

Lenovo ThinkSystem DB720S Gen7 FC SAN Switch Product Guide

The Lenovo ThinkSystem DB720S Gen 7 FC SAN Switch, with its unmatched 64Gbps performance and industry-leading port density, provides a building block that supports data growth, demanding workloads, and data-center consolidation. With a 50% latency reduction compared to the previous generation, the DB720S Switch enables the maximum performance of NVMe storage.

The Lenovo DB720 is built for maximum flexibility, scalability, and ease of use. Organizations can scale from 24 to 56 SFP+ ports in an efficient 1U form factor that delivers industry-leading port density and space utilization.

The following figure shows the Lenovo ThinkSystem DB720S Gen 7 FC SAN Switch.



Figure 1. Lenovo ThinkSystem DB720S Gen 7 FC SAN Switch

Did you know?

The DB720S is built for maximum flexibility, scalability, and ease of use. Organizations can scale from 24 to 56 SFP+ ports in an efficient 1U form factor that delivers industry-leading port density and space utilization. This switch also provides easy integration into existing SAN environments -- from 8Gb to 64Gb speeds -- while introducing the benefits of Gen 7 Fibre Channel connectivity. And the DB720S simplifies deployment, configuration, and management of SAN resources with a collection of easy-to-use tools.

With Lenovo FC SAN Switch offerings, Lenovo can be your trusted partner that offers "one stop shop" and single point of contact for delivery of leading edge technologies and innovations from Lenovo and other leading IT vendors. These offerings can satisfy the wide range of your end-to-end IT infrastructure needs, including end-user devices, servers, storage, networking, services, management software, and financing.

Key features

The DB720S provides exceptional price/performance value by including standard enterprise class software standard like Fabric Vision, ISL Trunking, Integrated Routing, and Extended Fabrics.

The ThinkSystem DB720S FC SAN Switch offers the following features and benefits:

- Provides high scalability in an ultra-dense, 1U switch with up to 56 ports to support high-density server virtualization, cloud architectures, and flash-based storage environments.
- Accelerate critical workloads with 64Gb/s links
- Maximize performance of NVMe storage with 50% lower switching latency than Gen 6
- Enable pay-as-you-grow scalability from 24 to 56 ports—for on-demand flexibility
- Simplify troubleshooting by identifying and isolating issues
- Collect comprehensive telemetry data across the fabric to enable powerful analytics
- Visualize the data to easily understand the health and performance of the SAN
- Automate repetitive tasks to save time and eliminate human error
- Protects existing device investments with auto-sensing 8, 16 and 32 Gbit/sec capabilities and native operation with any Brocade SAN fabrics.
- Leverages Fabric Vision technology's powerful monitoring, management, and diagnostic tools to simplify administration, increase uptime, and reduce costs.
- Supplies a rich set of standard features at no extra cost, including fabric services, advanced zoning, adaptive networking, full fabric and access gateway operations, integrated 10 Gb FC, and diagnostic tools.
- Expands fabric capabilities with optional licensed functions, including trunking, advanced monitoring and alerting, long-distance fabrics, and FC-FC routing.
- Compresses in-flight data on up to four ports for more efficient link utilization.
- Maximizes resiliency with redundant hot-swap power supplies.
- Accelerates troubleshooting with built-in advanced diagnostics tools featuring ClearLink Diagnostics with D_Ports (Diagnostic Ports) and select adapters from QLogic and Emulex, which helps ensure optical and signal integrity for 32/64 Gb Fibre Channel optics and cables.

Brocade Fabric Vision

To further simplify operations and increase visibility, the DB720S includes Brocade Fabric Vision® technology to monitor and analyze the SAN. This technology provides visibility and insight to quickly identify problems and achieve critical service-level agreements (SLAs).

The DB720S Switch with Fabric Vision technology provides a robust analytics architecture that delivers autonomous SAN technology through self-learning, self-optimizing, and self-healing capabilities. Fabric Vision technology is a suite of features that leverage comprehensive data collection capabilities with powerful analytics to quickly understand the health and performance of the environment and identify any potential impacts or trending problems. The combination of SAN analytics and automation technologies unlocks the capabilities to deliver a self-learning, self-optimizing, and self-healing autonomous SAN.

Features of Fabric Vision include:

- Self-Learning
 - Gather and transform millions of data points into network intelligence
 - Visualize application and device-based performance and health metrics
 - Detect abnormal traffic behaviors and degraded performance
 - Eliminate operational steps by automatically learning application flows
- Self-Optimizing
 - Optimize critical application performance by automatically prioritizing traffic

- Guarantee application performance by proactively monitoring and actively shaping traffic
- Eliminate human errors and performance impacts through open DevOps automation technology
- Optimize administrative resources with cloud-like SAN orchestration
- Self-Healing
 - Instantly notify end devices of congestion for automatic resolution
 - Ensure data delivery with automatic failover from physical or congestion issues
 - Detect and automatically reconfigure out-of-compliance fabrics
 - Eliminate performance impacts by automatically taking corrective action on misbehaving devices

Brocade SANnav Management Portal

To streamline management workflows, organizations can leverage the optional Brocade SANnav Management Portal software to accelerate the deployment of new applications, switches, servers, and storage. Furthermore, a modernized graphical user interface (GUI) improves operational efficiencies with visual dashboards for instant visibility and faster troubleshooting.

EZSwitchSetup

With EZSwitchSetup, organizations can reduce the number of steps to deploy and configure a switch. In addition, the simplified user interface of Brocade Web Tools makes the SAN easier to manage.

Perfect for high-performance, latency-sensitive workloads

Enterprises are quickly moving their high-performance, latency-sensitive workloads to NVMe flash-based storage. The DB720S Switch supports NVMe over Fibre Channel, enabling organizations to integrate Gen 7 Fibre Channel networks with next-generation flash storage, without a disruptive rip-and-replace. This enables enterprises to achieve faster application response times and harness the performance innovation inherent in NVMe storage. NVMe, combined with the high performance and low latency of Gen 7 Fibre Channel, delivers the performance, application response time, and scalability needed for next-generation data centers.

Access Gateway

The DB720S can be deployed as a full-fabric switch or as an Access Gateway, which simplifies fabric topologies and allows heterogeneous fabric connectivity (the default mode setting is a switch). Access Gateway mode utilizes N_Port ID Virtualization (NPIV) switch standards to present physical and virtual servers directly to the core of SAN fabrics. Access Gateway allows you to configure your fabric to handle additional devices without increasing the number of switch domains. Key benefits of Access Gateway mode include the following:

- Improved scalability for large or rapidly growing server and virtual server environments
- Reduced management of the network edge, since Access Gateway does not have a domain identity and appears transparent to the core fabric
- Support for heterogeneous SAN configurations without reduced functionality for server connectivity

Components and connectors

The following figure shows the port-side view of the DB720S FC SAN Switch.

