



RG-S7800C Series Core Switches Integrating the Cloud Architecture



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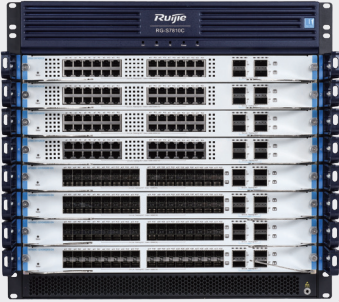
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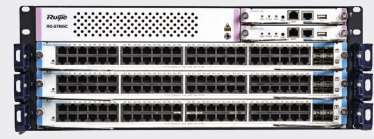
Product Pictures



RG-S7810C



RG-S7808C



RG-S7805C

Product Overview

The RG-S7800C series switches are multi-service core switches released by Ruijie Networks for next-generation converged networks. The switches combine various features of campus networks and data centers. Using the RGOS12.X modular OS, the switches support IPv4, IPv6, and other network services, meeting the application requirements of Ethernet in the future. In addition, the switches support virtualization features such as virtual switching unit (VSU). VSU simplifies the network architectures of customers to improve O&M efficiency. The RG-S7800C series switches can be deployed in MANs, campus networks, and data centers based on business requirements.



Product Features

On-demand Resource Allocation Based on Virtualization

VSU 3.0

The RG-S7800C series switches adopt VSU 3.0 to virtualize multiple physical devices into one logical device for unified operation and management, substantially reducing network nodes and lowering network O&M management personnel's workload. The switches can implement fast switchover within 50 ms to 200 ms upon a link failure and ensure uninterrupted transmission of key services, thereby enhancing network reliability. The inter-device link aggregation feature implements dual active uplinks for access servers and switches, doubling the bandwidth of effective connections.

Carrier-Class High Reliability

The redundancy design is applied to all key components of the RG-S7800C series switches, including 1+1 redundancy for supervisor engines, N+M redundancy for power modules, 1+1 redundancy for fans. All redundant components are hot-swappable, which maximizes the reliability and availability of the entire switch.

The RG-S7800C series switches support GR for OSPF/IS-IS/BGP and BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing, and implement the fast fault detection mechanism through protocols, with the fault detection time less than 50 ms.

The hardware health status can be visualized so that users can monitor the fan status, power, temperature, and onboard voltage. Especially, users can identify voltage exceptions during routine inspection and handle the exceptions in a timely manner, thereby preventing system breakdown caused by voltage exceptions.

The switches 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 ports or the switch. After the faulty optical module is replaced, the corresponding port recovers immediately.

CLOS Architecture for Non-Blocking Switching

The advanced CLOS multi-level multi-plane architecture is utilized to implement the separation of the control plane from

the forwarding plane. That is, the switch fabric modules and supervisor engines can be configured independently to ensure non-blocking switching at the full line rate among ports, delivering continuous bandwidth upgrade and service support capabilities.

The complete orthogonal design applies to service cards and switch fabric modules. Traffic is transmitted to the switch fabric modules via the orthogonal connector for switching. In this way, there is no cabling on the backplane and the transmission loss is low, which greatly reduces the signal attenuation and improves the service traffic transmission efficiency in the switch.

Sound QoS Policies

The RG-S7800C series switches are capable of classifying and controlling various flows including MAC flows, IP flows, and application flows, to implement fine flow bandwidth control, forwarding priority, and other flow policies. Furthermore, the switches can provide services based on applications and characteristics of the service quality required by different applications.

The DiffServ-centered QoS guarantee system supports 802.1p, IP ToS, layer-2 to layer-7 traffic filtering, SP, WRR, and other QoS policies, and implements the QoS logic for multiple services throughout the network.

Software-defined Networking

The RG-S7800C series switches support OpenFlow and NETCONF, and allow the whole network to be smoothly upgraded to a software-defined networking (SDN) network. The switches substantially reduce network maintenance costs while greatly simplifying network management.

High Energy Efficiency

The RG-S7800C series switches comply with RoHs and are equipped with modular power supplies to deliver power efficiently. The multi-core CPU supports dynamic power consumption management, and all Ethernet electrical ports support the Energy Efficient Ethernet (EEE) standard, reducing power consumption at low loads.

The smart fans support 256-level speed regulating and precise temperature control, saving energy and reducing

noise. This allows the switches to run at a high temperature for a long time and adapt to severe environments, greatly lowering power consumption.

Ease of Network Maintenance

The RG-S7800C series supports the Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON), syslog, and other features for daily network diagnosis and maintenance. In addition, administrators can utilize diversified management and maintenance methods including the CLI, Web-based NMS, and telnet to facilitate device management.

