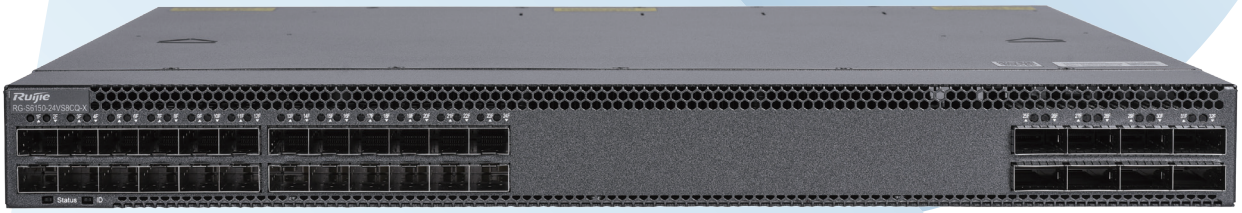

RG-S6150-X Series

Next-Generation High-Performance Switches

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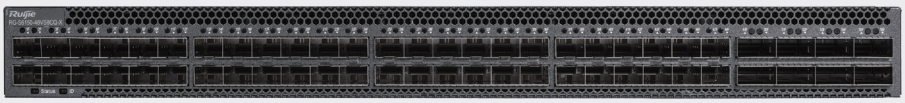
Product Pictures

RG-S6150-24VS8CQ-X



RG-S6150-48VS8CQ-X

Product Overview

RG-S6150-X series switches are high-performance multi-service 10GE Ethernet switches designed by Ruijie Networks for next-generation integrated networks. They integrate abundant features of campuses and data centers. With the advanced hardware architecture and Ruijie latest modular OS, the RG-S6150-X can provide faster hardware processing and better operation experience.

The RG-S6150-X provides flexible access services through 1GE/10GE/25GE optical ports (25GE capable with a license). It can be connected to uplink devices through high-performance 40GE/100GE ports, fully meeting users' requirements for high-density access and high-performance aggregation.

The RG-S6150-X provides robust performance, sound end-to-end service quality, and rich security functions for the aggregation layer of a large-sized network, the core layer of a small- or medium-sized network, and the access layer of data center servers. They can meet requirements of enterprise networks for high speed, security, and intelligence. They lay a foundation for high-performance networks that support IoT service lifecycle management, mobility applications, and cloud applications.

With Ruijie's network solution, the RG-S6150-X can uniformly migrate wired and wireless users, and policies. That is, even if a user location is relocated, the RG-S6150-X delivers consistent policy and experience.

Product Highlights

- Supports Virtual Switch Unit (VSU), which allows flexible networking.
- Provides 10GE optical ports, and uses eight 40GE/100GE ports to connect to uplink devices.
- Uses advanced hardware architecture to deliver faster hardware processing and better experience with RGOS modular operating system.
- Integrates diverse campus and data center features, and supports comprehensive QoS policies.
- Offers various Layer 3 routing functions to cope with multiple services and guarantee highly-efficient data transmission.
- Provides Virtual Extensible LAN (VXLAN), which can be used to build a logical Layer 2 network over a Layer 3 network through software upgrade.
- Employs various network security policies and provides real-time monitoring to ensure network robustness.
- Is used with the SDN controller to implement simplified O&M and highly-efficient management.
- Uses RGOS modular operating system to provide more entries, faster hardware processing, and better operation experience.
- Provides open and programmable RGOS 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.

Product Features

High Performance and Scalability

The RG-S6150-X series switches flexibly provide access services at multiple rates (1GE/10GE/25GE) on ports. Each switch of the RG-S6150-X series provides eight 40GE/100GE optical ports, which can be selected as needed and fully meet deployment requirements for the aggregation layer of large-sized networks, the core layer of small- and medium-sized networks. The RG-S6150-X series switches provide large table capacity. The capacity is 2 to 3 times larger than that of the fixed aggregation switch.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The RG-S6150-X hardware supports both IPv4 and IPv6 dual stacks, as well as multi-layer line-rate switching in order to differentiate and process packets of each protocol effectively. With flexible IPv6 network communication solutions, the RG-S6150-X can meet various IPv6 network demands such as planning or maintenance. The RG-S6150-X supports a wide range of IPv4 routing protocols, covering IPv4 static routing, RIP, OSPFv2, IS-ISv4, and BGP4. Fitting for different network environments, one can select appropriate routing protocols for flexible network building. Additionally, the RG-S6150-X also supports abundant IPv6 routing protocols such as IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+. These protocols can be flexibly selected to either upgrade an existing network to IPv6 or establish a new one.