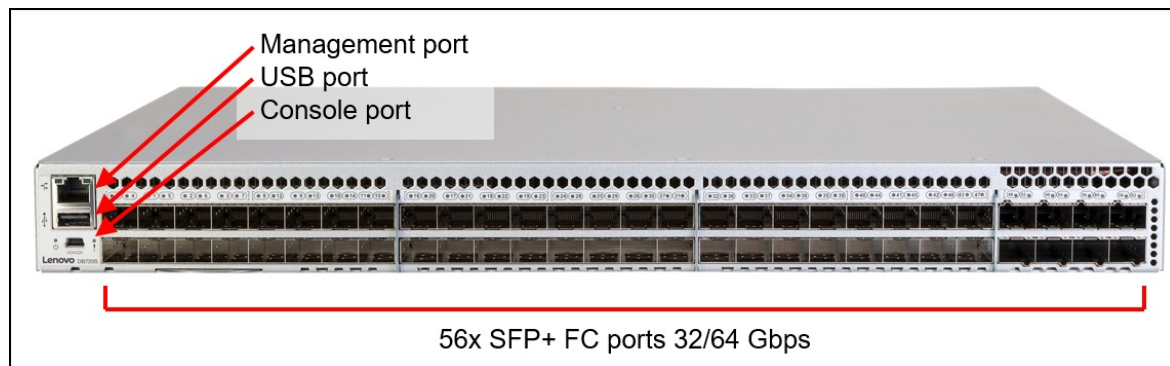


Figure 2. DB720S FC SAN Switch port-side view

The following figure shows the non-port side view of the DB720S FC SAN Switch.

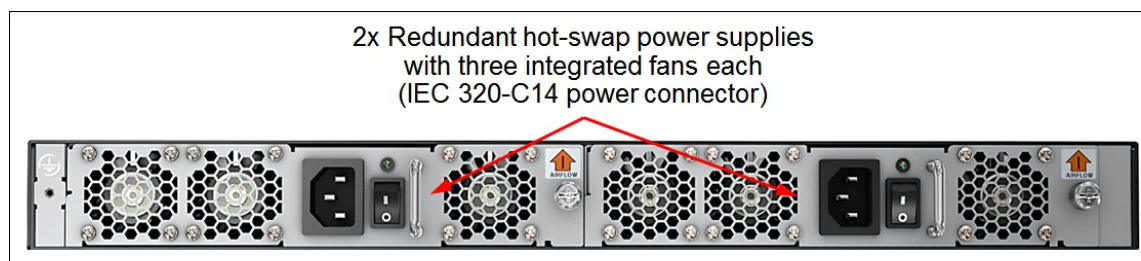


Figure 3. DB720S FC SAN Switch non-port-side view

System specifications

The following table lists the ThinkSystem DB720S system specifications.

Table 1. System specifications

| Component | Specification |
|---------------------|--|
| Machine type | 7D5J |
| System Architecture | |
| Fibre Channel Ports | <p>Switch mode (default): Minimum of 24 ports and maximum of 56 ports. Ports are enabled in increments of 8 ports up to 56 ports via Ports on Demand (PoD) licenses; E_Ports, F_Ports, M_Ports, D_Ports, EX_Ports. Brocade.</p> <p>Access Gateway default port mapping: 56 SFP+ F_Ports, 8 SFP+ N_Ports.</p> <p>The SFP+ ports are capable of auto-negotiating to 8, 16, 32, or 64Gb/s speeds depending on the SFP+ model and the minimum supported speed of the optical transceiver at the other end of the link.</p> |
| Scalability | Full-fabric architecture with a maximum of 239 switches |
| Certified maximum | 4K active nodes; 56 switches, 19 hops in Brocade Fabric OS® fabrics |

| Component | Specification |
|------------------------|---|
| Performance | <p>Non-blocking architecture with wire-speed forwarding of traffic:</p> <ul style="list-style-type: none"> • 8GFC: 8.5 Gb/sec line speed, full duplex • 10GFC: 10.53Gb/s line speed, full duplex; 10Gb/s optionally programmable to fixed port speed. • 16GFC: 14.025 Gb/sec line speed, full duplex • 32GFC: 28.05 Gb/sec line speed, full duplex • 64GFC: 57.8 Gb/sec line speed, full duplex |
| Traffic load balancing | <ul style="list-style-type: none"> • Frame-based ISL Trunking load balances supports up to eight SFP+ ports per ISL trunk; up to 512Gb/s per ISL trunk when using 64Gb/s optics • Dynamic Path Selection (DPS) provides exchange-based load balancing across all available ISLs. |
| Aggregate bandwidth | 3.584Tb/s |
| Maximum fabric latency | Latency for locally switched ports is 460 ns (including FEC). |
| Maximum frame size | 2112-byte payload |
| Frame buffers | 24K per switching ASIC |
| Classes of service | Class 2, Class 3, Class F (inter-switch frames) |
| Port types | <ul style="list-style-type: none"> • D_Port (ClearLink® Diagnostic Port), E_Port, EX_Port, F_Port, M_Port • Optional port-type control • Brocade Access Gateway mode: F_Port and NPIV-enabled N_Port |
| Data traffic types | Fabric switches supporting unicast |
| Media types | <ul style="list-style-type: none"> • 64Gb/s: Brocade Secure hot-pluggable SFP+, LC connector; 64Gb/s SWL. • 32Gb/s: Brocade Secure hot-pluggable SFP+, LC connector; 32Gb/s SWL, LWL 10 km, ELWL 25 km. • 10Gb/s: Brocade Secure hot-pluggable SFP+, LC connector; 10Gb/s SWL, LWL 10 km. <p>Fibre Channel distance is subject to fiber-optic cable and port speed.</p> |
| USB port | One standard USB port for firmware download, support save, and configuration upload or download. |
| Fabric services | <p>Fabric Vision; Monitoring and Alerting Policy Suite (MAPS); Flow Vision; Brocade Adaptive Networking (QoS); Fabric Performance Impact (FPI) Monitoring; Slow Drain Device Quarantine (SDDQ); Brocade Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning, peer zoning, target-driven zoning); Dynamic Fabric Provisioning (DFP); Dynamic Path Selection (DPS); Brocade Extended Fabrics; Enhanced BB Credit Recovery; FDMI; Frame Redirection; Frame-based Trunking; FSPF; Integrated Routing; IPoFC; Brocade ISL Trunking; Management Server; NPIV; Time Server; Registered State Change Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server (SNS); Virtual Fabrics (Logical Switch, Logical Fabric); Read Diagnostics Parameter (RDP).</p> <p>Access Gateway mode: Some fabric services do not apply or are unavailable in Access Gateway mode.</p> |
| Extension | Fibre Channel, in-flight compression (Brocade LZO) and encryption (ES-GCM-256 encryption on FC ISLs, E_Port); integrated optional 10Gb/s Fibre Channel for DWDM MAN connectivity. |

