IBM

IBM System Storage SAN24B-4 Express

Highlights

■ *Simple-to-use SAN switch with easy-to-install and easy-to-use features designed specifically for the needs of small to medium-size environments*

■ *Provides new levels of perform- ance with 8 Gbps Fibre Channel (FC) technology*

■ *"Ports on Demand" scalability from 8 to 16 to 24 ports*

■ *Protect existing 4, 2 and 1 Gbps infrastructure investment while positioning for future technologies*

■ *Foundation for new infrastruc- ture simplification and business continuity solutions for servers running Microsoft® Windows®, Unix®, Linux® and IBM AIX® and OS/400® operating systems*
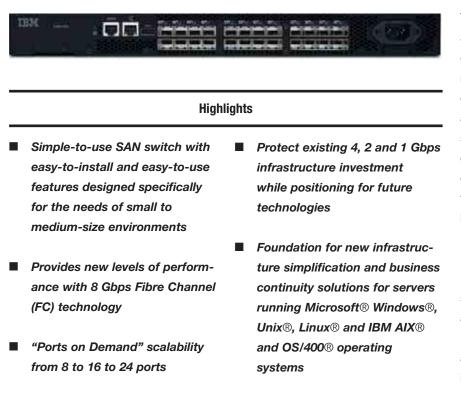
The IBM® System Storage™ SAN24B-4 Express fabric switch is designed specifically to address the needs of small to medium-sized SAN environments. It can be used to create a wide range of high-performance SAN solutions, from simple, single-switch configurations to larger, multi-switch configurations which support fabric connectivity and advanced business continuity capabilities. Infrastructure simplification solutions for IBM System x™, BladeCenter® and IBM POWER Systems™ servers include storage consolidation and high-availability server clustering with IBM System Storage disk storage arrays. Business continuity solutions include data protection with IBM System Storage tape libraries and devices and IBM Tivoli® Storage Manager data protection software.

A single SAN24B-4 Express switch can serve as the cornerstone of a Storage Area Network for those who want to obtain the benefits of storage consolidation and are just beginning to implement Fibre Channel storage systems. Such an entry-level configuration can consist of one or two Fibre Channel links to a disk storage array or to an LTO™ tape drive. An entry-level eight-port storage consolidation solution can support up to seven servers with a single path to either disk or tape. The "Ports on Demand" feature is designed to enable a base switch to grow to sixteen and twenty-four ports to support more servers and more storage devices without taking the switch offline. A high-availability solution can be created with redundant switches. This capability is ideal for server clustering environments. Such a configuration can support from six to twenty-two servers, each with dual Fibre Channel adapters cross-connected to redundant SAN24B-4 Express switches which are cross-connected to a dual-controller storage system. While the focus of the SAN24B-4 Express is as the foundation of small to medium-sized SANs, it can be configured to participate as a full member in an extended fabric configuration with other members of the BM System Storage and TotalStorage® SAN b-type and m-type families. This capability helps provide investment protection as SAN requirements evolve and grow over time.

The introduction of large capacity, high availability storage systems offers new opportunities for cost reduction through storage consolidation and infrastructure and management simplification. In older environments, each server accessed its own dedicated storage capacity using either internal disks and tape that were contained within the server, or disks and tape which were part of an external system attached exclusively to that server. It has become difficult to sustain that approach as the requirement for both storage capacity and numbers of servers has increased. Storage consolidation is a fundamental objective of infrastructure simplification and is based on the philosophy that it is easiest to share and manage capacity contained in a large capacity, high performance and high availability external storage system such as provided by the IBM System Storage DS3400 or DS4000™ family. Fibre Channel (FC) Storage Area Networks (SANs) were developed to provide efficient, high performance access from many servers to many storage devices.

While it is possible in very small environments to direct-connect servers to external storage systems using FC links, it is more common to configure a SAN switch between the servers and a storage system to enable multiple servers to share the storage capacity in the same storage system. The SAN24B-4 Express was designed specifically for use as a SAN switch in this type of configuration. It is easy to install and easy to manage. The SAN24B-4 Express can be upgraded to 16 or 24 ports and is future-ready to support 8 Gbps servers and storage devices as they are introduced. Its flexible design allows participation with

other SAN b-type and m-type switches in fabrics that evolve as requirements change. And it supports advanced functions to help enable participation in complex fabrics including cascaded switches and ISL trunks.

The SAN24B-4 Express is an excellent switch to use in a clustered server environment. Separate SAN switches enable two separate SAN fabrics, which are desirable as a means to help minimize or eliminate single ports of failure.

Easy to install and maintain
The SAN24B-4 Express includes features designed to make it easy to install and easy to maintain for system administrators who have minimal experience with SAN components. EZSwitchSetup wizard is an embedded setup tool designed to guide novice users through switch setup, often in less than five minutes.

