Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter, Version 2

The Cisco® Interface Flexibility (I-Flex) design combines shared port adapters (SPAs) and SPA interface processors (SIPs), taking advantage of an extensible design that facilitates service prioritization for voice, video, and data services. Enterprise and service provider customers can take advantage of improved slot economics resulting from modular port adapters that are interchangeable across Cisco Systems® 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, Version 2 (Cisco 1-Port 10-GE SPA; Figure 1 shows a SIP with 10 Gigabit Small Form-Factor Pluggable [XFP] optics).

Figure 1. Cisco 1-Port 10-GE SPA with XFP Optics

Product Overview

The Cisco 1-Port 10-GE SPA is available on high-end Cisco routing platforms, offering the benefits of network scalability with lower initial costs and ease of upgrades. The Cisco SPA/SIP portfolio continues the company's focus on investment protection along with consistent feature support, broad interface availability, and the latest technology. The Cisco SPA/SIP portfolio allows deployment of different interfaces (packet over SONET/SDH [POS], ATM, Ethernet, etc.) on the same interface processor.

Within a central office or data center or in a metropolitan-area network (MAN), 10 Gigabit Ethernet interfaces are commonly used to interconnect routers or other devices. The Cisco 1-Port 10-GE SPA meets customers' needs for various applications. With this SPA, users can mix and match SPA ports with other types of interfaces in the same slot. The Cisco 1-Port 10-GE SPA is IEEE 802.3ae standards-based for compatibility and interoperability.

Applications

The Cisco 1-Port 10-GE SPAs can be used in any combination of the following applications:

- Residential Triple Play
- Metro Ethernet Services
- Converged Residential and Business Services
- Internet Peering
- Inter- and intra-point of presence (POP) Aggregation

Key Features and Benefits

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

- Modular, flexible, intelligent interface processors
  - Flexible design allows mixing and matching of interface types on the same interface processor for consistent services, independent of access technology.
  - Programmable interface processors provide flexibility for the service diversity required in next-generation networks.
  - Innovative design provides intelligent delivery of services without compromising performance.
- Increased speed-to-service revenue
  - The programmable Cisco architecture extended to 10 Gigabits per second dramatically improves customer density, increasing potential revenue per platform and facilitating compatibility with future versions.
  - Interface breadth (copper, channelized, POS, ATM, and Ethernet) on a modular interface processor allows service providers to quickly roll out new services, facilitating consistent, secure services for all customers, large and small.
  - XFP interfaces are featured for high-port-count applications with reach flexibility. Future optical technology improvements can be adopted using existing SPAs.
- Dramatically improved financials for your routing purchase
  - Improved slot economics and increased density reduce capital expenditures (CapEx).
  - The ability to easily add new interfaces as they are needed facilitates 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 of the Cisco 1-Port 10-GE SPA, Version 2.

Table 1. Product Specifications

Feature	Description
Product Compatibility	• Cisco ASR 1000 Series Router • Cisco 7600 Series Router • Cisco 12000 Series Router • Cisco XR 12000 Series Router • Cisco CRS Carrier Routing System
Port Density per SPA	One 10 Gigabit Ethernet port

Feature	Description
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 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 activated by software • LED amber-Port is activated by software, but there is a problem with the Ethernet link • LED green-Port is activated by software, and there is a valid Ethernet link
Features and Functions	• Full-duplex operation • 802.1Q VLAN termination • 802.1ad QinQ termination (stacked VLAN processing) • Jumbo frames support (9188 bytes) • Support for command-line interface (CLI)-controlled online insertion and removal (OIR) • 802.3x flow control • Bridge protocol data unit (BPDU), Cisco Discovery Protocoland VLAN Trunking Protocol (VTP) filtering • Layer 2 Protocol (BPDU, Cisco Discovery Protocol, and VTP) Tunneling • Layer 2 access list (MAC address-based filtering) • Up to 8000 VLANs per SPA and subject to a limit of 4000 VLANs per port for 802.1q • 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: • 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	19.9W

Feature	Description
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
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 (single-mode fiber)	6.2 mi (10 km)
10 Gigabit Ethernet extended-reach (ER) optics (single-mode fiber)	25 mi (40 km)
10 Gigabit Ethernet long-haul (ZR) optics (single-mode fiber)	50 mi (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-1X10GE-L-V2
Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter, spare	SPA-1X10GE-L-V2=
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=
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=

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, refer to Cisco Technical Support Services.

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.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Printed in USA C78-358020-03 02/10