

## IBM System Storage SAN04B-R multiprotocol router



Efficient package with two active Fibre Channel ports and two Ethernet Internet Protocol ports

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### Highlights

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- **Designed for high performance with 4 Gigabit per second (Gbps) Fibre Channel (FC) ports and hardware-assisted traffic processing for line-rate performance across Ethernet Internet Protocol (IP) ports**
- **Utilizes existing Internet, IP-based Metropolitan Area Network (MAN) or Wide Area Network (WAN) infrastructures for metro and global SAN extension for business continuity solutions**
- **Hardware-based compression, large window sizes and selective acknowledgement of IP packets designed to optimize performance of SAN extension over IP networks**
- **Integrated IBM System Storage™ SAN b-type (Brocade) switch management helps simplify installation and administration and helps provide fabric investment protection**

A wide range of IBM System Storage mid-range and enterprise Storage Area Network (SAN) infrastructure simplification and business continuity solutions can be created with the IBM System Storage SAN04B-R multiprotocol router. Infrastructure simplification solutions for the IBM Power™ Systems and System x™ family include disaster tolerance over metropolitan and global IP networks with IBM System Storage disk arrays, tape libraries and IBM Tivoli® Storage Manager data protection software.

Local site infrastructure simplification solutions may be extended to one or more remote sites for enhanced data protection and disaster tolerance. The IBM System Storage SAN04B-R multiprotocol router provides Fibre Channel over IP and FCIP Tunneling Service for distance extension which can enable cost effective and manageable metro

and global business continuity solutions. This extended distance connectivity can help create consolidated remote tape vaulting data protection plus metro mirror and global mirror disk-based disaster tolerant solutions.

### High performance

The IBM System Storage SAN04B-R multiprotocol router is designed to deliver 4, 2 and 1 Gigabit per second (Gbps) full-duplex Fibre Channel or 50 Megabit per second Ethernet line-rate performance on all ports. Each router FC port auto-negotiates to 4 or 2 or 1 Gbps depending on the speed of the device at the other end of the link. The Ethernet ports enable reliable SAN extension across the Internet, IP-based Metropolitan Area Networks (MANs) and Wide Area Networks (WANs) through the use of Fast Write, hardware-based compression and storage-optimized protocol enhancements.

### High-availability features

Mid-size SAN users require high-availability fabric solutions. The IBM System Storage SAN04B-R multiprotocol router uses second-generation advanced application-specific integrated circuits (ASIC) electronic components to help minimize the number of

components and improve reliability. The SAN04B-R router is designed to provide hot-swappable, load-sharing dual redundant power supplies that allow the router to remain online if one power supply fails. Dual power cords allow attachment to separate power sources for improved availability. Hot-swappable power supplies and redundant cooling fans help eliminate downtime for service when replacing a failed component. Hot-pluggable SFP transceivers are designed to be replaced without taking the router offline.

High availability solutions require redundant components, including clustered servers with dual Host Bus Adapters, dual independent fabrics and disk storage arrays with dual controllers each with dual adapters. Dual IBM System Storage SAN04B-R routers may be configured in a high availability solution to create a resilient “meta” SAN infrastructure.

### Configuration flexibility

A variety of SFP transceivers are available to meet diverse requirements. Standard short wave optical Fibre Channel SFPs are available to connect at distances up to 1500 meters. Long wave optical Fibre Channel SFPs are

available to connect at distances of up to 4 km, 10 km or 30 km. Optical SFPs are always used to connect the FC ports to a Fibre Channel fabric, however both optical and copper SFPs are available to connect the Ethernet ports to an Ethernet fabric.

The router helps provide full Fibre Channel fabric services with many standard features including WEBTOOLS with Advanced Zoning, FCIP Tunneling Service and Extended Fabric.

### Fabric Operating System

Brocade® Fabric OS® (FOS) is included with each SAN04B-R and contains all functions necessary to operate a base system. The SAN04B-R requires FOS level 6.1.0 or higher. FOS offers the following advanced functions:

- **ADVANCED PERFORMANCE MONITOR** *helps identify end-to-end bandwidth usage by host/target pairs and is designed to provide for capacity planning.*
- **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.*

## IBM System Storage SAN04B-R at a glance

### Product characteristics

Produce Number	2005-R04
Base fabric switch	IBM System Storage SAN04B-R multiprotocol router with 2 active Fibre Channel ports, 2 Ethernet IP ports and Brocade 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, Extended Fabric, Fabric Watch, FCIP Activation, Full Fabric Activation and Web Tools. All active ports must be populated with SFPs.
Fibre Channel interface	E_Port, F_Port
Optical transceivers	Choice of 4 Gbps short wave, long wave and extended distance long wave (supports 4, 2 and 1 Gbps link speeds) Small Form-Factor Pluggable (SFP). The optical transceivers may be used on any of the ports of the SAN04B-R router (both FC and Ethernet).
Copper transceiver	Up to 1 Gigabit per second Ethernet (GbE) (50 MbE on SAN04B-R)
Fans and power supplies	Three fans, two power supplies
Hot-swappable components	SFP transceivers, fans and power supplies
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>• System x, selected Netfinity® servers and other Intel® processor-based servers</li><li>• Select Sun™ and HP servers</li></ul>
Operating systems supported*	<ul style="list-style-type: none"><li>• Microsoft® 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>• IBM AIX®, HACMP™, i5/OS® and OS/400®</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 FAST 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
Optional features	Performance Monitor, Trunking Activation

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## IBM System Storage SAN04B-R at a glance

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### Physical characteristics

Height	42.44 mm/1.67 inches
Width	429 mm/16.89 in
Depth	635 mm/25.00 in
Weight	12.43 kg/27.4 lb
Temperature	Operating: 0° to 40° C (32° to 104° degrees F) Non-operating: -25° to 70° C (-13° to 158° F)
Humidity	Operating: 20% to 85% non-condensing @ 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

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## For more information

To learn more about the IBM System Storage SAN04B-R, 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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Route 100  
Somers, New York 10589

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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/).

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