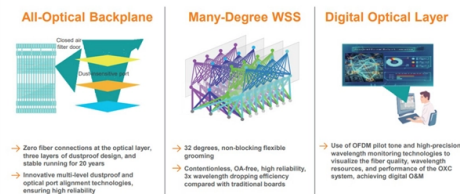


# Liquid cooling for optical modules



## Overview

Liquid cooling technology, leveraging its higher thermal conductivity efficiency and energy-saving advantages, has been introduced into the optical module field, becoming a key direction for addressing the bottleneck of high-power heat dissipation. But now, advanced applications such as artificial intelligence (AI) and machine learning are taking high data processing demands to the next level — and legacy cooling solutions for I/O modules may no longer be enough. It not only effectively reduces energy consumption. Traditional air-cooling solutions can no longer meet the thermal demands of high-performance chips such as GPUs, ASICs, and optical chips. According to IDC, the global liquid-cooled data center market will exceed USD 20 billion by 2027, with a compound annual growth rate (CAGR) of 25%. 2 Liquid. A liquid-cooled optical module helps control heat in fast data systems. Liquid cooling works faster than air cooling and keeps your equipment working well. Traditional finned modules designed for air. This article provides insights into a successful upgrade of an air-cooled coherent metro router into a Hybrid Liquid/Air-cooled system. © 2024 The Author (s) View More.



## Article Content

Sep 19, 2025

Liquid-Cooled Heat Dissipation Technology for Co-Packaged Optics

With the rise of machine learning and artificial intelligence, data center power usage has increased continuously in recent years, and the bandwidth demand for switches continues to grow. As a result,

Dec 02, 2025

\$SIVE \$JBL \$AVGO just got a massive indirect tailwind Jabil is now ...

Liquid cooling unlocks higher power densities → more AI racks, more GPUs, more high-speed optical interconnects needed inside and between clusters. Jabil's 1.6T LRO modules (2.5×

Apr 01, 2026

Arista Announces XPO High Density Liquid Cooled Pluggable Optics

Arista Networks today announced the formation of a multi-source agreement for XPO, a revolutionary 12.8 Tbps liquid cooled optics module that supports a front panel density of 204.8 Tbps

Dec 18, 2025

Arista Announces XPO High Density Liquid Cooled Pluggable Optics

Flexibility: Supports linear, half-retimed, or fully-retimed interface architectures. "The unprecedented growth in AI fabric bandwidth and the transition to liquid cooling requires a new

Jun 06, 2026

(PDF) Simulation and experimental investigation of liquid

For the unique architecture of CPO, this study analyzes its heat dissipation needs in detail, and a thermal management scheme is designed. The

Feb 25, 2026

Thermal Management Solutions Report for I/O Modules

Due to the increasing power demands in optical I/O modules, systems designers and data center architects are now considering the use of liquid cooling for optical I/O modules to support upcoming

Jun 08, 2026

Understanding Liquid-Cooled Optical Modules and Heat

Discover how liquid-cooled optical modules manage heat efficiently in high-speed data systems. Explore customized heatsink solutions.

Dec 25, 2025

### GB200 NVL72 | NVIDIA

Energy-Efficient Infrastructure Liquid-cooled GB200 NVL72 racks reduce a data center's carbon footprint and energy consumption. Liquid cooling increases

Feb 13, 2026

Nvidia turns to silicon photonics to supercharge next

Earlier this year, the company confirmed that its next-generation rack-scale AI platforms will abandon pluggable optical modules in favor of co

Jun 20, 2026

### Liquid-Cooled Optical Transceivers for 800G/1.6T

A liquid-cooled optical transceiver is a high-speed module that incorporates liquid cooling technologies (such as cold plates or microchannels)

Jun 07, 2026

### What is Liquid-Cooled Optical Module

Liquid-cooled optical modules are a powerful thermal management technology utilized in optical systems. The aim is to convert heat in optical

