CompoundTek's 106Gbps PAM4 MZI Si modulator enhanced PDK to save almost two years in commercialisation and time-to-market

Designed for 400G/600G/800G applications, special IP block shrinks design cycle, reduces the need for costly prototype iterations

Singapore, 13 July 2020 – CompoundTek, a global foundry services provider in emerging silicon photonics (SiPh) solutions, announces the addition of a leading-edge, high-speed 106Gbps PAM4 MZI Si modulator in its intellectual property (IP) design. Offering customers capabilities in 400G/600G/800G applications for an industry where more than two iterations to meet specifications are a norm, the newly introduced CompoundTek modulator enables extraordinary levels of productivity. Further minimising manufacturing risk with fewer respins, customers can expect improved yield results in a better return on investment and accelerated time-to-market.

"This innovation is line with CompoundTek's services expansion goals, ensuring we bring to customers, solutions that save both time and significant investment dollars while meeting performance metrics throughout their prototype-to-market journey. With this transceiver-focused IP design, customers looking to strengthen their 400G to 800G capabilities and reduce the number of iterations can be assured that critical pain points are addressed," explains K.S.Ang, chief operating officer of CompoundTek.

Design flows continue to mature to meet the cost and scalability demands of manufacturing necessary for broad commercial markets. Today, SiPh integrated circuits are more widespread particularly in applications related to datacom, radio frequency (RF), and sensing. In 2019, shipments of SiPh transceivers for datacentres reached almost 3.5 million units with revenues approximately US$364 million attributed largely to the development of silicon photonics transceivers for telecom/datacom applications (Yole's Silicon Photonics Market and Technology 2020).

The modulator is a critical integral component in the transceiver design and the availability of the leading edge 106Gbps PAM4 MZI Si modulator will accelerate the development of CompoundTek customers' next-generation SiPh products, specifically in the transceiver market.

The performance specification for the leading-edge high-speed MZI Si modulator has been verified both on simulation and on-chip fabricated through CompoundTek's proprietary process flow, with measurements undertaken by a third-party independent company. Showing above typical industry standards test results, the 2.5mm length modulator's typical reach is 3dB OE bandwidth of 40GHz @ 4V, 3.25 dB loss, 4dB Extinction Ratio (ER) with modulator efficiency of 17 V.mm. Recognising its potential, a leading commercial customer has recently licenced this special IP block, leveraging CompoundTek's post-fab Cu pillars/bump integration with suspended edge coupler, and Si deep trench for electronics circuits integration.

Since its launch in 2017, Singapore-based CompoundTek has more than 20 global commercial customers and over 20 research institutes and universities in various applications such as telecommunications, automotive LIDAR sensor, data communications, bio-sensing, artificial intelligence, quantum computing and smart sensors. It aims to tap into rapidly growing markets, led by the demand from global network traffic such as applications in cloud, video streaming, and Internet of Things (IoT), with a focus in the SiPh transceiver market that is expected to be worth US$3.6 billion in 2025 with 24 million units shipped. The company's solutions portfolio and foundry capabilities are well-positioned to leverage increased demand for datacentres storage and bandwidth, as the industry transits from the current 100G to next-generation 400G or higher in the next five years.

CompoundTek is scheduled to showcase its cutting-edge solutions at the 22nd China International Optoelectronic Exposition (CIOE 2020), on September 9-11, 2020 at the Shenzhen World Exhibition & Convention Centre. Parties interested in learning more about the facility and its testing capabilities can contact CompoundTek office or through email at enquiries@compoundtek.com

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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 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 https://compoundtek.com/ for more information.

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