Lenovo ThinkSystem DB620S 32Gb FC SAN Switch
Product Guide

The Lenovo ThinkSystem DB620S 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 that supports highly virtualized environments to meet the demands of hyper-scale, private cloud storage, and growing flash-based storage environments.

Designed to enable maximum flexibility and reliability, the ThinkSystem DB620S 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 DB620S FC SAN Switch offers 48x SFP+ ports that support 4/8/10/16/32 Gbps speeds and 4x QSFP+ ports that support 128 Gbps (4x 32 Gbps) or 4x 4/8/16/32 Gbps speeds. The DB620S 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 DB620S FC SAN Switch features the EZSwitch Setup wizard and 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 DB620S 32Gb FC SAN Switch.

Figure 1. Lenovo ThinkSystem DB620S 32Gb FC SAN Switch

Did you know?

The DB620S FC SAN Switch leverages storage connectivity technologies from Brocade, a leader in Fibre Channel networking.

The DB620S 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.

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 ThinkSystem DB620S FC SAN Switch offers the following features and benefits:

- Provides high scalability in an ultra-dense, 1U switch with 48 SFP+ ports and 4 QSFP+ ports (each QSFP+ port has 4x 32 Gb FC links for 128 Gb FC connectivity between the DB620S FC SAN switches, or it can be broken out to four links to 4/8/16/32 Gbps SWL optics in a server HBA, storage device, or another FC switch, for a total of up to 64 connections) to support high-density server virtualization, cloud architectures, and flash-based storage environments.
- Increases performance for demanding workloads with support for 128 Gbps (4x 32 Gbps) and 32 Gbps FC links.
- Simplifies end-to-end management by automating repetitive daily management tasks.
- 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.
- Offers dual functionality as either a full-fabric SAN switch or as an NPIV-enabled Access Gateway (requires 48 SFP+ ports be licensed) 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, 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.
- Virtualizes physical FC SAN switches and fabrics into logical entities for better flexibility, utilization, management, and efficiency.
- Allows 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.
- Maximizes resiliency with redundant hot-swap power supplies.
- 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.

Components and connectors

The following figure shows the port-side view of the DB620S FC SAN Switch.

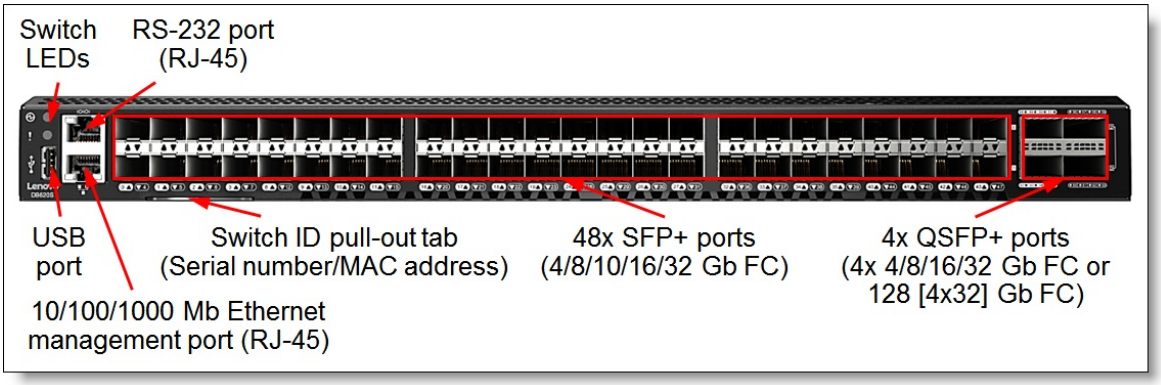

Figure 2. DB620S FC SAN Switch port-side view

The following figure shows the non-port side view of the DB620S FC SAN Switch.

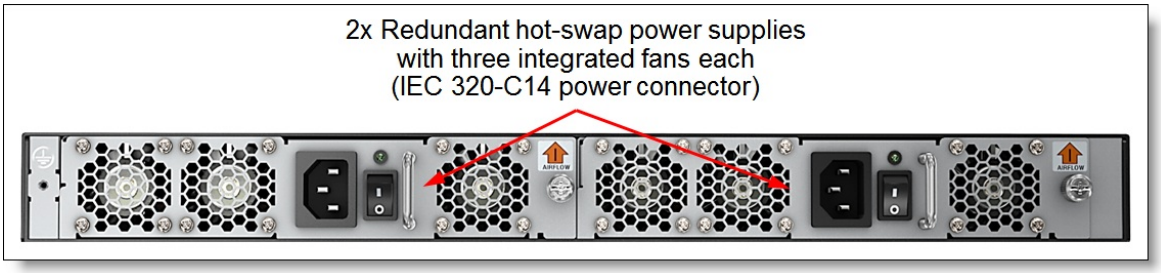

Figure 3. DB620S FC SAN Switch non-port-side view

System specifications

The following table lists the ThinkSystem DB620S system specifications.

Table 1. System specifications

Component	Specification
Form factor	Standalone or 1U rack mount

Ports	• 48x SFP+ ports:
	  ◦ Model HC1: 24 ports activated and 24x 32 Gb FC SWL SFP+ transceivers included; up to two optional 12-port activation license packs or bundles (12-port license pack and 12x 32 Gb FC SWL SFP+ transceivers).
	  ◦ Model HC2: 48 ports activated and 48x 32 Gb FC SWL SFP+ transceivers included.
	  ◦ Model HC3: 24 ports activated and no transceivers included.
	• 4x QSFP+ ports (require an optional activation license).

Media types	• 128 Gb (4x 32 Gb) FC QSFP+: short wavelength (SWL), long wavelength (LWL). • 4x 16 Gb FC QSFP+: SWL. • 32 Gb FC SFP+: SWL, LWL. • 16 Gb FC SFP+: SWL, LWL, extended long wavelength (ELWL). • 10 Gb FC SFP+: SWL, LWL.

