Press Information

Brussels, March 25 2019

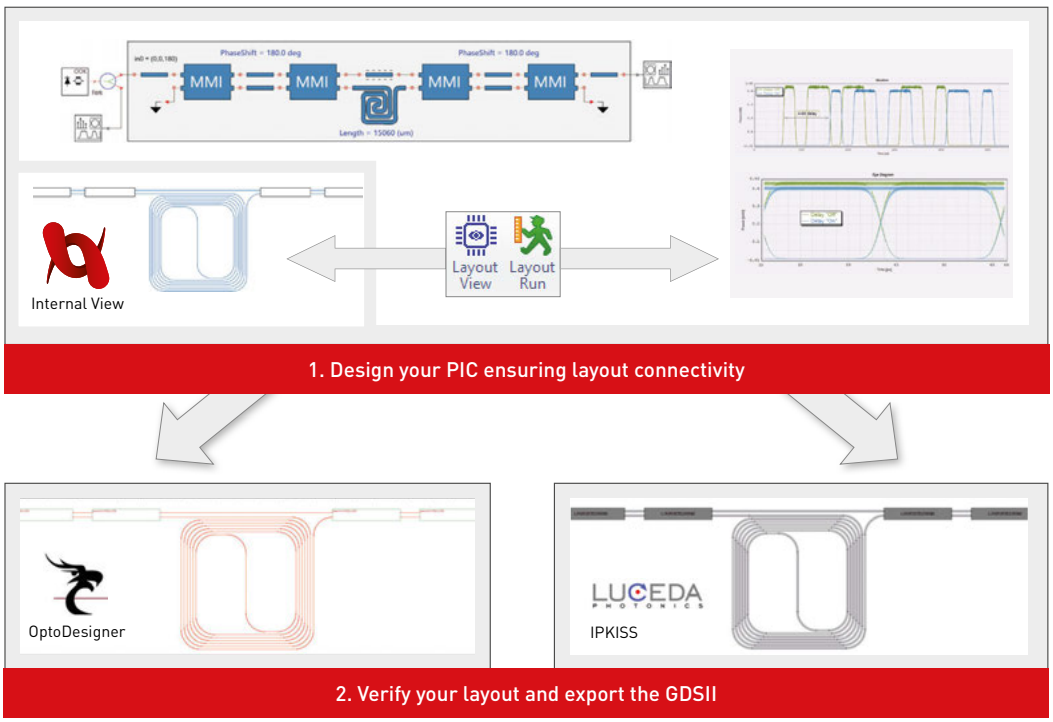
VPIphotonics, LIGENTEC, and VLC Photonics streamline the design process for SiN Photonic Integrated Circuits.

Designers that use LIGENTEC All-Nitride (AN) technology will now benefit from a workflow that starts from a graphical photonic integrated circuit design and system simulation environment, which seamlessly couples to layout design tools for scripted layout design and DRC capabilities. The new workflow is based on LIGENTEC and VLC Photonics verified reference designs with the simulation software by VPIphotonics using verified measurements of fabricated chips.

This workflow is enabled by the new *VPItoolkit PDK LIGENTEC* – a pluggable toolkit extension to *VPIcomponentMaker Photonic Circuits* by adding the support of the 800 nm Silicon Nitride process "AN800" offered by LIGENTEC for dedicated shuttle runs and Multi-Project Wafer (MPW) runs.

With the mode fully confined in the waveguide the thick Silicon Nitride waveguides supported by the AN800 process with 800 nm LPCVD silicon nitride offer very tight bending radius (< 0.005 dB for 10 turns), very low coupling losses (< 1.5 dB/facet), very low propagation losses (< 0.1 dB/cm) and very high power handling (up to 10 W tested).

VPIcomponentMaker Photonic Circuits is a professional simulation and design environment for large-scale photonic integrated circuits that offers a large mix of general-purpose photonic, electrical and optoelectronic device models, together with the advanced circuit optimization and yield analysis capabilities. The library extension *VPItoolkit PDK LIGENTEC* adds foundry-certified simulation compact models for the standard building blocks supported by the AN800 process and enables a layout-aware schematic-driven PIC design workflow, including chip layout optimization according to its required optical functionality. Importantly, it allows designers to construct their own hierarchical and custom building blocks, effectively expanding the foundry PDK to fit individual needs. The layout for the designed photonic integrated circuits can be automatically exported to either *IPKISS* by Luceda Photonics or *OptoDesigner* by Synopsys for DRC verification and GDS mask generation.



The mature library of photonic building blocks, available at the Process Design Kit (PDK), has been developed by LIGENTEC and VLC Photonics over several iterations to obtain mature devices with repeatable performance. The capability of embedding these blocks into the VPIphotonics software framework enables the simulation and modeling of complex photonic integrated circuits with a high degree of reliability.

About VPIphotonics

VPIphotonics sets the industry standard for end-to-end photonic design automation comprising design, analysis and optimization of components, systems and networks. We provide professional simulation software addressing demands in integrated photonics and fiber optics, optical transmission links and networks. Our team of experts performs design services addressing customer-specific requirements, and delivers training courses on adequate modeling techniques and advanced software capabilities. Our award-winning off-the-shelf and customized solutions are used extensively in research and development, and by product design and marketing teams at hundreds of corporations worldwide. Over 160 academic institutions joined our University Program enabling students, educators and researchers an easy access to VPIphotonics' latest modeling and design innovations.

www.VPIphotonics.com

About LIGENTEC SA

LIGENTEC is a foundry service manufacturing Photonic Integrated Circuits for customers in high-tech areas such as integrated quantum optics, LiDAR, sensors and microwave photonics. LIGENTEC commercializes all-nitride-core technology awarded with the PIC award at PIC International 2018. The technology uses thick film optical grade LPCVD deposited silicon nitride and optimized cladding to provide guaranteed performance in propagation loss. With the all-nitride-core technology LIGENTEC enables the customers to develop their products in the industrial revolution 4.0. The customers benefit from a clear path to volume production while obtaining the small quantities of wafers with the performance, short turn around of 2 month and high yield required at the early stage of proof of concept.

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About VLC Photonics

VLC Photonics is a fabless and independent photonic design house, which provides photonic integration solutions and services. It has a wide experience in multiple material platforms (silicon photonics, indium phosphide, silicon nitride, PLC) and on the design and test of optical components and systems. VLC has provided its services to many industrial and academic customers over the last decade, and has developed a large expertise in telecom/datacom, microwave photonics, quantum optics, biophotonics and sensing.

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