RG-CS86 Series

Multi-GE Switches

Ruijie

01
Product Overview

RG-CS86 series switches are next-generation multi-GE switches developed by Ruijie. With an advanced hardware architecture and Ruijie modular operating system, the RG-CS86 delivers fast hardware processing and good operation experience.

The RG-CS86 offers flexible multi-GE access (10GE/5GE/2.5GE/1GE) and high-performance 10GE/40GE uplink ports, catering for demands of high-density access and high-performance aggregation.

The RG-CS86 delivers robust performance, sound end-to-end service quality, and rich security functions for the aggregation layer of large-scale networks, the core layer of small- and medium-scale networks, and campus data centers. This satisfies requirements on high speed, security, and intelligence for enterprise campus networks.

02
Product Appearance

Front View of RG-CS86-24MG4VS-UP

Front View of RG-CS86-48MG4VS2QXS-UPD

Front View of RG-CS86-24XMG4XS4VS-UPD

03
Product Features

Multi-GE Access

Recent years have witnessed the rapid evolution of the Ethernet interface standards from 10BASE-T and 100BASE-T to 1000BASE-T (IEEE 802.3ab) that is widely applied to devices covering PCs and APs. However, as the Wi-Fi 6 technology has been introduced, APs can delivers an uplink rate of 10 Gbps, posing an increasing challenge to GE network devices. The RG-CS86 provides 100M/1000M/2.5G/5G Base-T and 100M/1000M/2.5G/5G/10G Base-T Ethernet ports in auto-negotiation mode which can better adapt to Wi-Fi 6 APs.

High-Power PoE Power Supply

In the previous scenarios of PoE remote power supply, only PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) standards are available. If the power exceeds 30 W, PoE cannot be used for power supply. Instead, power cables must be deployed for mains power supply, and even EHV power deployment is required. This imposes tremendous challenges on deployment costs and period, maintenance, and security during the deployment. In compliance with the IEEE802.3bt standard, the RG-CS86 adopts high-power PoE power supply and achieves a maximum PoE output of 90 W through a single Ethernet port to significantly improve user experience.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of the RG-CS86 supports IPv4/IPv6 dual stacks and multilayer line-rate switching to differentiate

and process IPv4 and IPv6 packets. The RG-CS86 also provides flexible IPv6 network communication solutions for users to perform network planning or maintain network status quo based on various IPv6 network demands. The RG-CS86 supports a wide range of IPv4 routing protocols, covering IPv4 static routing, RIP, OSPFv2, IS-ISv4, and BGP4. You can select appropriate routing protocols to flexibly build networks based on various network environments. Meanwhile, the RG-CS86 also supports abundant IPv6 routing protocols, including IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+. A routing protocol can be selected flexibly to upgrade the live network to an IPv6 network or establish a new IPv6 network.

Virtual Switching Unit

The RG-CS86 supports Virtual Switch Unit (VSU). VSU enables multiple physical devices to be connected through aggregate links and virtualized into one logical device. The devices use the same IP address, Telnet process, and CLI for management, and support automatic version check and automatic configuration. In this context, a network administrator only manages one logical device, improving working efficiency and experience.

Simplified management: The network administrator can manage multiple switches uniformly without connecting to each switch for separate configuration and management.

Simplified network topology: A VSU serves as a switch on a network and connects to peripheral devices through aggregate links. Therefore, no Layer 2 loop occurs and MSTP configuration is not required. Various control protocols can run on the VSU.

Fault recovery within milliseconds: A VSU connects to peripheral devices through aggregate links. If a fault occurs on one device or member link in the VSU, data and services can be switched to another member link within 30 ms.

High scalability: Devices can be added to or removed from a virtualized network, without affecting normal operation of other devices.

Sound Security Protection Policies

The RG-CS86 can effectively defend against virus spread and hacker attacks through multiple inherent mechanisms, such as DoS attack defense, IP scanning attack defense, validity check of ARP packets, and

multiple hardware-based ACLs.

The hardware-based IPv6 ACL can easily control the access of IPv6 users at the network edge even if there are IPv6 users on an IPv4 network. The switch allows IPv4 and IPv6 users to coexist and can control access permissions of IPv6 users, for example, restricting access to sensitive resources on the network.

The RG-CS86 provides a unique hardware CPU protection mechanism: CPU Protection Policy (CPP). The CPP enables the switch to classify data traffic sent to the CPU, process the traffic by queue priority, and apply the rate limit to traffic as required. The CPP fully protects the CPU from being occupied by unauthorized traffic, malicious attacks, and resource consumption, which ensures the security of the CPU and the switch.

The RG-CS86 and its ports can be flexibly bound to a user's IP address and MAC address, which strictly restricts the access of users connected to the ports or the switch.

DHCP snooping enables the RG-CS86 to receive DHCP Response messages only from trusted ports and prevent spoofing from unauthorized DHCP servers. With DHCP snooping, the switch dynamically monitors ARP packets, checks users' IP addresses, and discards unauthorized packets that do not match binding entries. This effectively prevents ARP spoofing and source IP address spoofing.

The switch also supports the device access control through source IP-based Telnet, which can prevent unauthorized users and hackers from maliciously attacking and controlling the switch, and enhance the network management security of the switch.

Through the Secure Shell (SSH) and Simple Network Management Protocol version 3 (SNMPv3), the switch can encrypt management information in Telnet and SNMP processes. This ensures information security of management devices and prevents hackers from attacking and controlling the devices.

The switch rejects unauthorized network access and enables authorized network access by employing multi-element binding, port security, time-based ACL, and data stream-based rate limiting. The RG-CS86 can strictly control user access to enterprise networks and campus networks and restrict the communication of unauthorized users.

The RG-CS86 supports the Network Foundation Protection Policy (NFPP) to enhance its security. By

isolating attack sources, the policy can protect the processor and channel bandwidth resources of the switch. This ensures normal packet forwarding and protocol status.

High Reliability

The RG-CS86 supports built-in redundant power modules and fan modules. The power and fan modules are hot swappable without affecting the normal operation of the switch. The switch also provides fault detection and alarms for power and fan modules. The fan speed can be automatically adjusted based on temperature changes to better adapt to various environments. The RG-CS86 adopts the front-to-rear airflow to enhance the cooling efficiency. By using overcurrent, overvoltage, and overheating protection technologies, the RG-CS86 achieves device-level and link-level reliability protection.

The RG-CS86 supports Spanning Tree Protocols (IEEE 802.1D, IEEE 802.1w, and IEEE 802.1s) to achieve fast convergence, improve the fault tolerance capability, and ensure stable network operation and link load balancing. The RG-CS86 effectively utilizes network channels to improve the usage of aggregate links.

The Virtual Router Redundancy Protocol (VRRP) effectively facilitates network stability for the switch.

With the Rapid Link Detection Protocol (RLDP), the RG-CS86 can quickly detect the link connectivity and unidirectional optical fiber links. Through port loop detection, the switch can prevent network failures caused by the loops that occurs in the scenario where an unauthorized port is connected to hubs.

When STP is disabled, the Rapid Ethernet Uplink Protection Protocol (REUP) can still provide basic link redundancy and millisecond-level fault recovery faster than STP.

The RG-CS86 supports Bidirectional Forwarding Detection (BFD) for upper-level protocols (such as routing protocols), rapidly detecting connectivity of the forwarding path between two routing devices. BFD greatly shortens the convergence time for the upper-level protocols upon link status changes.

Powerful Multi-Service Capability

The RG-CS86 supports the IPv4 and IPv6 multicast functions as well as multiple multicast protocols, including IGMP snooping, IGMP, Multicast Listener

Discovery (MLD), Protocol Independent Multicast (PIM), PIM for IPv6, and Multicast Source Discovery Protocol (MSDP). The switches provide multicast service support for IPv4 networks, IPv6 networks, and IPv4 and IPv6 coexistent networks.

The IGMP source port and source IP address check function supported by the RG-CS86 can effectively eliminate unauthorized multicast sources and enhance the network security.

Sound QoS Policies

The RG-CS86 is capable of classifying and controlling various flows including MAC flows, IP flows, and application flows, to implement fine-grained bandwidth control, forwarding priority, and other flow policies. Furthermore, the switch can provide services based on applications and QoS levels required by different applications.

The Differentiated Services (DiffServ) model supports IEEE 802.1p priorities, IP ToS values, traffic filtering based on Layer 2 to Layer 7 information, Strict Priority (SP), Weighted Round Robin (WRR), and other QoS policies.

Energy-Saving Design

The RG-CS86 adopts the next-generation hardware architecture, and advanced energy-efficient circuit design and components, to reduce energy consumption and noise. RG-CS86 series switches are equipped with variable-speed axial fan modules to intelligently control the fan speed based on the ambient temperature, which reduces the power consumption and noise while ensuring stable operation of the switch.

