

RS-E9800-5ST-C

**5-Slot 4RU Chassis Campus Core
and Aggregation Switch**



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1. Product Overview

The RS-E9800-8ST-C chassis core switch is designed for next-generation converged networks and integrated features of campus networks.

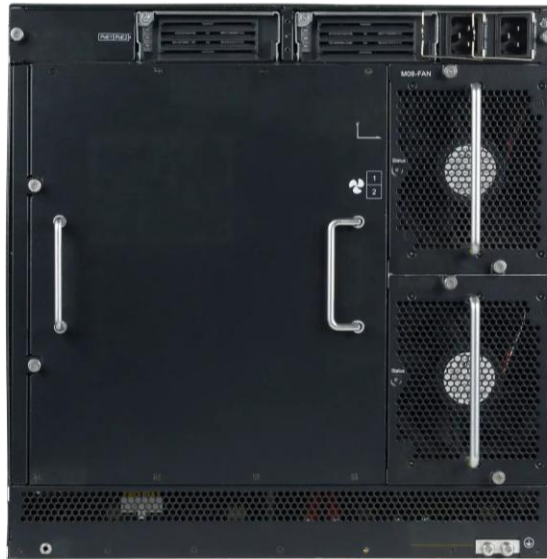
Using the modular operating system (OS), the RS-E9800-8ST-C support IPv4, IPv6, and other network services, satisfying application requirements of the Ethernet in the future. In addition, it supports Virtual Switching Unit (VSU) that simplifies customers' network architecture and improves O&M efficiency.

The RS-E9800-8ST-C switch can be deployed on MANs, campus networks, and data centers based on service requirements. They lay a foundation for high-performance networks that support IoT service lifecycle management, mobility applications, and cloud applications.

2. Product Appearance



Front View



Rear View

3. Product Highlights

- Employs the advanced Clos multi-level multi-plane architecture to separate the control plane from the forwarding plane. This ensures non-blocking switching at line rate among all interfaces, and delivers continuous bandwidth upgrade and service support capabilities.
- Provides highly-efficient energy-saving system and power supply system, supports dynamic power management, and is equipped with intelligent fan modules for multi-level speed regulation, significantly reducing energy consumption.
- Uses XOS modular operating system to provide more entries, faster hardware processing, and better operation experience.
- Provides open and programmable XOS modular operating system. Basic functions are incorporated into the main version, and custom functions are released in app mode, ensuring stability of the basic functions.
- Supports the x86 platform, which supports containers, allows third-party management applications to be installed, and makes it easy for customizing functions.
- Rectifies faults related to processes online in seconds, without interrupting network operation.
- Supports Python that allows applications across platforms.
- Supports high-speed access to northbound interfaces, with the performance of up to thousands of operations. It can associate with the controller to upgrade the man-machine interface to machine-machine interface.
- Upgrades and extends functions online to ensure nonstop services.
- Is suitable for a mobile network or an IoT of a large campus where thousands of terminals are deployed; automatically isolates multiple service networks, which is independent of interfaces and locations. This simplifies deployment.
- Securely connects to and isolates IoT terminals and users.
- Copes with lossless operation of services on a mobile network or the Internet with its high bandwidth, achieving service continuity.

- Is used as the core device of a campus network or the IoT service, with powerful performance and high reliability to intelligently connect to IoT terminals and mobile terminals.

4. Product Features

On-demand Resource Allocation Based on Virtualization

The RS-E9800-8ST-C switch adopt VSU to virtualize multiple physical devices into one logical device for unified operation and management, substantially reducing network nodes and lowering network O&M personnel's workload. They can implement fast switchover within 50 ms to 200 ms upon link failures, ensuring nonstop transmission of key services and enhancing network reliability. The inter-device link aggregation technology implements dual active uplinks for access servers and switches, doubling the bandwidth of effective connections. The virtualized devices support Layer 2 and Layer 3 interoperability of IPv4/IPv6 (inner)-based VXLANs.

Carrier-Class High Reliability

The RS-E9800-8ST-C switch support hot patching to realize online patch upgrade.

The RS-E9800-8ST-C switch support GR for OSPF/IS-IS/BGP and BFD for VRRP/OSPF/BGP4/IS-IS/IS-ISv6/static routing, and implement the millisecond-level fault detection mechanism through protocols, with the fault detection time less than 50 ms.

The switch support 1+1 hardware monitoring system for centralized monitoring of cards, fans, power supplies, and environment.

The RS-E9800-8ST-C provide visualized hardware health status, making it easy for a network administrator to monitor the fan status, power, temperature, and onboard voltage. In particular, the network administrator can identify voltage exceptions during routine inspection and handle the exceptions in a timely manner, thereby preventing system breakdown caused by such exceptions.

The RS-E9800-8ST-C employ the fault isolation technology to monitor the optical module status. If an optical module is faulty, the optical module is isolated and has no impact on the running of other interfaces or the switch. After the faulty optical module is replaced, the corresponding interface is restored immediately.

Clos Architecture for Non-Blocking Switching

The RS-E9800-8ST-C feature advanced Clos multi-level multi-plane architecture, which can separate the control plane from the forwarding plane. That is, it can be independently configured with switch fabric modules and Engine modules to ensure non-blocking switching at line rate among all ports, delivering continuous bandwidth upgrade and service support capabilities.

It uses the complete orthogonal design for line cards and switch fabric modules. Traffic is transmitted to the switch fabric module through the orthogonal connector for switching, with zero cabling on the backplane and low transmission loss. This greatly reduces signal attenuation and improves the service traffic transmission efficiency in the switch.

SDN

The RS-E9800-8ST-C support OpenFlow and NETCONF, and allows the live network to be smoothly upgraded to a software-defined networking (SDN) network. This substantially reduces network

maintenance costs while greatly simplifying network management.

High Energy Efficiency

The RS-E9800-8ST-C use the low voltage power supply design for the internal system, and highly-efficient power modules guarantee highly efficient power supply.

The multi-core CPU supports dynamic power management to save power at low loads.

The intelligent fan modules support 256-level speed regulating and precise temperature control, saving energy and reducing noise. This allows the RS-E9800-8ST-C to run at a high temperature for a long time and adapt to severe environments, greatly lowering power consumption.

Ease of Network Maintenance

The RS-E9800-8ST-C support the hardware monitoring system in 1+1 redundancy mode to centrally monitor status parameters such as the card, fan module, power module, power supply, and environment parameters.

The RS-E9800-8ST-C support routine network diagnosis and maintenance based on the Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON), Syslog, and other features. A network administrator can use various management and maintenance modes such as command line interface (CLI), web network management, and Telnet to facilitate device management.

Telemetry based on gRPC enables it to periodically collect information about CPU, memory, and other components.

With simplified optical management software and service template embedded in the RS-E9800-8ST-C, the RS-E9800-8ST-C can be deployed quickly. In addition to network service planning, the RS-E9800-8ST-C support plug and play, zero-touch replacement, zero-touch provisioning (ZTP), and optical link fault detection and alarms.

5. Product Specifications

Hardware Specifications

Port Specifications

Port specifications	RS-E9800-8ST-C
Module slot	2 x Engine module slots 6 x line card slots 4 x power module slots 2 x fan module slots
Engine module	RS-E9808-EM-C
Switch fabric module	RS-E9808-EM-C (switch fabric module integrated with Engine module)
Power module	RS-PA600I-F

Port specifications	RS-E9800-8ST-C
	RS-PA1600I-F
Fan module	E9808-FAN (pre-installed 2)
Module management port	RS-E9808-EM-C: ● 1 x RJ45 console port ● 1 x RJ45 MGMT port
USB	RS-E9808-EM-C: 1 x USB 2.0 port (no capacity limit, 2G/4G/8G/16G/32G capacity tested)

System Specifications

System specifications	RS-E9800-8ST-C
System packet forwarding rate ^{*3}	9000 Mpps
System switching capacity ^{*4}	12000 Gbps
CPU	● RS-E9808-EM-C: quad-core processor, each core 2.2 GHz - Line card: quad-core processor, each core 2.2 GHz
Real-time clock (RTC)	Supported
Boot ROM	RS-E9808-EM-C: 16 MB Line card: 16 MB
Flash memory	RS-E9808-EM-C: 8 GB Line card: 8 GB
Memory	RS-E9808-EM-C: 4 GB DDR4 Line card: 4 GB DDR4
Switch buffer	4MB ~ 35MB

Power Supply and Consumption

Power supply and consumption	RS-E9800-8ST-C
Power supply	4 x pluggable power modules
Power input	RS-PA600I-F (AC input): ● Rated input voltage: 100 V AC to 240 V AC, 50/60 Hz

Power supply and consumption	RS-E9800-8ST-C
	- Maximum input voltage: 90 V AC to 264 V AC, 47 Hz to 63 Hz - Maximum input current: 10 A RS-PA1600I-F (AC input): - Rated input voltage: 100 V AC to 240 V AC, 50/60 Hz - Maximum input voltage: 90 V AC to 264 V AC, 47 Hz to 63 Hz - Maximum input current: 16 A
Maximum output power	RS-PA600I-F: 600 W RS-PA1600I-F: 100 V AC to 176 V AC: 1200 W 176 V AC to 240 V AC: 1600 W
Module power consumption	E9808-FAN: < 88 W RS-E9808-EM-C: < 62 W

