Price list for best-selling 400G optical modules for data center interconnection



Overview

QSFP-DD price guide with 400G/800G module costs, OEM vs third-party comparison, volume discounts, and 3-year TCO analysis for data center buyers.

Key Takeaways

400G optical modules range from approximately $1,400 for short-reach SR8 modules to over $130,000 for long-haul coherent ZR+ modules, depending on type, reach, and vendor. Price Ranges by Module TypeSR8 (Short-Reach, In-Rack/Cross-Row): $1,400–$1,800 from reputable third-party vendors; widely used for in-rack and cross-row connectivity. DR4/FR4 (Medium-Reach, Data Center Rows/Campus Links): Prices are competitive in the third-party market, generally ranging from $3,000–$6,000 depending on vendor and distance.

LR4 (Long-Reach, Up to 10 km): OEM modules can exceed $10,000; third-party alternatives may offer significant savings but still remain a major cost factor for DCI deployments. ZR/ZR+ (Coherent, Metro/Long-Haul DCI): OEM ZR+ modules can surpass $130,000; third-party options provide cost reductions but are still the largest line-item expense in wide-area network builds.

Factors Affecting Pricing

Vendor Type: OEM modules are typically more expensive than third-party equivalents, especially for long-reach coherent optics. Transmission Distance: Short-reach modules (SR8) are far less expensive than long-haul coherent modules (ZR/ZR+). Volume Discounts: Large-scale deployments often benefit from tiered pricing, which can reduce per-unit costs significantly.

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Digital Optical Monitoring (DOM) and Firmware Compatibility: Modules with advanced monitoring or guaranteed interoperability may carry a premium.

Market Trends

The 400G optical module market is highly commoditized for short-reach modules, driving price compression. Coherent 400G modules for metro and long-haul DCI are still premium-priced due to advanced DSP, modulation, and FEC technologies. Adoption is accelerating in hyperscale cloud, AI/ML clusters, and high-performance computing, with modules supporting dense east-west traffic in modern data centers.

Practical Considerations

For in-rack or cross-row DCI, SR8 modules are cost-effective and widely deployed. For inter-data center or metro links, DR4, FR4, LR4, and ZR/ZR+ modules are necessary, but careful vendor selection can optimize TCO. Third-party modules can offer substantial savings, particularly for coherent optics, but ensure compatibility with existing switches and transceivers.

In summary, selecting the right 400G module depends on reach, vendor, and deployment scale, with prices ranging from $1,400 for short-reach SR8 modules to over $130,000 for long-haul coherent ZR+ modules, making careful planning essential for cost-effective data center interconnection.

Article Content

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Building the foundation for future data center transceivers In summary, data centers are leading the migration to 400G interconnects, given the high growth in machine-to-machine capacity

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