

Lenovo ThinkSystem DB610S Gen 6 FC SAN Switch

Product Guide

The Lenovo ThinkSystem DB610S FC SAN Switch provides exceptional price/performance value by delivering market-leading 32 Gb Gen 6 Fibre Channel technology and combining flexibility, simplicity, and enterprise-class functionality to meet the demands of growing flash-based storage environments.

Designed to enable maximum flexibility and reliability, the ThinkSystem DB610S is a compact, 1U rack-mount FC switch that offers low-cost access to industry-leading Storage Area Network (SAN) technology while providing “pay-as-you-grow” scalability to meet the needs of an evolving storage environment.

The DB610S FC SAN Switch offers 24x SFP+ ports that support 4/8/16/32 Gbps speeds. The DB610S FC SAN switch provides easy integration into the existing SAN environments while realizing the benefits of Gen 6 Fibre Channel connectivity, and the switch offers a rich set of standard features with the options to expand its capabilities as needed.

The DB610S FC SAN Switch can be configured in Access Gateway Mode to simplify deployment. The switch provides full non-blocking performance with Ports On Demand scalability to support SAN expansion and enable long-term investment protection.

The following figure shows the Lenovo ThinkSystem DB610S 32Gb FC SAN Switch.



Figure 1. Lenovo ThinkSystem DB610S 32Gb FC SAN Switch

Did you know?

Lenovo offers models of the DB610S with lifetime warranties, which allows customers to get hardware support and access to FOS support and more importantly access to the latest FOS releases until the end of life of the DB610S switch. Software Entitlement to the latest FOS software provides users: Receive the latest safeguards against security threats; fixes for bugs and performance improvements; improve compatibility with latest technologies; and improve operational efficiency with the latest features and fixes.

The DB610S FC SAN Switch leverages storage connectivity technologies from Brocade, a leader in Fibre Channel networking.

The DB610S FC SAN Switch offers dual functionality as either a full-fabric SAN switch or as an N_Port ID Virtualization (NPIV)-enabled Access Gateway that simplifies server connectivity.

Fabric Vision technology, an extension of Gen 6 Fibre Channel, provides unprecedented insight and visibility across the SAN with powerful built-in monitoring, management, and diagnostic tools.

Key features

The ThinkSystem DB610S FC SAN Switch offers the following features and benefits:

- Provides an affordable enterprise-class 32 Gb FC solution with 24 SFP+ ports to support flash-based storage environments.
- Increases performance for demanding workloads with support for 32 Gbps FC links.
- Enables “pay-as-you-grow” scalability from single-switch fabric to full-fabric enterprise capabilities with Ports On Demand scalability.
- Optimizes fabric behavior and ensure sufficient bandwidth for mission-critical applications with advanced traffic management capabilities and adaptive networking.
- Provides proactive, non-intrusive, real-time monitoring and alerting of VM health and performance with VM Insight through integrated network sensors.
- Leverages predefined MAPS policies to automatically identify and isolate devices that cause network performance issues.
- Offers dual functionality as either a full-fabric SAN switch or as an NPIV-enabled Access Gateway that enhances fabric scalability and simplifies management.
- Protects existing device investments with auto-sensing 4, 8, 16, and 32 Gbit/sec capabilities and native operation with Brocade fabrics.
- Runs Fabric OS, which delivers distributed intelligence throughout the network and enables a wide range of value-added features.
- 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, and diagnostic tools.
- Expands fabric capabilities with optional licensed functions, including trunking, advanced monitoring and alerting, and long-distance fabrics.
- Allow organizations to seamlessly integrate Gen 6 Fibre Channel networks with the next generation of flash storage – NVMe over Fibre Channel – by being NVMe-ready, without a disruptive rip and replace, to achieve faster application response times and harness the performance of solid state drives for better scalability across virtual data centers with flash storage.
- Accelerates troubleshooting with built-in advanced diagnostics tools featuring ClearLink Diagnostics with D_Ports and select adapters from QLogic and Emulex, which helps ensure optical and signal integrity for 16 Gb and 32 Gb Fibre Channel optics and cables.

For details on the latest features supported with the DB610S FC SAN Switch see the Administration Guide for the latest available Fabric OS version 8.2 or 9.0 and above:

<https://www.broadcom.com/products/fibre-channel-networking/software/fabric-operating-system>.

Components and connectors

The following figure shows the port-side view of the DB610S FC SAN Switch.

