



Company Presentation



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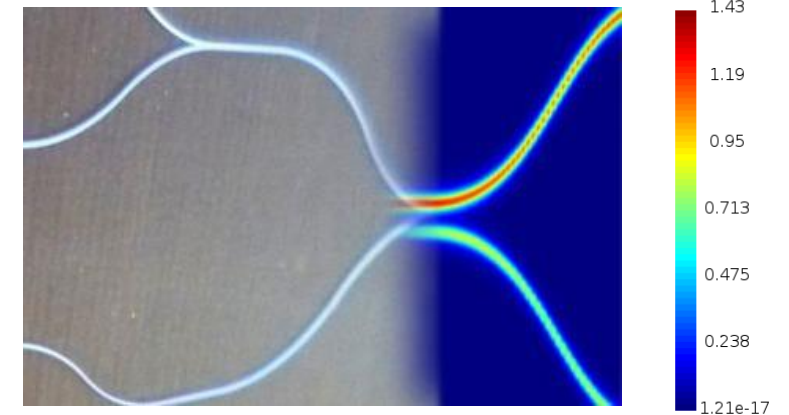
vario-optics ag

Heiden, Switzerland

- Young SME based in Switzerland
- Spin-off from Varioprint AG
- Manufacturer of photonic substrates
- Services for design and development
- Markets
 - Sensor applications (medical, aerospace, environmental, interferometry)
 - Photonic packaging (e.g. chip-to-fiber interface)
 - High-speed on board communication



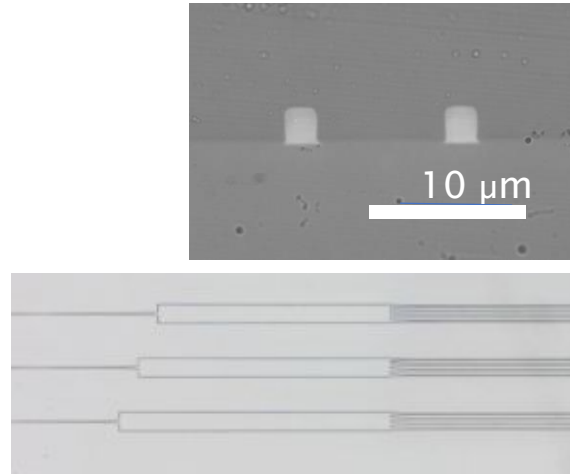
Cleanroom class ISO 5 (100)



Design & simulation services

Technology

- **Planar Polymer Waveguides**
 - Multimode
 - Singlemode
- **Wide spectral operation:** 450 – 1550 nm
- **Integration on various substrates**
(Glass, FR4, Polyimide)

