

2013

Activated Development of Silicon Photonics

(Intel, PETRA, others)

~ Packaging ~

Intel announced rack scale architecture and the silicon photonics technology with 100 Gbit/s transfer rate for this. In the rack scale architecture, abstraction of the hardware such as CPU, storage, network, etc. constituting the data center is done, and by changing the software setting, it is possible to change and expand the system according to the application and required performance. Silicon photonics is a technology for realizing a high performance, compact and inexpensive optical transceiver by integrating electronic circuits and optical circuit elements necessary for optical communication on a silicon chip, and by using this technology, the aforementioned CPU, storage, and networks can be connected. From the viewpoint of semiconductor and packaging technologies in the background of this development, the pace of improvement of LSI integration according to Moore's law is slowing down, and this technology is regarded to be the one pursuing system level performance improvement by integrating and unifying a large number of LSIs beyond distance, that are distributed dispersively. Development of silicon photonics is globally active, and it is also being carried out in Japan for its practical application, mainly at the Optoelectronic Integrated Fundamental Technology Research Institute (PETRA).

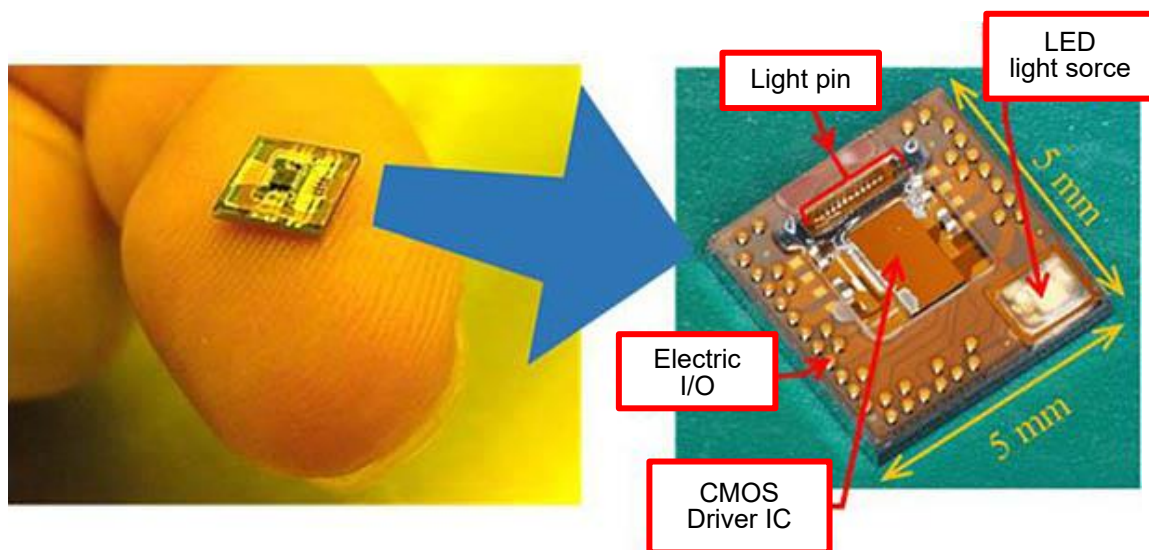


Fig.1 Light transceiver of 5mm \square by silicon photonics (By courtesy of NEDO/PETRA)