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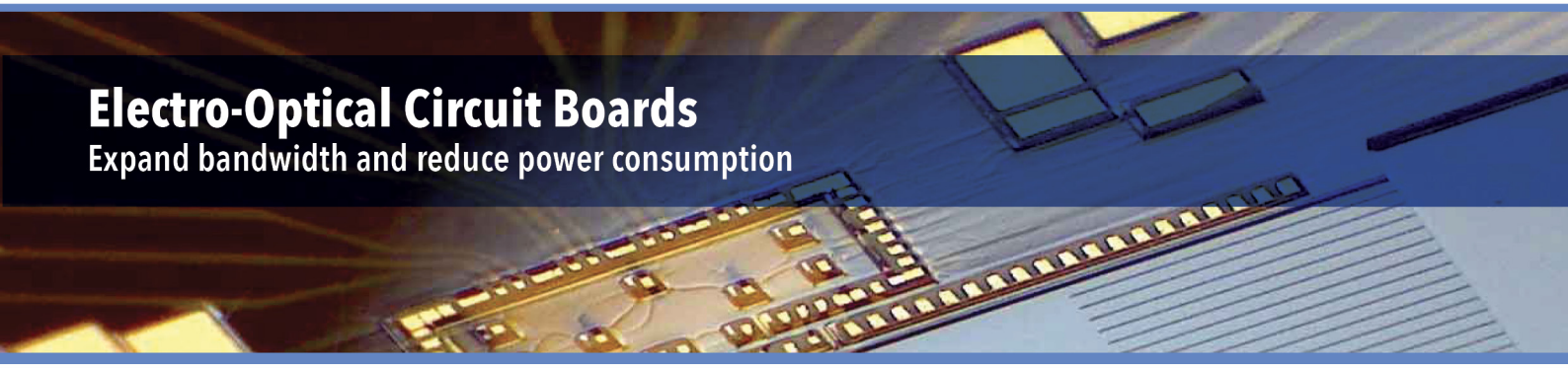
Electro-Optical Circuit Boards

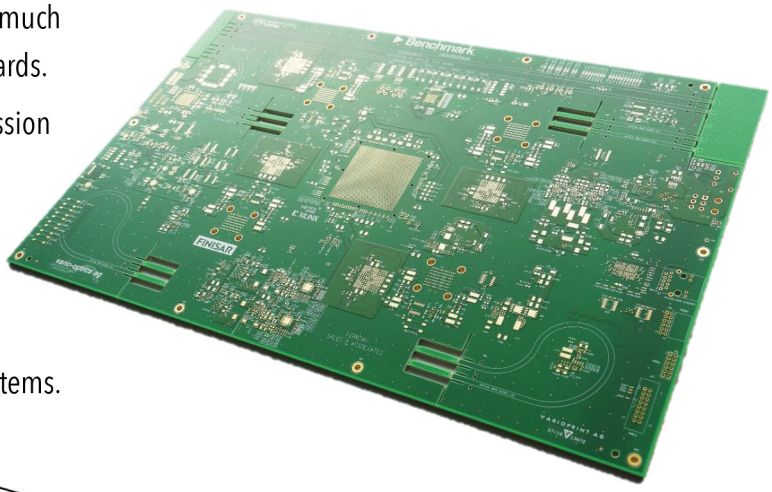
Expand bandwidth and reduce power consumption

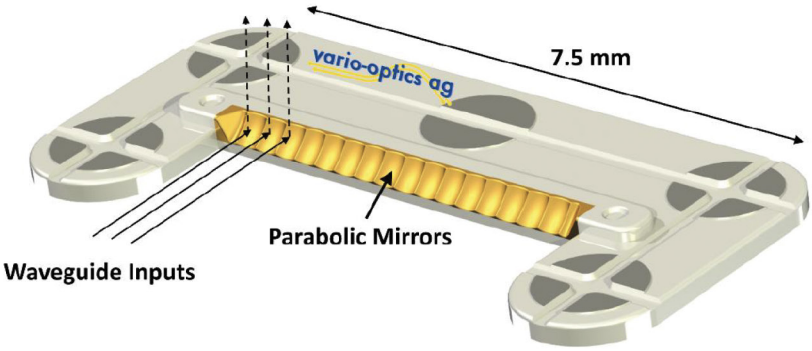


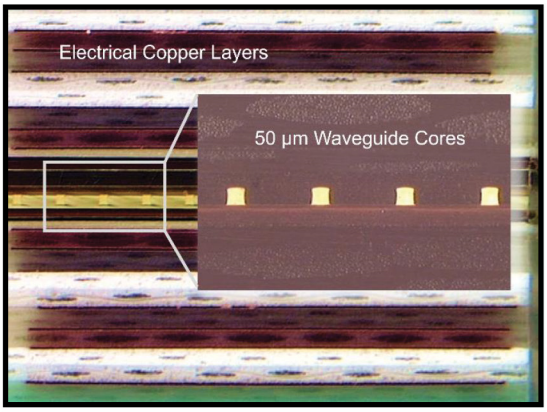
Polymer Waveguide technology combined with PCB enables much higher integration densities compared to purely electrical boards.

This allows to increase data rates for high speed data transmission while at the same time achieving lower power consumption.