Dimensions and Weight	RS-E9800-8ST-C
Unit dimensions (W x D x H)	442.0 mm x 465.0 mm x 441.7 mm (17.40 in. x 18.31 in. x 17.39 in.)
Shipping dimensions (W x D x H)	710.0 mm x 590.0 mm x 735.0 mm (27.95 in. x 23.23 in. x 28.94 in.)
Rack height	10 RU
Unit weight	35.6 kg (78.48 lbs, empty chassis with 2 fan modules)
Shipping weight	43.93 kg (96.85 lbs)

Environment and Reliability

Environment and reliability	RS-E9800-8ST-C
Temperature	Operating temperature: 0°C to 50°C (32°F to 122°F) Storage temperature: -40°C to +70°C (-40°F to +158°F)
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Altitude	Operating altitude: -500 m to +5,000 m (-1,640.42 ft. to +16,404.20 ft.) Storage altitude: -500 m to +5,000 m (-1,640.42 ft. to +16,404.20 ft.)

Environment and reliability	RS-E9800-8ST-C
Mean time between failure (MTBF)	216,000 hours (about 24 years)
Fan	2 x pluggable fan modules (pre-installed)
Heat dissipation	Engine module: right-to-rear airflow Line card: right-to-rear airflow Power module: front-to-rear airflow
Acoustic noise	27°C (80.6°F): 70 dB Max Noise: 77 dB
Engine module redundancy	1+1 redundancy
Power module redundancy	N+M redundancy (same model)
Fan redundancy	1+1 redundancy
Module hot swapping	Supported
Power module hot swapping	Supported
Fan module hot swapping	Supported
Cable hot swapping	All ports on line cards support hot swapping of cables. The switch-mode power supply supports hot swapping of power cords.
Power supply monitoring	Monitoring of the model, temperature, power, and voltage of the power supply module Power supply failure alarming Control of line card power-on based on the power status
Fan monitoring	Fan speed adjustment: 256 levels Fan failure alarming
Temperature monitoring	Over-temperature warning
ESD	ESD contact/air discharge: 6 kV/8 kV ESD susceptibility contact/air discharge: 8 kV/15 kV
Surge protection	MGMT port: 4 kV Service port: 4 kV Power port: 6 kV

Software Specifications

Software Specifications	RS-E9800-8ST-C
Ethernet switching	Jumbo frame (maximum length: 9,216 bytes)
	802.3az EEE
	Maximum number of VLANs that can be created: 4,094
	Voice VLAN
	GVRP
	IP subnet-based VLAN
	MAC VLAN
	Port-based VLAN
	Private VLAN
	protocol-based VLAN
	Super-VLAN
	Basic QinQ and selective QinQ
	STP (IEEE 802.1d)
	RSTP (IEEE 802.1w)
	MSTP (IEEE 802.1s)
	ERPS (G.8032)
	LLDP/LLDP-MED
Device Virtualization	VSU
SDN	OpenFlow 1.3 NETCONF
IP service	Static and dynamic ARP
	DHCP client
	DHCP relay
	DHCP server
	DHCP snooping
	DNS
	DHCPv6 client
	DHCPv6 relay
	DHCPv6 snooping
	Neighbor Discovery (ND) and ND snooping
	FTP Server

Software Specifications	RS-E9800-8ST-C
	FTP Client
	NTP server
	NTP Client
	SNTP Client
	TFTP Client
	TFTP Server
IP routing	Static routing
	BGP4
	BGP4+
	IS-ISv4
	IS-ISv6
	OSPFv2
	OSPFv3
	RIP
	RIPng
	GR
	Routing Policy
	ECMP
	IPv4/IPv6 VRF
	Policy-based routing (PBR)
Multicast	IGMP v1/v2/v3
	IGMP snooping v1/v2
	IGMP proxy
	IGMP fast leave
	PIM-DM
	PIM-SM
	PIM-SSM for IPv4 and IPv6
	MSDP to achieve inter-domain multicast
	MLDv1 and MLDv2
	Multicast static routing
	MLD v1/v2 snooping
	PIM-SMv6

