Lenovo ThinkSystem DB630S 32Gb FC SAN Switch
Product Guide

The Lenovo ThinkSystem DB630S FC SAN Switch delivers 32 Gb Gen 6 Fibre Channel technology with industry-leading port density and combines scalability, reliability, flexibility, simplicity, and enterprise-class functionality to meet the demands of hyper-scale, private cloud storage, and growing flash-based and NVMe storage environments.

The DB630S FC SAN Switch is a dense, 2U rack-mount storage networking switch that offers 96x SFP+ ports that support 4/8/10/16/32 Gbps speeds and 8x QSFP+ ports that support 128 Gbps (4x 32 Gbps) or 4x 4/8/16/32 Gbps speeds. The DB630S FC SAN switch offers a rich set of standard features with the options to expand its capabilities as needed, providing “pay-as-you-grow” scalability to meet the needs of an evolving storage environment.

The DB630S FC SAN Switch features easy integration into the existing SAN environments while realizing the benefits of Gen 6 Fibre Channel connectivity. 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 DB630S 32Gb FC SAN Switch.

Figure 1. Lenovo ThinkSystem DB630S 32Gb FC SAN Switch

Did you know?

The DB630S FC SAN Switch leverages storage connectivity technologies from Brocade, a leader in Fibre Channel networking.

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 DB630S FC SAN Switch offers the following features and benefits:

- Provides high scalability in a dense, 2U switch with 96 SFP+ ports and 8 QSFP+ ports (each QSFP+ port has 4x 32 Gb FC links for 128 Gb FC connectivity between the DB630S or 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 128 connections) to support high-density server virtualization, cloud architectures, and flash-based storage environments.
- Enables cost-effective “pay-as-you-grow” scalability from 48 to 128 ports with Ports On Demand (POD).
- Increases performance for demanding workloads with support for 128 Gbps (4x 32 Gbps) and 32 Gbps FC links.
- Simplifies end-to-end management of large-scale environments by automating repetitive daily management tasks.
- 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 and storage I/O health and performance with VM Insight and IO Insight through integrated network sensors.
- Leverages predefined MAPS policies to automatically identify and isolate devices that cause network performance issues.
- 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 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 and encrypts in-flight data on up to 12 ports for more efficient link utilization and higher security.
- 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.
- Optimizes performance and ensures reliability with enhanced monitoring for NVMe.
- Maximizes resiliency with redundant hot-swap fan assembly units and 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 DB630S FC SAN Switch.

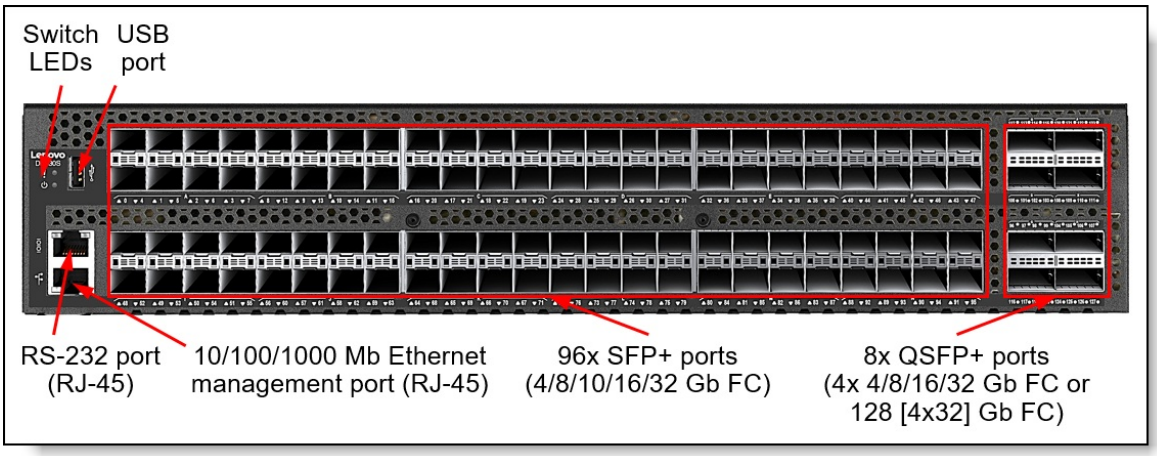

Figure 2. DB630S FC SAN Switch port-side view

The port-side panel of the DB630S FC SAN Switch includes the following components:

- 96x SFP+ ports to attach SFP+ transceivers for 4/8/10/16/32 Gb FC connections.
- 8x QSFP+ ports to attach QSFP+ transceivers for 128 Gb or 4x 32 Gb FC connections.
- One RJ-45 10/100/1000 Mb Ethernet port for out-of-band management.
- One RJ-45 RS-232 console port for configuring the switch.
- One USB port for mass storage devices.
- LEDs that display the status of the switch and the network.

