# H3C S6805 Series

# Data Center Switches

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New H3C Technologies Co., Limited

# H3C S6805 Series Data Center Switches

## Product overview

H3C S6805 high-density intelligent switch series is developed for data centers and cloud computing networks. It provides powerful hardware forwarding capacity and abundant data center features. The switch supports modular power modules and fan trays. By using different fan trays, the switch can provide field-changeable airflows.

The switch is perfectly matched for high density 10GE, it can also operate as a TOR access switch on an overlay or integrated network.

The S6805 switch series has two models:

- S6805-54HF: The switch provides 48 × 10G SFP Plus ports, 6 × 100G QSFP28 ports
- S6805-54HT: The switch provides 48 × 10G Base-T ports, 6 × 100G QSFP28 ports

S6805-54HF Front view

S6805-54HF Rear view

S6805-54HT Front view

S6805-54HT Rear view

# Features and Benefits

## High port density and powerful forwarding capacity

- The switch offers high-density 100G/40G/10G ports and a forwarding capacity as high as 4 Tbps, it can provide high-density 10G server access in high-end data centers

## Flexible programmability

- The switch uses industry-leading programmable switching chips that allow users to define the forwarding logic as needed.
- Users can develop new features that meet the evolving trend of their networks through simple software updates.

## Powerful visibility

- With the rapid development of data center, the scale of the data center expands rapidly; reliability, operation and maintenance become the bottleneck of data center for further expansion. H3C S6805 switch series conform to the trend of automated data operation and maintenance, and support visualization of data center. H3C S6805 switch series can send real-time resources information, statistics and alarm of RDMA information to the data center operation and maintenance platform through ERSPAN and GRPC protocols. This can allow the operation and maintenance center to perform real-time analysis in order to achieve network quality tracing, troubleshooting, risk warning and system optimization and etc. Visualization can even adjust network configuration automatically and reduce network congestion which makes it possible to move to automated data center operation and maintenance.

## Powerful SDN capacity

- H3C S6805 switch series adopt the next-generation chip with more flexible Openflow FlowTable, more resources and accurate ACL matching, which greatly improves the software-defined network (SDN) capabilities and meet the demand of data center SDN network.
- H3C S6805 switch series support standard Openflow protocol, which can be integrated and managed by H3C or mainstream cloud platforms or a third-party controller to support flexible network customization and automated management. Users and third-party controllers can use standard interfaces to develop and deploy a dedicated network management strategy for rapid business deployment, functional expansion, and intelligent device management.

## Abundant data center features

The switch supports abundant data center features, including:

- FCoE technology leverages Ethernet packet to carry FC packets. This means FC SAN and Ethernet LAN network can share the same network infrastructure, which is a good solution to solve the problems of coexistence between different types of network. S6805 switch series all downstream SFP+ ports can be switched to FCoE port. As the FC SAN and Ethernet network are fully integrated, the entire network infrastructure is greatly simplified.
- H3C S6805 switch series supports DCB (Data Center Bridging), ISSU (In-service Software Upgrade), OAM (Operations, Administration and Maintenance) and Energy-Efficient Ethernet (EEE). It fully meets the high performance data center requirements, and is easy to manage with green energy consumption.

- H3C S6805 switch series supports VXLAN (Virtual Extensible LAN), VXLAN uses a MAC-in-UDP encapsulation method where the original Layer 2 package is added a VXLAN header, and is then placed in a UDP-IP packet. With the help of MAC-in-UDP encapsulation, VXLAN tunnels Layer 2 network over Layer 3 network. This provides two major benefits, higher scalability of Layer 2 segmentation and better utilization of available network paths.
- H3C S6805 switch series supports MP-BGP EVPN (Multiprotocol Border Gateway Protocol Ethernet Virtual Private Network) uses standard-based BGP protocol as the control plane for VXLAN overlay networks, providing BGP based VTEP auto peer discovery and end-host reachability information distribution. MP-BGP EVPN delivers many benefits, such as eliminating traffic flooding, reducing full mesh requirements between VTEPs via the introduction of BGP RR, achieving optimal flow based end to end load sharing and more.
- H3C S6805 switch series support data center feature, such as Puppet and Chef, which can achieve data center automatic operation and management.