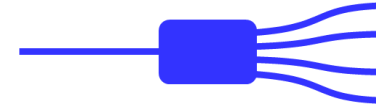


Portfolio of passive Waveguide Structures

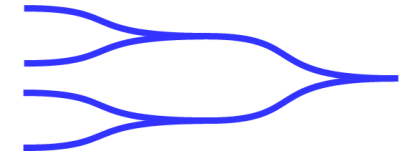
Point-to-Point Connections



1-to-n Splitters



n-to-1 Combiner

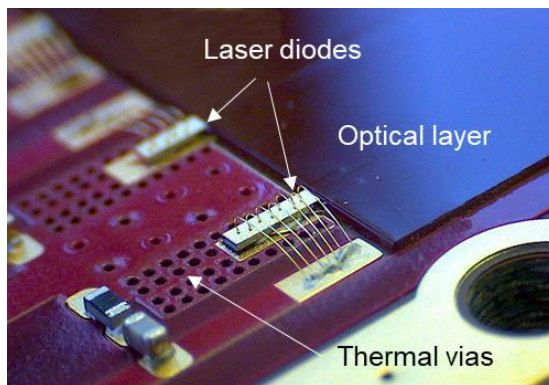


Directional Coupler - Interferometry

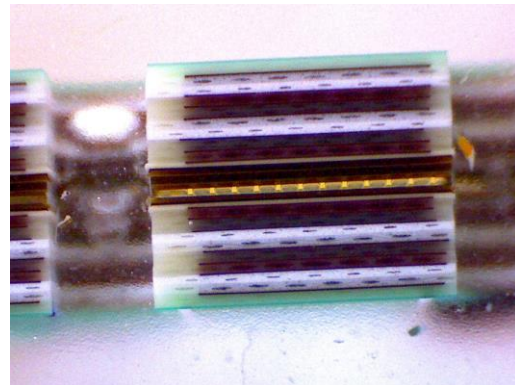


EOCBs - Photonic Boards

Miniaturized optical assemblies



PCB integration of optical layers

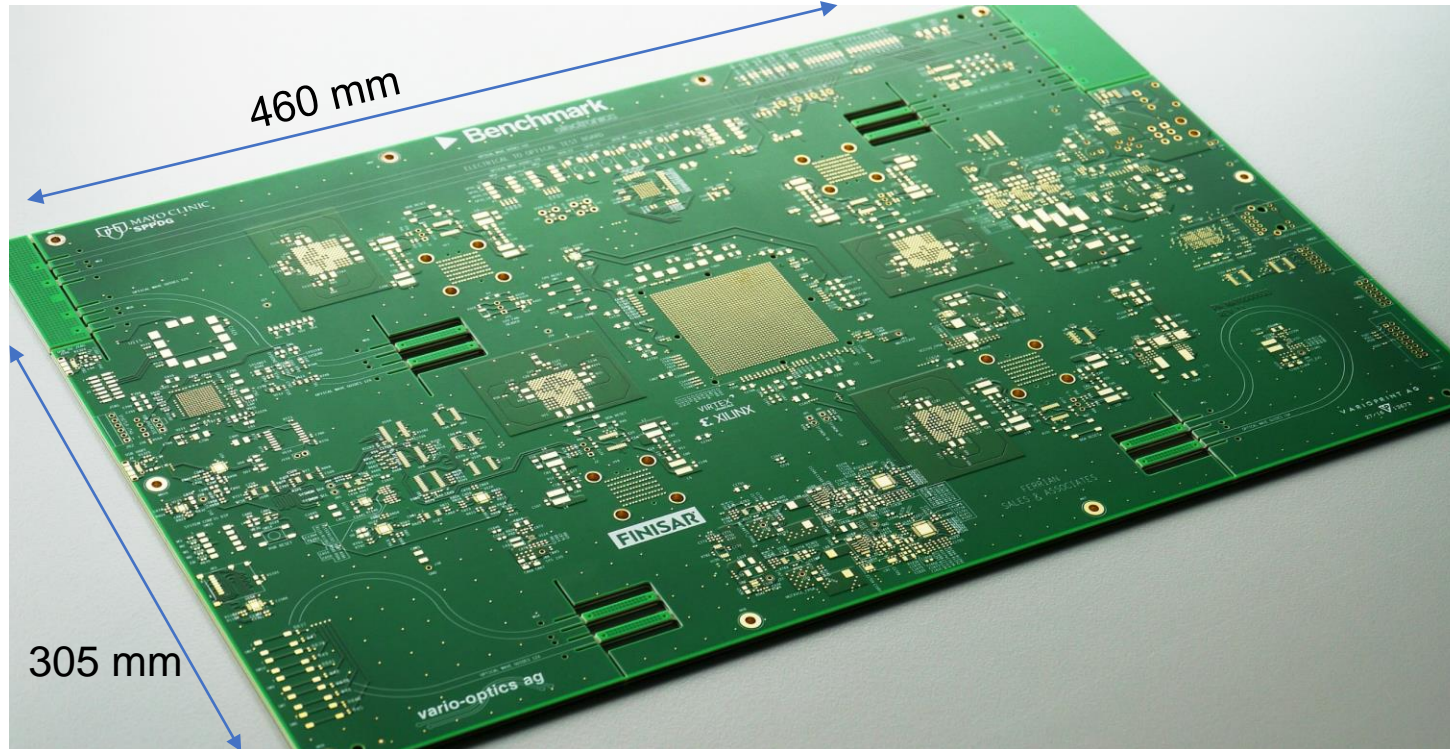


Key advantages of our Technology

