

Have optical modules become cheaper



Overview

Why the Logic Behind Optical Module Price Hikes Is More 'Healthy'Guosheng Securities notes that the pricing logic for optical modules is more sustainable.

Key Takeaways

Optical modules are becoming cheaper due to technological maturation, economies of scale, and cost reductions in electronic components, even as higher-speed modules continue to offer premium performance.

Technological Maturation and Standardization

As optical modules evolve from early 100G and 200G designs to 400G, 800G, and 1.6T, the production processes for mature standards become more efficient. Modules that adhere to established specifications benefit from optimized manufacturing, reduced R&D overhead, and streamlined assembly, which lowers unit costs over time.

Legacy modules, once cutting-edge, see price declines as production scales up and supply chains stabilize. Cost Reductions in Electronic ComponentsHigh-speed optical modules rely heavily on electronic chips, particularly DSPs, driver ICs, and TIAs, which historically accounted for a significant portion of total module cost. Advances in chip integration, localization, and production efficiency have reduced the cost per unit of these components.

As the technology matures, the cost of producing high-performance chips decreases, contributing to lower overall module prices.



Economies of Scale and Market Expansion

Growing demand for bandwidth, driven by AI, cloud computing, and data center expansion, has led to larger production volumes. Higher volumes allow manufacturers to spread fixed costs over more units, achieving economies of scale. Additionally, as newer technologies like 400G and 800G become mainstream, the per-unit cost of speed decreases, even if the nominal price per module remains high, effectively lowering the cost per bit transmitted.

Competitive Market and Third-Party Options

The presence of third-party compatible modules has increased competition, offering cost-effective alternatives to branded modules without significantly compromising performance. Bulk purchasing and strategic procurement timing also allow buyers to secure lower prices, further driving down costs in the market.

Summary

In essence, optical modules are getting cheaper because mature technologies reduce production complexity, electronic component costs decline, and economies of scale are realized, while market competition and strategic procurement practices help lower prices for end users. Even as new high-speed modules command premiums, the cost per transmitted bit continues to fall, making optical interconnects more affordable and efficient over time.

Article Content

Why the Logic Behind Optical Module Price Hikes Is More "Healthy"

Guosheng Securities notes that the pricing logic for optical modules is more sustainable: as specs advance from 400G to 1.6T, unit prices rise while cost per bit continues to fall. This "tech-driven

Deep Dive: Optical Module Market

Optical modules can also be categorized into single-mode versus multimode modules. Single-mode modules often use EML (Electro-absorption Modulated Lasers) as the lasers, which are

Chinese Optical Modules Own 7 of the Top 10 Seats. So Why Are

In the span of a decade, Chinese optical module companies have claimed 7 of the top 10 seats and secured core supplier status in the AI demand segment. Thanks to the 800G capacity

From optical modules to chips -

BEIJING, June 7 (Xinhua) -- With the global push for AI computing power unleashing an unprecedented wave of infrastructure buildout, China-made optical modules that shuttle data and the chips that

Optical Module Industry Statistics (2026): Expert Analysis

In 2025, the optical module industry is being reshaped by fast moving demand and tightening supply dynamics, visible in the latest shipment and pricing snapshots.

Optical Module Procurement Guide

Shifts in pricing for optical modules will continue to be the result of technology advancements and changing market needs. The shift to higher-speed technologies (e.g., 100G or

Cost structure of optical module chips | Weyland

Like other large-scale data centers, these modules rely heavily on optical chips, enabling them to transmit, process, and convert signals efficiently. Understanding the cost structure of optical

The reasons behind the recent sharp price increase of optical modules

In general, the price increase of optical modules is the inevitable result of strong demand (the AI computing power race) meeting limited supply (bottlenecks in high-end chips, materials, and

Economic Watch: From optical modules to chips

Featuring the world's leading market shares and accelerating upgrades, China's tech supply chains have become essential to sustaining global AI growth. Numbers speak for themselves.

Optical Module Chip Market 2025

Average selling prices for 100G optical modules have declined approximately 70% over the past five years, forcing chip vendors to achieve aggressive cost reductions while maintaining performance.

Solar panel prices have fallen by around 20% every

Costs have fallen by around 20% every time the global cumulative capacity doubles. Over four decades, solar power has transformed from one of

Optical Module Industry Statistics 2026

Optical module demand is being pulled in two directions at once, faster bandwidth for dense networks and tighter constraints on power, security, and lead times. With global R&D

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Solar photovoltaic modules have suddenly emerged as one of the cheapest options for bulk electricity supply. In a recent Energy Policy article, Kavlak

Optical Module Chip Market 2025

The optical module chip market exhibits a fragmented yet competitive structure with global technology providers, semiconductor manufacturers, and specialized optical communication companies vying for

The Evolution of Optical Modules: Powering the Future

The Relentless March of Speed The evolution of optical module speeds is a testament to human ingenuity and the relentless pace of

Current Status of Optical Module Chip Development | Weyland

Architecture evolution: CPO becomes mainstream Power optimization: low-power DSP and electro-optical co-design Conclusion Overall, optical module chips have evolved from traditional

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Self-generated solar power is already cheaper than grid electricity almost everywhere, making home solar systems economically attractive. Solar

Optical Module Market Size & Share 2026-2032

In this context, optical modules have become a strategic enabler for network densification, data center interconnect, metro aggregation, long-haul transport, and next-generation access networks.

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

