S5810 Series Switches

OUTSTANDING PERFORMANCE SWITCHES FOR AGGREGATION OF LARGE-SCALED NETWORKS

S5810 series switches support flexible gigabit access and high-density 10G port scalability.



Overview

S5810 series switches are collection of next-gen multiservice switches, offering remarkable performance and enhanced security. Implementing an industry-leading hardware design and FS's latest OS modular operating system, the switches offer better table capacity, improved hardware processing performance, and easier user operation.

The S5810 series switches support flexible gigabit access and high-density 10G port scalability. All models offer fixed 4 10G fiber ports, supporting high-density, high-performance port uplink performance. These leading features fully meet requirements of high-density access and demanding aggregation. S5810 series switches are ideal acting as aggregation of large-scaled networks, core of small to medium-sized networks, and data center server access.

Benefits

- Layer 3 Switches
- BCM56340/BCM56342 Switch Chip
- Support up to 8 Units Stacking
- 1+1 Redundant Power Supplies
- Out-of-box with advanced Layer 3 routing
- MPLS features

Product Characteristics

Exceptional Performance and Scalability

The S5810 Series offers fixed 4 10G fiber ports. Users can flexibly choose 10G fiber or copper ports in various quantities to meet their actual deployment needs. The unparalleled scalability totally supports campus network aggregation of large -sized enterprises, or core deployment of small to medium-sized networks. The series supports MAC address capacity of up to 64K.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The S5810 Series provide hardware support for IPv4/IPv6 multilayer switching at line rates, support distinction and processing of IPv4 and IPv6 packets by hardware, and provide flexible IPv6 network communication schemes for network implementation planning or maintaining the present network status.

The switches also support rich IPv4 routing protocols, including static routing protocols, RIP, OSPF, IS-IS, and BGP4, enabling users to select appropriate protocols for network building in different environments. A wide array of IPv6 routing protocols is also available. Such include static routing protocols, RIPng, OSPFv3, and BGP4+, enabling users to select appropriate protocols for upgrading an existing network to IPv6 or building a new IPv6 network.

Stacking

The S5810 series switches support stacking, in which multiple physical devices are connected through aggregate links and virtualized into one logical device. The logical device uses one single IP address, Telnet process, command -line interface (CLI), and enables auto version inspection and configuration. From the user perspective, the benefits are multiplied work efficiency and enhanced user experience of several devices operating at the same. And they only have to manage one device. The stacking technology also offers multiple benefits below:

Easy management: Administrators can centrally manage all the devices at the same time. It is no longer necessary to configure and manage the switches one by one.

Simplified network topology: A stacking switch can connect to peripheral devices on a network through aggregate links. Therefore, no layer-2 loop exists and the Multiple Spanning Tree Protocol (MSTP) does not need to be configured. All protocols operate as one switch.

Fault recovery within milliseconds: A stacking switch connects to peripheral devices through aggregate links. Upon failure event of any device or link, failover to another member link requires only 50ms.

Exceptional scalability: The network is hot swappable, any devices leaving or joining the virtualized network cause zero impact on other devices.

Comprehensive Security Protection Policies

The S5810 series switches effectively prevent and control virus spread and hacker attacks with various inherent mechanisms su ch as anti- DoS attacks, hacker IP scanning, illegal ARP packets checking and multiple hardware ACL policies.

Support hardware-based IPv6 ACL: Allow coexistence of IPv4/IPv6 users and controls the resources access by IPv6 users (e.g. restrict access to sensitive network resources).

Support industry-leading CPU protection mechanism: The CPU protection policy (CPP) distinguishes the data flows sent to the CPU, which are processed according to their priorities, and implements limitations on the bandwidth rate as needed. In this manner, users can prevent the CPU from being occupied by illegal traffic and protect against malicious attacks to guarantee normal operation of the CPU and switch.

Support IP/MAC binding: Implement flexible binding of a port or the system to the IP address and MAC address of users, strictly limiting user access on a port or in the entire system.

Support DHCP snooping: Allow DHCP responses from trusted ports only; based on DHCP listening and by monitoring ARP dynamically and checking the user IP address, directly discard illegal packets inconsistent with binding entries to effectively prevents ARP frauds and source IP address frauds.

Support the IP-based Telnet access control: Prevent attacks from illegal personnel or hacker and strengthen the device security.

Support Secure Shell and SNMPv3: Secure Shell (SSH) and Simple Network Management Protocol v3 (SNMPv3) cryptographic network protocol ensure the security of management information. Provides services such as multi-element binding, port security, time-based ACL and bandwidth rate limiting to block unauthorized users.

