

## IBM System Storage SAN40B-4



High port density with 40 ports in 1U height helps save rack space

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### Highlights

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- **High port density design with up to 40 ports in an efficient, space saving 1U height**
- **Simple-to-use midrange and enterprise SAN fabric switch for IBM POWER™ Systems, System x™, System z® and other server environments**
- **New levels of performance with 8 Gbps Fibre Channel (FC) technology**
- **Non-disruptive capacity activation from 24 to 32 to 40 ports with Ports on Demand scalability**
- **High availability with redundant, hot-swappable fans and power supplies and non-disruptive software upgrades**

The IBM System Storage™ SAN40B-4 SAN fabric switch provides 24, 32 or 40 active ports and is designed for high performance with 8 Gbps link speeds and backward compatibility to support links running at 4, 2 and 1 Gbps link speeds. High availability features make it suitable for use as a core switch in midrange environments or as an edge-switch in enterprise environments where a wide range of SAN infrastructure simplification and business continuity configurations are possible. IBM POWER Systems, System x, System z and many non-IBM disk and tape devices are supported in many common operating system environments. Optional features provide specialized distance extension, dynamic routing between separate or heterogeneous fabrics, link trunking, FICON®, performance monitoring and advanced security capabilities.

### **High-performance**

The IBM System Storage SAN40B-4 switch provides 8 Gbps connectivity on all ports. Each switch port auto-negotiates to 8 Gbps, 4 Gbps, 2 Gbps or 1 Gbps link speeds depending on the speed of the device at the other end of the link. Up to 640 Gbps throughput is possible with a 40-port configuration. E\_Port connectivity is standard to support links to other SAN switches, directors and routers via Inter-Switch Links (ISLs). Up to 8 Gbps throughput at extended distances of up to 100 km is possible with the

**Extended Fabric Activation** feature and appropriate distance extension technology.

### **Pay-as-you-grow scalability**

The **8-Port Activation** feature is designed to support scalable switch upgrades. This feature provides an activation key to enable eight additional ports while helping avoid fabric disruption. One or two of these features can be used to upgrade a base switch to 32 or 40 active ports. Optical transceivers are required for all active ports.

### **High-availability features**

Midrange and enterprise SAN users require high-availability switch fabric solutions. The SAN40B-4 switch provides redundant, hot-swappable, load-sharing power supply/fan modules that are designed to allow the switch to remain online if one module fails. Dual power cords allow attachment to separate sources to help improve availability. Hot-pluggable optical transceivers are designed to be replaced without taking the switch offline. Availability of many non-disruptive firmware upgrades helps minimize disruption.

### **Switch investment protection**

IBM System Storage SAN b-type switches use common switch firmware—from the 24-port SAN switch to the 384-port director—which helps simplify SAN fabric expansion. Common firmware and 8, 4, 2 and 1 Gbps link speeds support backward interoperability with existing SAN infrastructures. ISL trunking can interoperate with older 4 Gbps and 2 Gbps switches.

### **Management features**

**Web Tools** provides an integrated, Web-based management interface designed to help simplify monitoring

and configuration management for first-time SAN users. While easy to use, it provides a comprehensive set of management tools that support flexible integration into existing enterprise storage management structures. Web Tools is designed to support security and data integrity by limiting (zoning) host system attachment to specific storage systems and devices.

**Fabric watch** threshold monitoring is designed to track the health of switches and the SAN fabric. Fabric watch is designed to monitor fabric resources, port traffic, switch environment values and operational values for optical transceivers. This information is accessible from Web Tools.

### **Open fabric management**

The IBM SAN b-type family management framework is designed to support a wide range of solutions—from small workgroup SANs to very large enterprise SAN fabrics. Small SANs require rapid deployment and plug-and-play simplicity. Very large SAN fabrics require centralized management and automated administration. IBM SAN

b-type switch management options include browser-based Web Tools and open standards-based interfaces to enterprise SAN managers.

