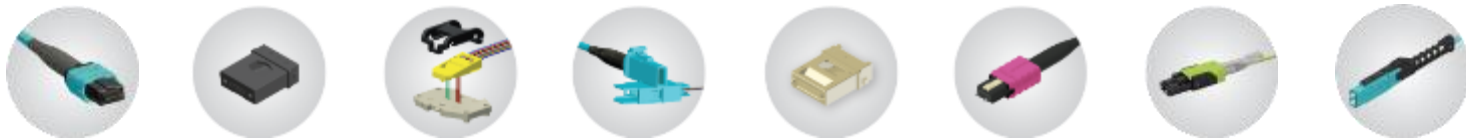


# Future Optical Connector Design: COBO & Co-Packaged Considerations

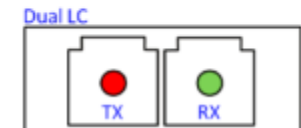
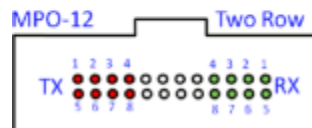
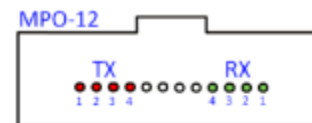
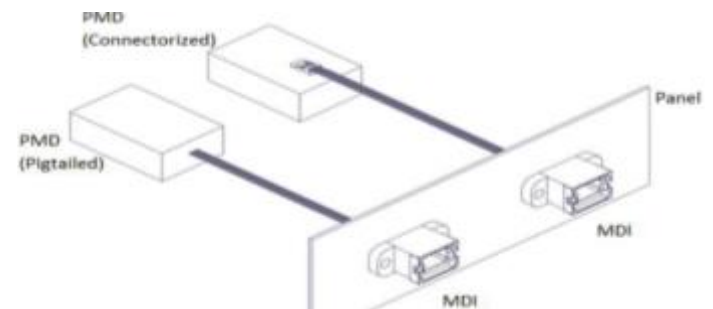
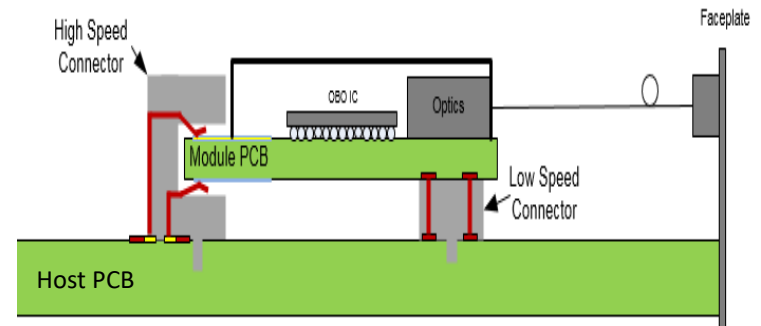
Tom Mitcheltree

US Conec, May 2020



## Benefits COBO has Established

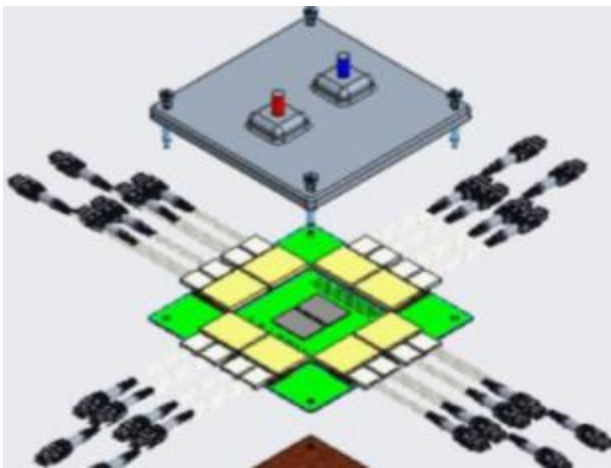
- Standardized, all-inclusive approach to a traditionally proprietary ecosystem
- Electrically separable connection to/from Host PCB helps keep transformation/CM costs low:
  - OBOs can be removed before solder reflow or replaced entirely
- Enables options at Fiber-to-Module connection (PMD)
  - Pigtailed or Connectorized
  - Leverages mature technologies to couple light in/out of module (used in proprietary OBOs for ~2 decades)
- Enables connectivity options at the panel (MDI)
  - Leverages mature & emerging connector technologies at the faceplate/panel



