

DATASHEET

IP Switch Brocade FCX648S

THE IDEAL IP SWITCH FOR THE PRIMERGY CX1000

The Brocade FCX648S is Brocade's next generation stackable data center class Ethernet switch specifically designed to address the unique requirements of the enterprise edge market. The Brocade FCX648S switch delivers high-performance, scalable and flexible enterprise campus access solutions with only 1 rack unit (RU).

The single Brocade FCX648S offers 48 ports with 1GbE for connecting server and storage systems together and two 10GbE uplinks to the data center network. Up to eight Brocade FCX648S switches can be stacked into a single logical switch with a single IP address to simplify management.

Brocade FCX648S is targeted at enterprises of all sizes. Large enterprise companies as well as medium and small enterprises will use this switch to connect end users' end devices in the data centers.

The typical usage environment for the switch is the data center where it can be used as a top of the rack- or access-layer-switch. Another very important usage scenario is the PRIMERGY CX1000 solution. In this solution, in which 38 rack servers work together in one rack, the Brocade FCX648S offers high performance server connectivity and network redundancy.



FEATURES AND BENEFITS

MAIN FEATURES	BENEFITS
<p>Simplified, High-Performance Stacking</p> <ul style="list-style-type: none">■ The Brocade FCX648S includes two dedicated 16 Gbps stacking ports,■ Up to eight Brocade FCX648S switches can be stacked into a single logical switch with a single IP address	<ul style="list-style-type: none">■ Providing simple and robust expandability for future growth at the network edge■ Simple management■ Flexibility■ Ideal for customers who Pay as you grow■ Easy extensibility
<p>Power</p> <ul style="list-style-type: none">■ Power to campus devices is automatically negotiated, providing exactly the amount of power that they need.	<ul style="list-style-type: none">■ Reduced power consumption■ If devices go into sleep mode, they can request less power from the network, minimizing power usage in the campus environment
<p>PRIMERGY CX1000</p> <ul style="list-style-type: none">■ The Brocade FCX648S is a part of the PRIMERGY CX1000 solution	<ul style="list-style-type: none">■ The switch is pre-tested and certified with the PRIMERGY CX1000 and therefore the preferred switch for this solution

TECHNICAL DETAILS

GENERAL SPECIFICATION	Brocade FCX648S
Switching bandwidth (data rate, full duplex)	200 Gbps
Forwarding bandwidth (data rate, full duplex)	150 Mpps
Stacking bandwidth (data rate, full duplex)	64 Gbps
10/100/1000 Mbps RJ-45 ports	44
10/100/1000 Mbps combination ports	4
16 Gbps CX4 stacking ports	2
Power supplies	2 removable (second optional)
10 Gigabit Ethernet module	FCX-2XG
Second power supply	RPS13
Replacement fan unit	FCX-S-FAN
10/100/1000 Mbps combination ports	4
System Architecture	
Connector options	10/100/1000 ports: RJ-45 (fixed), 1 Gbps SFP combo ports: SX; 10 Gbps XFP ports: SR; Out-of-band Ethernet mgmt: RJ-45 (fixed); Console management: DB9
Maximum MAC addresses	32,000
Maximum VLANs	4096
Maximum STP (spanning trees)	255
Maximum routes (in hardware)	16,000
Trunking	Maximum ports per trunk: 8 Maximum trunk groups: 32
Maximum Jumbo Frame size	9000 bytes
IEEE standards compliance	<ul style="list-style-type: none"> • 802.1AB LLDP/LLDP-MED • 802.1D-2004 MAC Bridging • 802.1p Mapping to Priority Queue • 802.1s Multiple Spanning Tree • 802.1w Rapid Spanning Tree • 802.1x Port-based Network Access Control • 802.3 10 Base-T • 802.3ab 1000 Base-T • 802.3ad Link Aggregation (Dynamic and Static) • 802.3ae 10 Gigabit Ethernet • 802.3af Power over Ethernet • 802.3ak CX4 • 802.3u 100 Base-TX • 802.3x Flow Control • 802.3z 1000Base-SX/LX • 802.3 MAU MIB (RFC 2239)
Layer 2 switching	<ul style="list-style-type: none"> • 802.1s Multiple Spanning Tree • 802.1x Authentication • Auto MDI/MDIX • BPDU Guard, Root Guard • Dual-Mode VLANs • Dynamic VLAN Assignment • Dynamic Voice VLAN Assignment • Fast Port Span • Flexible Static Multicast MAC Address Configuration • GARP VLAN Registration Protocol • IGMP Snooping (v1/v2/v3) • Link Fault Signaling (LFS) • MAC Address Locking • MAC-Layer Filtering • MAC Learning Disable; Port Security • MLD Snooping (v1/v2) • Multi-device Authentication • Per VLAN Spanning Tree (PVST/PVST+/PVRST) • PIM-SM Snooping