The gRPC-based telemetry technology enables the switches to periodically collect information about CPU, memory, and other components

The simplistic optical management software and service template embedded in the switches enable the switches to be

deployed quickly. In addition to allowing you to plan network services, the switches support plug and play, intelligent zero replacement, and optical link fault monitoring and alarm functions, and can go online with zero configuration.

Multi-processing modular operating system

Since 1998, Ruijie Networks has invested in the research and development of modular operating systems. The software platform of RG-S7800 series is based on the new generation of multi-processing modular operating system, which integrates loosely coupled firewall, wireless, IPFIX, authentication and other service features into the unified cloud architecture network operating system platform and supports comprehensive virtualization capabilities and rich data center and campus network features. Key availability metrics such as multi-processing modularization, process backup and hot patching have reached the industry leading level.

Technical Specifications

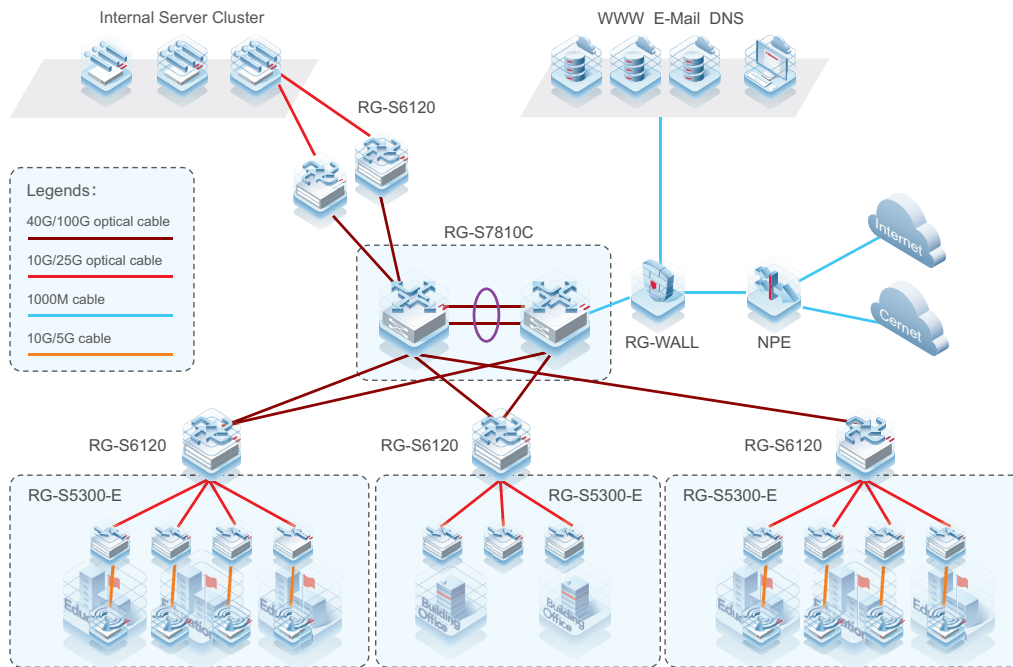
Model	RG-S7805C	RG-S7808C	RG-S7810C
Module slots	5 (2 for supervisor engine modules)	8 (2 for supervisor engine modules)	10 (2 for supervisor engine modules); two switch fabric modules supported
Switch fabric module slots	Built-in	2 (integrated with the supervisor engines)	4 (2 are integrated with the supervisor engines)
Switching capacity	6 Tbit/s	12 Tbit/s	16 Tbit/s
Packet forwarding rate	4500 Mpps	9000 Mpps	12000 Mpps
ARP Table	Up to 170K		
MAC Address	Up to 288K		
Device virtualization	VSU		
SDN	OpenFlow 1.3		
L2 features	Jumbo frame 4096 802.1Q VLAN STP, RSTP, MSTP Super VLAN GVRP QinQ and flexible QinQ LLDP ERPS (G.8032)		

Model	RG-S7805C	RG-S7808C	RG-S7810C
MPLS	MPLS L3VPN MPLS 6VPE MPLS IPv6		
IPv4 features	Static routing, RIP, OSPF, IS-IS, and BGP4 VRRP, VRRP+ ECMP Policy-based routing GRE tunnel		
IPv6 features	Static routing, OSPFv3, BGP4+, IS-ISv6, and MLDv1/v2 VRRPv6 ECMP Policy-based routing Manual tunnel, automatic tunnel, ISATAP tunnel, and GRE tunnel		
DHCP	DHCP Relay DHCP Snooping DHCP Server (at least 2700 users/second) DHCP Client		
Multicast	IGMP v1/v2/v3 IGMP snooping IGMP proxy PIM-DM, PIM-SM, PIM-SSM, and other multicast routing protocols MLD Multicast static routing		
Virtual Routing and Forwarding (VRF) Instances	Up to 2000		
VXLAN	VXLAN L2 bridge VXLAN L3 gateway		
ACL	Standard, extended, and expert-level ACLs ACL 80 IPv6 ACLs		
QoS	802.1P SP, WRR, DRR, SP+WRR, SP+DRR, and other queue scheduling mechanisms RED/WRED Port-based rate limit		
Mirroring	Many-to-one mirroring, one-to-many mirroring, and flow-based mirroring. SPAN, RSPAN, Dynamic MAC address mirroring and VLAN mirroring		
Reliability	1+1 redundancy for supervisor engines N+M redundancy for power modules and 1+1 redundancy for fans Hot swapping of components Hot patch function and online installation of patches GR for OSPF/IS-IS/BGP BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing		