VSU

The RG-S6150-X supports Virtual Switching Unit (VSU). VSU enables multiple physical devices to be connected through aggregate links and virtualized into one logical device. By using the same IP address, Telnet process, and CLI for

management, along with automatic version check and configuration, network administrators can manage just one logical device, thereby enhancing work efficiency.
Aggregate links can be 40GE/100GE interfaces, which can maximize the return on investment (ROI). The maximum stacking bandwidth is 800 Gbps.

Simplified management: The network administrator can manage multiple switches uniformly because there is no need to connect separately to each switch for configuring and managing them.

Simplified network topology: A VSU serves as a switch within a network and eliminates Layer 2 loops and MSTP configurations by connecting peripheral devices through aggregate links. Various control protocols can run on the VSU.

Fault rectification 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 50 ms to 200 ms.

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

VXLAN

The RG-S6150-X hardware supports VXLAN, which can be used to build a logical Layer 2 network over a Layer 3 network through software upgrade. It is fit for mobile network and IoT deployment of a large-scale campus network.

Sound Security Protection Policies

The RG-S6150-X 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 RG-S6150-X 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-S6150-X provides a unique hardware CPU protection mechanism: CPU Protection Policy (CPP). CPP enables the RG-S6150-X to classify data traffic sent to the CPU, process the traffic by queue priority, and apply the rate limit to traffic as required. 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-S6150-X 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-S6150-X to receive DHCP Response messages only from trusted ports, preventing spoofing from unauthorized DHCP servers. With DHCP snooping, the RG-S6150-X 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 RG-S6150-X also supports access control through source IP address-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 RG-S6150-X 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 RG-S6150-X 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. It can strictly control user access to enterprise networks and campus networks and restrict the communication of unauthorized users.

High Reliability

The RG-S6150-X supports STP (IEEE 802.1D), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) to achieve fast convergence, improve the fault tolerance capability, and ensure stable network operation and link load balancing. It effectively utilize network channels to improve utilization of redundant links.

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

The Rapid Link Detection Protocol (RLDP) enables the RG-S6150-X to quickly detect link connectivity and unidirectional optical links. The port loop detection function helps the RG-S6150-X to prevent network failures caused by loops due to unauthorized port connections with hubs.

The RG-S6150-X supports the Ethernet Ring Protection Switching (ERPS) technology, which is a Layer 2 link redundancy protocol designed for the core Ethernet. The control device blocks loops and restores links, and non-control devices directly report their link status to the control device, without processing from other non-control devices. Therefore, loop elimination and service recovery time of ERPS is faster than that of STP. ERPS implements link restoration within milliseconds.

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

The RG-S6150-X 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 upper-level protocols upon link status changes.

The RG-S6150-X supports dual-boot at the hardware level, which uses two flash chips to store the boot software (system boot program) to achieve hardware-level boot redundancy and to avoid the switch boot failure due to the flash chip fault.

Powerful Multi-Service Support

The RG-S6150-X supports 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). It provides multicast service support for IPv4 networks, IPv6 networks, and IPv4 and IPv6 networks.

IGMP source port check and source IP address check supported by the RG-S6150-X can effectively eliminate unauthorized multicast sources and enhance network security.

The RG-S6150-X supports a variety of Layer 3 features and service features, such as equal-cost multi-path routing (ECMP), meeting different communication requirements.

Sound QoS Policies

The RG-S6150-X can classify and control various flows, such as MAC flows, IP flows, and application flows, to implement different policies such as fine-grained bandwidth control and forwarding priority. In this way, it provides differentiated services based on applications and characteristics of service quality required by the applications.

It provides QoS guarantee based on the DiffServ model, and can filter traffic based on 802.1p priorities and IP ToS values, and from Layer 2 to Layer 7. It supports SP, WRR, and other QoS policies.

Energy Efficiency

The RG-S6150-X series switches adopt the next-generation hardware architecture, advanced energy-efficient circuit design and components, to reduce energy consumption and noise. It is equipped with variable-speed axial fan modules to intelligently control the fan speed based on the ambient temperature. This reduces power consumption and noise while ensuring stable operation of the switch.

Easy Network Maintenance

The RG-S6150-X supports routine network diagnosis and maintenance based on SNMP, RMON, Syslog, and USB-based backup log and configuration. 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.

