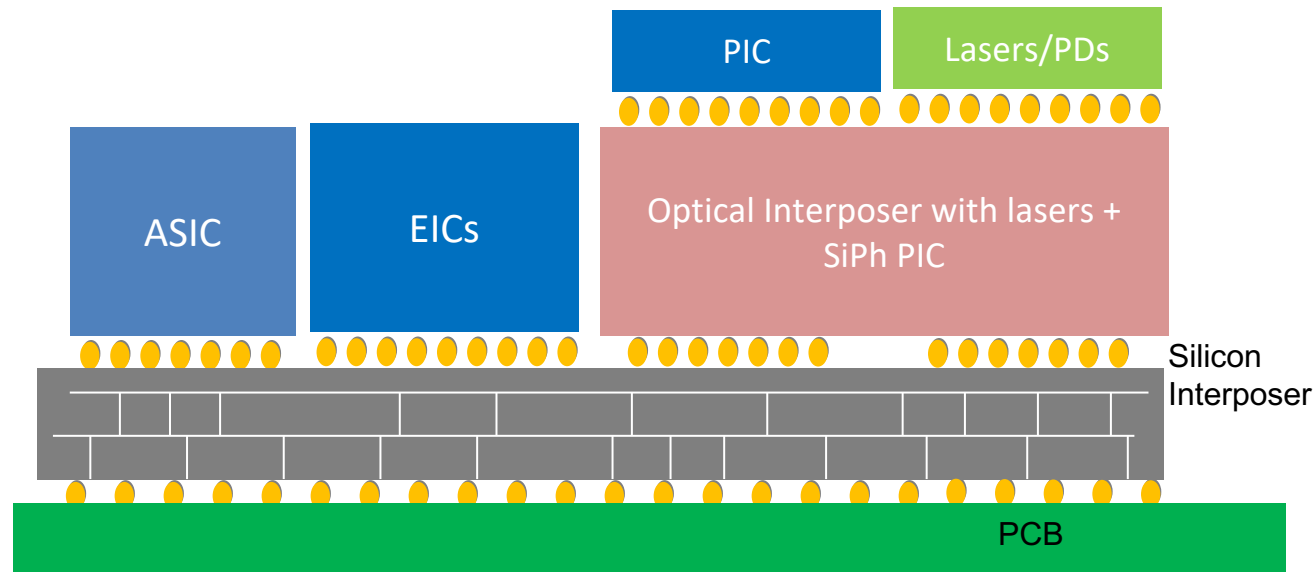


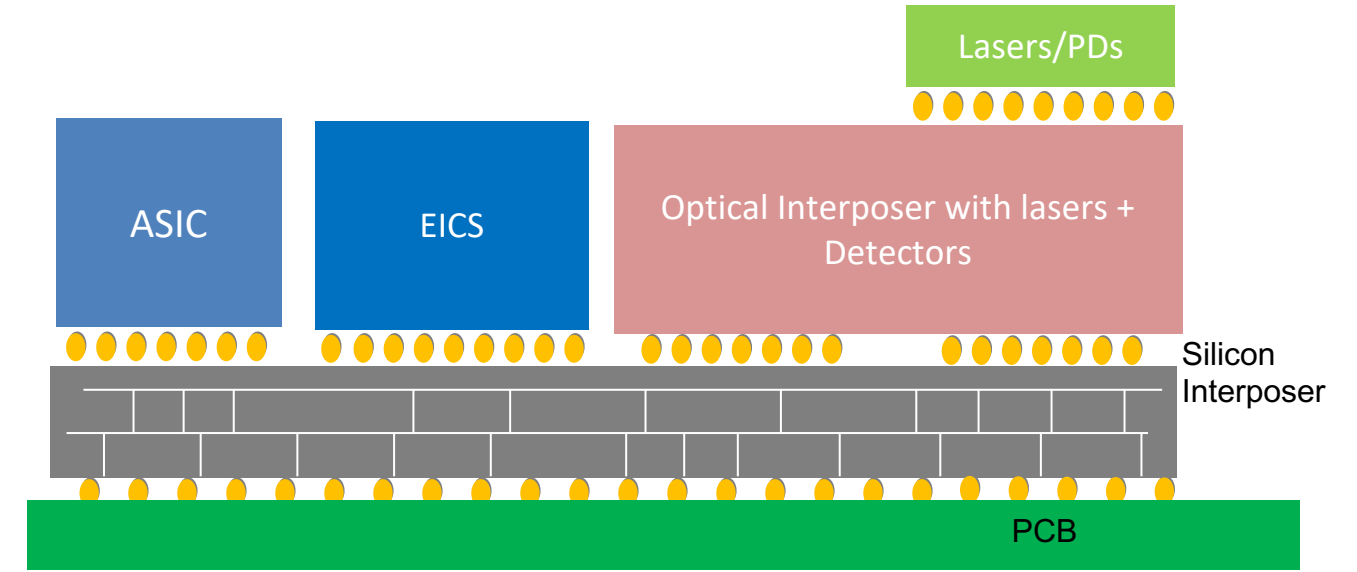
# POET's Optical Interposer

- Applications in the "AI" segment

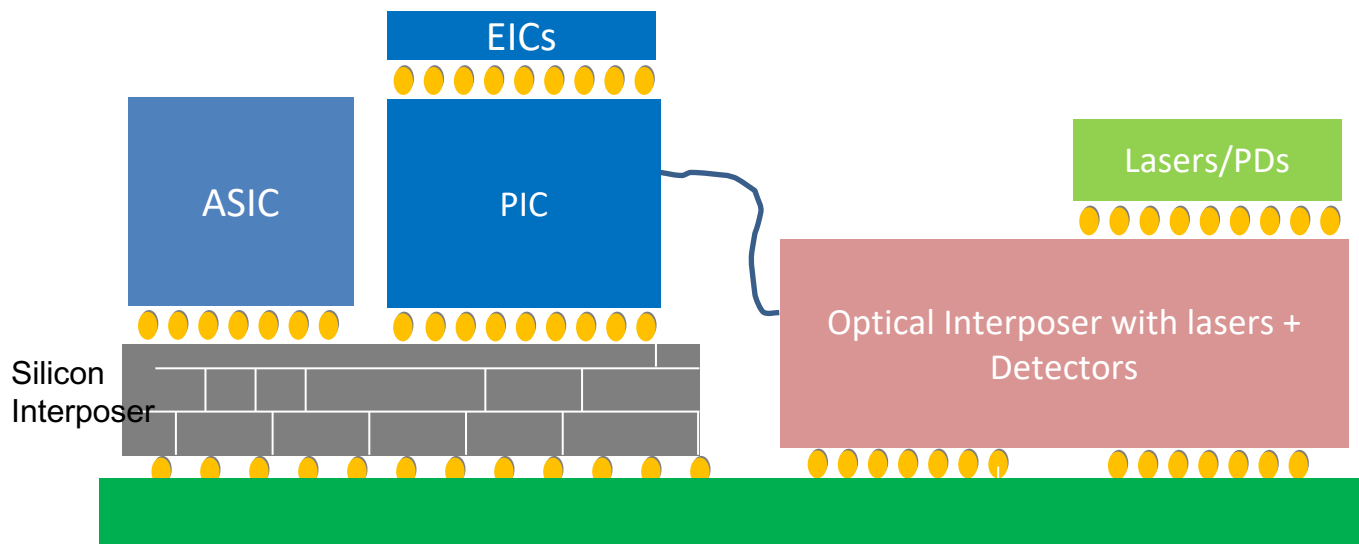
- The introduction of “photonic” fabrics for AI accelerators is a hot trend as challenges to Copper based interconnects become paramount
- The challenges are similar to those experienced in high-speed data networks that are pushing the need for “co-packaged” architectures
- Several companies engaged in various similar themes or architectures (for ex. Ayar Labs for within chip and chip to chip communications)
- Paramount challenges are:
  - Architecture partitioning to replace copper interconnectivity with optical interconnectivity
  - Co-packaging
  - How best to introduce light into the system
  - CW lasers with external modulation or Modulated lasers (DML or EML)