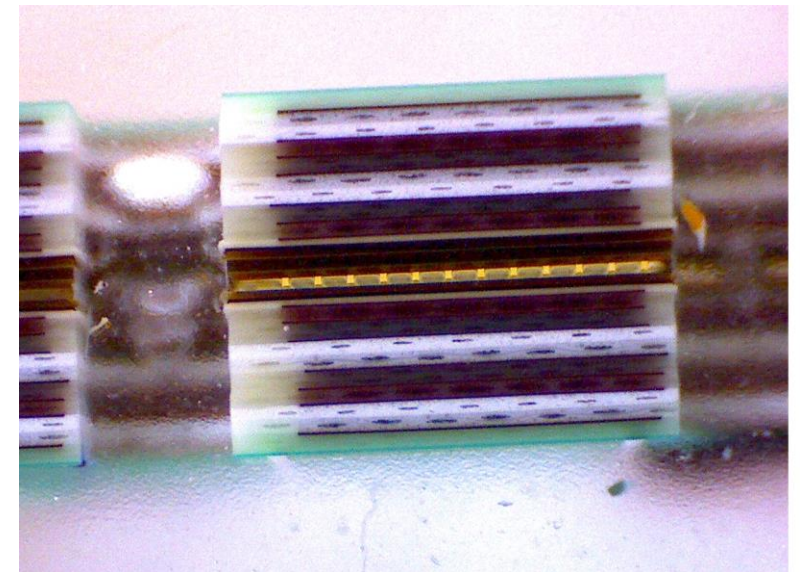
- Miniaturization by integration of optics and electronics
- Low cost assembly and packaging
- Good optical performance
- Robustness to environmental influences

Markets & Applications I: High-speed on-board Communication

Large boards, backplanes, Tb data-transmission

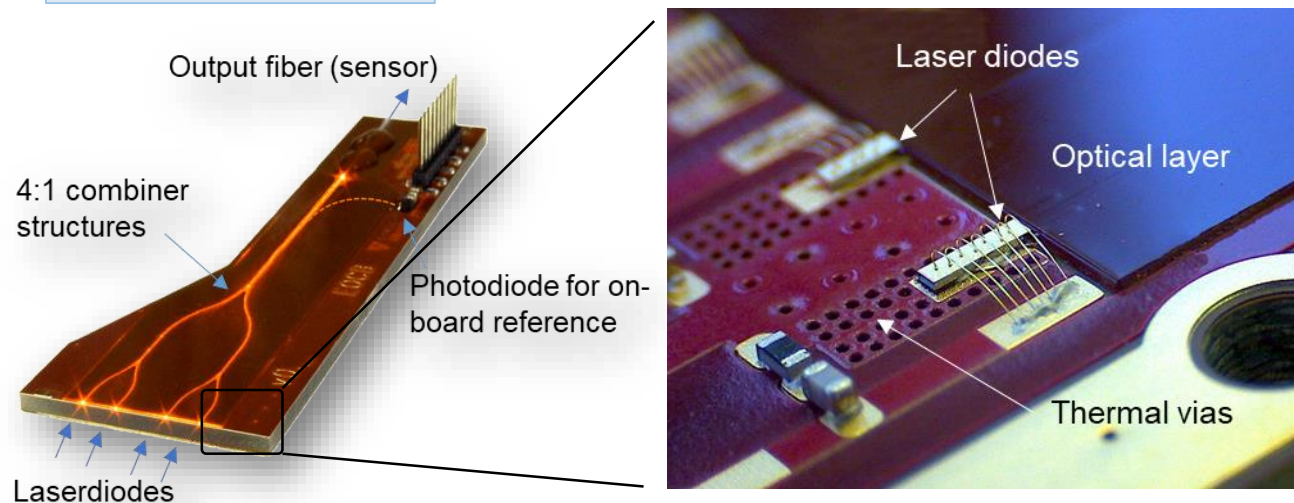


- 20 electrical layers – 1 multimode optical layer
- 48 optical channels
- 4 mid-board optical engines (Finisar)
- Xilinx Virtex FPGA
- **1.4 Tb/s on board communication**



