# Synopsys Releases Enhanced Portfolio of Photonic Design Solutions

Latest Product Releases Support Faster Development of Photonic Devices, Systems, and PICs

MOUNTAIN VIEW, Calif., Sept. 16, 2019 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS) today announced the release of version 2019.09 of its comprehensive Photonic Solutions portfolio, which includes the RSoft™ products for photonic device design, the OptSim™ and ModeSYS™ tools for photonic system design, and the OptSim Circuit and OptoDesigner™ tools for photonic integrated circuit (PIC) design. Synopsys' Photonic Solutions offer a seamless design flow from concept to manufacturing to enable innovations in consumer and industrial communication, sensing, and imaging applications. The latest updates to the Photonic Solutions portfolio enable more efficient development of applications ranging from light sources and metalenses to optical communication systems and PICs.

**Photonic Device Design**

The RSoft photonic device tools comprise the industry's widest portfolio of simulators for passive and active devices in optical communications and optoelectronics. New features in version 2019.09 include:

- The RSoft–LightTools® Bidirectional Scattering Distribution Function (BSDF) interface for multi-domain device simulation now supports faster ray tracing of user-defined optical properties; it also supports non-uniform incident angles for more efficient use of computer resources in critical angular regions.
- A new interface with OptoDesigner allows users to load and simulate PIC design files directly in the RSoft CAD Environment™.
- New Python APIs help construct CAD files for complex structures, such as metalenses and grating couplers.
- An expanded Custom PDK Utility allows users to add to a PDK active device models such as phase shifters and modulators; it also enables users to design and create layouts for custom circuits such as ring modulators in OptSim Circuit and OptoDesigner.

**Photonic System Design**

The OptSim and ModeSYS™ tools simulate the performance of optical communication system links through comprehensive simulation techniques and component models. New features in release 2019.09 include:

- The ability to simulate design files in multiple OptSim windows simultaneously, as well as to pre-assign signal types to compound component input and output ports.
- New application notes and design files to jumpstart designs for BPSK modulation, visible light communication, and 100GBASE-SR4 SWDM4 transmission.

**Photonic Integrated Circuit Design**

Synopsys is driving the advancement of photonic integrated circuit technologies with itsPIC Design Suite, which includes the OptSim Circuit and OptoDesigner tools. New features in version 2019.09 include:

- Enhanced algorithms for inter-domain conversions (time and frequency) in OptSim Circuit that speed simulation times by up to 2X.
- New design rule checks (DRCs) in OptoDesigner that speed calculations by up to 20X.
- Significant improvements to the PIC layout versus schematic (LVS) flow to support large port count photonic devices and netlist extraction.
- Updates to the bidirectional interface between OptSim Circuit and OptoDesigner to support automated electrical connections in layout.

"By working closely with industry leaders, we have updated our Photonic Solutions tools to deliver faster simulations, enhanced algorithms, and improved interfaces to help our customers develop better performing, cost-effective photonic devices and systems," said Tom Walker, group director of Synopsys' Photonic Solutions. "Our goal with each release is to enable the industry to accelerate adoption of photonics and PIC technology across a broad variety of applications."

**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 the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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