

Synopsys and Juniper Networks Invest in New Company to Pursue Fast-Growing Silicon Photonics Market



New Company Will Provide Industry's First "Laser-on-a-Chip" Open Silicon Photonics Platform for Telecom, Datacom, LiDAR, Healthcare, HPC, AI, and Optical Computing Applications

MOUNTAIN VIEW, Calif., April 4, 2022 /PRNewswire/ -- [Synopsys, Inc.](#) (Nasdaq: [SNPS](#)) and [Juniper Networks](#) (NYSE: JNPR) today announced that they have closed a transaction to form a new, separate company that will provide the industry with an open silicon photonics platform to address the growing photonic requirements in applications such as telecom, datacom, LiDAR, healthcare, HPC, AI, and optical computing. The new company's open silicon photonics platform will include integrated lasers, optical amplifiers, and a full suite of photonic components to form a complete solution that will be accessible through a Process Design Kit (PDK). The platform will enable a new level of integration at an unmatched price point, with the lowest power consumption for high-performance Photonic Integrated Circuits (PICs). The name of the new company will be announced at a later date.

The terms of the agreement are not being disclosed at this time. The new company will be jointly owned by Synopsys and Juniper, with Synopsys as the majority owner. The new company's results will be consolidated into Synopsys financials. While Synopsys expects the investment to be slightly dilutive to fiscal 2022 earnings, the investment is not material and will not affect Synopsys' fiscal second quarter and full year 2022 guidance ranges provided on February 16, 2022. There is no change to Juniper's full year financial outlook as a result of this transaction.

The new company is being formed, in part, from the carve-out of integrated silicon photonics assets from Juniper, which includes more than 200 patents on photonic device design and process integration. While part of Juniper, the new company has closely collaborated with Tower Semiconductor to develop and qualify Tower Semiconductor's PH18DA process technology to enable the industry's first "laser-on-a-chip" open silicon photonics platform. To demonstrate capabilities of this platform and accelerate customer adoption of the technology, the new company has created 400G and 800G photonics reference designs with integrated lasers and expects first samples to be available in summer 2022.

"Silicon photonics is a rapidly growing market that is transforming many industries and creating exciting opportunities for new applications in the future," said Sassine Ghazi, president and chief operating officer at Synopsys. "The new company's open silicon photonics platform, combined with Synopsys' existing investment in a unified electronic photonic design automation solution consisting of OptoCompiler™, OptSim™, PrimeSim™, Photonic Device Compiler and IC Validator™ products, will help reshape the optical computing industry, enabling companies to cost-effectively shift to integrated lasers and significantly accelerate development of photonic IC designs."

"This revolutionary technology will change the economics of how people are going to build photonic systems," said Rami Rahim, CEO of Juniper Networks. "We have been strong supporters of integrated silicon photonics and we believe the new company will drive development of these systems by using an advanced open platform that will dramatically reduce costs and increase the performance and reliability of designs across multiple use cases. We are excited to continue to collaborate with the new company to enable a broad ecosystem to efficiently develop next-generation optical transceiver and co-packaged designs."

A key challenge for silicon photonics has been the cost of adding discrete lasers, which includes the

manufacturing as well as the assembly and alignment of those lasers onto the photonic chip. This becomes more important as the number of laser channels and the overall bandwidth increases. By processing the Indium Phosphide (InP) materials directly onto the silicon photonics wafer, the PH18DA platform reduces the cost and time of adding lasers, enabling volume scalability and improved power efficiency. In addition, monolithically integrated lasers on silicon wafers improves overall reliability and simplifies packaging. This "Laser-on-a-Chip" open silicon photonics platform will bring integrated photonics to a host of new applications and markets that were previously not thought possible. The first Multi-Project Wafer (MPW) is scheduled to be taped out in Q2 2022.

"We have had a long history of successful collaboration with Juniper Networks on integrated photonics. The new company formed by Synopsys and Juniper will strengthen and accelerate the adoption of the silicon photonics platform," said Russell Ellwanger, CEO of Tower Semiconductor. "Providing an open silicon photonics platform consisting of integrated lasers that has been qualified on Tower's process will enable customers to create innovative products with the potential to transform the industry."

About Synopsys

Synopsys, Inc. (Nasdaq: [SNPS](#)) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As an S&P 500 company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and offers the industry's broadest portfolio of application security testing tools and services. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing more secure, high-quality code, Synopsys has the solutions needed to deliver innovative products. Learn more at <https://www.synopsys.com>

About Juniper Networks

Juniper Networks is dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security, and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability, and equality. Additional information can be found at Juniper Networks (www.juniper.net) or connect with Juniper on [Twitter](#), [LinkedIn](#) and [Facebook](#).

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Forward-Looking Statements

This news release contains forward-looking statements, including, but not limited to, statements relating to the expected benefits of the investment to Synopsys, Juniper Networks, their respective customers and the new company's customers. Forward-looking statements are subject to both known and unknown risks and uncertainties that may cause actual results to differ materially from those expressed or implied in the forward-looking statements. These risks and uncertainties include, among others, the new company's ability to operate on its own successfully following the investment, which could result in loss of key business partners, key employees, or other vendors; uncertain customer demand for PDKs to develop high-performance photonic integrated circuits; and the potential effect this investment will have on Synopsys' fiscal 2022 earnings. Other risks and uncertainties that may apply are set forth in the "Risk Factors" section of Synopsys' and Juniper Network's most recently filed Annual Report on 10-K and Quarterly Report on Form 10-Q, respectively. Forward-looking statements speak only as of the date they are made, and readers are cautioned not to put undue reliance on such statements. Synopsys and Juniper Networks undertake no duty, and do not intend to update any forward-looking statements, whether as a result of new information, future events or otherwise, unless required by law.

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