The following figure shows the non-port side view of the DB630S FC SAN Switch.

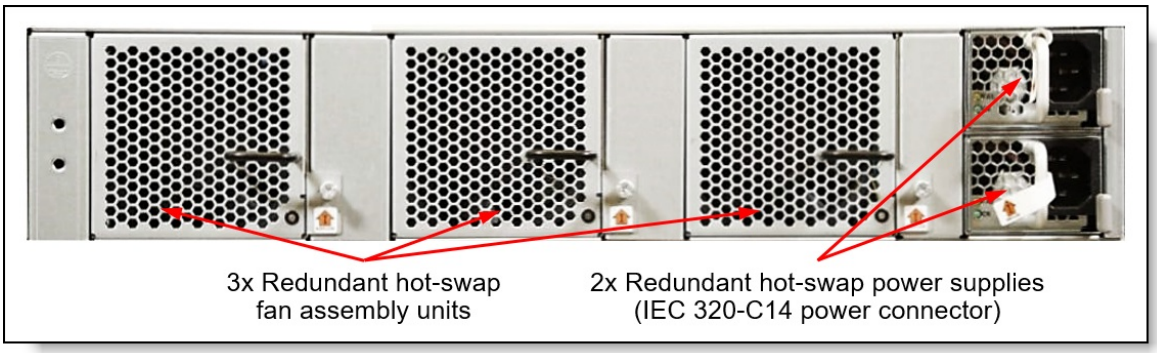

Figure 3. DB630S FC SAN Switch non-port-side view

The non-port-side panel of the DB630S FC SAN Switch includes the following components:

- Two redundant hot-swap 1500 W AC power supplies (each with the IEC 320-C14 power connector).
- Three N+1 redundant hot-swap system fan assembly units (each with two fans).

System specifications

The following table lists the ThinkSystem DB630S system specifications.

Table 1. System specifications

Component	Specification
Machine type	7D1S
Form factor	Standalone or 2U rack mount

Ports	• 96x SFP+ ports:
	  ◦ Model CTO5: 48 ports activated and 48x 32 Gb FC SWL SFP+ transceivers included; up to two optional 24-port activation licenses or bundles (24-port licenses and 24x 32 Gb FC SWL SFP+ transceivers)
	  ◦ Model CTO6: 96 ports activated and 96x 32 Gb FC SWL SFP+ transceivers included
	• 8x QSFP+ ports (require an optional activation license or bundle [32-port license pack and 8x 128 Gb FC SWL SFP+ V2 transceivers])

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, extended long wavelength (ELWL) • 16 Gb FC SFP+: SWL, LWL, extended long wavelength (ELWL) • 10 Gb FC SFP+: SWL, LWL
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 **Note:** With Fabric OS 9.0 and later, the 4 Gbps port speed is supported only on the F_Port and N_Port port types.
FC port types	F_Port, E_Port, EX_Port (Requires an optional Integrated Routing License), M_Port (Mirror Port), D_Port (Diagnostic 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, Advanced Zoning, Fabric Services, 10 Gb FC, Adaptive Networking, Advanced Diagnostic Tools, Virtual Fabrics, In-flight Compression, In-flight Encryption
Optional features	Enterprise Bundle (Inter-Switch Link (ISL) Trunking, Fabric Vision, Extended Fabric) and Integrated Routing **Note:** Model CTO6 comes with the Enterprise Bundle license included
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: 4 Tbps • Latency for locally switched ports is <780 ns; latency between port groups is 2.6 µs, cut-through routing at 32 Gb/s between locally switched groups. Encryption/compression is 1 µs per node.

