

## MACOM and GLOBALFOUNDRIES Collaborate to Scale Silicon Photonics to Hyperscale Cloud Data Center and 5G Network Buildouts

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- Collaborative agreement expands existing relationship, to deliver requisite cost, scale and capacity to enable mainstream L-PIC deployment for 100G, 400G and beyond
- Multi-source supply chain leveraging GF's global manufacturing footprint in Singapore and New York
- Production scale of 300mm wafers is expected to enable exponential port growth in cloud Data Centers and 5G networks

LOWELL, Mass. & SANTA CLARA, Calif.--(BUSINESS WIRE)--Mar. 5, 2019-- [MACOM Technology Solutions Inc.](https://www.businesswire.com/news/home/20190305005029/en/) ("MACOM"), and [GLOBALFOUNDRIES](https://www.businesswire.com/news/home/20190305005029/en/) ("GF") today announced a strategic collaboration to ramp MACOM's innovative Laser Photonic Integrated Circuit (L-PIC) platform using GF's current-generation silicon photonics offering, 90WG, to meet Data Center and 5G Telecom industry demands. The collaboration will leverage GF's 300mm silicon manufacturing process to deliver requisite cost, scale and capacity that is expected to enable mainstream L-PIC deployment for hyperscale Data Center interconnects and 5G network deployments at 100G, 400G and beyond.

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GF's 90WG, built on the company's 90nm SOI technology using 300mm wafer processing, enables low-cost integration of optical devices like modulators, multiplexers and detectors into a single silicon substrate. MACOM's L-PIC technology solves the remaining key challenge of aligning lasers to the silicon PIC. Leveraging MACOM's patented Etched Facet Technology (EFT) lasers and a patented Self-Alignment EFT (SAEFT™) process, MACOM's lasers are aligned and attached directly to the silicon photonics die with high speed and high coupling efficiency, thereby accelerating the adoption of silicon photonics in true industrial-scale applications.

The industry is entering a long upgrade cycle for high speed optical connectivity within Cloud Data Centers as well as 5G optical buildouts. Industry forecasts project 2019, 2020 and beyond to be strong growth years for Coarse Wavelength Division Multiplexing (CWDM) and PAM-4, with the potential for overall unit demand in 2019, reaching volumes of 10 million units. With a track record of enabling 1.6 million ports in 2016, 4 million ports in 2017, and 6 million ports in 2018, MACOM will work with GF to scale L-PIC production aimed at meeting this exponentially growing market demand.

The collaboration will leverage GF's 300mm silicon manufacturing process to deliver requisite cost, scale and capacity that is expected to enable mainstream L-PIC deployment for hyperscale Data Center interconnects and 5G network deployments at 100G, 400G and beyond. (Graphic: Business Wire)

“With the demand for bandwidth doubling inside Data Centers each year, Cloud Service Providers are supply constrained in moving to 100G and beyond. On top of this, Telecom carriers are now adopting the same CWDM and PAM-4 optical standards for their 5G Network buildouts. The ability to efficiently scale transceiver capacity and manufacturing throughput is critical,” said John Croteau, President and CEO of MACOM. “By aligning capacity expansion between GF's silicon photonics technology and MACOM's EFT Lasers, and moving to 300mm wafers, we believe that this very strategic collaboration will allow us to meet industry demand and position us to service the industry for years to come.”

“We have built an incredible foundation as a leader in providing silicon photonic solutions and advanced packaging capabilities that enable our clients to build a new generation of high-performance optical interconnects,” said Tom Caulfield, CEO at GF. “With our deep manufacturing expertise, combined with MACOM's strong technology, we can deliver differentiated silicon photonic solutions at scale, accelerate time-to-market, and reduce costs for client applications in Data Center and next-generation 5G optical networks.”

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