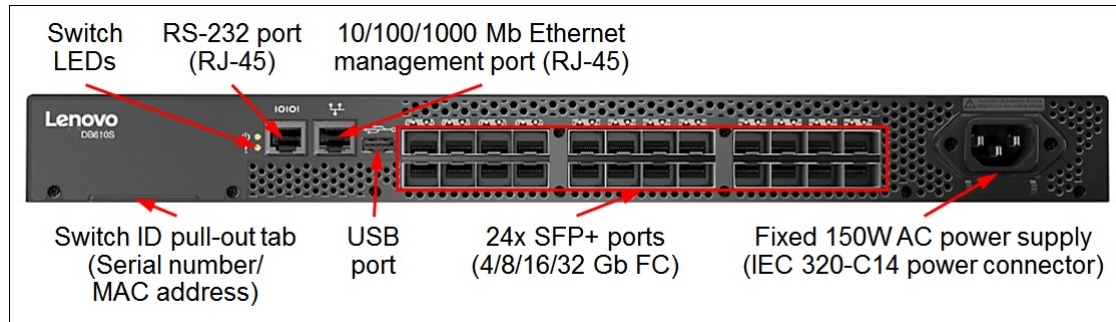


Figure 2. DB610S FC SAN Switch port-side view

The following figure shows the non-port side view of the DB610S FC SAN Switch.

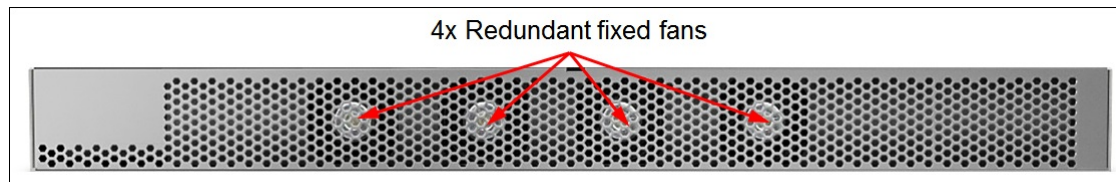


Figure 3. DB610S FC SAN Switch non-port-side view

System specifications

The following table lists the ThinkSystem DB610S system specifications.

Table 1. System specifications

Component	Specification
Machine type	7D8P (Lifetime warranty)
Form factor	Standalone or 1U rack mount
Ports	24x SFP+ physical ports. The number of ports that are activated is model dependent and can be upgraded with additional licenses - see the Port activation licenses section.
Media types	<ul style="list-style-type: none"> 32 Gb FC SFP+ transceivers: short wavelength (SWL), long wavelength (LWL) 16 Gb FC SFP+ transceivers: SWL, LWL, extended long wavelength (ELWL)
Port speeds	<ul style="list-style-type: none"> 32 Gb FC SFP+ transceivers: 32/16/8 Gbps auto-sensing 16 Gb FC SFP+ transceivers: 16/8/4 Gbps auto-sensing
FC port types	<ul style="list-style-type: none"> Full Fabric mode: F_Port, M_Port (Mirror Port), E_Port, D_Port (Diagnostic Port) Access Gateway mode: F_Port and NPIV-enabled N_Port
Data traffic types	Unicast (Class 2 and Class 3), multicast (Class 3 only), broadcast (Class 3 only)
Classes of service	Class 2, Class 3, Class F (inter-switch frames)
Standard features	Full Fabric mode, Access Gateway, Advanced Zoning, Fabric Services, Adaptive Networking, Advanced Diagnostic Tools
Optional features	Enterprise Bundle (ISL Trunking, Fabric Vision, Extended Fabric)

Component	Specification
Performance	Non-blocking architecture with wire-speed forwarding of traffic: <ul style="list-style-type: none"> • 4GFC: 4.25 Gbit/sec line speed, full duplex • 8GFC: 8.5 Gbit/sec line speed, full duplex • 16GFC: 14.025 Gbit/sec line speed, full duplex • 32GFC: 28.05 Gbit/sec line speed, full duplex • Aggregated throughput: 768 Gbps • Up to 0.9 μs local switching latency
Scalability	<ul style="list-style-type: none"> • Maximum number of switches in the fabric: 239 • Maximum frame size: 2,112-byte payload • Maximum number of frame buffers per switch: 2,000 • Maximum number of ports per ISL trunk: 8x SFP+ (ISL Trunking license is included in the Enterprise Bundle)
Cooling	Four fixed fans with N+1 cooling redundancy. Non-port to port side airflow
Power supply	One fixed 150 W AC (100 - 240 V) power supply (IEC 320-C14 connector)
Hot-swap parts	SFP+ transceivers
Management ports	One 10/100/1000 Mb Ethernet port (UTP, RJ-45); one RS-232 port (RJ-45); one USB port (for additional firmware/log/configuration files storage)
Management interfaces	Web-based GUI (Web Tools); Command Line Interface (CLI); SMI-S; SNMP; REST API. Optional Brocade SANnav Management Portal and SANnav Global View
Security features	Secure Socket Layer (SSL); Secure Shell (SSH); Secure Copy (SCP); Secure FTP (SFTP); user level security, Role-based Access Control (RBAC); LDAP, RADIUS, and TACACS+ authentication; access control lists (ACLs)
Hardware warranty	<ul style="list-style-type: none"> • Machine type 7D8P: Lifetime non-transferrable warranty, customer-replaceable unit with 9x5 next business day parts delivered
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
Firmware entitlement	<ul style="list-style-type: none"> • Machine type 7D8P: Lifetime firmware entitlement and support license are standard.
Dimensions	Height: 43 mm (1.7 in.); width: 429 mm (16.9 in.); depth: 307 mm (12.1 in.)
Weight	Empty: 4.2 kg (9.3 lb); Fully configured: 5.8 kg (12.7 lb)

Models

The following table lists the DB610S FC SAN Switch models.

