

Data Center Interconnection Low-Loss Micro-Plug-in Optical Splitter for Five Central Asian Countries



Article Overview

Low-loss micro-plug-in optical splitters enable high-bandwidth, energy-efficient, and scalable interconnects for data centers across multiple countries.

Overview

Data center interconnection (DCI) in regions like Central Asia requires high-speed, low-latency, and energy-efficient optical links to support growing AI, cloud, and HPC workloads. Traditional copper cabling faces distance limitations, high attenuation, and crosstalk at speeds above 800 Gbps, making it unsuitable for multi-rack or cross-border connections (). Optical interconnects, particularly micro-plug-in splitters, address these challenges by providing low insertion loss, modularity, and high replaceability, enabling scalable deployment across multiple data centers ().

Technical Advantages

- **Low Loss and High Bandwidth:** Micro-plug-in optical splitters reduce signal attenuation and crosstalk, maintaining channel loss below 13 dB in short-path configurations, which is critical for high-speed AI workloads (). They support aggregate bandwidth densities exceeding 800 Gbps, suitable for GPU-intensive clusters.
- **Energy Efficiency:** By minimizing the need for digital signal processing (DSP) and clock data recovery (CDR), these optical splitters lower power consumption compar...

Article Content

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Aleksic@hft-leipzig Abstract— It is widely argued that optical transmission and switching technologies will play an important role

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Optical interconnects enable data center disaggregation by allowing for the separation of different components of the

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This is above the internal transfer rates of ASICs and well-matched for chip-to-chip application requirements.

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Exploring optical interconnects for AI data centers: LPO for low-power, short-distance links, NPO for high-density,

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(PDF) Optical interconnection networks for data centers

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Foxconn Research Institute□SiliconPhotonic Viewpoint_Optical ...

At this year's #OFC25 conference and in recent discussions on optical interconnect technologies, optimizing the power efficiency,

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Furthermore, the proposed splitter is well-suited for use in O-band transceiver systems and can enhance data-center

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Optical interconnect research program

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How optical interconnect and optical processing are changing data

Driven by the high-bandwidth, low-latency requirements of AI (as AI models are distributed across dozens of

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Optical interconnect research program

This research program unites material and tool suppliers, foundries, IDMs, OSATs, fabless and system companies in the exploration

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This review paper analyzes optical technologies that will enable next-generation data center optical interconnects.

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Calculate optical splitter loss instantly — enter output ports and excess loss to get ideal and total insertion loss for PLC and FBT

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FTTH projects must be designed so that the optical signal used is strong enough to reach the customer without severe

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A Compact Low-Loss Broadband Polarization Independent Silicon 50

We present a low-loss, compact, polarization insensitive 3-dB optical power-splitter for submicron silicon waveguides.

Apr 07, 2026

Tailorable and Broadband On-Chip Optical Power Splitter

An on-chip optical power splitter is a key component of photonic signal processing and quantum integrated circuits

Contact Us

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