

InSiGa Technologies and POET to Demonstrate Laser Driver and Optical Engine Combinations for 800G and 1.6T Optical Modules at CIOE

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InSiGa EML laser drivers and POET optical engines produce industry-leading combination

TORONTO and SHENZHEN, CHINA, Sept. 11, 2024 (GLOBE NEWSWIRE) -- Chengdu InSiGa Semiconductor Technologies Co., Ltd. ("InSiGa") and POET Technologies Inc. ("POET") (TSX Venture: PTK; NASDAQ: POET), today announced that they have developed and will showcase in a live demonstration the combination of POET's 200Gx4 transmit optical engine using InSiGa's 200G/lane EML driver ISG-D9616 for 800G and 1.6T modules at the 2024 China International Optoelectronic Expo (CIOE) from September 11-13 at POET booth 11B59.

AI and big data have led to significant increase in bandwidth in recent times and this higher bandwidth requirement can be supported by next generation 800G/1.6T optical modules. 200Gbs/lane requirement is now required to achieve the highest bandwidth modules that can be used to support AI and emerging datacenter applications. POET and InSiGa have developed a unique solution for 200Gx4 applications based on POET's revolutionary Silicon based optical interposer technology using InSiGa's patented DC coupled 200G/lane EML driver. This approach provides the most compact solution and allows for optimal performance as no external components are required between the EML and the driver. This design is built upon the successful implementation of similar optical engines using 100G/lane EML driver ISG-D5616 used in 400G optical engines designed by POET.

ISG-D9616 is a single channel DC coupled EML driver that can be flip-chipped or wire bonded directly to the EML. This differential input and single ended output driver does not need any bias-T or capacitor between the driver and the EML. The differential input to the driver also offers cross-talk immunity especially for 112Gbaud/s applications. The driver is very compact with a die size of 0.7x0.9mm. The driver needs no external 50ohm termination for the

EML making the design very simple and eliminating RF degradation due to extra bond wire inductance between the EML and the 50ohm termination. ISG-D9616 is sampling to customers now.

Measured Eye @ 106Gbaud/s
ER=4.5dB, TDECQ=2.4dB

POET's 800G FR4 and DR4 transmit optical engines (OE) consist of high-speed externally modulated lasers (EMLs), integrated EML drivers (ISG-D9616) and optical multiplexer (for FR4) assembled on POET's optical interposer. The drivers and lasers are flip chip attached at wafer scale and passively aligned to waveguides and multiplexer. The OEs have been designed specifically for use in 800G FR4 & 1.6T 2xFR4 and 800G DR4 & 1.6T DR8 OSFP and QSFP-DD pluggable transceivers.

"We were thrilled to work with InSiGa to be able to bring this unique combination of engine and driver to market as end-user demand for 800G optical modules is skyrocketing," commented Dr. Suresh Venkatesan, Chairman & CEO of POET. "Both module companies and end-users want to see the path to next generation performance at 1.6T and beyond, which will be observable in the live demonstration at CIOE. The ease of implementation, product roadmap and extraordinary performance of this combined solution should garner wide attention at the show."

"InSiGa has developed a number of platform-based products and ISG-D9616 is one such product that is derived from extensive R&D efforts spent on the 53Gbaud/s EML driver ISG-D5616. This approach allows for customers to quickly replace products for higher baud rate applications without making substantial changes to their designs. One of the major challenges working with EML based designs is cross talk and reflection related issues due to impedance mismatch with the EML. ISG-D9616 takes care of both these issues, thus allowing better performance and ease of design. We are very excited to work with POET on their Si optical interposer-based platform. The optical engines developed by POET offer customers a very compact and high-performance solution that is not easy to achieve with conventional EML based designs," said, Dr. Vikas Manan, InSiGa Technologies CEO and Chairman.

About InSiGa Technologies

InSiGa Semiconductor Technologies Co., Ltd. ("InSiGa") was founded in 2016 with focus on the design and development of Optoelectronic IC's like Laser Drivers, TIA's (Transimpedance Amplifiers) and CDR's (Clock data recovery). InSiGa focuses on the datacenter, PON, Metro/Long haul Coherent and Telecom markets with IC speeds ranging from 2.5Gbs to 1.6Tbs.. InSiGa's products are widely deployed in 50Gbs, 200Gbs and 400Gbs modules already. InSiGa's core philosophy is to work closely with end customers to solve market challenges of rapidly increasing bandwidth that also demand low power and compact size. InSiGa is a fabless company, and works with fabs across the world to deliver the most optimal and innovative solutions in terms of cost and performance. More

information about InSiGa is available on our website at www.insiga.com

About POET Technologies

POET is a design and development company offering high-speed optical engines, light source products and custom optical modules to the artificial intelligence systems market and to hyperscale data centers. POET's photonic integration solutions are based on the POET Optical Interposer™, a novel, patented platform that allows the seamless integration of electronic and photonic devices into a single chip using advanced wafer-level semiconductor manufacturing techniques. POET's Optical Interposer-based products are lower cost, consume less power than comparable products, are smaller in size and are readily scalable to high production volumes. In addition to providing high-speed (800G, 1.6T and above) optical engines and optical modules for AI clusters and hyperscale data centers, POET has designed and produced novel light source products for chip-to-chip data communication within and between AI servers, the next frontier for solving bandwidth and latency problems in AI systems. POET's Optical Interposer platform also solves device integration challenges across a broad range of communication, computing and sensing applications. POET is headquartered in Toronto, Canada, with operations in Allentown, PA, Shenzhen, China, and Singapore. More information about POET is available on our website at www.poet-technologies.com.

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A photo accompanying this announcement is available at

<https://www.globenewswire.com/NewsRoom/AttachmentNg/058c90e4-994a-4854-82a1-8da3dbeaa0a0>

Source: POET Technologies Inc.

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