Aug 18, 2025

### Eoptolink Debuts 12.8Tbps Liquid-Cooled XPO Optics for AI Data

Eoptolink's 12.8 Tbps XPO pluggable transceiver takes a bold leap toward ultra-dense, liquid-cooled optical interconnects for AI-ready networks. Extreme density, solid cooling, and front

Sep 17, 2025

### Cisco Announces Silicon One G300, Advanced Systems and Optics

The Cisco Silicon One G300 will power new Cisco N9000 and Cisco 8000 systems that push the frontier of AI networking in the data center. The systems feature innovative liquid cooling

Oct 14, 2025

### xMEMS | Micro Cooling | Edge AI Devices & AI Data

xMEMS' micro cooling fan-on-a-chip, a 1mm-thin, solid-state active thermal management solution for next-gen edge AI hardware and AI data center systems.

Jun 26, 2026

XPO Optics Emerge as Frontrunner for AI Infrastructure

At OFC 2026, XPO emerged as a scalable, liquid-cooled CPO alternative, enabling high density and efficiency for next-gen AI infrastructure.

Dec 18, 2025

Deep| \$TSEM: SiPho Capacity Inflection Drives Multi-Fold Growth

The TDP (Thermal Design Power) of AI server racks, such as the Nvidia GB200 series, has jumped from 700W in the Hopper generation to over 1,200W, necessitating the adoption of liquid

Jun 22, 2026

I focus on quantitative logic and value discovery in the U.S. market ...

Current U.S. stock directions we are focusing on: AI infrastructure: Not just \$Nvidia, but also power, optical modules, and liquid cooling (e.g., \$VRT, \$ETN). Downward consumption and

Aug 20, 2025

AI servers are becoming increasingly integrated systems. GPUs,

SemiVision (@semivision\_tw). 29 likes. AI servers are becoming increasingly integrated systems. GPUs, CPUs, NICs, switch ASICs, optical modules, power modules, liquid

Apr 02, 2026

Gigalight Liquid-Cooled Optics: A Thematic Study on

As a leader in optical interconnect technology, Gigalight is pioneering immersion liquid-cooling extenders and silicon photonics liquid-cooled optical

Nov 19, 2025

Fiber Optic Splitters for PON Networks: 2025 Guide

What Are Fiber Optic Splitters in PON? Fiber splitters are passive devices that divide one optical input signal into multiple outputs. In PON: - One

May 21, 2026

Liquid Cooling for Optical Networking Equipment

This article provides insights into a successful upgrade of an air-cooled coherent metro router into a Hybrid Liquid/Air-cooled system. Additionally, an innovative solution is presented for integrating liquid

Feb 13, 2026

Deep Dive into Liquid-Cooled Optical Modules in the NVIDIA ...

As computing systems shift toward liquid cooling, an often-overlooked component, the optical module, is becoming a key focus. In highly integrated environments like NVIDIA's

Oct 11, 2025

Arista's New XPO Module Sets Record-Breaking 12.8

Arista Networks has unveiled its XPO high-density liquid cooled pluggable optics module, offering a fourfold improvement in rack density and 12.8

Aug 06, 2025

Arista Announces XPO High Density Liquid Cooled

SANTA CLARA, Calif., March 12, 2026--Arista Networks (NYSE: ANET) today announced the formation of a multi-source agreement (MSA) for XPO, a

Sep 17, 2025

Simulation and experimental investigation of liquid-cooling thermal ...

Therefore, this paper explores the application of the liquid-cooled cold plate thermal solution in high-capacity CPO systems. Aiming at the heat dissipation requirements of the CPO

Dec 09, 2025

=> Liquid Cooling for Optical Networking Equipment, Ciena, DC ...

OGAWA, Tadashi (@ogawa\_tter). => Liquid Cooling for Optical Networking Equipment, Ciena, DC Sustainability, Future Technologies Symp, 2023 OCP Global Summit, Oct 18

## Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://elagage-lorrain.fr>

Email: [sales@elagage-lorrain.fr](mailto:sales@elagage-lorrain.fr)

Phone: +33 6 47 82 19 35

Address: 15 Rue de la République, 69002 Lyon, France

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