## Flexible choice of airflow

- To cope with data center cooling aisle design, the H3C S6805 switch series comes with flexible airflow design, which features bi-cooling aisles in the front and back. Users may also choose the direction of airflow (from front to back or vice versa) by selecting a different fan tray.

## Excellent manageability

The switch improves system management through the following ways:

- Provides multiple management interfaces, including the serial console port, mini USB console port, USB port, two out-of-band management ports, and two SFP ports. The SFP ports can be used as in-band management port through which encapsulated sampling packets are sent to the controller or other management devices for deep analysis.
- Supports multiple access methods, including SNMPv1/v2c/v3, Telnet, SSH 2.0, SSL, and FTP.
- Supports GRPC that provides flexible programming interfaces for customization.
- Supports Telemetry to perform real-time, high-speed, and precise device statistics collection.

## H3C Intelligent Resilient Framework 2 (IRF2)

H3C S6805 switch series is a pre-built with intelligent resilient Framework 2 (IRF2). IRF2 provides the following benefits:

- High scalability: With IRF2, plug-n-play device aggregation can be achieved by adding one or more switches into the IRF2 stack, enabling IRF2 stacking on the new device. New devices can be managed with a single IP, and upgraded at the same time to reduce network expansion cost.
- High reliability: The IRF2 patented 1:N backup technology allows each slave device in the IRF2 stack to serve as the backup of the master, creating control and data link redundancy, and uninterrupted layer-3 forwarding. This improves reliability, avoids unplanned business downtime, and serves to improve overall performance. When the master device fails, traffic remains uninterrupted.
- Load balancing: IRF2 supports cross-device link aggregation, allowing upstream and downstream to be connected to more than one physical link. This creates another layer of network redundancy, and boosts the network resource utilization.
- Availability: H3C Implements IRF2 through standard Hundred Gigabit Ethernet (100GE) or Forty Gigabit Ethernet (40GE) ports. It can allocate bandwidth for business and application access, and reasonably splits local traffic and upstream traffic. IRF2 rules are obeyed within and across the rack, but also across the LAN.

## Multiple reliability protection

- The S6805 switch series provides multiple reliability protection at both switch and link levels. With over current, overvoltage, and overheat protection, all models have a redundant pluggable power module, which enables flexible configuration of AC or DC power modules based on actual needs. The entire switch supports fault detection and alarm for power supply and fan, allowing fan speed to change to suit different ambient temperatures.
- The switch supports diverse link redundancy technologies such as H3C proprietary RRPP, VRRPE, and Smart Link. These technologies ensure quick network convergence even when large amount of traffic of multiple services runs on the network.

## Rich QoS features

- H3C S6805 switch series support Layer 2 to Layer 4 packet filtering, which can provide traffic classification based on source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN.
- Each 100G port provides a flexible queues scheduling algorithm, which can be set based on ports and queues at the same time.
- S6805 switch series supports five queuing modes include SP (Strict Priority), WRR (Weighted Round Robin), SP+WRR, WFQ, and SP+WFQ.
- S6805 switch series supports CAR (Committed Access Rate) function with a minimum granularity of 8Kbps, and port mirroring on both directions used to monitor packets on the specified port and forward the packets to the monitoring port for network detection and troubleshooting.