Component	Specification
Port speeds	• 128 Gb (4x 32 Gb) FC SWL QSFP+: 128 Gbps, 4x 32 Gbps, or 4x 16 Gbps. • 128 Gb (4x 32 Gb) FC LWL QSFP+: 128 Gbps or 4x 32 Gbps fixed. • 4x 16 Gb FC QSFP+: 4x 16/8/4 Gbps auto-sensing. • 32 Gb FC SFP+: 32/16/8 Gbps auto-sensing. • 16 Gb FC SFP+: 16/8/4 Gbps auto-sensing. • 10 Gb FC SFP+: 10 Gbps fixed.
FC port types	• Full Fabric mode: F_Port, M_Port (Mirror Port), E_Port, EX_Port (Requires an optional Integrated Routing License), 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, 10 Gb FC, Adaptive Networking, Advanced Diagnostic Tools, Virtual Fabrics, In-flight Compression.
Optional features	Enterprise Bundle (ISL Trunking, Fabric Vision, Extended Fabric) or Mainframe Enterprise Bundle (ISL Trunking, Fabric Vision, Extended Fabric, FICON CUP), Integrated Routing.
Performance	Non-blocking architecture with wire-speed forwarding of traffic: • 4GFC: 4.25 Gbit/sec line speed, full duplex • 8GFC: 8.5 Gbit/sec line speed, full duplex • 10GFC: 10.51875 Gbit/sec line speed, full duplex • 16GFC: 14.025 Gbit/sec line speed, full duplex • 32GFC: 28.05 Gbit/sec line speed, full duplex • 128GFCp: 4x 28.05 Gbit/sec line speed, full duplex • Aggregated throughput: 2 Tbps • Up to 780 ns port-to-port local switching latency (including FEC) (1 µs per node with compression)
Scalability	• Maximum number of switches in the fabric: 239 • Maximum frame size: 2,112-byte payload • Maximum number of frame buffers per switch: 15,360 • Maximum number of ports per ISL trunk: 8x SFP+ or 2x QSFP+ (Up to 256 Gbps; ISL Trunking license is included in the Enterprise or Mainframe Enterprise bundle)
Cooling	Three fans built into each power supply; N+N cooling redundancy with two power supplies. Non-port to port side airflow.
Power supply	Two redundant hot-swap 250 W AC (100 - 240 V) power supplies (IEC 320-C14 connector).
Hot-swap parts	SFP+/QSFP+ transceivers, power supplies with fans.
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	EZSwitch Setup; Web-based GUI (Web Tools); Command Line Interface (CLI); SMI-S; SNMP; REST API. Optional Brocade Network Advisor.
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); IP security (IPsec)
Hardware warranty	One-year (Machine Type 6415) customer-replaceable unit limited warranty with 9x5 next business day parts delivered. Optional warranty upgrades are available through Lenovo (Models HC1 and HC2 only; warranty upgrades for Model HC3 are planned for later in 2018): on-site coverage (technician installed parts), 24x7 coverage, 2-hour or 4-hour response time, up to 5 years of warranty coverage, 1-year or 2-year warranty extensions, hardware installation services.

Component	Specification
Firmware entitlement	One-year (Model HC3) or three-year (Models HC1 and HC2) firmware entitlement and support license is included. Optional one- and two-year firmware support extension licenses are available from Lenovo for Models HC1 and HC2. Firmware entitlement extension licenses for Model HC3 are included in the warranty service upgrades for Model HC3 (warranty upgrades for Model HC3 are planned for later in 2018).
Dimensions	Height: 44 mm (1.7 in.); width: 440 mm (17.3 in.); depth: 356 mm (14.0 in.)
Weight	Empty: 7.7 kg (17.0 lb); Fully configured: 8.5 kg (18.8 lb).

Models

The following table lists the ThinkSystem DB620S FC SAN Switch models.

Table 2. ThinkSystem DB620S FC SAN Switch models

Description	Part number	Machine Type-Model	Feature code
Lenovo ThinkSystem DB620S, 24 ports activated, 24x 32Gb SWL SFPs+, Reverse Airflow, 2x Power Supplies, Rail Kit	6415G11	6415-HC1	AVG2
Lenovo ThinkSystem DB620S, 48 ports activated, 48x 32Gb SWL SFPs+, Reverse Airflow, 2x Power Supplies, Rail Kit, Enterprise SW Bundle	6415G2A	6415-HC2	AVG3
Lenovo ThinkSystem DB620S, 24 ports activated, No SFPs, Reverse Airflow, 2x Power Supplies, Rail Kit	6415G3A	6415-HC3	B3YW

The DB620S FC SAN Switch part numbers include the following items:

- One FC SAN Switch
  - Model HC1: With 24 ports activated and 24x 32 Gb FC SWL SFP+ transceivers included
  - Model HC2: With 48 ports activated and 48x 32 Gb FC SWL SFP+ transceivers included
  - Model HC3: With 24 ports activated and no transceivers included
- Serial cable (DB-9/RJ-45 to RJ-45)
- Rubber feet for setting up the switch as a standalone unit
- Fixed rack mount kit
- EZSwitch Setup web pointer card
- Online Documentation web pointer card
- Network Advisor web pointer card

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 DB620S FC SAN Switch model HC1 includes 24 licensed ports and 24x 32 Gb FC SWL SFP+ Transceivers, and the DB620S FC SAN Switch model HC3 includes 24 licensed ports (transceivers are not included). The remaining 24 SFP+ unlicensed ports can be activated by purchasing and installing the Ports on Demand (POD) licenses that are available with or without SFP+ transceivers in 12-port increments. The DB620S FC SAN Switch model HC2 comes standard with 48 licensed ports and with 48x 32 Gb FC SWL SFP+ Transceivers.

