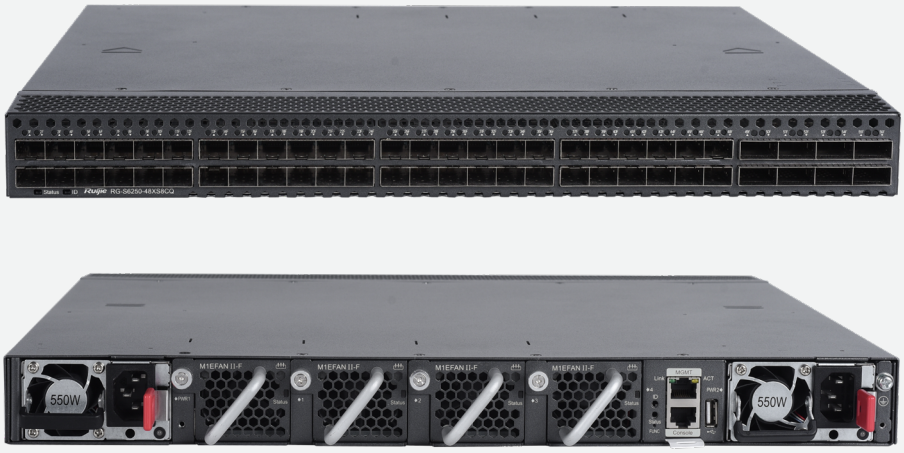


RG-S6250-48XS8CQ

Data Center 100GE DCI Access Switch

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Product Pictures



RG-S6250-48XS8CQ

Product Overview

The RG-S6250-48XS8CQ switch is a next-generation high-density 100GE switch released by Ruijie Networks for cloud data centers and high-end campus. An RG-S6250-48XS8CQ switch provides up to 48 x 10GE and 8 x 100GE ports. Each 100GE port supports 40GE/100GE auto-negotiation. The power supply module supports 1+1 redundancy and hot swapping. The fan module supports 3+1 redundancy and hot swapping.



Product Features

Non-Blocking Data Center Networks and Powerful Cache Capacity

The whole series of switches oriented towards next-generation data centers and cloud computing are line-rate products. In line with the development trend of East-West traffic of data centers, they apply to next-generation data centers featuring heavy traffic.

An RG-S6250-48XS8CQ switch provides up to 48 x 10GE ports and 8 x 100GE ports for uplink. All the ports can forward data at the line rate.

To meet the requirements for unblocking transmission of heavy-traffic data in data centers, the switch offers powerful cache capacity and uses the advanced cache scheduling mechanism.

Data Center Virtualization

The RG-S6250-48XS8CQ switch adopts the virtual switching unit (VSU) 2.0 technology to virtualize multiple physical devices into one logical device, which reduces network nodes and enhances network reliability. The RG-S6250-48XS8CQ switch implements fast switchover within 50 ms to 200 ms upon a link failure and ensures uninterrupted transmission of key services. The inter-device link aggregation feature implements dual active uplinks for access servers and switches.

Data Center Overlay Networking

The RG-S6250-48XS8CQ switch supports Virtual Extensible Local Area Network (VXLAN), thereby meeting the data center overlay networking requirements. This addresses the difficulty to expand traditional data center networks due to VLAN limit.

The basic network built by using the RG-S6250-48XS8CQ switch can be divided into new subnets based on the overlay technology, breaking through the limit on IP addresses and broadcast domains of physical networks.

Data Center Layer-2 Network Expansion

The VXLAN technology encapsulates layer-2 packets into User Datagram Protocol (UDP) packets, which enables the establishment of a logically layer-2 network on a layer-3 network. With the support for the Ethernet Virtual Private Network (EVPN) protocol, the RG-S6250-48XS8CQ switch automatically discovers and authenticates virtual tunnel endpoints (VTEPs), thereby reducing flooding on the VXLAN data plane and preventing VXLAN from relying on deployment of underlying multicast services. This simplifies VXLAN deployment and improves the large layer-2 network building efficiency to better meet the requirements of deploying a large layer-2 network in data centers.

Carrier-Class Reliability Protection

The RG-S6250-48XS8CQ switch is equipped with built-in redundant power supply modules and modular fan modules. All power supply modules and fan modules can be hot-swapped without affecting the normal running of the switch. The switch provides fault detection and alarm functions for power supply modules and fan modules. It automatically adjusts the fan speed based on temperature changes, better adapting to the environment in data centers. The switch also supports device-level and link-level reliability protection as well as overcurrent protection, overvoltage protection, and overheating protection.