### **Fabric Operating System**

Fabric OS® (FOS) is included with each SAN40B-4 and contains all functions necessary to operate a base system. The SAN40B-4 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.
- **FICON with CUP** provides in-band management by System Automation for z/OS®.
- **FULL FABRIC** is standard and enables E\_Port connectivity to other switch in a fabric.
- **INTEGRATED ROUTING** allows any port to be configured as an EX\_Port supporting Fibre Channel Routing.
- **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 SAN40B-4 at a glance

### Product characteristics

Produce Number	2498-B40 and 249840E
Base fabric switch	IBM System Storage SAN40B-4 switch with 40 ports, 24 ports activated (0 to 23) and Fabric OS (FOS) 6.1.0 or later, hardcopy Installation Guide, CD-ROM (with manuals), service and wrap tools, SFP extraction tool, two 110 volt power cords for rack installation, rail kit, Advanced Zoning, Enhanced Group Management, EZSwitchSetup wizard, Fabric Watch, Full Fabric, Web Tools
Fibre Channel interface	E_Port, F_Port, FL_Port, M_Port and optional EX_Port
Optical transceivers	Choice of 8 Gbps short wave (supports 8, 4 and 2 Gbps link speeds) and 4 Gbps short wave and long wave (supports 4, 2 and 1 Gbps link speeds) Small Form-Factor Pluggable (SFP); SFPs must be ordered for all active ports
Fans and power supplies	Dual power supply/fan modules
Hot-swappable components	SFP optical transceivers, power/fan modules
Non-rack support	Non-rack installation is supported; country-specific power cords are required and must be ordered
Servers supported*	<ul style="list-style-type: none"><li>• IBM POWER Systems, System i® and selected AS/400® servers, System p® and selected RS/6000® servers</li><li>• IBM System x, selected Netfinity® servers and other Intel® processor-based servers</li><li>• IBM System z9™ EC, z9 BC, zSeries® 990 and 900</li><li>• Select Sun™ and HP servers</li></ul>
Operating systems supported*	<ul style="list-style-type: none"><li>• Microsoft® Windows NT®, Windows 2000, Windows 2003</li><li>• Red Hat Linux™, Red Hat Linux Advanced Server</li><li>• SUSE™ Linux, SUSE Linux Enterprise Server (SLES)</li><li>• z/OS® and OS/390®</li><li>• Other selected operating systems</li></ul>
Storage Products Supported*	<ul style="list-style-type: none"><li>• IBM System Storage DS8000™, DS6000™ and DS4000™ storage servers</li><li>• IBM TotalStorage® Enterprise Storage Server® systems</li><li>• IBM TotalStorage FASiT Family of storage servers</li><li>• IBM System Storage n Series NAS Filers and Gateways</li><li>• IBM TotalStorage 3580, 3588, 3590, and 3592 tape drives</li><li>• IBM TotalStorage 3494, 3582, 3583 and 3584 tape libraries</li><li>• IBM TotalStorage 3581 Tape Autoloader</li><li>• IBM TotalStorage 3584 High Availability Frame Model HA1</li><li>• IBM TotalStorage SAN Volume Controller</li><li>• Other selected storage systems</li></ul>
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 cords	Jumper cables are included for rack installation; country-specific power cords must be ordered for desktop/standalone installation
Warranty	1-year; Customer Replaceable Unit (CRU); warranty service upgrades are available

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## IBM System Storage SAN40B-4 at a glance

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### Optional features

8-Port Activation, Adaptive Networking, Advanced Performance Monitor, Enterprise Package\*\*, Extended Fabric, Fibre Channel Routing, FICON w/CUP, Integrated Routing, Trunking Activation

### Physical characteristics

Height	4.29 cm/1.69 inches
Width	42.88 cm/16.88 in
Depth	61.0 cm/24.0 in
Weight	9.34 kg/20.6 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 @ 40° C (104° F) Non-operating: 10% to 90% non-condensing at 70° C (158° F)
Power	90-264 V AC (Universal), 47-63 Hz

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### For more information

To learn more about the IBM System Storage SAN40B-4, please contact your IBM marketing representative or IBM Business Partner, or visit:

[ibm.com/systems/storage/san/b-type](http://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](http://ibm.com/systems/storage/san/b-type).

\*\*Enterprise Package includes two 8-Port Activation features, Adaptive Networking, Advanced Performance Monitor and Trunking Activation.

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IBM Systems and Technology Group  
Route 100  
Somers, New York 10589

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