The RG-S6150-X supports OpenFlow and NETCONF, and allows the entire network to be smoothly upgraded to the software-defined networking (SDN) network. This substantially reduces network maintenance costs while greatly simplifying network management.

gRPC-based telemetry enables the RG-S6150-X to periodically collect information about the CPU, memory, and other components.

Product Specifications

Hardware Specifications

Port Specifications

Port specifications	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Fixed service port	24 x 1GE/10GE/25GE SFP28 ports (25GE capable with a license) 8 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)	48 x 1GE/10GE/25GE SFP28 ports (25GE capable with a license) 8 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)
Module slot	2 x power module slots 4 x fan module slots	2 x power module slots 4 x fan module slots
Power module	RG-PA550I II-F	RG-PA550I II-F
Fan module	M1EFAN II-F (pre-installed 4)	M1EFAN II-F (pre-installed 4)
Fixed management port	1 x RJ45 console port 1 x RJ45 MGMT port	1 x RJ45 console port 1 x RJ45 MGMT port
USB	1 x USB 2.0 port	1 x USB 2.0 port

System Specifications

System specifications	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
System switching capacity [*1]	2.8 Tbps	4 Tbps
CPU	Quad-core CPU, each core with the clock speed of 2.2 GHz	Quad-core CPU, each core with the clock speed of 2.2 GHz
Real-time clock (RTC)	Supported	Supported
BootROM	16 MB	16 MB
Flash memory	8 GB	8 GB
Memory	4 GB DDR4	4 GB DDR4
Switch buffer	35 MB	35 MB
Number of MAC addresses	Number of global MAC addresses: 128,000 (default) Number of static MAC addresses: 10,000	
ARP table size	96,000 (default)	
ND table size	80,000 (default)	
Number of IPv4 unicast routes	350,000 (default)	

System specifications	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Number of IPv4 multicast routes	4,000	
Number of IPv6 unicast routes	65,000 (default)	
Number of IPv6 multicast routes	2,000	
Number of ACEs	Ingress: 28,000 Egress:4,000	
Number of IGMP groups	4,000	
Number of MLD groups	1,000	
Number of VSU members	4	
Number of VRFs	1,024	

*1 means the system's switching capacity.

Power Supply and Consumption

Power Supply and Consumption	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Power supply	2 x pluggable power modules	2 x pluggable power modules
Power input	RG-PA550I II-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 ● Rated input current: 3.5 A to 7.2 A ● Maximum input current: 7.2 A	
Maximum output power	RG-PA550I II-F: 550 W	RG-PA550I II-F: 550 W
Maximum power consumption	270W	300 W

Dimensions and Weight

Dimensions and Weight	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Unit dimensions (W x D x H)	442 mm x 387 mm x 44 mm (17.40 in. x 15.24 in. x 1.73 in.)	
Shipping dimensions (W x D x H)	600 mm x 550 mm x 175 mm (23.62 in. x 21.65 in. x 6.89 in.)	610 mm x 560 mm x 172 mm (24.02 in. x 22.05 in. x 6.77 in.)
Rack height	1 RU	1 RU
Unit weight	8.5 kg (18.74 lbs, with 4 fan modules)	8.5 kg (18.74 lbs, with 4 fan modules)

Dimensions and Weight	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Shipping weight	9.65 kg (21.27 lbs)	9.91 kg (21.85 lbs)

Environment and Reliability

Environment and Reliability	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: –40°C to +70°C (–40°F to +158°F) Note: At an altitude between 3,000 m (9,842.52 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).	
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)	
Altitude	Storage altitude: –500 m to 5,000 m (–1640.42 ft. to +16,404.20 ft.) Operating altitude: –500 m to 5,000 m (–1640.42 ft. to +16,404.20 ft.)	
Mean time between failure (MTBF)	200,000 hours (about 22 years)	
Fan	4 x pluggable fan modules	
Heat dissipation	Fan cooling, front-to-rear airflow	
Acoustic noise	Maximum value: < 73 dB	
Power module redundancy	1+1 redundancy	
Fan redundancy	3+1 redundancy	
Power module hot swapping	Supported	
Fan module hot swapping	Supported	
USB hot swapping	Supported	
Cable hot swapping	Supported	
Power supply monitoring	Monitoring of the power supply model and status Power supply failure alarming	
Fan monitoring	Fan speed adjustment: 256 levels Automatic speed adjustment Fan failure alarming	
Temperature monitoring	Temperature monitoring, over-temperature alarming	
ESD	ESD contact/air discharge: 6 kV/8 kV ESD susceptibility contact/air discharge: 8 kV/15 kV	
Surge protection	MGMT Port: 4kV RG-PA550I II-F: common mode 6 kV, differential mode 6 kV	