Support Network Foundation Protection Policy (NFPP): The NFPP enhances switch security. It protects switch processor and bandwidth by totally isolating the attacking sources. Normal packet forwarding and protocol are hence guaranteed.

High Reliability

The S5810 series switches support spanning tree protocols of 802.1D, 802.1w, and 802.1s to ensure rapid convergence, improve fault tolerance capabilities, ensure stable running of networks and load balancing of links, and provides redundant links.

Support Virtual Router Redundant Protocol (VRRP): Effectively ensure network stability.

Support Rapid Link Detection Protocol (RLDP): Detect the connectivity of links and whether an optical fiber link is normal from both ends, and supports the loop detection function based on the port to prevent network faults caused by loops generated by the connection of devices such as hubs to ports.

Support Ethernet Ring Protection Switching (ERPS) (G.8032): Implements loop blocking and link recovery on the master device. Other devices directly report link status to the master device. Without passing through other standby devices, the failover t ime of loop interruption and recovery is hence faster than STP. The ERSP's link failover rate can be completed within 50ms under ideal conditions.

Support Rapid Ethernet Uplink Protection Protocol (REUP): When Spanning Tree Protocol (STP) is disabled, the Rapid Ethernet Uplink Protection Protocol (REUP) can provide basic link redundancy through the rapid uplink protection function and provide faster sub second-level fault recovery than STP.

Support Bidirectional Forwarding Detection (BFD): Provide a method for upper-layer protocols such as routing protocols and MPLS to rapidly detect the connectivity of forwarding paths between routing devices, reducing the convergence time of upper -layer protocols greatly in the case of changes in link status.

Support exceptional business performance: Support IPv4 and IPv6 multicast with abundant multicast protocols, e.g. IGMP Snooping, IGMP, MLD, PIM, PIM for IPv6, MSDP, etc. The switches offer multicast service for IPv4 network, IPv6 network, and IPv4/IPv6 co-existing network. IGMP source port and source IP inspection is also enabled to crack down on rouge multicast sources. The series offers rich Layer 3 features (e.g. ECMP) to meet various link planning needs. All products of the S5810 series support lightning protection of above 6KV.

Support Non-stop PoE: S5810-48TS-P supports 48-port PoE+ power supply. Since more IoT (Internet of Things) devices depend on PoE (Power over Ethernet) power supply nowadays, Non-stop PoE feature is introduced to FS PoE switches. With such feature, the switch can provide nonstop PoE power supply to IP cameras, IP phones and other PD (Powered Device), even when a reboot happens. So operators can feel free to do maintenance job like firmware upgrade any time.

QoS

The S5810 series switches offer outstanding multilayer traffic categorization and control for MAC traffic, IP traffic, applic ation layer traffic and so on. The feature achieves traffic policies such as refined bandwidth control and forwarding priority. The series switches also support customized QoS features for various applications.

The QoS system, with Diff-Serv as the core, supports a complete set of policies covering 802.1P, IP TOS, Layer 2 to 7 filtering, SP, and WRR.

Energy Efficiency

The S5810 series switches adopt next-gen hardware architecture with a highly energy-saving circuit design and component selection. The devices achieve a marked reduction in energy consumption. In addition to maximized energy saving, the S5810 Series also significantly lowers noise pollution. All models in the series deploy variable-speed axial fans, which support intelligent speed adjustment based on the current ambient temperature. All the features enable the switches to work smoothly and reduce power consumption and noise pollution at the same time.

Support auto-power-down mode. When an interface is down for a certain period of time, the system will automatically power it down for extra energy efficiency. EEE energy-saving mode is another feature highlight. The system will automatically turn an idle port into energy-saving mode. When there is a new packet, the system will issue listening streams to the port to resume service.

Easy Network Maintenance

Support abundant features such as SNMP V1/V2/V3, RMON, Syslog, and logs and configuration backup using USB for routine diagnosis and maintenance. Administrators can use a wide variety of methods for easier management and such include CLI, web management, Telnet, etc.

Technical Specification

S5810 series switches support flexible gigabit access and high-density 10G port scalability. Here's a look at the details.

