

X-FAB and SMART Photonics Collaborate to Enable Multi-Terabit Transceivers with Silicon Photonics and InP Integration

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[X-FAB Silicon Foundries SE](#), the leading analog/mixed-signal and specialty foundry, and [SMART Photonics](#), the leading Indium Phosphide (InP) integrated photonics foundry, have announced a strategic collaboration. This collaboration intends to integrate X-FAB's silicon photonics platform with SMART Photonics' InP chiplets using micro-transfer printing (MTP) for heterogeneous integration, enabling new capabilities for datacom and telecom applications.

InP technology supports modulator bandwidths exceeding 120 GHz, making it the optimal solution for next-generation multi-terabit telecom and datacom standards – pushing transceiver speeds far into the terabit realm. In contrast, market leading silicon photonics technologies hit a performance ceiling at around 70 GHz. The collaboration aims to deliver scalable, high-volume solutions that combine the best of both technologies.

By co-optimizing silicon photonics, InP, and MTP technologies to fulfill customer requirements, the collaboration will enable new functionalities and improved system performance while reducing integration costs through relaxed photonics packaging requirements. The MTP technology, licensed from [X-Celeprint](#), enables a broad degree of freedom for the system and product designers, by providing flexible integration of various material system chiplets into the product design.

Johan Feenstra, CEO of SMART Photonics, explains: "I am very pleased that we were able to establish a strategic collaboration with X-FAB to unite the strengths of our platforms through world-class heterogeneous integration. As the demand for integrated photonics rapidly increases, thanks to the growth of AI and data transfer, our joint solutions will

enable much faster data rates while reducing overall power consumption, and therefore the environmental footprint.”

Rudi De Winter, CEO of X-FAB, adds: “Through heterogeneous integration, we are combining the best of the InP and silicon photonics worlds. This will allow our customers to develop innovative solutions addressing the societal challenges of our times such as decarbonization. It is also a great opportunity to build a strong European value chain.”

This collaboration builds upon the [PhotonixFAB](#) EU funding project, which aims to provide a path to scalable high-volume manufacturing for SOI and SiN silicon photonics, MTP-ready InP chiplets and micro-transfer printing of chiplets.

X-FAB and SMART Photonics recently signed a Memorandum of Understanding to formalize their collaboration. The aim is to support lead customers with industrial prototyping by 2026, with risk production readiness by 2027. Early customer engagements can be supported within the ongoing PhotonixFAB project framework.

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Glossary

InP – Indium Phosphide

MTP – Micro Transfer Printing

SiN – Silicon Nitride

SOI – Silicon-on-Insulator



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About SMART Photonics

Integrated photonics uses the power of light to create energy-efficient, faster, and more accurate microchips. The technology is set to play an essential role in finding and developing solutions for the world's challenges, such as reducing energy consumption, improving healthcare, fighting food waste and our continuous hunger for information. As a foundry for integrated photonic circuits, SMART Photonics offers solutions for data and telecommunication, as well as for sensing – such as Lidar – and medical applications. And it doesn't stop there. SMART Photonics is the leading foundry for integrated photonics, creating innovative products that improve people's lives.

About X-FAB

X-FAB is a global foundry group providing a comprehensive set of specialty technologies and design IP to enable its customers to develop world-leading semiconductor products that are manufactured at X-FAB's six wafer fabs located in Malaysia, Germany, France, and the United States. With its expertise in analog/mixed-signal technologies, microsystems/MEMS and silicon carbide (SiC), X-FAB is the development and manufacturing partner for its customers, primarily serving the automotive, industrial and medical end markets. X-FAB has approximately 4,500 employees and has been listed on Euronext Paris since April 2017 (XFAB). For more information, please visit www.xfab.com.

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