Certifications and Regulatory Compliance

Certifications and Regulatory Compliance	RG-S6150-24VS8CQ-X	RG-S6150-48VS8CQ-X
Safety regulation	IEC 62368-1	
EMC regulation	EN 300386, EN 55032 Class A, EN 55035, EN IEC 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11	
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863	

Software Specifications

Feature	RG-S6150-X Series
Ethernet switching	Jumbo frame (maximum length: 9,216 bytes)
	IEEE 802.1Q (supporting 4K VLANs)
	Maximum number of VLANs that can be created: 4,094
	Voice VLAN
	Super-VLAN and private VLAN
	MAC address-based, port-based, protocol-based, and IP subnet-based VLAN assignment
	GVRP
	Basic QinQ and selective QinQ
	STP (IEEE 802.1.d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)
	ERPS (G.8032)
	LACP (IEEE 802.3ad)
	LLDP/LLDP-MED
	Non blocking
IP service	Static and dynamic ARP
	DHCP server, DHCP client, DHCP relay, and DHCP snooping
	DNS
	DHCPv6 server, DHCPv6 client, DHCPv6 relay, and DHCPv6 snooping

Feature	RG-S6150-X Series
IP service	Neighbor Discovery (ND) and ND snooping
	GRE tunnel
IP routing	Static routing
	SVI: 4k supported
	RIP and RIPng
	OSPFv2 and OSPFv3
	GR
	IS-ISv4 and IS-ISv6
	BGP4 and BGP4+
	Equal and Weighted Cost Multi-Path (ECMP)
	Packet-based and flow-based load balancing
	MCE
	Stateless auto configuration
	IPv4/IPv6 VRF
	IPv4/IPv6 PBR
Multicast	IGMPv1/v2/v3 and IGMP proxy
	IGMPv1/v2/v3 snooping
	IGMP filtering and IGMP fast leave
	PIM-DM, PIM-SM, and PIM-SSM
	PIM-SSM for IPv4 and IPv6
	MSDP for inter-domain multicast
	MLDv1/v2
	MLD snooping
	MSDP
	PIM-SMv6

Feature	RG-S6150-X Series
Multicast	Multicast source IP address check Multicast source port check
	Multicast querier
MPLS	MPLS L3VPN
	6PE/6VPE interconnection with IPv4/IPv6 MPLS backbone network
	MPLS MIB (RFC1273, 4265, 4382)
ACL and QoS	Standard IP ACLs (hardware ACLs based on IP addresses)
	Extended IP ACLs (hardware ACLs based on IP addresses or TCP/UDP port numbers)
	Extended MAC ACLs (hardware ACLs based on source MAC addresses, destination MAC addresses, and optional Ethernet type)
	Expert-level ACLs (hardware ACLs based on flexible combinations of the VLAN ID, Ethernet type, MAC address, IP address, TCP/UDP port number, protocol type, and time range)
	Time-based ACLs
	ACL80 and IPv6 ACL
	ACL redirection
	Port traffic identification
	Port traffic rate limiting
	802.1p/DSCP/ToS traffic classification
	Traffic classification based on 802.1p priorities, DSCP priorities, and IP precedences
	Congestion management: RR, SP, WRR, DRR, WFQ, SP+WRR, SP+DRR, and SP+WFQ
	Congestion avoidance: tail drop, RED, and WRED
	Eight queues on each port
	Rate limiting in each queue
	L2/L3/L4 packet identification and classification
Security	Multi-AAA
	RADIUS and TACAS+
	Filtering of invalid MAC addresses Broadcast storm suppression BPDU guard