In the networking where PoE power supply is adopted, the RG-CS86 provides automatic and energy-saving modes.

Flexible Device Management Modes

Ruijie Cloud Make Your Business Easy

The RG-CS86 series switches support Ruijie cloud APP to management, can bring customers simplified O&M management and user experience:

Ease of networking: Only a mobile phone available for Internet access is required to complete the device deployment. The switches support plug and play.

Ease of O&M: The O&M is simple. The network can be

managed at any time,and You can manage the network wherever you go. VLAN visualized on Ruijie Cloud, lower technical barriers from configuration to management.

Ease of monitoring: You can view the network health and device details (system status, traffic trend, connectivity, power supply status, etc.) at any time. Faults and user network experience are visible, alarms are pushed in time once they are generated, and logs are generated to facilitate event traceback.

The RG-CS86 series switches also support the Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON), Syslog, Sampled Flow (sFlow), log and configuration backup using USB flash drives for routine network diagnosis and maintenance. Administrators can also use CLI, web-based management, telnet, CPE WAN Management Protocol (CWMP(TR069) based zero configuration and other methods to manage and maintain devices conveniently.

04

Product Features

Hardware Specifications

Multi-GE Switch

Hardware Specifications	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
Interface Specifications			
Fixed Service Port	24 x 100M/1000M/2.5GE/5GE electrical ports with auto-negotiation 4 x 10GE/25GE SFP28 ports	48 x 100M/1000M/2.5GE/5GE electrical ports with auto-negotiation 4 x 10GE/25GE SFP28 ports + 2 x 40GE QSFP + ports	24 x 100M/1000M/2.5GE/5GE/10GE electrical ports with auto-negotiation 4 x 1GE/10GE SFP+ ports 4 x 10GE/25G SFP28 ports
Fan modules	2 fixed fans	3 modular fans	3 modular fans
Power modules	1 Built-in power module	2 replaceable hot-swappable power supply slots	2 replaceable hot-swappable power supply slots
Fixed Management Port	1 x MGMT port 1 x console port 1 x USB port	1 x MGMT port 1 x console port 1 x USB port	1 x MGMT port 1 x console port 1 x USB port
System Specifications			
Switching Capacity	440 Gbps/2.56Tbps	840 Gbps/2.56Tbps	760Gbps/2.56Tbps
Packet Forwarding Rate (Actual)	327 Mpps	625 Mpps	565 Mpps
MAC Table Capacity	32,768		
ARP table	16,000		
IPv4 Unicast Routes	16,000		
IPv4 Multicast Routes	4,000		
IPv6 Unicast Routes	16,000		
IPv6 Multicast Routes	2,000		
ACL entries	In: 2,500 Out:1,000		

Hardware Specifications	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
Dimensions and Weight			
Dimensions (W x D x H)	442 × 220 × 43.6 mm (17.40 × 29.92 × 6.89 in.) , 1 RU	442 × 220 × 43.6 mm (17.40 × 29.92 × 6.89 in.) , 1 RU	442 × 220 × 43.6 mm (17.40 × 29.92 × 6.89 in.) , 1 RU
Weight	3.65 kg (8.82 lbs)	6.11 kg (13.47 lbs)	6.11 kg (13.47 lbs)
Power Supply and Consumption			
Typical Power Consumption	Without PoE: < 110 W (Total power consumption of all modules) Full PoE load: < 370 W (Total power consumption of all modules)	Without PoE: < 200 W (Total power consumption of all modules) Full PoE load: < 1600 W (Total power consumption of all modules)	Without PoE: < 150 W (Total power consumption of all modules) Full PoE load: < 1650 W (Total power consumption of all modules)
Power Module Model	Built-in power module	RG-PA600I-P-F RG-PA1000P-F	RG-PA600I-P-F RG-PA1000P-F
Rated Input Voltage	Built-in power module AC input Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50/60 Hz Rated current per circuit: 6 A	Available model: RG-PA600I-P-F AC Input Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50/60 Hz Rated current per circuit: 8 A Available model: RG-PA1000I-P-F AC Input Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50/60 Hz Rated current per circuit: 8 A	Available model: RG-PA600I-P-F AC Input Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50/60 Hz Rated current per circuit: 8 A Available model: RG-PA1000I-P-F AC Input Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50/60 Hz Rated current per circuit: 8 A
PoE-capable Port	Ports 1 to 24 support PoE/PoE+ and HPoE power supply Maximum output power of a HPoE-capable port: 90 W	Ports 1 to 48 support PoE/PoE+ power supply Ports 1 to 24 support HPoE power supply Maximum output power of a HPoE-capable port: 90 W	Ports 1 to 24 support PoE/PoE+ and HPoE power supply Maximum output power of a HPoE-capable port: 90 W
Environment and Reliability			
Surge Protection	6 kV	6 kV	6 kV
Temperature Monitoring	Temperature alarm	Temperature alarm	Temperature alarm
Operating Temperature	0°C to 45°C (32°F to 113°F)	0°C to 45°C (32°F to 113°F)	0°C to 45°C (32°F to 113°F)
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 Humidity	10% RH to 90% RH (non-condensing)	10% RH to 90% RH (non-condensing)	10% RH to 90% RH (non-condensing)
Storage Humidity	5% RH to 95% RH (non-condensing)	5% RH to 95% RH (non-condensing)	5% RH to 95% RH (non-condensing)