Table 2. Lenovo ThinkSystem DB610S FC SAN Switch models

Model	Base MTM	Feature code	Description
Lifetime warranty and lifetime firmware support			
7D8PA003WW	7D8PCTO4WW	BLAF	Lenovo ThinkSystem DB610S, ENT Bundle, 24 ports licensed, 24x 32Gb SWL SFPs, 1 PS, Rail Kit, Lifetime Warranty Support
7D8PA001WW	7D8PCTO2WW	BLAD	Lenovo ThinkSystem DB610S, ENT Bundle, 24 ports licensed, 24x 16Gb SWL SFPs, 1 PS, Rail Kit, Lifetime Warranty Support
7D8PA002WW	7D8PCTO3WW	BLAE	Lenovo ThinkSystem DB610S, 8 ports licensed, 8x 32Gb SWL SFPs, 1 PS, Rail Kit, Lifetime Warranty Support
7D8PA000WW	7D8PCTO1WW	BLAC	Lenovo ThinkSystem DB610S, 8 ports licensed, 8x 16Gb SWL SFPs, 1 PS, Rail Kit, Lifetime Warranty Support

The DB610S FC SAN Switch part numbers include the following physical components:

- One FC SAN Switch - with transceivers included and ports activated as listed in the [Port activation licenses](#) section
- Serial cable (DB-9/RJ-45 to RJ-45)
- Fixed rack mount kit.
- Online Documentation web pointer card
- SANNav web pointer card

The models with "ENT Bundle" in the description include the Enterprise Bundle of software features, as described in the [Enterprise Bundle](#) section.

Note: The switch comes standard without a power cord; one power cable must be purchased together with the switch. See the [Power supplies and cables](#) section for details.

Firmware entitlement

Firmware entitlement is included with the DB610S FC SAN Switch and provides lifetime or 1 year of firmware support, depending on the model. See the [Models](#) section for specifics.

Firmware entitlements can be upgraded as follows:

- All models: Firmware entitlement is included in any warranty service upgrades.

Port activation licenses

The DB610S FC SAN Switch models ship with port licenses (port activations) and transceivers as listed in the following table.

Table 4. Transceivers and Port activations included

Model	Base MTM	Ports activated (maximum 24)	Transceivers included
Lifetime warranty and lifetime firmware support			
7D8PA003WW	7D8PCTO4WW	24	24x 32Gb FC SWL SFP+
7D8PA001WW	7D8PCTO2WW	24	24x 16Gb FC SWL SFP+
7D8PA002WW	7D8PCTO3WW	8	8x 32Gb FC SWL SFP+
7D8PA000WW	7D8PCTO1WW	8	8x 16Gb FC SWL SFP+

For models without the full 24 ports activated, the remaining ports can be activated by purchasing and installing Ports on Demand (POD) licenses. Port licenses and transceiver bundles are sold in 8-port increments. The following table lists the ordering information. Some licenses include transceivers as indicated.

Table 5. Port On-Demand upgrades

Part number	Feature code	Description	Transceivers included	Maximum quantity
Paper authorization licenses and bundles				
01KP846	AVUK	Lenovo DB610S 8 PORT-ON-DEMAND License with 8 X 16G SWL SFP's	8x 16Gb FC SWL SFP+	2
4M27A64094	BCA5	Lenovo DB610S 8 PORT-ON-DEMAND License with 8 X 32G SWL SFPs	8x 32Gb FC SWL SFP+	2

Transceivers and cables

With the flexibility of the DB610S FC SAN Switch, customers can choose the following connectivity:

- For 32 Gb FC links, customers can use 32 Gb FC SFP+ SWL optical transceivers for distances up to 100 meters on 50 μ OM4 multimode fiber optic cables. For longer distances, the 32 Gb FC LWL SFP+ optical transceivers can support up to 10 kilometers on single-mode fiber optic cables. These transceivers can operate at 32 Gbps, 16 Gbps, or 8 Gbps speeds.
- For 16 Gb FC links, customers can use 16 Gb FC SFP+ SWL optical transceivers for distances up to 125 meters on 50 μ OM4 multimode fiber optic cables. For longer distances, the 16 Gb FC LWL SFP+ optical transceivers can support up to 10 kilometers on single-mode fiber optic cables. For extended distances, the 16 Gb FC ELWL SFP+ optical transceivers can support up to 25 kilometers on single-mode fiber optic cables. These transceivers can operate at 16 Gbps, 8 Gbps, or 4 Gbps speeds.
- For the 1 GbE RJ-45 management port, customers can use UTP cables for distances up to 100 meters.

The DB610S FC SAN Switch models ship with 8x or 24x SWL transceivers as listed in the table in the [Port activation licenses](#) section. Additional SWL, LWL, and ELWL SFP+ transceivers can be ordered for the switch, if needed.

The following table lists the supported SFP+ options and cables.

