

# Cisco SPS2024 24-Port 10/100/1000 Gigabit SP Switch

## Cisco Small Business Gigabit SP Switches

Service Provider-Focused Metro Access Solution Suited for MTU/MDU Applications

### Highlights

- Cost-effective access or customer premises equipment (CPE) switch for Metro Ethernet deployments
- Comprehensive security features for robust multitenant separation
- Optimized for triple-play (VoIP, video, and data) services
- Service provider provisioning and management features

**Figure 1.** Cisco SPS2024 24-Port 10/100/1000 Gigabit SP Switch



### Product Overview

The Cisco® SPS service provider switches deliver cost-effective Metro Ethernet access solutions. These products are optimized for multitenant units (MTUs) and multidwelling units (MDUs) in which the service provider delivers triple-play (VoIP, video, and data) services to multiple businesses or homes in close proximity.

The Cisco SPS2024 24-Port 10/100/1000 Gigabit SP Switch (Figure 1) is ideal for environments in which security and uptime are important. It offers 24 Gigabit copper ports and 2 shared Small Form-Factor Pluggable (SFP) modules for optional optical interfaces for connecting to the core network.

The Cisco SPS switches facilitate the delivery of multiple services over a Layer 2 network with support for Q-in-Q stacking. This feature allows customer VLANs to be kept separate across the service provider backbone. Also, for efficient delivery of multicast traffic (such as video) to multiple customers, these switches provide support for a variation of Multicast VLAN Registration (MVR).

Network security is a primary concern for service providers, and the SPS switches deliver a number of advanced features that alleviate this concern. Support for dynamic Address Resolution Protocol (ARP) inspection eliminates the man-in-the-middle attack. IP Source Guard prevents a subscriber (or malicious user) from using an IP address not assigned to them. DHCP Guard keeps rogue devices from behaving like Dynamic Host Configuration Protocol (DHCP) servers. Spanning Tree Protocol (STP) Root Guard prevents a rogue spanning tree device from advertising that it should be the root bridge, thereby having the spanning tree network compromised by an outside device. Unauthorized access to the network is protected through 802.1X port and multisection authentication and MAC filtering/port security. The 802.1X standard requires clients to authenticate themselves before the port will pass data for them. An additional security feature is access control lists (ACLs), which restrict network use to certain users, groups, or applications. The SPS switches also secure management traffic, with support for Secure Shell (SSH) Protocol, SSL, and Simple Network Management Protocol (SNMP) v3.

The management capabilities of the SPS switches include support for DHCP option 82, allowing for assignment of IP addresses to subscribers based on where they connect to the network. Management can be performed through a GUI or command-line interface (CLI). The switches also support SNMP for management from a network management station.

## Features

- Twenty-four 10/100/1000 switched RJ-45 ports that deliver up to 2000 Mbps of throughput per port
- Two shared mini Gigabit Interface Converter (mini-GBIC) slots for fiber and copper Gigabit Ethernet expansion
- 48-Gbps nonblocking, store-and-forward switching mechanism
- Simplified QoS management enabled by advanced queuing techniques using 802.1p, Differentiated Services (DiffServ), or type of service (ToS) traffic prioritization
- Configuration and monitoring from a console port with the CLI or from a standard web browser with WebView management
- Secure remote management of the switch via SSH and SSL secure channel network protocols
- 802.1Q-based VLANs, enabling segmentation of networks for improved performance and security
- Stacking Q-in-Q VLANs, allowing customer VLANs to transparently cross a service provider network and isolate traffic among customers
- Private VLAN Edge (PVE) for simplified network isolation of guest connections or autonomous networks
- Automatic configuration of VLANs across multiple switches through Generic VLAN Registration Protocol (GVRP) and Generic Attribute Registration Protocol (GARP)
- Automatic medium dependent interface (MDI) and MDI crossover (MDI-X) detection

Table 1 gives the specifications for the Cisco SPS2024 switch.

