



Brocade® SAN Switch Modules for Intel® Enterprise Blade Server Family



The Brocade® Entry SAN and Enterprise SAN switch modules, based on the Brocade SilkWorm 3900 platform, provide Brocade switch fabric connectivity for the Intel® Enterprise Blade Server Family. The entry SAN switch is ideal for small-to-medium deployments, and the enterprise switch supports larger SANs. The Intel® Blade Server Chassis (SBCE) supports two Fibre Channel switch modules connecting to 14 server blades using Intel® Fibre Channel expansion cards (SBFCM) and provides simplified SAN deployment, configuration, and integrated management. In addition, these switches offer software license keys for advanced Brocade fabric services.

Industry-leading Brocade Solution

The Brocade SAN Switch Modules demonstrate support from leading SAN vendors for the Intel® Enterprise Blade Server Family. For customers with an existing Brocade SAN environment, these switch modules provide a low-risk solution using tools and technology you already know.

Simplified Deployment and Administration

Brocade management tools including WebTools and Fabric Watch are integrated with the Intel® Blade Server Management Module. This allows you to easily manage your SAN environment using the same tools used to manage your blade servers.

Affordable Scalability and Investment Protection

To meet customers' data expansion needs, the Brocade Entry SAN Switch Module is software-upgradeable to the enterprise model, allowing customers to pay as they grow without disruptions.

Key Features of the Brocade® SAN Switch Modules

- 14 2-Gbit/sec FC internal fabric ports to server blades and 2 2-Gbit/sec external universal FC fabric ports
- Entry module (connects to up to 2 switches) non-disruptively upgrades to enterprise module (full-fabric) using a software key
- Provides full forward and backward compatibility with Brocade SilkWorm family and interoperability support for heterogeneous SAN environments
- Simplified SAN deployment and administration through Brocade management tools
- Provides a highly available, scalable, and secure foundation for SAN applications such as server and storage consolidation, high-performance server clustering, high-speed data backup, remote mirroring, and data replication.

Optional Advanced Fabric Services

To help you address your most challenging SAN requirements, advanced fabric services are implemented as software upgrades, allowing customers to incrementally take advantage of new capabilities.

Fabric Service

Key Benefits

ISL Trunking	<ul style="list-style-type: none"> • Increases performance and balances heavy traffic to support data-intensive applications and enhance network efficiency • Improves availability in the event of an ISL failure
Advanced Zoning	<ul style="list-style-type: none"> • Increases SAN fabric security through hardware enforcement • Simplifies management of heterogeneous fabrics & configuration • Improves productivity by automatically distributing zoning updates
Advanced Performance Monitoring	<ul style="list-style-type: none"> • Increases end-to-end visibility into SAN fabric to detect potential problems earlier • Improves performance tuning and resource optimization • Simplifies capacity planning to save time and money
Extended Fabrics	<ul style="list-style-type: none"> • Extends the scalability, reliability & performance of FC SANs beyond 10 km • Supports full-performance disaster recovery applications over extended distances
Remote Switch	<ul style="list-style-type: none"> • Remote connectivity of SAN fabrics over wide area networks, allowing to create one logical SAN that spans remote fabrics at unlimited distances
Secure OS	<ul style="list-style-type: none"> • Centralized, policy-based security management for simplified and consistent control • Distinctive, robust protection against unauthorized access, loss or corruption of data • Encryption of management data and strong authentication

Brocade Entry (SBCEBFCESW) & Enterprise (SBCEBFCSW) Switch Module Specifications

Fibre Channel Protocols	
FC-AL ANSI X3.272, FC-AL-2 NCIT S332, FC-FLA NCIT STR-20, FC-GS-3 NCITS 348-2000 Rev 7.01, FC-FG ANSI X3.289, FC-FS Rev 1.7, FC-PH ANSI X3.230, FC-PH-2 ANSI X.3.297, FC-PH-3 ANSI X3.303, FC-PLDA NCIT STR-19, FC-SW-2 Rev 5.3, FC-VI Rev 1.61, IPFC RFC 2625, SANmark compliance SCD-3001 v2a1, FC-MI Rev 1.92, FC-SB-3 ANSI/INCITS 374:2003, FC-BB-2 Rev 5.3	
Number of Fibre Channel ports	2 external ports and 14 internal ports
External port type	Configured as Fabric port (F_port), Fabric loop port (FL_port), Expansion port (E_port), Self-discovery based on switch type U-port, optional port type control
Internal port type	2Gbit/sec is the default setting
Port characteristics	External ports are automatically detected and self configuring
Classes of service	Class 2 and Class 3
Scalability	Entry-fabric architecture with 2 switches maximum; Full-fabric architecture with 239 switches maximum Entry switch can be non-disruptively upgraded to a full-fabric switch with a software license key Support for 128 concurrent VLANs
Buffer credits	16 buffer credits per port
Media type	Small form-factor pluggable (SFP) module LC connector; Short-Wavelength Laser (SWL); Long-Wavelength Laser (LWL)
Fabric port speed	1.0625 or 2.125 Gbit/sec line speed, full duplex
Maximum frame size	2148 bytes (2112-byte payload)
Fabric latency	<2.1µsec. from any port to any port at 2 Gbit/sec, cut-through routing
Fabric point-to-point bandwidth	2 Gbps or 4 Gbps at full duplex
Fabric aggregate bandwidth	64 Gbps if all 16 ports are running 2 Gbit/sec at full duplex
Non-blocking architecture	Shared-memory switch to prevent latency
Fabric Services	Simple Name Server, Registered State Change Notification (RSCN), Alias Server (multicast), Brocade Zoning, WEB TOOLS, Fabric Watch , Advanced Zoning (optional), Extended Fabrics (optional), ISL Trunking (optional), and Remote Switch (optional)
Switch Maintainability	
Diagnosis	Power-on self-test (POST) is performed on all functional components except the SFP module. Port operational tests include internal, external, and online tests.
User interface	LED indicators

