



## ■ Overview

RS-ES-650-56XQS supports fixed 48\*10/25G SFP28 optical interfaces, 8\*40/100G QSFP28 optical interfaces, six modular fan slots, and dual modular power slots.

RS-ES-650-56XQS switch are Rubisec new generation 25GE data center RoCE switches designed for enterprise data center networks, providing high-throughput, high-density interfaces, larger buffer and lower latency. The RS-ES-650-56XQS switch adopts advanced hardware architecture with 48\*25GE access ports and multiple 40/100GE uplinks. RS-ES-650-56XQS switch provide rich data center service features and management capability. RS-ES-650-56XQS switch realize large buffer of the interfaces, meeting the burst flow forwarding without packet loss, provide the M-LAG technology for virtualization scenarios, provide the modular power and fan design for high reliability. The key components adopt “overvoltage” designs to ensure that the product has the strong ability of continuous operation. can also be deployed as aggregation or core switches for enterprise campus LAN networks.

RS-ES-650-56XQS switch fully support the RoCEv2 standards, meeting the requirements for switch performance in high-performance data center scenarios. The RS-ES-650-56XQS supports a wide range of lossless Ethernet technologies, including PFC, ECN, ETS, DCBX, etc. This helps create an end-to-end, zero-jitter, low-latency, lossless Ethernet network that meets the demands of cloud computing, big data, artificial intelligence, and high-performance computing deployments in data centers.

RS-ES-650-56XQS switch can work with the industry’s mainstream virtualization platforms and acts a hardware gateway on an VxLAN overlay network. Virtual extensible LANs (VxLAN), a common network virtualization overlay protocol that expands the layer 2 network address space from 4,000 to 16 million. RS-ES-650-56XQS switch support BGP-EVPN, which is used as the overlay control plane and provides virtual connectivity between different layer 2/3 domains over an IP network.

| Models                  | RS-ES-650-56XQS                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Hardware Specification  |                                                                                                                                     |
| Physical Ports          | Fixed 48*10/25G SFP28 optical interfaces, 8*40/100G QSFP28 optical interfaces, six modular fan slots, and dual modular power slots. |
| Management Interface    | One Console port, one management Ethernet port, one USB interface                                                                   |
| Switching Capacity      | 2Tbps                                                                                                                               |
| Flash                   | 8G                                                                                                                                  |
| Memory                  | 4G (Default)                                                                                                                        |
| Interface Buffer Size   | 16M                                                                                                                                 |
| Jumbo Frame             | 12K                                                                                                                                 |
| Max. MAC Entry          | 448K                                                                                                                                |
| Max. ARP Entry          | 129K                                                                                                                                |
| Max. IPv4 Routing Entry | 393K                                                                                                                                |
| Max. VRF Entry          | 8K                                                                                                                                  |
| MSTP Instance           | 64                                                                                                                                  |
| VRRP Group              | 255                                                                                                                                 |
| Max. ECMP Path          | 128                                                                                                                                 |
| IGMP Group              | 8K                                                                                                                                  |
| VxLAN VTEP Instance     | 8K                                                                                                                                  |
| EVPN Host Route Entry   | 64K                                                                                                                                 |
| Redundant Design        | Two Power Slots                                                                                                                     |
| Power Supply            | Support power redundancy, 1+1 backup mode<br>Input voltage (AC): 100V ~ 240V, 50Hz ~ 60Hz                                           |
| Temperature             | Work temperature: 0°C to 50°C<br>Storage temperature: -40°C to 70°C                                                                 |
| Humidity                | Work humidity: 10% to 90%, no-condensing<br>Storage humidity: 5% to 95%, no-condensing                                              |
| Power Consumption       | 318W                                                                                                                                |
| Dimension(W×D×H)        | 442mm×420mm×44.2mm                                                                                                                  |