| Component | Specification |
|-------------------------------|--|
| Power supplies | Dual, hot-swappable redundant power supplies (80 PLUS Gold) with integrated system cooling fans (3 built into each power supply), N+N cooling redundancy. |
| Management | |
| Supported management software | HTTP; SNMP v1/v3 (FE MIB, FC Management MIB); SSH; Auditing; Syslog; NTP v3; Brocade Advanced Web Tools; Brocade SANnav Management Portal and SANnav Global View (optional license); EZSwitchSetup; Command Line Interface (CLI); SMI-S compliant; REST API; Administrative Domains; trial licenses for add-on capabilities. |
| Security | DH-CHAP (between switches and end devices); FCAP switch authentication; HTTPS; IP filtering; LDAP with IPv6; OpenLDAP; Port Binding; RADIUS; TACACS+; user-defined Role-Based Access Control (RBAC); Secure Boot, Secure Copy (SCP); Secure Syslog; Secure FTP (SFTP); Secure Shell (SSH) v2; Secure Socket Layer (SSL); Switch Binding; Trusted Switch. |
| Management access | 10/100/1000Mb/s Ethernet (RJ-45), serial console port (mini-USB). |
| Diagnostics | ClearLink optics and cable diagnostics, including electrical/optical loopback, link traffic/latency/distance; flow mirroring; built-in flow generator; POST and embedded online/offline diagnostics, including environmental monitoring; FCping and Pathinfo (FC traceroute); frame viewer; non-disruptive daemon restart; optics health monitoring; power monitoring; RAStrace logging; and Rolling Reboot Detection (RRD). |
| Mechanical | |
| Enclosure | Front-to-back airflow; non-port-side exhaust; power from back, 1U Back-to-front airflow; non-port-side intake; power from back, 1U |
| Dimensions | Width: 440 mm (17.3 in.) Height: 44 mm (1.7 in.) Depth: 356 mm (14.0 in.) |
| Weight | 7.17 kg (15.8 lb) with two power supply FRUs, without transceivers |
| Support | |
| Warranty | Three-year customer-replaceable unit limited warranty with 9x5 next business day parts delivered. Three-year software/firmware entitlement. |
| Service and support | Optional service upgrades are available through Lenovo Services: 9x5 next business day onsite response, 24x7 2-hour or 4-hour onsite response, 24x7 6-hour or 24-hour committed service repair, up to 5 years of warranty coverage, 1-year or 2-year post-warranty extensions, and Basic Hardware Installation Services. |

Models

The following table lists the ThinkSystem DB720S FC SAN Switch models.

Table 2. Lenovo ThinkSystem DB720S FC SAN Switch models

| Description | Part number | Machine Type-Model | Feature code |
|--|-------------|--------------------|--------------|
| Port side exhaust airflow | | | |
| Lenovo ThinkSystem DB720S, 24 ports active with 32Gb SWL SFPs, 2 power supplies (Port side exhaust), rail kit, Software: Fabric Vision, Trunking, Integrated Routing, Extended Fabric | 7D5JCTO1WW | 7D5JA000WW | BF60 |
| Lenovo ThinkSystem DB720S, 24 ports active with 64Gb SWL SFPs, 2 power supplies (Port side exhaust), rail kit, Software: Fabric Vision, Trunking, Integrated Routing, Extended Fabric (model requires FOS 9.0.1a or later) | 7D5JCTO2WW | 7D5JA001WW | BF61 |
| Port side intake airflow (for Telco) | | | |
| Lenovo ThinkSystem DB720S, 24 ports active with 32Gb SWL SFPs, 2 power supplies (Port side intake like Telco), rail kit, Software: Fabric Vision, Trunking, Integrated Routing, Extended Fabric | 7D5JCTO3WW | 7D5JA002WW | BF62 |
| Lenovo ThinkSystem DB720S, 24 ports active with 64Gb SWL SFPs, 2 power supplies (Port side intake like Telco), rail kit, Software: Fabric Vision, Trunking, Integrated Routing, Extended Fabric (model requires FOS 9.0.1a or later) | 7D5JCTO4WW | 7D5JA003WW | BF63 |

The DB720S FC SAN Switch part numbers include the following items:

- One FC SAN Switch
 - Model CTO1WW/CTO3WW: With 24 ports activated and 24x 32 Gb FC SWL SFP+ transceivers included
 - Model CTO2WW/CTO4WW: With 24 ports activated and 24x 64 Gb FC SWL SFP+ transceivers included
- Serial cable (Mini-USB console cable to DB-9/RJ-45)
- Rubber feet for setting up the switch as a standalone unit
- Universal rack mount kit, 4-post & installation guide
- Web pointer document (Downloading FOS, EZSwitch, SANnav and Docs)
- Firmware Download Instructions Flyer (Instructions for downloading publicly-available Brod docs + docs behind CSP + access to open source code.)

Note: The switch comes standard without power cords; two power cables must be purchased together with the switch (see [Power supplies and cables](#) for details).

Port activation licenses

The DB720S FC SAN Switch Model includes 24 licensed ports and 24 x 32/64 GB FC SWL SFP+ Transceivers depending on the model. The remaining 32 unlicensed ports can be activated by purchasing and installing the Ports on Demand (POD) licenses that are available with transceivers in 8-port increments.

The following table lists additional POD options for the DB720S FC SAN Switch.

Table 3. POD options

| Description | Part number | Feature code | Maximum quantity |
|--|-------------|--------------|------------------|
| DB720S 8-Port SW License with 8x 32 Gbps SWL SFP+ Transceivers | 4M27A65819 | BF6L | 4 |
| DB720S 8-Port SW License with 8x 64 Gbps SWL SFP+ transceivers | 4M27A65820 | BFGC | 4 |

Transceivers and cables

With the flexibility of the DB720S FC SAN Switch, customers can choose the following connectivity technologies:

- SFP+ ports
 - For 64 Gbps FC links, customers can use 64 Gb FC SFP+ SWL optical transceivers for distances up to 100 meters on OM4 or up to 70 meters on OM3 50 μ MMF cables. These transceivers can operate at 64 Gbps, 32 Gbps, or 16 Gbps speeds.
 - For 32 Gbps FC links, customers can use 32 Gb FC SFP+ SWL optical transceivers for distances up to 100 meters on OM4 or up to 70 meters on OM3 50 μ MMF cables. For longer distances, the 32 Gb FC LWL SFP+ optical transceivers can support up to 10 km on SMF cables. These transceivers can operate at 32 Gbps, 16 Gbps, or 8 Gbps speeds.
 - For 10 Gbps FC links, customers can use 10 Gb FC SFP+ SWL transceivers for distances up to 550 meters on OM4 or up to 300 meters on OM3 50 μ MMF cables, or 10 Gb FC SFP+ LWL transceivers for distances up to 10 km on SMF cables. 10 Gb FC operations allow metro connectivity by directly utilizing a fiber optic cable between sites or by creating multiple channels on an optical cable between sites, utilizing Wave Division Multiplexing (WDM) technology (the Extended Fabric feature is NOT required for long distance 10 Gb FC connectivity).
- 1 GbE RJ-45 management port: Customers can use UTP cables for distances up to 100 meters.

The DB720S FC SAN Switch comes with 24x 32 Gb or 64 Gb FC SWL SFP+ transceivers. Additional SWL, LWL, and ELWL SFP+ transceivers can be ordered for the switch, if needed.

The following table lists the supported transceiver and cable options.

Table 4. Transceivers and cables

| Part number | Feature code | Description | Maximum quantity |
|--|--------------|---|------------------|
| 64 Gb FC SFP+ transceivers (require FOS 9.0.1a or later) | | | |
| 4M27A65425 | BF6J | Brocade Secure 64-Gb SWL SFP+ Transceiver | 56 |
| 4M27A65426 | BF6K | Brocade Secure 64-Gb SWL SFP+ Transceiver 8-pack | 7 |
| 32 Gb FC SFP+ transceivers | | | |
| 4M27A65416 | BF69 | Brocade Secure 32-Gb SWL SFP+ Transceiver | 56 |
| 4M27A65417 | BF6A | Brocade Secure 32-Gb SWL SFP+ Transceiver 8-pack | 7 |
| 4M27A65418 | BF6B | Brocade Secure 32-Gb LWL SFP+ Transceiver (10 km) | 56 |

| Part number | Feature code | Description | Maximum quantity |
|---|--------------|--|------------------|
| 4M27A65419 | BF6C | Brocade Secure 32-Gb LWL SFP+ Transceiver (10 km) 8-pack | 7 |
| 4M27A65424 | BF6D | Brocade Secure 32-Gb ELWL SFP+ Transceiver (25 km) | 56 |
| 10 Gb FC SFP+ transceivers | | | |
| 4M27A65420 | BF6E | Brocade Secure 10Gb FC SWL SFP+ Transceiver | 56 |
| 4M27A65421 | BF6F | Brocade Secure 10Gb FC LWL SFP+ Transceiver | 56 |
| OM3 optical cables for 32 Gb and 64 Gb FC SW SFP+ transceivers | | | |
| 00MN499 | ASR5 | Lenovo 0.5m LC-LC OM3 MMF Cable | 56 |
| 00MN502 | ASR6 | Lenovo 1m LC-LC OM3 MMF Cable | 56 |
| 00MN505 | ASR7 | Lenovo 3m LC-LC OM3 MMF Cable | 56 |
| 00MN508 | ASR8 | Lenovo 5m LC-LC OM3 MMF Cable | 56 |
| 00MN511 | ASR9 | Lenovo 10m LC-LC OM3 MMF Cable | 56 |
| 00MN514 | ASRA | Lenovo 15m LC-LC OM3 MMF Cable | 56 |
| 00MN517 | ASRB | Lenovo 25m LC-LC OM3 MMF Cable | 56 |
| 00MN520 | ASRC | Lenovo 30m LC-LC OM3 MMF Cable | 56 |
| OM4 optical cables for 32 Gb and 64 Gb FC SW SFP+ transceivers | | | |
| 4Z57A10845 | B2P9 | Lenovo 0.5m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10846 | B2PA | Lenovo 1m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10847 | B2PB | Lenovo 3m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10848 | B2PC | Lenovo 5m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10849 | B2PD | Lenovo 10m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10850 | B2PE | Lenovo 15m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10851 | B2PF | Lenovo 25m LC-LC OM4 MMF Cable | 56 |
| 4Z57A10852 | B2PG | Lenovo 30m LC-LC OM4 MMF Cable | 56 |
| UTP Category 6 cables (Green) for the 1 GbE RJ-45 management port | | | |
| 00WE123 | AVFW | 0.75m CAT6 Green Cable | 1 |
| 00WE127 | AVFX | 1.0m CAT6 Green Cable | 1 |
| 00WE131 | AVFY | 1.25m CAT6 Green Cable | 1 |
| 00WE135 | AVFZ | 1.5m CAT6 Green Cable | 1 |
| 00WE139 | AVG0 | 3m CAT6 Green Cable | 1 |
| 90Y3718 | A1MT | 10m CAT6 Green Cable | 1 |
| 90Y3727 | A1MW | 25m CAT6 Green Cable | 1 |
| UTP Category 5e cables (Blue) for the 1 GbE RJ-45 management port | | | |
| 40K5679 | 3801 | 0.6m Blue Cat5e Cable | 1 |
| 40K8785 | 3802 | 1.5m Blue Cat5e Cable | 1 |
| 40K5581 | 3803 | 3m Blue Cat5e Cable | 1 |
| 40K8927 | 3804 | 10m Blue Cat5e Cable | 1 |
| 40K8930 | 3805 | 25m Blue Cat5e Cable | 1 |

The following table lists the cabling requirements for the switch.

Table 5. DB720S FC SAN Switch cabling requirements

| Transceiver | Standard | Cable | Connector |
|--|------------|---|-----------|
| 64 Gb Fibre Channel | | | |
| 64 Gb FC SWL SFP+ (4M27A65425, 4M27A65426) | FC-PI-6 | Up to 30 m with LC-LC MMF cables supplied by Lenovo (see Table 4). 850 nm 50 μ MMF cable: 32GFC: Up to 100 m (OM4) or up to 70 m (OM3). 16GFC: Up to 125 m (OM4) or up to 100 m (OM3). 8GFC: Up to 190 m (OM4) or up to 150 m (OM3). | LC |
| 32 Gb Fibre Channel | | | |
| 32 Gb FC SWL SFP+ (4M27A65416, 4M27A65417) | FC-PI-6 | Up to 30 m with LC-LC MMF cables supplied by Lenovo (see Table 4). 850 nm 50 μ MMF cable: 32GFC: Up to 100 m (OM4) or up to 70 m (OM3). 16GFC: Up to 125 m (OM4) or up to 100 m (OM3). 8GFC: Up to 190 m (OM4) or up to 150 m (OM3). | LC |
| 32 Gb FC LWL SFP+ (4M27A65418, 4M27A65419) | FC-PI-6 | 1310 nm 9 μ SMF cable: 32GFC, 16GFC, 8GFC: Up to 10 km. | LC |
| 32 Gb FC ELWL SFP+ (4M27A65424) | FC-PI-6 | 1310 nm 9 μ SMF cable: 32GFC, 16GFC, 8GFC: Up to 25 km. | LC |
| 10 Gb Fibre Channel | | | |
| Management ports | | | |
| Serial console port (mini-USB). | RS-232 | Mini-USB console cable to DB-9/RJ-45 (comes with the switch). | RJ45 |
| 10/100/1000 Mb Ethernet port | 1000BASE-T | Up to 25 m with UTP cables supplied by Lenovo (see Table 4). UTP Category 5, 5E, and 6 up to 100 meters. | RJ45 |

Firmware

For details on features supported with the DB720S FC SAN Switch look for the latest Administration Guide for the latest available Fabric OS version 9.0 and above: <https://www.broadcom.com/products/fibre-channel-networking/software/fabric-operating-system>.

The following features comes standard with the DB720S FC SAN Switch:

- Enterprise Bundle
 - ISL Trunking (TRK): Allows frame-based consolidation of up to 8 inter-switch links (ISLs) into fault-tolerant and load-balanced trunks with bandwidth of up to 256 Gbps.
 - Fabric Vision (FV)
 - Monitoring and Alerting Policy Suite (MAPS): Provides a policy-based, fabric-wide threshold monitoring and alerting tool.
 - Flow Vision: Identifies, monitors, and analyzes specific application flows.
 - VM Insight: Seamlessly monitors health and performance of individual Virtual Machines (VMs) to quickly identify abnormal VM behavior and enable administrators to proactively facilitate troubleshooting and fault isolation, helping to ensure performance and operational stability.
 - IO Insight: Proactively monitors I/O performance and behavior to gain deep insight into issues and ensure service levels by non-disruptively and non-intrusively gathering I/O statistics for storage traffic and applying this information within a policy-based monitoring and alerting suite to configure thresholds and alarms.
 - Fabric Performance Impact (FPI) Monitoring: Leverages predefined MAPS policies to automatically identify and isolate devices that cause network performance issues by detecting different latency severity levels, and to alert administrators.
 - Extended Fabric (EF): Extends Fibre Channel SANs beyond 10 km distance limitations for replication and backup at full bandwidth.
 - Control Unit Port (CUP). The Control Unit Port provides an in-band management interface that the FICON host (Mainframe) can use for managing and monitoring the FC SAN switch.
- Integrated Routing: The FC-FC routing service provides Fibre Channel routing between two or more fabrics without merging those fabrics.

Management software

Lenovo offers the optional Brocade SANnav Management Portal and SANnav Global View to provide comprehensive visibility into the SAN environment, allowing administrators to quickly identify, isolate, and correct problems, and accelerate administrative tasks by simplifying and automating workflows.

SANnav Management Portal is a next-generation SAN management application with a simple browser-based user interface (UI) and with a focus on streamlining common workflows, such as configuration, zoning, deployment, monitoring, troubleshooting, reporting, and analytics.

Lenovo offers the following SANnav Management Portal editions:

- SANnav Management Portal Base: Designed for mid-sized SANs to manage up to 600 SAN switch ports only (SAN director ports can only be managed with the Enterprise edition).
- SANnav Management Portal Enterprise: Designed for enterprise-class SANs to manage up to 15 000 SAN switch and director ports.

SANnav Management Portal supports all Brocade SAN switches and platforms that run the Fabric OS version 7.4 or above, including Lenovo B300, B6505, B6510, DB610S, DB620S, DB720S, DB400D, DB800D, and FC5022.

With SANnav Global View, administrators can quickly visualize the health, performance, and inventory of multiple SANnav Management Portal instances using a simple, intelligent dashboard and can easily navigate from a global view down to local environments to investigate points of interest. SANnav Global View is designed to manage up to six SANnav Management Portal instances.

For more information, refer to the SANnav Management Portal documentation:
<http://www.broadcom.com/products/fibre-channel-networking/software/sannav-management-portal#documentation>

The following table lists ordering information for the optional SANnav Management Portal and SANnav Global View management tools.

The SANnav licenses are subscription-based with 1-year, 3-year, or 5-year software entitlement and support.

Table 6. SANnav Management Portal and SANnav Global View licenses

| Part number | Feature code | Description |
|--|--------------|---|
| SANnav Management Portal electronic authorization licenses | | |
| 7S0C0010WW | S1K6 | Brocade SANnav Mgmt Portal Base Edition - 1YR License 600 ports |
| 7S0C0013WW | S1K8 | Brocade SANnav Mgmt Portal Base Edition - 3YR License 600 ports |
| 7S0C001KWW | S4MB | Brocade SANnav Mgmt Portal Base Edition - 5YR License 600 ports |
| 7S0C0011WW | S1K7 | Brocade SANnav Mgmt Portal Enterprise Edition - 1YR License 15K ports |
| 7S0C0014WW | S1K9 | Brocade SANnav Mgmt Portal Enterprise Edition - 3YR License 15K ports |
| 7S0C001LWW | S4MC | Brocade SANnav Mgmt Portal Enterprise Edition - 5YR License 15K ports |
| SANnav Global View electronic authorization licenses | | |
| 7S0C0012WW | S1D8 | Brocade SANnav Global View - 1YR License |
| 7S0C0015WW | S1D9 | Brocade SANnav Global View - 3YR License |
| 7S0C001JWW | S4MA | Brocade SANnav Global View - 5YR License |

Fibre Channel standards

The DB720S FC SAN Switch supports the standards listed at the following web page:

<https://www.broadcom.com/support/fibre-channel-networking/san-standards/standards-compliance>

Power supplies and cables

The DB720S FC SAN Switch ships with two redundant hot-swap 350 W AC power supplies. Each power supply has an IEC 309-C14 connector.

The switch comes standard without a power cord; two rack power cables or line cords must be ordered together with the switch (see the following table).

Table 7. Power cord options

| Part number | Feature code | Description |
|-------------------|--------------|---|
| Rack power cables | | |
| 39Y7937 | 6201 | 1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable |
| None* | 6568 | 1.8m, 10A/100-250V, 2xC13PM to IEC 320-C14 Rack Power Cable |
| 4L67A08366 | 6311 | 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable |
| 39Y7938 | 6204 | 2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable |
| 39Y7932 | 6263 | 4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable |
| Line cords | | |
| 39Y7931 | 6207 | 10A/125V C13 to NEMA 5-15P 4.3m line cord |
| 46M2592 | A1RF | 10A/250V C13 to NEMA 6-15P 2.8m line cord |
| 39Y7930 | 6222 | Argentina 10A/250V C13 to IRAM 2073 2.8m line cord |
| 39Y7924 | 6211 | Australia/NZ 10A/250V C13 to AS/NZ 3112 2.8m line cord |
| 39Y7929 | 6223 | Brazil 10A/125V C13 to NBR 6147 2.8m line cord |
| 39Y7928 | 6210 | China 10A/250V C13 to GB 2099.1 2.8m line cord |
| 39Y7918 | 6213 | Denmark 10A/250V C13 to DK2-5a 2.8m line cord |
| 39Y7917 | 6212 | European 10A/230V C13 to CEE7-VII 2.8m line cord |
| 39Y7927 | 6269 | India 10A/250V C13 to IS 6538 2.8m line cord |
| 39Y7920 | 6218 | Israel 10A/250V C13 to SI 32 2.8m line cord |
| 39Y7921 | 6217 | Italy 10A/250V C13 to CEI 23-16 2.8m line cord |
| 46M2593 | A1RE | Japan 12A/125V C13 to JIS C-8303 2.8m line cord |
| 39Y7925 | 6219 | Korea 12A/250V C13 to KETI 2.8m line cord |
| 39Y7922 | 6214 | South Africa 10A/250V C13 to SABS 164 2.8m line cord |
| 39Y7919 | 6216 | Switzerland 10A/250V C13 to SEV 1011-S24507 2.8m line cord |
| 00CG265 | A53E | Taiwan 10A/250V C13 to CNS 10917-3 2.8m line cord |
| 00CG267 | A53F | Taiwan 15A/125V C13 to CNS 10917-3 2.8m line cord |
| 39Y7923 | 6215 | United Kingdom 10A/250V C13 to BS 1363/A 2.8m line cord |

* Available for factory-built custom configurations and solutions only.

Rack installation

The DB720S FC SAN Switch comes standard with the fixed rack mount kit that can be used for 4-post rack installations. If needed, the DB720S FC SAN Switch can be mounted in a 2-post rack cabinet by using the optional mid-mount rack kit that is listed in the following table.

Table 8. Rack-mount options

| Part number | Feature code | Description |
|-------------|--------------|---------------------------|
| 01KN770 | AVG7 | Lenovo Mid-mount Rack Kit |

The optional mid-mount rack kit for the DB720S FC SAN Switch is shown in the following figure.

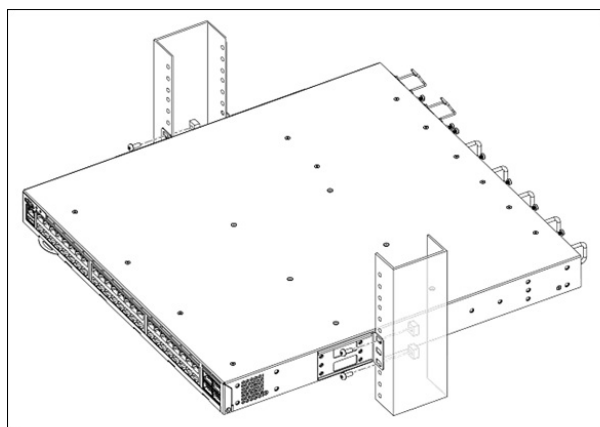


Figure 4. Lenovo DB720S Mid-mount Rack Kit

Physical specifications

The DB720S FC SAN Switch has the following dimensions and weight (approximate):

- Height: 44 mm (1.7 in.)
- Width: 440 mm (17.3 in.)
- Depth: 356 mm (14.0 in.)
- Weight: 7.17 kg (15.8 lb) with two power supply FRUs, without transceivers

Operating environment

The DB720S FC SAN Switch is supported in the following environment:

- Air temperature:
 - Operating: 0°C to 40°C (32°F to 104°F)
 - Non-operating: -25°C to +70°C (-13°F to 158°F)
- Maximum altitude:
 - Operating: 3,000 m (9,842 ft)
 - Non-operating: 12,000 m (39,370 ft)
- Humidity:
 - Operating: 8% to 90% non-condensing
 - Non-operating: 8% to 90% non-condensing
- Electrical power:
 - AC Voltage range: 90V to 264V, 4.5A
 - AC Frequency: 50 Hz to 60 Hz nominal, 47 Hz to 63 Hz range
 - Power consumption (differs based on VAC input @100 or @200):
 - Idle: 56-58 watts (No optics)
 - Typical: 117-171 watts (depending on 50%-100% optics installed)
 - Maximum: 258-264 watts
- Heat dissipation (differs based on VAC input @100 or @200):
 - Idle: 191-196 BTU per hour (no optics)
 - Typical: 399-584 BTU per hour (depending on 50%-100% optics installed)
 - Maximum: 881-901 BTU per hour
- Acoustical noise emission: 65 dB maximum

Warranty and support

The DB720S FC SAN Switch, machine type 7D5J, has a three-year warranty.

The standard warranty terms are customer-replaceable unit (CRU) and onsite (for field-replaceable units FRUs only) with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Lenovo's additional support services provide a sophisticated, unified support structure for your data center, with an experience consistently ranked number one in customer satisfaction worldwide. Available offerings include:

- **Premier Support**

Premier Support provides a Lenovo-owned customer experience and delivers direct access to technicians skilled in hardware, software, and advanced troubleshooting, in addition to the following:

- Direct technician-to-technician access through a dedicated phone line
- 24x7x365 remote support
- Single point of contact service
- End to end case management
- Third-party collaborative software support
- Online case tools and live chat support
- On-demand remote system analysis

- **Warranty Upgrade (Preconfigured Support)**

Services are available to meet the on-site response time targets that match the criticality of your systems.

