

intelbras

Intelbras Campus Switches SC 5520 Series



Product Overview

Intelbras SC 5520 Series Switch— high performance and scalable 10GE access switching solution with modular dual power, fixed or modular uplinks (10GE/40GE) and IRF for resiliency. The series offers OSPF/BGP and multicast and flexible management.

The SC 5520 series switch contains the following models:

Product Description	Product Photograph
<ul style="list-style-type: none"> • SC 5520-24M5U-E: 24×100M/1G/2.5G/5GBase-T UPoE Ports, 1×expansion slot, 2×power module slots 	
<ul style="list-style-type: none"> • SC 5520-24M10U-E: 24×100M/1G/2.5G/5G/10GBase-T UPoE Ports, 1×expansion Slot, 2×power module slots 	
<ul style="list-style-type: none"> • SC 5520-48M10U-4QE: 48×100M/1G/2.5G/5G/10GBase-T UPoE Ports, 4×QSFP Plus Ports, 1× expansion Slot, 2 × power module slots 	

Features and Benefits

High-Density 10GE and Multi-Giga Forwarding

The switch offers high-density 10GE forwarding and can expand 10GE ports flexibly, working at wire-speed. It provides 16/24*10/1GE autosensing SFP+ ports, one expansion slot that support up to 10 kinds of modules range from GE to 10GE, 25GE, 40GE, and multi-giga ports. SC 5520-24M5U-E support 24 *1G/2.5G/5GBase-T (UPOE) ports, Max 90W PoE supported on these ports.

Intelbras Intelligent Resilient Framework 2 (IRF2)

Intelbras Intelligent Resilient Framework 2 (IRF 2) virtualizes multiple SC 5520 switches into one virtual switch and provides the following benefits:

Scalability: IRF 2 allows you to add devices to the IRF 2 system easily. It provides a single point of management, enables switch plug-and-play, and supports software auto-update for software synchronization from the master to the new member devices. It brings business agility with lower total cost of ownership by allowing new switches to be added to the fabric without network topology change as business grows.

High availability: The Intelbras proprietary routing hot backup technology ensures redundancy and backup of all information on the control and data planes and non-stop Layer 3 data forwarding in an IRF 2 fabric. It also eliminates single point of failure and ensures service continuity.

Redundancy and load balancing: The distributed link aggregation technology supports load sharing and mutual backup among multiple uplinks, which enhances the network redundancy and improves link resources usage.

Flexibility and resiliency: The switch use standard GE ports instead of specialized ports for IRF links between IRF member devices. This allows customers to assign bandwidth as needed between uplink, downlink, and IRF system connections

Wide Range of Advanced Features

The switch offers a wide range of features, including:

Modular hardware and software design: The switch uses modular, hot swapping, and redundancy design for hardware, including power modules and fan trays. The switch also uses modular design for software, which enables feature installation and removal on an as-needed basis. Refined physical architecture and optimized software workflows greatly reduce the end-to-end packet processing delay.

Virtual eXtensible LAN (VXLAN): A MAC-in-UDP technology that provides Layer 2 connectivity between distant network sites across an IP network. VXLAN enables long-distance virtual machine and data mobility and is typically used in data centers and the access layer of campus networks for multitenant services. The Intelbras implementation of VXLAN supports automatic VXLAN tunnel establishment with EVPN.

Ethernet Virtual Private Network (EVPN): A Layer 2 VPN technology that provides both Layer 2 and Layer 3 connectivity between distant network sites across an IP network. EVPN uses MP-BGP in the control plane and VXLAN in the data plane. EVPN provides the following benefits: Configuration automation; Separation of the control plane and the data plane; Integrated routing and bridging (IRB).

In-Service Software Upgrade (ISSU) and Operation, Administration, and Maintenance (OAM): Ensure business continuity and improve Ethernet management and maintainability.

Comprehensive Security Control Policies

The switch supports AAA authentications (including RADIUS authentication) and dynamic or static binding of user identifiers such as user account, IP address, MAC address, VLAN, and port number.

Using the switch in conjunction with Intelbras On-premise centralized software, you can manage and monitor online users in real time and take prompt action on illegitimate behaviors.