Four QSFP+ unlicensed ports on the DB620S FC SAN Switch can be activated by purchasing and installing the POD license that is available with or without QSFP+ transceivers.

The following table lists additional POD options for the DB620S FC SAN Switch.

Table 3. POD options

Description	Part number	Feature code	Maximum quantity supported
SFP+ POD options for the DB620S Models HC1 and HC3			
DB620S 12-Port SW License with 12x 32 Gbps SWL SFP+ transceivers	01KN760	AVG4	2
DB620S 12-Port SW License (no transceivers)	01KN764	AVJG	2
QSFP+ POD options for the DB620S Models HC1, HC2, and HC3			
DB620S QSFP+ 4-Port SW License with 4x 128 Gbps SWL v2 transceivers	4M27A08819	B148	1
DB620S QSFP+ 4-Port SW License (no transceivers)	01KN767	AVG6	1

Transceivers and cables

With the flexibility of the DB620S FC SAN Switch, customers can choose the following connectivity technologies:

- QSFP+ ports
  - For 128 Gb (4x 32 Gb) FC links for connectivity between the DB620S FC SAN Switches, customers can use 128 Gb FC QSFP+ SWL optical transceivers for distances up to 100 meters on OM4 or up to 70 meters on OM3 50 µ multimode fiber (MMF) optic cables. For longer distances, the 128 Gb (4x 32 Gb) FC 2KM LWL QSFP+ optical transceivers can support up to 2 kilometers on single-mode fiber (SMF) cables. The 4x 32 Gb FC links per QSFP+ port can be configured as 128 Gbps parallel FC [round robin 66-bit block distribution across four lanes] or in a 128 Gbps ISL trunk group.
  - For 32 Gb FC links, customers can use the 128 Gb (4x 32 Gbps) SWL QSFP+ Transceiver v2 with OM4 MMF MPO-4xLC breakout cables for distances up to 100 meters or OM3 MMF MPO-4xLC breakout cables for distances up to 70 meters.
  - For 16 Gb FC links, customers can use 50 µ MMF MPO-4xLC breakout cables for connectivity to other FC SAN switches or routers (E_Port or EX_Port) by using four independent 16 Gb FC links per QSFP+ port (no ISL trunking) with the following transceivers:
    - 128 Gb (4x 32 Gb) QSFP+ SWL v2 optical transceivers running at 4x 16 Gb speeds for distances up to 125 meters on OM4 or up to 100 meters on OM3 MMF cables.
    - 4x 16 Gb FC QSFP+ SWL optical transceivers for distances up to 100 meters on OM4 or up to 66 meters on OM3 MMF cables.

- SFP+ ports
  - For 32 Gb 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 16 Gb FC links, customers can use 16 Gb FC SFP+ SWL optical transceivers for distances up to 125 meters on OM4 or up to 100 meters on OM3 50 µ MMF cables. For longer distances, the 16 Gb FC LWL SFP+ optical transceivers can support up to 10 kilometers on SMF cables. For extended distances, the 16 Gb FC ELWL SFP+ optical transceivers can support up to 25 kilometers on SMF cables. These transceivers can operate at 16 Gbps, 8 Gbps, or 4 Gbps speeds.
  - For 10 Gb 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 DB620S FC SAN Switch comes with 24x (Model HC1) or 48x (Model HC2) 32 Gb FC SWL SFP+ transceivers. Additional SWL, LWL, and ELWL SFP+ and SWL and LWL QSFP+ transceivers can be ordered for the switch, if needed.

The following table lists the supported transceiver and cable options.

Table 4. Transceivers and cables

Description	Part number	Feature code	Maximum quantity supported
QSFP+ transceivers			
Brocade 128Gb (4x32Gbps) SWL QSFP+ Transceiver v2	4M27A08820	B145	4
Brocade 128Gb (4x32Gbps) 2KM QSFP+ Transceiver	4M27A09986	B26T	4
Brocade 4x16Gb FC-Compliant SWL QSFP+ Transceiver	01KN805	AVGH	4
32 Gb FC SFP+ transceivers			
Brocade 32Gb SWL SFP+ Transceiver	01KN789	AVGC	48
Brocade 32Gb SWL SFP+ Transceiver (8-pack)	01KN793	AVGD	6
Brocade 32Gb LWL SFP+ Transceiver	01KN795	AVGE	48
Brocade 32Gb LWL SFP+ Transceiver (8-pack)	01KN799	AVGF	6
16 Gb FC SFP+ transceivers			
Brocade 16Gb SWL SFP+ Optical Transceiver	88Y6393	A22R	48
Brocade 16Gb 10km LWL SFP+ Transceiver	00MY768	ASK2	48
Brocade 16Gb 25km ELWL SFP+ Transceiver	00MY770	ASK3	48*
10 Gb FC SFP+ transceivers			
Brocade 10Gb FC SWL SFP+ Transceiver	00YH933	ATSY	48
Brocade 10Gb FC LWL SFP+ Transceiver	00YH929	ATSX	48
Optical cables for 128 Gb v2 and 4x16 Gb FC SW QSFP+ transceivers			
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	00VX003	AT2U	4
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	00VX005	AT2V	4