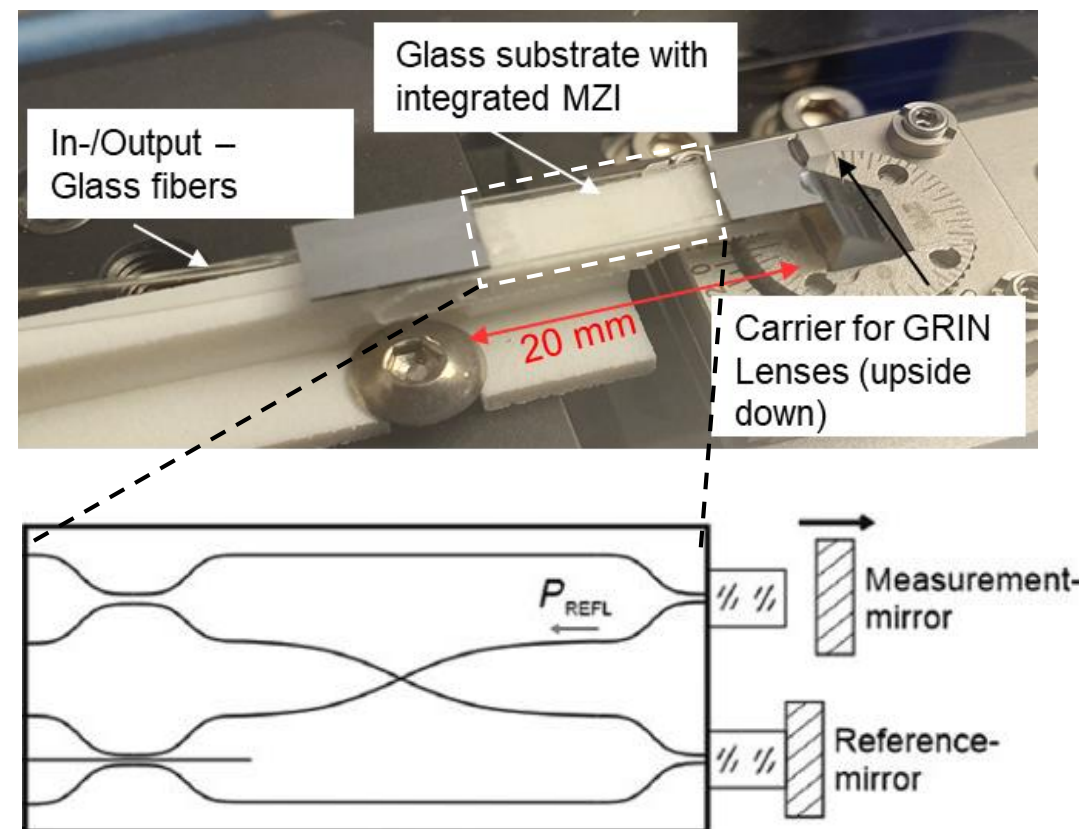
Markets & Applications II: Compact & integrated Sensors

Medical sensor



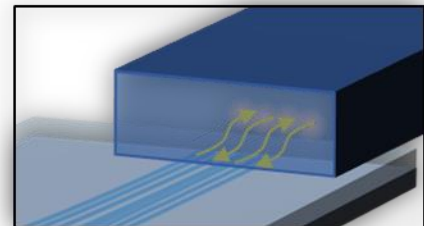
- Compact & customizable $n \times m$ splitters & combiners
- Outperforms free-space and fiber based optics
- **On-chip interferometry**

Integrated interferometric sensor unit:



Markets & Applications III: chip-packaging platform

Suitable for Silicon Photonics & InP



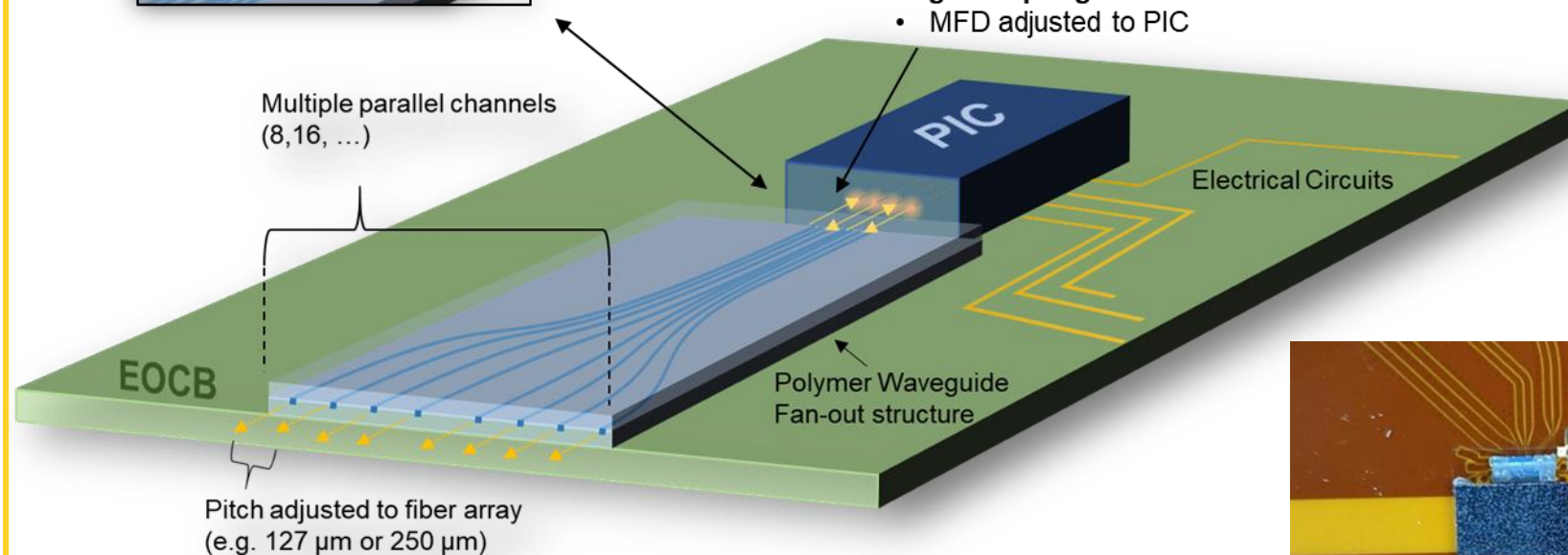
Alternative: **Adiabatic coupling:**

- Insertion loss < 1 dB
- Relaxed assembly tolerances ($\pm 2 \mu\text{m}$)

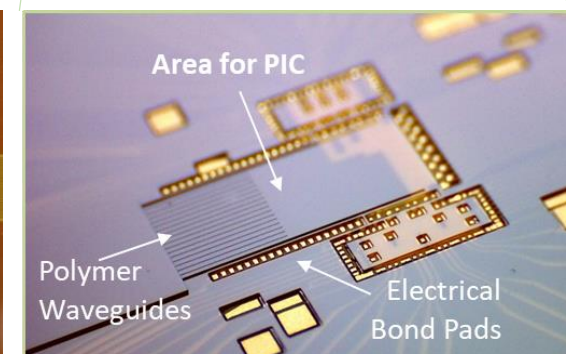
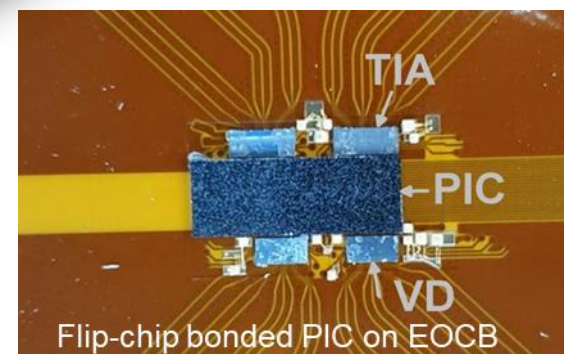
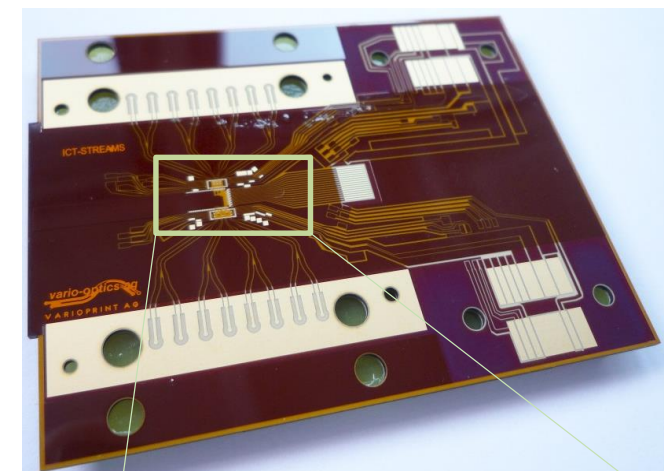
edge-coupling:

- MFD adjusted to PIC

Multiple parallel channels
(8, 16, ...)



<http://www.ict-streams.eu/>





The Future is
Bright !

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