In addition, the switch integrates various link reliability mechanisms such as Rapid Ethernet Uplink Protection Protocol (REUP), quick link switching, graceful restart (GR), and bidirectional forwarding detection (BFD). When multiple services and heavy traffic are carried over the network, these mechanisms can reduce the impact of exceptions on network services and enhance overall reliability.

IPv4/IPv6 Dual-Stack Protocols and Multilayer Switching

The hardware of the RG-S6250-48XS8CQ switch supports IPv4 and IPv6 protocol stacks and multilayer line-rate switching. The hardware differentiates and processes IPv4 and IPv6 packets. The switch also supports multiple tunneling technologies such as manually configured tunnels, automatic tunnels, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels. Users can flexibly work out IPv6 inter-network communication solutions by using this switch based on IPv6 network

planning and network status quo.
The RG-S6250-48XS8CQ switch supports numerous IPv4 routing protocols, including static routing, Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), and Border Gateway Protocol version 4 (BGP4). Users can select routing protocols based on network environments to flexibly set up an IPv4 network.
The switch also supports abundant IPv6 routing protocols, including static routing, Routing Information Protocol next generation (RIPng), OSPFv3, and BGP4+. Users can select routing protocols to upgrade an existing network to an IPv6 network or build a new IPv6 network.

Flexible and Complete Security Policies

The RG-S6250-48XS8CQ switch effectively defends against virus spread and hacker attacks by using multiple inherent mechanisms such as DoS attack prevention, IP scanning prevention, validity check of port ARP packets, and multiple hardware-based ACL policies.
The hardware-based IPv6 ACL can easily control the access of IPv6 users at the network boundary even if there are IPv6 users on an IPv4 network. The switch allows the coexistence of IPv4 and IPv6 users and can control access permissions of IPv6 users, for example, restricting access to sensitive resources on the network.
The switch supports Telnet access control based on source IP addresses, which can prevent unauthorized users and hackers from maliciously attacking and controlling the switch, thereby enhancing network management security. Through the Secure Shell (SSH) and Simple Network Management Protocol version 3 (SNMPv3), the switch can encrypt management information in the Telnet and SNMP processes, thereby ensuring information security of management devices and preventing hackers from attacking and controlling the devices.
The switch rejects unauthorized network access and enables authorized users to use networks properly by employing multi-element binding, port security, time-based ACL, and data stream-based rate limit. It can strictly control user access to enterprise networks and campus networks and restrict the communication of unauthorized users.

All-Round Management Performance

The switch provides various management ports such as the Console port, management port, and USB port, and supports SNMP v1/v2c/v3 as well as universal network management platform and service management software such as BMC. It supports CLI-based management, Telnet, and cluster management, which facilitates switch management. The supported encryption modes such as SSH2.0 and SSL ensure more secure management.
In addition, the switch supports the Switched Port Analyzer (SPAN)/Remote Switched Port Analyzer (RSPAN) and multiple mirroring destination ports. It can analyze network traffic and take proper management and maintenance measures accordingly, visualizing the service traffic on a network. The switch provides various network traffic analysis reports so that users can optimize the network structure and adjust resource deployment in a timely manner.

Product Specifications

Hardware Specifications

Specifications

System Specifications	RG-S6250-48XS8CQ
Ports	48 x 10GE ports and 8 x 100GE ports
Expansion Modules	Power supply module slots Fan module slots
Management Port	One management port, one console port, and one USB port (compliant with the USB2.0 standard)

System Specifications	RG-S6250-48XS8CQ
Switching Capacity	2.56Tbps
Packet Forwarding Rate	1920Mpps
802.1Q VLAN	4094

Dimensions and Weight

Dimensions and Weight	RG-S6250-48XS8CQ
Dimensions (W × D × H)	442 mm × 387 mm × 44 mm (17.40 in. x 15.24 in. x 1.73 in.), 1 RU
Weight	8 kg (17.64 lbs., including two power supply modules and four fan modules)

Power Supply and Consumption

Power Supply and Consumption	RG-S6250-48XS8CQ
AC	Rated voltage range: 100 V AC to 240 V AC Maximum voltage range: 90 V AC to 264 V AC Frequency: 50 Hz to 60 Hz Rated input current: 3.5 A to 7.2 A
High-Voltage DC (HVDC)	Input voltage range: 192 V DC to 288 V DC Rated input current: 3.6 A
Low-Voltage DC (LVDC)	Input voltage range: –42 V DC to –72 V DC Rated input voltage: –48 V DC Rated input current: 23 A
Maximum Power Consumption	300 W

Environment and Reliability

Environment and Reliability	RG-S6250-48XS8CQ
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)

Environment and Reliability	RG-S6250-48XS8CQ
Operating Humidity	10% to 90% RH (Non-condensing)
Storage humidity	5% to 95% RH (non-condensing)
Working altitude	Operating altitude: up to 5000 m (16,404.20 ft.) Storage altitude: up to 5000 m (16,404.20 ft.)

Software Specification

Software Specification	RG-S6250-48XS8CQ
L2 Protocols	IEEE802.3ad (Link Aggregation Control Protocol), IEEE802.1p, IEEE802.1Q, IEEE802.1D (STP), IEEE802.1w (RSTP), IEEE802.1s (MSTP), IGMP Snooping, MLD Snooping, Jumbo Frame (9 KB), IEEE802.1ad (QinQ and selective QinQ), and GVRP
L3 Protocols (IPv4)	BGP4, OSPFv2, RIPv1, RIPv2, MBGP, LPM Routing, Policy-based Routing, Routing Policy, ECMP, WCMP, VRRP, IGMP v1/v2/v3, PIM-SSM/SM/DM, MSDP, and Any-RP
Basic IPv6 Protocols	Neighbor Discovery, ICMPv6, Path MTU Discovery, DNSv6, DHCPv6, ICMPv6, ICMPv6 redirection, ACLv6, TCP/UDP for IPv6, SNMP v6, Ping/Traceroute v6, IPv6 RADIUS, Telnet/SSH v6, FTP/TFTP v6, NTP v6, IPv6 MIB support for SNMP, VRRP for IPv6, and IPv6 QoS
IPv6 Features	Static routing, ECMP, PBR, OSPFv3, RIPng, BGP4+, MLD v1/v2, PIM-SMv6, manual tunnel, automatic tunnel, IPv4 over IPv6 tunnel, and ISATAP tunnel
ACL	Standard IP-based ACL、Extended MAC/IP-based ACL、Expert-level ACL、ACL 80、IPv6 ACL、When the same ACL is applied to different physical interfaces or SVIs, resources can be multiplexed.、ACL Logging、ACL Counter (Ingress and egress counters are supported in interface or global configuration modes)、ACL Re-marking、Global ACL、ACL-based Redirection、Displaying ACL Resources、Processing First Packet of TCP Handshake When Binding the ACL to Restrict SIP、Matching Against 5-Tuple of Pass-by VXLAN Inner IP Packets、 The expert-level ACL supports matching the IP flag and DSCP fields of VXLAN inner packets、Ingress/Egress ACLs
Multicast	IGMPv1, v2, v3、IGMP Host Behavior、Member Query and Response、Querier Election、IGMP Proxy、Multicast Static Routing、MSDP、PIM-DM、PIM-SM、PIM-SSM、Enabling PIM on Layer-3 Subinterface、PIM-SMv6、MLD v1 and v2、MLD Proxy、Enabling PIMv6 on Layer-3 Subinterface
Data Center Features	VXLAN routing and VXLAN bridging IPv6 VXLAN over IPv4 EVPN VXLAN PFC and ECN M-LAG OpenFlow 1.3
Visualization	gRPC sFlow sampling

Software Specification	RG-S6250-48XS8CQ
QoS	802.1p, DSCP, and ToS priority mapping ACL-based traffic classification Priority marking and remarking Queue scheduling mechanisms, including SP, WRR, DRR, SP+WRR, and SP+DRR Congestion avoidance mechanisms, including WRED and trail drop
MPLS	* MPLS VPN
Virtualization	Virtual Switching Unit (VSU)
Cache Management	Cache status monitoring and traffic microburst identification
HA Design	GR for RIP/OSPF/BGP, BFD, DLDP, REUP dual-link fast switching, RLDP unidirectional link detection, 1+1 power redundancy, fan redundancy, and hot swapping for all line cards and power supply modules
Security Features	Network Foundation Protection Policy (NFPP), CPU Protection Policy (CPP), DDoS attack defense, unauthorized data packet detection, data encryption, source IP spoofing prevention, IP scanning prevention, RADIUS/TACACS, IPv4/v6 packet filtering by basic ACL, extended ACL or VLAN-based ACL, plaintext-based and MD5 authentication for OSPF, RIPv2, and BGPv4 packets, Telnet login and password mechanisms for restricted IP addresses, uRPF, broadcast packet suppression, DHCP Snooping, ARP spoofing prevention, ARP check, and hierarchical user management
Management Modes	SNMP v1/v2c/v3, Telnet, Console, MGMT, RMON, SSH v1/v2, FTP/TFTP, NTP, Syslog, SPAN/RSPAN/ERSPAN, Telemetry, ZTP, NETCONF, Python, fan and power supply alarming, and over-temperature alarming
Other Protocols	DHCP Client, DHCP Relay, DHCP Server, DNS Client, UDP Relay, ARP Proxy, and Syslog

* indicates that the feature will be supported in the future.

Safety and Regulatory Compliance

Specification	RG-S6250-48XS8CQ
Safety	• IEC 62368-1 • EN 62368-1 • NM EN 62368-1 • NM CEI 62368-1 • EN IEC 62368-1 • BS EN IEC 62368-1 • UL 62368-1 • CSA C22.2#62368-1 • GB 4943.1

Specification	RG-S6250-48XS8CQ
Electromagnetic Compatibility (EMC)	• EN 55032 • EN 55035 • EN IEC 61000-3-2 • EN IEC 61000-3-3 • EN 61000-3-3 • EN 300 386 • ETSI EN 300 386 • NM EN 55035 • NM EN CEI61000-3-2 • NM EN 61000-3-3 • CNS 13438 • FCC CFR Title 47, Part 15, Subpart B • ANSI C63.4-2014 • ICES-003 Issue 7 • GB/T 9254.1
Environment	• 2011/65/EU EN 50581 • 2012/19/EU EN 50419 • (EC) No.1907/2006 • GB/T 26572

*For more country-specific regulatory information and approvals, contact your local sales agency.

Configuration Guide

Take the following steps to configure an RG-S6250-48XS8CQ switch:

- Select the chassis.
- Select the fan and power supply modules.
- Select expansion modules based on service requirements.
- Select optical transceivers based on port requirements.

Ordering Information

Chassis, Fan, and Power Supply Modules

Product Model	Description
RG-S6250-48XS8CQ	48 x 10GE ports and 8 x 100GE ports, supporting hot swapping Two power supply module slots and four fan module slots Power supply modules: RG-PA550I-F and RG-PD800I-F Fan module: M1EFAN II-F
RG-PA550I-F	550 W power supply module (AC and 240 V HVDC)

Product Model	Description
RG-PD800I-F	800 W power supply module (48 V LVDC)
M1EFAN II-F	Fan module, supporting 3+1 redundancy, hot swapping, and front-to-rear airflow

100GBASE Series Optical Modules

Product Model	Description
100G-QSFP-SR-MM850	100G SR module, QSFP28 form factor, MPO, 850 nm, 100 m (328.08 ft.) over MMF
100G-QSFP-LR4-SM1310	100G LR4 module, QSFP28 form factor, Duplex LC, 1310 nm, 10 km (32,808.40 ft.) over SMF
100G-QSFP-iLR4-SM1310	100G iLR4 module, QSFP28 form factor, Duplex LC, 1310 nm, 2 km (6,561.68 ft.) over SMF

40GBASE Series Optical Modules

Product Model	Description
40G-QSFP-SR-MM850	40G SR module, QSFP+ form factor, MPO, 150 m (492.13 ft.) over MMF
40G-QSFP-LSR-MM850	40G LSR module, QSFP+ form factor, MPO, 400 m (1,312.34 ft.) over MMF
40G-QSFP-LR4-SM1310	40G LR4 module, QSFP+ form factor, Duplex LC, 10 km (32,808.40 ft.) over SMF

10GBASE Series Optical Modules

Product Model	Description
XG-SFP-SR-MM850	10G SR module, QSFP+ form factor, Duplex LC, 300 m (984.25 ft.) over MMF
XG-SFP-LR-SM1310	10G LR module, QSFP+ form factor, Duplex LC, 10 km (32,808.40 ft.) over SMF
XG-SFP-ER-SM1550	10G ER module, QSFP+ form factor, Duplex LC, 40 km (131,233.60 ft.) over SMF
XG-SFP-ZR-SM1550	10G ZR module, QSFP+ form factor, Duplex LC, 80 km (262,467.19 ft.) over SMF

For more information about optical transceiver compatibility, refer to *Ruijie RG-S6200 Series Data Center Switches Optical Transceiver Compatibility Matrix*.

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/servicepolicy/Service-Support-Summany/

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

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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