H3C 5820X-28C FIBRE CHANNEL OVER ETHERNET (FCoE) MODULE

H3C 5820X-28C with FCoE Module - provides line-rate, low-latency, 10 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) connectivity for data center access layer I/O consolidation

OVERVIEW

As data center connectivity needs have evolved, enterprises have typically deployed discrete technologies in silos to address distinct networking requirements. The benefits of data center network convergence—high-performance computing, storage and Ethernet—are well documented. However, adoption among customers is still in the early stages, primarily because standards for end-to-end/multi-hop Fibre Channel over Ethernet (FCoE) are not completely finalized.

Instead of collapsing both storage and data onto a common backbone, many enterprises plan to keep the two technologies on dedicated networks (Fibre Channel and Ethernet) for years to come, and converge them only where and when it makes sense for their business.

3Com's H3C FCoE solution decouples (in-the-rack) access layer server and storage I/O consolation from end-to-end full-fabric convergence. This enables customers to gain the benefits of 10 Gigabit server/access layer I/O consolidation immediately, including reduced access layer cost and complexity, seamless migration from Gigabit to 10 Gigabit, higher performance Fibre Channel (FC) access, simplified cabling and reduced power consumption.

This type of FCoE deployment enables customers to extend rather than replace existing FC, which preserves their network infrastructure investments while laying the foundation for broader network convergence in the future. It also doesn't disrupt current data center management practices, software, or the roles of network and storage administrators.
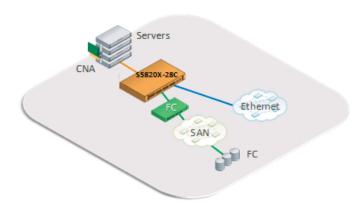
H3C S5820X-28C FCoE MODULE

The S5820X Series Switches are among the most advanced switches developed by H3C. They deliver a unique combination of 1/10 Gigabit port density, high availability and full Layer 2 and Layer 3 dual-stack IPv4 and IPv6 support. The switches feature line-rate performance on all ports and cut through switching to minimize latency. These switches are extremely versatile and can be used in enterprise core and distribution applications as well as data center top-of-rack server access applications.

The H3C S5820X-28C is a 2RU flex chassis platform with 14 fixed 10 Gigabit SFP+ ports and two front-facing expansion module slots that can provide eight additional 10 Gigabit ports for even greater deployment flexibility and investment protection.

The H3C S5820X-28C switch can be configured with 2 FCoE modules that can help customer dramatically lower networking costs and complexity by consolidating server I/O while boosting network performance. This I/O consolation can enable customers to consolidate Ethernet and HBA server NICs with two high-performance 10 Gigabit Converged Network Adaptors (CNA) to achieve full redundancy and availability, while simultaneously increasing bandwidth per virtual machine.

This higher-performing 10 Gigabit access also lays the foundation for storage area network (SAN) convergence, which can further consolidate Fibre Channel I/O devices and switches. Ultimately, a network with fewer I/O devices, ports and switches requires less power and cooling, reducing operating expenses and total cost of ownership.

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The FCoE module's four external ports can easily be configured as four FC, two 10GE plus two FC, or four 10GE ports suitable for device connections, or uplinks to other Ethernet switches. The dual nature of the ports maximizes deployment flexibility, lowers costs and provides investment protection by enabling your network to respond quickly to growth and changes within your organization.

H3C S5820X-28C FCoE MODULE DETAILED

The H3C S5820X-28C FCoE module provides a high-performance 8/4/2 Gbps Fibre Channel and/or 10 Gigabit Ethernet connectivity. Our exclusive "flex port" technology enables you to decide the mix of Ethernet or Fibre Channel connectivity needed to support your infrastructure goals, easily changing the format of the four ports as your business requirements change.

Configured for Fibre Channel, the FCoE module allows CNA-enabled servers attached to the S5820X-28C switch to access new or existing FC storage resources without the need for an expensive, external top-of-rack FCoE switch.

When connected to SANs, the solution is transparent to SAN-side management applications, which only see the CNA-enabled servers, ensuring 100 percent interoperability. Existing storage administration and security practices are not impacted.