- 3, 4, or 5 years of service coverage
- 1-year or 2-year post-warranty extensions
- **Foundation Service:** 9x5 service coverage with next business day onsite response
- **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select countries)
- **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select countries)

- **Managed Services**

Lenovo Managed Services provides continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of your data center using state-of-the-art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

Quarterly reviews check error logs, verify firmware & OS device driver levels, and software as needed. We'll also maintain records of latest patches, critical updates, and firmware levels, to ensure you systems are providing business value through optimized performance.

- **Technical Account Management (TAM)**

A Lenovo Technical Account Manager helps you optimize the operation of your data center based on a deep understanding of your business. You gain direct access to your Lenovo TAM, who serves as your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. In addition, your TAM will help proactively make service recommendations and manage your service relationship with Lenovo to make certain your needs are met.

- **Enterprise Server Software Support**

Enterprise Software Support is an additional support service providing customers with software support on Microsoft, Red Hat, SUSE, and VMware applications and systems. Around the clock availability for critical problems plus unlimited calls and incidents helps customers address challenges fast, without incremental costs. Support staff can answer troubleshooting and diagnostic questions, address product comparability and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **Health Check**

Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that your systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spare parts.

Lenovo Service offerings are region-specific. Not all preconfigured support and upgrade options are available in every region. For information about Lenovo service upgrade offerings that are available in your region, refer to the following resources:

- Service part numbers in Lenovo Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com/#/services>
- Lenovo Services Availability Locator
<http://lenovolocator.com/>

For service definitions, region-specific details, and service limitations, please refer to the following documents:

- Lenovo Statement of Limited Warranty for Data Center Group (DCG) Servers and System Storage
<http://pcsupport.lenovo.com/us/en/solutions/ht503310>
- Lenovo Data Center Services Agreement
<http://support.lenovo.com/us/en/solutions/ht116628>

Services

Lenovo Services is a dedicated partner to your success. Our goal is to reduce your capital outlays, mitigate your IT risks, and accelerate your time to productivity.

Note: Some service options may not be available in all countries. For more information, go to <https://www.lenovo.com/systems/services>. For information about Lenovo service upgrade offerings that are available in your region, contact your local Lenovo sales representative or business partner.

Here's a more in-depth look at what we can do for you:

- **Asset Recovery Services**

Asset Recovery Services (ARS) helps customers recover the maximum value from their end-of-life equipment in a cost-effective and secure way. On top of simplifying the transition from old to new equipment, ARS mitigates environmental and data security risks associated with data center equipment disposal. Lenovo ARS is a cash-back solution for equipment based on its remaining market value, yielding maximum value from aging assets and lowering total cost of ownership for your customers. For more information, see the ARS page, <https://lenovopress.com/lp1266-reduce-e-waste-and-grow-your-bottom-line-with-lenovo-ars>.

- **Assessment Services**

An Assessment helps solve your IT challenges through an onsite, multi-day session with a Lenovo technology expert. We perform a tools-based assessment which provides a comprehensive and thorough review of a company's environment and technology systems. In addition to the technology based functional requirements, the consultant also discusses and records the non-functional business requirements, challenges, and constraints. Assessments help organizations like yours, no matter how large or small, get a better return on your IT investment and overcome challenges in the ever-changing technology landscape.

- **Design Services**

Professional Services consultants perform infrastructure design and implementation planning to support your strategy. The high-level architectures provided by the assessment service are turned into low level designs and wiring diagrams, which are reviewed and approved prior to implementation. The implementation plan will demonstrate an outcome-based proposal to provide business capabilities through infrastructure with a risk-mitigated project plan.

- **Basic Hardware Installation**

Lenovo experts can seamlessly manage the physical installation of your server, storage, or networking hardware. Working at a time convenient for you (business hours or off shift), the technician will unpack and inspect the systems on your site, install options, mount in a rack cabinet, connect to power and network, check and update firmware to the latest levels, verify operation, and dispose of the packaging, allowing your team to focus on other priorities.

- **Deployment Services**

When investing in new IT infrastructures, you need to ensure your business will see quick time to value with little to no disruption. Lenovo deployments are designed by development and engineering teams who know our Products & Solutions better than anyone else, and our technicians own the process from delivery to completion. Lenovo will conduct remote preparation and planning, configure & integrate systems, validate systems, verify and update appliance firmware, train on administrative tasks, and provide post-deployment documentation. Customer's IT teams leverage our skills to enable IT staff to transform with higher level roles and tasks.

- **Integration, Migration, and Expansion Services**

Move existing physical & virtual workloads easily, or determine technical requirements to support increased workloads while maximizing performance. Includes tuning, validation, and documenting ongoing run processes. Leverage migration assessment planning documents to perform necessary migrations.

Regulatory compliance

The DB720S FC SAN Switch conforms to the following regulations which can be found in the Hardware Installation Guide, available from the following web page:

<https://www.broadcom.com/products/fibre-channel-networking/switches/g720-switch>

Interoperability

For end-to-end storage configuration support, refer to the Lenovo Storage Interoperation Center (LSIC): <https://datacentersupport.lenovo.com/us/en/lisic>

Use the LSIC to select the known components of your configuration and then get a list all other supported combinations, with details about supported hardware, firmware, operating systems, and drivers, plus any additional configuration notes. View results on screen or export them to Excel.

External storage systems

Lenovo offers the ThinkSystem DE Series and ThinkSystem DM Series external storage systems for high-performance storage. See the DE Series and DM Series product guides for specific controller models, expansion enclosures and configuration options:

- ThinkSystem DE Series Storage
<https://lenovopress.com/storage/thinksystem/de-series#rt=product-guide>
- ThinkSystem DM Series Storage
<https://lenovopress.com/storage/thinksystem/dm-series#rt=product-guide>

External backup units

The following table lists the external backup options that are offered by Lenovo that can be used in Lenovo FC SAN solutions.

Note: Information provided in this section is for ordering reference purposes only. End-to-end LTO Ultrium configuration support for a particular tape backup unit *must* be verified through the System Storage Interoperation Center (SSIC):

<http://www.ibm.com/systems/support/storage/ssic>

Table 9. External Fibre Channel backup options

| Part number | Description |
|---|--------------------------------------|
| External tape backup libraries | |
| 6741A1F | IBM TS4300 3U Tape Library-Base Unit |
| Fibre Channel backup drives for TS4300 Tape Library | |
| 01KP935 | LTO 6 FH Fibre Channel Drive |
| 01KP933 | LTO 6 HH Fibre Channel Drive |
| 01KP938 | LTO 7 FH Fibre Channel Drive |
| 01KP936 | LTO 7 HH Fibre Channel Drive |
| 01KP954 | LTO 8 FH Fibre Channel Drive |
| 01KP952 | LTO 8 HH Fibre Channel Drive |

For more information, see the list of Product Guides in the Tape Autoloaders and Libraries category:

<https://lenovopress.com/storage/tape/library>

Rack cabinets

The following table lists the supported rack cabinets.