Component	Specification
Scalability	• Maximum number of switches in the fabric: 239 • Maximum frame size: 2112-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 Bundle)
Cooling	Three hot-swap system fan assembly units (two fans in each unit) with N+1 cooling redundancy. Non-port to port side airflow.
Power supply	Two redundant hot-swap 1500 W AC (100 - 240 V) power supplies (IEC 320-C14 connector)
Hot-swap parts	SFP+/QSFP+ transceivers, fan assembly units, and power supplies
Fabric services	Monitoring and Alerting Policy Suite (MAPS); Flow Vision; Brocade Adaptive Networking (Ingress Rate Limiting, Traffic Isolation, QoS); Fabric Performance Impact (FPI) Monitoring; Slow Drain Device Quarantine (SDDQ); Brocade Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning, peer zoning, target-driven zoning); Dynamic Path Selection (DPS); Brocade Extended Fabrics; Enhanced BB Credit Recovery; FDMI; Frame Redirection; Frame-based Trunking; FSPF; Integrated Routing; Brocade ISL Trunking; Management Server; NPIV; Time Server; Registered State Change Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server (SNS); Virtual Fabrics (Logical Switch, Logical Fabric); Read Diagnostics Parameter (RDP)
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)
Supported management software	HTTP, SNMP v1/v3 (FE MIB, FC Management MIB), SSH; Auditing, Syslog; Brocade Advanced Web Tools; Brocade Network Advisor SAN Enterprise or Brocade Network Advisor SAN Professional/Professional Plus; Brocade SANnav Management Portal and SANnav Global View; Command Line Interface (CLI); SMI-S compliant; trial licenses for add-on capabilities.
Security features	DH-CHAP (between switches and end devices), FCAP switch authentication; HTTPS, IPsec, IP filtering, LDAP with IPv6, OpenLDAP, Port Binding, RADIUS, TACACS+, user-defined Role-Based Access Control (RBAC), Secure Boot, Secure Copy (SCP), Secure RPC, Secure Syslog, SFTP, SSH v2, SSL, Switch Binding, Trusted Switch. The Brocade G630 Switch provides up to 12 in-flight encryption and compression ports.
Diagnostics	ClearLink optics and cable diagnostics, including electrical/optical loopback, link traffic/latency/distance; flow mirroring; built-in flow generator; POST and embedded online/offline diagnostics, including environmental monitoring, FCping and Pathinfo (FC traceroute), frame viewer, non-disruptive daemon restart, optics health monitoring, power monitoring, RAStrace logging, and Rolling Reboot Detection (RRD).
Warranty and support	One-year customer-replaceable unit limited warranty with 9x5 next business day parts delivered. Optional warranty 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 (available in select countries), up to 5 years of warranty coverage, 1-year or 2-year post-warranty extensions.
Firmware entitlement	One-year firmware entitlement and support license is included. Firmware entitlement extension licenses are included in the warranty upgrades.
Dimensions	Height: 87 mm (3.4 in.); width: 440 mm (17.3 in.); depth: 610 mm (24.0 in.)
Weight	Empty: 19.05 kg (42.0 lb.); Fully configured: 21.3 kg (47.0 lb.)

Models

The following table lists the ThinkSystem DB630S FC SAN Switch models.

Table 2. Lenovo ThinkSystem DB630S FC SAN Switch models

Description	Part number	Machine Type/Model	Feature code
ThinkSystem DB630S, 48 ports licensed, 48x 32Gb SWL SFPs, 2 PS, Rail Kit (1yr)	7D1SA004WW	7D1SCTO5WW	BCH6
ThinkSystem DB630S, ENT Bundle, 96 ports licensed, 96x 32Gb SWL SFPs, 2 PS, Rail Kit (1yr)	7D1SA005WW	7D1SCTO6WW	BCH7

The DB630S FC SAN Switch models ship with the following items:

- One FC SAN Switch with 1-year firmware entitlement
  - Model CTO5: With 48 ports activated and 48x 32 Gb FC SWL SFP+ transceivers included
  - Model CTO6: With 96 ports activated and 96x 32 Gb FC SWL SFP+ 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
- Online Documentation web pointer card
- SANnav 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

DB630S Model CTO5 ships with 48 licensed ports and 48x 32 Gb FC SWL SFP+ Transceivers. The remaining 48 SFP+ unlicensed ports can be activated by purchasing and installing the SFP+ Ports on Demand (POD) licenses that are available in 24-port increments. DB630S Model CTO6 ships with 96 licensed ports and 96x 32 Gb FC SWL SFP+ Transceivers.

Eight QSFP+ unlicensed ports on the DB630S FC SAN Switch can be activated by purchasing and installing the QSFP+ POD license that is available with or without QSFP+ transceivers.