	<ul style="list-style-type: none"> • Policy-controlled MAC-based VLANs • Port-based Access Control Lists • Port-based, ACL-based, MAC Filter-based, and VLAN-based Mirroring • Port Loop Detection • Port Speed Downshift and Selective Auto-negotiation • Private VLAN • Private VLANs and Uplink Switch • Protected Link Groups • Protocol VLAN (802.1v), Subnet VLAN • Remote Fault Notification (RFN) • Single-instance Spanning Tree • Single-link LACP • Trunk Groups • Trunk Threshold • Uni-Directional Link Detection (UDLD)
Layer 3 routing	<ul style="list-style-type: none"> • ECMP • Host routes • IPv4 Static Routes • L3/L4 ACLs RIP v1/v2 announce • OSPF v2 • PIM-SM, PIM-SSM, PIM-DM • RIP v1/v2 • Routed Interfaces • Route-only Support • Routing Between Directly Connected Subnets • Virtual Interfaces • Virtual Route Redundancy Protocol (VRRP)
Metro features	<ul style="list-style-type: none"> • Metro-Ring Protocol (v1, v2) • Virtual Switch Redundancy Protocol (VSRP) • VLAN Stacking (Q-in-Q) • VRRP • Topology Groups
Quality of service	<ul style="list-style-type: none"> • ACL Mapping and Marking of ToS/DSCP • ACL Mapping to Priority Queue • ACL Mapping to ToS/DSCP • Classifying and Limiting Flows Based on TCP Flags • DHCP Relay • DiffServ Support • Honoring DSCP and 802.1p • MAC Address Mapping to Priority Queue • QoS Queue Management using Weighted Round Robin (WRR), Strict Priority (SP), and a combination of WRR and SP
Traffic management	<ul style="list-style-type: none"> • ACL-based inbound rate limiting and traffic policies • Broadcast, multicast, and unknown unicast rate limiting • Inbound rate limiting per port • Outbound rate limiting per port and per queue
Management	
Management and control	<ul style="list-style-type: none"> • Auto Configuration • Configuration Logging • Digital Optical Monitoring • Display Log Messages on Multiple Terminals • Embedded Web Management • Foundry Discovery Protocol (FDP) • Industry-Standard Command Line Interface (CLI) • Integration with HP OpenView for Sun Solaris, HP-UX, IBM AIX, and Windows • IronView Network Manager (INM) Version 3.2 or later • MIB Support for MRP, Port Security, MAC Authentication, and MAC-based VLANs • Out-of-band Ethernet Management • RFC 783 TFTP • RFC 854 TELNET Client and Server • RFC 1157 SNMPv1/v2c • RFC 1213 MIB-II • RFC 1493 Bridge MIB • RFC 1516 Repeater MIB

	<ul style="list-style-type: none"> • RFC 1573 SNMP MIB II • RFC 1643 Ethernet Interface MIB • RFC 1643 Ethernet MIB • RFC 1724 RIP v1/v2 MIB • RFC 1757 RMON MIB • RFC 2068 Embedded HTTP • RFC 2131 DHCP Relay • RFC 2570 SNMPv3 Intro to Framework • RFC 2571 Architecture for Describing SNMP Framework • RFC 2572 SNMP Message Processing and Dispatching • RFC 2573 SNMPv3 Applications • RFC 2574 SNMPv3 User-based Security Model • RFC 2575 SNMP View-based Access Control Model • SNMP • RFC 2818 Embedded HTTPS • RFC 3176 sFlow • SNTP Simple Network Time Protocol • Support for Multiple Syslog Servers
Embedded security	<ul style="list-style-type: none"> • Bi-level Access Mode (Standard and EXEC Level) • EAP pass-through support • IEEE 802.1X username export in sFlow • Protection against Denial of Service (DOS) attacks
Secure management	<ul style="list-style-type: none"> • Authentication, Authorization, and Accounting (AAA) • Advanced Encryption Standard (AES) with SSHv2 • RADIUS/TACACS/TACACS+ • Secure Copy (SCP) • Secure Shell (SSHv2) • Username/Password
Mechanical	
Enclosure	Side-to-back airflow; 1U, 19-inch EIA-compliant, power from non-port side
Size	Width: 44.0 cm (17.3 in) Height: 4.4 cm (1.7 in) Depth: 38.6 cm (15.2 in)
Weight	4.0 kg (8.8 lbs)
Environment	
Temperature	Operating temperature: 32° to 104°F (0° to 40°C) Storage temperature: -23° to 158°F (-25° to 70°C)
Humidity	Relative humidity: 5% to 95%, non-condensing
Altitude	Storage altitude: 10,000 ft (3000 m) maximum
Acoustic	51 to 63 dB
Power	
Power supplies	Up to two internal, redundant, field-replaceable, load-sharing AC power supplies
Power inlet	C13
Input voltage	Typical 100 to 240 VAC
Input line frequency	50 to 60 Hz
Certification	
Electromagnetic emissions	FCC Class A (Part 15); EN 55022/CISPR-22 Class A; VCCI Class A
Environmental regulatory compliance	RoHS Compliant (6 of 6); WEEE compliant
Power and Thermal Specifications	
Max Current at 100 VAC (Amps)	1.39
Max Current at 200 VAC (Amps)	0.63
Max Total Power Draw ¹ (Watts)	122
Max System Power Draw ² (Watts)	122
Max Thermal Output ³ (BTU/Hr)	416
Energy Efficiency (Watts/Gbps)	1.22

¹-Total power drawn from the source and consumed by the switch and attached PoE devices. Class 3 devices assumed on all ports.

²-Power drawn from the source and consumed only by the switch.

³-Thermal output of the switch.

FUJITSU PLATFORM SOLUTIONS

In addition to IP Switch Brocade FCX648S, FUJITSU provides a range of platform solutions. They combine reliable FUJITSU products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures

With the FUJITSU Dynamic Infrastructures approach, FUJITSU offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure-as-a-Service. How much you benefit from FUJITSU technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing Products

www.fujitsu.com/global/services/computing/

Software

www.fujitsu.com/software/

MORE INFORMATION

Learn more about IP Switch Brocade FCX648S, please contact your FUJITSU sales representative or FUJITSU Business partner, or visit our website.
www.fujitsu.com/

FUJITSU GREEN POLICY INNOVATION

FUJITSU Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at <http://www.fujitsu.com/global/about/environment/>



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