The User Profile allows to define a set of policies based on user group in different application scenario.

The switch offers a large number of inbound and outbound ACLs and VLAN-based ACL assignment. This simplifies configurations and saves ACL resources.

MACsec

MACsec is an ideal hop-by-hop link-layer security protocol for Ethernet networks, which are typically insecure. It provides the following services:

Data encryption: Encrypts data over the Ethernet link to protect data against security issues such as eavesdropping.

Anti-replay: Prevents packets from being intercepted and modified en route to protect the network against unauthorized access.

Tampering protection: prevents packet tampering to protect data integrity.

MACsec supports the following deployments:

Client-oriented: Protects data transmission over the link between the client and its access device.

Device-oriented mode: Protects data transmission over the link between two peering devices.

High Availability

- In addition to node and link protection, the switch offers the following hardware high availability features:
- 1+1 power module redundancy and 1+1 fan tray redundancy.
- Hot-swappable interface modules.
- Automatic power and fan tray status monitoring and alarming mechanisms.
- Automatic fan speed adjustment based on the change in temperature.
- Self-protection mechanisms that protect power modules against overcurrent, overvoltage, and overtemperature conditions.

Outstanding Management Capacity

- The switch provides a variety of management features and is easy to manage. It offers the following device management features:
- Provides multiple management interfaces, including the console port, out-of-band management Ethernet port, and USB port.
- Supports configuration and management from CLI or a general-purpose Web-based manager, including Intelbras On-premise centralized software and OpenView.
- Supports multiple access methods, including SNMPv1/v2c/v3, Telnet, and more secure SSH 2.0 and SSL.
- Uses OAM to enhance system management capability.
- Supports FTP for system upgrade.

Smart Management Center (SmartMC)

SmartMC is H3C's latest offering and innovation that helps small and middle size enterprise network to address management issue and is free of charge, easy to use web management tool. SmartMC is embedded network management tool into the switch, it includes commander switches and other access switches.

SmartMC delivers the following benefits:

- **Intelligent operation:** once the switch is powered on and SmartMC function is enabled, topology will be created automatically and user can go enhanced web GUI to check the latest status.
- **Centralized management:** all management can be achieved via commander switch such as centralized configuration backup, and software version management, increasing working efficiency.
- **One key device replacement:** in case of one switch failure, the new added same type switch can download the same configuration and work as old switch immediately

Multi-chassis Link Aggregation Group (M-LAG) (Original DRNI)

Intelbras SC 5520 series switches support M-LAG, which enables links of multiple switches to aggregate into one to implement device-level link backup. M-LAG is applicable to servers dual-homed to a pair of access devices for node redundancy.

Streamlined topology: M-LAG simplifies the network topology and spanning tree configuration by virtualizing two physical devices into one logical device.

Independent upgrading: The DR member devices can be upgraded independently one by one to minimize the impact on traffic forwarding.

High availability: The DR system uses a keepalive link to detect multi-active collision to ensure that only one member device forwards traffic after a DR system splits.