Brocade secure transceivers: These new transceivers have features to ensure that you are using genuine Brocade components to maximize performance and reliability and to help avoid issues related to counterfeit products.

Table 6. SFP+ transceivers and cables

Part number	Feature code	Description	Maximum supported
32 Gb FC SFP+ transceivers			
4M27A65416	BF69	Brocade Secure 32Gb SWL SFP+ Transceiver	24
4M27A65417	BF6A	Brocade Secure 32Gb SWL SFP+ Transceiver 8-pack	3
4M27A65418	BF6B	Brocade Secure 32Gb LWL SFP+ Transceiver (10 km)	24
4M27A65419	BF6C	Brocade Secure 32Gb LWL SFP+ Transceiver (10 km) 8-pack	3
4M27A65424	BF6D	Brocade Secure 32Gb ELWL SFP+ Transceiver (25 km)	24
16 Gb FC SFP+ transceivers			
88Y6393	A22R	Brocade 16Gb SFP+ transceiver module	24
4M27A65413	BF66	Brocade Secure 16Gb LWL SFP+ Transceiver (10 km)	24
4M27A65415	BF68	Brocade Secure 16Gb ELWL SFP+ Transceiver (25 km)	24*
88Y6393	A22R	Brocade 16Gb SFP+ transceiver module	24
OM3 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable	24
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable	24
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable	24
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable	24
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable	24
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable	24
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable	24
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable	24
OM4 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
4Z57A10845	B2P9	Lenovo 0.5m LC-LC OM4 MMF Cable	24
4Z57A10846	B2PA	Lenovo 1m LC-LC OM4 MMF Cable	24
4Z57A10847	B2PB	Lenovo 3m LC-LC OM4 MMF Cable	24
4Z57A10848	B2PC	Lenovo 5m LC-LC OM4 MMF Cable	24
4Z57A10849	B2PD	Lenovo 10m LC-LC OM4 MMF Cable	24
4Z57A10850	B2PE	Lenovo 15m LC-LC OM4 MMF Cable	24
4Z57A10851	B2PF	Lenovo 25m LC-LC OM4 MMF Cable	24
4Z57A10852	B2PG	Lenovo 30m LC-LC OM4 MMF Cable	24
UTP Category 6 cables (Green) for the 1 GbE RJ-45 management port			
00WE123	AVFW	0.75m Green Cat6 Cable	1
00WE127	AVFX	1.0m Green Cat6 Cable	1
00WE131	AVFY	1.25m Green Cat6 Cable	1
00WE135	AVFZ	1.5m Green Cat6 Cable	1
00WE139	AVG0	3m Green Cat6 Cable	1
90Y3718	A1MT	10m Green Cat6 Cable	1
90Y3727	A1MW	25m Green Cat6 Cable	1
UTP Category 5e cables (Blue) for the 1 GbE RJ-45 management port			
40K5679	3801	e1350 .6 Meter Blue Ethernet Cable	1
40K8785	3802	1.5 Meter Blue Ethernet Cable	1

Part number	Feature code	Description	Maximum supported
40K5581	3803	3m Blue Cat5e Cable	1
40K8927	3804	e1350 10 Meter Blue Ethernet Cable	1
40K8930	3805	25m Blue Cat5e Cable	1

* When using ELW SFP+ transceivers over distances over 10 km, the Extended Fabric feature that is available in the Enterprise Bundle is required on a SAN switch to drive the maximum bandwidth over the extended links.

The following table lists the cabling requirements for the switch.

Table 7. DB610S FC SAN Switch cabling requirements

Transceiver	Standard	Cable	Connector
32 Gb Fibre Channel			
32 Gb FC SWL SFP+ (4M27A65416, 4M27A65417)	FC-PI-6	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 4). 850 nm 50 μ multi-mode fiber optic cable: <ul style="list-style-type: none"> • 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 single-mode fiber optic cable: <ul style="list-style-type: none"> • 32GFC, 16GFC, 8GFC: Up to 10 km 	LC
16 Gb Fibre Channel			
16 Gb FC SWL SFP+ (88Y6393)	FC-PI-5	Up to 30 m with fiber optic cables supplied by Lenovo (see Table 4). 850 nm 50 μ multi-mode fiber optic cable: <ul style="list-style-type: none"> • 16GFC: Up to 125 m (OM4) or up to 100 m (OM3) • 8GFC: Up to 190 m (OM4) or up to 150 m (OM3) • 4GFC: Up to 400 m (OM4) or up to 380 m (OM3) 	LC
16 Gb FC LWL SFP+ (4M27A65413, 4M27A65414)	FC-PI-6	1310 nm 9 μ single-mode fiber optic cable: <ul style="list-style-type: none"> • 16GFC, 8GFC: Up to 10 km 	LC
16 Gb FC ELWL SFP+ (4M27A65415)	FC-PI-6	1310 nm 9 μ single-mode fiber optic cable: <ul style="list-style-type: none"> • 16GFC: Up to 25 km 	LC
Management ports			
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	RJ-45
Serial port	RS-232	DB-9/RJ-45-to-RJ-45 console cable (comes with the switch)	RJ-45

