

A 100-Gb/s compact optical receiver for high-speed low-power board-to-board signal transmission in IT equipment

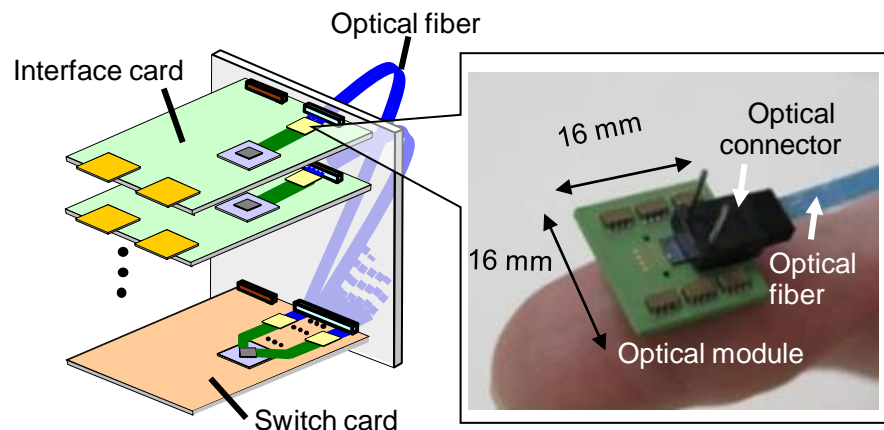


Fig. 1. Router application image

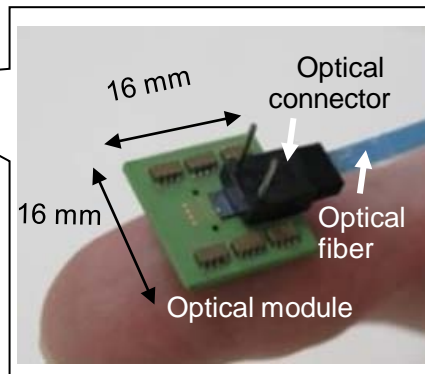


Fig. 2. Optical module

Hitachi, Ltd. has successfully developed a prototype 100-Gb/s compact optical receiver to achieve high speed optical board-to-board data transmission in IT equipment. The optical receiver based on low-power CMOS process technology enables power consumption to be reduced to less than one-third that of conventional optical receivers.

This work was supported in part by the "Next-generation High-efficiency Network Device Project," contracted to the Photonics Electronics Technology Research Association (PETRA) by the New Energy and Industrial Technology Development Organization (NEDO), Japan.

■ Characteristics

The 100Gb/s prototype optical receiver fabricated consists of four channel 25 Gb/s optical array devices mounted on a compact 16 x 16 mm package. Further, by employing CMOS process technology known for low power consumption, a high-speed low-power optical receiver was achieved.

■ Plan

The next step will be to integrate the optical transmitter which is being concurrently developed in the same package, to achieve an optical transceiver.

■ Conference presentation

These results were presented at the IEEE Custom Integrated Circuits Conference held from 19th to 22nd September 2010 in San Jose, U.S.A., and at the European Conference and Exhibition on Optical Communication held from 19th to 23rd September 2010, in Turin, Italy.

A word from the development team

We will proceed with the development of the optical transmitter in the same way as the optical receiver, with the aim of practical application in four to five years.