Q&A

Cisco SM-X-6X1G Gigabit Ethernet Service Module

Product Overview

Cisco SM-X-6X1G Gigabit Ethernet Service Module brings high-density Small Form-Factor Pluggable (SFP) and copper (RJ-45) Gigabit Ethernet connectivity to the Cisco 4400 Series Integrated Services Routers (ISR) to accelerate applications such as Ethernet WAN access, inter-VLAN routing, and high-speed connectivity to LAN switches and servers.

Note: The ports on the Cisco SM-X-6X1G work as routed Layer 3 ports. Layer 2 switching between local ports on the module or between ports on the module and other ports within the router system is not possible. The port terminates Layer 2 trunks from externally connected switches and Layer 2 trunk and VLAN information is not switched onto other ports in the system. The host router routes all traffic entering the Cisco SM-X-6X1G.

General

Q. Which platforms support this module?
A. The Cisco 4451-X ISR is the only platform supporting the Cisco SM-X-6X1G.

Q. Which Cisco IOS® Software Release and feature set is required?
A. Cisco IOS XE Release 3.11S or later is required to operate the Cisco SM-X-6X1G.

Q. How many Cisco SM-X-6X1G modules are supported per Cisco 4451-X chassis?
A. The maximum number of Cisco SM-X-6X1G modules supported on Cisco 4451-X is 2 per chassis.

Q. What Cisco IOS Software features are supported on the Cisco SM-X-6X1G?
A. The Cisco SM-X-6X1G is based on the technology of the onboard Gigabit Ethernet and SFP ports on the Cisco 4400 Series ISRs. Cisco IOS Software feature support is therefore identical to that of the onboard ports.

Q. Are there any differences between the onboard Gigabit Ethernet ports and the Cisco SM-X-6X1G?
A. The feature set of the onboard Gigabit Ethernet ports and the Cisco SM-X-6X1G is the same. There are, however, a few hardware-dependent differences:

- Onboard Gigabit Ethernet ports support Power over Ethernet (PoE) although the Cisco SM-X-6X1G does not.
- Cisco SM-X-6X1G supports ingress quality of service (QoS) (Physical Layer Interface Module [PLIM]) but onboard Gigabit Ethernet ports do not.

Q. The Cisco SM-X-6X1G has 12 interfaces. How many of those can be used simultaneously?
A. The Cisco SM-X-6X1G is a single-wide enhanced service module with 6 dual-identity ports for routed Layer 3 services. Each dual-identity port-pair consist of an RJ-45 copper connector and an SFP slot. Either the SFP or the RJ-45 can be active, but not both at the same time. If both the SFP and the RJ-45 port of the same port pair are connected and have detected an active link at start-up, the RJ-45 port will, by default, become active.

For a list of SFPs supported, please refer to the Cisco SM-X-6X1G Data Sheet.

Q. Does the Cisco SM-X-6X1G connect to the Multi-Gigabit Fabric (MGF)?

A. Yes, but not in the same way as a switch module. Cisco SM-X-6X1G does not allow for module-to-module communication like a switch or Cisco Unified Computing System™ E-Series (UCSE) SM-X module. Instead the Cisco SM-X-6X1G simply uses MGF to reach the router processing architecture.

Q. Is switching supported between the ports on the Cisco SM-X-6X1G?

A. No. All traffic entering ports on the Cisco SM-X-6X1G is routed by the host. The Cisco SM-X-6X1G does not support Layer 2 switching of traffic between local SM-X-6X1G ports or between SM-X-6X1G ports and other ports within the router system. VLAN information will not be switched onto other ports in the system.

Q. What is the maximum throughput on the Cisco SM-X-6X1G?

A. Cisco SM-X-6X1G is a so-called “routed port” module, which means all traffic to and from the ports on the SM-X-6X1G is routed through the host router. As such, the maximum throughput of the Cisco SM-X-6X1G is mandated by the host router and not by the module itself. Cisco 4451-X ISR has two throughput levels of 1 Gbps (factory default) or 2 Gbps level with the IOS feature Performance on Demand License. The maximum total throughput of a Cisco SM-X-6X1G module will be one of these two.

Q. Which SFPs are supported on the Cisco SM-X-6X1G?

A. The Cisco SM-X-6X1G Data Sheet provides the full list of supported SFPs.

Q. What speeds are supported by the copper Gigabit Ethernet RJ-45 ports?

A. 10/100/1000 Mbps with auto-negotiation.

Q. Does the Cisco SM-X-6X1G support 10/100BASE by using 1000BASE SFPs?

A. No. Because each of the six ports of the module includes an RJ-45 option, copper Ethernet SFPs are not supported.

Q. Does the Cisco SM-X-6X1G support field-replaceable SFP modules?

A. Yes.

Q. Is PoE supported?

A. No.

Q. Is digital optical monitoring (DOM) supported?

A. Yes.

Q. Is online insertion and removal (OIR) supported for modules in the SM-X slots?

A. Yes. OIR of modules in SM-X slots is supported.

Q. Is OIR supported on the SFP module slot?

A. Yes.OIR is supported on the SFP module slot. When the SFP is inserted and removed while the system is operational, a syslog message is generated.

Q. Does the OIR support mean that I can install a new Cisco SM-X-6X1G module while the router is in operation?

A. Yes. The ISR 4451-X supports any-to-any OIR, which means you can swap the modules of different type.

Features

Q. Is interface auto-failover between SFP and RJ-45 connections supported?

A. No, auto-failover is not supported on the RJ-45 and SFP dual-identity ports of the Cisco SM-X-6X1G, nor is it supported on the four onboard RJ-45 and SFP ports on the host Cisco 4451-X system.

Q. Is trunking supported on the Cisco SM-X-6X1G?

A. Yes. Layer 2 trunks from externally connected switches are supported. The Cisco SM-X-6X1G ports, however, will terminate Layer 2 trunks the same way as for onboard ports. All traffic coming in on a trunk will be routed through the host router, and not switched.

Q. Is 802.1ad QinQ termination supported?

A. Yes.

Q. What trunking protocols are supported?

A. Only 802.1Q is supported. Cisco Inter-Switch Link (ISL) is not supported; it is proprietary to Cisco and is not commonly deployed.

Q. Is MACsec supported on the Cisco SM-X-6X1G?

A. Cisco SM-X-6X1G is MACsec-ready but Cisco IOS XE Software does not yet support it.

Q. Is Cisco TrustSec® security supported on the Cisco SM-X-6X1G?

A. Cisco TrustSec security is a host feature in Cisco IOSXE Software; support depends on the Cisco IOS Software version.

Q. Is IEEE1588 clock synchronization supported on the Cisco SM-X-6X1G?

A. No.

Q. Is ITU-T Y.1731 performance monitoring supported on the Cisco SM-X-6X1G?

A. No.

Q. Are Jumbo Frames supported?

A. Yes. The maximum transmission unit (MTU) is user-configurable and can be set from 64 to 9188 bytes. The MTU specifies the size of the Ethernet packet payload, excluding the Ethernet header.

Q. Is flow control supported?

A. Yes. The Cisco SM-X-6X1G supports 802.3x PAUSE frames operation for transmit and receive control.

Q. Where can I find instructions on how to configure this module?

A. For configuration instructions, refer to the “Configuring Ethernet, Fast Ethernet, or Gigabit Ethernet Interfaces” chapter of “Configuring LAN Interfaces”. The guidelines in this chapter apply to all Cisco modular access routers.

Technical Assistance

The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical problems with Cisco products and technologies.

To receive security and technical information about your products, you can subscribe to various services, such as the Cisco Notification Service, the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) feeds.

Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.

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