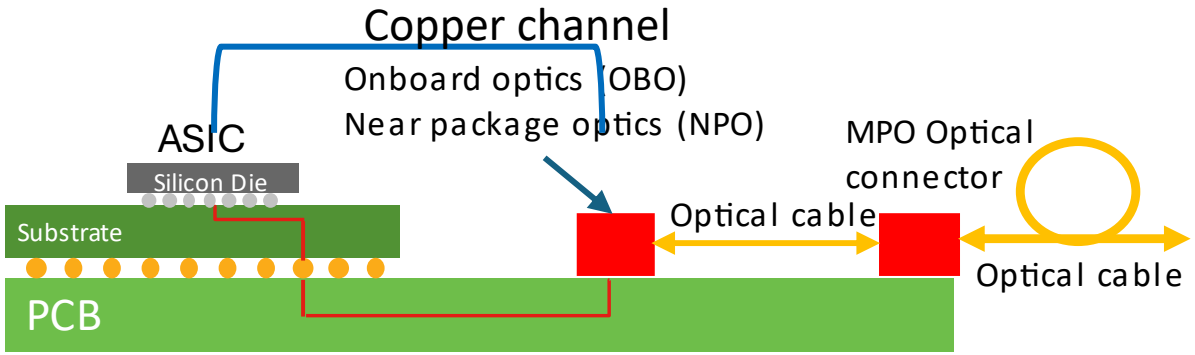
More Example channels for 448G











How can SFF help?

- Define channels (S parameters)
  - ‘Backplane’ Cable, connectors
  - CPC to NPO, CPC to Front panel pluggable
  - CPO channels?
  - PCB channels
- Define channel related COM parameters
- Run COM on channels
- Define new link training requirements PAM**X**, ACC, LPO (if needed)
  - No protocol or specific registers
- Investigate optimal coding for 448G Copper interconnects
- Specify compliance ports for cabled backplane ports

Proposed project scope

- **Storage/compute/backplane focus**
  - 448G
    - Introduce 448G capable channels
    - Establish 448G COM parameters
    - Define package IL, ERL etc characteristics
    - Investigate optimal PAM modulation for backplane/copper channels
    - Identify additional link training requirements (if needed)
  - 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

How do we work with other groups?

- In General: SNIA/SFF project will have a Storage/compute/backplane focus vs networking/front panel focus of other groups.
- IEEE
  - Initiate 448G copper work ahead of an IEEE project
  - Liaison between SNIA/SFF and NEA AI group
- OIF
  - Get connector and channel requirements from OIF high density connector project
  - Provide feedback based on channel simulations
- OCP
- UEC/UALink
  - Request channel requirements
  - Provide copper interconnect information

QUESTIONS