Description	Part number	Feature code	Maximum quantity supported
Optical breakout cables for 128 Gb v2 and 4x16 Gb FC SW QSFP+ transceivers			
Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable	00FM412	A5UA	4
Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable	00FM413	A5UB	4
Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable	00FM414	A5UC	4
OM3 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5	48
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6	48
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7	48
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8	48
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9	48
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA	48
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB	48
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC	48
OM4 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
Lenovo 0.5m LC-LC OM4 MMF Cable	4Z57A10845	B2P9	48
Lenovo 1m LC-LC OM4 MMF Cable	4Z57A10846	B2PA	48
Lenovo 3m LC-LC OM4 MMF Cable	4Z57A10847	B2PB	48
Lenovo 5m LC-LC OM4 MMF Cable	4Z57A10848	B2PC	48
Lenovo 10m LC-LC OM4 MMF Cable	4Z57A10849	B2PD	48
Lenovo 15m LC-LC OM4 MMF Cable	4Z57A10850	B2PE	48
Lenovo 25m LC-LC OM4 MMF Cable	4Z57A10851	B2PF	48
Lenovo 30m LC-LC OM4 MMF Cable	4Z57A10852	B2PG	48
UTP Category 6 cables (Green) for the 1 GbE RJ-45 management port			
0.75m CAT6 Green Cable	00WE123	AVFW	1
1.0m CAT6 Green Cable	00WE127	AVFX	1
1.25m CAT6 Green Cable	00WE131	AVFY	1
1.5m CAT6 Green Cable	00WE135	AVFZ	1
3m CAT6 Green Cable	00WE139	AVG0	1
10m CAT6 Green Cable	90Y3718	A1MT	1
25m CAT6 Green Cable	90Y3727	A1MW	1
UTP Category 5e cables (Blue) for the 1 GbE RJ-45 management port			
0.6m Blue Cat5e Cable	40K5679	3801	1
1.5m Blue Cat5e Cable	40K8785	3802	1
3m Blue Cat5e Cable	40K5581	3803	1
10m Blue Cat5e Cable	40K8927	3804	1
25m Blue Cat5e Cable	40K8930	3805	1

* When using ELW SFP+ transceivers over distances over 10 km, the Extended Fabric feature that is available in the Enterprise or Mainframe 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 5. DB620S FC SAN Switch cabling requirements

Transceiver	Standard	Cable	Connector
128 Gb (4x 32 Gb) Fibre Channel			
128 Gb (4x 32 Gb) FC SWL QSFP+ v2 (4M27A08820)	FC-PI-6P FC-PI-6	Up to 30 m with MPO-MPO MMF cables or up to 5 m with MPO-4xLC MMF breakout cables supplied by Lenovo (see Table 4). 850 nm 50 µ MPO-MPO MMF cable or MPO-4xLC MMF breakout cable: • 128GFCp: Up to 100 m (OM4) or up to 70 m (OM3). • 32GFC: Up to 100 m (OM4) or up to 70 m (OM3). • 16GFC: Up to 125 m (OM4) or up to 100 m (OM3).	MPO
128 Gb (4x 32 Gb) FC 2km LWL QSFP+ (4M27A09986)	FC-PI-6P FC-PI-6	1310 nm 9 µ SMF cable: • 128GFCp, 32GFC: Up to 2 km.	LC
32 Gb Fibre Channel			
32 Gb FC LWL SFP+ (01KN795, 01KN799)	FC-PI-6	1310 nm 9 µ SMF cable: • 32GFC, 16GFC, 8GFC: Up to 10 km.	LC
32 Gb FC SWL SFP+ (01KN789, 01KN793)	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
16 Gb Fibre Channel			
16 Gb FC SWL SFP+ (88Y6393)	FC-PI-5	Up to 30 m with LC-LC MMF cables supplied by Lenovo (see Table 4). 850 nm 50 µ MMF cable: • 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
4x 16 Gb FC SWL QSFP+ (01KN805)	FC-PI-5	Up to 30 m with MPO-MPO MMF optical cables or up to 5 m with MPO-4xLC optical breakout cables supplied by Lenovo (see Table 4). 850 nm 50 µ MMF cable: • 16GFC: Up to 100 m (OM4) or up to 66 m (OM3).	MPO
16 Gb FC LWL SFP+ (00MY768)	FC-PI-5	1310 nm 9 µ SMF cable: • 16GFC, 8GFC: Up to 10 km. • 4GFC: Up to 30 km.	LC
16 Gb FC ELWL SFP+ (00MY770)	FC-PI-5	1310 nm 9 µ SMF cable: • 16GFC: Up to 25 km.	LC
10 Gb Fibre Channel			
10 Gb FC SWL SFP+ (00YH933)	FC-10GFC	850 nm 50 µ MMF cable: • 10GFC: Up to 550 m (OM4) or up to 300 m (OM3).	LC
10 Gb FC LWL SFP+ (00YH929)	FC-10GFC	1310 nm 9 µ SMF cable: • 10GFC: Up to 10 km.	LC

Transceiver	Standard	Cable	Connector
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

Firmware

The DB620S FC SAN Switch ships with the following features (based on Fabric OS version 8.2):

- Advanced Fabric Services
  - Full Fabric mode: Enables high performance 16 Gb or 32 Gb switching in multi-switch fabric.
  - Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning)
  - Dynamic fabric provisioning (DFP): Fabric-assigned port World Wide Names (FA-PWWNs).
  - Dynamic path selection (DPS): Distributes input traffic across multiple paths proportionally to the bandwidth of each path.
  - Dynamic load sharing (DLS): Distributes traffic across multiple equal paths between switches.
  - Fabric Shortest Path First (FSPF)
  - Buffer-to-Buffer (BB) credit flow control
  - Buffer credit recovery
  - Forward error correction (FEC)
  - Fabric Device Management Interface (FDMI)
  - Frame order delivery
  - Frame redirection
  - FC login services
  - Registered State Change Notification (RSCN)
  - Reliable Commit Service (RCS)
  - Simple Name Server (SNS)
  - Fibre Channel Authentication Protocol (FCAP) switch authentication
  - Management Server (MS): Assists in the auto-discovery of switch-based fabrics.
  - In-flight compression on up to 4 ports
  - Integrated 10Gb FC feature
- Adaptive Networking
  - Traffic isolation zoning (TIZ): Creates a dedicated path for traffic flowing from a specific set of source ports (F_Ports).
  - Quality of Service (QoS): SID/DID pair traffic prioritization (high, medium, low).
- Virtualization
  - N_Port ID virtualization (NPIV): Enables a single FC port to appear as multiple, distinct ports with separate port identification within the fabric.
  - Access Gateway: Leverages NPIV to connect to any fabric without adding switch domains to reduce management complexity.
  - Virtual Fabrics (Logical Switch, Logical Fabric): Allows SAN design and management at the granularity of a port.