Enterprise Bundle

As listed in the [Models](#) section, some models include a set of software features known as the Enterprise Bundle. The Enterprise Bundle is comprised of the following features:

- 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: Enables administrators to identify, monitor, and analyze specific application flows in order to simplify troubleshooting, maximize performance, avoid congestion, and optimize resources. Flow Vision includes:
 - Flow Monitor: Provides comprehensive visibility, automatic learning, and non-disruptive monitoring of a flow's performance. Administrators can monitor all flows from a specific host to multiple targets or volumes, from multiple hosts to a specific target/volume, or across a specific ISL. Additionally, they can perform volume-level monitoring of specific frame types to identify resource contention or congestion that is impacting application performance. With VM Insight, administrators can monitor network throughput statistics for each VM.
 - Flow Learning: Enables administrators to non-disruptively discover all flows that go to or come from a specific host port or a storage port, or traverse ISLs/IFLs (Inter-Fabric Links) or Fibre Channel over Internet Protocol (FCIP) tunnels, to monitor fabric-wide application performance. In addition, administrators can discover top and bottom bandwidth-consuming devices and manage capacity planning.
 - Flow Generator: Provides a built-in traffic generator for pretesting and validating the data center infrastructure for robustness—including route verification and integrity of optics, cables, ports, back-end connections, and ISLs—before deploying applications.
 - Flow Mirroring: Provides the ability to non-disruptively create copies of specific application and data flows or frame types that can be captured for in-depth analysis.
 - 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.
 - 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.

For other models, the Enterprise Bundle is an optional upgrade. Ordering details are listed in the following table. One license is needed per switch.

Table 8. Optional Enterprise Bundle feature

Part number	Feature code	Description
Electronic authorization licenses		
7S0C000CWW	B3EC	Lenovo DB610S Enterprise Bundle (TRK, FV, EF)

Management software

Lenovo offers optional Brocade SANnav™ Management Portal and SANnav Global View software license subscriptions that provide comprehensive visibility into the SAN environment, allow 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 subscriptions:

- 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 DB610S, DB620S, DB630S, DB400D, DB710S, DB720S, DB730S, DB800D, Brocade Directors, 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 20 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. After a client has an active SANnav license, Lenovo offers a “license extension/renewal”. This offering provides our clients the flexible to extend their subscription down to a specific end date. This allows clients the ability to align to your company’s budget or align with warranty of your FC SAN switches/directors. Please engage directly with your Lenovo sales representative for more details.

Table 9. SANnav Management Portal and SANnav Global View subscription 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

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

Fibre Channel standards

The 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 DB610S FC SAN Switch ships with one fixed 150 W AC power supply that has an IEC 309-C14 connector.

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

Table 10. Power cord options

Part number	Feature code	Description
Rack power cables		
39Y7937	6201	1.5m, 10A/100-250V, C13 to C14 Jumper Cord
CTO only	6568	1.8m, 10A/100-250V, 2xC13PM to IEC 320-C14 Rack Power Cable
4L67A08366	6311	2.8m, 10A/100-250V, C13 to C14 Jumper Cord
39Y7938	6204	2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable
39Y7932	6263	4.3m, 10A/100-250V, C13 to C14 Jumper Cord
Line cords		
39Y7931	6207	Power Cable - C13 / NEMA 5-15P 14ft
46M2592	A1RF	2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord
39Y7930	6222	2.8m, 10A/250V, C13 to IRAM 2073 (Argentina) Line Cord
39Y7924	6211	2.8m, 10A/250V, C13 to AS/NZ 3112 (Australia/NZ) Line Cord
39Y7928	6210	2.8m, 10A/220V, C13 to GB 2099.1 (China) Line Cord
39Y7918	6213	2.8m, 10A/250V, C13 to DK2-5a (Denmark) Line Cord
39Y7917	6212	2.8m, 10A/230V, C13 to CEE7-VII (Europe) Line Cord
39Y7927	6269	2.8m, 10A/250V, C13(2P+Gnd) (India) Line Cord
39Y7920	6218	2.8m, 10A/250V, C13 to SI 32 (Israel) Line Cord
39Y7921	6217	2.8m, 220-240V, C13 to CEI 23-16 (Italy/Chile) Line Cord
46M2593	A1RE	2.8m, 12A/125V, C13 to JIS C-8303 (Japan) Line Cord
39Y7925	6219	2.8m, 220-240V, C13 to KETI (S Korea) Line Cord
39Y7922	6214	2.8m, 10A/250V, C13 to SABS 164 (S Africa) Line Cord
39Y7919	6216	2.8m, 10A/250V, C13 to SEV 1011-S24507 (Swiss) Line Cord
39Y7923	6215	2.8m, 10A/250V, C13 to BS 1363/A (UK) Line Cord

Rack installation

The DB610S FC SAN Switch comes standard with the fixed rack mount kit that can be used for 4-post rack installations. If needed, the DB610S 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 11. Rack-mount options

Part number	Feature code	Description	Maximum quantity supported
01KP847	AX4D	Lenovo DB610S/DB710S MID-MOUNT (TELCO) RACK KIT	1

The optional mid-mount rack kit for the DB610S FC SAN Switch is shown in the following figure.