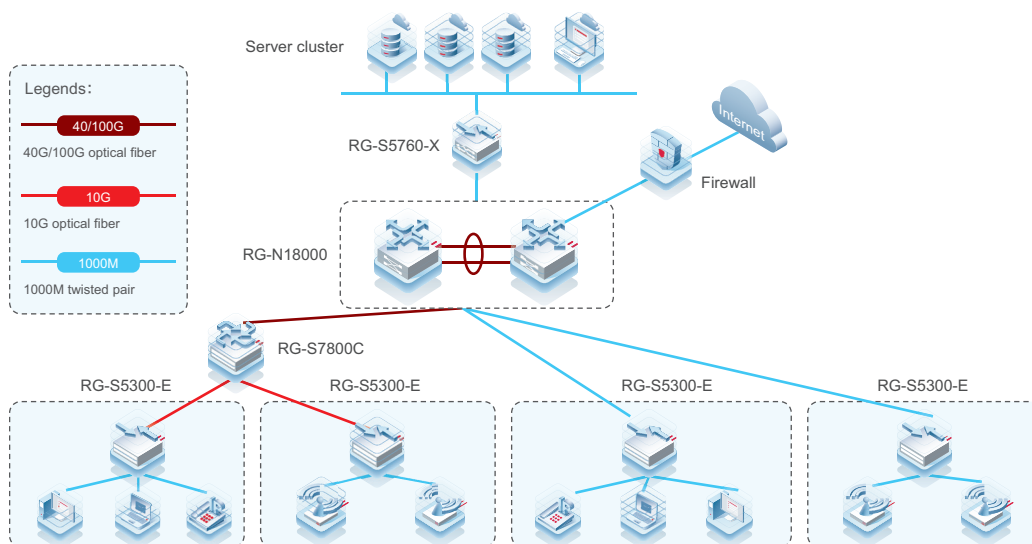
Model	RG-S7805C	RG-S7808C	RG-S7810C
Security	NFPP CPP DAI, ARP Check, Port Security, and IP source guard 802.1x Portal authentication, RADIUS, and TACACS+ login authentication uRPF Login authentication and password security Unknown multicast packets are not sent to the CPU, and unknown unicast packets can be suppressed. SSHv2, providing encrypted security channels for user login IPv6 SAVI		
Management	Console/AUX Modem/Telnet/SSH2.0 CLI configuration File upload and download management using FTP, TFTP, and Xmodem SNMP V1/V2c/V3 RMON NTP clock Fault alarm and auto-recovery System operation logging sFLOW		
Green energy saving	IEEE 802.3az Energy Efficient Ethernet		
Size (W × D × H) (mm)	442 × 521 × 175 (4U)	442 × 535 × 441.7 (10U)	442 × 535 × 441.7 (10U)
RG-S7805C power supply	RG-PA300I-F: 90 V to 180 V Power: 300 W; 180 V to 264 V Power: 300 W RG-PA460I-F: 90 V to 180 V Power: 460 W; 180 V to 264 V Power: 460 W		
RG-S7808C power supply	RG-PA600I-F: 90 V to 180 V Power: 600 W; 180 V to 264 V Power: 600 W RG-PA1600I-F: 90 V to 180 V Power: 1200 W; 180 V to 264 V Power: 1600 W		
RG-S7810C power supply	RG-PA1600I: 90 V to 180 V Power: 1200 W; 180 V to 264 V Power: 1600 W RG-PA600I: 90 V to 180 V Power: 600 W; 180 V to 264 V Power: 600 W RG-PD1600I: -40.5 V to -75 V Power: 1400 W RG-PD600I: -40.5 V to -75 V Power: 600 W		
MTBF	> 200,000 hours		
Temperature	Operating temperature: 0°C to 50°C Storage temperature: -40°C to 70°C		
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH		
Operating altitude	-500 m to 5000 m		

Typical Applications

Serving as Core Devices on a Small- or Medium-Sized Network



Serving as Convergence Devices on a Large-Sized Network



Ordering Information

1. Switches and Supervisor Engines

Select the switch and supervisor engine based on the specific product model.