The following table lists additional POD options for the DB630S FC SAN Switch.

Table 3. POD options

Description	Part number	Feature code	Maximum quantity
POD bundles with electronic authorization licenses			
DB630 24-Port SW License with 24x 32 Gbps SWL SFP+ Transceivers	4M27A37147	B6DG	2
DB630 QSFP+ 32-Port SW License with 8x 128 Gbps (4x 32 Gbps) SWL v2 Transceivers	4M27A37148	B6DH	1

Transceivers and cables

With the flexibility of the DB630S FC SAN Switch, customers can choose the following connectivity technologies:

- QSFP+ ports
  - For 128 Gb (4x 32 Gb) FC links for connectivity between the DB630S or 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. For extended distances, the 32 Gb FC ELWL SFP+ optical transceivers can support up to 25 kilometers on SMF cables. These transceivers can operate at 32 Gbps, 16 Gbps, or 8 Gbps speeds. (Except ELWL part number 4M27A65431 which can only operate at 32Gbps and 16 Gbps).
  - 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 Category 5, 5e, or 6 cables for distances up to 100 meters.

The DB630S FC SAN Switch comes with 48x (Model CTO5) or 96x (Model CTO6) 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.

Brocade Secure transceivers: These new Secure 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 4. Transceivers and cables

Part number	Feature code	Description	Maximum quantity
QSFP+ transceivers			
4M27A65422	BF6G	Brocade Secure 128Gb (4x 32Gb) SWL QSFP+	8
01KN805	AVGH	Brocade 4x16Gb FC-Compliant SWL QSFP+ Transceiver	8

Part number	Feature code	Description	Maximum quantity
32 Gb FC SFP+ transceivers			
4M27A65416	BF69	Brocade Secure 32Gb SWL SFP+ Transceiver	96
4M27A65417	BF6A	Brocade Secure 32Gb SWL SFP+ Transceiver (8-pack)	12
4M27A65418	BF6B	Brocade Secure 32Gb LWL SFP+ Transceiver	96
4M27A65419	BF6C	Brocade Secure 32Gb LWL SFP+ Transceiver (8-pack)	12
4M27A65424	BF6D	Brocade Secure 32Gb ELWL SFP+ (25 km)***	96*
4M27A65431	BQQE	Brocade Secure 32Gb ELWL SFP+ V2 Transceiver (25 km)***	8**
01KN793	AVGD	Brocade 32Gb SWL SFP+ Transceiver (8-pack)	12
01KN799	AVGF	Brocade 32Gb LWL SFP+ Transceiver (8-pack)	12
16 Gb FC SFP+ transceivers			
4M27A65411	BF64	Brocade Secure 16Gb SWL SFP+	96
4M27A65412	BF65	Brocade Secure 16Gb SWL SFP+ 8-pack	12
4M27A65413	BF66	Brocade Secure 16Gb LWL SFP+ (10 km)	96
4M27A65414	BF67	Brocade Secure 16Gb LWL SFP+ (10 km) 8pk	12
4M27A65415	BF68	Brocade Secure 16Gb ELWL SFP+ (25 km)	96*
88Y6393	A22R	Brocade 16Gb SWL SFP+ Optical Transceiver	96
10 Gb FC SFP+ transceivers			
4M27A65420	BF6E	Brocade Secure 10Gb FC LWL SFP+	96
4M27A65421	BF6F	Brocade Secure 10Gb FC SWL SFP+	96
Optical cables for 128 Gb v2 and 4x16/32 Gb FC SW QSFP+ transceivers			
00VX003	AT2U	Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	8
00VX005	AT2V	Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	8
Optical breakout cables for 128 Gb v2 and 4x16/32 Gb FC SW QSFP+ transceivers			
00FM412	A5UA	Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable	8
00FM413	A5UB	Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable	8
00FM414	A5UC	Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable	8
OM3 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable	96
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable	96
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable	96
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable	96
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable	96
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable	96
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable	96
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable	96
OM4 optical cables for 16 Gb and 32 Gb FC SW SFP+ transceivers			
4Z57A10845	B2P9	Lenovo 0.5m LC-LC OM4 MMF Cable	96
4Z57A10846	B2PA	Lenovo 1m LC-LC OM4 MMF Cable	96
4Z57A10847	B2PB	Lenovo 3m LC-LC OM4 MMF Cable	96
4Z57A10848	B2PC	Lenovo 5m LC-LC OM4 MMF Cable	96

