

Tariff Costs High-Speed Optical Connectivity QSFP28



Overview

The Memory Map for QSFP28 Module is used for serial ID, digital monitoring and certain control functions.

Key Takeaways

QSFP28 modules for 100G optical connectivity typically range from \$35 to several thousand dollars per unit, with tariffs, supply chain constraints, and module type significantly affecting total costs. Market Pricing Overview

QSFP28 modules, which provide 100G connectivity, exhibit a wide price range depending on type, reach, and vendor. Short-reach (SR4) third-party modules can cost as little as \$35, while long-reach or OEM-branded modules may reach several thousand dollars per unit. Mid-range modules such as CWDM4, LR4, FR1, and LR1 are more competitively priced, often around \$280 per module, and are widely supported across platforms. Power consumption typically ranges from 3.5W to 4.5W per module, influencing operational costs.

Factors Affecting Costs

- **Engineering and Production:** Costs include design verification, reliability testing, and bill of materials (BOM), covering chipsets, optical components, and mechanical housing.
- **Overhead and Profit Margins:** Administrative, marketing, and support costs, along with company-specific profit targets, can significantly influence pricing.

- **Tariffs and Supply Chain:** Geopolitical tensions, export restrictions, and tariffs can increase costs, particularly for modules manufactured in China or imported into North America and Europe . Manufacturers are diversifying production to Southeast Asia to mitigate these risks .

- **OEM vs Third-Party Modules:** OEM modules often include firmware restrictions, warranty, and vendor support, while third-party modules may require careful validation to ensure compatibility with switch firmware and CMIS standards .

Procurement Strategies

- **Frame Agreements:** Multi-year contracts can stabilize costs and ensure supply during silicon shortages .

- **Volume Discounts:** Bulk purchases reduce per-unit costs but require careful inventory planning to avoid obsolescence .

- **Compatibility Validation:** Ensuring CMIS compliance and EEPROM coding prevents operational issues such as port errors or latency spikes .

Tariff Implications

Tariffs can add a significant premium to imported QSFP28 modules, particularly in North America and Europe. To mitigate this, many hyperscale operators and manufacturers are localizing production in Southeast Asia, reducing exposure to US or EU import duties . Additionally, strategic sourcing from multiple suppliers can help maintain cost predictability and avoid supply bottlenecks.

Key Takeaways

- QSFP28 pricing is highly variable: \$35-\$3,000+ per module, depending on reach, vendor, and type .

- Tariffs and supply chain constraints can materially increase costs, making localized production and frame agreements critical for budget planning .

- Third-party modules offer cost savings but require firmware and compatibility validation to avoid operational risks .

- Mid-range modules (CWDM4, LR4, FR1, LR1) provide the best balance of cost, performance, and vendor support . For enterprises and data centers, careful planning around tariffs, procurement contracts, and module selection is essential to optimize both CAPEX and OPEX while maintaining high-speed optical connectivity.

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