Brocade SilkWorm switches create an intelligent storage networking infrastructure for mission-critical Storage Area Networks (SAN).

SILKWORM 2400 AND 2800

Highlights

- The 8-port SilkWorm® 2400 switch and the 16-port SilkWorm 2800 switch deliver an industrial-strength framework for enterprise SAN fabrics.

- SilkWorm 2400 and 2800 switches support seamless connectivity to Fibre Channel Arbitrated Loop (FC-AL) and full-switch fabric configurations.

- SilkWorm 2400 and 2800 switches provide 100 MB/sec full duplex line speed.

- SilkWorm 2400 and 2800 switches offer superior interoperability with a wide range of servers and storage devices.

- Brocade Fabric OS™ provides powerful fabric management capabilities.

- SilkWorm 2400 and 2800 switches provide swappable, redundant power supplies and cooling fans for high reliability, availability, and serviceability.

Enterprise Fibre Channel Switches

All Brocade switches support connectivity of a wide range of server and storage devices. The SilkWorm 2400 and 2800 enterprise-class Fibre Channel switches are designed to address the SAN requirements of very large workgroups and enterprises. Both switches support business-critical SAN applications, such as LAN-free backup, storage consolidation, remote mirroring, and high-availability clustering configurations.

This product family provides a seamless upgrade path for customers currently using the SilkWorm 2000 series of 8-port entry-level switches or the SilkWorm 2200 series of 16-port entry-level switches. The SilkWorm 2400 and 2800 switches are also completely interoperable with entry-level switches, enabling cost-effective "pay-as-you-grow" migration to more advanced SAN environments.

The SilkWorm 2400 and 2800 switches support scalability through networking multiple switches, and a fabric operating system that enables heterogeneous device connectivity, automatic data routing and rerouting, self-healing, and scalable connectivity. The 16-port SilkWorm 2800 complements the SilkWorm 2400 switch by delivering higher density connectivity for extremely large SAN fabrics. Up to 239 switches can be networked together, providing over 2,000 ports of interconnectivity. This networking capability allows companies to design and build enterprise, high-availability SANs.

BROCADE

RELIABILITY
SERVICEABILITY

BEST-OF-CLASS PRODUCTS FOR ENTERPRISE SAN FABRICS

- Each port (8 for the SilkWorm 2400 and 16 for the SilkWorm 2800) delivers 100 MB/sec in each direction (full duplex). Universal ports automatically determine the port type for a loop, point-to-point devices, or an Inter-Switch Link (ISL).
- A Gigabit Interface Converter (GBIC)-based modular design makes it easy to hot-swap connections quickly with copper and short- or long-wavelength fiber-optic cabling. Media may be mixed on the same switch in any combination.
- Buffer-pool management and use of mini-buffers for small frames optimize overall performance.
- A non-blocking architecture delivers full-speed data delivery irrespective of traffic conditions. Cut-through routing provides maximum latency of two microseconds from switch port to switch port.
- Hardware-enforced Brocade Zoning™ secures data access among switch ports.
- Services are distributed across the entire fabric, which means there is no single point of failure.

INDUSTRY-LEADING RELIABILITY AND SERVICEABILITY

- Highly reliable components, continuous monitoring of environmental components (fan status and temperature), and an extremely durable construct all maximize Mean Time Before Failure (MTBF).
- The front control panel on the SilkWorm 2800 simplifies administration.

- Power-On Self Test (POST) and online diagnostics enable administrators to monitor and test ports while the switch is running.
- Per-port statistics help administrators diagnose and isolate problem ports. The switch will continue to operate even when individual ports have been removed.
- Embedded port-monitoring facilities automatically disable failing ports and restart them when the problem has cleared.
- Redundant cooling fans and an optional redundant hot-swappable power supply increase switch availability and are designed as Field Replaceable Units (FRU).

ADVANCED SAN FABRIC MANAGEMENT

- Support for industry-standard Management Information Bases (MIBs) enables Simple Network Management Protocol (SNMP)-based interfaces to access switch information.
- Network managers can manage switch configuration using a command-line interface or the Web-based administrative capability offered by Brocade WEB TOOLS™ and Brocade Zoning.
- Fabric information is automatically updated to newly updated switches.
- A self-healing feature enables the fabric to isolate a problem port and reroute traffic onto alternate paths via Brocade Fabric Watch™.
- A self-learning feature allows the fabric to automatically discover and register host and storage devices.
- Brocade QuickLoop™ enables configuration of one or more logical loops in the fabric and enhanced connectivity and management of private devices.

