

# Will liquid cooling be the next optical module



## 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. OSFP optical modules, in particular, now require liquid cooling to sustain higher bandwidth, reliability, and serviceability. This industry transition has been strongly accelerated by the launch of XPO, which introduces liquid-cooled architectures for next-generation optical modules and sets a new. While the industry-standard OSFP (Octal Small Form-Factor Pluggable) module has successfully enabled 400Gbps, 800Gbps, and 1. As a result, critical emphasis has been placed on increasing. 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. Arista Networks this week announced that it has developed a 12.

## Article Content

May 30, 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

Sep 20, 2025

### 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

Aug 06, 2025

### Stäubli Drives Next-Generation Liquid Cooling Standards for AI Data ...

The new Mini-QD technology enables the liquid cooling of next-generation optical pluggable modules such as OSFP and QSFP devices that are expected to reach up to 1.6 terabits

Jan 14, 2026

### Thermal Management Solutions Report for I/O Modules

Thermal management in data centers has always been challenging. But now, advanced applications such as artificial intelligence (AI) and machine learning are

Jun 14, 2026

### Liquid Cooling Solutions Spurs Next-Gen Optical Module Evolution

Liquid Cooling Solutions: The Catalyst for Next-Gen Optical Module Evolution The exponential growth of global data traffic, fueled by AI, 5G, and hyperscale computing, is pushing data

Dec 06, 2025

### Molex Releases Report on Thermal Management Challenges and ...

Molex's In-Depth Report of Thermal Management Solutions for I/O Modules addresses the limitations of legacy approaches for thermal characterization and management and explores new

Jan 14, 2026

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

Liquid cooling technology, leveraging its higher thermal conductivity efficiency and energy-saving advantages, has been introduced into the optical

Jun 19, 2026

Advanced Thermal Management Strategies | Molex

For the next generation of optical modules, a key priority is the end-to-end optimization of the heat flow pathway, minimizing the resistance from the

Oct 03, 2025

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)

Oct 29, 2025

Hot Interconnects: Arista Outlines Pathways to Energy

Looking beyond optics, Bechtolsheim focused on the need for liquid-cooled switches in next-generation AI data centers. Standard ORv3 racks lack

Feb 26, 2026

Optical Module Liquid Cold Plates for 400G / 800G

ToneCooling specializes in the custom design and manufacturing of optical module liquid cold plates for next-generation data center optics, supporting 400G, 800G,

Apr 10, 2026

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Mar 11, 2026

Full-Scale Immersion Cooling of Optical Transceiver, PCBs

Conduction cooling and immersion cooling are both more energy efficient than air cooling. With conduction cooling, a cold plate with liquid running

Mar 24, 2026

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

Abstract This study explores the application of cold plate liquid cooling technology in co-packaged optics (CPO). By integrating optical modules and the switch chip on the same substrate, CPO shortens the

Nov 21, 2025

### 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.

Aug 05, 2025

### Hot Interconnects: Arista Outlines Pathways to Energy

“The path to energy-efficient optics is constrained by high-volume manufacturing,” Bechtolsheim noted, stressing that advanced optics packaging

Feb 17, 2026

### Molex releases report on thermal management for I/O Modules

Fueled by heightened demand for the fastest data rates, optical I/O module power requirements push traditional forced-air cooling to operational limits Shift to 224 Gbps PAM-4

May 21, 2026

### Solving Cooling Interconnects for Next-Gen Data

High-performance data center and AI workloads are power-intensive, outpacing efficiency improvements in air-cooling technology. Power requirements

Oct 25, 2025

[pmc.ncbi.nlm.nih.gov](https://pmc.ncbi.nlm.nih.gov)

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Jun 01, 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

Oct 04, 2025

### Liquid Cooling Solutions Spurs Next-Gen Optical

Liquid Cooling Solutions: The Catalyst for Next-Gen Optical Module Evolution The exponential growth of global data traffic, fueled by AI, 5G, and

May 12, 2026

### OFC 2026 Showcases The Technology Triangle For AI Data Centre:

Before this year CPO equipment has not yet been widely deployed, now we expect the technology of liquid-cooled optical modules can be maturely applied in the next year or two, it may

Jul 30, 2025

Introducing the Mini QD at OFC 2026 | Advanced Cooling for Optical

This industry transition has been strongly accelerated by the launch of XPO, which introduces liquid-cooled architectures for next-generation optical modules and sets a new benchmark for

Mar 06, 2026

XPO: Redefining Pluggable Optics for AI Networking

Any optical interconnect solution that cannot integrate efficiently with a liquid-cooled environment is therefore fundamentally unsuitable for next-generation AI data center deployments.

Mar 19, 2026

Optical Transceivers in Liquid Immersion Cooling Systems

Improved Thermal Management: Liquid immersion cooling helps maintain an optimal operating temperature for optical transceivers, enhancing

Oct 03, 2025

Arista targets AI data centers with new liquid cooled

Arista Networks this week announced that it has developed a 12.8 Tbps liquid cooled optics module that it says will help address the power and

Jun 18, 2026

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

Liquid-cooled optical modules are at the heart of this transformation. Their integration directly determines the stability, efficiency, and scalability of next-generation computing systems.

Sep 29, 2025

What is Liquid-Cooled Optical Module□

Liquid-Cooled Principle These optical modules with liquid cooling technology employ heat pipe heat transfer technology to dissipate heat energy

Sep 25, 2025

Liquid Cooling Solutions Spurs Next-Gen Optical

Liquid cooling is a critical enabler for the next generation of high-performance optical modules, allowing the industry to overcome the thermal and

## Contact Us

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