



Data Sheet HTCS6510-48S6Q-HI

HTCS6510-48S6Q-HI (R2) Dual Stack 40G Data Center

Ethernet Switch

HTCS6510-48S6Q-HI has 48*10GE SFP+ ports and 6*40G QSFP+ ports.

Product Appearance:



Product Overview:

HTCS6510-48S6Q-HI next-generation data center 40G switch has advanced hardware and software architecture design,

Built-in modular 1+1 redundant power supplies, 4+1 redundant fans,

Cross ventilation and wind direction adjustable. HTCS6510-48S6Q-HI supports data center features such as TRILL, VEPA fully applicable to the data center TOR (Top of Rack) application requirements of the switch.

HTCS6510-48S6Q-HI has 48*10GE SFP+ ports and 6*40G QSFP+ ports.

HTCS6510-48S6Q-HI supports IPv6 with hardware and passes the IPv6 form certification Phase II. With the abundant IPv6 features, the product can also work for next generation network.

HTCS6510-48S6Q-HI is ideal for cloud computing data center server access, core switch of small to medium datacenter.

For campus or other large network, HTCS6510-48S6Q-HI could also be deployed at aggregation or core layer as its high performance and reliability.

Key Features and Benefits:

□ Performance and Scalability

With high switching capacity, HTCS6510-48S6Q-HI supports wire-speed L2/L3 forwarding and high routing performance for IPv4 and IPv6 protocols.

The 10 Gigabit Ethernet connectivity of HTCS6510-48S6Q-HI is accomplished via a hot-pluggable 10 Gigabit SFP+ transceiver which supports distance up to 300 meters over multimode fiber and 10 to 40km over single-mode fiber (The distance depends the optical module chosen).

□ Full Data Center Features

As new generation data center switch, HTCS6510-48S6Q-HI supports full data center features such as TRILL, VEPA (Virtual Ethernet Port Aggregator), VxLAN, which not only improves the efficiency, guarantees the flexibility, but also enhanced the scalability of datacenter network.

□ Open Flow

HTCS6510-48S6Q-HI supports OpenFlow1.0 standard protocol. Open Flow network is increasingly becoming a trend as the core protocol of SDN network. It makes the network easier programming Open Flow brings the high performance to datacenter users via self-defined network. With Open Flow, this product is ideal to build SDN test-bed for research institutes and SDN Experimental Bureau for large ISP and operator.

□ VSF (Virtual Switch Framework)

Virtual Switch Framework could virtualize multiple HTN switches into one logical device, achieves the sharing of information and data tables between different switches. The performance and ports density of virtualized device are greatly enlarged by times under VSF. VSF also provides simplified management work for network administrator and more reliability.

□ **Full Optical Port**

HTCS6510-48S6Q-HI supports abundant optical connection ports to construct full optical network and increases the performance of networks.

□ **Rich L3 Features**

HTCS6510-48S6Q-HI delivers high-performance, hardware based IP routing.

RIP, OSPF and BGP provide dynamic routing by exchanging routing information with other Layer 3 switches and routers.

With HTCS6510-48S6Q-HI, customers could easily achieve Policy based Route (PBR), which is important when they need multi exit application.

□ **Strong Multicast**

HTCS6510-48S6Q-HI supports abundant multicast features such as IGMPv1/v2/v3 snooping and fast leave and IGMPv1/v2/v3, PIM-DM, PIM-SM, PIM-SSM and even MSDP. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detection functions, HTCS6510-48S6Q-HI provides great application experience for customer.

□ **MPLS/VPLS**

HTCS6510-48S6Q-HI supports MPLS L3 VPN/MPLS L2 VPN (VPLS) and helps customer to construct more secure/extendable network. With max.255 VRF instances, HTCS6510-48S6Q-HI series could be deployed as P & PE devices, guarantees the variety of services.

□ **Easy high reliability network**

MRPP is Multi-layer Ring Protection Protocol, which is HTN's private fast Ethernet ring protocol. Comparing to spanning tree protocol, it has advantages of fast convergence, simple protocol calculation, less system resources cost and so on, which can improve the reliability of Ethernet network operation.

