Next-Generation Integrated Switch
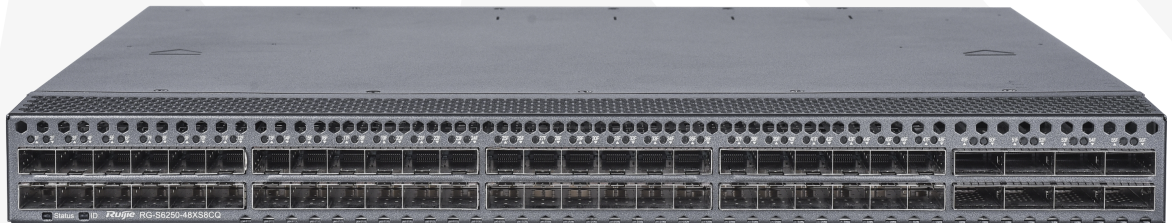
RG-S6250-48XS8CQ Datasheet

Ruijie Networks Co., Ltd.

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Overview

Ruijie RG-S6250-48XS8CQ switches are data center oriented high density 10G access switches. An RG-S6250-48XS8CQ switch provides 48 10G ports and 8 100G ports with each 100G port being 100G and 40G auto-sensing. In addition, both its power supply and fan modules are hot-swappable, supporting 1+1 and 3+1 redundancy respectively.

Features

Non-Blocking Switching and Strong Caching Capacity

One RG-S6520-48XS8CQ switch is equipped with 48 10G ports and 8 100G ports, all of which are capable of wire speed forwarding.

What's more, featuring strong caching capacity, RG-S6250-48XS8CQ supports advanced buffer caching mechanisms, ensuring effective usage of devices' caching potentials.

Virtualization for Data Center

The RG-S6250-48XS8CQ supports the Virtual Switch Unit 2.0 (VSU). The technology can virtualize 2 devices into one logical unit, which largely minimizes the number of network nodes and reduce maintenance workload. Superior 50~200ms link failover ensures smooth and uninterrupted transmission of key services. The RG-S6250-48XS8CQ switch supports cross-device link aggregation for easy double uplink to server/switch, effectively maximizing bandwidth investment return.

Overlay Network for Data Center

The VXLAN-supporting RG-S6250-48XS8CQ switch meets requirements in building Overlay networks in a data center. Therefore, users would not be confronted with problems such as insufficient VLANs and poor scalability.

Based on the fundamental structure of this RG-S6250 model, new subnetworks can be divided in Overlay networks without changing the physical typology. So, the restrictions posed by IP address of physical networks and multicast domains are eliminated.

L2 Network Expansion for Data Center

By encapsulating L2 packets in UDP tunnel packets, the VXLAN technology establishes a logical L2 network on the basis of L3 network. The RG-S6250-48XS8CQ supports EVPN and is able to recognize and authenticate VTEPs automatically. In this way, data flooding in VXLAN is decreased and VXLAN's reliance on multicast deployed in the bottom layer is lessened. Also, simplified VXLAN deployment boosts L2 networking building efficiency in data centers.

Hardware-based Traffic Visualization

Based on the hardware capacities of the chip, peer-to-peer traffic visualization is realized in complicated networks with multiple routes and nodes. Routes and delays of every session are monitored, increasing the fault locating efficiency by 10 times.

Carrier-class Reliability

The RG-S6250-48XS8CQ switch supports redundancy of power supply modules and fans. And all power supply modules and fans are hot-swappable. Plus, fault detection and alarming are provided for power supply modules and fans. Fans' speeds are automatically adjusted to better adapt to data center environments.

A variety of device-centered protections are designed, including overcurrent protection, overvoltage protection and overheat protection.

Abundant protections are also provided for links, like Rapid Ethernet Uplink Protection (REUP), Graceful Restart (GR), and Bidirectional Forwarding Detection (BFD). Hence, services are never interrupted because network convergence performance is not compromised even when multiple services and mass flows surge.

Dual Stack of IPv4 and IPv6

The RG-S6250-48XS8CQ switch supports IPv4 and IPv6 protocol stacks. IPv4 and IPv6 protocol packet are distinguished and processed by hardware. Because of support for tunnel technologies (such as manual tunnel, auto tunnel, as well as ISATAP tunnel), flexible inter-IPv6 network communication solutions can be delivered according to demand planning and status quo of IPv6 networks.