Software Specifications	RS-E9800-8ST-C
	Multicast source IP address check
	Multicast source port check
MPLS	MPLS L3VPN
	MPLS 6VPE
	MPLS IPv6
	MPLS forwarding
	LDP
	LSP
VXLAN	VXLAN Layer 2 bridge
	VXLAN Layer 3 gateway
	EVPN VXLAN
ACL and QoS	Standard IP ACL
	extended IP ACL
	extended MAC ACL
	Layer 2 and Layer 3 port ACL
	VLAN ACL
	Expert-level ACL
	ACL 80
	IPv6 ACL
	Applying ACLs globally
	ACL COUNTER
	ACL LOGGING
	ACL REMARK
	802.1P
	SP
	WRR
	SP+WFR
	other queue scheduling mechanisms
	RED/WRED
	Rate limiting based on the inbound or outbound interface
	MPLS QOS
Reliability	1+1 redundancy for Engine modules

Software Specifications	RS-E9800-8ST-C
	RG-S7805C: 1+1 redundancy for power supply RS-E9800-8ST-C , RG-S7810C-X: N+M redundancy for power supply
	RG-S7805C: fan redundancy is not supported RS-E9800-8ST-C , RG-S7810C-X: 1+1 fan redundancy
	Hot swapping of all components
	Hot patching function for online patch upgrade
	GR
	BFD
	VRRP
	VRRP+
	Faulty optical port isolation
	Dual physical chips for boot systems
Security	NFPP
	CPP
	DAI
	port security
	IP source guard
	802.1X authentication
	MAC address-based authentication
	Portal authentication
	RADIUS
	TACACS+ login authentication
	uRPF
	SSHv2
	IPv6 SAVI
	Login authentication and password security
	providing encrypted security channels for user login
	Unknown multicast packets are not sent to the CPU, and unknown unicast packets can be suppressed.
NMS and maintenance	Console/AUX Modem/Telnet/SSH2.0 CLI configuration
	File upload and download management using FTP, TFTP, and Xmodem
	SNMP V1/V2c/V3
	RMON

Software Specifications	RS-E9800-8ST-C
	CWMP
	GRPC
	Fault alarm and auto-recovery
	System operation logging
	sFlow
	SPAN
	RSPAN
	ERSPAN
	VLAN mirroring
	Web-based NMS
Energy-Saving Design	IEEE 802.3az Energy Efficient Ethernet

6. Ordering Information

Switch Chassis

Model	Description
RS-E9800-8ST-C	RS-E9800-8ST-C switch, which can accommodate 6 line cards and 2 Engine modules

Engine Modules

Model	Description
RS-E9808-EM-C	RS-E9800-8ST-C high-performance Engine module

Line Cards

Model	Description
RS-E9800-48SFP4XS-LC	48 x 100M/1GE SFP ports (LC) and 4 x 1GE/10GE SFP+ ports (LC)
RS-E9800-24GT8SFP8XS-LC	24 x 10/100/1000BASE-T ports (RJ45), 8 x 100M/1GE SFP ports (LC) and 8 x 1GE/10GE SFP+ ports (LC)

Model	Description
RS-E9800-32XS-LC	32 x 1GE/10GE SFP+ ports (LC)
RS-E9800-52XS-LC	52 x 1GE/10GE SFP+ ports (LC)
RS-E9800-12CQ-LC	12 x 40GE/100GE QSFP28 ports (MPO/LC). 100GE port can be split into four 25GE ports and 40GE port can be split into four 10GE ports.
RS-E9800-48XT-P-LC	48 x 100/1000/2.5G/5G/10GBASE-T ports (RJ45), supporting PoE/PoE+. Each PoE port provides up to 30 W of power. The maximum power is 1440 W over 48 ports (30 W x 48). 1 x PoE in port receives PoE/PoE+ power supply. If the PoE function is used, you need to separately configure the PoE power chassis RS-E9800-POE-2ST and the power module RS-PA1600I-PL
RS-E9800-48GT4XS-LC	48 x 10/100/1000BASE-T ports, 4 x 1GE/10GE SFP+ ports (LC)
RS-E9800-8CQ-LC	8 x 40GE/100GE QSFP28 ports
RS-E9800-4CQ-LC	4 x 40GE/100GE QSFP28 ports
RS-E9800-48GT-LC	48 x 10/100/1000BASE-T ports
RS-E9800-48SFP-LC	48 x 100M/1GE SFP ports

Power Chassis and Modules

Model	Description
RG-PA600I-F	600 W AC power module, supporting redundancy, 10 A power cord, used with RS-E9800-8ST-C
RG-PA1600I-F	1600 W AC power module, supporting redundancy, 16 A power cord, used with RS-E9800-8ST-C
RS-E9800-POE-2ST	PoE power chassis. 2 x PoE out ports can power two PoE line cards through specialized PoE cables. 2 x power module slots, used together with RS-PA1600I-PL (working with -X series Engine module)
RS-PA1600I-PL	1600 W PoE AC power module, supporting redundancy, 16 A power cord, used with RS-E9800-POE-2ST



For more information

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