□ **Comprehensive QoS**

With 8 queues per port, HTCS6510-48S6Q-HI enables differentiated management of up to 8 traffic types. The traffic is prioritized according to IEEE802.1p, DSCP, IP precedence and TCP/UDP port number, giving optimal performance to real-time applications such as voice and video.

HTCS6510-48S6Q-HI also supports Bi-directional rate-limiting, per port or traffic class, preserves network bandwidth and allows full control of network resources.

□ **Enhanced Security**

IEEE 802.1X port-based access control and MAC-based access control ensure all users are authorized before being granted access to the network.

Ingress/Egress Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on L2/L3/L4 headers information. And for some services are based on time, the product can support time based ACL to match the requirement.

Secure Shell (SSH) encrypts network management information via Telnet providing secure network management.

RADIUS/TACACS Authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration of the switch.

□ **Abundant IPv6 Support**

HTCS6510-48S6Q-HI supports IPv6 switching and routing based on hardware for maximum performance. With increased network devices growing and the need for larger addressing and higher security becomes critical, HTCS6510-48S6Q-HI will be a right product to meet the requirement. HTCS6510-48S6Q-HI passed IPv6 form Phase II certification, which is the best proof of the application.

Specification:

Item	HTCS6510-48S6Q-SI
Physical port	48 * 10G SFP+ and 6 * 40G QSFP+
Management port	10/100/1000Mbps RJ45 Ethernet Management port USB2.0 Management port
Performance	
Switching Capacity	1440Gbps
Throughput	1071Mpps
MAC Address	96K(standard)/32K (route) /288 (bridge)
Routing Table	8k(standard)/128k (route) /8k (bridge)
ARP Table	208k(standard)/16k (route) /16k (bridge)
Physical	
Dimension(W*H*D)	433.8mm*44mm*550mm
Relative Humidity	10%~90% non-condensing
Temperature	Working 0°C~45°C, storage -40°C~75°C
Power Input	AC: 100~240V,50~60 Hz
Power Supply	Default with 2 AC power supply
Power Consumption	305W
MTBF	>=200000 Hours
Main Features	
	IEEE 802.3(10Base-T), IEEE 802.3u(100Base-TX), IEEE 802.3z(1000BASE-X) IEEE 802.3ab(1000Base-T), IEEE 802.3ae(10GBase), IEEE802.3x IEEE 802.3ak(10GBASE-CX4) IEEE 802.3ba 12k Jumbo Frame Port Loopback Detect

L1, L2 Features	LLDP and LLDP-MED UDLD 802.3ad LACP, max 128 group trunks with max 8 ports for each trunk LACP Load Balance
	N:1 Port Mirroring RSPAN ERSPAN
	IEEE802.1d(STP) IEEE802.1w(RSTP) IEEE802.1s(MSTP) Root Guard BPDU Guard BPDU Tunnel
	802.1Q, 4096 VLAN MAC VLAN, VOICE VLAN, PVLAN, Protocol VLAN, Multicast VLAN QinQ, Selective QinQ, Flexible QinQ GVRP N:1 VLAN Translation Broadcast / Multicast / Unicast Storm Control
	IGMP v1/v2/v3 Snooping and L2 Query ND Snooping MLDv1/v2 Snooping
	Port Security
	Flow control: HOL, IEEE802.3x Bandwidth Control
	Static Routing, RIPv1/v2, OSPFv2, BGP4 OSPFv3, BGP4+ OSPF Multiple Process LPM Routing

