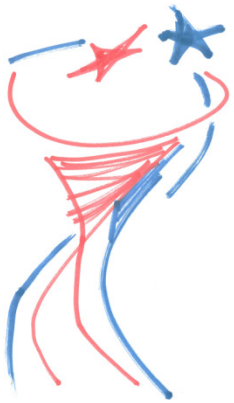


PhoxTroT

Photonics for High-Performance, Low-Cost & Low-Energy Data Centers, High Performance Computing Systems: Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board, Rack-to-Rack data links

Program : ICT - Information and Communication Technologies

Area : ICT-2011.3.5 Core and disruptive technologies

Duration : 01.10.2012 - 30.09.2016

EU contribution : EUR 8 700 000

Project reference : 318240

 January 2013

PhoxTroT - A Large-Scale Integrating Project

PhoxTroT is a large-scale European research effort focusing on

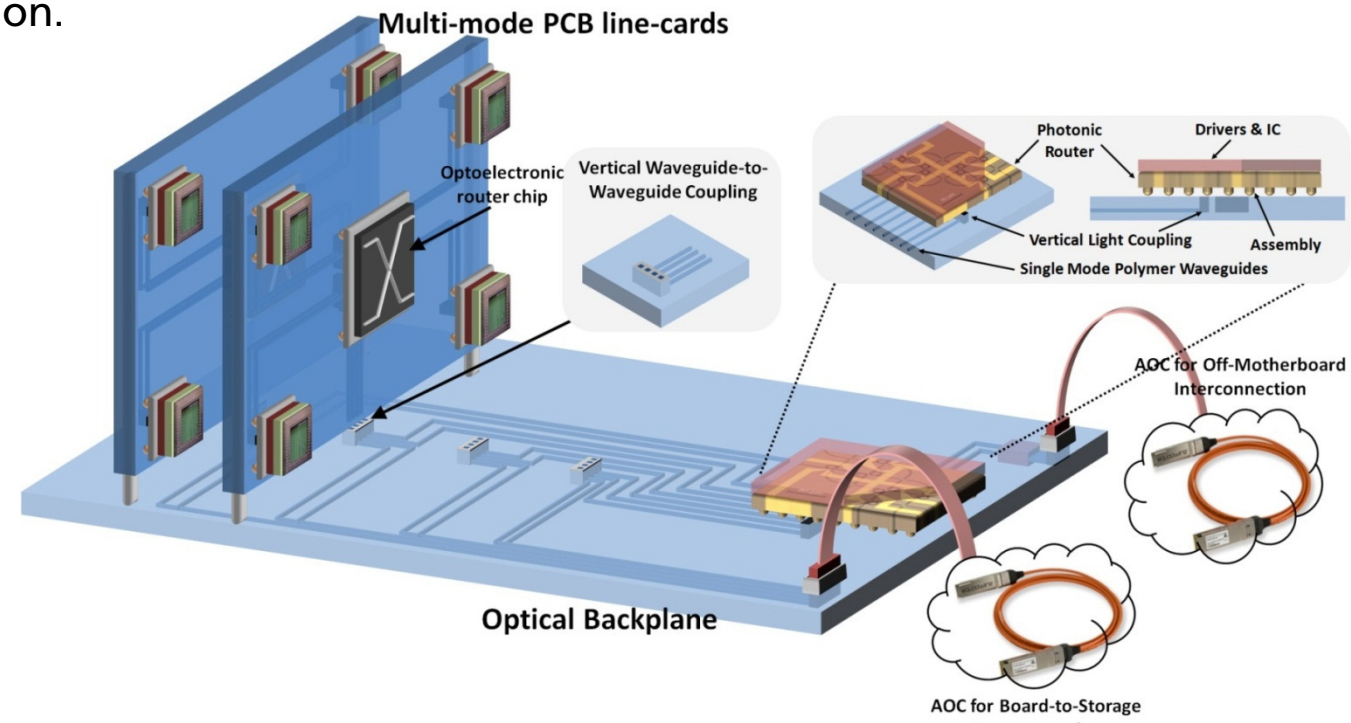
- ★ high-performance,
- ★ low-energy,
- ★ low-cost,
- ★ small-size

optical interconnects across the different hierarchy levels in Data Center and High-Performance Computing Systems:

- ★ on-board,
- ★ board-to-board and
- ★ rack-to-rack.

PhoxTroT's Mission

To streamline the synergistic evolution of the entire technology portfolio towards cost- and energy-efficient Tb/s-scale chip-to-chip, board-to-board and rack-to-rack level device development. PhoxTroT aims to generate the necessary energy and cost-efficiency factors through breakthrough component-level advances and through mastering the different technology platform design- and process-level requirements into a coherent methodology for optochip, optical PCB and Active Optical Cable fabrication.



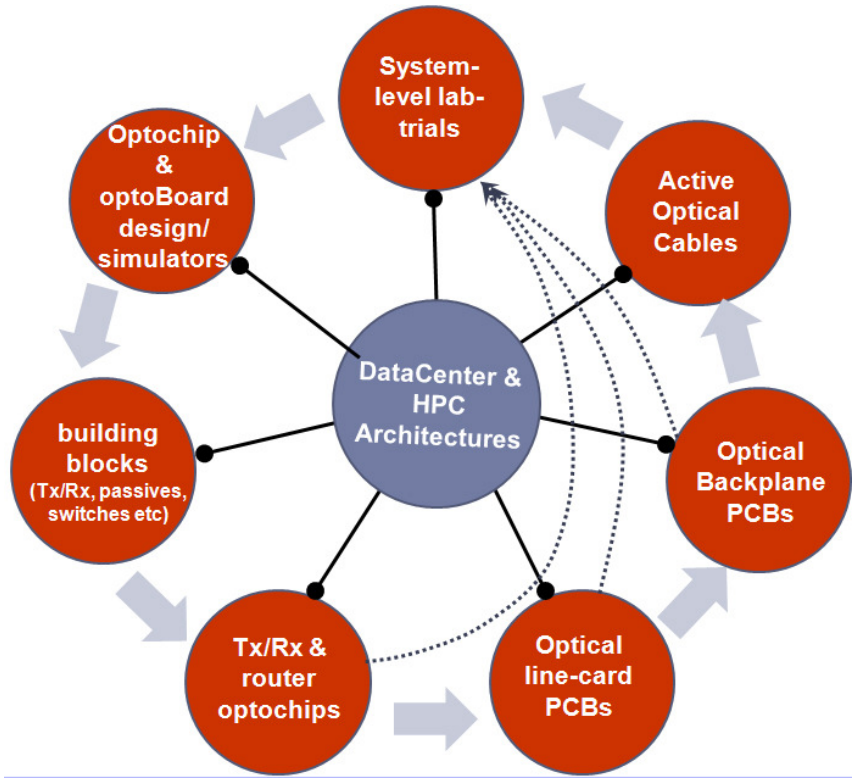
PhoxTroT's Objectives

- ★ Generic building block that can be used for a broad range of applications, extending performance beyond Tb/s and reducing energy by more than 50%.
- ★ A unified integration/packaging methodology as a cost/energy-reduction factor for board-adaptable 3D SiP transceiver and router optochip fabrication.
- ★ The whole "food-chain" of low-cost and low-energy interconnect technologies concluding to 3 fully functional prototype systems:
  - ★ an >1Tb/s throughput optical PCB and >50% reduced energy requirements,
  - ★ a high-end >2Tb/s throughput optical backplane for board-to-board interconnection, and
  - ★ a 1.28Tb/s 16QAM Active Optical Cable that reduces power requirements by >70%.

PhoxTroT's Holistic Way

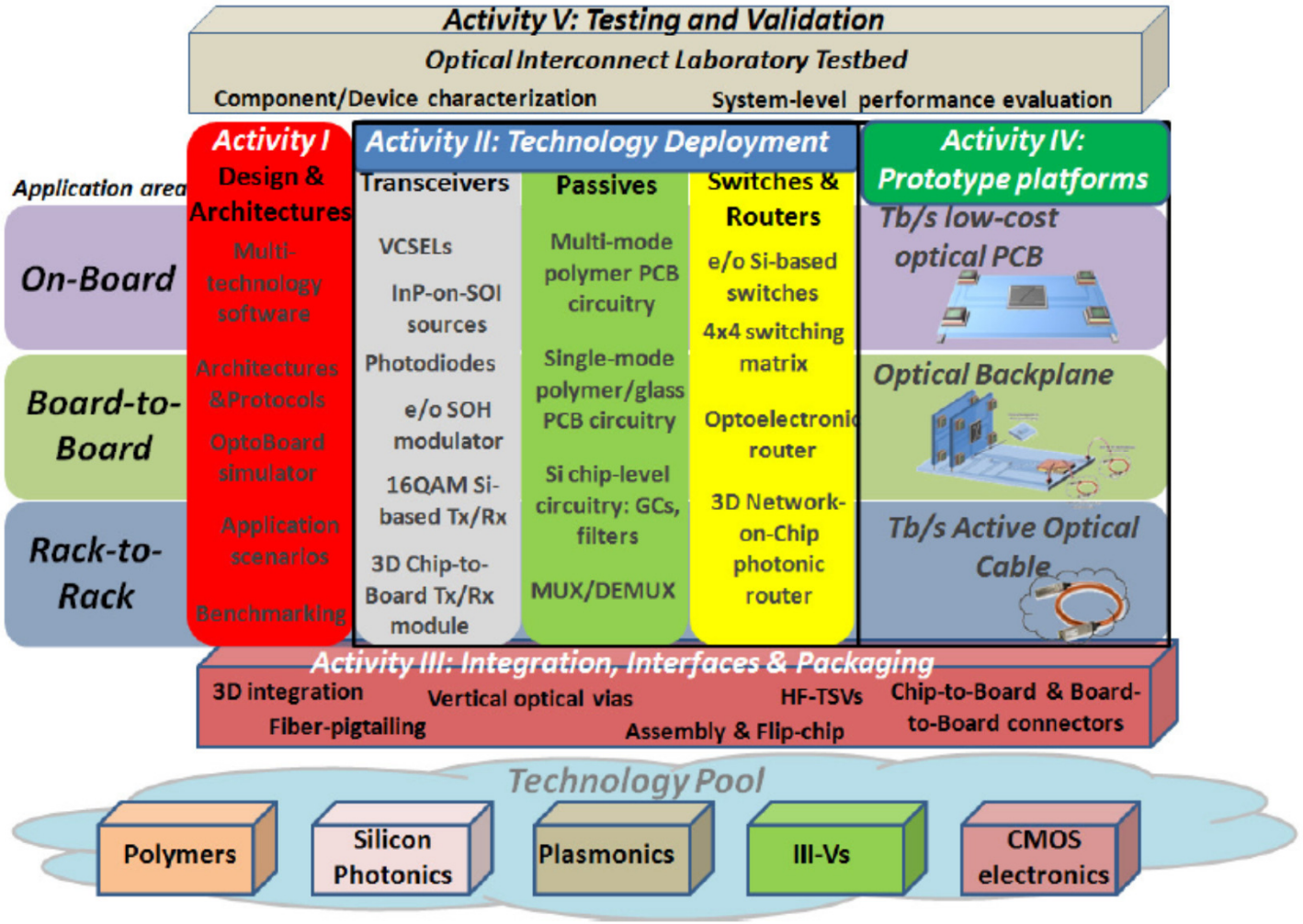
PhoxTroT tackles optical interconnects in a holistic way, synergizing the different fabrication platforms in order to deploy the optimal "mix&match" technology and tailor this to each interconnect layer.

PhoxTroT follows a layered approach from near-term exploitable to more forward looking but of high expected gain activities.



Plasmonics | III-V | Si Photonics | CMOS electronics | Glass | Polymers

PhoxTroT's Technical Development Strategy



PhoxTroT - Consortium

PhoxTroT brings together the major European industrial and research players in the field.

- ★Fraunhofer IZM (DE)
- ★Fraunhofer HHI (DE)
- ★Vertilas GmbH (DE)
- ★Xyratex Technology Ltd (UK)
- ★ams AG (AT)
- ★TTM Technologies (HK)
- ★AMO GmbH (DE)
- ★ICCS/NTUA (EL)
- ★DAS Photonics SL (ES)
- ★Phoenix BV (NL)
- ★CERTH (EL)
- ★Compass EOS Ltd (IL)
- ★Bright Photonics BV (NL)
- ★CTI (EL)
- ★CNRS-UB (FR)
- ★CNRS-LPN (FR)
- ★KIT (DE)
- ★SDU (DK)
- ★UPVLC (ES)
- ★IMEC (BE)

www.phoxtrot.eu

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