- Management
  - IPv4 and IPv6 addressing
  - Firmware upload and download
  - Network Time Protocol (NTP) v3
  - EZ Switch Setup Wizard
  - Command line interface (CLI)
  - Web Tools
  - Brocade Network Advisor (purchased separately)
  - SNMPv1, SNMPv3, and MIBs
  - SMI-S compliant
  - Syslog
  - REST API
- Security
  - Local switch user accounts
  - LDAP, RADIUS, TACACS+ user authentication
  - Role-based access control (RBAC)
  - IP Security (IPsec)
  - IP filtering
  - HTTPS
  - Secure Copy (SCP)
  - Secure RPC
  - Secure FTP (SFTP)
  - Secure Shell (SSH) v2
  - Secure Sockets Layer (SSL)
  - Federal Information Processing Standards (FIPS) 140-2 L2-compliant
- Advanced Diagnostic Tools
  - Power-on self-test (POST)
  - Event logging
  - Environmental monitoring
  - FCping
  - Pathinfo (FC traceroute)
  - Non-disruptive daemon restart
  - Flow mirroring
  - RAS trace logging
  - ClearLink Diagnostics with Diagnostic Port (D_Port)
  - SFP and cable health assessment
  - Power monitoring
  - Rolling Reboot Detection (RRD)

The following optional features are available for the DB620S 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: Allows to identify, monitor, and analyze specific application flows.
    - VM Insight: Allows to monitor 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.
  - Extended Fabric (EF): Extends Fibre Channel SANs beyond 10 km distance limitations for replication and backup at full bandwidth.

- Mainframe Enterprise Bundle: Includes all features of the Enterprise Bundle plus 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.

The following table lists ordering information for the optional licensed features for the DB620S FC SAN Switch (one license per switch).

Table 6. Optional licensed features

Description	Part number	Feature code
Lenovo DB620S S/W, Integrated Routing	01KN776	AVG9
Lenovo DB620S S/W, Enterprise Bundle (TRK, FV, EF)	01KN774	AVG8
Lenovo DB620S S/W, Mainframe Enterprise Bundle (TRK, FV, EF, CUP)	01KN778	AVGA

Notes:

- The Enterprise Bundle and Mainframe Enterprise are mutually exclusive, that is, either Enterprise Bundle or Mainframe Enterprise Bundle can be licensed on a switch, but not both.
- The DB620S FC SAN Switch model HC2 (part number 6415G2A) comes with the Enterprise Bundle license included.

Firmware entitlement is included with the DB620S FC SAN Switch and provides 3-year (Models HC1 and HC2) or 1-year (Model HC3) firmware support. The options to extend the entitlement up to 7 years in 1-year or 2-year increments are available for Models HC1 and HC2. The options to extend the entitlement are included in the warranty service upgrades for Model HC3 (warranty upgrades for Model HC3 are planned for later in 2018).

The firmware entitlement and support extension options for Models HC1 and HC2 are listed in the following table.

Table 7. Entitlement and support extension options for Models HC1 and HC2

Description	Part number	Feature code
DB620S FC SAN FW Renewal, 1yr	4ZN7A08474	B0R2
DB620S FC SAN FW Renewal, 2yr	4ZN7A08475	B0R3

Management software

Lenovo offers optional Brocade Network Advisor, a fabric management application, to manage the network operations lifecycle, including monitoring, diagnostics, change management, and troubleshooting.

Lenovo offers the following Brocade Network Advisor editions:

- Brocade Network Advisor Professional Plus: A SAN management application designed for mid-sized SANs for managing up to 36 physical or virtual fabrics and up to 2,560 switch ports.
- Brocade Network Advisor Enterprise: A SAN management application designed for enterprise-class SANs for managing up to 100 physical or virtual fabrics and up to 15,000 switch ports.

Brocade Network Advisor supports a wide variety of Brocade SAN offerings, including Lenovo B300, B6505, B6510, DB610S, DB620S, DB400D, DB800D, FC5022, and more. For a complete list of supported products and edition features, refer to the Brocade Network Advisor Installation and Migration Guide: http://www.brocade.com/en/support/document-library/dl-segment-products-os-detail-page.bna.product.html

The following table lists ordering information for the optional Brocade Network Advisor licenses.

Table 8. Brocade Network Advisor licenses

Description	Part number	Feature code
Brocade Network Advisor Professional Plus License	01KP108	AVK4
Brocade Network Advisor SAN Enterprise License	01KP105	AVK3
Brocade Network Advisor SAN Upgrade Professional Plus to Enterprise License	01KP111	AVK5

Fibre Channel standards

The DB620S FC SAN Switch supports the following standards:

- 10GFC INCITS 364-2003 + Amendment 1
- FA FCMGMT-MIB
- FC-BB-2 INCITS 372-2003
- FC-BB-3 INCITS 414-2006
- FC-BB-4 INCITS 419-2008
- FC-BB-5 INCITS 462-2010 + Amendment 1
- FC-BB-6 INCITS 509-2014
- FC-DA INCITS TR-36-2004
- FC-DA-2 INCITS TR-49-2012
- FC-FS INCITS 373-2003
- FC-FS-2 ANSI/INCITS 424-2006
- FC-FS-3 INCITS 470-2011
- FC-FS-4 INCITS 488 rev 1.41
- FC-GS-4 ANSI INCITS 387-2004
- FC-GS-5 ANSI INCITS 427-2007
- FC-GS-6 INCITS 463-2010
- FC-GS-7 INCITS 510
- FC-GS-8 INCITS 548 rev 11.01
- FC-IFR INCITS 475-2011
- FC-LS INCITS 433: 2007
- FC-LS-2 INCITS 477-2011
- FC-LS-3 INCITS 487
- FC-MI-2 ANSI/INCITS TR-39-2005
- FC-MI-3 INCITS TR-48-2012
- FCP ANSI X3.269-1996