L3 Features	<p>Policy-based Routing(PBR) for IPv4 and IPv6</p> <p>VRRP</p> <p>URPF,</p> <p>ECMP</p> <p>BFD</p>
	<p>IGMP v1/v2/v3, IGMP Proxy,</p> <p>DVMRP,PIM-DM,PIM-SM,PIM-SSM, any cast RP, MSDP</p> <p>Static Multicast Route</p> <p>Multicast Receive Control</p> <p>Illegal Multicast Source Detection</p>
	<p>ARP Guard, Local ARP Proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit</p> <p>Anti ARP Cheat, Anti ARP Scan</p>
	<p>DNS Client</p>
	<p>GRE Tunnel</p>
IPv6	<p>6to4 Tunnel, Configured Tunnel, ISATAP Tunnel, GRE Tunnel</p> <p>ICMPv6,ND,DNSv6</p> <p>IPv6 LPM Routing,IPv6 Policy-Based Routing(PBR)</p> <p>IPv6 VRRPv3,IPv6 URPF, IPv6 RA</p> <p>RIPng,OSPFv3,BGP4+</p> <p>MLD Snooping,IPv6 Multicast VLAN</p> <p>MLDv1/v2, PIM-SM/DM for IPv6, IPv6 Any cast RP, IPv6 ACL, IPv6 QoS</p>
MPLS	<p>MPLS, VRF, LDP</p> <p>MPLS L3 VPN, MPLS L2 VPN(VPLS), VPWS</p>
QoS	<p>8 Queues</p> <p>SWRR,SP,WRR,DWRR,SDWRR,WRED</p> <p>Traffic Classification Based on 802.1p CoS, ToS , DiffServ DSCP, ACL, port number</p> <p>Traffic Shaping</p> <p>PRI Mark/Remark</p>
	<p>IP ACL ,MAC ACL,IP-MAC ACL</p>

ACL	<p>Standard and Expanded ACL Based on source/destination IP or MAC, IP protocol, TCP/UDP port, DSCP, ToS, IP Precedence), VLAN, Tag / Untag, CoS</p> <p>REDIRECT and accounting based ACL</p> <p>Rules can be configured to port, VLAN, VLAN routing interfaces</p> <p>Time ranged ACL</p>
Security	<p>802.1x AAA</p> <p>Port, MAC based authentication</p> <p>Accounting based on time length and traffic</p> <p>Guest VLAN and Auto VLAN</p>
	RADIUS for IPv4 and IPv6
	TACACS+ for IPv4 and IPv6
	MAB
DHCPv4/v6	<p>DHCP Server/Client for IPv4/IPv6</p> <p>DHCP Relay/Option 82</p> <p>DHCP Snooping/Option 82</p>
Traffic Monitor	sFlow Traffic Analysis
<p>Security Network</p> <p>Management</p>	<p>CLI, WEB, Telnet, SNMPv1/v2c/v3 through IPv4 and IPv6</p> <p>Syslog and external Syslog server</p> <p>HTTP SSL</p> <p>SNMP MIB, SNMP TRAP</p> <p>FTP/TFTP</p> <p>SNTP/NTP</p> <p>RMOM 1,2,3,9</p>

	<p>Authentication by radius</p> <p>SSH v1/v2</p> <p>Dual firmware images/ Configuration files</p> <p>802.3ah OAM, 802.1ag OAM</p> <p>Open Flow 1.0</p> <p>(support open controller Open daylight, Floodlight, Ryu, Pox, etc.)</p>
Data Center Features	<p>IEEE VEPA(Virtual Ethernet Port Aggregator)</p> <p>TRILL</p> <p>VXLAN</p> <p>VSF(Virtual Switch Framework)</p>

The contents marked with “*” need future upgrade or are under development

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All specifications are subject to change without further notice. All features with * mark will be available by firmware upgrade

Ordering Information:

Product	Description
HTCS6510-48S6Q-HI	40G Advance Enhanced Datacenter Switch (48*10GbE(SFP+) +6*40GbE(QSFP+)), Redundant and modular Design, High performance. Full L3 features, Default with two AC power supply, Default with 4 fans, Broadcom chipset
QSFP-SR	40G QSFP module (OM3 100m, OM4 150m), MTP
AOC-SFPX-10M	AOC cable with 2 10G(SFP+) modules, 10m, suitable for SFP+ ports on same model of switch, can be used for VSF
DAC-SFPX-3M	DAC cable with 2 10G(SFP+) modules, 3m, suitable for SFP+ ports on same model of switch, can be used for VSF
DAC-QSFP-5M	DAC cable with 2 40G(QSFP) modules, 5m, suitable for QSFP ports on same model of switch, can be used for VSF

Solution Diagram:

