

Manufacturer co-packages 1G of photonics



Overview

The Silicon Photonics & Co-Packaged Optics supply chain Roughly fifteen specialist industries have to coordinate to build a single co-packaged module, and a.

Key Takeaways

GlobalFoundries, ASMPT, and Quantifi Photonics are leading manufacturers offering co-packaged photonics (CPO) solutions, including high-speed 1G-scale photonic modules.

Key Manufacturers and Solutions



GlobalFoundries (GF) offers the SCALE™ optical module solution for co-packaged optics, integrating silicon photonics with advanced electrical ICs. Their platform supports dense wavelength-division multiplexing (DWDM) and coarse WDM (CWDM) for bi-directional data transmission, enabling high-bandwidth, energy-efficient interconnects suitable for AI and high-performance computing applications. GF's modules include 50Gbps and 100Gbps micro-ring modulators, integrated photodiodes, and through-silicon vias (TSVs) for 2.5D/3D stacking, allowing rapid transition from design to volume production. ASMPT provides CPO solutions that optimize the integration of electronics and photonics, focusing on high-speed data transfer and energy efficiency. Their offerings enable compact, co-packaged modules suitable for large-scale deployment in data centers and AI infrastructure. Quantifi Photonics specializes in photonic integrated circuits (PICs) and co-packaged optics, supporting high-channel-count and high-density optical interconnects. They provide modular test solutions for wafer, die, and assembled modules, facilitating scalable, cost-effective manufacturing of photonic devices for AI, machine learning, and high-performance computing. Tyndall National Institute offers standardized photonic packaging services through Multi-Project Packaging (MPP), delivering pre-packaged photonic modules with options for multiple fiber channels, thermal management, and flexible fiber array configurations. This service reduces cost barriers and turnaround times for photonic integrated circuits.

Technical Highlights

- Integration: Combines photonic devices with electrical ICs on advanced nodes for optimized performance.
- Bandwidth: Supports multi-lambda DWDM and CWDM for high data throughput.
- Packaging: Offers 2.5D/3D stacking, fiber arrays, and thermal management solutions.
- Testing: Modular PXI-based test platforms enable high-throughput, parallel measurements for scalable production.

Applications

These co-packaged photonics solutions are primarily used in:

- AI and machine learning infrastructure
 - High-performance computing and data centers
 - Optical interconnects replacing traditional copper links for energy efficiency
 - Scalable, high-density optical communication systems
- These manufacturers and service providers collectively enable the production of 1G-scale photonic modules and beyond, supporting the growing demand for high-speed, energy-efficient optical interconnects in modern computing environments.

Article Content

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Meanwhile, the optical module, enabled by silicon photonics, is now treated similarly to electronic chips, and advanced co-packaged

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