

Switch Stacking Port Optical Module



Overview

Cisco IOS XE 17 Stacking connects multiple physical network switches, enabling them to function as a single logical switch by using stacking-capable device.

Key Takeaways

Switch stacking optical modules enable high-speed, reliable connections between multiple switches, with module choice depending on distance, speed, and switch compatibility.

Overview of Switch Stacking

Switch stacking allows multiple switches to operate as a single logical unit, with one master switch managing operations and other switches acting as backups. This setup improves network reliability, simplifies management, and supports high-volume data forwarding. Stacking can be achieved using DAC (Direct Attach Copper), AOC (Active Optical Cable), or optical modules with fiber jumpers, depending on distance and performance requirements.

Types of Optical Modules for Stacking
SFP/SFP+ Modules Common for 1G, 10G, and 25G stacking ports. Can use copper SFPs for short distances or fiber SFPs for longer distances. Compatible with LC connectors and multimode or single-mode fiber depending on distance.

QSFP/QSFP28 Modules Used for 40G, 100G, or higher-speed stacking. QSFP28 supports 100G via MPO-12 parallel optics or LC duplex single-mode optics. QSFP-DD modules can scale to 400G/800G and often support backward compatibility with QSFP28 modules.

Distance Considerations
DAC cables: Low-cost, short-distance (up to ~7 meters), copper-based, no optical components.

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C cables: Active optical cables for medium distances (7–30 meters), lightweight and low power. Optical modules + fiber jumpers: For distances over 30 meters, using multimode (OM2/OM3/OM4) or single-mode fiber depending on required reach.

Installation Best Practices

Always wear eye protection when handling optical fibers. Maintain the minimum bend radius: SFP+ cables ≥ 25 mm, AOC cables ≥ 30 mm, optical fibers ≥ 40 mm. Clean connectors with alcohol swabs or air-laid paper before insertion to prevent signal loss.

Stack topology can be chain or ring, depending on switch model and redundancy requirements. Verify switch and module compatibility using vendor documentation (e.g., Cisco TMG matrix for SFPs) to ensure proper operation and warranty coverage.

Summary

Choosing the right optical module for switch stacking depends on distance, speed, and switch compatibility. For short distances, DAC is cost-effective; for medium distances, AOC is suitable; and for longer distances, optical modules with fiber jumpers are recommended. Proper installation, cleaning, and adherence to bend radius guidelines are essential for reliable stacking performance.

Always consult the switch vendor's compatibility matrix to select the correct SFP, SFP+, QSFP, or QSFP-DD modules for your network.

Article Content

Cisco IOS XE 17

Stacking connects multiple physical network switches, enabling them to function as a single logical switch by using stacking-capable devices with dedicated ports and cables for

Cisco Catalyst 9300 Series Switches Hardware Installation Guide

The optional StackWise-320 kit for Catalyst 9300L and 9300LM Series models consists of two stack adapters and a stacking cable. The default stacking cable is 0.5 m, however options of

How to Choose Optical Modules for Switch Stacking?

To sum up, from the perspective of practicality and economy, DAC should be used for data transmission or switch stacking below 7 meters. AOC is

The Ultimate Guide to SFP Modules (2026): Types,

What is an SFP? SFP (Small Form-factor Pluggable) is a compact, hot-pluggable network interface module used to connect network devices (switches, routers,

Troubleshooting Data Center Top of Rack Switch: Optical Interfaces ...

This technical FAQ addresses both pre-sales specification validation and post-sales engineering troubleshooting—covering optical transceiver compatibility, genuine switching ...

S6730-H and S6730S-H Service Port Stacking Support

A switch supports a maximum of two logical stack ports. For stacking-supported service ports, some of them can be used as stack ports, whereas some can be used as ordinary service ports.

Small-Form Factor Pluggable (SFP) and Stacking Accessories

This article provides technical data on Fiber Transceivers and stacking accessories compatible with Meraki devices.

What Can I Do If a Message Is Displayed Indicating that an Optical ...

This field indicates whether the rate of the optical module installed on the port matches the port rate. For example, if a non-XGE optical module is installed on an XGE port, the rate of the optical module

ExtremeSwitching Hardware Installation Guide

Port option cards and versatile interface modules (VIMs) are installed in dedicated slots at the back of the switch to provide optional I/O ports or stacking ports.

How to Select Optical Modules for Switch Stacking?

Switch stacking through optical modules can achieve high network reliability, large network data forwarding, and simplified network management.

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how to connect 4 switches using sfp

You can stack up to 4 units in a stack with a total of 208 ports managed as a single system with hardware failover. In your use case, you have to deploy so-called hybrid stack mode due

Catalyst 3650 Switch Hardware Installation Guide

This chapter describes how to install and connect a Catalyst 3650 switch. It also includes planning and cabling considerations for stacking switches. Read the topics and perform the

Optical Module Solutions for Huawei S5700/S5720 Series Switches

When using switches, we may encounter many confusions, such as what types of optical modules are needed for different models of Huawei switches, and how to resolve issues encountered

cross connecting fiber GBIC or SFP modules

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Switch stacking: choose DAC, AOC or optical module + fiber jumper?

To sum up, DAC high-speed cables are practical and economical, and are often used for data transmission or switch stacking below 7 meters. AOC active optical cable is used for switch data

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