SILKWORM 2400 AND 2800 SPECIFICATIONS

Systems Architecture

Fibre Channel Ports	2400: 8 Universal ports; 2800:16 Universal ports
Scalability	Full Fabric Architecture: 239 switches maximum
Certified Maximum	32 switches, 7 hops. Larger Fabrics certified as required.
Interoperability	SilkWorm II, SilkWorm Express, or any SilkWorm 2000 family switch
Performance	1.0625 Gb/sec line speed, full duplex
Switch Bandwidth	2400: 8 Gb/sec end-to-end 2800: 16 Gb/sec end-to-end
Switch Core	Non-blocking
Fabric Latency	<2 μ sec. with no contention, cut through routing
Maximum Frame Size	2112-byte payload
Frame Buffers	2400: 224 dynamically allocated 2800: 448 dynamically allocated
Classes of Service	Class 2, Class 3, Class F (Inter-switch frames)
Port Types	FL_Port, F_Port, and E_Port. Self-discovery based on switch type (U_Port)
Data Traffic Types	Fabric switches support unicast, multicast (256 groups), and broadcast
Media Types	Hot-pluggable, industry-standard GBICs Short-wave laser, up to 500m (1,640 ft) Long-wave laser, up to 10km (6.2 mi) Passive copper, up to 13m (43 ft)
Fabric Services	Simple Name Server, Registered State Change Notification (RSN), Alias Server (MultiCast); and Brocade Zoning, WEB TOOLS, QuickLoop, Fabric Watch, Extended Fabrics, Remote Switch
Options	Redundant power supply, GBICs, and rack-mount kit

Management

Management	Telnet, SNMP, Brocade WEB TOOLS, Brocade Zoning, Brocade SES (optional), Fabric Watch, Extended Fabrics, Remote Switch
Management Access	10/100 Ethernet (RJ-45), in-band over a Fibre Channel (requires Fabric), front control panel (2800)
Diagnostics	POST and embedded online/offline diagnostics

Mechanical Specifications

Enclosure 2400:	Back-to-front airflow, power from front 1 u, 19 in.–EIA compliant Height: 4.34 cm (1.71 in.) Width: 42.86 cm (16.87 in.) Depth: 45.0 cm (17.72 in.)
2800:	2 u, 19 in.–EIA compliant Height: 8.73 cm (3.44 in.) Width: 42.86 cm (16.87 in.) Depth: 45.0 cm (17.72 in.)
Weight Single power supply:	2400: 6.36 kg (14 lbs) 2800: 11.59 kg (25.6 lbs)
Double power supply:	2400: 7.73 kg (17 lbs) 2800: 12.94 kg (28.5 lbs)

Environment

Temperature	Operating: 10°C–40°C (50° –104°F) Nonoperating: -35°C–65°C (-31°F–147°F)
Humidity	Operating: 5%–85% non-condensing @40°C (104°F)
Altitude	Up to 3,000 m (9,800 ft)
Shock	4 G, 11 ms_sine low impulse
Vibration	Operating: 5 G, 0-3 kHz Nonoperating: 10 G, 0-5 kHz

Power

Supported Power	Nominal: 100–230 VAC contiguous
Range	Operational: 85–264 VAC
Frequency	47–63 Hz

Fibre Channel Standards

Standard	Revision	2400	2800
FC-AL	Rev. 4.5*	Y	Y
FC-AL-2	Rev. 7.0	Y	Y
FC-FLA	Rev 2.7 *	Y[1]	Y
FC-GS-2	Rev 5.3 *	Y[1]	Y
FC-FG	Rev 3.5 *	Y[1]	Y
FC-PH	Rev 4.3 *	Y	Y
FC-PH-2	Rev 7.4 *	Y	Y
FC-PH-3	Rev 9.4 *	Y	Y
FC-PLDA	Rev 2.1 *	Y	Y
FC-SW	Rev 3.3 *	Y	Y
FC-VI	Rev 1.5	Y	Y
IPFC	RFC 2625	Y	Y

* Indicates an approved standard

Regulatory Compliance

	Safety	EMC
Canada	CSA 950 ICES-003	Class A
United States	UL 1950 FCC Part	15 Class A
Japan	IEC60950 A4	VCCI Class A
European Community	EN60950EN55022	Level A
	TUV, NEMKO	EN55082-2 (Immunity)
Australia/New Zealand	AS/NZS 3548	
International	IEC 60950	CISPR 22

BROCADE
The intelligent platform for networking storage

Corporate Headquarters
1745 Technology Drive
San Jose, CA 95110
T: (408) 487-8000
F: (408) 487-8101
info@brocade.com

European Headquarters
29, route de l'Aéroport
Case Postale 105
1211 Geneva 15, Switzerland
T: +41 22 799 56 40
F: +41 22 799 56 41
europe-info@brocade.com

Asia Pacific Headquarters
Brocade Communications Systems, Inc.
The Imperial Tower 15th Fl.
1-1-1 Uchisaiwaicho
Chiyoda-ku, Tokyo 100-0011, Japan
T: +81 35219 1510
F: +81 33507 5900
apac-info@brocade.com