CHARACTERISTICS

| | S5810-28FS | S5810-48FS | S5810-48TS-P |
|------------------------|------------|------------|--------------|
| Ports | | | |
| 10/100/1000BASE-T RJ45 | 8 (Combo) | | 48 |
| 1G SFP | 28 | 48 | |
| 10G SFP+ | 4 | 4 | 4 |
| Management Port | 1 | 1 | 1 |
| Console Port | 1 | 1 | 1 |
| USB | 1 | 1 | 1 |

Notes:

RJ45 ports can be used as 10/100/1000BASE-T ports for Ethernet connection. SFP ports can be used for 100M/1G connection. SFP+ ports can be used for 1/10G connection.

| | S5810-28FS | S5810-48FS | S5810-48TS-P |
|--------------------|---------------------------|---------------------------|---------------------------|
| Operating System | | | |
| OS | FSOS | FSOS | FSOS |
| Key Components | | | |
| Switch Chip | BCM56342 | BCM56340 | BCM56340 |
| CPU | ARM A9 Dual-Core CPU,1GHz | ARM A9 Dual-Core CPU,1GHz | ARM A9 Dual-Core CPU,1GHz |
| Performance | | | |
| Layer Type | Layer 3 | Layer 3 | Layer 3 |
| Switching Capacity | 136 Gbps | 176 Gbps | 176 Gbps |
| Forwarding Rate | 102 Mpps | 132 Mpps | 132 Mpps |

CHARACTERISTICS

| | S5810-28FS | S5810-48FS | S5810-48TS-P |
|-------------------------------|---|---|---|
| Latency | 2.704µs | 6.54µs | 3.605µs |
| Flash Memory | 512MB | 512MB | 512MB |
| SDRAM | 1GB | 1GB | 1GB |
| Packet Buffer | 4MB | 4MB | 4MB |
| Jumbo Frame | 9216 | 9216 | 9216 |
| MAC Address | 64K | 64К | 64K |
| BGP | Support | Support | Support |
| Number of VLANs | 4К | 4К | 4К |
| ARP Table | 10000 | 10000 | 10000 |
| Ipv4 Routing Table | 12000 | 12000 | 12000 |
| Ipv6 Routing Table | 6000 | 6000 | 6000 |
| MTBF (Hours) | >200K | >200K | >200K |
| Switch Method | Storage and forward | Storage and forward | Storage and forward |
| Authentication Methods | 802.1X, AAA | 802.1X, AAA | 802.1X, AAA |
| Status Indicators | Status, PWR, MGMT | Status, PWR, MGMT | Status, PWR, PoE, MGMT |
| Remote Management Protocol | SNMP V1/V2/V3, RMON, Syslog, SFLOW, CLI, WEB | SNMP V1/V2/V3, RMON, Syslog, SFLOW, CLI, WEB | SNMP V1/V2/V3, RMON, Syslog, SFLOW, CLI, WEB |

CHARACTERISTICS

| | S5810-28FS | S5810-48FS | S5810-48TS-P | |
|------------------------|---|---|---|--|
| Stackability | Up to 8 Units | Up to 8 Units | Up to 8 Units | |
| Power | | | | |
| Max. Power Consumption | <55W | <100W | <1620W (Full-load) | |
| Input Voltage | 100-240VAC, 50-60Hz, 2A | 100-240VAC, 50-60Hz, 3A Max | 100-240VAC, 50-60Hz, 3.5A Max | |
| PoE Standard | Not support | Not support | IEEE 802.3af/at | |
| Power Output | 70W | 150W | 500W | |
| Power Budget | | | 370W (Single-power); 740W (Dual- power) | |
| Physical and Environme | ental | | | |
| Dimensions (HxWxD) | 1.73"x17.32"x11.81" (44x440x300mm) | 1.73"x17.32"x13.39" (44x440x340mm) | 1.73"x17.32"x16.54" (44x440x420mm) | |
| RackSpace | 1U | 1U | 1U | |
| Power Devices | 2x Hot-swappable Power Supplies (1+1 Redundancy) | 2x Hot-swappable Power Supplies (1+1 Redundancy) | 2x Hot-swappable Power Supplies (1+1 Redundancy) | |
| Fan Number | 3x Built-in Fans | 3x Built-in Fans | 3x Built-in Fans | |
| Airflow | Left-to-Right | Left-to-Right | Left-to-Right | |
| Acoustic Noise | <78dB | <78dB | <78dB | |
| Weight | 9.26 lbs (4.2kg) | 10.36 lbs (4.7kg) | 13.45 lbs (6.1kg) | |
| Distance | | 100M | | |
| Operating Temperature | 32°F to 122°F (0°C to 50°C) | 32°F to 122°F (0°C to 50°C) | 32°F to 122°F (0°C to 50°C) | |
| Storage Temperature | -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 (-40°C to 70°C) | |
| Operating Humidity | 10% to 90% (Non-condensing) | 10% to 90% (Non-condensing) | 10% to 90% (Non-condensing) | |

