



## **Data Sheet - HTCS16800 14U-Chassis Core Layer Routing Switch**

# HTCS16800 Series Cloud Stone Core Layer Routing Switch

**It has 2 management slots and 9 business slots, delivering the highest capacity 10GE, 40GE and 100GE ports in 14U-Chassis in the industry, with up to 432 10GE ports, or 144 40GE ports, or 72 100GE ports**

## **Product Appearance:**



## **Product Overview:**

**Hi-Tech Networks Technology** HTCS16809 is designed to meet the requirement of mission-critical data centers with high performance, exceptional availability and outstanding scalability. It has 2 management slots and 9 business slots, delivering the highest capacity 10GE, 40GE and 100GE ports in 14U-Chassis in the industry, with up to 432 10GE ports, or 144 40GE ports, or 72 100GE ports

HTCS16809 is ideal for core layer of data center or campus network, and core/aggregation of IP metropolitan networks.

## **Key Features and Benefits:**

### **□ Adaptive Campus & IDC network**

The Campus network prefers traditional 3-Layer Infrastructure, to connect PC, mobile device, with 'smaller layer 2 but bigger layer 3' hardware tables, like IPv6 routing and MPLS tables. But IDC network often prefers 2-Layer Infrastructure, to connect server, storage. It needs 'bigger layer 2 but smaller layer 3' hardware tables with features like virtualization, TRILL, VEPA etc. HTCS 16809 supports assigning table resource dynamically, with abundant datacenter features, to meet both requirements from Campus and IDC Infrastructure.

### **□ Adaptive Traditional business & SDN business network**

HTCS16809 supports OpenFlow1.3 for SDN network (Software Defined Network), which can make the upgrade smoothly from traditional network to SDN network, to reduce the TCO.

### **□ 14U Compact design**

With 14U compact design, 3 pieces of HTCS16809 can be installed in one cabinet, delivering maximum 432 40GE ports or maximum 1296 10GE ports, which makes highest port density in industry

### **□ Three separate planes (management, control and switching)**

HTCS 16809 has three separate planes: management plane, control plane, and switching plane for system robust and high availability. If one of them crashed, it won't impact other business

### **□ Dual Power Supply Planes**

HTCS16809 adopts A+B Dual Planes of Power Supply, supporting 1+1 redundancy and N+N redundancy in one single Power Supply.

## Specification:

Items	HTCS16809
Slot	2 management slots 4 fabric card slots 9 business slots
Business Ports	1GE : MAX 432 10G : MAX 432 40G: MAX 144
Performance	
Switching Capacity	10.24Tbps (can upgrade to 20.48Tbps)
Forwarding Rate	7618Mpps (can upgrade to 15237Mpps)
MAC Table	288K-400K
Routing Table	Pv4 8K / IPv6 4K
VLAN Table	4K
Features	
System Architecture	CLOS
Forwarding	Storage and Forwarding
	IEEE802.3(10Base-T)  IEEE802.3u(100Base-TX)  IEEE802.3z(1000BASE-X)  IEEE802.3ab(1000Base-T)  IEEE802.3ae(10GBase)  Loopback Interface

L2 Features	9k Jumbo Frame
	Port Loopback Detection
	LLDP and LLDP-MED
	UDLD
	LACP 802.3ad, max 128 group trunks with max 8 ports for each trunk
	Link Aggregation by manual
	IEEE802.1d(STP)
	IEEE802.1w(RSTP)
IEEE802.1s(MSTP) Max 48 instances	
Root Guard	
BPDU Guard	
BPDU Forwarding	
One to one or any to one mirror	
Mirror cross business cards	
RSPAN	

	<p>GMP v1/v2/v3, IGMP v1/v2/v3 Snooping, IGMP Proxy</p> <p>ICMPv6, ND, ND Snooping, MLDv1/v2, MLDv1/v2 Snooping</p>
	<p>GVRP</p> <p>Port/ MAC/ IP Segment/ Portocol/ Voice/ Private/ VLAN support</p> <p>Multicast VLAN Register/MVR for IPv4 and IPv6</p>
	<p>Port-based 802.1Q, 4K VLAN</p> <p>QinQ and Selective QinQ</p>
	<p>DFI/Broadcast/Multicast Stormcontrol</p>
	<p>Binding(IPv4/IPv6), IP Source Guard MAC Filter, MAC Limit</p>
	<p>IP Source Guard</p>
	<p>Port Binding(IPv4 /IPv6)</p>
	<p>Support Smart Link (or named Flexible Link)</p>
	<p>IP Protocol(IP support both of IPv4 and IPv6)</p>

L3 Features	Default Routing, Static Routing, Blackhole Route, VLSM and CIDR,
	RIPv1/V2, OSPFv2, BGP4, support MD5 Authentication LPM Routing
	OSPFv3, BGP4+ support
	Policy based Routing(PBR) for IPv4 and IPv6
	Support 4 byte BGP AS number
	Support GR for OSPF and BGP
	VRRP, VRRP v3
	DVMRP, PIM-DM, PIM-SM, PIM-SSM
	MSDP(Multicast Source Discovery Protocol)
	Static Multicast Route
	Multicast Edge Configure
	Any cast RP for IPv4 and IPv6
	PIM-SM/DM/SSM for IPv6, 6 to 4 Tunnels, configured Tunnels, ISATAP