Plenty of IPv4 routing protocols are supported, including static routing, RIP, OSFP, IS-IS and BGP4, which offers flexible network building choices to users in different network environments.
A wide range of IPv6 routing protocols are supported, like static routing, RIPng, OSPFv3 and BGP4+. This contributes to flexible routing protocol selection when building new IPv6 networks or upgrading available networks to IPv6 ones.

Comprehensive Security Policies

Virus and hack attacks are effectively blocked by internal mechanisms to prevent DoS attacks, scan Hackers' IP addresses, check validity of ARP packets on ports and enable various hardware-based ACL policies.

The RG-S6250-48XS8CQ switch supports hardware-based IPv6 ACLs. Therefore, in an IPv4 network, access control can also be applied to IPv6 users at the network edge, and coexistence of IPv4 and IPv6 users is allowed.

Telnet access control based on source IP address stops illegal users and hackers attacking and controlling devices, strengthening security for network management of devices. SSH and SNMPv3 encrypt management information via Telnet and SNMP processes, which improves safety of device management information.

The RG-S6250-48XS8CQ switch bans illegal users from using network resources and guarantees fair use from legal users. Access control are enhanced and un-authorized users' communication is restricted by such policies as multiple element binding, port security, time-based ACLs, and bandwidth speed limit based on data flow.

High Manageability

Many ports are supported for management, like Console, MGMT and USB ports. Also, users can operate management through SNMPv1/v2/v3 and service management software, including general platforms for network management and BMC. Support for CLI, Telnet and cluster management facilitates device management. Besides, management security is boosted by supported encryption methods, such as SSH2.0 and SSL.

The RG-S6250-48XS8CQ switch supports SPAN/RSPAN mirroring and provides ports to observe mirroring. As a consequence, proper maintenance can be made according to analysis of network data. Traffic consumed by network services is visualized by generating diversified analysis reports, thus helping users conduct timely optimization of network structure and adjustment of resource deployment.

Technical Specifications

Model	RG-S6250-48XS8CQ
Port	48 10G ports, 8 100G ports
Slot for Expansion Module	Slots for power supply modules Slots for fan modules
Management Port	1 MGMT port, 1 Console port, 1 USB2.0 port
Switching Capacity	4.0T/40T
Forwarding Rate	1920Mpps
802.1q VLAN	4K
L2 Protocol	IEEE802.3ae (10GBase) , IEEE802.3ak, IEEE802.3an , IEEE802.3x, IEEE802.3ad (link aggregation) , IEEE802.1p, IEEE802.1x, IEEE802.1Q, IEEE802.1D (STP) , IEEE802.1w (RSTP) , IEEE802.1s (MSTP) , IGMP Snooping , Jumbo Frame(9Kbytes), IEEE802.1ad (QinQ, flexible QinQ) , GVRP
L3 Protocol (IPv4)	BGP4, OSPFv2, RIPv1, RIPv2, MBGP, LPM Routing, Policy-based Routing, Route-policy, ECMP, WCMP, VRRP, IGMP v1/v2/v3, DVMRP, PIM-SSM/SM/DM, MSDP, Any-RP
IPv6 Baisc Protocol	ND (Neighbor Discover) , ICMPv6, Path MTU Discovery, DNSv6, DHCPv6, ICMPv6, ICMPv6 re, 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, IPv6 QoS
IPv6 Features	Static routing, Equal-Cost Multipath (ECMP) routing, Policy routing OSPFv3, RIPng, BGP4+, MLDv1/v2, PIM-SMv6, manual tunnel, auto tunnel, IPv4 over IPv6 tunnel, ISATAP tunnel
Data Center Features	PFC, ECN RDMA VXLAN routing, VXLAN bridging EVPN VXLAN OpenFlow 1.3
Visualization	GRPC sFLOW sampling
QoS	802.1p, DSCP, ToS, EXP priority mapping, ACL traffic classification, Priority Mark/Remark，Queue scheduling mechanisms (SP, WRR, DRR, SP+WRR, and SP+DRR)

