Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter

The Cisco® Interface Flexibility (I-Flex) approach combines shared port adapters (SPAs) and SPA interface processors (SIPs), providing an extensible design that enables service prioritization for data, voice, and video services. Enterprises and service providers can take advantage of improved slot economics resulting from modular port adapters that are interchangeable across Cisco's routing platforms. The Cisco I-Flex design maximizes connectivity options and offers superior service intelligence through programmable interface processors that deliver line-rate performance. Cisco I-Flex enhances speed-to-service revenue and provides a rich set of quality-of-service (QoS) features for premium service delivery while effectively reducing the overall cost of ownership. This data sheet contains the specifications for the Cisco 1-Port 10-Gigabit Ethernet Shared Port Adapter (1-Port 10-GE SPA; refer to Figure 1).

Figure 1. Cisco 1-Port 10-GE SPA with 10-Gbps Small Form-Factor Pluggable (XFP) Optics

Product Overview

The Cisco 1-Port 10-GE SPA can be used in multiple applications, including:

- Inter- and intra-point of presence (POP) aggregation
- Metro Ethernet
- Internet peering

Features and Benefits

The Cisco SPA/SIP portfolio offers many advantages, including:

- Highly modular, flexible, intelligent interface processors
  - Superior flexibility, supporting a combination of interface types on the same interface processor for consistent services, independent of access technology
  - Pioneering programmable interface processors that provide flexibility for the service diversity required in next-generation networks
  - Innovative design that provides intelligent delivery of services without compromising on performance

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- Increased speed-to-service revenue
  - The scalable, programmable Cisco architecture extended to 10 Gbps dramatically improves customer density, increasing potential revenue per platform.
  - Interface breadth (copper, channelized, POS, ATM, and Ethernet) on a modular interface processor allows service providers to roll out new services more quickly, helping ensure that all customers large and small receive consistent, secure, and guaranteed services.
  - High-density Small Form-Factor Pluggable (SFP) interfaces are featured for high-port-count applications with reach flexibility. Future optical technology improvements can be adopted using existing SPAs.
- Dramatically improved return on your routing investment
  - Improved slot economics and increased density reduce capital expenditures (CapEx).
  - The ability to easily add new interfaces as they are needed enables a "pay-as-you-grow" business model while still offering a high-density solution.
  - SPAs are shared across multiple platforms, and can be easily moved from one to another, providing consistent feature support, accelerated product delivery, and a significant reduction in operating expenses (OpEx) through common sparing as service needs change.

Product Specifications

Tables 1 and 2 provide specifications for the Cisco 1-Port 10-GE SPA.

Table 1. Product Specifications

Features	Descriptions
Product Compatibility	• Cisco Catalyst 6500 Series Switches • Cisco 7600 Series Routers • Cisco 12000 Series Routers • Cisco XR 12000 Series Routers
Port Density per SPA	One 10-Gigabit Ethernet port
Physical Interface	10-Gbps XFP optics
LED Indicators	SPA status – Bicolor green and amber LEDs encode the SPA status as follows: • LED off: SPA is powered off • LED amber: SPA is powered on and initializing • LED green: SPA is powered on and operational In addition to the status LED, the SPAs also have a bicolor, surface-mount, right-angle LED dedicated to each port to indicate port status. The green and amber LEDs encode the port status as follows: • LED off: Port is not enabled by software • LED amber: Port is enabled by software, but there is a problem with the Ethernet link • LED green: Port is enabled by software, and there is a valid Ethernet link

