

OPTICAL CIRCUIT SWITCHES

1024x1024 Optical Switch System

Non-blocking 1024x1024 all-optical switch system built from 32 LW-64 modules across an optical backplane, with MTP/MPO fiber interfaces.



Key Features

- 1024x1024 non-blocking all-optical fabric
- Two layers of 16 LW-64 modules joined by a full-connection optical backplane
- 2048 MTP/MPO ports over single-mode fiber
- Integrated transmitter and receiver fiber shuffles
- No optical-electrical-optical conversion anywhere in the switching path
- Rate and protocol agnostic

Applications

- AI and HPC cluster interconnect with reconfigurable topology
- Hyperscale data center optical layer
- Large-scale automated optical test infrastructure
- Network research testbeds

Overview

The 1024x1024 system scales all-optical switching to cluster size. Sixteen LW-64 modules form the input layer and sixteen form the output layer, joined by a full-connection optical backplane, so any of 1024 inputs can reach any of 1024 outputs without contention.

Fiber management is handled by dedicated transmitter and receiver shuffles — sixteen of each — which is what makes a fabric this size deployable rather than a wiring exercise. Ports are presented as MTP pigtails and MPO adapters, 2048 in total, over single-mode fiber.

Everything the system switches stays in the optical domain. There are no transceivers in the switching path, so the fabric adds no per-port power that scales with line rate and imposes no protocol constraints on the traffic crossing it.

Specifications

System Architecture

PARAMETER	VALUE
System Scale	1024 x 1024, non-blocking
Core Components	16 LW-64 modules in the input layer and 16 in the output layer, fully connected through an optical backplane
Module Configuration	16 transmitter fiber shuffles (Tx) and 16 receiver fiber shuffles (Rx)
Board Configuration	16 assemblies per module; supports 16-channel MTP x 4 interfaces and 64-channel fiber assemblies

Interfaces

PARAMETER	VALUE
Interface Configuration	MTP pigtails and MPO adapters, 2048 total
Fiber Type	Single-mode (SM)

NOTES

1. Systems at this scale are configured per deployment. Rack layout, fiber routing, control interface and commissioning are quoted against your site plan.

Order or request a quote

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