Cisco 2-, 5-, 8-, and 10-Port Gigabit Ethernet Shared Port Adapters, 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 helps enable 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 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 2-, 5-, 8-, and 10-Port Gigabit Ethernet Shared Port Adapters, Version 2 (Figures 1, 2, and 3).

Figure 1. Cisco 10-Port Gigabit Ethernet SPA

Product Overview

The Cisco 2-, 5-, 8-, and 10-Port Gigabit Ethernet SPAs are 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.

Figure 2. Cisco 5-Port Gigabit Ethernet SPA

Gigabit Ethernet interfaces are commonly used for interconnecting routers or other devices within a central office or data center or in a metropolitan-area network (MAN). Cisco offers an extensive variety of 1000BASE-X Gigabit Ethernet SPAs to meet customers' needs for various applications. With Cisco Gigabit Ethernet SPAs, you can mix-and-match SPA ports with other types of interfaces in the same slot. Each SPA provides standards-based Gigabit Ethernet implementation for compatibility and interoperability.

Figure 3. Cisco 2-Port Gigabit Ethernet SPA

In addition to the two Small Form-Factor Pluggable (SFP)-based Gigabit Ethernet ports, two additional built-in RJ-45 ports are provided on the 2-port Gigabit Ethernet SPA, Version 2. A combination of these Gigabit Ethernet ports is permitted, limited to a total of 2 Gigabit Ethernet ports (both copper, both optical, or one copper and one optical).

Applications

The Cisco Gigabit Ethernet SPAs can be used in multiple applications, including:

- Inter- and intra-point of presence (POP) aggregation
- Residential triple play (data, voice, and video)
- Metro Ethernet services
- Converged residential and business services
- Internet peering

Key Features and Benefits

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

- Industry's most modular, flexible, intelligent interface processors:
  - Unmatched flexibility, providing mix-and-match capability 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
- Increased speed-to-service revenue:
  - The future-proof 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 more quickly roll out new services, helping ensure that all customers receive consistent, secure, and guaranteed services.
- High-density SFP interfaces are featured for high-port-count applications with reach flexibility. Future optical technology improvements can be adopted using existing SPAs.

- Dramatically improved financials of your routing purchase:
  - Improved slot economics and increased density reduce capital expenditures (CapEx).
  - The ability to easily add new interfaces as they are needed helps enable 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 2-, 5-, 8-, and 10-Port Gigabit Ethernet SPA, Version 2.

Table 1. Product Specifications

Description	Specification
Product compatibility	• Cisco Catalyst 6500 Series Switches (2 and 10-port GE SPAs) • Cisco 7600 Series Router (2-, 5-, and 10-port GE SPAs) • Cisco 12000 Series Router (2-, 5-, 8-, and 10-port GE SPAs) • Cisco XR 12000 Series Router (2-, 5-, 8-, and 10-port GE SPAs) • Cisco ASR 1000 Series Router (2-, 5-, 8-, and 10-port GE SPAs) • Cisco CRS Carrier Routing System (5-, 8-, and 10-port GE SPAs) • Cisco 10000 Series Router (2 and 5-port GE SPAs)
Port density per SPA	2*, 5, 8, or 10 Gigabit Ethernet ports * Usable in combination of SFP and RJ-45 ports for a total of 2 Gigabit Ethernet ports
Physical interfaces	• Short wavelength (SX) • Long reach/long haul (LX/LH) • Extended distance (ZX) SFP • SFP-GE-T (5-, 8-, and 10-port Gigabit Ethernet SPAs) • Built-in RJ-45 (2-port Gigabit Ethernet SPA)
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: 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

Description	Specification
Features and functions	• Autonegotiation • 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 Protocol, and 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
Network management	Network management using: • 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
Reliability and availability	• OIR of the SPA within the SIP and the optics within the SPA • Field-replaceable SFP optical modules

Description	Specification
Physical specifications	2-port Gigabit Ethernet SPAs: • 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) 5-port Gigabit Ethernet SPAs: • 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) 8-port Gigabit Ethernet SPAs: • 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) 10-port Gigabit Ethernet SPA: • Weight: 1.5 lb (0.68 kg) • Height: 1.4 in. (3.55 cm) (double height) • Width: 6.75 in. (17.15 cm) • Depth: 7.28 in. (18.49 cm)
Power	• 2-port Gigabit Ethernet: SPA: 13.1W • 5-port Gigabit Ethernet SPA: 18.1W • 8-port Gigabit Ethernet SPA: 20W (with SX and LX optics); 22.3W (with ZX optics) • 10-port Gigabit Ethernet SPA: 25W
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 4000m

Description	Specification
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 802.3z Industry Standards The Cisco Gigabit Ethernet SPAs are 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 SFP Optics	Maximum Distance
SX SFP optics	1804 ft (550m)
LX/LH SFP optics	6.2 mi (10 km)
ZX SFP optics	43.5 mi (70 km)
Copper (RJ-45) SFP optics	328 ft (100m)

Ordering Information

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

Table 3. Ordering Information

Product Name	Part Number
Cisco 2-Port Gigabit Ethernet Shared Port Adapter	SPA-2X1GE-V2
Cisco 2-Port Gigabit Ethernet Shared Port Adapter, Spare	SPA-2X1GE-V2=
Cisco 5-Port Gigabit Ethernet Shared Port Adapter	SPA-5X1GE-V2
Cisco 5-Port Gigabit Ethernet Shared Port Adapter, Spare	SPA-5X1GE-V2=
Cisco 8-Port Gigabit Ethernet Shared Port Adapter	SPA-8X1GE-V2
Cisco 8-Port Gigabit Ethernet Shared Port Adapter, Spare	SPA-8X1GE-V2=
Cisco 10-Port Gigabit Ethernet Shared Port Adapter	SPA-10X1GE-V2
Cisco 10-Port Gigabit Ethernet Shared Port Adapter, Spare	SPA-10X1GE-V2=
Cisco Shared Port Adapter Blank Cover	SPA-BLANK
Cisco Shared Port Adapter Blank Cover, Spare	SPA-BLANK=
Cisco Extended Temperature SX SFP	SFP-GE-S
Cisco Extended Temperature SX SFP, Spare	SFP-GE-S=
Cisco Extended Temperature LX/LH SFP	SFP-GE-L
Cisco Extended Temperature LX/LH SFP, Spare	SFP-GE-L=
Cisco Extended Temperature ZX SFP	SFP-GE-Z
Cisco Extended Temperature ZX SFP, Spare	SFP-GE-Z=
1000BASE-T SFP (5-, 8-, and 10-Port GE SPAs)	SFP-GE-T
1000BASE-T SFP, spare	SFP-GE-T=
Cisco DWDM optics	CWDM
Cisco CWDM optics	CWDM
100BASE-FX SFP for GE SFP port on 3750, 3560, 2970, 2960 (only on 5 and 10 port Gigabit Ethernet SPA)	GLC-GE-100FX
1000BASE-BX SFP, 1490NM (only on 5 and 10 port Gigabit Ethernet SPA)	GLC-BX-D=
1000BASE-BX SFP, 1310NM (only on 5 and 10 port Gigabit Ethernet SPA)	GLC-BX-U=

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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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