CHARACTERISTICS

| | S5810-28FS | S5810-48FS | S5810-48TS-P |
|-------------------|------------|------------|--------------|
| Temperature Alarm | Support | Support | Support |
| Warranty | | | |
| Warranty | 5 Years | 5 Years | 5 Years |

| Functionality | Description |
|---------------|---|
| VLANs | IEEE802.1Q, 4094 VLAN ID, 4094 VLANIF interface, Access mode, Trunk mode, Default VLAN, Port-based VLAN, MAC-based VLAN, Protocol based VLAN, IP subnet- based VLAN, Voice VLAN, GVRP, Super VLAN, Private VLAN, Guest VLAN |
| МАС | Automatic learning and aging of MAC addresses, Static and dynamic MAC address entries, Interface-based and VLAN-based MAC address learning limiting, Sticky MAC, MAC address spoofing guard |
| ARP | Static ARP, Trusted ARP, Gratuitous ARP, Proxy ARP, Local proxy ARP, ARP, ARP trustworthiness detection, ARP-based IP guard |
| STP | STP(IEEE802.1D), RSTP(IEEE802.1w), MSTP(IEEE802.1s), 64 MST instances, Port Fast, BPDU guard, BPDU filter, TC guard, TC filter, Root guard, Auto edge, BPDU transparent transmission, BPDU tunnel |
| ERPS | G.8032 v1/v2, Single-ring, Tangent-ring, Intersecting-ring, Load balancing |
| L2 multicast | IGMP v1/v2/v3 snooping, IGMP filter, IGMP fast leave, IGMP querier, IGMP security control, IGMP profile, MLD v1/v2 snooping, MLD filter, MLD fast leave, MLD source check |
| QinQ | Basic QinQ, Selective QinQ(Flexible QinQ), 1:1 VLAN switching, VLAN mapping, TPID configuration, MAC address replication, L2 transparent transmission, Priority replication, Priority mapping |
| IP Routing | Static routing RIP, RIPng OSPFv2, OSPFv3, IS-ISv4, IS-ISv6 BGP4, BGP4+ Equal and Weighted Cost Multi-Path (ECMP) |

| | Functionality | Description |
|-----------|---------------|---|
| | | IPv4 unicast routing |
| | | IPv4 static routing |
| | | · RIPv1/v2 |
| | | • OSPFv2 |
| | | · BGP4 |
| | | · IS-IS |
| | | · PBR |
| | | · VRF |
| | | · ECMP |
| | | · WCMP |
| | | · Routing policies |
| | | • 12000 IPv4 routing table |
| | | IPv6 unicast routing |
| | | · IPv6 static routing |
| | | · RIPng |
| | | • OSPFv3 |
| | | · BGP4+ |
| | | · IS-ISv6 |
| IPv4/IPv6 | | • PBRv6 |
| | | ·VRFvб |
| | | Packet–based load balancing and flow-based load balancing |
| | | • 6000 IPv6 routing table |
| | | IPv6 feature |
| | | • ND(Neighbor Discovery) |
| | | · 10000 NDentries |
| | | · ND snooping |
| | | · 6 over 4 manual tunnel |
| | | · 6to 4 auto tunnel |
| | | · ISATAP |
| | | · IPv4 over IPv6 tunnel |
| | | · IPv6overIPv6tunnel |
| | | · GREtunnel(4over6) |
| | | · GREtunnel(6over6) |
| | | · IPv6 extender option head |
| | | Manually configure local address |

- Automatically create local address
- 0-64 bitmask
- 65-128 bitmask

| Functionality | Description |
|---------------|-------------------------------------|
| | Multicast routing |
| | • IGMPv1/v2/v3 |
| | • MLDv1/v2 |
| | • PIM-DM |
| | • PIM-SM |
| | • PIM-SSM |
| | • PIM-DMv6 |
| | • PIM-SMv6 |
| | • MSDP |
| IPv4/IPv6 | • MCE |
| | • IGMP proxy |
| | MLD proxy |
| | Multicast static routing |
| | 8000 IPv4 multicast routing table |
| | • 4000 IPv6 multicast routing table |
| | DHCP |
| | DHCP server/relay/client |
| | DHCPv6 server/relay/client |
| | • DHCP option 43/82/138 |
| | MPLS |
| | MPLS labels and forwarding |
| | • LSP |
| | • LDP |
| MPLS | Inter-domain LDPLSP |

