

FAST-CONTROLLED OPTICAL SWITCH

**LOW POWER AND LOW LATENCY OPTICAL
SWITCH FOR DATA COMMUNICATION**

PROBLEM

With increase in server processing capacity (HPC) and large-scale parallelism spreading tasks across many nodes in a data center, networking becomes the new performance bottleneck and contributes significantly to the energy budget of high-performance data centers. Optical communication is widely deployed at the link level but switching is still performed by standard CMOS switch fabrics requiring multiple conversions between electrical and optical domain along the network. The current architecture is both inefficient and incurs significant latency cost that limits scalability.

POTENTIAL MARKETS

Beachhead market

- Industry 5.0
- Telecom backhaul

Other markets

- Data centers
- Satellite clusters
- AI computing

MISSION & VISION

Using photonic network switches to decrease energy consumption while increasing network speed, reduce maintenance intensity and allowing for easy scalability

INITIAL VALIDATION

The concept has already been proven and it is possible to create an architecture consisting of four nodes. The prototype is fully operational. Network speeds of 1.6 Tb/s have been achieved, demonstrating the potential of a fast photonically interconnected DC network. The technology has been determined to be TRL 4.

SOLUTION

A future-proof, low cost, low latency and low power optical switch for data communication, allowing for a disaggregated architecture with decoupled hardware, where all the resources are interconnected by the network.

The optical switch is easily scalable to add a large number of nodes while maintaining very low latency. It generates less heat and is more energy-efficient than current solutions. In addition, it allows for precise time synchronization.

TECHNOLOGY

- High scalability
- 3 ns data recovery
- 43 ns control switching
- 122.3 ns minimal network latency
- Fast and cost-effective clock and data recovery of within 3.104 ns
- Precise time synchronization and distribution for time-sensitive networks

CALL TO ACTION

We are looking for enthusiastic co-founders to pick up the opportunity and start their entrepreneurial journey with this technology.

