Cisco 10000 Series SPA Interface Processor-600

The Cisco® 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. Service provider customers can benefit from improved slot economics resulting from modular port adapters that are interchangeable across Cisco routing platforms.

The I-Flex design maximizes connectivity options and port density with SPAs that deliver line-rate performance. I-Flex enhances speed-to-service revenue and supports the rich set of quality-of-service (QoS) features from the Cisco 10000 Series Performance Routing Engines (PREs) while effectively reducing total cost of ownership.

This data sheet contains specifications for the Cisco 10000 Series SPA Interface Processor (10000 SIP-600) card.

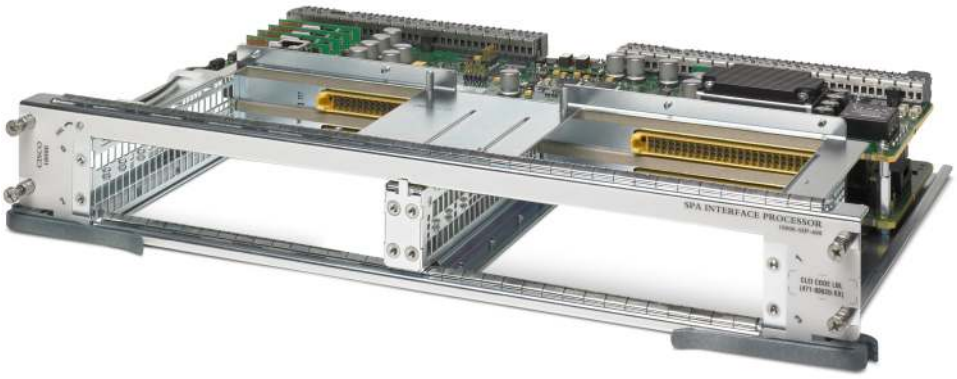
Product Overview

The centralized architecture of the Cisco 10000 Series Router enables a simplified, cost-competitive SIP design that delivers all of the advanced hierarchical QoS (HQoS), high availability, scalability, and forwarding capabilities of the PREs to a wide range of SPA interfaces for maximum flexibility and price/performance.

The Cisco 10000 Series SIP-600 (Figure 1) supports four single-height or two double-height SPAs (Figure 2) using two adjacent line-card slots of the Cisco 10000 Series Router. Using application-specific integrated circuits (ASICs) and the flexibility to bond together point-to-point links, the SIP provides up to 11.2 Gbps of bandwidth and support for 10 Gigabit Ethernet interface at line-rate.

SPA modularity greatly extends the port density on the current Cisco 10000 Series chassis and offers customers flexible interface deployment options, making the Cisco 10000 Series Router an ideal choice for service provider customers who need high-density aggregation at the edge with the ability to share next-generation interfaces across multiple Cisco platforms.

Figure 1. Cisco 10000 Series SIP-600



The Cisco 10000 Series SIP-600 offers the following features and benefits (Table 1).

Table 1. Key Features and Benefits of Cisco 10000 Series SIP-600

Feature	Benefit
Increased port density, bandwidth, and SPA support	Supports 4 single-height SPAs, 2 double-height SPAs, or a combination to increase port density per chassis. Link bonding enables greater bandwidth and new connectivity options such as a modular 10GE SPA.
Modularity	Provides support for up to 4 SIPs or a combination of SIPs plus older Cisco 10000 Series line cards installed in the same chassis.
Investment protection	Same carrier card is used for various SPA types supported on the Cisco 10000 Series Router. In addition, SPA interfaces can be shared across multiple platforms.
Online Insertion and Removal (OIR)	Provides hitless OIR to minimize impact of add, change, and remove operations. Individual SPAs can be removed without impacting traffic on other SPA interfaces.
Link protection and link bundling	Ethernet – 802.3ad, Cisco EtherChannel® technology SONET – Automatic Protection Switching (APS)
Managed oversubscription	Hierarchical QoS provided on PRE3 and PRE4 allows oversubscription of interfaces with predictable performance. SIP memory includes 128MB buffering to support ingress bursts of 20 Gbps for 50 ms.
Building Integrated Timing Supply (BITS)	Supports BITS-enabled SPAs.

