DHUA TECHNOLOGY

DH-S5500-24GF4XF

High-performance 1000M Ethernet Switches

Features

· High Scalability, Protecting Investments

· IRF2

· Complete Security Control Policies

· Diversified QoS Policies

· High Availability

· Environment Friendliness and Energy Saving

Product Overview

The DH S5500 series switches are new-generation smart 1000M Ethernet switch products that provide high performance and high security. This series provides advanced hardware processing capabilities, diversified service features, large-capacity 1000M access ports, and high-density uplink capabilities, to meet requirements of users on high-density access and high-performance aggregation on campus networks. The DH S5500 series switches use pioneering energy-saving chips and innovative architecture design. This achieves minimum power consumption of the 1000M switches, and provides users with leading-edge green network access products that achieve environment-friendliness and energy saving.

Key Features

· High Scalability, Protecting Investments

The DH S5500 series switches have four fixed ports, which provide users with a cost-effective 10G uplink capability while implementing high-density 1000M access, thereby protecting user investments. The DH S5500 series switches also support the Intelligent Resilient Framework 2 (IRF2). Nine devices can be stacked, to form a logical entity. In this way, device capacity can be smoothly expanded along with network development, providing users with high flexibility and expansion capabilities.

· IRF2

The DH S5500 series switches support the IRF2 technology. Specifically, multiple physical devices are interconnected and virtualized into one logical device. In other words, users can manage and use the multiple devices like one single device. The IRF technology brings about the following benefits:

1) Streamlined management

After an IRF is built, a user can log in to the unified logical device by connecting to any port on any device, to manage the entire intelligent resilient system and all member devices in the system by configuring a single device, and it is not required to be physically connected each member device to configure and manage the member devices.

2) Streamlined services

Various control protocols run in a logical device formed by using the IRF also work as a single device. For example, routing protocols perform unified computation as a single device. The cross-device link aggregation technology is increasingly widely applied, and can replace original Spanning Tree Protocols. This saves a large quantity of exchanges between devices, streamlining network running, and reducing the convergence time during network flapping.

3) Elastic expansion

Elastic expansion can be implemented as required, to protect user investments. The IRF supports hot swapping of devices.

4) High reliability

The IRF is high reliably in terms of links, devices, and protocols. Physical ports of member devices can be aggregated, and physical connections between the IRF system and upper/lower-layer devices also support the aggregation function. This improves link reliability by means of multi-link backup. The IRF system consists of multiple member devices. If the master device is faulty, the IRF system automatically elects a new master device in a quick manner, to ensure service continuity of the IRF system, thereby implementing 1:N backup of devices. The IRF system backups up protocol configuration information to all other member devices in real time by using the protocol hot backup function, thereby implementing 1:N protocol reliability.

5) High performance

For high-end switches, the improvements in performance and port density are constrained by the hardware structure. The performance and port density of the IRF system are equal to the sum of performance and port densities of all member devices in the IRF system. Therefore, by using the IRF technology, the switching capacity and user port density of devices can be easily multiplied, to significantly improve device performance.

· Complete Security Control Policies

The DH S5500 series switches support multiple authentication functions. In a network environment with various clients, different clients support different access authentication modes. For example, some clients (for example, printer terminals) support only MAC address authentication, some user host perform 802.1X authentication, and some user hosts expects only portal authentication for web access. To flexibly meet the multiple authentication requirements in this type of network environment, the clients provide the Guest VLAN function. In this case, an authorized access terminal is allowed to access only a specified resource and use a corresponding policy, for example, obtaining an 802.1x client, upgrading a client, or obtaining other upgrade programs. The DH S5500 series switches support the Secure Shell V2 (SSH V2) feature, which can provide secure information assurance and powerful authentication functions, to protect the Ethernet switches from attacks such as IP address spoofing and plaintext password interception.

ARP attacks and ARP viruses are greatest threats to local area network security. The DH S5500 series switches support a variety of ARP defense functions, such as APR detection and ARP rate limiting. The ARP detection function is used to check user legality and ARP packet validity, and the ARP rating limiting function is used to protect CPUs from being affected by a large quantity of ARP packets.

· Diversified QoS Policies

1) The DH S5500 series switches support the following QoS features: Packet filtering on layer 2 (L2) to layer 4 (L4)
2) Flow classification based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port, IP protocol type, and VLAN
3) Flexible queue scheduling algorithms, including SP, WRR, and SP+WRR, which can be configured based on both ports and queues

· High Availability

The DH S5500 provides device-level and link-level multi-level reliability protection. The hardware supports the following protection techniques:
1) Over-current protection, over-voltage protection, and over-heat protection technologies
2) Fault detection and alarm reporting concerning the power source and fans

3) Automatic adjustment of fan rotation speed according to temperature changes

These design features ensure high reliability of the devices. In addition to device-level reliability, the switches further support the following link-level reliability features:
1) Diversified link-level reliability technologies, including protection protocols such as LACP, STP, RSTP, MSTP, and PVST
2) IRF2
3) 1:N redundant backup
4) Ring stack
5) ross-device link aggregation

These features significantly improve network reliability, and the network convergence time is not affected even if multiple services and a large traffic are carried on the network, ensuring normal service operation.