Part number	Feature code	Description	Maximum quantity
4Z57A10849	B2PD	Lenovo 10m LC-LC OM4 MMF Cable	96
4Z57A10850	B2PE	Lenovo 15m LC-LC OM4 MMF Cable	96
4Z57A10851	B2PF	Lenovo 25m LC-LC OM4 MMF Cable	96
4Z57A10852	B2PG	Lenovo 30m LC-LC OM4 MMF Cable	96
UTP Category 6 cables (Green) for the 1 GbE RJ-45 management port			
00WE123	AVFW	0.75m CAT6 Green Cable	1
00WE127	AVFX	1.0m CAT6 Green Cable	1
00WE131	AVFY	1.25m CAT6 Green Cable	1
00WE135	AVFZ	1.5m CAT6 Green Cable	1
00WE139	AVG0	3m CAT6 Green Cable	1
90Y3718	A1MT	10m CAT6 Green Cable	1
90Y3727	A1MW	25m CAT6 Green Cable	1
UTP Category 5e cables (Blue) for the 1 GbE RJ-45 management port			
40K8785	3802	1.5m Blue Cat5e Cable	1
40K5581	3803	3m Blue Cat5e Cable	1
40K8927	3804	10m Blue Cat5e Cable	1
40K8930	3805	25m Blue Cat5e Cable	1

* 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 specific ELWL only operates at 32 Gbps and 16Gbps. Plus the ELWL is only supported in 6415-HC7/HC8/HC9 models. 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.
*** ELWL Requires same optic type/part number on both ends (no-mixing) to assure interoperability.

The following table lists the cabling requirements for the switch.

Table 5. DB630S FC SAN Switch cabling requirements

Transceiver	Standard	Cable	Connector
32 Gb Fibre Channel			
32 Gb FC SWL SFP+ (01KN793, 4M27A65416, 4M27A65417)	FC-PI-6	Up to 30 m with LC-LC MMF cables supplied by Lenovo (see Table 4). 850 nm 50 µ MMF cable: • 32GFC: Up to 100 m (OM4) or up to 70 m (OM3). • 16GFC: Up to 125 m (OM4) or up to 100 m (OM3). • 8GFC: Up to 190 m (OM4) or up to 150 m (OM3).	LC
32 Gb FC LWL SFP+ (01KN799, 4M27A65418, 4M27A65419)	FC-PI-6	1310 nm 9 µ SMF cable: • 32GFC, 16GFC, 8GFC: Up to 10 km.	LC
32 Gb FC ELWL SFP+ (4M27A65424, 4M27A65431)	FC-PI-5	1310 nm 9 µ SMF cable: • 32GFC: Up to 25 km	LC
16 Gb Fibre Channel			

Transceiver	Standard	Cable	Connector
16 Gb FC SWL SFP+ (88Y6393, 4M27A65411, 4M27A65412)	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, 4M27A65413 4M27A65414)	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 ELWL SFP+ (4M27A65415)	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, 4M27A65421)	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, 4M27A65420)	FC-10GFC	1310 nm 9 µ SMF cable: • 10GFC: Up to 10 km.	LC
Management ports			
10/100/1000 Mb Ethernet port	1000BASE-T	Up to 25 m with UTP cables supplied by Lenovo (seeTable 4). UTP Category 5, 5E, and 6 up to 100 meters.	RJ-45

Enterprise Bundles and Integrated Routing features

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

The following optional features are available for the DB630S 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): Simplifies fabric-wide threshold configuration, monitoring, and alerting with pre-built, rule-based or policy-based templates. Administrators can configure the entire fabric (or multiple fabrics) at one time using common rules and policies, or customize policies for specific ports or switch elements. In addition, administrators can use IO Insight metrics to set thresholds in MAPS policies in order to be notified of application, VM, and storage IOI/O performance degradation.
    - 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 the IO Insight capability, administrators can monitor first I/O response time, I/O completion time, the number of pending I/Os, and IOPS metrics for a flow from a specific host to a target or volume running SCSI or NVMe over Fibre Channel traffic. With VM Insight, administrators can monitor network throughput and I/O 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: Enables administrators 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.
- IO Insight: Proactively monitors I/O performance and behavior to gain deep insight into issues and ensure service levels by non-disruptively and non-intrusively gathering I/O statistics for storage traffic and applying this information within a policy-based monitoring and alerting suite to configure thresholds and alarms.
- Fabric Performance Impact (FPI) Monitoring: Leverages predefined MAPS policies to automatically detect and alert administrators to different latency severity levels, and to identify slow drain devices that could impact network performance. This feature identifies various latency severity levels, pinpointing exactly which devices are causing or are impacted by a bottlenecked port, and quarantines slow drain devices automatically to prevent buffer credit starvation.