**Integrated Laser/PIC solution using the Optical Interposer**



**Modulated Laser solutions using the Optical Interposer**



**External Laser solutions using the Optical Interposer**

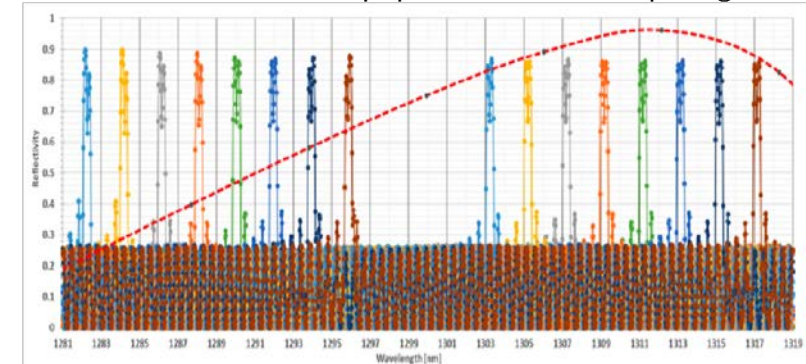
POET's Optical Interposer solution, by nature of its flexibility, lends itself to various architectural partitions

- Various custom architectures and solutions demanded for various applications
- Parallel Fiber solutions ; Multiplexed solutions ; Multiplexed and Splitting solutions
- Cost and Form Factor are paramount – especially for “chip connectivity” solutions that are expected to drive very high volumes [much more than today’s traditional data communications volumes]
- Channel counts can range from 4 to 16 – single wavelength/multiple wavelengths
- POET’s Optical Interposer platform enables wafer scale, passive assembly of high channel count lasers – with in-built splitting / multiplexed solutions as required
- By nature of its construction, POET’s solutions are compatible with 2.5D and 3D architecture partitions

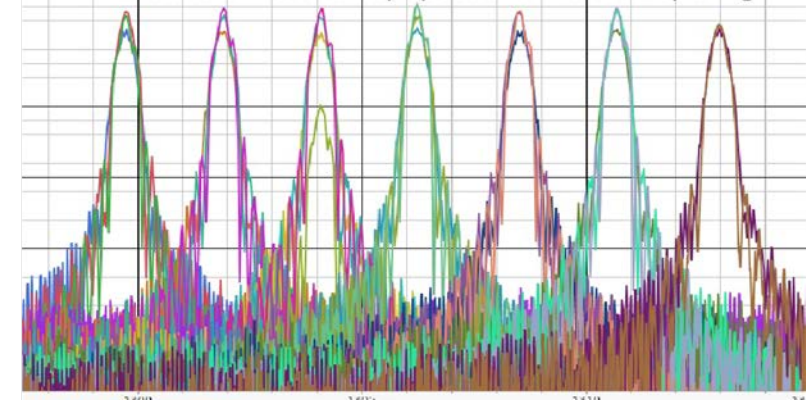
- Primary challenges with External Light Sources
  - Assembly and form factor
  - Requirement for Isolators
  - Requirement for Polarization Maintaining Fibers
  - High Channel Count
- POET's Optical Interposer solutions enable the wafer scale passive placement of “micro-optic” elements – lenses / Isolators
  - High Value item for future External Light Sources
- Incorporating all wavelength selection capability into the Interposer
  - Single Gain Chip versus 8 lasers for example

POET's roadmap for external cavity lasing solutions eliminates all the challenges with integrating External Light Sources into system architectures

Simulated Reflectivity Spectra for 400GHz spacing



Measured Reflectivity Spectra for 400GHz spacing



PTK: TSXV | POETF: OTCQX

The logo for APOET Technologies features a square icon on the left containing a stylized 'A' formed by multiple overlapping lines. To the right of the icon, the word 'APOET' is written in a large, white, sans-serif font. Below 'APOET', the word 'Technologies' is written in a smaller, white, lowercase sans-serif font.

APOET  
Technologies