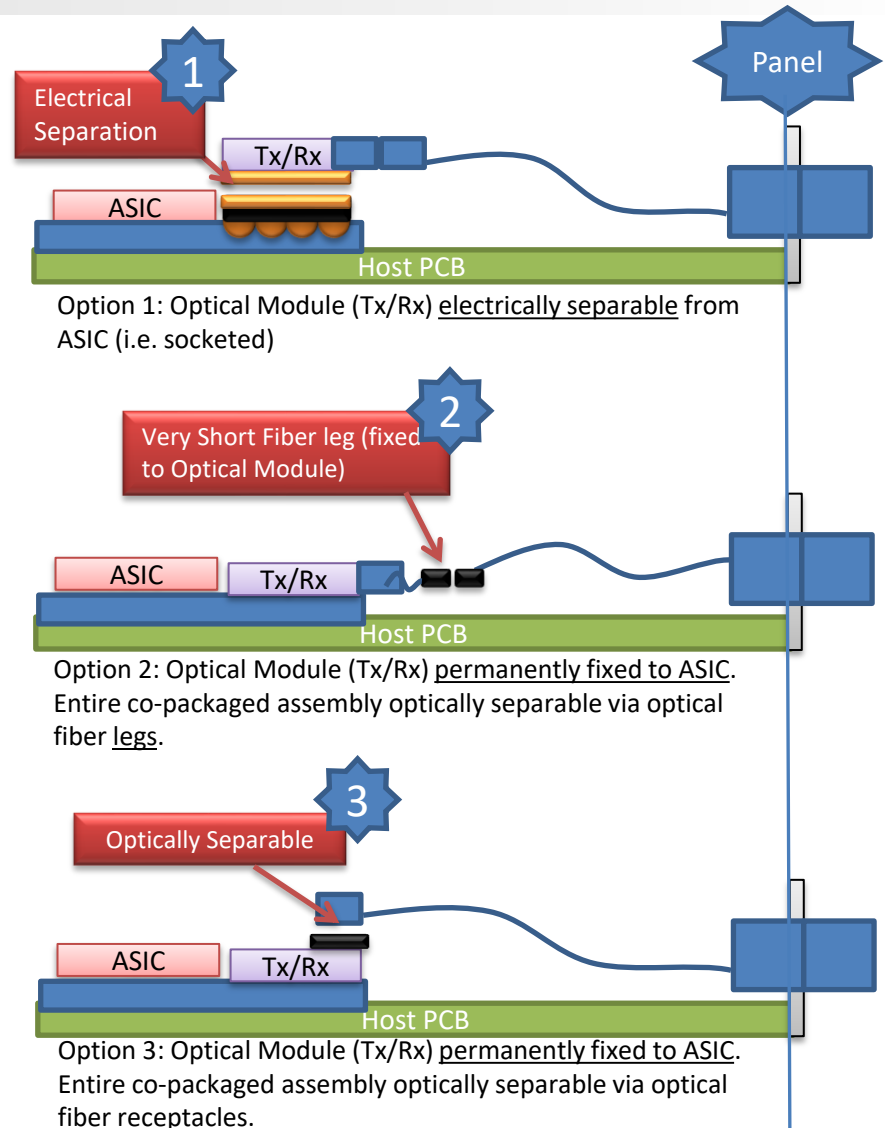
[Source: COBO Specification](#)

# Can We Apply COBO Connector Tech to Co-packaging?

- Assume ASIC must detach from optics/fiber for co-packaging to be viable in manufacturing
- 3 general detach options...
- “Big Ticket” items:
  - How does the optical module connect to the ASIC?
  - How does the light couple from the optical module to the fiber (outside world)?



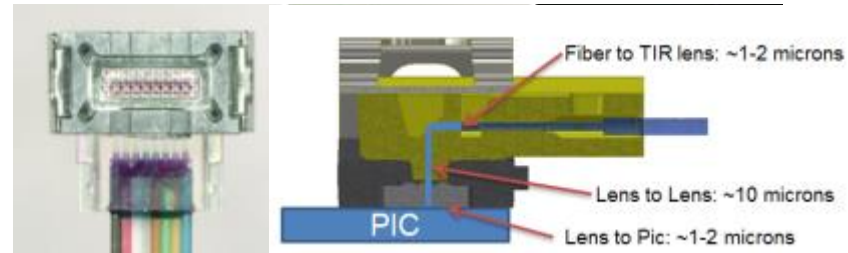
Source: Co-Packaged Optic Assembly Guidance Document



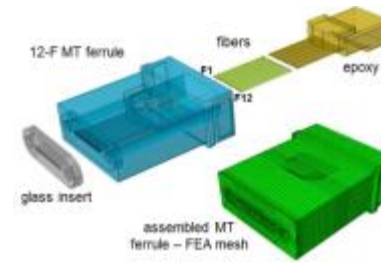
# Numerous Paths Forward Bring Risk / Investment / Time: Opportunity to Down-Select?

	Panel	1	2	3
SM or MM	✓	◆	◆	◆
PC or EBC	✓	◆	◆	◆
Fiber Count / Pitch	✓	◆	◆	◆
Surface normal or Edge		◆	◆	◆
Custom connector		◆	◆	◆
CTE Matching			◆	◆
Custom ferrule		!	!	!
Yield / Reliability (vs ASIC)			!	!
Reflowable ferrule/receptacle			!	◆
Spring force			◆	!
Faceplate density	✓			
Install / Debris insensitivity	✓			
Blindmate / Backplane / EMI	✓			

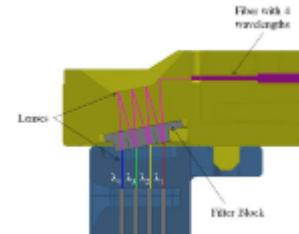
- ✓ = Mature Technology
- ◆ = Development Based on Mature Technology
- ! = Significant Risk / Investment / Time
- (blank) = Not applicable



US Conec 8f SM EBC Light-turn with reflowable receptacle



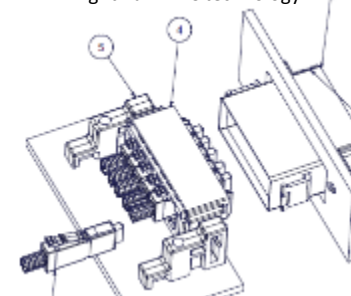
Reflowable and Low CTE ferrule technology



Light Turn EBC technology



US Conec 16f MDC variant



US Conec 6-port MXC Blind Mate with EBC PRISM-MT ferrules

# Thank you

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