- Extended Fabric (EF): Extends Fibre Channel SANs beyond 10 km distance limitations for replication and backup at full bandwidth.

- 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 DB630S FC SAN Switch.

Table 6. Optional licensed features (electronic authorization)

Description	Part number	Feature code	Maximum quantity
Lenovo DB630S Enterprise Bundle (TRK, FV, EF)	7S0C0019WW	S1PA	1
Lenovo DB630S Integrated Routing	7S0C0018WW	S1P9	1

Configuration note: The DB630S FC SAN Switch Model CTO6 come with the Enterprise Bundle license included.

Firmware entitlement is included with the DB630S FC SAN Switch and provides 1-year firmware support. The entitlement extensions for additional years of firmware support are included in the warranty service upgrades and post-warranty extensions.

The Integrated Routing feature (7S0C0018WW) comes with its own 1-year firmware support entitlement. The options to extend entitlement for additional years of firmware support for the Integrated Routing feature are listed in the following table.

Table 7. Firmware support extension options for Integrated Routing

Description	Part number	Feature code
Lenovo DB630S Integrated Routing Support Extension, 2-Years	7S0C001AWW	S1PB
Lenovo DB630S Integrated Routing Support Extension, 4-Years	7S0C001BWW	S1PC

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 B300, B6505, B6510, DB610S, DB620S, DB400D, DB720S, 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 8. 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 FC SAN Switch supports the standards listed at the following web page:

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

Power supplies and cables

The DB630S FC SAN Switch ships with two redundant hot-swap 1500 W AC power supplies. Each power supply has an IEC 309-C14 connector.

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

Table 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
Line cords		
10A/125V C13 to NEMA 5-15P 4.3m line cord	39Y7931	6207
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 DB630S FC SAN Switch comes standard with the fixed rack mount kit that can be used for 4-post rack installations. If needed, the DB630S 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
Lenovo Mid-mount Rack Kit	01KN770	AVG7	1

The optional mid-mount rack kit for the DB630S FC SAN Switch is shown in the following figure.

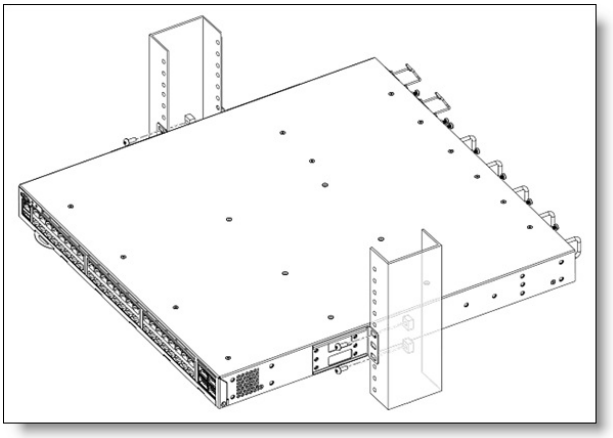

Figure 4. Lenovo DB630S Mid-mount Rack Kit

Physical specifications

The DB630S FC SAN Switch has the following dimensions and weight (approximate):

- Height: 87 mm (3.4 in.)
- Width: 440 mm (17.3 in.)
- Depth: 610 mm (24.0 in.)
- Weight: 21.31 kg (47.0 lb) with two power supply FRUs, and three fan FRUs without transceivers

Operating environment

The DB630S 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: 495 watts
    - Typical: 536 watts
    - Maximum: 942 watts
- Heat dissipation:
  - Idle: 1689 BTU per hour
  - Typical: 1829 BTU per hour
  - Maximum: 3215 BTU per hour
- Acoustical noise emission: 74.2 dB

Warranty and support

The DB630S 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.

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

The following Lenovo support services are available:

- **Warranty Upgrades (Preconfigured Support)** are available to meet the on-site response time targets that match the criticality of customer's systems:
  - 1, 3, 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 regions).
  - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select regions).
- **Managed Services**
  Lenovo Managed Services provide continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of a customer's 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 and operating system device driver levels, and software as needed. Lenovo will also maintain records of latest patches, critical updates, and firmware levels, to ensure customer's systems are providing business value through optimized performance.