S5820X-28C FCoE MODULE CUSTOMER BENEFITS

› Enables 1GE-to-10GE migration at the network edge, future-proofing your network from obsolescence

› High-performance access layer I/O consolidation reduces the number of devices on your network, simplifying operations

› Consolidates multiple server NICs/HBAs down to one or two 10 GE CNAs, reducing power consumption and otherwise lowering your network's total cost of ownership

› Keeps the SAN/FC fabric and management separate from Ethernet data so network performance is not effected

› 100% SAN Interoperability eliminates the need for Cisco, Brocade and other third-party certification while keeping SAN management practices in place

› Multi-vendor support for SAN connections safeguards your network infrastructure investment

Feature Summary

Each S5820X-28C media slot can support 1 or 2 FCoE modules , providing ample expansion options
Module support 8/4/2 Gbps Fibre Channel and/or 10 Gigabit Ethernet connectivity
Acts as a FCoE-to-FC gateway using FC NPIV* protocol (Ethernet-to-FC bridge) to reduce the number of appliances on your network
4 external SFP+ FLEX ports, configurable for 10GE or FC operation, maximize deployment options
Support for copper or optical transceivers optimizes deployment flexibility
100% SAN interoperability and NPIV-based transparent mode eliminate incompatibility issues

*N_Port ID Virtualization or NPIV is a Fibre Channel facility allowing multiple N_Port IDs to share a single physical N_Port. This enables multiple Fibre Channel initiators to occupy a single physical port, easing hardware requirements in Storage Area Network design, especially where virtual SANs are called for. NPIV is defined by the Technical Committee T11 in the Fibre Channel - Link Services (FC-LS) specification.

REDUCE HARDWARE COST AND COMPLEXITY

› Module connects to both Ethernet/CEE LANs and Fibre Channel SANs

› Low cost, flexible 10GE / FCoE migration

UNMATCHED FLEXIBILITY AND EASE OF DEPLOYMENT

› Exclusive Flex Port feature enables customer-paced convergence: ports configure to FC or CEE operation

› Transparent NPIV mode provides plug-and-play connection to external SANs from any vendor

› Management via standard tools streamlines training

SCALABILITY AND PERFORMANCE

› 4 SFP+ ports per module

› 10GE CEE port operation

› 8/4/2 Gbps Fibre Channel port operation

› RJ-45 Ethernet management port

INTEROPERABILITY

› 100% SAN interoperability

› 100% LAN interoperability

› Supports optical or copper transceivers

FCoE FEATURES

› FIP VLAN Discovery

› Supports plug-n-play VLAN assignment of FCoE FCF fabrics for CNA Servers.

› FIP FCF Discovery

› Fabric discover with connection based load distribution

› FIP FLOGI / FDISC

› Fabric connections with QLogic module performing NPIV attachment to FC fabrics

› FCoE Data Path

› Full line rate data path for FCoE/FC conversion

H3C 5820X-28C 4-Port 8/4/2 Gbps FCoE Module

Module in the H3C S5820X-28C

SERVICE AND SUPPORT

H3C Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized, local focus in the local language helps drive productivity and minimize expenses. Because H3C understands both the technology and the business, we're the partner you need to remain strong and competitive.

Suggested Service, Support and Training Offerings	
H3C Guardian℠ Maintenance Service	This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades
H3C Express℠ Maintenance Service	This service provides speedy access to H3C shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades
Network Health Check	An activity-auditing service focused on improving network performance and productivity Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations Extensive report provides blueprint for action
Network Installation and Implementation Services	Experts set up and configure equipment and integrate technologies to maximize functionality and minimize business disruption For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration
Project Management	Provides extra focus and resources that special projects demand H3C engineers manage entire process from initial specifications to post-project review Using structured methodology, requirements are identified, projects planned and progress of implementation activities tracked
Global Education and Training	Self-paced and instructor-led technology and product courses, plus certification programs

For additional information, please visit www.h3cnetworks.com/services

PRODUCT WARRANTY

H3C S5820X-28C FCoE Expansion Module has a 1-year warranty.

