Clarifying Optical Terminology or Nomenclature

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Intro

- Goal:
  - Clarification on usage of SMF
  - Align on nomenclature to enable effective communication
- Clear communication is essential to consensus building

400GPL SG: Usage of “SMF”

PAR item 5.2B – Project scope

5.2B Scope of the Project:

This project is to specify additions to, and appropriate modifications of, IEEE Std 802.3 to add Physical Layer specifications and Management Parameters for 400 Gb/s, 800 Gb/s and 1.6 Tb/s using 400 Gb/s/lane signaling for electrical interconnects and single-mode fiber optical interconnects with reaches up to 500 meters

Ref: dambrosia_400GPL_01_2605.pdf

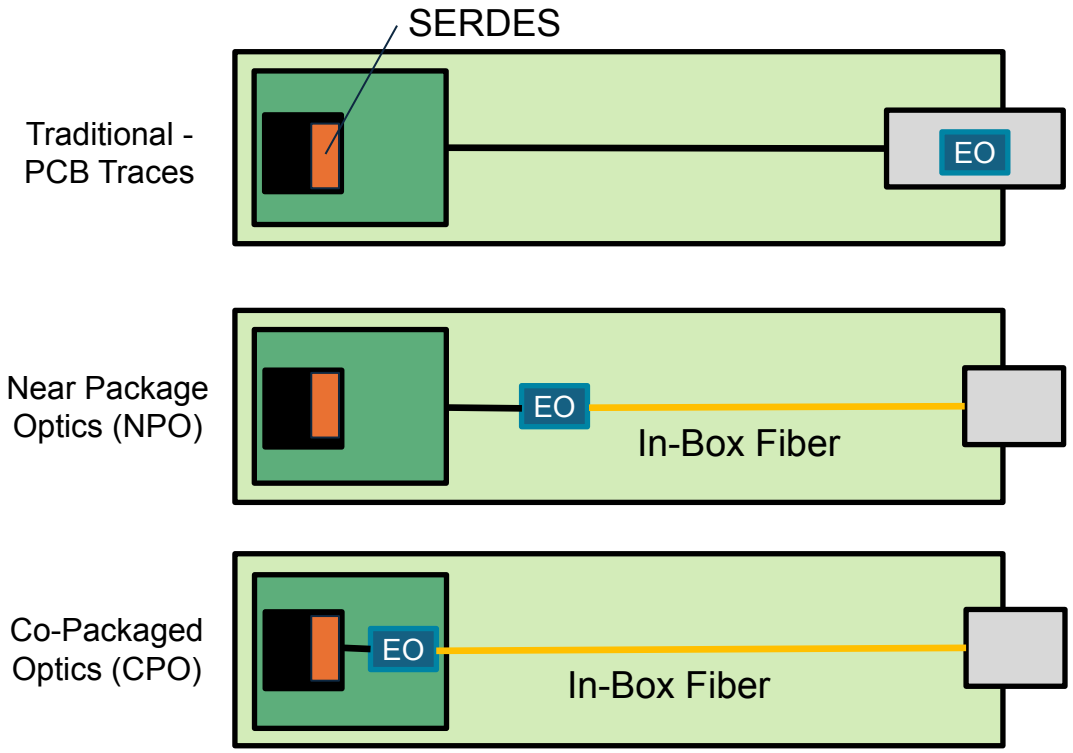
Based on the discussion in 4/30/26 ad hoc meeting some concern was raised

- Would this rule out multi-core fiber (MCF) or hollow-core fiber (HCF)?

For clarification purposes, the 400GPL SG and TF will consider the scope to be inclusive of any variations of single-mode fiber which includes MCF and HCF.

- This is a contribution driven effort

Optical implementation variations are growing



Reminder:

- An 802.3 specification does NOT define an implementation
- But it is aware of the implementations to define specs that are useful to implementers

Optical Module Form Factor vs. Optical Timing Architecture

- Form factor and retiming architectures are orthogonal choices
- This contribution proposes the following terms for optics
  - Optical form factor (e.g. “location”)
    - Front Panel Pluggable (FPP): optics are located near the system board edge in a pluggable connector
    - Near Package Optics (NPO): optics are located inside the system, near the package but not on the package
    - Co-package Optics (CPO): optics are located on the package
  - Optical module timing architectures
    - Fully retimed: retimers on both ingress (Rx) and egress (Tx)
    - Linear: no retimers
      - Half retimed: usually retimer on egress (Tx), not ingress (Rx)
- Contributions to 400GPL, likely targeted at requirements for electrical interfaces to the optics, are strongly encouraged to clarify their assumptions on form factor/location and timing architecture

Summary

- Clarification on usage of “SMF”
- Request for clarification on assumptions for future contributions