- **Technical Account Management (TAM)**
  A Lenovo Technical Account Manager helps customers optimize operations of their data centers based on a deep understanding of customer's business. Customers gain direct access to a Lenovo TAM, who serves as their single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. Also, a TAM helps proactively make service recommendations and manage service relationship with Lenovo to make certain that customer's needs are met.

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

Some regions might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific region. Local service teams can assist in explaining region-specific terms when needed. Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

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

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

Lenovo support services are region-specific. Not all support services are available in every region. For information about Lenovo support services that are available in a specific region, refer to the following resources:

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

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

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

Services

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

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

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

- **Asset Recovery Services**

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

- **Assessment Services**

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

- **Design Services**

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

- **Basic Hardware Installation**

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

- **Deployment Services**

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

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

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

Regulatory compliance

The DB630S FC SAN Switch conforms to the following regulations:

- United States: FCC Part 15, Subpart B, Class A; UL 60950-1
- Canada: ICES-003
- European Union:
  - CE Mark (EN55032 Class A, IEC/EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
  - EN 300 386
  - EN 60825
- China: GB4943.1, GB9254
- Japan: VCCI
- Taiwan: BSMI CNS13438, CNS14336-1
- Korea: KN32, KN35
- Australia/New Zealand: AS/NZS CISPR 32, Class A
- Restriction of Hazardous Substances (RoHS)

Interoperability

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

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

External storage systems

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

- ThinkSystem DE Series Storage
  https://lenovopress.com/storage/thinksystem/de-series#rt=product-guide
- ThinkSystem DM Series Storage
  https://lenovopress.com/storage/thinksystem/dm-series#rt=product-guide
- 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 11. 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 - Full 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 12. Rack cabinets

Part number	Description
93072RX	25U Standard Rack (1000mm)
93072PX	25U Static S2 Standard Rack (1000mm)
7D6DA007WW	ThinkSystem 42U Onyx Primary Heavy Duty Rack Cabinet (1200mm)
7D6DA008WW	ThinkSystem 42U 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)
7D6EA009WW	ThinkSystem 48U Onyx Primary Heavy Duty Rack Cabinet (1200mm)
7D6EA00AWW	ThinkSystem 48U Pearl Primary Heavy Duty Rack Cabinet (1200mm)

For specifications about these racks, see the Lenovo Rack Cabinet Reference, available from:
https://lenovopress.com/lp1287-lenovo-rack-cabinet-reference

For more information, see the list of Product Guides in the Rack cabinets category:
https://lenovopress.com/servers/options/racks

Power distribution units

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

Table 13. Power distribution units

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
0U Basic PDUs															
00YJ776	ATZY	0U 36 C13/6 C19 24A 1 Phase PDU	N	Y	Y	N	N	N	N	N	N	Y	Y	Y	N
0U Switched and Monitored PDUs															
00YJ783	AU04	0U 12 C13/12 C19 Switched and Monitored 48A 3 Phase PDU	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
00YJ781	AU03	0U 20 C13/4 C19 Switched and Monitored 24A 1 Phase PDU	N	N	Y	N	Y	N	Y	N	N	Y	Y	Y	N
1U Switched and Monitored PDUs															
4PU7A81117	BNDV	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - ETL	N	N	N	N	N	N	N	N	N	N	N	Y	N
4PU7A77467	BLC4	1U 18 C19/C13 Switched and Monitored 80A 3P Delta PDU	N	N	N	N	N	N	N	N	N	Y	N	Y	N
4PU7A77469	BLC6	1U 12 C19/C13 switched and monitored 60A 3P Delta PDU	N	N	N	N	N	N	N	N	N	N	N	Y	N