SPECIFICATIONS

Features	5820X-28C FCoE Module
FCoE	
Compliance	Fibre Channel on Ethernet (FC-BB-5)
	IETF RFC 3643 draft standard
Support	FIP FCoE initialization protocol
	FIP snooping
	Auto-negotiation, full-duplex FC operation
	NPIV transparent connections to FC fabrics
Ethernet Interface	
Compliance/Support	10Gbps XAUI ports x 4 (internal)
	ETS - Enhanced transmission Selection (802.1Qaz)
	PFC - Class-based Flow Control (802.1Qbb)
	DCBX - DCB Capability Exchange Protocol (802.1Qbb)
Electrical	MDIO Slave and Master (TBD)
	Connected and Activity LED controls in Ethernet mode
Fibre Channel Standards	
	Physical Interface (FC-PI-3)
	Line Services (FC-LS)
	Framing & Signaling (FC-FS-2)
	Virtual Interface Architecture Mapping (FC-VI)
	Fabric Element MIB Specification (RFC 2837)
	Fibre Alliance MIB Specification (Version 4.0)
	Methodologies for Interconnects (FC-MI-2)
	Device Attach (FC-DA)
Fibre Channel Classes of Service	Class 2, Class 3, and Class F (inter-switch frames) connectionless Fibre Channel protocol support
NPIV support	FC-DA-2, FC-MT, FC-FS clause 5.2.41
	FC-LS table 141 clause 5.2.41
	04-075v0, 03-184v1, 03-046
Converged Network Adapters (CNAs)	QLogic p/n: FE0210402-07
	Description: QLE8142 PCI Express5.0 GHz 2.5 GHzx4 / x810GbE Dual Optical
Physical Interfaces	
External Customer Interfaces	Four external SFP+ Flex Ports which configure to assume either of the following identities
	10 Gigabit Converged Enhanced Ethernet (CEE)
	8/4/2 Gbps Fibre Channel
	RJ-45 Ethernet management port
	Unit power and system status LEDs
	Port login and activity LEDs
	Recessed reset switch
Media Support	
Fibre Channel	Hot-pluggable, 3.3 volt 8Gb SFP+ transceivers
	Also compatible with 4-Gbps and 2-Gbps SFPs
	Shortwave/longwave optical
Ethernet	Hot-pluggable, 3.3 volt 10 Gigabit SFP+ transceivers
	TwinAx copper cables
Diagnostics	
Power-On-Self-Test (POST) status via	Telnet
	Web browser interface

SPECIFICATIONS (continued)

Features	5820X-28C FCoE Module
Run-time diagnostics status and control on all ports via	SNMP (status only) Telnet/CLI Web browser interface API interface
Other Features	
	SMI-S 1.1 support in firmware SAN boot support Advanced Security (RADIUS, SSH, SSL)
Software/Firmware Management Interfaces	
	Simple Network Management Protocol (SNMP)/Management Information Base (MIB) CIM Provider Telnet/Command Line Interface (CLI) Web Browser Management Interface API Interface
Environmental Specs	
Operating	Temperature: 0°C to 45°C. Shock: halt 30g rms Vibration: halt 30g rms Humidity: 5%--95% Altitude: -60M to 4000M
Non-Operating	Temperature: -40°C to 70°C. Shock: halt 30g rms Vibration: halt 30g rms Humidity: 5%--95% Altitude: -60M to 4500M
Electrical	Input Voltage Voltage: +12V DC Tolerance: 8.8V to 13.2V Ripple: 1% Current (Typical): 2.5 A Current (Maximum): 3 A Aux Power Voltage: +3.3V DC Tolerance: (TBD) Ripple: (TBD) Current (Maximum): 500 mA
Thermal	Airflow is left to right (when viewing the faceplate of the module)
Certifications	
Safety	USA Canada EU Australia New Zealand China

ORDERING INFORMATION

Module

SKU No.	Product Name
0231A0MA	H3C 5820X-28C 4-Port 8/4/2 Gbps FCoE (SFP+) Expansion Module

Visit www.H3Cnetworks.com for more information about H3C enterprise solutions.

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