Researchers develop world's top-class 400-Gbps optical engine

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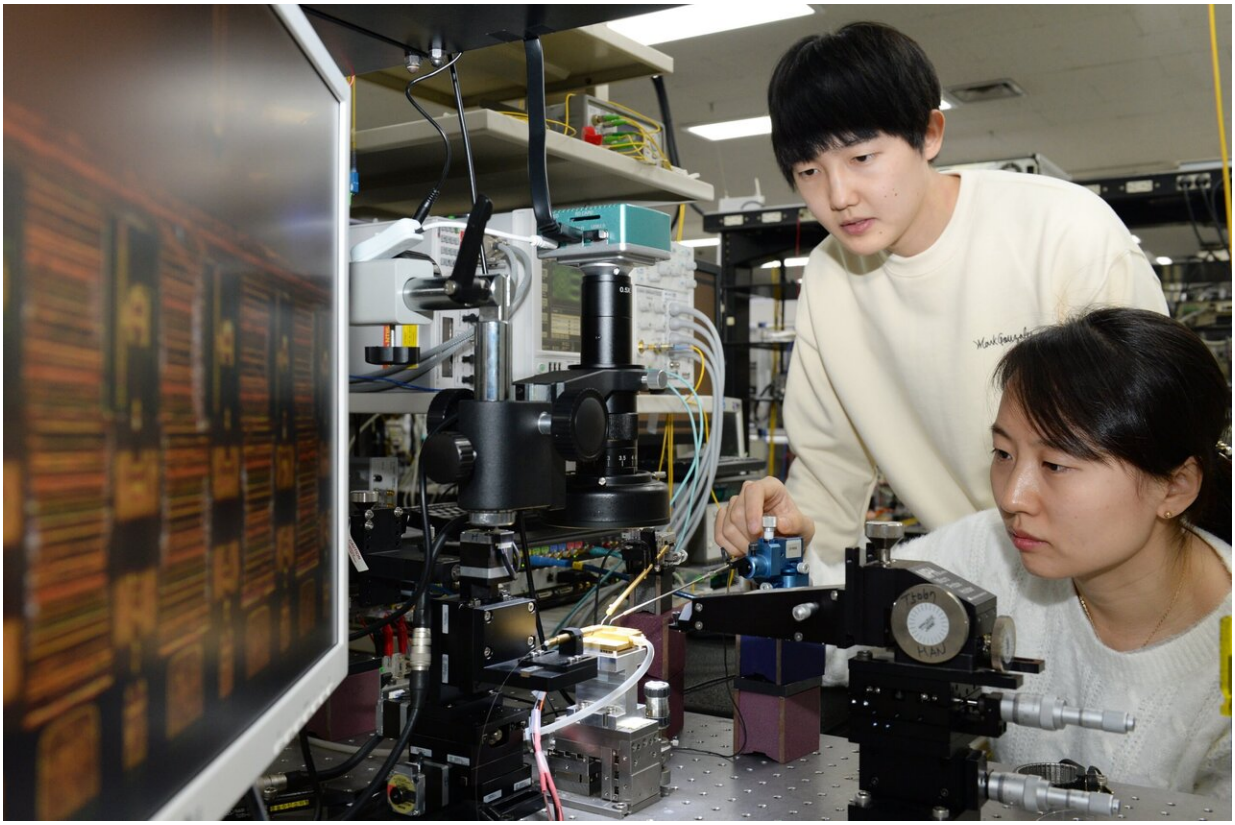

ETRI researchers are inspecting semiconductor light source chips used in 400G ultra-fast transmitting/receiving optical engine. Credit: Electronics and Telecommunications Research Institute (ETRI)

Researchers in South Korea have developed ultra-fast transmitting/receiving optical engine that can provide stable and

improved data transfer speed for data centers.

The Electronics and Telecommunications Research Institute (ETRI) in South Korea has succeeded in developing a world's top-class 400-Gbps transmitting/receiving optical engine. It enables real-time high definition video streaming for 100,000 viewers simultaneously. Thus the optical engine can be applied for data centers that accommodate thousands of servers.

The developed technology sends eight times as much data as conventional methods in each linecard/server. It is expected to contribute to solving data traffic congestion in data centers where the demand for fast data speed has increased due to high-definition video content and services using artificial intelligence and cloud computing. The global market for hyper-scale data centers is expected to grow due to high demands from various sectors.

Conventional 100-Gbps transmitting/receiving modules split data speed into four channels of 25-Gbps (gigabits per second). ETRI said its researchers have succeeded in developing high-speed optical devices/components that can provide 100-Gbps per channel which is four times the previous speed.

Moreover, the new technology not only improved the data transfer speed but also data processing capacity. An existing linecard of telecommunication equipment consists of 32 optical transceivers. The new technology developed by ETRI enables 64 optical engines to be mounted on the linecard of the telecommunication equipments.

As a result, by mounting twice as many optical engines with 4 times the speed, the total data processing capacity has been increased up to 8 times. The research outcome was presented in the '2020 Optical Fiber Communication Conference (OFC).'

More information: Young-Tak Han et al, A Hybrid-Integrated 400G TROSA Module Using Chip-to-Chip Optical Butt-Coupling, *Optical Fiber Communication Conference (OFC) 2020* (2020). DOI: 10.1364/OFC.2020.M1F.3