



Highlights

- Benefit from easy-to-install and easy-to-use features designed specifically for small- to medium-sized environments
 - Reach new performance levels with 8 Gbps Fibre Channel technology
 - Scale from 8 to 16 to 24 ports with Ports on Demand
 - Protect existing 4, 2 and 1 Gbps infrastructure investments while positioning for future technologies
 - Use as the foundation for new infrastructure simplification and business continuity solutions for servers running Microsoft Windows, Linux, IBM® AIX® and other selected operating systems
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IBM System Storage SAN24B-4 Express

Designed for high performance and scalability in small- to medium-sized SAN environments

The IBM System Storage® SAN24B-4 Express fabric switch is designed specifically to address the needs of small- to medium-sized storage area network (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 that support fabric connectivity and advanced business continuity capabilities. Infrastructure simplification solutions for servers include storage consolidation and high-availability server clustering with IBM disk storage arrays. Business continuity solutions include data protection with IBM tape libraries and devices and IBM Tivoli® Storage Manager data protection software.

A single SAN24B-4 switch can serve as the cornerstone of a SAN 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 a Linear Tape-Open (LTO) Ultrium 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 16 and 24 ports to support more servers and more storage devices without taking the switch off line. A high-availability solution can be created with redundant switches. This capability is ideal for server clustering environments. Such a configuration can support from 6 to 22 servers, each with dual Fibre Channel adapters cross-connected to redundant SAN24B-4 switches, which are cross-connected to a dual-controller storage system. While the focus of SAN24B-4 is to serve 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 IBM System Storage SAN b-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 drives that were contained within the server, or disks and tape that 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 the numbers of servers have 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, high-availability external storage. Fibre Channel 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 Fibre Channel 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 switch was designed specifically for use as a SAN switch in this type of configuration. It is easy to install and easy to manage. SAN24B-4 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 inter-switch link (ISL) trunks.



Overall application performance and virtual machine scalability can be enhanced through Server Application Optimization (SAO) by extending b-type data center fabric technologies to the server infrastructure. SAO enables individual traffic flows to be specifically configured, prioritized and optimized from end to end throughout the data center. It is enabled via software licensing on the b-type 8 Gbps switches and directors, and is deployed along with Brocade adapters to help IT organizations more easily manage true end-to-end SAN services across next-generation data centers. SAO and Adaptive Networking come standard with Fabric Operating System (FOS) v7.2 or later.

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

Easy to install and maintain

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

Fabric operating system

The FOS is included with each SAN24B-4 switch and contains all functions necessary to operate a base system. SAN24B-4 requires FOS v6.1.0 or higher, but a FOS v6.4.0 or higher is

required for some optional features. FOS offers the following advanced functions (either included in the base switch or as optional features):

- **Adaptive networking services** is a set of features that provides users with tools and capabilities with which 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 monitoring** helps identify end-to-end bandwidth usage by host/target pairs and is designed to provide for capacity planning.
- **Advanced Web Tools** enable administration, configuration and maintenance of fabric switches and SANs.
- **Advanced zoning** segments a SAN into virtual private SANs.
- **Enhanced group management** 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 (for example, firmware downloads and configuration uploads and downloads). Enhanced group management comes standard on the 2498-B24 base.
- **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 comes standard on the 2498-B24 base.
- **Trunking activation** enables Fibre Channel 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.

- **Server Application Optimization** is designed to bring quality-of-service (QoS) enhancements for server consolidation and virtualization. It isolates and prioritizes individual virtual machine data flow for end-to-end QoS, preserving individual service level agreements from each virtual machine through the SAN. SAO and adaptive networking features must both be activated on the SAN switches. It comes standard with FOS v7.2 or later.
- **B24 Enterprise bundle** offers a convenient method for customers to order a set of the features most often desired.

IBM System Storage SAN24B-4 Express at a glance

Product number	2498-B24
Hot-swappable components	Small form-factor pluggable optical transceivers, fans and one power supply
Warranty	One-year, customer-replaceable unit (CRU); warranty service upgrades are available
Optional features	8-port activation, adaptive networking services,* advanced performance monitoring, B24 enterprise bundle,† enhanced group management, extended fabric, fabric watch, full fabric, trunking activation, Server Application Optimization* license
Dimensions	Width: 42.88 cm (16.88 in.); Height: 4.29 cm (1.69 in.); Depth: 30.6 cm (12.07 in.)
Weight	4.35 kg (9.3 lb)



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Why IBM?

The storage leadership and ongoing product innovation of IBM supports organizations in significantly improving storage efficiency with solutions that are easy to use and powerful enough to bring the most massive storage growth under control. IBM provides flexible, scalable and open standards-based business-class and global enterprise-class storage networking solutions for the on-demand world.

For more information

To learn more about [IBM System Storage SAN24B-4 Express](#), please contact your IBM representative or IBM Business Partner, or visit: ibm.com/systems/storage/san/b-type/

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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

* Server Application Optimization and Adaptive Networking come standard with FOS v7.2 or later.

† B24 Enterprise Bundle on 2498-B24 (FC 7215) includes two 8-port activation features, adaptive networking services, advanced performance monitoring, fabric watch, trunking activation, and fabric vision.



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