Feature	RG-S6150-X Series
Security	RADIUS authentication and authorization
	Port- and MAC address-based 802.1x authentication
	IEEE802.1X authentication, MAC address bypass (MAB) authentication, and interface-based and MAC address-based 802.1X authentication
	Web authentication
	Hypertext Transfer Protocol Secure (HTTPS)
	SSHv1 and SSHv2
	Global IP-MAC binding
	ICMPv6
	IPv6 addressing and Path MTU Discovery
	Port isolation and port security
	IP source guard
	SAVI
	ARP spoofing prevention
	CPP and NFPP
	Various attack defense functions including NFPP, ARP anti-spoofing, DHCP/DHCPv6 attack defense, ICMP attack defense, ND attack defense, IP scanning attack defense, and customizing attack defense packet types
	3-tuple binding (IP address, MAC address, and port) ARP spoofing prevention 3-tuple binding (IPv6 address, MAC address, and port) Filtering of invalid MAC addresses MAB authentication Portal authentication and Portal 2.0 authentication ARP check DAI ARP packet rate limiting Gateway ARP spoofing prevention Broadcast storm suppression SSH BPDU guard
	Loose and strict RPF uRPF ignoring default routes
Reliability	REUP
	ERPS (G.8032)

Feature	RG-S6150-X Series
Reliability	RLDP
	RLDP, Layer 2 link connectivity detection, unidirectional link detection, and VLAN-based loop control
	Data Link Detection Protocol (DLDP)
	IPv4 VRRP v2/v3 and IPv6 VRRP
	BFD
	Link monitoring, fault notification, and remote loopback based on 802.3ah (EFM)
	GR for RIP, OSPF, BGP, and other routing protocols Power modules in 1+1 redundancy mode Hot swapping of power modules and fan modules
	Hot swapping of fan modules
Device virtualization	VSU
NMS and maintenance	SPAN, RSPAN, and ERSPAN
	sFlow
	NTP an SNTP
	FTP and TFTP
	SNMP v1/v2/c3
	RMON (1, 2, 3, 9)
	Various types of RMON groups, including event groups, alarm groups, history groups, and statistics groups, as well as private alarm extension groups RMON used to implement Ethernet statistics, historical statistics, and alarm functions
	NETCONF
	Flow-based mirroring, and N:1 and 1:N port mirroring
	CWMP
	gRPC
	OpenFlow Special 1.3 Flow table analysis defined by all protocols Transmission of specified packets to the controller Configuring the controller's IP address and port Notifying port status changes to the controller
	CLI (Telnet/console), SSH, Syslog, SNMP over IPv6, Telnet v6, FTP/TFTP v6, DNS v6, and NTP for IPv6

Feature	RG-S6150-X Series
NMS and maintenance	Ruijie Could-based management
VXLAN	EVPN VXLAN tunnel establishment LAN access to VXLAN IPv4 over IPv4 Distributed gateway IPv6 over IPv4 Using an SVI to connect to the VXLAN network Using a routed interface to connect to the VXLAN network Proxy ARP (replying with the actual MAC address)) ND proxy (replying with the actual MAC address) ND reply (replying with the actual MAC address) EVPN VXLAN VXLAN static route Anycast gateway VXLAN bridging mode VXLAN routing mode Proxy ARP (replying with the gateway MAC address) Configuring the UDP port number in VXLAN packets Static VXLAN tunnel creation

Protocol Compliance

Organization	Standards and Protocol
IETF	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 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 2131 Dynamic Host Configuration Protocol (DHCP) RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2571 SNMP Management Frameworks RFC 2863 The Interfaces Group MIB RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 3046 DHCP Option82 RFC 3417 (SNMP Transport Mappings) RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3575 IANA Considerations for RADIUS RFC 3579 RADIUS Support For EAP

Organization	Standards and Protocol
IETF	RFC 4022 MIB for TCP 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 813 Window and Acknowledgement Strategy in TCP RFC 815 IP datagram reassembly algorithms RFC 826 Ethernet Address Resolution Protocol (ARP) RFC 854 Telnet Protocol RFC 959 File Transfer Protocol (FTP) RFC 1058 Routing Information Protocol (RIP) RFC 1583 OSPF Version 2 RFC 1981 Path MTU Discovery for IP version 6 RFC 1997 BGP Communities Attribute 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 (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 2711 IPv6 Router Alert Option RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol RFC 2918 Route Refresh Capability for BGP 4 RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3065 Autonomous System Confederation for BGP RFC 3101 OSPF Not so stubby area option RFC 3137 OSPF Stub Router Advertisement sFlow RFC 3509 Alternative Implementations of OSPF Area Border Routers RFC 3513 IP Version 6 Addressing Architecture RFC 3623 Graceful OSPF Restart RFC 3768 VRRP RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 3973 PIM Dense Mode RFC 4271 A Border Gateway Protocol 4 (BGP 4) RFC 4273 Definitions of Managed Objects for BGP 4 RFC 4360 BGP Extended Communities Attribute 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 4724 Graceful Restart Mechanism for BGP RFC 4750 OSPFv2 MIB partial support no SetMIB RFC 4760 Multiprotocol Extensions for BGP 4 RFC 4940 IANA Considerations for OSPF RFC 5065 Autonomous System Confederation for BGP RFC 5187 OSPFv3 Graceful Restart RFC 5340 OSPFv3 for IPv6 RFC 5492 Capabilities Advertisement with BGP 4 RFC 6620 FCFS SAVI