Specifications

Hardware specifications

Item	SC 5520-24M5U-E	SC 5520-24M10U-E	SC 5520-48M10U-4QE
Port switching capacity	400Gbps	640Gbps	1440Gbps
Packet forwarding rate	240Mpps	240Mpps	600Mpps
Box switching capacity	1.44Tbps	1.44Tbps	1.44Tbps
CPU	Dual-Core, 1.6GHz	Dual-Core, 1.6GHz	Dual-Core, 1.6GHz
Flash/SDRAM	1GB/2GB	1GB/2GB	1GB/2GB
Buffer	3M	3M	3M
Dimensions (WxDxH)	440x460x43.6 mm	440x460x43.6 mm	440x460x43.6 mm
Weight	≤8.7kg	≤ 8.8 kg	≤ 10.0 kg
Service ports	24x100M/1G/2.5G/5GBase-T(UPOE)	24x100M/1G/2.5G/5G/10G Base-T(UPOE)	48x100M/1G/2.5G/5G/10G Base-T(UPOE) + 4x40G QSFP Plus
Console ports	1 (rear panel)	1 (rear panel)	1 (rear panel)
Management Ethernet ports	1 (rear panel)	1 (rear panel)	1 (rear panel)
USB ports	1 (rear panel)	1 (rear panel)	1 (rear panel)
Expansion slots	1	1	1
Expansion modules (do not follow the product by default)	2-port 10G SFP+ with MACSec Interface Module 2-port 10G BASE-T with MACSec Interface Module 2-Port 10G SFP Plus Ethernet Optical Interface Module 8-Port 10G SFP+ with MACSec Interface Module 4-Port 10/100/1000BASE-T Ethernet,6-Port SFP (2-Port Combo) Interface Module 8-Port 1/2.5/5G BASE-T Ethernet Copper Interface Module 8-Port 1/2.5/5/10G BASE-T Ethernet Copper Interface Module 2-port 25GE SFP28 interface module 2-port 40GE QSFP+ interface	2-port 10G SFP+ with MACSec Interface Module 2-port 10G BASE-T with MACSec Interface Module 2-Port 10G SFP Plus Ethernet Optical Interface Module 8-Port 10G SFP+ with MACSec Interface Module 4-Port 10/100/1000BASE-T Ethernet,6-Port SFP (2-Port Combo) Interface Module 8-Port 1/2.5/5G BASE-T Ethernet Copper Interface Module 8-Port 1/2.5/5/10G BASE-T Ethernet Copper Interface Module 2-port 25GE SFP28 interface module 2-port 40GE QSFP+ interface module	2-port 10G SFP+ with MACSec Interface Module 2-port 10G BASE-T with MACSec Interface Module 2-Port 10G SFP Plus Ethernet Optical Interface Module 8-Port 10G SFP+ with MACSec Interface Module 4-Port 10/100/1000BASE-T Ethernet,6-Port SFP (2-Port Combo) Interface Module 8-Port 1/2.5/5G BASE-T Ethernet Copper Interface Module 8-Port 1/2.5/5/10G BASE-T Ethernet Copper Interface Module 2-port 25GE SFP28 interface module 2-port 40GE QSFP+ interface module

Item	SC 5520-24M5U-E	SC 5520-24M10U-E	SC 5520-48M10U-4QE
	module		
Fan Trays (do not follow the product by default)	2	2	3
Power Supply slots (do not follow the product by default)	2	2	2
Idle power consumption	AC: 45W DC: 46W	AC: 69W DC: 73W	AC: 100W DC: 85W
Max. power consumption	AC: 2000W DC: 960W	AC: 2384W DC: 1047W	AC: 2333W DC: 1039W
Input voltage range	AC Rated: 100 VAC to 240 VAC @ 50 Hz/60 Hz DC: -48V~-60V	AC Rated: 100 VAC to 240 VAC @ 50 Hz/60 Hz DC: -48V~-60V	AC Rated: 100 VAC to 240 VAC @ 50 Hz/60 Hz DC: -48V~-60V
Operating temperature	0°C to 45°C (32°F to 113°F) -60m-5000m altitude: From 0m, the maximum operating temperature reduce by 0.33°C for every time 100 the altitude increases by 100m.	0°C to 45°C (32°F to 113°F) -60m-5000m altitude: From 0m, the maximum operating temperature reduce by 0.33°C for every time 100 the altitude increases by 100m.	0°C to 45°C (32°F to 113°F) -60m-5000m altitude: From 0m, the maximum operating temperature reduce by 0.33°C for every time 100 the altitude increases by 100m.
Storage temperature	-40°C to 70°C(-40°F to 158°F)	-40°C to 70°C(-40°F to 158°F)	-40°C to 70°C(-40°F to 158°F)
Operating & storage humidity	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing
MTBF(Year)	83.6	58.1	58.1