Software Specifications

Software Specifications	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
Ethernet Switching	Jumbo frame (maximum length: 9216 bytes)		
	IEEE 802.1Q (supporting 4K VLANs)		
	Voice VLAN		
	Super VLAN, Private VLAN		
	MAC VLAN, Port based VLAN, Protocol based VLAN, IP-Subnet based VLAN		
	GVRP		
	Basic QinQ Flexible QinQ		
	STP, RSTP, and MSTP		
	ERPS (G.8032)		
	LLDP/LLDP-MED		
	LACP (IEEE 802.3ad)		
IP Service	ARP		
	DHCP client, DHCP relay, and DHCP server		
	DHCP snooping		
	DNS		
	DHCPv6 client and DHCPv6 relay		
	DHCPv6 snooping		
	Neighbor Discovery (ND) and ND snooping		
IP Routing	Static routing		
	RIP and RIPng		
	OSPFv2, OSPFv3, IS-ISv4, ISv4, and IS-ISv6		
	BGP4 and BGP4+		
	IPv4 and IPv6 PBR		
	ECMP		
Multicast	IGMP v1/v2/v3, and IGMP proxy		
	IGMP v1/v2/v3 snooping		
	PIM-DM, PIM-SM, and PIM-SSM		
	MSDP		
	MLD v1/v2		
	MLD snooping v1/v2		
	PIM-SMv6 and PIM-SSM v6		

Software Specifications	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
ACL and QoS	Standard IP ACLs Extended IP ACLs Extended MAC ACLs Time-based ACLs Expert-level ACLs ACL80 IPv6 ACL		
	Port traffic rate limiting		
	Congestion management: RR, SP, WRR, DRR, WFQ, SP+WRR, SP+DRR, and SP+WFQ		
	Congestion avoidance: tail drop, RED, and WRED		
	802.1p/DSCP/ToS traffic classification Eight priority queues per port		
Security	Multiple AAA modes		
	RADIUS and TACAS+		
	Port-based and MAC-based 802.1x authentication		
	Web authentication		
	HTTPS		
	SSHv1, SSHv2		
	Global IP-MAC binding		
	IP source guard		
	SAVI		
	CPP and NFPP		
	Strict and loose RPF uRPF ignoring default routes		
Reliability	REUP, RLDP, DLDP		
	IPv4 VRRP v2/v3 and IPv6 VRRP		
	BFD		
	GR for RIP, OSPF, BGP		
	1+1 power redundancy		
	Hot swapping of power and fan modules		
Device virtualization	Virtual Switching Unit (VSU)		
NMS and maintenance	SPAN, RSPAN, and ERSPAN		
	sFLOW		

Software Specifications	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
NMS and maintenance	NTP and SNTP		
	FTP and TFTP		
	SNMP v1/v2/v3		
	RMON (1, 2, 3, 9)		
	NETCONF		
	CWMP (TR-069) standard protocol		
	gRPC		
	Cloud and SON		
PoE	IEEE 802.3af, 802.3at and 802.3bt Uninterruptible power supply upon hot start Port priority		

05
Protocol Compliance

RG-CS86 Series	
Organization	**Standards and Protocol**
IETF	RFC 1058 Routing Information Protocol (RIP) RFC 1157 A Simple Network Management Protocol (SNMP) RFC 1305 Network Time Protocol Version 3 (NTP) RFC 1349 Internet Protocol (IP) RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1583 OSPF Version 2 RFC 1591 Domain Name System Structure and Delegation RFC 1643 Ethernet Interface MIB RFC 1757 Remote Network Monitoring (RMON) RFC 1812 Requirements for IP Version 4 Router RFC 1901 Introduction to Community-based SNMPv2 RFC 1902-1907 SNMP v2 RFC 1918 Address Allocation for Private Internet RFC 1981 Path MTU Discovery for IP version 6 RFC 1997 BGP Communities Attribute RFC 2131 Dynamic Host Configuration Protocol (DHCP) RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2236 IGMP RFC 2328 OSPF Version 2 RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option RFC 2439 BGP Route Flap Damping RFC 2460 Internet Protocol, Version 6 Specification (IPv6) RFC 2461 Neighbor Discovery for IP Version 6 (IPv6) RFC 2462 IPv6 Stateless Address Auto configuration RFC 2463 Internet Control Message Protocol for IPv6 (ICMPv6) RFC 2545 Use of BGP 4 Multiprotocol Extensions for IPv6 Inter Domain Routing RFC 2571 SNMP Management Frameworks RFC 2711 IPv6 Router Alert Option RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol RFC 2863 The Interfaces Group MIB RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2918 Route Refresh Capability for BGP 4

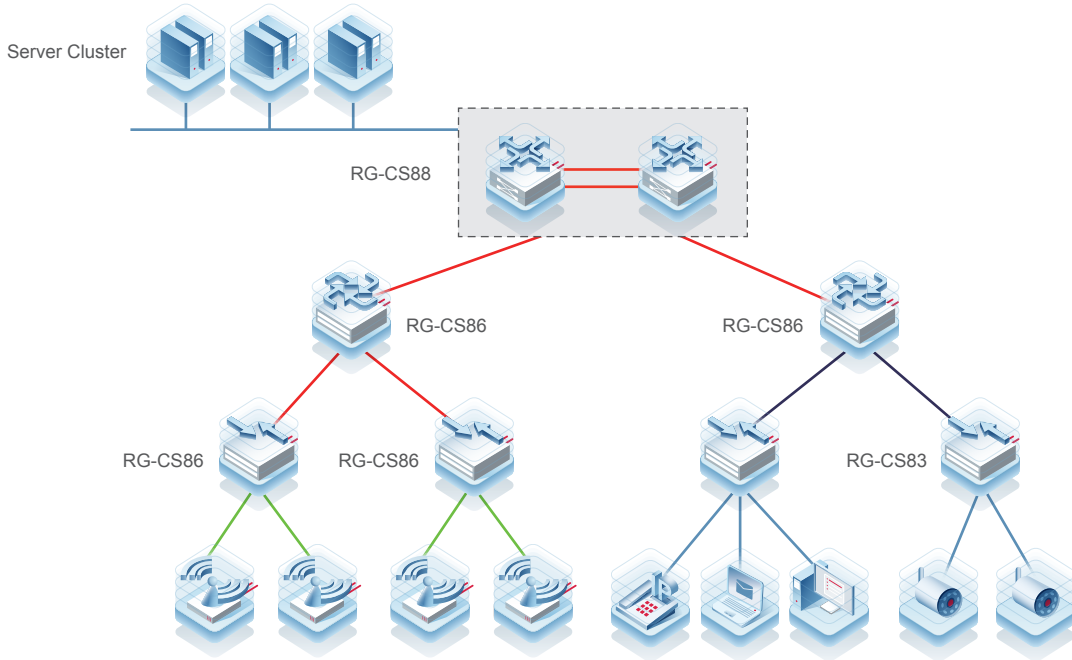| RG-CS86 Series	
Organization	**Standards and Protocol**
IETF	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3046 DHCP Option82 RFC 3065 Autonomous System Confederation for BGP RFC 3101 OSPF Not so stubby area option RFC 3137 OSPF Stub Router Advertisement sFlow RFC 3417 (SNMP Transport Mappings) RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3509 Alternative Implementations of OSPF Area Border Routers RFC 3513 IP Version 6 Addressing Architecture RFC 3575 IANA Considerations for RADIUS RFC 3579 RADIUS Support For EAP RFC 3623 Graceful OSPF Restart RFC 3768 VRRP RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 3973 PIM Dense Mode RFC 4022 MIB for TCP 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 4552 Authentication/Confidentiality for OSPFv3 RFC 4601 PIM Sparse Mode RFC 4607 Source Specific Multicast for IP 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 5065 Autonomous System Confederation for BGP RFC 5187 OSPFv3 Graceful Restart RFC 5340 OSPFv3 for IPv6 RFC 5424 Syslog Protocol RFC 5492 Capabilities Advertisement with BGP 4 RFC 5722 Handling of Overlapping IPv6 Fragments RFC 5798 VRRP RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification RFC 6020 YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF) RFC 6241 Network Configuration Protocol (NETCONF) RFC 6620 FCFS SAVI RFC 768 User Datagram Protocol (UDP) RFC 783 TFTP Protocol (revision 2) RFC 792 Internet Control Message Protocol (ICMP) RFC 793 Transmission Control Protocol (TCP) RFC 826 Ethernet Address Resolution Protocol (ARP) RFC 854 Telnet Protocol Specification RFC 959 File Transfer Protocol (FTP)

RG-CS86 Series	
Organization	**Standards and Protocol**
IETF	IEEE 802.2 Logical Link Control IEEE 802.1AB 2005 IEEE 802.1ab Link Layer Discovery Protocol IEEE 802.1ad Provider Bridges IEEE 802.1AX 2008 Link Aggregation IEEE 802.1ax/IEEE802.3ad Link Aggregation IEEE 802.1D MAC Bridges IEEE 802.1D Media Access Control (MAC) Bridges IEEE 802.1D Spanning Tree Protocol IEEE 802.1p Priority IEEE 802.1p Traffic Class Expediting and Dynamic Multicast Filtering IEEE 802.1Q Virtual Bridged Local Area Networks IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1x Port based network access control protocol IEEE Std 802.3 CSMA/CD IEEE Std 802.3ab 1000BASE-T specification IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE Std 802.3ae 10GE WEN/LAN Standard IEEE Std 802.3x Full Duplex and flow control IEEE Std 802.3z Gigabit Ethernet Standard

06
Typical Applications

- RG-CS86 series switches can be deployed at the access layer of a large-scale enterprise campus network to serve as PSE for high-power APs.

- RG-CS86 series switches provide abundant security management mechanisms to achieve robust network security defense, high-security access control, and effective network access control.

- RG-CS86 series switches adopt sound management policies for bandwidth management to guarantee the bandwidth required by voice, multicast audio and video services, video on demand, and other key services.

Scenario

RG-CS86 series switches can be deployed at the access or aggregation layer of a small- and medium-scale campus network. The 2.5GE/5GE/10GE Ethernet ports of the RG-CS86 can serve as member ports of a high-speed aggregate interface to achieve the link bandwidth of 10 Gbps or 25 Gbps at the aggregation layer and that of the 40 Gbps or 100 Gbps at the core layer. This meets the increasing needs for high-performance bandwidth.

07 Ordering Guide

Follow the steps to order a RG-CS86 multi-GE switch:

- Select a model of RG-CS86 series switches. The device is fully equipped with fan modules that do not need to be purchased separately.
- Select power modules based on switch models. At least one power module is required.
- Select optical modules based on optical interfaces of the switch.

Models marked with asterisks (*) in the ordering information are available later.

08 Ordering Information

Switch and Power Module

Model	Description
RG-CS86-24MG4VS-UP	24 x 100M/1000M/2.5GE/5GE electrical ports with auto-negotiation 4 x 10GE/25GE SFP28 ports ,support PoE/PoE+/PoE++ fixed AC power supply and fan
RG-CS86-48MG4VS2QXS-UPD	48 x 100M/1000M/2.5GE/5GE electrical ports with auto-negotiation 4 x 10GE/25GE SFP28 + 2 x 40GE QSFP + ports, support PoE/PoE+/PoE++(25-48 ports only support PoE/PoE+) 2 modular power supply slots (at least one RG-PA600I-P-F/ RG-PA1000I-P-F power module needed,no power module in default),3 modular fan slots (3 fan modules are equipped by default)
RG-CS86-24XMG4XS4VS-UPD	24 x 100M/1000M/2.5GE/5GE/10GE electrical ports with auto-negotiation, 4 x 1G/10GE SFP+ ports ,4 x 10G/25G SFP28 ports,support PoE/PoE+/PoE++ 2 modular power supply slots (at least one RG-PA600I-P-F or RG-PA1000I-P-F power module needed,no power module in default),3 modular fan slots (3 fan modules are equipped by default)