- MPLS L3 VPN
 - BGP VPN
 - IS-IS VPN
 - OSPF VPN

BFD

- Single-hop BFD, BFD for IPv4 static routes/OSPF/IS-IS/BGP4/VRRP/MPLS/PBR
- BFD for IPv6 static routes/OSPFv3/IS-ISv6/BGP4+/VRRPv6/PBRv6

DLDP

Reliability

DLDP for IPv4 static routes/OSPF/BGP4/VRRP/PBR

LLDP

· IEEE802.1AB 2005, ANSI/TIA-1057, LLDP, LLDP-MED, LLDP-PoE

RLDP

• Uni-directional link detection, Bi-directional forwarding detection, Downlink loop detection

| Function | ality Description |
|-------------|---|
| Reliability | Stacking • 9 units stacked members, 80Gbps maximum stacking bandwidth with service port VSL connection, Traffic balancing VRRP • VRRPv3 • VRRP+ REUP • REUP(Rapid Ethernet Uplink Protection Protocol) for dual uplink backup • VLAN load balancing GR • GR for RIP/OSPF/IS-IS/BGP/MPLS L3 VPN/LDP RNS • RNS test for ICMP/DNS/TCP, Track support for RNS |
| QoS | Stream classification · Classification based on IEEE802.1p/DSCP/TOS Shaping · Rate-limit on ingress/egress traffic on interface Congestion avoidance · RED · WRED |
| ACL | ACL entries • 3500 IPv4/v6 rules ACL type • Standard IPACL • Extended IPACL • MAC-extended ACL • MAC-extended ACL • Time-based ACL • Time-based ACL • Expert ACL • ACL 80 • IPv6 ACL • SVI routerACL • ACL logging • ACL counter • ACL remark • ACL remark • ACL redirection • Security channel • Protected port • Port security |

| Functionality | Description |
|---------------|--|
| | ARP security |
| | · ARP check |
| | ·DAI |
| | · Trusted ARP |
| | ARP trustworthiness detection |
| | Gateway-targeted ARP spoofing prevention |
| | · ARP rate-limit |
| | Attack defense |
| | · CPP(CPU Protection Policy) |
| | NFPP(Network Foundation Protection Policy) guard for |
| | ARP/IP/ICMP/DHCP/DHCPv6/ND/Self-defined attack, URPF IP |
| | • IP source guard v4/v6 |
| | • 3500 IPv4 source guard user capacity |
| | 1500 IPv6 source guard user capacity |
| | DHCP |
| Security | • DHCP snooping |
| · | • DHCPv6 snooping |
| | DHCP snooping on option 82 |
| | AAA |
| | · Local |
| | · RADIUS |
| | • RADIUS v6 |
| | · TACACS+ |
| | IEEE802.1X |
| | IEEE802.1X port/MAC based authentication |
| | Dynamic VLAN and ACLassignment |
| | MAC authentication bypass |
| | Web portal |
| | FS1st-Gen and 2nd-Gen portal authentication |
| | · Portal authentication/accounting |
| | Portal detection and escape |
| | Login |
| | – CLI, Console, Telnet, Telnet for IPv6, SSH v1.5/v2.0, SSH for IPv6, SCP, SNMP-based NMS, Web- |
| Configuration | based UI |

File

Multiple boot configuration, Multiple firmware

| Functionality | Description |
|---------------|-----------------------------------|
| | |
| | Network |
| | • Ping(v4/v6) |
| | • Traceroute(v4/v6) |
| | • sFlow |
| | · SNMPv1/v2c/v3 |
| | • HTTP |
| | • HTTPS |
| | •RMON(1,2,3,9) |
| | • CWMP(TR069) |
| | • Syslog |
| | • MIB |
| | Application |
| | · DNS client v4/v6 |
| | • TFTP Server/Client |
| | • TFTP Clientv6 |
| | • FTP Server/Client |
| | • FTP Server/Clientv6 |
| Management | · NTP Server/Client |
| | • NTP Server/Client v6,SNTP |
| | · EEE(IEEE802.3az) |
| | • Hot patch |
| | · Non-stop PoE |
| | Mirroring |
| | • Many-to-one mirroring |
| | · One-to-manymirroring |
| | • Flow-based mirroring |
| | · Over devices mirroring |
| | · VLAN-based mirroring |
| | · VLAN-filtering mirroring |
| | · AP-port mirroring |
| | · SPAN |
| | · RSPAN |
| | ·ERSPAN |
| | Hardware monitoring |
| | Power supply monitoring |
| | • Fan status and alarm monitoring |

Accessories



Power Cord x2



Mini Console Cable x1





Rubber Pad x4

· · · 0

Mounting Bracket x2



M4 Screw x8



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