Principles of Optoelectronic Convergence Communication Chips

The fundamental starting point for the development of on-chip optical communication between multiple nanoscale (subwavelength) components is the optical ...

We describe how silicon photonic circuits can be used to perform unitary matrix operations and unscramble the different data lanes in multichannel optical communication systems.

By leveraging the core strengths of silicon photonics--such as CMOS compatibility, minimal signal loss, compact form factor, and strong optical nonlinearities--the researchers have ...

Addressing the demand for optoelectronic signal processing in artificial intelligence, radar, electronic warfare, optical communication, and interconnects, this presentation focuses on optoelectronic ...

On-chip communication architectures are critical components in SoC designs To meet power, performance, cost, reliability constraints Also rapidly increasing in complexity with increasing no. of ...

By using a new optical technology called silicon photonics, we developed photonics-electronics convergence devices that make it possible to miniaturize optical transceivers and reduce their power ...

In this research article, we present a comprehensive survey of the current state-of-the-art ONoCs, including their design, fabrication, and performance. We also provide an overview of the ...

Although nanoscale photon emitters and receivers have been reported separately, communication between them remains largely unexplored. We demonstrate direct on-chip directional broadcasting of ...

A roadmap for photonics-electronics convergence devices is shown in Fig. 3, progressing from long to shorter distances, till finally introducing optical communication at the board level.

This review focuses specifically on the optical interconnection and packaging technologies for photonic chips.

In light of these circumstances, focusing on optical interconnects inside a package containing a photonics-electronics convergence device, I"ll explain why optical ...

The fundamental starting point for the development of on-chip optical communication between multiple nanoscale (subwavelength) components is the optical communication between an emitter-receiver pair.

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