StorageTek®

BROCADE SILKWORM 24000 DIRECTOR

Key benefits

High port density
Industry-leading port density — up to 128 ports in a single domain and up to 384 ports per rack — allows you to build a cost-effective enterprise SAN with thousands of ports.

Mission-critical availability
Ultra-high availability requirements are met with redundant, hot-pluggable components, no single points of failure, non-disruptive software upgrades and hot code activation.

Fabric-wide security
Brocade Secure Fabric OS provides end-to-end security across the entire SAN fabric.

High-speed data path
Reduced latency of less than 2.1 microseconds and Brocade Inter-Switch Link (ISL) trunking technology accelerate data throughput at up to eight gigabits per second.

Intelligent infrastructure
Heterogeneous device connectivity, automatic data routing/rerouting and automatic self-healing increase operational efficiency, so your SAN keeps pace with your business needs.

Multi-protocol architecture
Emerging mainframe tools and technologies plus a multi-protocol architecture provide configuration freedom for Open Systems and FICON environments.

A protected investment
Seamless upgrades to future technologies, such as four- and ten-gigabit-per-second Fibre Channel, iSCSI, FCIP and more, help make your investment in data secure.

Brocade SilkWorm 24000 director

Whether it's used as a stand-alone director or as one of several core building blocks in your SAN fabric, the Brocade® SilkWorm® 24000 director provides a reliable data infrastructure for core-to-edge SANs that have thousands of hosts and storage devices. It's ideal for applications requiring ultra-high availability, including data backup, remote mirroring, high-availability clustering and high-volume transaction processing, such as ERP and data warehousing.

Advanced architecture, real-world benefits

The SilkWorm 24000 director provides visible benefits. Fourth-generation, pay-as-you-grow architecture supports from 32 to 128 concurrently active two-gigabit-per-second, full-duplex ports in a single domain. A multi-stage, shared memory architecture reduces latency in port-to-port transfers to accelerate day-to-day performance across the fabric. High port/domain ratios can reduce the cost and complexity of system maintenance while also reducing data management costs. And seamless upgrades to higher-speed connectivity help protect your investment for years to come by preserving your ability to adapt.

All data, all the time

The goal is continuous, uninterrupted data access across the enterprise. The SilkWorm 24000 director meets the challenge in a variety of ways. Non-disruptive software upgrades and hot code activation accelerate upgrades and reduce downtime. Fabric Shortest Path First (FSPF) technology allows the fabric to automatically isolate problems and reroute traffic around failed links to keep data flowing. Dual-redundant control processors and redundant, hot-swappable components keep the system up even if individual components go down. And continuous self-monitoring, error detection with fault isolation and remote call-home notification accelerate troubleshooting.

New levels of SAN security

The SilkWorm 24000 director supports Brocade Secure Fabric OS®, an embedded real-time operating system that uses the latest networking security technology to provide comprehensive fabric security. It addresses vulnerabilities within the SAN fabric and helps prevent downtime due to human error.

Open for business

The SilkWorm 24000 director integrates easily with heterogeneous open environments. Windows NT, UNIX, Linux, Solaris, AIX and mainframe FICON environments can run traffic through the same director, so your SAN fabric is cost effective, easier to manage, easier to maintain, and ready to move a mountain of data with 24 x 7 x forever reliability.

Brocade SilkWorm 24000 director specifications

Performance

Port speed	1.063 Gbit/sec line speed, full duplex; 2.125 Gbit/sec line speed, full duplex; auto-sensing of 1 Gbit/sec and 2 Gbit/sec speeds; optionally programmable to fixed port speed; speed matching between 1 Gbit/sec and 2 Gbit/sec ports
Aggregate bandwidth	512 Gbit/sec end to end
Latency	< 2.1 microsec any port to any port at 2 Gbit/sec, cut-through routing
Maximum frame size	2112-byte payload
ISL trunking	Up to four 2.125 Gbit/sec ports per ISL link; up to 8.5 Gbit/sec per ISL trunk

Capacity

Ports per chassis	128 ports, universal (E,F, and FL); up to eight 16-port Fibre Channel modules; up to 384 ports per 42u* rack
Scalability	Full fabric architecture, 239 switches maximum
Certified maximum	32 switches, 7 hops; larger fabrics certified as required