Software specifications

Item	SC 5520 switch series
Virtualization	<ul style="list-style-type: none"> Intelligent Resilient Framework 2 (IRF2) Distributed device management Distributed link aggregation Distributed resilient routing Stacking through standard Ethernet ports Local device stacking and remote device stacking LACP-, BFD-, and ARP-based multi-active detection (MAD)
Jumbo frame	Supported
MAC address table	<ul style="list-style-type: none"> Static MAC address Blackhole MAC address MAC learning limit
OpenFlow	OpenFlow 1.3
VxLAN	<ul style="list-style-type: none"> VXLAN L2 switching VXLAN L3 routing VXLAN VTEP IS-IS+ENDP distributed control plane MP-BGP+EVPN distributed control plane OpenFlow+Netconf centralized control plane
VLAN	<ul style="list-style-type: none"> Port-based VLAN (up to 4094 VLANs) Default VLAN Private VLAN QinQ and flexible QinQ VLAN mapping PVST+ and RPVST+
Traffic monitoring	sFLOW
DHCP/DHCPv6	<ul style="list-style-type: none"> DHCP/DHCPv6 client DHCP/DHCPv6 snooping DHCP/DHCPv6 relay DHCP/DHCPv6 server DHCP snooping Option 82/DHCP relay Option 82
ARP	<ul style="list-style-type: none"> Static entry Gratuitous ARP Common proxy ARP and local proxy ARP Dynamic ARP inspection ARP anti-attack ARP flood suppression ARP source suppression

Item	SC 5520 switch series
	ARP detection based on DHCP snooping safety entries, 802.1X entries, and IP/MAC static binding entries
Routing	IPv4/IPv6 static routing Dynamic routing such as RIP v1/2 and RIPng Policy routing ECMP (8) Equal-cost multi-path routing VRRP OSPFv1/v2/v3 BGP IS-IS
IPv6	Neighbor Discovery (ND) PMTU ICMP v6, Telnet v6, SFTP v6, SNMP v6, BFD v6, VRRP v3 SSH2 v6 IPv6 Portal IPv6 tunnel
Multicast	IGMP v2/v3 IGMP Snooping v2/v3 IGMP Snooping fast-leave IGMP Snooping group-policy PIM-SM , PIM-SSM , PIM-DM PIM snooping MVRP (GVRP analog) MFF Enhanced Layer 3 multicast
MPLS	Support MPLS Support MCE Support MPLS VPN, VPLS
Zero Configuration	DHCP auto-config CWMP-TR069
Broadcast/Multi cast/Unicast storm suppression	Storm suppression based on port bandwidth percentage Storm suppression based on PPS Storm suppression based on BPS Broadcast traffic/Multicast traffic/Unknown unicast traffic suppression
Loop-free redundant Layer 2 topology	STP/RSTP/MSTP (up to 64 instances) PVST (Compatible with PVST+/ RPVST/RPVST+) STP Root Guard BPDU Guard BPDU Drop BPDU Blocking and Root Guard Link Detection (UDLD) Digital Diagnostic Monitor (DDM) G.8032 Ethernet ring protection switching (ERPS)

Item	SC 5520 switch series
QoS/ACL	Rate limit for receiving and transmitting packets CAR COS, TOS Eight output queues per port Flexible queue scheduling algorithms based on both port and queue, including SP, WDRR, WRR, WFQ, and SP+WRR 802.1p priority and DSCP priority Layer 2 to Layer 4 packet filtering Traffic classification based on source MAC, destination MAC, source IP, destination IP, port, TCP / UDP Port, protocol, and VLAN Time range
Mirroring	Flow mirroring N:4 port mirroring Local port mirroring and remote port mirroring Policy-based Mirroring Traffic Mirroring
Security	Hierarchical user management and password protection MAC-based authentication 802.1X Storm constrain AAA authentication RADIUS authentication HWTACACS SSH2.0 Port isolation IP/Port/MAC binding IP source guard HTTPs SSL User Profile Public Key Infrastructure (PKI) CPU protection Control Plane Protection (CoPP), Wireless Intrusion Prevention System (WIPS) ND Detection, RA Guard
Loading and upgrading	Loading and upgrading through XMODEM/FTP/TFTP Loading and upgrading from USB
Management and maintenance	Configuration from CLI Login through Telnet, and the console port Job scheduler ISSU VCT 802.1ag and 802.3ah Configuration through Web interface (http and https), CLI, SSH, Telnet, and console port Operations backup/restore configuration and firmware upgrade/downgrade through Web interface (http and

Item	SC 5520 switch series
	https), CLI, SSH, Telnet, and console port Simple Network Management Protocol (SNMP) INC – Intelbras Network Center INC Cloud – Intelbras Network Center Cloud System log Alarming based on severity NTP Power, fan, and temperature alarming Debugging information output Ping and Tracert RMON LLDP, LLDP-MED LACP Track Telnet-based remote maintenance

