Are there any shortages of optical module power chips



Overview

The lockup has forced optical module manufacturers and cloud service providers to search for secondary suppliers and alternative designs.

Key Takeaways

Yes, there are ongoing shortages of optical module power chips, particularly high-speed EML and CW-LD laser chips, driven by surging demand from AI data centers and 5G deployments.

Current Supply Constraints

The global optical module market is experiencing significant supply-demand mismatches. High-speed optical modules, including 400G, 800G, and 1. 6T units, are in high demand due to AI compute growth and 5G network rollouts, but production is constrained by limited availability of core optoelectronic chips such as EML and CW-LD lasers.

Lead times for these components have extended from weeks to months, and delivery schedules for high-end 800G modules are already being pushed into the next quarter.

Causes of Shortages

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Complex Manufacturing Processes: High-speed laser chips require intricate fabrication, including epitaxial growth and precise optical alignment, which can take months and limit production scalability. Capacity Bottlenecks: Optical module packaging and testing lines are operating near full capacity, and expansion cycles for leading manufacturers are long and capital-intensive. Exploding Demand: AI data centers alone account for over 60% of incremental growth in optical module demand, with cloud providers like Google, Microsoft, and Meta driving large-scale purchases.

Regional Supply Dynamics: North America leads in 800G/1. 6T shipments, while Asia-Pacific is rapidly expanding 400G module production, but EML chip shortages limit global 8-channel module capacity to 28 million units.

Market Outlook

The optical module chip market is projected to grow from US$823 million in 2024 to US$1. 52 billion by 2032, reflecting a CAGR of 8%. Despite this growth, supply chain constraints for semiconductor materials and high-precision manufacturing processes are expected to persist through 2026-2027, particularly for high-speed EML chips.

Manufacturers are investing in next-generation 800G solutions, but the combination of long production cycles and surging demand means shortages are likely to continue in the near term.

Implications

Data Center Expansion: Hyperscale data centers may face delays in deploying AI servers due to limited optical module availability. Telecommunications: 5G infrastructure rollouts could experience slower deployment in regions dependent on constrained chip supplies. Strategic Planning: Companies with integrated supply chain management and flexible capacity strategies are better positioned to mitigate the impact of these shortages.

In summary, optical module power chips are currently in short supply, with high-speed laser chips being the primary bottleneck, and these constraints are expected to persist through at least 2026 due to complex manufacturing, capacity limits, and rapidly growing demand from AI and 5G applications.

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Article Content

AI Data Center Optical Component Shortage: Nvidia''s $4B Laser

The lockup has forced optical module manufacturers and cloud service providers to search for secondary suppliers and alternative designs.

Optical Module MCUs Become Critical as AI Data Centers Drive

MCU chips powering optical modules have emerged as a critical semiconductor segment driven by the AI data center construction boom, with prices rising approximately 40% year-to-date

AI Data Centers Ignite a Laser Shortage Wave; Nvidia''s ...

EMLs combine modulation functions on a single chip, which makes them highly complex and very challenging to produce. Only a few suppliers are available, such as Lumentum, Coherent (Finisar),

AI Data Centers Ignite a Laser Shortage Wave; Nvidia''s Strategic

EMLs combine modulation functions on a single chip, which makes them highly complex and very challenging to produce. Only a few suppliers are available, such as Lumentum, Coherent

The reasons behind the recent sharp price increase of optical modules

Costs are driving optical chip shortages and price increases. High-speed optical chips (such as those above 25G) are in short supply, leading to rising costs. The self-sufficiency rate for

Supply Chain Resilience—The Key Capability for Locking in AI

The global AI optical module market is expanding at over 57% annually, but component shortages have become the primary bottleneck for capacity expansion.

AI Growth in Optical Modules: Demand Up, Shortages On

AI applications have become the absolute dominant force in the Ethernet optical module market. Sales quadrupled from 2023 to 2025 after doubling in 2024. However, insufficient indium phosphide (IP)

LightCounting :: February 2025 Component shortages limit growth in ...

Demand for optical connectivity remains strong, but component shortages hobbled growth in sales of optical transceivers in Q4 2024. The first half of 2025 will be impacted as well.

Spot market for optical module chips | Weyland

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Global optical module chip spot supply is concentrated among a small number of technologically advanced companies, resulting in a highly centralized industry structure.

Chip shortage: how the semiconductor industry is

There aren''t enough computer chips to power modern cars What''s the ''bullwhip effect'' and how can we avoid crises like the global chip shortage?

How and When the Chip Shortage Will End, in 4 Charts

For the automotive industry, as we summarized in five charts that helped demystify the chip shortage, time eventually brought carmakers up from

LightCounting :: Component shortages limit growth in transceiver sales

LightCounting releases a research note on the early financial results for Q4 2024 Demand for optical connectivity remains strong, but component shortages hobbled growth in sales of optical transceivers

Shortage of chips for optical modules | Weyland

Conclusion Overall, the optical module “chip shortage” is fundamentally a structural contradiction between the technological limitations of high-end optical chips and the explosive

The shortage of chips continues to affect the optical device market

At present, the most scarce semiconductor components in the market are power chips, MCU and other chips. Of course, the lack of these chips will also affect the production of optical

Electronic Component Shortage 2025: Outlook

Electronic component shortages in 2025 continue to challenge supply chains. Explore key strategies to secure components, reduce delays, and

The Global Semiconductor Chip Shortage: Causes, Implications, and ...

Since 2020, there has been a major supply shortage of semiconductors across the globe with no end in sight. As almost all modern devices and electroni

Semiconductor supply shortages worry half of chip-dependent firms

Semiconductor supply shortages worry over half of chip-dependent firms, survey shows The findings come from a global survey by the Capgemini Research Institute, involving 250

DDR5 Memory Shortage Intensifies, Power

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved

Virtually all of the major memory brands have introduced their DDR5 memory modules and many even began to sell them at retailers like Amazon and

Contact Us

Continue your research online:

Website: https://fdsoluciones.es
Technical inquiry: https://fdsoluciones.es/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 FD SOLUCIONES OPTICAL SYSTEMS - All rights reserved