Availability

Chasis power	2 AC-DC power supply modules, 2N redundancy

Compatibility

Interoperability	SilkWorm II, SilkWorm Express, any SilkWorm 2000 family switch, any SilkWorm 3000 family switch, SilkWorm 12000
Class 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); optional port type control
Data traffic types	Fabric switches supporting unicast, multicast (255 groups) and broadcast
Media types	Hot-pluggable, industry-standard Small Form Factor Pluggable (SFP), LC Connector; Short-Wavelength Laser (SWL) up to 500 meters (1,640 feet); Long-Wavelength Laser (LWL) up to 10 km (6.2 mi); Extended Long-Wavelength Laser (ELWL) up to 80 km (49.6 mi); distance depends on fiber optic cable and port speed

Management

Fabric services	Simple Name Server; Registered State Change Notification (RSCN); Alias Server (multicast); Brocade Advanced Zoning, WEB TOOLS, Fabric Watch, Extended Fabrics, Remote Switch, ISL Trunking, and Advanced Performance Monitoring
Management software	Telnet; SNMP (FE MIB, FC Management MIB); WEB TOOLS; Fabric Watch; Fabric Access layer
Management access	10/100 Ethernet (RJ-45), in-band over Fibre Channel (requires fabric); 2 serial ports (DB-9) per control processor module
Diagnostics	POST and embedded online/offline diagnostics

Mechanical

Height	24.11 in (61.24 cm) for 14u
Depth	29.20 in (74.20 cm) with door
Width	17.22 in (43.74 cm)
Weight	193– 212 lb (88–96 kg)

Environmental

Temperature	
Operating	+50° to +104° F (+0° to +40° C)
Non-operating	-13° to +158° F (-25° to +70° C)
Relative humidity	20%–85%
Altitude	Up to 9,800 ft (3000 km)
Vibration	
Operating	0.5 Gs, 5–500 kHz
Non-operating	2.0 Gs, 5–500 kHz
Shock	20 Gs, 6 ms duration, half-sine

Power

Supported power range	
Nominal	200–240 VAC nominal, 5.0 A, single-phase
Operational	180–264 VAC auto-sensing; maximum 2,300 Volt-Amps; maximum 12 Amps
Frequency	47–63 Hz

Regulatory compliance

Canada	CSA 60950/ICES 003 Class A
United States	UL 60950/FCC Part 15 Class A
Japan	IEC60950/VCCI Class A ITE
European Community	EN60950/EN55022 Level A TUV, NEMKO/EN55024
Australia/New Zealand	AS/NZS 3548 Class A
International	IEC 60950/CISPR 22 Class A
Fibre Channel standards and revisions	FC-AL/ANSI X3.272:1996 FC-AL-2/NCITS 332: 1999 FC-BB/Rev 4.7 FC-BB-2/Rev 5.3 FC-DA/Rev 1.5 FC-FG/ANSI X3.289: 1996 FC-FLA/NCITS TR-20: 1998 FC-FS/Rev 1.7 FC-GS-2/Rev 5.3 FC-GS-3/Rev 7.01 FC-GS-4/Rev 7.6 FC-MI/Rev 1.92 FC-MI-2/Rev 2.1 FCP-2/Rev. 7 FDMI FC-PI/Rev. 1.3 FC-PLDA/NCITS TR-19: 1998 FC-SB-2/Rev. 2.1 FC-SB-3/Rev. 1.2 FC-SW-2/Rev. 5.3 FC-SW-3/Rev6.3 FC-TAPE FC-VI/Rev. 1.61 IPFC/RFC 2625

*Rack space is measured in height and expressed as a u. One u is 1.75 in (4.45 cm) in height.

StorageTek®

ABOUT STORAGETEK®

Storage Technology Corporation (NYSE: STK) is a $2 billion global company that enables businesses, through its information lifecycle management strategy, to align the cost of storage with the value of information. The company's innovative storage solutions manage the complexity and growth of information, lower costs, improve efficiency and protect investments. For more information, visit www.storagetek.com, or call 1.800.275.4785 or 01.303.673.2800.

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