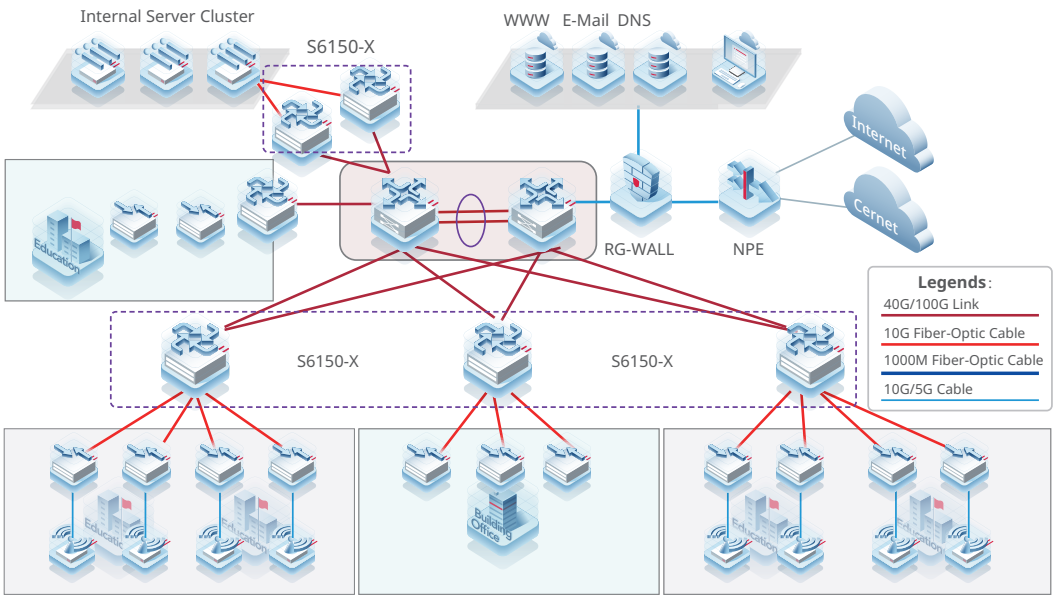
Organization	Standards and Protocol
IEEE	IEEE 802.2 Logical Link Control IEEE 802.1ab Link Layer Discovery Protocol IEEE 802.1ad Provider Bridges IEEE 802.1ax/IEEE802.3ad Link Aggregation IEEE 802.1D Media Access Control (MAC) Bridges IEEE 802.1D Spanning Tree Protocol IEEE 802.1Q Virtual Bridged Local Area Networks (VLAN) IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE Std 802.3x Full Duplex and flow control

Typical Applications

- The RG- S6150-X series switches can be used in the distribution layer of large-sized networks, core layer of small- and medium- sized networks, and access layer of the server cluster. The switches can provide full gigabit layer-3 access services on large-sized enterprise networks or campus networks.
- Each switch of the series provides eight 100GE fiber ports to meet users' requirements for high bandwidth.
- The abundant security management mechanisms provide robust network security defense, high-security access control, and effective network access control.
- Sound management policies can be configured to help manage bandwidth so as to guarantee the bandwidth required by voice, multicast audio and video services, video on demand, and other key services.

