Price difference of optical modules



Overview

Cost of optical module electronic chips | WeylandIn low-speed optical modules, their cost share is relatively low. However, in 400G, 800G, and future 1.6T.

Key Takeaways

Optical module prices vary widely, from a few dollars for basic 1G SFPs to several thousand dollars for high-speed 400G and 800G modules, depending on speed, type, and technology.

Typical Price Ranges1

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Ps: Generic or compatible modules typically cost $5–$25, while OEM-branded modules (Cisco, HPE, Juniper) can range from $60–$120+ depending on specifications and industrial-grade features. 10G SFP+ modules: Compatible short-reach modules often sell for tens of dollars, whereas OEM long-reach or DFB modules can cost hundreds of dollars. 25G–100G modules: Prices increase with speed and reach.

Standard QSFP28 100G modules generally range from $200–$600, with coherent or long-distance modules costing more. 400G modules: QSFP-DD or OSFP 400G modules are significantly more expensive, often $2,000–$5,000+, depending on form factor, optical reach, and DSP complexity. 800G modules: These high-speed modules are cutting-edge and can cost $10,000 or more, largely due to the high-value DSP chips and advanced electronic components required for multi-lane PAM4 transmission.

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Factors Influencing Cost

Electronic Components: High-speed DSP chips, driver ICs, and TIAs are major cost drivers, especially in 400G and 800G modules, where DSPs alone can account for 20–25% of total module cost. Raw Materials: Lasers, photodetectors, and high-quality wafers (silicon, InP, silicon nitride) contribute significantly to the price.

R&

D and Engineering: Advanced design, simulation, and integration efforts, particularly for coherent and high-speed modules, can account for 20–30% of total cost. Form Factor and Packaging: QSFP-DD, OSFP, and other multi-lane designs have different tooling and thermal management requirements, affecting per-unit cost. Market and Supply Factors: Component availability, production scale, and demand surges (e.g., data center expansion) can cause temporary price fluctuations.

Brand and Warranty: OEM-branded modules typically carry a premium for reliability, compatibility, and support compared to third-party or compatible modules.

Summary

Optical module costs scale with speed, complexity, and technology maturity. Basic 1G–10G modules are inexpensive, while 100G–400G modules are mid-range, and cutting-edge 400G–800G modules are high-cost due to DSPs, advanced packaging, and R&D. Buyers should consider form factor, reach, brand, and total cost of ownership when selecting modules for enterprise or data center networks.

Article Content

Cost of optical module electronic chips | Weyland

In low-speed optical modules, their cost share is relatively low. However, in 400G, 800G, and future 1.6T optical modules, electronic chips can account for 20%–40% or more of total cost,

The proportion of optoelectronic chips in the cost of optical modules ...

In summary, optoelectronic chips are the “heart” of optical modules, determining not only key performance metrics—such as data rate, transmission distance, and power consumption—but

Optical Module Procurement Guide

Based on the most recent data we assembled, we included manufacturer prices, cost, warranty period, and end-user input reflecting reliability assessment, and share the detailed

Why is the price of the same optical module so

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The cost difference between imported optical devices and domestic optical devices is very large, so there will be a price difference in the price of

Next-Gen Optical Modules: A Technical Comparison of CPO, NPO,

Compare CPO, NPO, and XPO optical modules for 800G/1.6T data centers. Evaluate power efficiency, integration, and OCS synergy for your network architecture.

Optical Interconnect Technology Analysis: LPO, NPO, CPO

Comparison of CPO, NPO, and LPO LPO, NPO, and CPO represent three optical interconnect technologies developed to address the continuous increase in AI network bandwidth

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

800G Silicon Photonics vs. EML: 2026 Cost Analysis & Buying Guide

However, AI-scale data centers have changed the cost equation. A decisive trend has emerged: Silicon Photonics (SiPh) is rapidly overtaking EML, projected to capture 60-70% of the

800G Optical Module Cost Analysis | TCO Optimization Guide

Complete guide to 800G optical module costs and TCO optimization for AI data centers. Includes pricing analysis, cost comparison, vendor strategies, and ROI calculations for informed

Deep Dive: Optical Module Market

In terms of pricing, 800G LPO modules have been sold at around $600 this year, which is cheaper than single-mode conventional optical modules priced above $700 but more expensive

Memory Pullback: The AI Bill Is Being Repriced Daily

An AI data center needs GPUs, memory, networking, optical modules, power, cooling, land, transformers, and financing. Higher memory prices are profit for upstream suppliers, but for cloud

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Comprehensive Guide to Optical Transceiver Classifications and

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Conclusion Optical modules can be classified by data rate, form factor, transmission distance, and fiber type. Proper selection ensures network efficiency and cost optimization. LINK

Silicon Photonic Modules vs. Traditional Optical Modules:

Silicon Photonics vs. Traditional Optical Modules: Key Differences for 800G & 1.6T Data Centers Description: As data centers scale to 800G and 1.6T, silicon photonics is reshaping optical

What is the price difference between high-speed optical modules and

To sum up, there is a price difference between high-rate optical modules and low-rate optical modules, which is mainly affected by factors such as their design complexity, manufacturing cost, market

Solar Module Prices 2025: Complete Guide To Current Costs & Trends

Comprehensive guide to solar module prices in 2025. Current costs, market trends, buying strategies, and price forecasts. Updated with latest data.

Why is There Such a Huge Variability in SFP+ Module

· Fiber Optic SFP+ Modules: These can have much higher prices, especially for those supporting long-range connections or high-speed fiber

The Evolution of Optical Modules: Powering the Future

We''ll examine Linear Pluggable Optics (LPO) and Linear Receive Optics (LRO) as cost-effective, low-power alternatives, discuss advanced cooling

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