Model	Description
RG-PA600I-P-F	600 W AC power module
RG-PA1000I-P-F	1000 W AC power module

GE Optical Module

Model	Description
Mini-GBIC-GT	1000BASE-GT mini GBIC module

10GE Optical Module

Model	Description
XG-SFP-SR-MM850	10GE SR, SFP+ transceiver, LC, 850-nm wavelength, applicable to SFP+ port 62.5 μm/125 μm : 33 m over MMF 50 μm/125 μm: 66 m over MMF 2000 MHz·km: 300 m over MMF
XG-SFP-LR-SM1310	10GE LR, SFP+ transceiver, LC, 1310-nm wavelength, 10 km over SMF, applicable to SFP+ ports
XG-SFP-ER-SM1550	10GE ER, SFP+ transceiver, LC, 1550-nm wavelength, 40 km over SMF, applicable to SFP+ ports
XG-SFP-AOC1M	10GE SFP+ active optical cable, 1 m, including one cable and two interface modules
XG-SFP-AOC3M	10GE SFP+ active optical cable, 3 m, including one cable and two interface modules
XG-SFP-AOC5M	10GE SFP+ active optical cable, 5 m, including one cable and two interface modules

25GE Optical Module

Model	Description
VG-SFP-SR-MM850	25GE SR, SFP28, 850-nm wavelength, 100 m over MMF
VG-SFP-LR-SM1310	25GE LR, SFP28, 1310-nm wavelength, 10 km over SMF
VG-SFP-AOC5M	25GE SFP+ active optical cable, 5 m, including two modules

40GE Optical Module

Model	Description
40G-QSFP-SR-MM850	40GE SR, QSFP+ transceiver, applicable to QSFP+ ports OM3 and OM4 MMF, MPO, 8-core, 850-nm wavelength, 100 m over OM3 MMF or 150 m over OM4 MMF
40G-QSFP-LR4 SM1310	40GE LR4, QSFP+ transceiver, LC, 1310-nm wavelength, 2-core, 10 km over SMF, applicable to QSFP+ ports
40G-AOC-5M	40GE QSFP+ active optical cable, 5 m, including one cable and two interface modules
40G-AOC-10M	40GE QSFP+ active optical cable, 10 m, including one cable and two interface modules

09 Package Contents

Device	RG-CS86-24MG4VS-UP	RG-CS86-48MG4VS2QXS-UPD	RG-CS86-24XMG4XS4VS-UPD
Host	1	1	1
Power Cord	1	/	/
Nylon buckle	1	/	/
Mounting bracket	2	6 (Includes a front Mounting bracket and a rear Mounting bracket and a slide rail)	6 (Includes a front Mounting bracket and a rear Mounting bracket and a slide rail)
Rubber pad	4	4	4
Switches User Manual(L-Shape Rail Version)	/	1	1
Mounting Bracket Installation Guide	1	/	/
Warranty Manual and Network Product Hazardous Substance Statement	1	1	1
Cross recessed countersunk head screw, M4x8, GB819-85	8	14	14
Grounding wire	1	1	1
M6*16 screw	4	4	4
M6 Cage nut	4	4	4
Package dimensions (W x D x H)	568 × 366 × 226 mm (22.36 × 14.41 × 8.90 in)	563 × 563 × 210mm (22.17 × 22.17 × 8.27 in)	563 × 563 × 210mm (22.17 × 22.17 × 8.27 in)
Package weight	5.37 kg (11.84 lbs)	8.42 kg (18.56 lbs)	8.12 kg(17.90 lbs)

You can retrieve product supporting documents at *https://www.ruijienetworks.com/products.* Click **Support > Technical Documents**, and download the documents you need.

10 Warranty

For more information about warranty terms and period, contact your local sales agency:

- Warranty terms: *https://www.ruijienetworks.com/support/servicepolicy*
- Warranty period: *https://www.ruijienetworks.com/support/service_41*

Note: The warranty terms are subject to the terms of different countries and distributors.

11 More Information

For more information about Ruijie Networks, visit the official Ruijie website or contact your local sales agency:

- Ruijie Networks official website: *https://www.ruijienetworks.com/*

- Online support: *https://www.ruijienetworks.com/support*

- Hotline support: *https://www.ruijienetworks.com/support/hotline*

- Email support: *service_rj@ruijienetworks.com*

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Website: https://www.ruijienetworks.com