## Comprehensive security control policies

- H3C S6805 switch series supports AAA, RADIUS and user account based authentication, IP, MAC, VLAN, port-based user identification, dynamic and static binding; when working with the H3C iMC platform, it can conduct real time management, instant diagnosis and crackdown on illicit network behavior.
- H3C S6805 switch series supports enhanced ACL control logic, which enables an enormous amount of in-port and out-port ACL, and delegate VLAN based ACL. This simplifies user deployment process and avoids ACL resource wastage. S6805 switch series can also take advantage of Unicast Reverse Path Forwarding (Unicast RFP). When the device receives a packet, it will perform the reverse check to verify the source address from which the packets are supposedly originated, and will drop the packet if such path doesn’ t exist. This can effectively prevent the source address spoofing in the network

# Hardware Specification

| Item | S6805-54HF | S6805-54HT |
|---|---|---|
| Dimensions (H × W × D) | 44× 440 × 400 mm (1.74×17.32×15.74 in) | 44 × 440 × 460 mm (1.74×17.32×18.11 in) |
| Weight | ≤ 10 kg (22.04 lb) | ≤ 10 kg (22.04 lb) |
| Serial console port | 1 | |
| Out-of-band management port | One GE copper port and one GE fiber port | |
| Mini USB console port | 1 | |
| USB port | 1 | |
| QSFP28 port | 6 | |
| SFP+ port | 48 | - |
| 10G Base-T port | - | 48 |
| CPU Main frequency | 2.4 GHz | |
| CPU Cores | 4 | |
| Buffer | 32M | |
| AC-input voltage | 90v AC to 290v AC | |
| DC-input voltage | –36v DC to –72v DC | |
| Power module slot | 2 | |
| Fan tray slot | 5 Hot-swappable fan, fan speed adjustable and wind invertible | |
| Air flow direction | From front to rear or from rear to front | |
| Operating temperature | 0°C to 45°C (32°F to 113°F) | |
| Operating humidity (noncondensing) | 5% to 95% | |

# Software Specification

| Item | | S6805-54HF | S6805-54HT |
|---|---|---|---|
| Line-rate switching | Switching capacity | 2.16 Tbps | |
| | Forwarding capacity | 1000 Mpps | |
| Interface Latency | | <1μs | |
| MAC address table | | 288K max | |
| IPv4 routing table | | 324K max | |
| IPv6 routing table | | 162K max | |
| Dynamic ARP table | | 272K max | |
| Virtualization | | IRF2<br>Distributed device management, distributed link aggregation, and distributed resilient routing<br>Stacking through standard Ethernet port<br>Local and remote stacking | |
| Link aggregation | | 10GE/40GE/100GE port aggregation<br>Static aggregation, dynamic aggregation | |
| Data center | | EVPN distributed gateway<br>VXLAN<br>Service chain<br>RDMA and RoCE<br>FCoE<br>802.1Qbb PFC, 802.1Qaz ETS, ECN, QCN,DCBX<br>OpenFlow 1.3.1<br>NETCONF, Python,Ansible | |
| Jumbo Frame | | Supported | |
| MAC address table | | Static MAC address<br>Blackhole MAC address | |
| VLAN | | Port-based VLAN (quantity: 4094)<br>Default VLAN | |
| Traffic monitoring | | sFlow/NetStream<br>Telemetry<br>INT (In-band Network Telemetry) | |
| DHCP | | DHCP server/client<br>DHCP snooping/DHCP relay | |
| ARP | | Gratuitous ARP<br>Dynamic ARP inspection<br>ARP source-suppression<br>ARP blackhole<br>Multicast ARP<br>ARP detection | |

| Item | Specification |
|---|---|
| IP routing | Stating routing, RIPv1/v2, OSPFv1/v2/v3, BGP, IS-IS<br>ECMP, VRRP, policy-based routing<br>BGP4+ for IPv6, VRRP, IPv6 policy-based routing<br>RIPng, OSPFv3, ISISv6 |
| IPV6 | IPv6 ND<br>IPv6 PMTU<br>ICMPv6, Telnetv6, SFTPv6, SNMPv6, BFDv6, VRRPv3<br>IPv6 portal/IPv6 tunnel |
| Multicast | IGMP snooping v2/v3<br>IGMPv1/v2/v3<br>PIM-DM/SM<br>MLD snooping<br>Multicast policy<br>Multicast VLAN<br>Multicast VLAN<br>Multicast over VXLAN |
| MPLS | MPLS<br>MCE<br>MPLS VPN, VPLS<br>MPLS TE |
| MSTP | STP/RSTP/MSTP<br>PVST+/RPVST+<br>STP Root Guard<br>BPDU Guard |
| QoS/ACL | Inbound and outbound traffic rate limit<br>CAR<br>Eight output queues on each port<br>Flexible port-and queue-based queuing and scheduling algorithms<br>SP, WRR, WFQ, SP+WRR, and SP+WFQ queuing<br>802.1p and DSCP priority re-marking<br>Packet filtering at Layer 2 to Layer 4<br>Traffic classification based on source MAC address, destination MAC address, VLAN, source IP(IPv4/IPv6) address, destination IP(IPv4/IPv6) address, port number, protocol type<br>Time range<br>Inbound and outbound ACL<br>VLAN-based ACL<br>WRED |
| Mirroring | Traffic mirroring<br>N:4 port mirroring<br>Local port mirroring<br>Remote port mirroring (ERSPAN) |