| Software Features              |                     |                                                                                                                                                                                                                                                                                             |
|--------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard L2 Protocol           | Interface           | Port Type UNI/NNI, Port Speed, Port MTU, Port Loopback, Loopback interface, Tunnel interface, Null interface, VXLAN interface                                                                                                                                                               |
|                                | Ethernet Switching  | LACP Link aggregation, LACP Port Priority, LACP Load Balance, LACP Rate Monitor, LACP Debug, Port isolation, QinQ, VLAN mapping, Super VLAN, PVLAN, Voice VLAN, STP, RSTP, MSTP, Loopback-detection, Error-disable, VIST/VISR+, GVRP, MLAG, MLAG Lite, VLAN isolation                       |
| Standard L3 Protocol           | IP Protocol         | ARP, DHCP, DHCPv6, DHCP Server, DHCPv6 Server, DHCPv6 Client, DHCP Relay, DHCPv6 Relay, DHCP Option82, DNS, GRE, IPIP, IPv6 over IPv4, ISATAP, IPv4 over IPv6, IPv6 over IPv6                                                                                                               |
|                                | Routing Protocol    | Static route for IPv4&IPv6, RIPv1/v2, RIPng, OSPFv2, OSPFv3, IS-IS, IS-ISv6, BGP, BGPv6, Policy Route, MP-BGP                                                                                                                                                                               |
| Multicast                      | L2 MulticastW       | IGMP Snooping, IGMP Snooping over VxLAN, multicast VLAN (MVR, MVP), MLD Snooping, Router-alert Option                                                                                                                                                                                       |
|                                | L3 Multicast        | IGMPv1/v2/v3, MLDv1/v2, PIM-SM, PIM-DM, PIM-SSM, IPv6 PIM-SM, IPv6 PIM-SSM, MSDP, IGMP Group Filter, MLD Group Filter                                                                                                                                                                       |
| QoS & ACL                      | QoS                 | 802.1p, DSCP, Priority Mapping, SP, WRR, WDRR, SP+WRR, SP+WDRR, WRED, Flow classification, Traffic monitoring, Traffic shaping, Congestion management, Congestion avoidance, Flow-basedW mirroring                                                                                          |
|                                | ACL                 | Standard IP ACL, extended IP ACL, standard MAC ACL, extended MAC ACL, extended Hybrid ACL, Standard IPv6 ACL, extended IPv6 ACL                                                                                                                                                             |
| Data Center Feature            | Basic Feature       | TRILL, VXLAN, BGP-EVPN, M-LAG, ESI Multi-Homing                                                                                                                                                                                                                                             |
|                                | RoCEv2              | ECN, PFC, ETS, DCBX, iNoF                                                                                                                                                                                                                                                                   |
| MPLS L2/L3 VPN                 | L3 MPLS VPN         | MPLS LDP, MPLS GR, M-VRF, MPLS L3VPN, MPLS OAM, IPv6 MPLS L3VPN, MPLS TE, MPLS QoS                                                                                                                                                                                                          |
|                                | L2 VPLS VPN         | VPWS, Martini/Kompella VPLS                                                                                                                                                                                                                                                                 |
| Precision Time Protocol (PTP)  | IEEE 1588v2         | E2ETC, P2PTC                                                                                                                                                                                                                                                                                |
| Virtualization                 | VST                 | H-VST, M-VST                                                                                                                                                                                                                                                                                |
|                                | MAD                 | MAD LACP, MAD BFD, MAD Fast-hello                                                                                                                                                                                                                                                           |
| Security & Network Reliability | Security            | ARP Check, AARF, AARF ARP-Guard, CPU Protection, Port Security, IP Source Guard, IPv6 Source Guard, ND-Snooping, DHCP Snooping, DHCPv6 Snooping, Dynamic ARP Inspection (DAI), AARF, Host Guard, P2P MACSec, PPPoE+, 802.1x, Portal Authentication, Anti-attack detect drop flood log, URPF |
|                                | AAA                 | Authentication, Authorization, Accounting, Radius, TACACS+                                                                                                                                                                                                                                  |
|                                | Network Reliability | HA, ULFD, ERPS, ULPP, Monitor Link, VRRP, VRRPv3, VBRP, BFD, EEP, CPU protection                                                                                                                                                                                                            |
| Management                     | Network Management  | SNMP v1/v2/v3, MIB, RMON, SYSLOG, DNS, CLI, Telnet, SSH, HTTP/HTTPS, FTP/TFTP, Debug, NTP, Keepalive Gateway                                                                                                                                                                                |
|                                | Network Monitoring  | SPAN, RSPAN, ERSPAN, VLAN SPAN, IPFIX, sFlow, LLDP, LLDP-MED, IP-SLA, CWMP, Telemetry, OpenFlow, Netconf, Restconf, BSM, MOD, Capture Packet                                                                                                                                                |

| Model                    | Description                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Order Information</b> |                                                                                                                         |
| RS-ES-650-56XQS          | 48-Port 25G SFP28 interfaces, 8-Port 100G QSFP28 interfaces, 6 Fan Slots, Dual Power Slots                              |
| RS-PWR-F                 | V2 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air rear in, front out. |
| RS-PWR-B                 | V2 Version: AC input 100-240VAC/7A, 550W, output 12V_45A, current sharing, supporting hot-swap, Air front in, rear out. |
| RS-FANB-65               | RS-FANB-65, Modular Fan Slot, Hot-swappable, Air front in rear out                                                      |
| RS-FANF-65               | RS-FANF-65, Modular Fan Slot, Hot-swappable, Air rear in front out                                                      |

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