Fabric Management	
Management Methods	Web interface through Advanced Web Tools Command-line interface (CLI) through Telenet Application program interface (API) Management information base (MIB)
Switch SNMP Agent	Enables a network management workstation to receive configuration values, traffic information, and Fibre Channel failure data through SNMP and the Ethernet interface.
Dimensions	
Width	112 mm (4.41 in.)
Height	29 mm (1.14 in.)
Depth	260.3 mm (10.25 in.)
Weight	.91 kg. (2 lb)
Environmental	
Temperature and Altitude	Operating: 10°C to 52°C (50°F to 125.6°F) at an altitude of 0 to 914m (0 to 3,000 ft.), 10°C to 49°C (50°F to 120.2°F) at an altitude of 0 to 3000m (0 to 10,000 ft.) Non-operating: -40°C to 65°C (-40°F to 149°F) at an altitude of 0 to 12,000 m (0 to 39,370 ft.)
Humidity	Operating: 8% to 80%, non-condensing Non-operating: 5% to 80%, non-condensing
Electrical	
Electrical	Power source loading: 3.75 amps maximum at 12V dc Heat output: 85.3 Btu (25 watts) Operating voltage: 12V dc Circuit protection: Internally fused with over-current protection
Safety Compliance	
USA:	UL 60950-3rd Edition/CSA 22.2. No. 60950
Canada:	cUL certified-3rd Edition/CSA 22.2. No. 60950-for Canada (product bears the single cUL mark for U.S. and Canada)
Europe:	Low Voltage Directive, 73/23/EEC TUV/Bauart Approved to EN60950:2000 TUV/CB Report to IEC 60950 3rd Edition with all International Deviations and EMKO-TSE (74-SEC) 207/94
International:	TUV/CB Report to IEC 60950 3rd Edition with all International Deviations
Australia/New Zealand:	CB Report to IEC 60950, 3rd Edition with AS/NZ 60950 deviations

Electromagnetic Compatibility (EMC)	
USA:	FCC Part 15, Class A
Canada:	ICES-003 issue 3
Europe:	EN55022:1998, Class A, ITE Specific Radiated and Conducted Emissions EN61000-3-3 Voltage Fluctuations EN55024 ITE Specific Immunity Standard EN61000-3-2 Limit for Harmonic Current Emissions
Japan:	VCCI/3/99.05 Class A
Australia/New Zealand:	AS/NZS 3548, Class A Limit
Korea:	RRL Approved
Russia:	Gost Approved
Other International:	CISPR 22:1997
Shortwave Laser SFP Module at 1 Gbps and multi-mode SFP module at 2 Gbps	
Connector	LC-LC Fibre Channel cable
Color coding	Beige or black exposed connector surfaces
Cable	Fibre Channel 100-MG-SN-I (50 µm multimode)
Wavelength	830 to 860 nm
Transmit power	-10 dBm minimum
Receiver sensitivity	-16 dBm average
Distance	500 meters (1640.42 ft) maximum using 50 micron fiber 300 meters (984.25 ft) maximum using 62.5 micron fiber
Safety	DHHS 21 CFR(J), IEC 825-1 CEN/CEC EN 60825-1, VDE
Longwave Laser SFP Module at 1 Gbps and multi-mode SFP module at 2 Gbps	
Connector	LC-LC Fibre Channel cable
Color coding	Blue exposed connector surfaces
Cable	Fibre Channel 100SM-LC-L (9 µm single mode)
Wavelength	1270 through 13.5 nm
Transmit power	-10 dBm minimum
Receiver sensitivity	-20 dBm average
Distance	2 meters (6.6 ft) to 10 kilometers (6.21 miles)
Safety	DHHS 21 CFR(J), IEDC 825-1 CENELEC EN 60825-1, VDE

For the most current product information on the Intel® Enterprise Blade Server Family, visit:
<http://www.intel.com/go/enterpriseblades>



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