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Features	Descriptions
Features and Functions	• Full-duplex operation • 802.1Q VLAN termination • Jumbo frames support (9188 bytes) • Support for command-line interface (CLI)-controlled online insertion and removal (OIR) • 802.3x flow control • Up to 4000 VLANs per SPA • Up to 5000 MAC accounting entries per SPA (source MAC accounting on the ingress and destination MAC accounting on the egress) • Up to 2000 MAC address entries for destination MAC address filtering per SPA, and up to 1000 MAC address filtering entries per port • Per-port byte and packet counters for policy drops; oversubscription drops; cyclic-redundancy-check (CRC) error drops; packet sizes; and unicast, multicast, and broadcast packets • Per-VLAN byte and packet counters for policy drops; oversubscription drops; and unicast, multicast, and broadcast packets • Per-port byte counters for good bytes and dropped bytes Other software features supported: • Ethernet over Multiprotocol Label Switching (EoMPLS) • QoS • Hot Standby Router Protocol (HSRP) • Virtual Router Redundancy Protocol (VRRP)
Reliability and Availability	OIR of the SPA within the SIP and the optics within the SPA
Network Management	Network management using: • Field-replaceable XFP modules • Host-system CLI • Simple Network Management Protocol (SNMP) Inventory- and asset management-related MIBs: • Entity-MIB (RFC 2737) • Cisco-entity-asset-MIB Fault management: • Cisco-entity-field-replaceable unit (FRU)-control-MIB • Cisco-entity-alarm-MIB • Cisco-entity-sensor-MIB Physical interface management: • IF-MIB • Etherlike-MIB (RFC 2665) Other MIBs: • Remote Monitoring (RMON)-MIB (RFC 1757) • Cisco-class-based-QoS-MIB • MPLS-related MIBs • Ethernet MIB/RMON
Physical Specifications	• Weight: 0.75 lb (0.34 kg) • Height: 0.8 in. (2.03 cm) (single height) • Width: 6.75 in. (17.15 cm) • Depth: 7.28 in. (18.49 cm)
Power	19.1W
Environmental Specifications	• Storage temperature: –38 to 150°F (–40 to 70°C) • Operating temperature, nominal: 32 to 104°F (0 to 40°C) • Operating temperature, short-term: 32 to 131°F (0 to 55°C) • Storage relative humidity: 5 to 95% relative humidity • Operating humidity, nominal: 5 to 85% relative humidity • Operating humidity, short-term: 5 to 90% relative humidity • Operating altitude: –60 to 4000 meters

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Features	Descriptions
Compliance and Agency Approvals	Safety • UL 60950-1 • CSA C22 No. 60950-1 • EN 60950-1 • IEC 60950-1 • AS/NZS 60950 • EN 60825-1 • EN 60825-2 • 21 CRF 1040 EMC • CFR 47, FCC Part 15---Class A • ICES 003---Class A • CISPR 22 Class A • EN 55022 Class A • EN 300386 Class A • AS/NZS Class A • VCCI-Class B • EN 50082-1 • EN 55024 • IEC/EN61000-4-2 Electrostatic Discharge Immunity (8-kV contact, 15-kV air) • IEC/EN61000-4-3 Radiated Immunity (10 V/m) • IEC/EN61000-4-4 Electrical Fast Transient Immunity (2-kV power, 1-kV signal) • IEC/EN61000-4-5 Surge AC Port (4-kV CM, 2-kV DM) • IEC/EN61000-4-5 Surge Signal Port (1-kV indoor, 2-kV outdoor) • IEC/EN61000-4-5 Surge DC Port (1 kV) • IEC/EN61000-4-6 Immunity to Conducted Disturbances (10 Vrms) • IEC/EN61000-4-8 Power Frequency Magnetic Field Immunity (30 A/m) • IEC/EN61000-4-11 Voltage Dips, Short Interruptions, and Voltage Variations Telecom • IEEE 802.3ae (10-Gigabit Ethernet interface SPA) Industry Standards The Cisco 1-Port 10-GE SPA is designed to meet the following requirements (some qualifications are currently in progress): • SR-3580-Network Equipment Building Standards (NEBS): Criteria levels (Level 3 compliant) • GR-63-CORE-NEBS: Physical protection • GR-1089-CORE-NEBS EMC and safety

Table 2. Optical Specifications: Modular

Gigabit Ethernet XFP Optics	Maximum Distance
10 Gigabit Ethernet Long-Reach (LR) optics	6.2 miles (10 km)
10 Gigabit Ethernet Extended-Reach (ER) optics	25 miles (40 km)
10 Gigabit Ethernet Long-Haul (ZR) optics	50 miles (80 km)

Ordering Information

To place an order, visit the Cisco Ordering Home Page or refer to Table 3.

Table 3. Ordering Information

Product Name	Part Number
Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter	SPA-1XTENGE-XFP
Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter, Spare	SPA-1XTENGE-XFP=
Cisco SPA Blank Cover	SPA-BLANK
Cisco SPA Blank Cover, Spare	SPA-BLANK=
Cisco 10 Gigabit Ethernet LR (10 km) Optics	XFP-10GLR-OC192SR
Cisco 10 Gigabit Ethernet LR (10 km) Optics, Spare	XFP-10GLR-OC192SR=

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Product Name	Part Number
Cisco 10 Gigabit Ethernet ER (40 km) Optics	XFP-10GER-OC192IR
Cisco 10 Gigabit Ethernet ER (40 km) Optics, Spare	XFP-10GER-OC192IR=
Cisco 10 Gigabit Ethernet ZR (80 km) Optics	XFP-10GZR-OC192LR
Cisco 10 Gigabit Ethernet ZR (80 km) Optics, Spare	XFP-10GZR-OC192LR=

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For More Information

For more information about the Cisco SPA/SIP portfolio, visit http://www.cisco.com/go/spa or contact your local Cisco account representative.

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