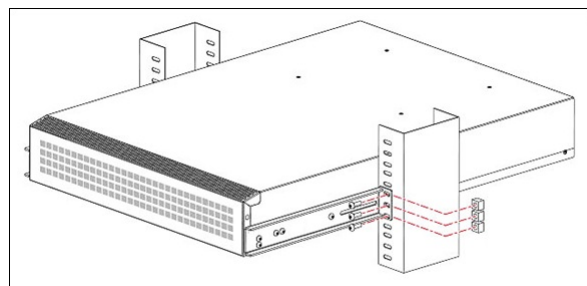


Figure 4. Lenovo DB610S Mid-mount (Telco) Rack Kit

Physical specifications

The DB610S FC SAN Switch has the following dimensions and weight (approximate):

- Height: 43 mm (1.7 in.)
- Width: 429 mm (16.9 in.)
- Depth: 307 mm (12.1 in.)
- Weight:
 - Empty: 4.2 kg (9.3 lb)
 - 5.8 kg (12.7 lb) with one integrated power supply, without power cord

Operating environment

The DB610S 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: 10% to 85% non-condensing
 - Non-operating: 10% to 90% non-condensing

- Electrical power:
 - Voltage range: 100 V AC - 240 V AC (nominal)
 - Frequency: 50 Hz / 60 Hz (nominal)
 - Power consumption:
 - Idle: 56 watts
 - Typical: 64 watts
 - Maximum: 77 watts
- Heat dissipation:
 - Idle: 191 BTU per hour
 - Typical: 216 BTU per hour
 - Maximum: 262 BTU per hour
- Acoustical noise emission (maximum): 64 dB

Warranty upgrades and post-warranty support

The DB610S FC SAN Switch has the following warranty term:

- Machine type 7D8P: Lifetime non-transferrable warranty

Note: For machine type 7D8P, the limited lifetime warranty is active until the SAN switch reaches its end of service date announced by Lenovo. Lenovo typically provides support for at least five years following the last order date of a product.

Our global network of regional support centers offers consistent, local-language support enabling you to vary response times and level of service to match the criticality of your support needs:

- **Standard Next Business Day** – Best choice for non-essential systems requiring simple maintenance.
- **Premier Next Business Day** – Best choice for essential systems requiring technical expertise from senior-level Lenovo engineers.
- **Premier 24x7 4-Hour Response** – Best choice for systems where maximum uptime is critical.
- **Premier Enhanced Storage Support 24x7 4-Hour Response** – Best choice for storage systems where maximum uptime is critical.

For more information, consult the brochure [Lenovo Operational Support Services for Data Centers Services](#).

Services

Lenovo Data Center Services empower you at every stage of your IT lifecycle. From expert advisory and strategic planning to seamless deployment and ongoing support, we ensure your infrastructure is built for success. Our comprehensive services accelerate time to value, minimize downtime, and free your IT staff to focus on driving innovation and business growth.

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

In this section:

- [Lenovo Advisory Services](#)
- [Lenovo Plan & Design Services](#)
- [Lenovo Deployment, Migration, and Configuration Services](#)
- [Lenovo Support Services](#)
- [Lenovo Managed Services](#)
- [Lenovo Sustainability Services](#)

Lenovo Advisory Services

Lenovo Advisory Services simplify the planning process, enabling customers to build future-proofed strategies in as little as six weeks. Consultants provide guidance on projects including VM migration, storage, backup and recovery, and cost management to accelerate time to value, improve cost efficiency, and build a flexibly scalable foundation.

- **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.

Lenovo Plan & Design Services

Unlock faster time to market with our tailored, strategic design workshops to align solution approaches with your business goals and technical requirements. Leverage our deep solution expertise and end-to-end delivery partnership to meet your goals efficiently and effectively.

Lenovo Deployment, Migration, and Configuration Services

Optimize your IT operations by shifting labor-intensive functions to Lenovo's skilled technicians for seamless on-site or remote deployment, configuration, and migration. Enjoy peace of mind, faster time to value, and comprehensive knowledge sharing with your IT staff, backed by our best-practice methodology.

- **Deployment Services for Storage and ThinkAgile**

A comprehensive range of remote and onsite options tailored specifically for your business needs to ensure your storage and ThinkAgile hardware are fully operational from the start.

- **Hardware Installation Services**

A full-range, comprehensive setup for your hardware, including unpacking, inspecting, and positioning components to ensure your equipment is operational and error-free for the most seamless and efficient installation experience, so you can quickly benefit from your investments.

- **DM/DG File Migration Services**

Take the burden of file migration from your IT's shoulders. Our experts will align your requirements and business objectives to the migration plans while coordinating with your team to plan and safely execute the data migration to your storage platforms.

- **DM/DG/DE Health Check Services**

Our experts perform proactive checks of your Firmware and system health to ensure your machines are operating at peak and optimal efficiency to maximize up-time, avoid system failures, ensure the security of IT solutions and simplify maintenance.