**Table 1.** Specifications for the Cisco SPS2024 24-Port 10/100/1000 Gigabit SP Switch

Specifications	
<b>Ports</b>	<ul style="list-style-type: none"> <li>• 24 RJ-45 connectors for 10BASE-T/100BASE-TX/1000BASE-T</li> <li>• 2 combo ports with mini-GBIC/SFP slots</li> <li>• Console port</li> <li>• Auto MDI/MDI-X</li> <li>• Auto-negotiate/manual setting</li> </ul>
<b>Cabling type</b>	Unshielded twisted pair (UTP) category 5 (CAT5) or better for 10BASE-T/100BASE-TX, UTP CAT5e or better for 1000BASE-T
<b>LEDs</b>	Giga Link/Act, Giga Speed, Mini-GBIC Link/Act, Speed, System
Performance	
<b>Switching capacity</b>	48 Gbps, nonblocking
<b>Forwarding rate</b>	35.71 Mpps wire-speed performance
Layer 2	
<b>MAC table size</b>	8000
<b>Number of VLANs</b>	256 active VLANs (4096 range)
<b>VLAN</b>	<ul style="list-style-type: none"> <li>• Port-based and 802.1Q tag-based VLANs</li> <li>• Q-in-Q stacking VLANs</li> <li>• PVE</li> <li>• GVRP: Dynamic VLAN registration</li> <li>• Management VLAN</li> </ul>
<b>HOL blocking</b>	Head of Line (HOL) blocking prevention
<b>MVR</b>	Multicast VLAN Registration implementation, also known as Multicast TV VLAN

Management	
<b>Web user interface</b>	Built-in web UI for easy browser-based configuration (HTTP/HTTPS)
<b>CLI interface</b>	CLI support via console port or Telnet
<b>SNMP</b>	SNMP versions 1, 2c, and 3, with support for traps
<b>SNMP MIBs</b>	RFC 1213 MIB-2, RFC 2863 Interface MIB, RFC 2665 Ether-like MIB, RFC 1493 Bridge MIB, RFC 2674 Extended Bridge MIB (P-bridge, Q-bridge), RFC 2819 Remote Monitoring (RMON) MIB (groups 1, 2, 3, and 9 only), RFC 2737 Entity MIB, RFC 2618 RADIUS Client MIB, RFC 1215 Traps
<b>RMON</b>	Embedded RMON software agent supports 4 RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
<b>Firmware upgrade</b>	CLI upgrade and web browser upgrade (HTTP) and Trivial File Transfer Protocol (TFTP)
<b>Port mirroring</b>	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe
<b>Other management</b>	<ul style="list-style-type: none"> <li>• Traceroute</li> <li>• SSL</li> <li>• SSH</li> <li>• RADIUS</li> <li>• Port mirroring</li> <li>• TFTP upgrade</li> <li>• SSL security for web user interface</li> <li>• Management access list for IP address</li> <li>• DHCP client</li> <li>• BOOTP</li> <li>• Simple Network Time Protocol (SNTP)</li> <li>• Xmodem upgrade</li> <li>• Cable diagnostics</li> <li>• Ping</li> <li>• Telnet client (SSH secure support)</li> </ul>
Security	
<b>IEEE 802.1X</b>	<ul style="list-style-type: none"> <li>• 802.1X RADIUS authentication; MD5 encryption</li> <li>• 802.1X multiple sessions authentication on a per-host basis</li> <li>• 802.1X guest VLAN</li> </ul>
<b>Access control</b>	<ul style="list-style-type: none"> <li>• ACLs: Permit, drop, or shut down based on: <ul style="list-style-type: none"> <li>◦ Source and destination MAC</li> <li>◦ Source and destination IP address</li> <li>◦ Protocol</li> <li>◦ ToS/differentiated services code point (DSCP)</li> <li>◦ Port</li> <li>◦ VLAN</li> <li>◦ Ether type</li> </ul> </li> </ul>
<b>Access security</b>	<ul style="list-style-type: none"> <li>• DHCP snooping</li> <li>• IP Source Guard</li> <li>• Dynamic ARP inspection</li> <li>• Layer 2 DHCP relay and option 82</li> <li>• STP Root Guard</li> <li>• MAC-based port security</li> </ul>
Availability	
<b>Link aggregation</b>	<ul style="list-style-type: none"> <li>• Link aggregation using IEEE 802.3ad Link Aggregation Control Protocol (LACP)</li> <li>• Up to 8 ports in up to 8 trunks</li> </ul>
<b>Storm control</b>	Broadcast, multicast, and unknown unicast
<b>Spanning tree</b>	IEEE 802.1D Spanning Tree, IEEE 802.1w Rapid Spanning Tree, IEEE 802.1s Multiple Spanning Tree, STP Root Guard
<b>IGMP snooping</b>	Internet Group Management Protocol (IGMP) (versions 1 and 2) snooping provides for fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to only the requestors. Supports 256 multicast groups.
QoS	
<b>Priority levels</b>	4 hardware queues
<b>Scheduling</b>	Priority queuing and weighted round robin (WRR)

<b>Class of service</b>	<ul style="list-style-type: none"> <li>• Port based</li> <li>• 802.1p VLAN priority based</li> <li>• IP ToS/DSCP based</li> </ul>
<b>Per flow QoS</b>	<ul style="list-style-type: none"> <li>• VLAN ID</li> <li>• Ether type</li> <li>• Source/destination MAC address</li> <li>• IPv4/v6 IP precedence/ToS/DSCP based</li> <li>• Source/destination IPv4 address</li> <li>• Protocol</li> <li>• TCP/UDP port based</li> <li>• DiffServ</li> <li>• Classification and remarking DSCP</li> </ul>
<b>Rate limiting</b>	<ul style="list-style-type: none"> <li>• Per flow ingress policer</li> <li>• Per port ingress rate control and egress shaping</li> </ul>
<b>Standards</b>	802.3 10BASE-T Ethernet, 802.3u 100BASE-TX Fast Ethernet, 802.3ab 1000BASE-T Gigabit Ethernet, 802.3z Gigabit Ethernet, 802.3x Flow Control, 802.3ad LACP, 802.1D STP, 802.1Q/p VLAN, 802.1w Rapid STP, 802.1s Multiple STP, 802.1X Port Access Authentication
<b>Environmental</b>	
<b>Dimensions W x H x D</b>	16.93 x 1.75 x 13.78 in. (430 x 44.45 x 350 mm)
<b>Unit weight</b>	8.60 lb (3.9 kg)
<b>Power</b>	Internal switching power
<b>Power consumption</b>	100–127V/2.0A, 200–240V/1.0A, 50–60 Hz, 33W
<b>Fan</b>	Yes
<b>Certification</b>	FCC Part 15 Class A, CE Class A, UL, cUL, CE Mark, CB
<b>Operating temperature</b>	32° to 104°F (0° to 40°C)
<b>Storage temperature</b>	–4° to 158°F (–20° to 70°C)
<b>Operating humidity</b>	10% to 90%
<b>Storage humidity</b>	10% to 95%
<b>Package Contents</b>	
<ul style="list-style-type: none"> <li>• One Cisco SPS2024 switch</li> <li>• Power cord</li> <li>• Two rack-mounting kits/eight screws</li> <li>• One CD with user guide in PDF format</li> <li>• One registration card</li> <li>• Console cable</li> </ul>	
<b>Minimum Requirements</b>	
<ul style="list-style-type: none"> <li>• Web-based utility: Microsoft Internet Explorer (version 5.5 or later) or Mozilla Firefox (version 2.0.0.1 or later)</li> <li>• CAT5 Ethernet network cable</li> </ul>	
<b>Product Warranty</b>	
5-year limited hardware warranty with return to factory replacement and 90-day limited software warranty	

### Cisco Limited Warranty for Cisco Small Business Series Products

This Cisco Small Business product comes with a 5-year limited hardware warranty with return to factory replacement and a 90-day limited software warranty. In addition, Cisco offers software application updates for bug fixes and telephone technical support at no charge for the first 12 months following the date of purchase. To download software updates, go to: <http://www.cisco.com/go/smallbiz>.

Product warranty terms and other information applicable to Cisco products are available at <http://www.cisco.com/go/warranty>.

## For More Information

For more information on the Cisco Small Business Gigabit SP Switches visit <http://www.cisco.com/go/sps>.



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