RG-S7800C switches and supervisor engines

Model	Description
S7810C	RG-S7810C switch, which can accommodate 8 service cards, 2 supervisor engines, and 2 switch fabric modules
S7808C	RG-S7808C switch, which can accommodate 6 service cards and 2 supervisor engines
S7805C	RG-S7805C switch, which can accommodate 3 service cards and 2 supervisor engines
M7810C-CM	S7810C high-performance 1st-generation supervisor engine
M7810C-CM-F	S7810C high-performance 2nd-generation supervisor engine
M7808C-CM	S7808C high-performance 1st-generation supervisor engine
M7808C-CM II	S7808C high-performance 2nd-generation supervisor engine
M7805C-CM	S7805C high-performance 1st-generation supervisor engine
M7805C-CM II	S7805C high-performance 2nd-generation supervisor engine

2. Power Modules and Fans

Select the power module based on power supply requirements. Note that at least one power module must be selected.

Model	Description
RG-PA300I-F	S7805C power module (AC, 300 W, 10 A)
RG-PA460I-F	S7805C power module (available for redundancy, AC, 460 W, 10 A)
RG-PA600I-F	S7808C power module (available for redundancy, AC, 600 W, 10 A)
RG-PD600I-F	S7808C power module (available for redundancy, DC, 600 W, -48 V)
RG-PA600I	S7810C power module (available for redundancy, AC, 600 W, 10 A)

Model	Description
RG-PD600I	S7810C power module (available for redundancy, DC, 600 W, 20 A)
RG-PA1600I	S7810C power module (available for redundancy, AC, 1600 W, 16 A)
M08-FAN	S7808C fan: Each M08-FAN tray consists of two fan modules and one fan monitoring card. It blows air to the outside for convection. (This is a default configuration for the switches.)

3. Switch Fabric Modules

Select the switch fabric module based on business requirements.

Model	Description
M7810C-FE-D I	RG-S7810C switch fabric module I
M7810C-FE-F I	RG-S7810C 2nd-generation switch fabric module

4. Line Cards

Select the line card based on service requirements. **Before ordering a line card, please contact the online customer service personnel for the details about the line card.**

Commercial-grade line cards

Model	Description
M7800C-16SFP8XS-EA	Line Card with 16 Gigabit Ethernet fiber ports (SFP, LC), 8 10G Ethernet fiber ports (SFP+, LC)
M7800C-24SFP/12GT4XS-EA	Line Card with 24 Gigabit Ethernet fiber ports (SFP, LC), 12 Gigabit Ethernet copper combo ports (RJ45), 4 10G Ethernet fiber ports (SFP+, LC)
M7800C-36GT12SFP4XS-EA	Line Card with 36 Gigabit Ethernet copper ports (RJ45), 12 Gigabit Ethernet fiber ports (SFP, LC), 4 10G Ethernet fiber ports (SFP+, LC)
M7800C-48SFP4XS-EA	Line Card with 48 Gigabit Ethernet fiber ports (SFP, LC), 4 10G Ethernet fiber ports (SFP+, LC)
M7800C-48GT4XS-EA	Line Card with 48 Gigabit Ethernet copper ports (RJ45), 4 10G Ethernet fiber ports (SFP+, LC)
M7800C-24GT24SFP4XS-EA	Line Card with 24 Gigabit Ethernet copper ports (RJ45), 24 Gigabit Ethernet fiber ports (SFP, LC), 4 10G Ethernet fiber ports (SFP+, LC)
M7800C-48XS-FB	48 × 10GE optical ports (SFP+ and LC)

Model	Description
M7800C-8CQ-FB	8 x 100G/40G Ethernet fiber ports (QSFP28 and LC)
M7800C-48GT-FA	48 x GE electrical ports (RJ45)
M7800C-48SFP-FA	48 x GE optical ports (SFP+ and LC)
M7800C-32XS4QS-DA	32 x 10GE optical ports (SFP+ and LC) + 4 x 40G Ethernet optical ports (QSFP+ and MPO)
M7800C-24GT24SFP4XS-EB	24 x GE electrical ports (RJ45) + 24 x GE optical ports (SFP and LC) + 4 x 10GE optical ports (SFP+ and LC)
M7800C-24SFP/12GT4XS-EB	24 x GE optical ports (SFP and LC) + 12 x GE electrical combo ports (RJ45) + 4 x 10GE optical ports (SFP+ and LC)
M7800C-48GT4XS-EB	48 x GE electrical ports (RJ45) + 4 x 10GE optical ports (SFP+ and LC)
M7800C-48SFP4XS-EB	48 x GE optical ports (SFP and LC) + 4 x 10GE optical ports (SFP+ and LC)

"**" indicates that it will be supported in the future.

Ruijie



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