Model	RG-S6250-48XS8CQ
Virtualization	VSU (Virtualizing multiple devices to one logical device)
Cache Management	Monitoring and managing cache status, recognizing minor traffic emergencies
High Reliability	GR for RIP/OSPF/BGP, BFD detection, rapid switchover between dual REUP links, RLDP unidirectional link detection, power supply 1+1 redundancy, fan redundancy, all cards and power supply modules hot-swappable
Security Features	Network Foundation Protection Policy (NFPP), CPP, anti-DdoS attack, invalid packet detection, data encryption, anti-source IP spoofing, IP scanning, RADIUS/TACACS, IPv4/v6 ACL packet filtering based on standard and expended ACLs and VLANs, plaintext and MD5 encrypted text authentication for OSPF, RIPv2 and BGPv4 packets, Telnet login and password mechanism for restricted IP addresses, uRPF, broadcast packet suppression, DHCP Snooping, anti-gateway ARP spoofing, ARP Check
Manageability	SNMP v1/v2/v3, Telnet, Console, MGMT, RMON, SSHv1/v2, FTP/TFTP file upload/download management, NTP clock, Syslog, SPAN/RSPAN/ERSPAN, Telemetry
Other Protocols	DHCP Client, DHCP Relay, DHCP Server, DNS Client, UDP relay, ARP Proxy, Syslog
Dimensions (W x D x H)	442mm x 387mm x 44mm (1U)
Operating Temerature	0°C to 45°C (32°F to 113°F)
Operating Humidity	10% to 90% RH (non-condensing)
Weight	≈ 8 kg (including 2 power supply modules and 4 fan modules)
Max Power	< 300W
Input Voltage — AC	Rated voltage range: 100~240VAC Max voltage range: 90~264VAC Frequency: 50~60Hz Rated input current: 7.2A-3.5A
Input Voltage — HVDC	Input voltage range: 192-288VDC Input current range: 3.6A

Ordering Information

1. Host, Expansion Card, Fan, and Power Supply Module

Model	Descruption
RG-S6250-48XS8CQ	48 10G ports, 8 100G ports, hot-swappable hardware 2 slots for power supply modules (RG-PA550I-F), 4 slots for fans (M1EFAN II-F)
RG-PA550I-F	Power supply module for RG-S6250, 1+1 redundancy, hot-swappable, front-to-back ventilation
M1EFAN II-F	Fan module for RG-S6250, 3+1 redundancy, hot-swappable, front-to-back ventilation

2. 10G and 40G Fiber Module

Model	Descryption
40G-QSFP-SR-MM850	40G SR fiber module, applicable to QSFP+ ports (OM3/OM4 MPO interface, 8 core, 850nm wave length, max cabling distance: 100m(OM3), 150m(OM4))
40G-QSFP-LSR-MM850	40G SR fiber module, applicable to QSFP+ ports (OM3/OM4 MPO interface, 8 or 12 core, 850nm wave length, max cabling distance: 300m(OM3), 400m(OM4))
40G-QSFP-LR4-SM1310	40G LR single-mode fiber module, applicable to QSFP+ ports, max cabling distance:10km (LC interface, 2 core, 1310nm wave length)
XG-SFP-SR-MM850	10G SP fiber module, applicable to SFP+ ports, max cabling distance: 300m
XG-SFP-LR-SM1310	10G SP fiber module, applicable to SFP+ ports, max cabling distance: 10km
XG-SFP-ER-SM1550	10G SP fiber module, applicable to SFP+ ports, max cabling distance: 40km
XG-SFP-ZR-SM1550	10G SP fiber module, applicable to SFP+ ports, max cabling distance: 80km

3. 100G Fiber Module

Model	Descryption
100G-QSFP-SR-MM850	100G SR fiber module, QSFP28 encapsulation, MPO interface, 850nm wave length, max cabling distance: 100m(OM4), 70m (OM3)
100G-QSFP-iLR4-SM1310	100G iLR fiber module, QSFP28 encapsulation, LC interface, 1310nm wave length, max cabling distance: 2km (SMF)
100G-QSFP-LR4-SM1310	100G LR fiber module, QSFP28 encapsulation, LC interface, 1310nm wave length, max cabling distance: 10km (SMF)

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