· Environment Friendliness and Energy Saving

The DH S5500 series switches use pioneering energy-saving chips and innovative architecture design. This achieves minimum power consumption of the 1000M switches. In addition, "zero-noise" silence design is implemented on some models, providing users with leading-edge green network access products that achieve environment friendliness and energy saving, thereby reducing maintenance costs for users.

Multiple techniques are used on the DH S5500 series switches, to ensure environment friendliness and energy saving. The techniques include:

1) Auto-power-down (automatic energy saving on ports): If a status of an interface remains "down" for a specific period of time, the system automatically stops supplying power to the interface, and the interface automatically enters the power saving mode.

2) EEE energy saving function: If a port remains idle for a specific period of time, the system enables the energy saving mode of the port. When packets need to be transmitted or received, listening code streams sent periodically are used to wake up the port to resume services, thereby achieving an energy saving effect.

The DH S5500 series switches comply with the RoHS standards.

Technical Specification

Model	DH-S5500-24GF4XF
Switching capacity	256 Gbit/s
Packet forwarding rate	96Mpps
Fixed port	24 x 100/1000Base-X optical port (8 x Combo port) 4 x 10G BASE-X SFP+ optical port
Link aggregation	Supports the following link aggregation features: ●GE/10GE port aggregation ●Dynamic aggregation ●Cross-device aggregation
Port	Supports the following port features: ●IEEE802.3x-based traffic control (full duplex) ●Storm suppression based on port rate percentage ●PPS-based and BPS-based storm suppression
IRF2	Supports the following IRF2 features: ●IRF2 ●Stacking via standard Ethernet interfaces ●Local stacking and remote stacking ●Distributed device management and distributed link aggregation
IP routing	Supports static routing.
VLAN	Supports the following VLAN features: ●Port-based VLANs ●Protocol-based VLANs ●QinQ and flexible QinQ ●VLAN mapping ●Voice VLANs ●Guest VLANs
ACL	Supports the following ACL features: ●Packet filtering on layer 2 (L2) to layer 4 (L4) ●Flow classification based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port, IP protocol type, and VLAN ●ACLs based on time ranges ●Global issuance of ACLs based on ports or VLANs
QoS	Supports the following QoS features: ●Restriction of the packet receiving rate and packet transmission rate on ports ●Packet redirection ●Eight output queues on each port ●Queue scheduling on ports (SP, WRR, and SP+WRR) ●Re-marking of 802.1p and DSCP priorities of packets
DHCP	Supports the following DHCP features: ●DHCP Client ●DHCP Snooping ●DHCP Snooping option82 ●DHCP Relay ●DHCP Server ●DHCP auto-config (zero configuration)
Multicast	Supports the following multicast features: ●IGMP Snooping/MLD Snooping ●Multicast VLANs
Layer-2 ring network protocol	Supports STP, RSTP, MSTP, and PVST.
OAM	Supports 802.1ag and 802.3ah.
Mirroring	Supports the following mirroring features: ●Port mirroring ●Remote switched port analyzer (RSPAN) ●Traffic mirroring
Security	Supports the following security features: ●Level-based user management and password protection ●802.1X authentication and centralized MAC address authentication ●Guest VLANs ●RADIUS authentication ●SSH 2.0 ●Port isolation ●Port security ●Restriction on the number of learned MAC addresses ●Protection of source IP addresses ●Detection of ARP intrusion ●IP address + MAC address + port multi-element binding
Management and maintenance	Supports the following management and maintenance features: ●Loading and upgrade via XModem, FTP, or TFTP ●Configurations via the CLI, Telnet and Console port ●SNMPv1/v2/v3 and Web-based network management ●RMON alarms, events, and history records ●Intelligent management centers ●Output of system logs, hierarchical alarms, and debugging information ●NTP ●Ping and Tracert ●Virtual Cable Test (VCT) ●Device Link Detection Protocol (DLDP) ●Loopback detection for ports ●Temperature alarms for the power sources and fans ●CPU protection
Environment friendliness and energy saving	Supports the following energy saving features: ●EEE (802.3az) ●Automatic power down function of ports ●Scheduled down function of ports (schedule job)
Input voltage	Rate voltage range: AC: 100 V–240V, 50/60 Hz DC: −36 V to −72 V
Dimensions (length x width x height) (unit: mm)	440 x 360 x 43.6
Power consumption	Static: 30 W (AC) or 38 W (DC) Full load: 60 W (AC) or 68 W (DC)
Operating ambient temperature	0ºC (32°F)–45ºC (113°F)
Relative operating ambient humidity (non-condensing)	5%–95%