- FCP-2 INCITS 350-2003
- FCP-3 INCITS 416-2006
- FCP-4 INCITS 481-2012
- FC-PI-3 INCITS 460-2012
- FC-PI-4 INCITS 450-2009
- FC-PI-5 INCITS 449-2011
- FC-PI-6 INCITS 512-2015
- FC-PI-6P INCITS 533-2016
- FC-SB ANSI X3.271-1996
- FC-SB-2 INCITS 374-2001
- FC-SB-3 INCITS 374-2003 + Amendment 1
- FC-SB-4 INCITS 466-2011
- FC-SB-5 INCITS 485-2014
- FC-SB-6 INCITS 544
- FC-SP INCITS 426-2007
- FC-SP-2 INCITS 496-2012 + Amendment 1
- FC-SW-3 INCITS 384-2004
- FC-SW-4 INCITS 418-2006
- FC-SW-5 INCITS 461-2010
- FC-SW-6 INCITS 511
- FC-SW-7 INCITS 547 rev 1.04
- FC-TAPE INCITS TR-24-1999
- FC-VI INCITS 357-2002
- MIB-FA INCITS TR-32-2003
- RFC 2837 Fabric Element MIB
- RFC 4338 Transmission of IPv6, IPv4, and ARP over FC
- SNIA Storage Management Initiative Specification (SMI-S) Version 1.03 ISO standard IS24775-2006 (replaces ANSI INCITS 388: 2004)
- SNIA Storage Management Initiative Specification Version 1.1
- SNIA Storage Management Initiative Specification Version 1.2
- SNIA Storage Management Initiative Specification Version 1.4
- SNIA Storage Management Initiative Specification Version 1.5
- SNIA Storage Management Initiative Specification Version 1.6

Power supplies and cables

The DB620S FC SAN Switch ships with two redundant hot-swap 250 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 country-specific line cords must be ordered together with the switch (see the following table).

Table 9. Power cord options

Description	Part number	Feature code
Rack power cables		
1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7937	6201
1.8m, 10A/100-250V, 2xC13PM to IEC 320-C14 Rack Power Cable	None*	6568
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08366	6311
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	39Y7938	6204
4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7932	6263
Country-specific line cords		
10A/125V C13 to NEMA 5-15P 4.3m line cord	39Y7931	6207

Description	Part number	Feature code
10A/250V C13 to NEMA 6-15P 2.8m line cord	46M2592	A1RF
Argentina 10A/250V C13 to IRAM 2073 2.8m line cord	39Y7930	6222
Australia/NZ 10A/250V C13 to AS/NZ 3112 2.8m line cord	39Y7924	6211
Brazil 10A/125V C13 to NBR 6147 2.8m line cord	39Y7929	6223
China 10A/250V C13 to GB 2099.1 2.8m line cord	39Y7928	6210
Denmark 10A/250V C13 to DK2-5a 2.8m line cord	39Y7918	6213
European 10A/230V C13 to CEE7-VII 2.8m line cord	39Y7917	6212
India 10A/250V C13 to IS 6538 2.8m line cord	39Y7927	6269
Israel 10A/250V C13 to SI 32 2.8m line cord	39Y7920	6218
Italy 10A/250V C13 to CEI 23-16 2.8m line cord	39Y7921	6217
Japan 12A/125V C13 to JIS C-8303 2.8m line cord	46M2593	A1RE
Korea 12A/250V C13 to KETI 2.8m line cord	39Y7925	6219
South Africa 10A/250V C13 to SABS 164 2.8m line cord	39Y7922	6214
Switzerland 10A/250V C13 to SEV 1011-S24507 2.8m line cord	39Y7919	6216
Taiwan 10A/250V C13 to CNS 10917-3 2.8m line cord	00CG265	A53E
Taiwan 15A/125V C13 to CNS 10917-3 2.8m line cord	00CG267	A53F
United Kingdom 10A/250V C13 to BS 1363/A 2.8m line cord	39Y7923	6215

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

Rack installation

The DB620S FC SAN Switch comes standard with the fixed rack mount kit that can be used for 4-post rack installations. If needed, the DB620S 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 10. Rack-mount options

Description	Part number	Feature code	Maximum quantity supported
Lenovo DB620S Mid-mount Rack Kit	01KN770	AVG7	1

The optional mid-mount rack kit for the DB620S FC SAN Switch is shown in the following figure.

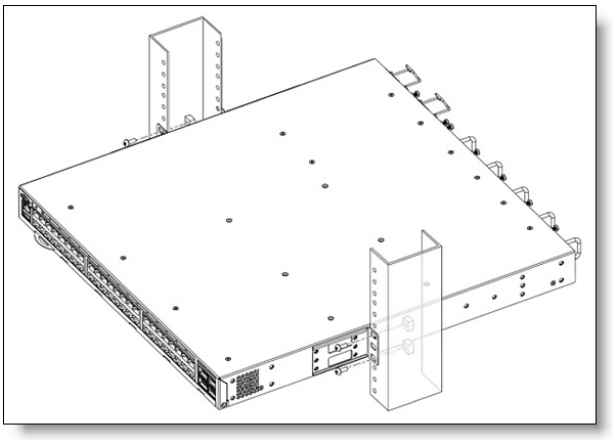

Figure 4. Lenovo DB620S Mid-mount Rack Kit

In addition, in order for the DB620S 32Gb FC SAN Switch to meet FIPS 140-2 Level 2 Physical Security requirements the tamper-evident seals must be installed (see the following table for ordering information).

Table 11. Tamper-evident security seals

Description	Part number	Feature code	Maximum quantity supported
Brocade FIPS 140-2 High Security Labels and Seals	01KN785	AVGB	1

Physical specifications

The DB620S 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:
    - Empty: 7.7 kg (17.0 lb)
    - Fully configured: 8.5 kg (18.8 lb)

Operating environment

The DB620S 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: 155 watts
        - Typical: 192 watts
        - Maximum: 204 watts
- Heat dissipation:
    - Idle: 529 BTU per hour
    - Typical: 655 BTU per hour
    - Maximum: 696 BTU per hour
- Acoustical noise emission: 65 dB

Hardware warranty

The DB620S FC SAN Switch has a one-year customer-replaceable unit (CRU) limited warranty with standard call center support during normal business hours and 9x5 Next Business Day Parts Delivered.

Some countries might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific country. Local service teams can assist in explaining country-specific terms when needed. Examples of country-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 spares parts.

Also available are Lenovo Services warranty maintenance upgrades and post-warranty maintenance agreements, with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are country-specific. Not all warranty service upgrades are available in every country. For information about Lenovo warranty service upgrade offerings that are available in your country or area, refer to the following resources:

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

In general, the following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
  - 1, 3, 4, or 5 years of warranty 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)
- Basic Hardware Installation Services
  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.

For service definitions, country-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

Regulatory compliance

The DB620S FC SAN Switch conforms to the following regulations:

- Electromagnetic compatibility
  - FCC Part 15, Subpart B (Class A)
  - EN 55022 (CE mark) (Class A)
  - EN 55024 (CE mark)
  - ICES-003 (Canada) (Class A)
  - AS/NZ 55022 (Australia) (Class A)
  - VCCI (Japan) (Class A)
  - EN 61000-3-2
  - EN 61000-3-3
  - EN 61000-6-1
- Safety
  - UL/CSA 60950
  - EN 60950
  - IEC 60950
- Environmental: EU RoHS

Fibre Channel SAN switches

The following table lists the FC SAN switches offered by Lenovo that can be used in FC SAN solutions.

Table 12. FC SAN switches

Description	Part number
Rack-mount switches - 8 Gb FC	
Lenovo B300, 8 ports activated, 8x 8Gb SWL SFPs, 1 PS, Rail Kit	3873AR3
Lenovo B6505, 12 ports activated, 12x 8Gb SWL SFPs, 1 PS, Rail Kit	3873AR4
Lenovo B6510, 24 ports activated, 24x 8Gb SWL SFPs, 2 PS, Rail Kit	3873BR2
Rack-mount switches - Gen 5 16 Gb FC	
Lenovo B6505, 12 ports activated, 12x 16Gb SWL SFPs, 1 PS, Rail Kit	3873AR5
Lenovo B6510, 24 ports activated, 24x 16Gb SWL SFPs, 2 PS, Rail Kit	3873BR3
Rack-mount switches - Gen 6 16 Gb FC	
Lenovo ThinkSystem DB610S, 8 ports activated, 8x 16Gb SWL SFPs, 1 PS, Rail Kit	6559D2Y
Lenovo ThinkSystem DB610S, 24 ports activated, 24x 16Gb SWL SFPs, 1 PS, Rail Kit, Enterprise SW	6559D1Y
Rack-mount switches - Gen 6 32 Gb FC	
Lenovo ThinkSystem DB610S, 8 ports activated, 1 PS, Rail Kit	6559D3Y
Rack-mount FC SAN Directors - Gen 6 32 Gb FC	
Lenovo ThinkSystem DB400D 32Gb FC Director, Up to 192 ports, 8U, Enterprise SW	6684B2A
Lenovo ThinkSystem DB800D 32Gb FC Director, Up to 384 ports, 14U, Enterprise SW	6682B1A
Embedded switches - Gen 5 16 Gb FC	
Lenovo Flex System FC5022 16Gb SAN Scalable Switch	88Y6374
Lenovo Flex System FC5022 24-port 16Gb SAN Scalable Switch (includes two 16 Gb SFPs)	00Y3324
Lenovo Flex System FC5022 24-port 16Gb ESB SAN Scalable Switch	90Y9356

For more information, see the list of Product Guides in the following categories:

- Rack-mount SAN switches:
  http://lenovopress.com/storage/switches/rack?rt=product-guide
- Blade Storage Modules:
  http://lenovopress.com/servers/blades/storagemodule?rt=product-guide

External storage systems

The following table lists the external storage systems 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 storage configuration support *must* be verified through the interoperability matrix for a particular storage system that can be found on the Lenovo Data Center Support web site:
http://datacentersupport.lenovo.com

