



Joint Press Release

CompoundTek Collaborates with Cadence and Lumerical to Deliver Integrated Electronic-Photonic Design Automation PDK for Silicon Photonics ICs

New advanced EPDA flow supports the continued development of SiPh solutions

Singapore, 12 December 2019 – CompoundTek, a global foundry services leader in emerging silicon photonic (SiPh) solutions, today announced that it has collaborated with Cadence Design Systems, Inc. and leading photonics design and simulation provider, Lumerical, on the delivery of a new CompoundTek process design kit (PDK) for SiPh ICs. The PDK consists of a new, advanced electronic-photonic design automation (EPDA) flow with features aimed at further advancing the development of differentiated SiPh solutions.

The PDK is based on the Cadence® Virtuoso® custom IC design platform, utilising the Cadence CurvyCore™ engine, Cadence Spectre® simulation platform and the electrical-optical co-simulation capability in Lumerical’s photonic integrated circuit simulator INTERCONNECT. The kit includes active and passive devices such as optical waveguide devices, fibre-to-waveguide couplers, high-speed waveguide Ge photo-detectors and high-speed modulators to enable SiPh designers to design and verify their photonics products more quickly and efficiently before fabricating physical prototypes.

“Our strategic collaboration with Cadence and Lumerical enables customers to leverage an integrated EPDA PDK, which features an open SiPh manufacturing platform to accelerate the adoption of SiPh solutions for various applications ranging from datacom transceivers, smart sensor, bio-medical, automotive lidar, quantum computing and artificial intelligence,” said KS Ang, chief operation officer of CompoundTek.

SiPh mask geometries and their curvilinear shapes introduce unique challenges for layout designers. Using the Cadence CurvyCore™ technology, users of the CompoundTek PDK can systematically manage curvilinear shapes within the Cadence Virtuoso design environment. Similarly, having an ecosystem that supports simulation of electrical and optical parts of large systems together, including complex electro-optical effects that must be co-simulated, facilitates the development of larger and more complex integrated electronic-photonic circuits and systems. This PDK helps customers overcome both of these challenges.

“As the market moves toward more highly integrated electro-optical designs, accurate co-simulation of electrical and optical components becomes critical,” said Dr. James Pond, chief technology officer of Lumerical. “CML Compiler allows foundries and end users to easily build and maintain accurate photonic compact models for co-simulation with Cadence Spectre Simulator and Lumerical INTERCONNECT. Our collaboration with CompoundTek and Cadence is enabling these key capabilities for our customers.”



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“Through our collaboration with CompoundTek and Lumerical, customers can now design photonics IC chips, leveraging the complete Virtuoso platform, from high-performance curvilinear shape generation with CurvyCore-based PCells to entire system-level thermal and EM analysis,” said Glen Clark, corporate vice president research and development, in the Custom IC & PCB Group at Cadence. “The PDK incorporates the Cadence schematic and layout-driven photonics design flow, enabling mutual customers to achieve SoC design excellence and deliver products to market faster.”

CompoundTek, based in Singapore, boasts of an operation that includes strategic partnerships with a leading fabrication service provider in Malaysia and renowned global SiPh research institutes. Backed by wide-ranging capabilities - from process technology, product design support by expert design partners and manufacturing know-how, CompoundTek’s solution is increasingly sought after by SiPh players globally spanning Fortune 500 entities to start-ups.

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About CompoundTek Pte Ltd

Founded and supported by industry veterans and technologists, Singapore-based CompoundTek combines world-class commercial foundry with leading silicon photonics (SiPh) research institutes to provide cutting-edge SiPh technologies that enhance foundry services capabilities. As one of the elites offering SiPh solutions internationally, CompoundTek brings to the marketplace revolutionary semiconductor applications designed to meet critical requirements in high bandwidth and high data transfer solutions particularly in emerging connectivity driving Industry 4.0. The company’s in-depth know-how includes end-to-end technologies - from proprietary fabrication process expertise to product design support with strategic partners and extended services for end-product manufacturing. CompoundTek’s global customers span leading brands and FORTUNE 500 companies in high-growth industries including artificial intelligence, automotive, bio-medical diagnostics, data centre, lidar, smart sensor, telecommunication and quantum optical computing. Visit www.compoundtek.com for more information.

For media queries, please contact:

Ms. Suchithra Krishnan

E: suji@engagesea.com



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About Lumerical

Lumerical develops photonic simulation software—tools which enable product designers to understand light, and predict how it behaves within complex structures, circuits, and systems. Since being founded in 2003, Lumerical has grown to license its design tools in over 50 countries and its customers include 13 of the top 15 technology companies in the FORTUNE Global 500 index, and 46 of the top 50 research universities as rated by the Times Higher Education rankings. Lumerical's substantial impact on the photonic design and simulation community means its tools are among the most widely cited in the scientific press, with references in more than 10,000 scientific publications and patents. Lumerical enables its customers to achieve more with light and establish a leading position in the development of transformative technologies employing photonics.

For media queries, please contact:

Mr. Rich Goldman

E: rgoldman@lumerical.com

About Cadence

Cadence enables electronic systems and semiconductor companies to create the innovative end products that are transforming the way people live, work and play. Cadence software, hardware and semiconductor IP are used by customers to deliver products to market faster. The company's Intelligent System Design strategy helps customers develop differentiated products—from chips to boards to intelligent systems—in mobile, consumer, cloud, data center, automotive, aerospace, IoT, industrial and other market segments. Cadence is listed as one of Fortune Magazine's 100 Best Companies to Work For. Learn more at cadence.com.

For media queries, please contact:

newsroom@cadence.com

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