

Article Overview

A 10G SFP (SFP+) transceiver is a hot-pluggable optical module that transmits and receives data at 10 gigabits per second, serving as the physical interface between network devices and fiber or copper cabling.

Core Function

The 10G SFP+ transceiver acts as a bridge between the electrical signals of network devices--such as switches, routers, and servers--and the optical or copper transmission medium. It converts electrical data into optical signals for fiber transmission and converts incoming optical signals back into electrical form for the device to process. This enables high-speed, reliable 10 Gigabit Ethernet connectivity across short and long distances ().

Key Features

- o Hot-pluggable design: Can be inserted or removed without powering down the device, simplifying maintenance and upgrades ().
- o Form factor: Compact SFP+ size, backward-compatible with standard SFP slots but optimized for 10G speeds ().
- o Data rate: Supports 10 Gbps, with some variants also supporting lower speeds for backward compatibility ().
- o Connector types: Typically LC duplex for fiber or Direct Attach Copper (DAC) for short-range connections ().
- o Digital Diagnostics Monitoring (DDM): Provides real-time telemetry for optical power, temperature, and voltage, helping prevent link failures ().

Types and Applications

- o Fiber SFP+:
 - o SR (Short Reach): Multimode fiber, up to ~300-550 meters, ideal for intra-data center links ().
 - o LR (Long Reach): Single-mode fiber, up to 10 km, suitable for inter-building or campus networks ().
 - o ER/ZR: Extended reach, up to 40-80 km, used in metropolitan or telecom networks ().
- o Copper SFP+: Uses RJ-45 or DAC cables for short distances (up to 7-15 meters), often for server-to-switch connections ().

Benefits

- o High bandwidth: Supports 10 Gbps line rate, reducing latency and bottlenecks in high-density networks ().



SFP-10G-ER Optical Module

- o Scalability: Allows network upgrades to 10G speeds without replacing existing hardware ().
 - o Flexibility: Compatible with multiple fiber types and distances, enabling deployment in data centers, enterprise networks, and service provider environments ().
 - o Energy efficiency: Low power consumption (typically $\leq 1W$), reducing thermal load in dense switch environments ().
- In summary, the 10G SFP+ optical module is a versatile, high-speed transceiver that enables efficient, scalable, and reliable 10 Gigabit Ethernet connections over fiber or copper, making it essential for modern data centers, enterprise networks, and telecom infrastructures ().

As a leading optical module manufacturer, Velolan Networks offers a comprehensive portfolio from 1G to 800G. Our

GLsun's Cisco SFP-10G-ER-55-T01 compatible transceiver module provides 10GBase-ER throughput up to 40km over multimode

FS 10GbE SFP+ module solutions provide a wide variety of 10 Gigabit Ethernet connectivity options for

This data sheet describes the benefits, specifications, and ordering information for the Cisco 10GBASE SFP+

The Cisco's 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for

Cisco SFP-10G-ER-I module The Cisco 10GBASE-ER Industrial Temperature Module supports a link length of up to 40 kilometers

SFP+ 10G Optics & DAC Cables including copper RJ45, multimode and single mode, Bidirectional, and CWDM/DWDM up to 80km

SFP 10G ER Datasheet Discover the cutting-edge world of high-speed optical transceivers with this

FS for Cisco SFP-10G-ER compatible SFP+ optical transceiver provides 10GBase-ER links up to 40km over singlemode fibre (SMF)

Cisco SFP-10G-ER Compatible SFP+ Module - 10GBASE-ER - 10GbE Single Mode Fiber SMF Optic Transceiver - 10GE Gigabit

SFP+ transceiver is a standardized form factor for fiber optic and is used in datacom and telecom optical links, offering a small

10G SFP+ ER Transceiver Module (1310nm SMF 40km LC DDM) 10G SFP+ ER Module is designed for

SFP-10G-ER Optical Module

If the SFP-10G-ER-1310 is connected to a 10Gbase-ER standard optical module (1550nm, 10GE, 40km), the maximum transmission

Arista Networks SFP-10G-ER Compatible SFP+ transceiver supports up to 40km over OS2 SMF via an LC duplex connector. This

The 10G SFP+ series optical modules include SR, LR, ER, ZR, BIDI, CWDM, DWDM and electrical port modules. All

This technical guide explains how SFP 10G ER works, outlines its core specifications, compares it with other 10G optical modules,

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