

Press Information

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VPIphotonics and Infinera cooperate to streamline the design process for InP Photonic Integrated Circuits

Designers using Infinera InP open foundry services to increase productivity with a new design workflow

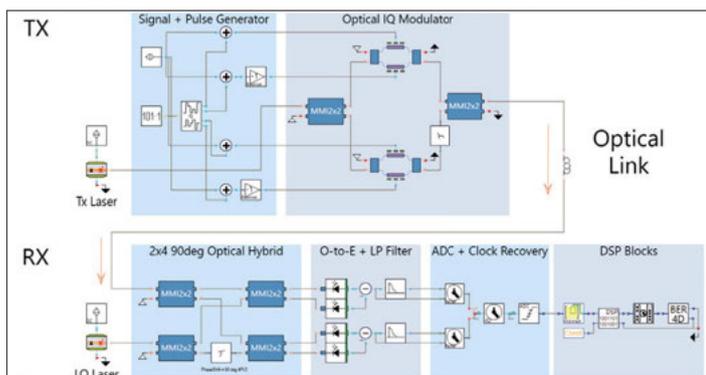
Designers that want to use Infinera InP open foundry services, part of the Infinera Optical Innovation Center, will now benefit from a new design workflow that starts from a graphical photonic integrated circuit design and system simulation environment. This workflow is enabled by the new *VPItoolkit PDK Infinera* — a pluggable toolkit extension to *VPIcomponentMaker Photonic Circuits* by adding support of the Process Design Kit (PDK) building blocks for the InP-based PIC foundry process offered by Infinera.

VPIphotonics and Infinera collaborated to develop compact models for the PDK building blocks based on the characterization data of the individual devices and the test measurements of fabricated chips. The foundry capability was developed in collaboration with AIM Photonics and the US Department of Defense. This ensures that each building block is represented by an adequate simulation model with only a few parameters to control. A designer can rapidly prototype application-specific photonic integrated circuits with prerequisite functionality without going deep into the details of device layout and fabrication process. Once the design is completed and optimized, the schematic can be exported to a netlist and passed to Infinera's InP foundry for physical layout implementation, careful verification, and fabrication.

All the building blocks available in *VPItoolkit PDK Infinera* can be used alongside with a broad set of standard modules and instrumentation available in *VPIphotonics Design Suite*, especially *VPIcomponentMaker Photonic Circuits* (circuit-level design and analysis) and *VPItransmissionMaker Optical Systems* (system-level evaluation). Hierarchical circuit designs and advanced parameter scripting, sweep and optimization of parameters, sensitivity and yield analysis as well as systems benchmarking and characterization are supported transparently for designers helping to increase their productivity.

Given Infinera's experience with manufacturing high-performance PICs, the foundry PDK offers fully optimized devices to ensure optimal performance and yield within the foundry's integration platform [1]. The capability of embedding these building blocks into the VPIphotonics software framework enables the simulation and modeling of complex photonic integrated circuits with a high degree of reliability.

Visit VPIphotonics team at Photonics West 2020 on Feb 4-6 in San Francisco at booth 3173 for more information and live demonstration.



16 QAM signal transmission over a 10 km standard single-mode fiber: design example in VPIphotonics Design Suite created using Infinera PDK building blocks

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.

For further information, please visit us at www.VPIphotonics.com

About Infinera

Infinera is a global supplier of innovative networking solutions that enable carriers, cloud operators, governments, and enterprises to scale network bandwidth, accelerate service innovation, and automate network operations. The Infinera end-to-end packet optical portfolio delivers industry-leading economics and performance in long-haul, submarine, data center interconnect, and metro transport applications.

To learn more about Infinera, visit www.infinera.com, follow us on Twitter @Infinera and read our latest blog posts at www.infinera.com/blog.

Reference

[1] G. E. Hoefler et al., "Foundry Development of System-On-Chip InP-Based Photonic Integrated Circuits," in IEEE Journal of Selected Topics in Quantum Electronics, vol. 25, no. 5, pp. 1-17, Sept.-Oct. 2019, Art no. 6100317.