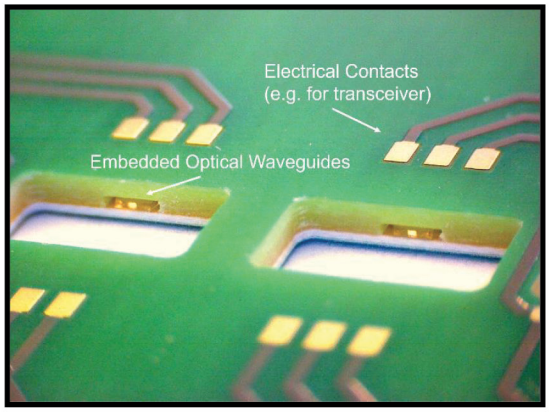
Vario optics designs and manufactures planar waveguides for both singlemode and multimode operation on a variety of substrates. Combination with electrical PCBs and versatile coupling solutions enable next generation electro optical systems.







Cross-section with 50 µm optical waveguides in the center



Embedded waveguides and 90 degree mirrors for out of plane light coupling

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The future of optical networking and communications is here.

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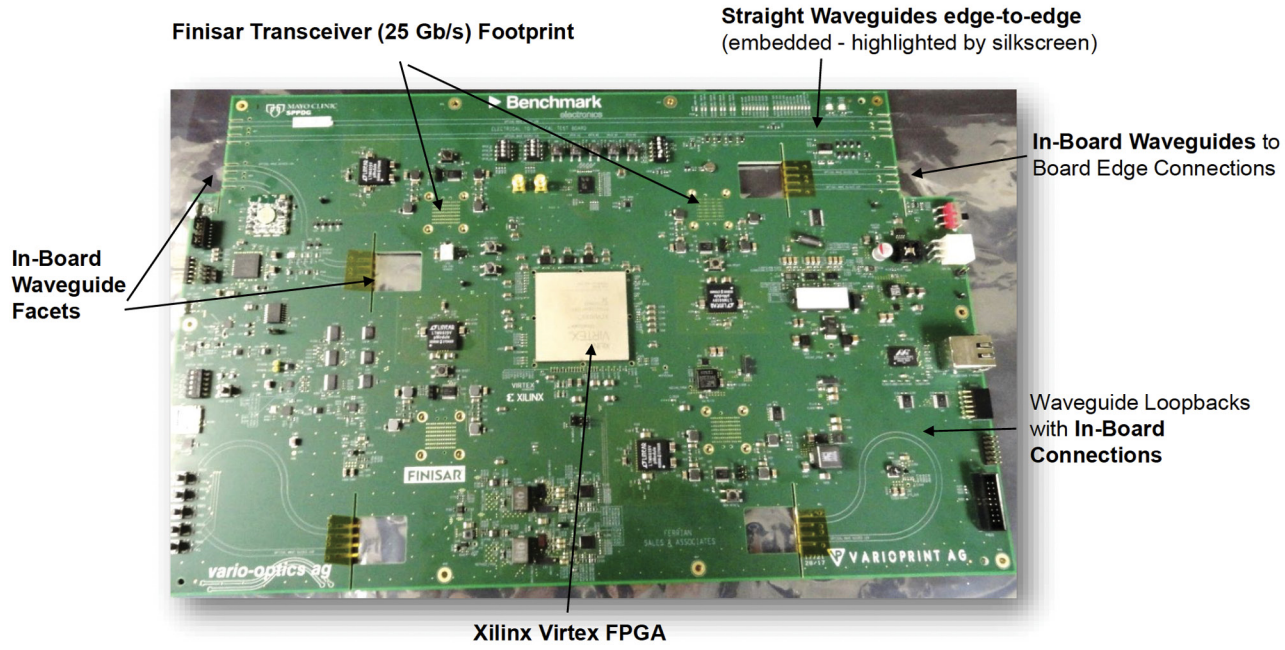
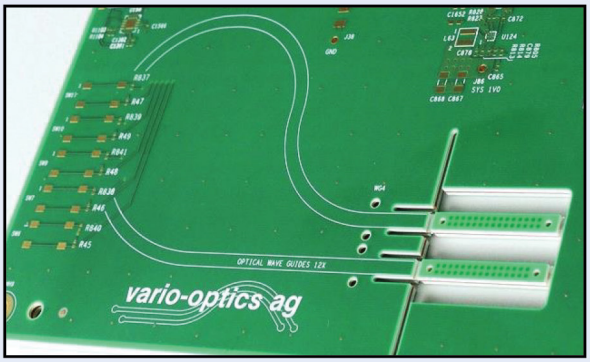
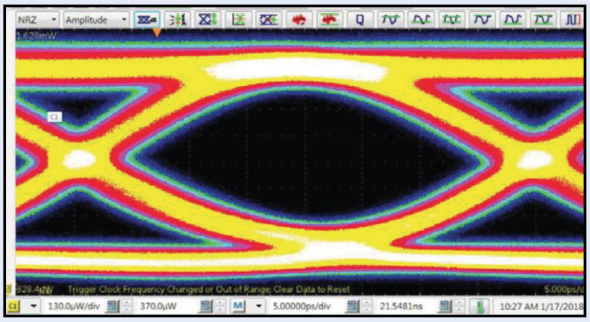
Electro-Optical Polymer Waveguide Demoboard for On-Board Optics





Embedded waveguide loopback with in-board facets



Open eye diagramm running at 25 Gbps

Specifications of Polymer Waveguide Demo-Board:

- High-speed PCB and optical circuit design
  - 20 electrical layers
  - Optical center layer with 8x12 channel multimode polymer waveguides, low-loss (IL 0.05 dB/cm)
  - Board size: 420mm x 265mm, waveguide edge connectors
- Reflow soldering compatible, Telcordia tested (2000h@ 85°C/85% rel.H.)

Performance:

- 1.2 Tbit/s total optical on-board throughput
  - 48 channels@ 25 Gbit/s (limited by transceivers)
  - Low bit error rate < 10-15
  - Low power consumption (pj/bit)
- Low-loss optical transmission (< 0.05 dB/cm @ 850 nm)

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Read on

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