Performance Specification

Model	SC 5520-24M5U-E	SC 5520-24M10U-E	SC 5520-48M10U-4QE
MAC address entries(max)	32,768	32,768	32,768
VLAN table	4,094	4,094	4,094
VLAN interface	1,024	1,024	1,024
IPv4 routing entries(max)	16,384	8,192	8,192
IPv4 ARP entries(max)	16,384	16,384	16,384
IPv4 ACL entries	Ingress: 1024 Egress: 256	Ingress: 1024 Egress: 256	Ingress: 1024 Egress: 256
IPv4 multicast L2 entries	4,000	4,000	4,000
IPv4 multicast L3 entries	1,500	1,500	1,500
IPv6 unicast routing entries(max)	8,192	4,096	4,096
QOS forward queues	8	8	8
IPv6 ACL entries	Ingress: 1024 Egress: 256	Ingress: 1024 Egress: 256	Ingress: 1024 Egress: 256

Model	SC 5520-24M5U-E	SC 5520-24M10U-E	SC 5520-48M10U-4QE
IPv6 ND entries(max)	10,240	6,144	4,864
IPv6 multicast L2 entries	2,000	2,000	2,000
IPv6 multicast L3 entries	500	500	500
Jumbo frame length	10,000	10,000	10,000
Max Stacking Member	9	9	9
Max Stacking Bandwidth	160Gbps	160Gbps	160Gbps
Número máximo de links em um grupo (max links per link aggregation group)	8	8	8
Número máximo de grupos de links (max Link Aggregation groups)	61	61	61

Power Capacity and compatible power supply with PoE switches

Power supply 1	Power supply 2	PoE per port	SC 5520-24M5U-E		SC 5520-24M10U-E		SC 5520-48M10U-4QE	
			Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty
PSR360-56A	/	15.4W (802.3af):	210 W	13	180 W	11	90 W	5
		30W (802.3at):		7		6		3
		60W (802.3bt):		3		3		1
		90W (802.3bt):		2		2		1
PSR360-56A	PSR360-56A	15.4W (802.3af):	540 W	24	510 W	24	420 W	27
		30W (802.3at):		18		17		14
		60W (802.3bt):		9		8		7
		90W (802.3bt):		6		5		4
PSR560-56D	/	15.4W (802.3af):	390 W	24	360 W	23	270 W	17

Power supply 1	Power supply 2	PoE per port	SC 5520-24M5U-E		SC 5520-24M10U-E		SC 5520-48M10U-4QE	
			Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty
		30W (802.3at):		13		12		9
		60W (802.3bt):		6		6		4
		90W (802.3bt):		4		4		3
PSR560-56D	PSR360-56A	15.4W (802.3af):	750 W	24	690 W	24	600 W	38
		30W (802.3at):		24		23		20
		60W (802.3bt):		12		11		10
		90W (802.3bt):		8		7		6
PSR560-56D	PSR560-56D	15.4W (802.3af):	900 W	24	900 W	24	810 W	48
		30W (802.3at):		24		24		27
		60W (802.3bt):		15		15		13
		90W (802.3bt):		10		10		9
PSR720-56A	/	15.4W (802.3af):	540 W	24	510 W	24	420 W	27
		30W (802.3at):		18		17		14
		60W (802.3bt):		9		8		7
		90W (802.3bt):		6		5		4
PSR720-56A	PSR360-56A	15.4W (802.3af):	900 W	24	870 W	24	780 W	48
		30W (802.3at):		24		24		26
		60W (802.3bt):		15		14		13
		90W (802.3bt):		10		9		8
PSR720-56A	PSR560-56D	15.4W (802.3af):	1100 W	24	1050 W	24	960 W	48
		30W (802.3at):		24		24		32
		60W (802.3bt):		18		17		16
		90W (802.3bt):		12		11		10