Table 13. External storage systems

Description	Part number
Lenovo ThinkSystem DS Series Storage	
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A31*
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A3C^
Lenovo ThinkSystem DS2200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A3J**
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4599A11*
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4599A1C^
Lenovo ThinkSystem DS2200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4599A1J**
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A31*
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A3C^
Lenovo ThinkSystem DS4200 LFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A3J**
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4617A11*
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4617A1C^
Lenovo ThinkSystem DS4200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4617A1J**
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (US English documentation)	4619A11*
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Simplified Chinese documentation)	4619A1C^
Lenovo ThinkSystem DS6200 SFF FC/iSCSI Dual Controller Unit (Japanese documentation)	4619A1J**
Lenovo Storage DX8200 Series (FC connectivity requires an optional FC HBA and a software license)	
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 3yr SW S&S	5135D3x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 4yr SW S&S	5135N3x#
Lenovo Storage DX8200D ServerSAN Entry, 8TB, 5yr SW S&S	51354Wx#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 3yr SW S&S	5135F3x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 4yr SW S&S	5135P3x#
Lenovo Storage DX8200D ServerSAN Mid, 16TB, 5yr SW S&S	51355Wx#
Lenovo Storage DX8200D ServerSAN High, 32TB, 3yr SW S&S	5135G3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 4yr SW S&S	5135Q3x#
Lenovo Storage DX8200D ServerSAN High, 32TB, 5yr SW S&S	51356Wx#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 3yr SW S&S	5135A3x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 4yr SW S&S	5135J3x#
Lenovo Storage DX8200D Storage Virtualization Entry, 4TB, 5yr SW S&S	51351Wx#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 3yr SW S&S	5135B3x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 4yr SW S&S	5135L3x#
Lenovo Storage DX8200D Storage Virtualization Mid, 16TB, 5yr SW S&S	51352Wx#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 3yr SW S&S	5135C3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 4yr SW S&S	5135M3x#
Lenovo Storage DX8200D Storage Virtualization High, 64TB, 5yr SW S&S	51353Wx#
Lenovo Storage DX8200N with 1x N2226 HBA (Requires a supported external drive enclosure)	5128C1x#
Lenovo Storage DX8200N with 2x N2226 HBAs (Requires a supported external drive enclosure)	5128C2x#
Lenovo Storage V Series	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D

Description	Part number
Lenovo Storage V3700 V2 LFF Control Enclosure (Top Seller)	6535EC1
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 SFF Control Enclosure (Top Seller)	6535EC2
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP LFF Control Enclosure (Top Seller)	6535EC3
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V3700 V2 XP SFF Control Enclosure (Top Seller)	6535EC4
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32
Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
Lenovo Storage V5030F SFF Control Enclosure 3Yr S&S	6536B1F
Lenovo Storage V5030F SFF Control Enclosure 5Yr S&S	6536B2F
Lenovo Storage V7000 SFF Control Enclosure 3Yr S&S PRC	6538R11^
Lenovo Storage V7000 SFF Control Enclosure 5Yr S&S PRC	6538R21^
Lenovo Storage V7000F SFF Control Enclosure 3Yr S&S PRC	6538R1G^
Lenovo Storage V7000F SFF Control Enclosure 5Yr S&S PRC	6538R2G^
IBM Storwize for Lenovo	
IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit	6096CU2^
IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit	6096CU3^
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA	6195C32†
IBM Storwize V7000 SFF Control Enclosure, 3YR SWMA, LA	6195C3L‡
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA	6195C52†
IBM Storwize V7000 SFF Control Enclosure, 5YR SWMA, LA	6195C5L‡

* Available worldwide (except China and Japan).
^ Available only in China.
** Available only in Japan.
# x represents a geo-specific letter (for example: U = North America, G = EMEA). Ask a Lenovo representative for specifics.
† Available worldwide except Latin America.
‡ Available only in Latin America.

For more information, see the list of Product Guides in the following categories:

- Lenovo DS Series and V Series storage:
  http://lenovopress.com/storage/san/lenovo#rt=product-guide
- IBM Storwize for Lenovo storage:
  http://lenovopress.com/storage/san/ibm#rt=product-guide
- Lenovo Software Defined Storage (DX8200 Series):
  http://lenovopress.com/storage/sds#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 14. External backup options

Description	Part number
External tape backup libraries - TS3100 and TS3200	
IBM TS3100 Tape Library Model L2U	61732UL
IBM TS3200 Tape Library Model L4U	61734UL
Fibre Channel backup drives for TS3100 and TS3200 Tape Libraries	
6173 LTO Ultrium 5 Fibre Channel Drive	00NA107
6173 LTO Ultrium 5 Half High Fibre Drive Sled	00NA113
6173 LTO Ultrium 6 Fibre Channel Drive	00NA115
6173 LTO Ultrium 6 Half High Fibre Drive Sled	00NA119
6173 LTO Ultrium 7 Fibre Channel Drive	00WF765
6173 LTO Ultrium 7 Half High Fibre Drive Sled	00WF769

For more information, see the list of Product Guides in the Backup Units category:
http://lenovopress.com/servers/options/backup

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used in Lenovo FC SAN solutions.

Table 15. Rack cabinets

Description	Part number
25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072RX
25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072PX
42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments)	93074RX
42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments)	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments)	93634EX
42U 1200mm Deep Dynamic Rack (6 sidewall compartments)	93604PX
42U 1200mm Deep Static Rack (6 sidewall compartments)	93614PX
42U Enterprise Rack (1105 mm deep; 4 sidewall compartments)	93084PX
42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments)	93084EX

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 that can be used in Lenovo FC SAN solutions.

Table 16. Power distribution units

Description	Part number
0U Basic PDUs	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776
0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord	00YJ777
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord	00YJ778
0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord	00YJ780
0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
NEMA PDUs (6x NEMA 5-15R outlets)	
DPI 100-127V PDU with fixed NEMA L5-15P line cord	39Y8905
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612

Description	Part number
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord (32A)	40K9617
DPI Korean 8305 Line Cord (30A)	40K9618

For more information, see the list of Product Guides 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 that can be used in Lenovo FC SAN solutions.

Table 17. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA5-15R 12A outlets)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-20R 16A outlets)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC) (6x NEMA5-20R 16A, 1x NEMA L5-30R 24A outlets)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category:
http://lenovopress.com/servers/options/ups?rt=product-guide

Lenovo Financial Services

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We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

For your region specific offers please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website: http://www.lenovofs.com

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 DB620S FC SAN Switch product publications
  http://www.broadcom.com/products/fibre-channel-networking/switches/g620-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*
- Lenovo Data Center Support for the ThinkSystem DB620S FC SAN Switch:
  http://datacentersupport.lenovo.com/us/en/products/storage/fibre-channel-switches/db620s-fc-switch/6415

Related product families

Product families related to this document are the following:

- Rack SAN Switches

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