| Item | Specification |
|---|---|
| Security | Hierarchical user management and password protection<br>AAA /RADIUS/HWTACACS<br>IP address+MAC address+port number binding<br>IP source guard<br>HTTPs/SSL |
| Loading and upgrading | Loading/upgrading through the XMODEM protocol<br>Loading/upgrading through FTP and TFTP |
| Management and maintenance | Telemetry<br>Micro-burst detection<br>Auto-config<br>Configuration via CLI, Telnet, and Console port<br>RMON (Remote Monitoring)<br>SNMPv1/v2c/v3<br>IMC<br>Netconf, Python<br>System logs<br>Hierarchical alarms<br>NTP, SNTP<br>Jumbo Frame<br>Ping and tracert<br>Debugging information output<br>File uploading and downloading through the USB port |
| EMC | FCC Part 15 Subpart B CLASS A<br>ICES-003 CLASS A<br>VCCI CLASS A<br>CISPR 32 CLASS A<br>EN 55032 CLASS A<br>AS/NZS CISPR32 CLASS A<br>CISPR 24<br>EN 55024<br>EN 61000-3-2<br>EN 61000-3-3<br>ETSI EN 300 386<br>GB/T 9254<br>YD/T 993 |
| Safety | UL 60950-1<br>CAN/CSA C22.2 No 60950-1<br>IEC 60950-1<br>EN 60950-1<br>AS/NZS 60950-1<br>FDA 21 CFR Subchapter J<br>GB 4943.1 |

# Order information

| PID | Description |
|---|---|
| LS-6805-54HF | H3C S6805-54HF L3 Ethernet Switch with 48 SFP Plus Ports and 6 QSFP28 Ports |
| LS-6805-54HT | H3C S6805-54HT L3 Ethernet Switch with 48 10G BASE-T Ports and 6 QSFP28 Ports |
| **Power** | |
| PSR450-12D | 450W DC Power Supply Module |
| PSR450-12A1 | 450W AC Power Supply Module |
| PSR450-12AHD | 450W AC Power Supply Module,Support 240V/336V HVDC Input |
| **Fan** | |
| LSPM1FANSA | Ethernet Switch Fan Module(Power to Port Airflow) |
| LSPM1FANSB | Ethernet Switch Fan Module(Port to Power Airflow) |
| **Transceiver** | |
| SFP-GE-T | 1000BASE-T SFP |
| SFP-GE-SX-MM850-A | 1000BASE-SX SFP Transceiver, Multi-Mode (850nm, 550m, LC) |
| SFP-GE-LX-SM1310-A | 1000BASE-LX SFP Transceiver, Single Mode (1310nm, 10km, LC) |
| SFP-GE-LH40-SM1310 | 1000BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC) |
| SFP-GE-LH40-SM1550 | 1000BASE-LH40 SFP Transceiver, Single Mode (1550nm, 40km, LC) |
| SFP-GE-LH80-SM1550 | 1000BASE-LH80 SFP Transceiver, Single Mode (1550nm, 80km, LC) |
| SFP-XG-SX-MM850-A | SFP+ Module(850nm,300m,LC) |
| SFP-XG-LX-SM1310 | SFP+ Module(1310nm,10km,LC) |
| QSFP-40G-LR4-WDM1300 | 40GBASE-LR4 QSFP+ Optical Transceiver Module |
| QSFP-40G-CSR4-MM850 | QSFP+ 40GBASE Optical Transceiver Module (850nm,300m,CSR4,Support 40G to 4*10G) |
| QSFP-40G-SR4-MM850 | QSFP+ 40GBASE Optical Transceiver Module (850nm,100m,SR4,Support 40G to 4*10G) |
| QSFP-40G-BIDI-SR-MM850 | QSFP+ 40GBASE BIDI Optical Transceiver Module (850nm,100m,SR) |
| QSFP-40G-LR4L-WDM1300 | QSFP+ 40GBASE Optical Transceiver Module (1310nm,2km,LR4L,LC) |
| QSFP-40G-LR4-PSM1310 | QSFP+ 40GBASE Optical Transceiver Module (1310nm,10km,MPO/APC,LR4,Parallel Single Mode) |
| QSFP-100G-SR4-MM850 | 100G QSFP28 Optical Transceiver Module (850nm,100m OM4,SR4,MPO) |
| QSFP-100G-PSM4-SM1310 | 100G QSFP28 Optical Transceiver Module (1310nm,500m,PSM4,MPO/APC) |
| QSFP-100G-LR4L-WDM1300 | 100G QSFP28 Optical Transceiver Module (1310nm,2km,LR4L,CWDM4,LC) |
| QSFP-100G-LR4-WDM1300 | 100G QSFP28 Optical Transceiver Module(1310nm,10km,LR4,WDM,LC) |

