

IBM Optical Switch



Overview

Our optical switch uses a very weak laser beam (control beam) to turn another, brighter laser beam on and off. To do the trick, we exploit a microcavity—a 35 nanometer thin sheet of an organic semiconducting polymer, sandwiched between highly reflective inorganic materials. Don't miss “ One photon to switch them all: An ultra-efficient optical switch that could link quantum computers,” a livestream AMA with University of Southampton's Pavlos Lagoudakis and IBM Research's Darius Urbonas. They will discuss—and take your questions on—how they built an ultrafast. Last week Skoltech, the Russian Institute of Science and Technology, in collaboration with IBM, announced an optical switch transistor that operates between 100 to 1,000 times faster than traditional transistors. This device could allow hundreds of times fa. more See what others said about this video while it was live. This technology enables secure key exchange between two parties over an untrusted channel, ensuring confidentiality and integrity of sensitive information. We analyze the switch performance through rigorous optical simulations, for devices implemented in silicon-on-insulator with carrier-injection-based phase.



Article Content

Nov 09, 2025

Troubleshooting Optical Pass-Thru Module (OPM)

Optical Pass-thru Module may not power up on insertion Pass-through modules enable daughter cards to access external switches without the need to

Jan 02, 2026

Optical interconnection networks: The OSMOSIS project

OSMOSIS is an optical packet switching interconnection network for high-performance computing systems. It aims at delivering sustained high bandwidth, very low latency, and cost

Nov 01, 2025

A New Optical Switch Proves 1,000 Times Faster Than Traditional ...

IBM researchers and collaborators have managed to build an ultrafast, ultra-efficient all-optical switch that takes only a few photons to switch.

May 13, 2026

Silicon electro-optic 4x4 non-blocking switch array for on-chip ...

Silicon electro-optic 4x4 non-blocking switch array for on-chip photonic networks for OFC 2011 by William M. J. Green et al.

Mar 02, 2026

Drive-noise-tolerant broadband silicon electro-optic switch

We report a broadband digital electro-optical switch, based upon a multi-stage Mach-Zehnder lattice design in silicon-on-insulator. A digital switching response is demonstrated,

Oct 28, 2025

IBM Cabling Guide for 10GbE System x Virtual Fabric Adapters

OS1 single-mode fiber optics are used for long distances, up to 10,000m (6.2 miles) with the standard transceivers and have been known to work at much longer distances with special transceivers and

Dec 15, 2025

How do I activate Port on Demand License on IBM B-type Switch

Optics SNs can be found on the label affix to each Optics within the clamshell box. Optics Kit Serial Number is 11-digit alpha/numeric characters (PPPPSSSSSSS) Optics Serial Number is 15

Oct 16, 2025

IBM Storage Networking SAN96C-7 Switch

The next-generation IBM SAN96C-7 64-Gbps 96-port two rack unit (2 RU) Fibre Channel switch provides high-speed Fibre Channel connectivity for all-flash

Sep 22, 2025

IBM Brings the Speed of Light to the Generative AI Era

IBM has unveiled breakthrough research in optics technology that could dramatically improve how data centers train and run generative AI models.

Jan 07, 2026

IBM & NVIDIA Networking Solutions Reference Guide

IBM offers a wide range of NVIDIA Ethernet switches at 1GbE with up to 48 ports, 10/25/40/100 GbE with 48/8 ports, 40/100 GbE with 32 ports, and NVIDIA InfiniBand switches at EDR

Sep 17, 2025

IBM Storage Networking SAN24B-6 Switch

The IBM Storage Networking SAN24B-6 switch provides exceptional value in an entry-level switch, combining high-performance capabilities of 4, 8, 16, and 32 Gbps, point-and-click simplicity, and

Sep 29, 2025

New Optical Switch up to 1000x Faster Than Transistors

A new optical switch is, at 1 trillion operations per second, between 100 and 1,000 times faster than today's leading commercial electronic transistors,

Dec 17, 2025

A New Optical Switch Proves 1,000 Times Faster Than

A New Optical Switch Proves 1,000 Times Faster Than Traditional Transistors Optical computers have long been on the horizon. Now, IBM and

Aug 27, 2025

IBM Storage Networking SAN64B-7 Switch

The IBM Storage Networking SAN64B-7 Switch builds a Fibre channel infrastructure with reduced latency and increased bandwidth that unleashes the performance of NVMe, FICON and SCSI

Dec 22, 2025

Overview

Features and technical details of the Nortel Networks Switch Module, IBM Optical Passthru Module, Myrinet cluster Ethernet, and IBM Gigabit Ethernet adapter overview.

Apr 08, 2026

IBM Develops Co-Packaged Optical Interconnect for

IBM Research has unveiled a significant advancement in optical interconnect technology for advanced data center communications. The

Mar 10, 2026

Software-defined optical burst switching for HPC and ...

Abstract In this paper, we assess the performance of techniques for optical burst switching (OBS) designed for high performance computing (HPC) and cloud computing data center networks

Feb 10, 2026

HOSA: Hybrid optical switch architecture for data center networks

MEMS switches are based on mature technology, have low insertion loss and cross-talk, and are data rate independent. They are also the most scalable and the cheapest class of optical

Dec 28, 2025

Co-packaged optics can supercharge generative AI computing

Early results suggest that switching from conventional electrical interconnects to co-packaged optics will slash energy costs

Jul 26, 2025

Design of a digital, ultra-broadband electro-optic switch for ...

We present a novel design for a noise-tolerant, ultra-broadband electro-optic switch, based on a Mach-Zehnder lattice (MZL) interferometer. We analyze the switch performance through rigorous optical

Sep 01, 2025

Goodbye Transistor? New Optical Switches Offer up to

A collaboration between IBM and Russian researchers has resulted in the development of optical switches that can outperform traditional transistor

Dec 08, 2025

Performance evaluation of hybrid optical switch ...

In this paper, we propose an optical interconnect architecture for the large scale data centers. The proposed interconnect: Hybrid Optical Switch Architecture (HOSA) is a hybrid design

Jun 05, 2026

Implementing Quantum Key Distribution with IBM's Optical Switch for ...

IBM's Optical Switch is a promising platform for implementing Quantum Key Distribution (QKD) systems. This technology enables secure key exchange between two parties over an

Mar 30, 2026

HOSA: Hybrid optical switch architecture for data center networks

In this paper, we propose a novel all optical core interconnection scheme that utilizes potentials of both slow and fast optical switches. The core idea is to route traffic through slow or fast

Sep 22, 2025

Low-power, 2x2 silicon electro-optic switch with 110-nm bandwidth for ...

We present an ultra-broadband Mach-Zehnder based optical switch in silicon, electrically driven through carrier injection. Crosstalk levels lower than -17 dB are obtained for both the "on" and "off" switching

Jan 10, 2026

Ranovus® Announces Second-Generation “Co

Co-packaged Optics, or CPO, is an innovative approach that provides nx100Gbps PAM4 Optical I/O for Ethernet switch and ML/AI silicon in a single

Nov 25, 2025

IBM Introduces CPU Optical Switching Technology

IBM has managed to achieve a new kind of processor switch based on optical technology, that could lead to faster data rates in the near future.

Contact Us

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