Part number	Feature code	Description	ANZ	ASEAN	Brazil	EET	MEA	RUCIS	WE	HTK	INDIA	JAPAN	LA	NA	PRC
4PU7A77468	BLC5	1U 12 C19/C13 switched and monitored 32A 3P WYE PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
4PU7A81118	BNDW	1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - CE	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
1U Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)															
71763NU	6051	Ultra Density Enterprise C19/C13 PDU 60A/208V/3PH	N	N	Y	N	N	N	N	N	N	Y	Y	Y	N
71762NX	6091	Ultra Density Enterprise C19/C13 PDU Module	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U C13 Enterprise PDUs (12x IEC 320 C13 outlets)															
39Y8941	6010	DPI C13 Enterprise PDU Module (WW)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U Front-end PDUs (3x IEC 320 C19 outlets)															
39Y8938	6002	DPI Single-phase 30A/120V Front-end PDU (US)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8939	6003	DPI Single-phase 30A/208V Front-end PDU (US)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8934	6005	DPI Single-phase 32A/230V Front-end PDU (International)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
39Y8940	6004	DPI Single-phase 60A/208V Front-end PDU (US)	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N
39Y8935	6006	DPI Single-phase 63A/230V Front-end PDU (International)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1U NEMA PDUs (6x NEMA 5-15R outlets)															
39Y8905	5900	DPI 100-127V NEMA PDU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Line cords for 1U PDUs that ship without a line cord															
40K9611	6504	4.3m, 32A/380-415V, EPDU/IEC 309 3P+N+G 3ph wye (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9612	6502	4.3m, 32A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9613	6503	4.3m, 63A/230V, EPDU to IEC 309 P+N+G (non-US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9614	6500	4.3m, 30A/208V, EPDU to NEMA L6-30P (US) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9615	6501	4.3m, 60A/208V, EPDU to IEC 309 2P+G (US) Line Cord	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N
40K9617	6505	4.3m, 32A/230V, Souriau UTG Female to AS/NZ 3112 (Aus/NZ) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
40K9618	6506	4.3m, 32A/250V, Souriau UTG Female to KSC 8305 (S. Korea) Line Cord	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

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

Uninterruptible power supply units

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

Table 14. Uninterruptible power supply units

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

† Only available in China and the Asia Pacific market.

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

Seller training courses

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

1. **The Inherent Security of Fibre Channel SAN**
   2024-03-08 | 20 minutes | Employees and Partners

   In this course, you will learn the security benefits of dedicated FC Storage Area Networks.
   Course objectives:
   1. Be able to articulate some of the high level benefits of Fibre Channel SAN
   2. Understand the difference between Fibre Channel vs. IP Networks
   3. Learn about some of the security benefits in the Lenovo DB series hardware and software SAN offerings

   Published: 2024-03-08
   Length: 20 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DDBS209

2. **Simplify Selling Fibre Channel Storage Solutions**
   2024-01-31 | 10 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.

   Published: 2024-01-31
   Length: 10 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DNFP101

3. **Family Portfolio: Storage Networking**
   2023-10-27 | 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.

   Published: 2023-10-27
   Length: 15 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: SXXW1113r7

4. **Lenovo Data Center Product Portfolio**
   2023-07-21 | 15 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.

   Published: 2023-07-21
   Length: 15 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: SXXW1110r6

5. **Selling Storage Networks**
   2020-05-07 | 32 minutes | Employees and Partners

   In this course we will start off discussing why selling Fibre Channel SANs matter. In other words, what's in it for you and your customers. Then, we will cover SAN essentials including what a SAN is, why SAN is important from a customer value proposition, where SAN best fits versus other alternatives, when to propose directors versus switches and when to propose extension products.

   Published: 2020-05-07
   Length: 32 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DDBS202

6. **Storage Network Matters for NVMe**
   2020-05-07 | 17 minutes | Employees and Partners

   In this course we will start off discussing the trends driving Flash and NVMe arrays, then we will cover the key reasons why the SAN is critical for these environments. From a high level view, we will look at how Gen 6 Fibre Channel enhances and optimizes Flash and NVMe storage solutions.

   Published: 2020-05-07
   Length: 17 minutes
   Employee link: Grow@Lenovo
   Partner link: Lenovo Partner Learning
   Course code: DDBS203

Related publications and links

For more information, see the following resources:

- Interactive 3D Tour for the DB630S:
  https://lenovopress.com/LP1186
- Lenovo ThinkSystem DB630S FC SAN Switch product publications
  http://datacentersupport.lenovo.com
  - *Hardware Installation 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 DB630S FC SAN Switch:
  http://datacentersupport.lenovo.com
- Benefits of an End-to-End NVMe over FC Solution with Lenovo ThinkSystem
  http://lenovopress.com/lp0955

Related product families

Product families related to this document are the following:

- DB Series SAN Switches
- Rack SAN Switches

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