Power supply 1	Power supply 2	PoE per port	SC 5520-24M5U-E		SC 5520-24M10U-E		SC 5520-48M10U-4QE	
			Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty	Total PoE power capacity	PoE Ports Qty
PSR720-56A	PSR720-56A	15.4W (802.3af):	1260 W	24	1230W	24	1140 W	48
		30W (802.3at):		24		24		38
		60W (802.3bt):		21		20		19
		90W (802.3bt):		14		13		12
PSR1110-56A	/	15.4W (802.3af):	900 W	24	900 W	24	810 W	48
		30W (802.3at):		24		24		27
		60W (802.3bt):		15		15		13
		90W (802.3bt):		10		10		9
PSR1110-56A	PSR360-56A	15.4W (802.3af):	1260 W	24	1260 W	24	1170 W	48
		30W (802.3at):		24		24		39
		60W (802.3bt):		21		21		19
		90W (802.3bt):		14		14		13
PSR1110-56A	PSR560-56D	15.4W (802.3af):	1500 W	24	1440 W	24	1350 W	48
		30W (802.3at):		24		24		45
		60W (802.3bt):		24		24		22
		90W (802.3bt):		16		16		15
PSR1110-56A	PSR720-56A	15.4W (802.3af):	1650 W	24	1620 W	24	1530W	48
		30W (802.3at):		24		24		48
		60W (802.3bt):		24		24		25
		90W (802.3bt):		18		18		17
PSR1110-56A	PSR1110-56A	15.4W (802.3af):	2040 W	24	2010 W	24	1920 W	48
		30W (802.3at):		24		24		48
		60W (802.3bt):		24		24		32

Power supply 1	Power supply 2	PoE per port	SC 5520-24M5U-E			SC 5520-24M10U-E			SC 5520-48M10U-4QE	
			Total power capacity	PoE Qty	Ports	Total power capacity	PoE Qty	Ports	Total power capacity	PoE Ports Qty
		90W (802.3bt):		22		22			21	

Note: power supplies do not follow the product by default

Standards and Protocols Compliance

Organization	Standards and Protocols
IEEE	802.1x Port based network access control protocol
	802.1ab Link Layer Discovery Protocol
	802.1ak MVRP and MRP
	802.1ax Link Aggregation
	802.1d Media Access Control Bridges
	802.1p Priority
	802.1q VLANs
	802.1s Multiple Spanning Trees
	802.1ag Connectivity Fault Management
	802.1v VLAN classification by Protocol and Port
	802.1w Rapid Reconfiguration of Spanning Tree
	802.3ad Link Aggregation Control Protocol
	802.3ah Ethernet in the First Mile
	802.3x Full Duplex and flow control
	802.3af Power over Ethernet
	802.3at Power over Ethernet
	802.3bt Power over Ethernet
	802.3az Energy Efficient Ethernet
	802.3u 100BASE-T

Organization	Standards and Protocols
	802.3ab 1000BASE-T
	802.3z 1000BASE-X
	802.3ae 10-Gigabit Ethernet
	802.3by 25 Gbps
	802.3ba 40/100G Ethernet
	802.3bz 2.5GBASE-T and 5GBASE-T
IETF	RFC 1213 MIB-2 Stands for Management Information Base
	RFC 2711 IPv6 Router Alert Option
	RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
	RFC 2918 Route Refresh Capability for BGP-4
	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
	RFC 2934 Protocol Independent Multicast MIB for IPv4
	RFC 3101 OSPF Not-so-stubby-area option
	RFC 3019 MLDv1 MIB
	RFC 3046 DHCP Relay Agent Information Option
	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
	RFC 3065 Autonomous System Confederation for BGP
	RFC 3137 OSPF Stub Router Advertisement sFlow
	RFC 3376 IGMPv3
	RFC 3416 (SNMP Protocol Operations v2)
	RFC 3417 (SNMP Transport Mappings)
	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
	RFC 3484 Default Address Selection for IPv6
	RFC 3509 Alternative Implementations of OSPF Area Border Routers
	RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines

Organization	Standards and Protocols
	RFC 3623 Graceful OSPF Restart
	RFC 3768 Virtual Router Redundancy Protocol (VRRP)
	RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
	RFC 3973 PIM Dense Mode
	RFC 4022 MIB for TCP
	RFC 4113 MIB for UDP
	RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
	RFC 4251 The Secure Shell (SSH) Protocol
	RFC 4252 SSHv6 Authentication
	RFC 4253 SSHv6 Transport Layer
	RFC 4254 SSHv6 Connection
	RFC 4271 A Border Gateway Protocol 4 (BGP-4)
	RFC 4273 Definitions of Managed Objects for BGP-4
	RFC 4291 IP Version 6 Addressing Architecture
	RFC 4292 IP Forwarding Table MIB
	RFC 4293 Management Information Base for the Internet Protocol (IP)
	RFC 4360 BGP Extended Communities Attribute
	RFC 4419 Key Exchange for SSH
	RFC 4443 ICMPv6
	RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
	RFC 4486 Subcodes for BGP Cease Notification Message
	RFC 4541 IGMP & MLD Snooping Switch
	RFC 4552 Authentication/Confidentiality for OSPFv3
	RFC 4601 PIM Sparse Mode
	RFC 4607 Source-Specific Multicast for IP

Organization	Standards and Protocols
	RFC 4724 Graceful Restart Mechanism for BGP
	RFC 4750 OSPFv2 MIB partial support no SetMIB
	RFC 4760 Multiprotocol Extensions for BGP-4
	RFC 4861 IPv6 Neighbor Discovery
	RFC 4862 IPv6 Stateless Address Auto-configuration
	RFC 4940 IANA Considerations for OSPF
	RFC 5059 Bootstrap Router (BSR) Mechanism for PIM, PIM WG
	RFC 5065 Autonomous System Confederation for BGP
	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
	RFC 5187 OSPFv3 Graceful Restart
	RFC 5340 OSPFv3 for IPv6
	RFC 5424 Syslog Protocol
	RFC 5492 Capabilities Advertisement with BGP-4
	RFC 5519 Multicast Group Membership Discovery MIB (MLDv2 only)
	RFC 5798 VRRP (exclude Accept Mode and sub-sec timer)
	RFC 5880 Bidirectional Forwarding Detection
	RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
	RFC 6620 FCFS SAVI
	RFC 6987 OSPF Stub Router Advertisement
	RFC6020 YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)
	RFC7348 Virtual eXtensible Local Area Network (VXLAN): A Framework for Overlaying Virtualized Layer 2 Networks over Layer 3 Networks
	RFC7432 BGP MPLS-Based Ethernet VPN
	RFC4664 Framework for Layer 2 Virtual Private Networks (L2VPNs)
	RFC4665 Service Requirements for Layer 2 Provider Provisioned Virtual Private Networks
	RFC4761 Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling

Organization	Standards and Protocols
	RFC4762 Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling
	RFC5120 M-ISIS: Multi Topology (MT) Routing in Intermediate System to Intermediate Systems (IS-ISs)
	RFC5280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
	RFC5308 Routing IPv6 with IS-IS
	RFC5381 Experience of Implementing NETCONF over SOAP
	RFC5415 Control and Provisioning of Wireless Access Points (CAPWAP) Protocol Specification
ITU	ITU-T Y.1731
	ITU-T Rec G.8032/Y.1344 Mar. 2010

Product Information

Product ID	Product Description
SC 5520-24M5U-E	SWITCH GERENCIAVEL UPOE SC 5520-24M5U-E S/FAN S/FONTE
SC 5520-24M10U-E	SWITCH GERENCIAVEL UPOE SC 5520-24M10U-E S/FAN S/FONTE
SC 5520-48M10U-4QE	SWITCH GERENCIAVEL UPOE SC 5520-48M10U-4QE S/FAN S/FONTE
PSR360-56A	FONTE MODULAR AC PSR360-56A
PSR720-56A	FONTE MODULAR AC PSR720-56A
LSPM1FANSB	VENTILADOR MODULAR LSPM1FANSB

Product model	Product description	Compatible with:
LSWM2QP2P	Expansion module 2 ports QSFP+	SC 5520 Series
LSWM2SP2PB	Expansion module 2 ports SFP+	SC 5520 Series
LSWM2SP4PB	Expansion module 4 ports SFP+	SC 5520 Series

* AC power supplies, DC power supplies, fan modules and expansion cards are sold separately, subject to availability, and are not included with the product.