- **Factory Integrated Services**

A suite of value-added offerings provided during the manufacturing phase of a server or storage system that reduces time to value. These services aim at improving your hardware deployment experience and enhance the quality of a standard configuration before it arrives at your facility.

Lenovo Support Services

In addition to response time options for hardware parts, repairs, and labor, Lenovo offers a wide array of additional support services to ensure your business is positioned for success and longevity. Our goal is to reduce your capital outlays, mitigate your IT risks, and accelerate your time to productivity.

- **Premier Support for Data Centers**

Your direct line to the solution that promises the best, most comprehensive level of support to help you fully unlock the potential of your data center.

- **Premier Enhanced Storage Support (PESS)**

Gain all the benefits of Premier Support for Data Centers, adding dedicated storage specialists and resources to elevate your storage support experience to the next level.

- **Committed Service Repair (CSR)**

Our commitment to ensuring the fastest, most seamless resolution times for mission-critical systems that require immediate attention to ensure minimal downtime and risk for your business. This service is only available for machines under the Premier 4-Hour Response SLA.

- **Multivendor Support Services (MVS)**

Your single point of accountability for resolution support across vast range of leading Server, Storage, and Networking OEMs, allowing you to manage all your supported infrastructure devices seamlessly from a single source.

- **Keep Your Drive (KYD)**

Protect sensitive data and maintain compliance with corporate retention and disposal policies to ensure your data is always under your control, regardless of the number of drives that are installed in your Lenovo server.

- **Technical Account Manager (TAM)**

Your single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time, ensuring smooth operations and optimized performance as your business grows.

- **Enterprise Software Support (ESS)**

Gain comprehensive, single-source, and global support for a wide range of server operating systems and Microsoft server applications.

For more information, consult the brochure [Lenovo Operational Support Services for Data Centers](#).

Lenovo Managed Services

Achieve peak efficiency, high security, and minimal disruption with Lenovo's always-on Managed Services. Our real-time monitoring, 24x7 incident response, and problem resolution ensure your infrastructure operates seamlessly. With quarterly health checks for ongoing optimization and innovation, Lenovo's remote active monitoring boosts end-user experience and productivity by keeping your data center's hardware performing at its best.

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.

Lenovo Sustainability Services

- **Asset Recovery Services**

Lenovo Asset Recovery Services (ARS) provides a secure, seamless solution for managing end-of-life IT assets, ensuring data is safely sanitized while contributing to a more circular IT lifecycle. By maximizing the reuse or responsible recycling of devices, ARS helps businesses meet sustainability goals while recovering potential value from their retired equipment. For more information, see the [Asset Recovery Services offering page](#).

- **CO2 Offset Services**

Lenovo's CO2 Offset Services offer a simple and transparent way for businesses to take tangible action on their IT footprint. By integrating CO2 offsets directly into device purchases, customers can easily support verified climate projects and track their contributions, making meaningful progress toward their sustainability goals without added complexity.

- **Lenovo Certified Refurbished**

Lenovo Certified Refurbished offers a cost-effective way to support IT circularity without compromising on quality and performance. Each device undergoes rigorous testing and certification, ensuring reliable performance and extending its lifecycle. With Lenovo's trusted certification, you gain peace of mind while making a more sustainable IT choice.

Lenovo TruScale

Lenovo TruScale XaaS is your set of flexible IT services that makes everything easier. Streamline IT procurement, simplify infrastructure and device management, and pay only for what you use – so your business is free to grow and go anywhere.

Lenovo TruScale is the unified solution that gives you simplified access to:

- The industry's broadest portfolio – from pocket to cloud – all delivered as a service
- A single-contract framework for full visibility and accountability
- The global scale to rapidly and securely build teams from anywhere
- Flexible fixed and metered pay-as-you-go models with minimal upfront cost
- The growth-driving combination of hardware, software, infrastructure, and solutions – all from one single provider with one point of accountability.

For information about Lenovo TruScale offerings that are available in your region, contact your local Lenovo sales representative or business partner.

Regulatory compliance

The DB610S FC SAN Switch conforms to the following regulations:

- Electromagnetic compatibility
 - CISPR 22
 - CNS 13438
 - EN 55024
 - EN 55032
 - EN 61000-3-2
 - EN 61000-3-3
 - FCC Part 15, Subpart B
 - GB 9254
 - ICES-003
 - KN 32
 - KN 35
 - VCCI
- Safety
 - CNS 14336-1
 - EN/UL/CSA/IEC 60950-1
 - GB 4943.1
- Environmental: RoHS

Interoperability

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

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, ThinkSystem DG Series and ThinkSystem DM Series external storage systems for high-performance storage. See the DE Series, DG 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>
- ThinkSystem DG Series Storage
<https://lenovopress.com/storage/thinksystem/dg-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 12. 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 - Full Height	
01KP938	LTO 7 FH Fibre Channel Drive
01KP954	LTO 8 FH Fibre Channel Drive
02JH837	LTO 9 FH Fibre Channel Drive
Fibre Channel backup drives for TS4300 Tape Library - Half Height	
01KP936	LTO 7 HH Fibre Channel Drive
01KP952	LTO 8 HH Fibre Channel Drive
02JH835	LTO 9 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 13. Rack cabinets (D)

