IBM Storage Networking SAN128B-6

Accelerate performance, simplify management and leverage industry-leading switch density

Highlights

- High-density, 128-port 32 Gbps b-type Gen 6 Fibre Channel switch
- Optimizes performance with advanced monitoring for NVMe
- Integrates NVMe-ready solutions without a rip-and-replace
- Simplifies end-to-end management of large-scale environments
- Accelerates operations by automating repetitive tasks
- Provides real-time monitoring and alerting of storage IO and health
- Provides real time performance monitoring with integrated network sensors
- Enables virtual machine (VM) visibility in a storage fabric
- Monitors and optimizes performance and identify anomalies

Data centers are under pressure to deliver maximum performance, business intelligence, and operational efficiency to address exponential data growth and dynamic business demands. To gain the performance required, organizations are transitioning to the all-flash data center, which requires a modern storage network that can keep pace with innovations in compute and storage resources. By modernizing the storage area network (SAN), organizations will be able to maximize productivity and increase the efficiency of their storage investments, even as they rapidly scale their environments. Moreover, the addition of automation technology to Gen 6 Fibre Channel will transform SAN management by simplifying operations and freeing up resources to focus on business optimization and revenue opportunities.

The IBM Storage Networking SAN128B-6 Fibre Channel switch provides the tools to optimize NVMe storage and automate SAN management tasks. It is a high port density building block with a management platform designed to support application, data and storage growth. As an NVMe-ready switch, SAN128B-6 allows organizations to seamlessly integrate b-type Gen 6 Fibre Channel networks with the next generation of flash storage, without a disruptive rip-and-replace. In addition, SAN128B-6 features integrated network sensors for advanced monitoring of NVMe workloads, helping to ensure optimal performance. SAN128B-6 also delivers new automation capabilities that enable DevOps resources to automate and orchestrate SAN resources through open application programming interfaces (APIs) and the Ansible automation engine.

With IBM b-type Storage Networking automation, organizations can quickly and reliably perform resource-intensive tasks, such as provisioning, and operationalize the continuous monitoring of the network so that tasks can be completed in a fraction of the time. By combining b-type robust set of data-collecting capabilities with automation, organizations can automate repetitive daily tasks and deliver consistent performance by eliminating human error.

With SAN128B-6, organizations can seamlessly transition to an all-flash data center and build a foundation to support future innovation and operational efficiency.

Simple and elegant scalability with industry-leading port density

The SAN128B-6 enterprise-class switch delivers industry-leading port density with 128 Fibre Channel ports in an elegant 2U form factor. Organizations can both increase scalability and optimize space utilization. With 96 32 Gbps enhanced small form-factor pluggable (SFP+) ports and 8 4×32 Gbps Q-Flex ports, the compact design of the switch enables data centers to scale efficiently and deliver more connectivity with fewer switches. Built to support maximum flexibility and dense Fibre Channel fabrics, the SAN128B-6 switch offers cost-effective, pay-as-you-grow scalability, expanding from 48 to 128 ports with Ports on Demand (PoD).

In addition to offering 128 32 Gbps ports, SAN128B-6 delivers Gen 6 Fibre Channel performance to support growing and dynamic workloads. It achieves this level of performance through a combination of market-leading low latency and up to 566 million frames switched per second—shattering application performance barriers with up to 200 million I/O operations per second (IOPS).

To support higher data volumes over long distance, SAN128B-6 delivers up to 384 Gbps of combined in-flight encryption and 192 Gbps of in-flight data compression to optimize bandwidth and minimize the risk of unauthorized access.

Increase productivity with simple and open automation

IT organizations spend nearly half of their time performing repetitive daily management tasks such as zoning, inventory reporting and operational validation checks. By automating these repetitive tasks, IT organizations can significantly improve their efficiency and dramatically decrease the risk of operational mistakes. Automation in large-scale IT environments integrates diverse infrastructure components with consistency and predictability to deliver greater operational efficiency and agility. With more than 20 years of b-type storage networking, IBM understands the nuances that go into infrastructure management and what tasks can benefit from automation. By integrating Representational State Transfer (RESTful) APIs directly into its b-type Storage Networking switch and management product portfolio, IBM provides a broad range of choices to enable any SAN management solution. IT organizations that couple robust IBM data-collection capabilities with automation and orchestration tools gain the ability to

automate configuration tasks and the visibility to monitor and detect any performance or health changes.

Enhanced operational stability for always-on business operations

SAN128B-6 with Fabric Vision technology delivers a breakthrough hardware and software solution that helps simplify monitoring, increase operational stability, and dramatically reduce costs. Fabric Vision technology includes IO Insight and VM Insight, which provide organizations with deeper visibility into both SCSI and NVMe traffic. This enhanced visibility enables administrators to quickly identify the problem and accelerate root-cause analysis for faster time to resolution. SAN128B-6 also optimizes the performance of NVMe over Fibre Channel by leveraging integrated, non-intrusive, real-time network monitoring and alerts. This proactive monitoring of NVMe traffic provides administrators with key insights for maintaining optimal network health and performance.

IO Insight proactively monitors I/O performance and behavior through integrated network sensors, providing deep insight into problems and helping to ensure service levels. This capability nondisruptively and non-intrusively gathers I/O statistics from any device port, then feeds them to a monitoring policy that sets thresholds and generates alerts. VM Insight applies IO Insight visibility for each VM. Integrated VM, application- and device-level I/O latency and IOPS monitoring enable administrators to set the baseline for application performance and identify the VM or physical layer responsible for the degraded performance.

Innovative Fabric Vision monitoring, management, and diagnostic capabilities enable administrators to avoid problems before they impact operations. For further information please also refer to the Fabric Vision technology datasheet. Additional Fabric Vision capabilities are listed in the Fabric Vision Technology Redbooks Product Guide

IBM Network Advisor

IBM Network Advisor simplifies b-type Gen 6 Fibre Channel management and helps organizations proactively diagnose and resolve issues to maximize uptime, increase operational efficiency and reduce costs. The wizard-driven interface dramatically reduces deployment and configuration times by allowing fabrics, switches and ports to be managed as groups. Customizable dashboards graphically display performance and health indicators out of the box, including all data captured using Fabric Vision technology. To accelerate troubleshooting, administrators can use dashboard playback to quickly review past events and identify problems in the fabric. Dashboards and reports also can be configured to show only the most relevant data, enabling administrators to more efficiently prioritize their actions and maintain network performance. For more details about IBM Network Advisor capabilities, review the information in the datasheet and IBM Network Advisor Redbooks® product guide.

SAN128B-6 Specifications

Product Number	• 8960-F96 Front-to-back airflow; non-port-side exhaust; port-side intake; 2U • 8960-N96 Back-to-front airflow; non-port-side intake; port-side exhaust; 2U
Hot-swappable components	Small form-factor pluggables (SFPs)
Size	• Width: 44.0 cm (17.32 in.) • Height: 8.67 cm (3.41 in.) • Depth: 60.96 cm (24 in.)
Weight	21.31 kg (47.00 lb) with two power supply field-replaceable units (FRUs), and three fan FRUs without transceivers.
Warranty	One-year; customer-replaceable unit (CRU) and on-site, 9×5 next-business-day response; warranty service upgrades are available.
Port Speed	4/8/10/16/32 Gbps port speeds and capable of supporting 128 Gbps speeds; 10 Gbps optionally programmable to fixed port speed. Auto-sensing of 4×32 / 4×16 / 4×8 / 4×4 Gbps speeds on the QSFP ports with FOS v8.2.0 or later.
Fibre Channel Ports	96 SFP+ ports capable of operating at 4/8/10/16/32 Gbps Fibre Channel auto-sensing speeds; 8 QSFP ports capable of operating at 4×32 / 4×16 / 4×8 / 4×4 Gbps Fibre Channel speeds. Offers a base configuration of 48 ports, two 24-port SFP+ PoD, and one 32-port QSFP PoD. The switch has a total of eight 32 Gbps QSPF ports. This allows users to grow from 48 ports to 128 ports. Supports F/E/EX_Port and D_Port types on the SFP+ ports and only F/E/EX_Port and D_Port types on the QSFP ports with Fabric OS (FOS) v8.2.0 or later.
Optional features	Please refer to the IBM Storage Networking SAN128B-6 Redbooks Product Guide to review most current optional features.

For more information, please refer to the IBM Storage Networking SAN128B-6 Redbooks Product Guide.

Why IBM?

Innovative technology, open standards, excellent performance, and a broad portfolio of proven storage software and hardware solutions offerings—all backed by recognized industry leadership—are just a few of the reasons to consider storage solutions from IBM. In addition, IBM delivers some of the best storage products, technologies, services and solutions in the industry without the complexity of dealing with different hardware and software vendors.

For more information

To learn more about IBM Storage Networking SAN128B-6, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/us-en/marketplace/san128b-6

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: ibm.com/financing

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