

PRESS RELEASE

Rockley Photonics Announces Chipset for 800G Data Center Ethernet Optics

Oxford, UK and Pasadena, California, 6 June 2021 – Rockley Photonics (“Rockley”), a leading integrated photonics chipset developer and module supplier to high-volume sensor and communications products, today announced its receive chipset for 8x100Gb/s Ethernet transceiver modules. Designed for 800Gb/s dual-DR4 Ethernet transceiver applications, the chipset leverages Rockley’s unique silicon photonics technology platform and volume manufacturing ecosystem, enabling transceiver manufacturers to substantially reduce the module’s bill of materials (BOM) and module assembly cost.

The chipset comprises a silicon photonic chip (PIC) and a biCMOS transimpedance amplifier (TIA) IC, each supporting four channels at 53Gbaud symbol rate and PAM4 modulation. It is compliant with IEEE 802.3 400GBASE-DR4 and 100GBASE-DR optical interfaces, provides interoperability with CDR chips from leading vendors and is highly energy efficient at 0.2W per channel (2pJ/bit).

Rockley’s team has carefully co-designed the PIC and IC to optimize performance and simplify integration into a transceiver module on a low-cost PCB within QSFP-DD or OSFP form factors. The PIC monolithically integrates germanium waveguide photodetectors, adiabatic mode convertors and v-grooves. The TIA IC features high-gain, low-input referred noise, high bandwidth, and offers more than one order of margin on the BER 2.4×10^{-4} BER specification for SECQ ≤ 3.4 dB. It also incorporates receive signal strength (RSSI) and loss of optical signal (LoS) indications.

Rockley is in the process of leveraging its versatile platform in the consumer healthcare space, which it believes will drive wafer volumes and economies of scale that will ultimately benefit a variety of market verticals, including data communications. Owing to the chipset’s ultra-compact design and Rockley’s volume-scale silicon photonics manufacturing process, which includes full wafer-level inspection and testing, the chipset offers substantial opportunities to reduce transceiver BOM cost. Moreover, it drives lower assembly cost at the transceiver level owing to vision-assisted passively-aligned fiber attachment enabled by its integrated tapers and v-grooves. In addition, the chipset requires no additional discrete optical components and the IC’s high-speed electrical contact pitch supports low-cost transceiver PCB technology.

Uniquely combining high bandwidth density, high energy efficiency and unparalleled economics, the chipset sets a new benchmark for 800G Ethernet optics. The 800GBASE-2DR4 receive chipset will be available for customer sampling in Q3 2021 and is scheduled to be commercially available in mid-2022.

About Rockley Photonics

Rockley is a leading integrated photonics chipset developer and module supplier for high-volume sensor and communication products. Formed in 2013, Rockley is led by Dr. Andrew Rickman, the founder of the first commercial silicon photonics company, Bookham

Technology.

Rockley has positioned itself for hyper scale manufacture with a uniquely capable platform that can address multiple huge and emerging markets, including health monitoring in consumer devices, data communications and machine vision.

Rockley has partnered with multiple Tier-1 customers across the markets it serves to deliver the complex optical systems required for transformational product realization. To learn more about Rockley, visit www.rockleyphotonics.com.