Model	Description
7D6DA007WW	ThinkSystem 42U Onyx Primary Heavy Duty Rack Cabinet (1200mm)
7D6DA008WW	ThinkSystem 42U Pearl Primary Heavy Duty Rack Cabinet (1200mm)
7D6EA009WW	ThinkSystem 48U Onyx Primary Heavy Duty Rack Cabinet (1200mm)
7D6EA00AWW	ThinkSystem 48U Pearl Primary Heavy Duty Rack Cabinet (1200mm)
93604PX	42U 1200mm Deep Dynamic Rack
93614PX	42U 1200mm Deep Static Rack
93634PX	42U 1100mm Dynamic Rack
93634EX	42U 1100mm Dynamic Expansion Rack
93074RX	42U Standard Rack (1000mm)

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>

Seller training courses

The following sales training courses are offered for employees and partners (login required). Courses are listed in date order.

1. **Family Portfolio: Storage Networking**

2024-10-14 | 15 minutes | Employees and Partners

This course will provide you an overview of the Storage Networking family. After completing this course, you should be able to identify the products in the Storage Networking portfolio and their features, describe product family benefits, and recognize when a specific product should be used.

Tags: DataCenter Products, Storage

Published: 2024-10-14

Length: 15 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1113r8

2. **Partner Technical Webinar - Fibre Channel Market Transitions**

2024-10-08 | 60 minutes | Employees and Partners

In this 60-minute replay, there were two topics. Mike Easterly, Fibre Channel Technical Sales Executive for Broadcom, reviewed the Fibre Channel offerings. He described then need to focus on Gen 7 over Gen5 & Gen6. He described the many security features of Fibre Channel and why Fibre Channel is the gold standard of storage networking. Herb Ducey, Lenovo Storage Product Manager concluded with updates on the storage product line including DM Series, DE Series and D3284 updates.

Tags: Storage

Published: 2024-10-08

Length: 60 minutes

Start the training:

Employee link: Grow@Lenovo

Partner link: [Lenovo Partner Learning](#)

Course code: 100424

3. **Lenovo Data Center Product Portfolio**

2024-05-29 | 20 minutes | Employees and Partners

This course introduces the Lenovo data center portfolio, and covers servers, storage, storage networking, and software-defined infrastructure products. After completing this course about Lenovo data center products, you will be able to identify product types within each data center family, describe Lenovo innovations that this product family or category uses, and recognize when a specific product should be selected.

Tags: Advanced DataCenter, DataCenter Products, ThinkAgile, ThinkEdge, ThinkSystem

Published: 2024-05-29

Length: 20 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: SXXW1110r7

4. **Simplify Selling Fibre Channel Storage Solutions**

2024-04-23 | 45 minutes | Employees and Partners

In this session we look at the benefits of Fibre Channel and the benefits to you and your customers of bundling FC networking with your storage arrays.

Plus, we will take a closer look at some of the changes Lenovo has made to the Data Center Solutions Configurator to help you and the clients build bundled FC solutions.

Course Objectives:

1. Learn the benefits of Fibre Channel
2. Understand the benefits of bundling FC networking with your storage arrays
3. Discover the latest updates in DCSC (Data Center Solutions Configurator)

Tags: DataCenter Products, Sales, Storage

Published: 2024-04-23

Length: 45 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: DNFP101

5. **Partner Technical Webinar - Fibre Channel and DG Updates**

2024-04-23 | 60 minutes | Employees and Partners

In this 60-minute replay, Mike Easterly, Broadcom, reviewed Lenovo solutions for Fibre Channel (FC) including Emulex FC Adapters and Brocade FC switches. Next, Mark Clayton, Lenovo Storage Architect, reviewed the latest on the Data Management portfolio with updates on DG, HS350x Ready Nodes and Data Protection.

Tags: Data Management

Published: 2024-04-23

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Partner link: [Lenovo Partner Learning](#)

Course code: 041924

6. **VTT Data Management How to sell storage - April 2024**

2024-04-10 | 60 minutes | Employees Only

In this course, you will know:

- Why do we sell storage?
- What are the basics you need to get an opportunity rolling?
- Why Lenovo for Storage?
- What is happening in the market today?
- How to determine traction?

Tags: Data Management, Storage

Published: 2024-04-10

Length: 60 minutes

Start the training:

Employee link: [Grow@Lenovo](#)

Course code: DVDAT209

Related publications and links

For more information, see the following resources:

- 3D Interactive Tour:
<https://lenovopress.com/lp0680-3d-tour-thinksystem-db610s>
- Lenovo Storage DB610S FC SAN Switch product publications:
<http://datacentersupport.lenovo.com/us/en/products/storage/fibre-channel-switches/db610s-fc-switch/documentation>
 - *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*

Related product families

Product families related to this document are the following:

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

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