| PID | Description |
|---|---|
| **Cable** | |
| LSWM1STK | SFP+ Cable 0.65m |
| LSWM2STK | SFP+ Cable 1.2m |
| LSWM3STK | SFP+ Cable 3m |
| LSTM1STK | SFP+ Cable 5m |
| SFP-XG-D-AOC-7M | SFP+ to SFP+7m AOC |
| SFP-XG-D-AOC-10M | SFP+ to SFP+10m AOC |
| SFP-XG-D-AOC-20M | SFP+ to SFP+20m AOC |
| LSWM1QSTK0 | 40G QSFP+ Cable 1m |
| LSWM1QSTK1 | 40G QSFP+ Cable 3m |
| LSWM1QSTK2 | 40G QSFP+ Cable 5m |
| QSFP-40G-D-AOC-7M | 40G QSFP+ to 40G QSFP+7m AOC |
| QSFP-40G-D-AOC-10M | 40G QSFP+ to 40G QSFP+10m AOC |
| QSFP-40G-D-AOC-20M | 40G QSFP+ to 40G QSFP+20m AOC |
| LSWM1QSTK3 | 40G QSFP+ to 4x10G SFP+ Cable 1m |
| LSWM1QSTK4 | 40G QSFP+ to 4x10G SFP+ Cable 3m |
| LSWM1QSTK5 | 40G QSFP+ to 4x10G SFP+ Cable 5m |
| QSFP-100G-D-CAB-1M | 100G QSFP28 to 100G QSFP28 1m Passive Cable |
| QSFP-100G-D-CAB-3M | 100G QSFP28 to 100G QSFP28 3m Passive Cable |
| QSFP-100G-D-CAB-5M | 100G QSFP28 to 100G QSFP28 5m Passive Cable |
| QSFP-100G-D-AOC-7M | 100G QSFP28 to 100G QSFP28 7m AOC |
| QSFP-100G-D-AOC-10M | 100G QSFP28 to 100G QSFP28 10m AOC |
| QSFP-100G-D-AOC-20M | 100G QSFP28 to 100G QSFP28 20m AOC |
| QSFP-100G-4SFP-25G-CAB-3M | 100G QSFP28 to 4x25G SFP28 3m Passive Cable |
| QSFP-100G-4SFP-25G-CAB-1M | 100G QSFP28 to 4x25G SFP28 1m Passive Cable |

The Leader in Digital Solutions

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