Table 10. Rack cabinets

| Part number | Description |
|-------------|-----------------------------------|
| 93072RX | 25U Standard Rack |
| 93072PX | 25U Static S2 Standard Rack |
| 93634PX | 42U 1100mm Dynamic Rack |
| 93634EX | 42U 1100mm Dynamic Expansion Rack |
| 93604PX | 42U 1200mm Deep Dynamic Rack |
| 93614PX | 42U 1200mm Deep Static Rack |
| 93084EX | 42U Enterprise Expansion Rack |
| 93084PX | 42U Enterprise Rack |
| 93074RX | 42U Standard Rack |

For specifications about these racks, see the Lenovo Rack Cabinet Reference, available from:

<https://lenovopress.com/lp1287-lenovo-rack-cabinet-reference>

For more information, see the list of Product Guides in the Rack cabinets category:

<https://lenovopress.com/servers/options/racks>

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo.

Table 11. Power distribution units

| Part number | Description |
|--|---|
| 0U Basic PDUs | |
| 00YJ776 | 0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord |
| 00YJ777 | 0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord |
| 00YJ778 | 0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord |
| 00YJ779 | 0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord |
| Switched and Monitored PDUs | |
| 00YJ780 | 0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord |
| 00YJ781 | 0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord |
| 00YJ782 | 0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord |
| 00YJ783 | 0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord |
| 46M4003 | 1U 9 C19/3 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord |
| 46M4004 | 1U 12 C13 Switched and Monitored DPI PDU (without line cord) |
| 46M4005 | 1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord |
| Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets) | |
| 71762NX | Ultra Density Enterprise C19/C13 PDU Module (without line cord) |
| 71763NU | Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord |
| C13 Enterprise PDUs (12x IEC 320 C13 outlets) | |
| 39M2816 | DPI C13 Enterprise PDU+ (without line cord) |
| 39Y8941 | DPI Single Phase C13 Enterprise PDU (without line cord) |
| C19 Enterprise PDUs (6x IEC 320 C19 outlets) | |
| 39Y8948 | DPI Single Phase C19 Enterprise PDU (without line cord) |
| 39Y8923 | DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord |
| Front-end PDUs (3x IEC 320 C19 outlets) | |
| 39Y8938 | DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord |
| 39Y8939 | DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord |
| 39Y8934 | DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| 39Y8940 | DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| 39Y8935 | DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord |
| NEMA PDUs (6x NEMA 5-15R outlets) | |
| 39Y8905 | DPI 100-127V PDU with Fixed NEMA L5-15P line cord |
| Line cords for PDUs that ship without a line cord | |
| 40K9611 | DPI 32a Line Cord (IEC 309 3P+N+G) |
| 40K9612 | DPI 32a Line Cord (IEC 309 P+N+G) |
| 40K9613 | DPI 63a Cord (IEC 309 P+N+G) |
| 40K9614 | DPI 30a Line Cord (NEMA L6-30P) |
| 40K9615 | DPI 60a Cord (IEC 309 2P+G) |
| 40K9617 | DPI Australian/NZ 3112 Line Cord |
| 40K9618 | DPI Korean 8305 Line Cord |

For more information, see the Lenovo Press documents in the PDU category:
<https://lenovopress.com/servers/options/pdu>

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo.

Table 12. Uninterruptible power supply units

| Part number | Description |
|-------------|--|
| 55941AX | RT1.5kVA 2U Rack or Tower UPS (100-125VAC) |
| 55941KX | RT1.5kVA 2U Rack or Tower UPS (200-240VAC) |
| 55942AX | RT2.2kVA 2U Rack or Tower UPS (100-125VAC) |
| 55942KX | RT2.2kVA 2U Rack or Tower UPS (200-240VAC) |
| 55943AX | RT3kVA 2U Rack or Tower UPS (100-125VAC) |
| 55943KX | RT3kVA 2U Rack or Tower UPS (200-240VAC) |
| 55945KX | RT5kVA 3U Rack or Tower UPS (200-240VAC) |
| 55946KX | RT6kVA 3U Rack or Tower UPS (200-240VAC) |
| 55948KX | RT8kVA 6U Rack or Tower UPS (200-240VAC) |
| 55949KX | RT11kVA 6U Rack or Tower UPS (200-240VAC) |
| 55948PX | RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) |
| 55949PX | RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) |
| 55943KT† | ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets) |
| 55943LT† | ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets) |
| 55946KT† | ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output) |
| 5594XKT† | ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output) |

† Only available in China and countries in the Asia Pacific region.

For more information, see the list of Product Guides in the UPS category:
<https://lenovopress.com/servers/options/ups>

Related publications and links

For more information, see the following resources:

- Lenovo FC SAN Switches product page
<https://www3.lenovo.com/us/en/data-center/storage/storage-area-network/fibre-channel-switches/c/san-fibre-channel-switches>
- Lenovo ThinkSystem DB720S FC SAN Switch product publications - see the Brocade G720 documentation:
<https://www.broadcom.com/products/fibre-channel-networking/switches/g720-switch>

Tip: Some of the Fabric OS documents can be accessed via the support portal by validating your serial number for software entitlement

- *Hardware Installation Guide*
- *Fabric OS Access Gateway Administration Guide*
- *Fabric OS Administration Guide*
- *Fabric OS Extension Configuration Guide*
- *Fabric OS Troubleshooting and Diagnostics Guide*
- *Fabric OS Command Reference*
- *Fabric OS Message Reference*
- *Fabric OS MIB Reference*
- *Web Tools Administration Guide*
- *Flow Vision Configuration Guide*
- *Monitoring and Alerting Policy Suite Configuration Guide*
- Lenovo Data Center Support for the ThinkSystem DB720S FC SAN Switch:
<https://datacentersupport.lenovo.com/us/en/products/storage/fibre-channel-switches/db720s-fc-switch/7d5j>

Related product families

Product families related to this document are the following:

- [Rack SAN Switches](#)
- [DB Series SAN Switches](#)

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This document, LP1358, was created or updated on March 13, 2021.

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