Fabric Operating System
Brocade® Fabric OS® (FOS) is included with each SAN24B-4 Express and contains all functions necessary to operate a base system. The SAN24B-4

Express requires FOS level 6.1.0 or higher. FOS offers the following advanced functions (either included in the base switch or as optional features):

- **ADAPTIVE NETWORKING SERVICES** *is a set of features providing users with tools and capabilities to incorporate network policies to ensure optimal behavior of a large SAN. It uses network intelligence to anticipate congestion and to dynamically make adjustments in the fabric so that application traffic continues to flow.*
- **ADVANCED PERFORMANCE MONITOR** *helps identify end-to-end bandwidth usage by host/target pairs and is designed to provide for capacity planning.*
- **ADVANCED WEB TOOLS** *enables administration, configuration and maintenance of fabric switches and SANs.*
- **ADVANCED ZONING** *segments a SAN into virtual private SANs.*

- **ENHANCED GROUP MANAGEMENT (EGM)** *enables additional device-level management functionality for IBM b-type products when added to the element management and also allows large consolidated operations to groups of devices (i.e. firmware downloads, configuration uploads and downloads).*
- **EXTENDED FABRIC** *extends SAN fabrics beyond the Fibre Channel standard of 10 km by optimizing internal switch buffers to maintain performance on ISLs at distances up to 500 kilometers.*
- **FABRIC WATCH** *monitors mission-critical switch operations.*
- **FULL FABRIC** *is required to enable E_Ports; a switch cannot be connected to another switch until Full Fabric is installed. (Full Fabric is standard on the 2498-B24 and is optional on the 249824E).*
- **TRUNKING** *enables FC packets to be efficiently distributed across multiple ISLs between two IBM SAN b-type fabric switches and directors while preserving in-order delivery. Both SAN b-type devices must have trunking activated.*
- **ENTERPRISE PACKAGE** *offers a convenient method for customers to order a set of the most often desired features.*

IBM System Storage SAN24B-4 Express at a glance

Product characteristics

Produce Number	2498-B24 and 249824E
Base fabric switch	IBM System Storage SAN24B-4 Express switch with 24 ports, 8 ports activated (0 to 7) and Brocade Fabric OS (FOS) 6.1.0 or later, hardcopy Installation Guide, CD-ROM (with manuals), service and wrap tools, SFP extraction tool, 110 volt power cord for rack installation, rail kit, Advanced Zoning, Enhanced Group Management (EGM) (standard on 2498-B24, optional on 249824E), EZSwitchSetup wizard, Full Fabric (standard on 2498-B24, optional on 249824E), Web Tools
Fibre Channel interface	E_Port, F_Port, FL_Port and M_Port
Optical transceivers	Choice of 8 Gbps (supports 8, 4 and 2 Gbps link speeds) and 4 Gbps (supports 4, 2 and 1 Gbps link speeds) short wave and long wave Small Form-Factor Pluggable (SFP)
Fans and power supplies	Dual fans, one power supply
Hot-swappable components	SFP optical transceivers
Non-rack support	Non-rack installation is supported; country-specific power cords are required and must be ordered
Servers supported*	• IBM POWER Systems™, System i® and selected AS/400® servers, System p® and selected RS/6000® servers • System x, selected Netfinity® servers and other Intel® processor-based servers • Select Sun™ and HP servers
Operating systems supported*	• Microsoft Windows NT®, Windows 2000, Windows 2003 • Red Hat Linux, Red Hat Linux Advanced Server • SUSE Linux, SUSE Linux Enterprise Server (SLES) • IBM AIX, HACMP, i5/OS®, OS/400 • Other selected operating systems
Storage Products Supported*	• IBM System Storage DS8000™, DS6000™ and DS4000 storage servers • IBM TotalStorage Enterprise Storage Server® systems • IBM TotalStorage FAStT Family of storage servers • IBM System Storage n Series NAS Filers and Gateways • IBM TotalStorage 3580, 3588, 3590, and 3592 tape drives • IBM TotalStorage 3494, 3582, 3583 and 3584 tape libraries • IBM TotalStorage 3581 Tape Autoloader • IBM TotalStorage 3584 High Availability Frame Model HA1 • IBM TotalStorage SAN Volume Controller • Other selected storage systems
Fibre Channel switches supported	Current IBM System Storage and TotalStorage SAN b-type and m-type switches, routers and directors (must be running current firmware)
Fibre optic cable	Fibre optic cables are required and are available in various lengths in single-mode and multi-mode formats
Power cord	Jumper cable is included for rack installation; country-specific power cord must be ordered for desktop/standalone installation
Warranty	1-year; Customer Replaceable Unit (CRU); warranty service upgrades are available

IBM System Storage SAN24B-4 Express at a glance

Optional features	8-Port Activation, Adaptive Networking, Advanced Performance Monitor, Enterprise Package**, Extended Fabric, Fabric Watch, Full Fabric (standard on 2498-B24, optional on 249824E), Trunking Activation
Physical characteristics	
Height	4.29 cm/1.69 inches
Width	42.88 cm/16.88 in
Depth	30.6 cm/12.07 in
Weight	4.35 kg/9.3 lb
Temperature	Operating: 0° to 40° C (32° to 104° degrees F)
	Non-operating: -25° to 70° C (-13° to 158° F)
Humidity	Operating: 10% to 85% non-condensing at 40° C (104° F)
	Non-operating: 10% to 90% non-condensing at 70° C (158° F)
Power	85 – 264 V AC (Universal), 47 – 63 Hz

For more information

To learn more about the IBM System Storage SAN24B-4 Express, please contact your IBM marketing representative or IBM Business Partner, or visit: **ibm.com**/systems/storage/san/b-type/.

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*For most current and complete details, refer to **ibm.com**/systems/storage/san/b-type.

**Enterprise Package on 2498-B24 includes two 8-Port Activation features, Adaptive Networking, Advanced Performance Monitor, Fabric Watch and Trunking Activation. Enterprise Package on 249824E includes two 8-Port Activation features, Adaptive Networking, Advanced Performance Monitor, Enhanced Group Management (EGM), Fabric Watch, Full Fabric Activation and Trunking Activation.

Recyclable, please recycle.

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