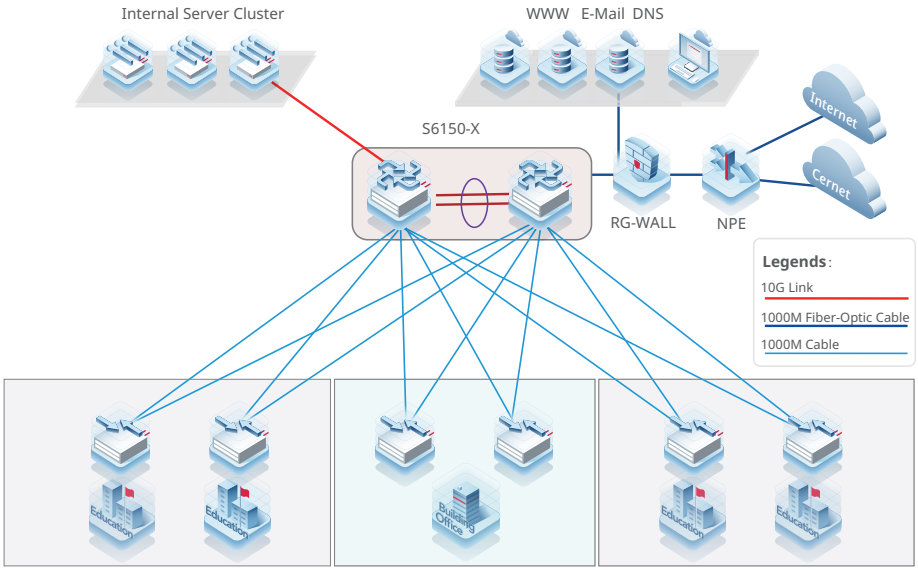
Scenario 1

RG-S6150-X series switches serve as aggregation devices on large-sized campus networks. They provide 1GE/10GE/25GE (25GE capable with a license) bandwidth links for the access layer and high-performance 40GE/100GE bandwidth links for the core layer, to cope with increasing information amount of access users.



Scenario 2

RG-S6150-X series switches serve as core switches on small- and medium-sized enterprise networks. The VSU technology helps simplify the network architecture and substantially improves the reliability and efficiency of the network system.



Ordering Guide

Follow the steps to order an RG-S6150-X switch:

- Select a model of RG-S6150-X series switches. The device is fully equipped with fan modules that do not need to be purchased separately.
- Select power modules. At least one power module is required.
- Select optical modules based on optical interfaces of the switch.

Ordering Information

The switch, power module, and other components can be ordered as needed. Before ordering an expansion module or power module, contact the online customer service personnel for the latest support information about the module.

Switches and Power Modules

Model	Description
RG-S6150-24VS8CQ-X	24 x 1GE/10GE/25GE SFP28 ports (25GE capable with a license). 8 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE). 4 x fan module slots (4 fan modules pre-installed). 2 x power module slots, at least one RG-PA550I II-F power module needs to be purchased.

Model	Description
RG-S6150-48VS8CQ-X	48 x 1GE/10GE/25GE SFP28 ports (25GE capable with a license). 8 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE). 4 x fan module slots (4 fan modules pre-installed). 2 x power module slots, at least one RG-PA550I II-F power module needs to be purchased.
RG-PA550I II-F	550 W AC power module, supporting redundancy, 10 A power cord
RG-24VS-LIC	25GE port license for RG-S6150-24VS8CQ-X (24 x 1GE/10GE/25GE SFP28 ports)
RG-48VS-LIC	25GE port license for RG-S6150-48VS8CQ-X (48 x 1GE/10GE/25GE SFP28 ports)

Note:
- 24 x 1GE/10GE/25GE SFP28 ports, 48 x 1GE/10GE/25GE SFP28 support 1GE SFP transceivers, 10GE SFP+ transceivers and 25GE SFP28 transceivers (25GE capable with a license).
- 8 x 40GE/100GE QSFP28 ports support 40GE QSFP+ transceivers and 100GBASE QSFP28 transceivers.

Optical Transceivers and Cables

1GE

Model	Description
Mini-GBIC-GT	1000BASE-X to 1000BASE-T, copper SFP transceiver, RJ45, 100 m over Cat 5e/6/6a The port needs to be configured with auto-negotiation
MINI-GBIC-SX-MM850	1000BASE-SX, SFP transceiver, 850 nm, Duplex LC, 500 m over MMF
MINI-GBIC-LX-SM1310	1000BASE-LX, SFP transceiver, 1310 nm, Duplex LC, 10 km over SMF
MINI-GBIC-LH40-SM1310	1000BASE-LH, SFP transceiver, 1310 nm, Duplex LC, 40 km over SMF
MINI-GBIC-ZX80-SM1550	1000BASE-ZX, SFP transceiver, 1550 nm, Duplex LC, 80 km over SMF
GE-SFP-LX20-SM1310-BIDI	1000BASE-LX, SFP transceiver, TX1310/RX1550, BiDi LC, 20 km over SMF
GE-SFP-LX20-SM1550-BIDI	1000BASE-LX, SFP transceiver, TX1550/RX1310, BiDi LC, 20 km over SMF
GE-SFP-LX03-SM1310-BIDI-I	1000BASE-LX, SFP transceiver, TX1310/RX1550, BiDi LC, 3 km over SMF
GE-SFP-LX03-SM1550-BIDI-I	1000BASE-LX, SFP transceiver, TX1550/RX1310, BiDi LC, 3 km over SMF

Note: BiDi transceivers must be used in pairs. If one end uses GE-SFP-LX20-SM1310-BIDI, the other end must use GE-SFP-LX20-SM1550-BIDI.