	<p>Multicast Receive Control</p> <p>Illegal Multicast Source Detection</p> <hr/> <p>URPF for IPv4 and IPv6</p> <hr/> <p>BFD</p> <hr/> <p>ECMP(Equal Cost Multi-Path)with maxim 8 groups</p> <hr/> <p>ARP Guard, Local ARP Proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit</p>
Data Center features	<p>VSF</p> <p>TRILL*</p> <p>VEPA*</p> <p>SDN OpenFlow1.0/1.3*</p> <p>(support open controller Opendaylight, Floodlight, Ryu, Pox, etc.)</p>
Tunnel Technical	<p>Manual Configure IPv4/IPv6 tunnel</p> <p>6to4 Tunnel</p> <p>SATAP Tunnel</p>

	GRE Tunnel
MPLS	<p>255 VRF/VFI</p> <p>LDP</p> <p>L3 MPLS VPN</p> <p>L2 VLL/VPLS</p> <p>MPLS/VPLS Proxy</p> <p>Cross Domain MPLS VPN</p> <p>MPLS QOS</p> <p>*supported by software upgrade in future</p>
QoS	8 Hardware Queues per port
	Traffic Classification based on IEEE 802.1p, ToS, port and DiffServ
	SP, WRR, SWRR
	Traffic Shaping
	Rate Limit for Import and Export

	PRI Mark/Remark
	WRED
	2 buckets with dual rate and triply color mark
ACL	Standard and Expanded ACL
	IP ACL and MAC ACL,
	ACL based on source/definition IP, MAC, L3 protocol, TCP/UDP port number, IP PRI(DSCP, ToS, Precedence), Time
	Ingress and Egress ACL
ACL-X	Time-Based Security Auto-negotiation
	ACL rules can be configured to port, VLAN, VLAN routing interfaces
	Can be used for QoS Classification
Anti-attack and Security	S-ARP: ARP Inspection, defense ARP-DOS Attack and Address Clone
	Anti-Sweep: prevent Ping Sweep
	S-ICMP: resist PING-DOS attack, ICMP unreachable attack
	S-Buffer: prevent DDOS attack
	Switch engine CPU protection
	Key message priority: secure processing of key legal messages
	Port credit: inspect illegal DHCP Server, Radius Server. Connection via credit port only
	Support URPF, avoid IP address clone
	All the above technologies efficiently prevent various DOS attack (e.g. ARP, Synflood, Smurf, ICMP attack), support ARP monitoring, defense Worm, Bluster, check sweep and raise alarm
DHCP	Support DHCP Client, Relay, Snooping, Option 82
	DHCP Server for IPv4 and IPv6
	DHCP v6 and DHCP Snooping v6

DNS	DNS Client DNS Proxy
Ring Protocol	MRPP (Multi-Ring Protect Protocol)
Access security	802.1X Port, MAC, username based Account based on time length and traffic Guest VLAN and Auto VLAN Work with private client can manage P2P traffic MAC Based AAA(Client free access) PPPOE/PPPOE+ forwarding
AAA	RADIUS AAA for IPV4 and IPV6 TACACS+ AAA
Configuration and Management	CLI, Telnet, WEB, SSH and SSL
	SNMPv1/v2c/v3
	MIB
	RMON 1, 2, 3, 9

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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
HTCS16809	HTCS16809 dual stack backbone routing switch chassis (2 management slots, 4 fabric card slots and 9 line slots), standard with 4 fan trays, no fabric, management cards and no power modules.
M16K-SUP	HTCS16809 management card. one fabric card at least is needed to support HTCS16809 Working.
M16K-FC	HTCS16809 switch fabric modules with bandwidth reaching 1.28T; the integrated equipment Supports up to 4 Switch fabric modules. At least 1 fabric module need be installed.
M16K-8-100G *	HTCS16809 line card with 8 100G Ethernet ports
M16K-16Q	HTCS16809 line card with 16 QSFP+ ports
M16K-48XS2 Q	HTCS16809 line card with 48 SFP+ and 2 QSFP+ ports
M16K-24T24S 2XS	HTCS16809 line card with 24GT, 24GX and 2 10SFP+ ports
M16K-PAC	HTCS16809 AC power supply (1600w)
M16K-FAN	HTCS16809 FAN Module
AOC-SFPX-10 M	AOC cable with 2 10G(SFP+) modules, 10m, suitable for SFP+ ports on same model of switch, can be used for VSF
DAC-SFPX-3 M	DAC cable with 2 10G(SFP+) modules, 3m, suitable for SFP+ ports on same model of switch, can be used for VSF
DAC-QSFP-5 M	DAC cable with 2 40G(QSFP) modules, 5m, suitable for QSFP ports on same model of switch, can be used for VSF

## Solution Diagram:

