Introducing OpenLight
Driving The Next Era of Open Silicon Photonics with Integrated Lasers

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COO, OpenLight

OpenLight™

A member of cobo
Key Drivers for Next Generation Networking

- **OpenLight** is a new, independent company, providing the world’s first open-foundry silicon photonics platform with integrated lasers – now available through Tower Semiconductor
- Platform addresses growing photonic applications such as datacom, telecom, LiDAR, healthcare, HPC, AI, & optical computing
- OpenLight technology provides a new level of laser integration that delivers unparalleled scale and performance, accelerating new applications
- Technology passing reliability tests on Tower’s PH18DA production process, with a comprehensive library of devices to enable integrated PIC designs (PDK available through Tower)
- Formed with investments from Synopsys & Juniper
A key challenge for silicon photonics has been the cost of adding discrete lasers, including the manufacturing assembly and alignment of those lasers onto Photonic ICs.

OpenLight’s Open Silicon Photonics Platform includes integrated lasers, optical amplifiers, and other key photonic components such as a low-loss modulator - forms a complete solution.

The open platform enables a new level of scalability with integrated lasers which simplifies high-density PIC packaging and assembly.

Enabling new applications with the lowest power for high-performance photonic IC’s.

Technology brings advantages to co-packaging applications.
Addressing Laser Integration Challenge in Silicon Photonics

- 400G-DR4 Opto-ASIC
- Optical Fiber Interface
- Microcontroller
- Datapath Rx ASIC
- Control ASIC
- Datapath Tx ASIC
- 14mmx18mm Organic BGA Substrate
- PIC
- 4x Modulators
- 4x Hybrid Lasers
- Passive Structures
- Optical I/O
- 4x Photodiode Array
- PIC dimensions: 9.85mm x 4.465mm
- 100G PAM4 eyes demonstrate TDECQ margin
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OpenLight Technology Brings Integrated Lasers to a Broad Array of Applications and Packaging

Today’s Pluggable

Emerging Co-Packaged Optics

Next SoC Optical Interfaces

Data Center
Server, Switch, HPC Interconnects

Automotive
LiDAR, Interconnects, Gyros

Telecom
5G, Metro, Long Haul, Submarine

AI
Accelerators, XPU Interconnects/Optical Computing

Health
Medical Sensors, Optical CT
OpenLight Process Design Kit (PDK)
All the Components Needed to Build Your Photonics IC

- Standard passive device library
- Unique offering adds active devices – tunable laser, optical amplifier, photo detectors
- Integration eliminates barrier to entry – no need to source & package separate lasers
- OpenLight platform enables very low loss between active components and Si waveguides
- PDK GA in September (with Synopsys)
OpenLight PIC Design Solutions
Accelerating Customer Time-to-Market

- Demonstrates the capabilities of the OpenLight platform
- Accelerates customer adoption of the technology
- Saves customer resources and accelerates time to market
- Current offering is 400G-DR4 and 800G-DR8 designs with 2km reach for datacom customers
- Coming soon: 400G-FR4, 2xFR4, 4xFR4, & 8x200G (1.6T) PIC designs
- Engaged with leading-edge customers across key application areas such as Data Center, LiDAR, HPC, optical computing
Summary

• OpenLight is a new, independent company, providing the world’s first open silicon photonics platform with integrated lasers

• Addresses multiple applications including datacom, telecom, LiDAR, healthcare, HPC and optical computing

• OpenLight technology provides a new level of laser integration & scalability that delivers unparalleled performance and reliability, accelerating new applications

• Developed on proven technology with 200+ patents on photonic device design & process integration

• The first open Multi-Project Wafer (MPW) shuttle runs on this PH18DA process are taping out this summer with another one planned for Fall 2022

www.openlightphotonics.com
Thank You

www.openlightphotonics.com
OpenLight Based on Decades of Investment

- Core technology developed at Aurrion, UCSB spin-out, founded in 2008
- Aurrion was acquired by Juniper Networks in 2016
- Partnered with Tower Semiconductor as foundry partner in 2019
- World’s first open market silicon photonics platform announced in 2021
- OpenLight was formed with investments from Synopsys & Juniper April 2022
- Production ready with first customer tapeouts targeted for Summer 2022

>50% Staff with PhDs

>200 Patents

>400 years Industry Experience
The Leadership Team

Dr. Thomas Mader
Chief Operating Officer

Dr. Volkan Kaman
Vice President Engineering

Dr. Daniel Sparacin
Vice President Business Development & Strategy