

Cost of Optical Module Electronic Chips



Overview

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.

Key Takeaways

Optical module chip prices range from around \$15 for low-end 100G modules to over \$1,300 for high-performance 800G modules. Price Ranges by Module Type
Low-end 100G modules: Starting at approximately \$15-\$20 per chip for procurement-friendly or prototype options, suitable for small-scale or industrial applications (e.g., 100G QSFP AOC). Standard 400G modules: Typically priced between \$600-\$800 per chip, depending on vendor, technology, and volume.

High-end 800G modules: Prices range from \$700-\$1,900, with premium options for AI data centers or long-reach applications (e.g., OSFP-FR4 or QSFP-DD-DR8).

Factors Influencing Price

Technology and Speed: Higher-speed chips (400G-800G) require advanced photonic integrated circuits, tunable lasers, and digital signal processing, which significantly increase cost. Vendor Tier: OEM modules from brands like Cisco or Arista can command a 30-50% premium over third-party compatible modules. Volume Discounts: Bulk orders reduce per-unit cost, with discounts of 10-30% for orders exceeding 1,000-5,000 units.

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D and Materials: Costs of wafers, lasers, modulators, and precision manufacturing contribute heavily to the final price, especially for cutting-edge silicon photonics chips. Customization: Special wavelengths, extended temperature ranges, or additional testing can add 15–30% to the base price.

Summary

For a single optical module chip, prices vary widely based on speed, technology, vendor, and order volume. Low-end 100G chips can be as inexpensive as \$15–\$20, mid-range 400G chips around \$600–\$800, and high-performance 800G chips can exceed \$1,300, particularly for AI or long-reach applications. Understanding these factors is essential for budgeting and procurement planning in data centers or telecom networks.

Article Content

Cost structure of optical module chips | Weyland

The overall cost of an optical module chip depends on material choices, design complexity, manufacturing processes, packaging, testing, and integration, all of which play a role in the final

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.

Optical Module DSP Chip Market

The optical module DSP chip market ran as a tight oligopoly in 2025, with dominant vendors leaning on two advantages: proprietary silicon intellectual property and close, long-running

Optical Module Chip Market – PW Consulting Information

High R&D costs for silicon photonics and the underlying materials science, alongside supply chain volatility for specialized compound semiconductor inputs like Indium Phosphide (InP),

Global Optical Module DSP Chip Market 2025

The development and production of high-performance Optical Module DSP chips require significant investment in research and technology, leading to high manufacturing costs, which could limit their

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Optical Module Chip Market 2025

Optical Module Chip Market size was valued at US\$ 823 million in 2024 and is projected to reach US\$ 1.52 billion by 2032, at a CAGR of 8.0%

Cost structure of optical module chips | Weyland

Understanding the cost structure of optical module chips is essential for developers, investors, and network operators, as it heavily impacts pricing, profitability, and supply chain decisions.

NVIDIA Corporation

NVIDIA has achieved the fusion of electronic circuits and optical communications at massive scale with photonics networking switches that enable AI factories to connect millions of GPUs.

Optical Chips: Types, Applications, and Future Trends

This comprehensive guide will explore optical chips, their types, applications, their impact on optical module performance, and the exciting future trends in optical chip technology.

Exploring Optical Module Chip Market Evolution 2026-2034

Explore the booming Optical Module Chip market forecast (2025-2033). Discover key drivers like 5G, data centers, and AI, alongside growth trends for 100G, 200G, 400G, and 800G

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Optical Module Chip Market Optical Module Chip Market Size, Share & Industry Analysis, By Component (Laser Diodes, Driver ICs and DSPs), By Application (Data Center and Cloud

Market Insights: 800G & 1.6T Silicon Photonics Optical Modules

Traditional modules require additional lenses and mirrors to combine the eight laser beams into one before entering the fiber. These optical components, necessary for traditional

Optical Module DSP Chip Market Expansion: Growth Outlook 2026-2034

The optical module DSP chip market is booming, projected to reach \$364 million in 2025 with a 6.8% CAGR. Driven by 5G, cloud computing, and high-speed data transmission needs, key

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