Figure 2. Cisco 10000 Series SIP-600 with Gigabit Ethernet and 10-Gigabit Ethernet SPAs

Product Specifications

Table 2. Cisco 10000 Series SIP-600 Product Specifications

Feature	Description
Performance Routing Engine compatibility	Supported with ESR-PRE4 at 11.2 Gbps or ESR-PRE3 at reduced total bandwidth of 5.6 Gbps. No SIP support with PRE1 or PRE2.
Minimum software	Cisco IOS® Software Release 12.2(33)SB and later releases
Slot configuration	Four single-height SPAs, two double-height SPAs, or combination
Supported SPAs	**Ethernet** SPA-1X10GE-L-V2 Cisco 1-Port 10 GE SPA (XFP IEEE LAN PHY optics) SPA-5X1GE-V2 Cisco 5-Port GE SPA (SFP optics) SPA-2X1GE-V2 Cisco 2-Port GE SPA (SFP optics or built-in RJ-45 ports)
Indicators	Single LED indicating whether the SIP card has failed. FAIL indicator; Off (operational); On for more than 5 seconds (faulty) Note that SPAs include all interface status LEDs.
Physical	Occupies 2 line card slots and can be operated only in Cisco 10000 Series Router. • Weight: 6.3 lb (2.9 kg) (without SPAs) • Height: 2.4 in. (6.1 cm) • Width: 14.6 in. (37.1 cm) • Depth: 9.5 in. (24.1 cm)

Feature	Description
Environmental conditions	Storage temperature: –38 to 150°F (–40 to 70°C) Operating temperature, nominal: 41 to 104°F (5 to 4 0°C) Operating temperature, short term: 23 to 131°F (–5 t o 55°C) Storage humidity: 5 to 95% relative humidity (RH) Operating humidity, nominal: 5 to 85% RH Operating humidity, short term, 5 to 90% RH Operating altitude: –60 to 4000m
Power	54W (excluding SPAs) Note: refer to applicable SPA data sheet to determine total power consumption of SPAs: http://www.cisco.com/en/US/products/ps6267/products_data_sheets_list.html
Approvals and compliance	**Safety** • UL60950 & CAN/CSA-C22.2 No. 60950. Information technology equipment • AS/NZS 60950 • IEC/EN 60950 Information technology equipment • 73/23/EEC **Electromagnetic Emissions Certification** • AS/NZ 3548: 1995 (including AMD I + II) Class B • EN55022: 1998 Class B • CISPR 22: 1997 • EN55022: 1994 (including AMD I + II) • 47 CFR Part 15: 2000 (FCC) Class B • VCCI V-3/01.4 Class 2 • CNS-13438: 1997 Class B • GR1089: 1997 (including Rev. 1: 1999) **Immunity** • EN300386: 2000-TNE EMC requirements; product family standard; high priority of service; central office and noncentral office locations • EN50082-1: 1992/1997 • EN50082-2: 1995-Generic Immunity Standard, Heavy Industrial • CISPR24: 1997 • EN55024: 1998-Generic ITE immunity standard • EN61000-4-2: 1995 + AMD I + II ESD, Level 4/8 kV contact, 15 kV air • IEC-1000-4-3: 1995 + AMD 1-Radiated Immunity, 10 V/m • IEC-1000-4-4: 1995-Electrical Fast Transients, Level 4/4 kV/B • IEC-1000-4-5: 1995 + AMD 1-DC Surge-Class 3; AC Surge-Class 4 • EN61000-4-6: 1996 + AMD 1-RF conducted immunity, 10 Vrms • EN61000-4-11: 1995-Voltage Dips and Sags • ETS300 132-2: 1996 + corregendum, December 1996 • GR1089:1997 (including Rev1: 1999) **Network Equipment Building Standards** The module meets the following Networking Equipment Building Standards (NEBS): • GR-1089-CORE • GR-63-CORE European Telecommunication Standards Institute (ETSI) • ETSI 300 386-1 - Levels for equipment with a "high priority of service" that is installed in "locations other than telecommunication centers" • ETSI 300 386-2:1997 - Levels for equipment with a "high priority of service" that is installed in "locations other than telecommunication centers" • ETSI 300 132-2: December 1994 - Power supply interfaces at the input to telecommunications equipment Sections 4.8 and 4.9
Network management	Network management through: • Telnet or SSH (command-line interface [CLI]) • Console port (through the CLI) • Simple Network Management Protocol (SNMP) • MIB-II • RFC 2495 • RFC 2496

Feature	Description
MIBs	• Cisco Entity MIB (CISCO-ENTITY-MIB) • Cisco Entity Asset MIB • Cisco Entity Field-Replaceable Unit (FRU) Control MIB • Cisco Entity Alarm MIB • Interface IF MIB (RFC 2233) • Evolution of Interfaces Group of MIB-II (RFC 1573) • Simple Network Management Protocol (SNMP) MIB II (RFC 1213) • SPA specific MIB support as defined in SPA datasheets Details on Cisco 10000 MIBs are available at: http://www.cisco.com/en/US/products/hw/routers/ps133/prod_technical_reference_list.html

Ordering Information

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

Table 3. Ordering Information

Product Part Number	Product Name
10000-SIP-600 (=)	Cisco 10000 SPA Interface Processor-600

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 to 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 or Cisco Advanced Services.

For More Information

For more information about the Cisco 10000 Router, visit http://www.cisco.com/go/10000.

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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