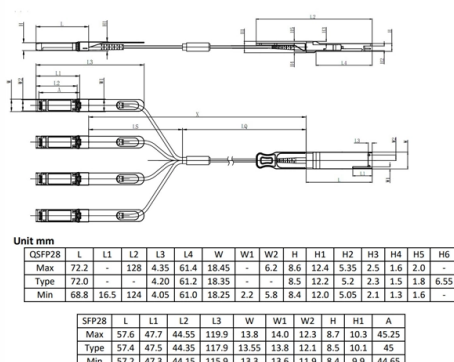


Common speeds for optical modules



Overview

Cisco Transceiver Modules - Learn product details such as features and benefits, as well as hardware and software specifications.

Key Takeaways

Optical modules commonly support speeds ranging from 1 Gbps to 400 Gbps, depending on form factor and application.

- SFP (Small Form-Factor Pluggable): Typically supports 1 Gbps, used in access networks and legacy systems for short- or medium-range links over multimode or single-mode fiber .
 - SFP+: Supports up to 10 Gbps, widely used in enterprise and data center uplinks, balancing cost, density, and power .
 - SFP28: Supports 25 Gbps, maintaining the same physical footprint as SFP while providing higher bandwidth for modern NICs and switch ASICs .
- QSFP Family
- QSFP (Quad Small Form-Factor Pluggable): Supports 40 Gbps, often used for high-speed aggregation in data centers .
 - QSFP28: Supports 100 Gbps, commonly deployed in cloud and hyperscale networks for high-density, high-bandwidth links .
 - QSFP56: Supports 200 Gbps, providing higher per-port bandwidth for modern data center architectures .

- QSFP-DD (Double Density): Supports up to 400 Gbps, featuring an upgraded electrical interface while remaining backward compatible with QSFP and QSFP28 ports .

Key Considerations

- Fiber Type: Multimode (OM3/OM4) is suitable for shorter distances, while single-mode fiber (OS2) supports longer links .
- Reach: 1G SFP modules can reach a few hundred meters on multimode fiber or up to 10 km on single-mode; 10G SFP+ modules typically reach hundreds of meters on multimode and 10 km on single-mode .
- Electrical Interface: Ensure compatibility with host switch or router; SFP28 and QSFP-DD modules require modern NICs and ASICs to fully utilize their speed .
- Power and Cooling: Higher-speed modules consume more power and may require additional cooling in dense deployments . In summary, 1G, 10G, 25G, 40G, 100G, 200G, and 400G are the most common optical module speeds, with the choice depending on network requirements, fiber type, reach, and equipment compatibility .

Article Content

A Comprehensive Guide to Optical Transceivers: Speed, Distance,

With a variety of speeds, transmission distances, and form factors, selecting the right optical module is crucial for

The Most Comprehensive Guide Of Optical Modules

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right

What Are the Key Parameters of Optical Modules

Understand the key parameters of optical modules, including transmission rate, distance, wavelength, and fiber

SFP SFP+ SFP28 QSFP+ QSFP28: Fiber Module Form Factor Guide

Among the most widely deployed form factors are SFP, SFP+, SFP28, QSFP+, and QSFP28, which together support Ethernet

What Is an SFP Optical Module? Guide | PHILISUN

Understand the core function, compare data rates (1G to 25G), learn critical compatibility rules, and follow our 5-step

How to Measure the Performance Indicators of Optical Modules?

By seamlessly integrating the functions of electrical-to-optical and optical-to-electrical conversion, optical modules

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The key points for optimizing the performance of optical modules

This article discusses the performance metrics for optical modules and how to achieve higher transmission speeds for

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Explore the working principles, structures, and performance metrics of optical modules, essential components of

Cisco SFP vs GBIC vs XFP vs SFP+: The Practical Optical

Choosing the wrong module can lead to costly mismatches, link instability, or wasted budget. This guide provides a

Common Optical Module Form Factors

Initially designed to achieve Gbps-level conversion, which was considered high-speed at the time, the module's shape

Smallest Thinnest Power Modules for Data Center Optical Modules

Figure 1: High Speed Trends in Optical Modules (reference 1) While the data rates are transitioning from 400Gbps to 800Gbps with

A complete list of common optical module types-ETU-LINK

Many partners do not know much about the packaging types of optical modules,so in this article,ETU-LINK introduces

What Is an Optical Module and Its FAQs (V200)

What Is an Optical Module and Its FAQs (V200) Describes what an optical module is and FAQs, including the fundamentals,

Transceiver Form Factors: SFP, QSFP, CFP & Beyond | Guide

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Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical

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Optical modules enable high-speed, low-latency 5G networks by converting signals for fast, reliable data transfer,

Designing a Module for High-Speed Optical Communication

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