10GE

Model	Description
XG-SFP-SR-MM850	10GBASE-SR, SFP+ transceiver, 850nm, Duplex LC, 300 m over MMF
XG-SFP-LR-SM1310	10GBASE-LR, SFP+ transceiver, 1310nm, Duplex LC, 10 km over SMF
XG-SFP-ER-SM1550	10GBASE-ER, SFP+ transceiver, 1550nm, Duplex LC, 40 km over SMF
XG-SFP-ZR-SM1550	10GBASE-ZR, SFP+ transceiver, 1550nm, Duplex LC, 80 km over SMF
XG-SFP-LR10-SM1270-BIDI-I	10GBASE-LR, SFP+ transceiver, TX1270/RX1330, BiDi LC, 10 km over SMF
XG-SFP-LR10-SM1330-BIDI-I	10GBASE-LR, SFP+ transceiver, TX1330/RX1270, BiDi LC, 10 km over SMF
XG-SFP-AOC1M	10GBASE, SFP+ active optical cable (AOC), 1 m, including one cable and two optical transceivers
XG-SFP-AOC3M	10GBASE, SFP+ active optical cable (AOC), 3 m, including one cable and two optical transceivers
XG-SFP-AOC5M	10GBASE, SFP+ active optical cable (AOC), 5 m, including one cable and two optical transceivers

25GE

Model	Description
VG-SFP-SR-MM850	25GBASE-SR, SFP28 transceiver, 850 nm, Duplex LC, 100 m over OM4 MMF, 70 m over OM3 MMF
VG-SFP-AOC7M(M)	25GBASE, SFP28 active optical cable (AOC), 7 m, including one cable and two optical transceivers

40GE

Model	Description
40G-QSFP-LSR-MM850	40GBASE-LSR, QSFP+ transceiver, 850 nm, MPO 1 x 12, 400 m over OM4 MMF, 300 m over OM3 MMF
40G-QSFP-LR4-SM1310	40GBASE-LR4, QSFP+ transceiver, 1310 nm, Duplex LC, 10 km over SMF
40G-QSFP-iLR4-SM1310	40GBASE-iLR4, QSFP+ transceiver, 1310 nm, Duplex LC, 2 km over SMF
40G-AOC-5M	40GBASE, QSFP+ active optical cable (AOC), 5 m, including one cable and two optical transceivers

100GE

Model	Description
100G-QSFP-SR-MM850	100GBASE-SR, QSFP28 transceiver, 850 nm, MPO 1 x 12, 100 m over OM4 MMF, 70 m over OM3 MMF
100G-QSFP-LR4-SM1310	100GBASE-LR4, QSFP28 transceiver, 1310 nm, Duplex LC, 10 km over SMF
100G-AOC-10M	100GBASE, QSFP28 active optical cable (AOC), 10 m, including one cable and two optical transceivers

Package Contents

Item	RG-S6150-24VS8CQ-X RG-S6150-48VS8CQ-X
Chassis	1
Fan module	4 (M1EFAN II-F, pre-installed)
Grounding wire	1
Mounting bracket	2
Rear mounting bracket	2
Guide rail	2
M4x8 cross recessed countersunk head screw, GB819-85	14
M6x16 screw	8
M6 cage nut	8
Network Product Warranty Manual and Hazardous Substance Statement	1
Ruijie Networks Convergence Product Management Software	1 (pre-installed)

Warranty

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

- Warranty terms: https://www.ruijie.com/support/servicepolicy
- Warranty period: https://www.ruijie.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.ruijie.com/
- Online support: https://www.ruijie.com/support
- Hotline support: https://www.ruijie.com/support/hotline
- Email support: EBGITSC@ruijie.com.cn

Ruijie Networks Co., Ltd.

For more information, visit www.ruijie.com or call 86-400-620-8818.