Lenovo EveryScale (formerly Lenovo Scalable Infrastructure or LeSI)
Product Guide

Lenovo EveryScale (formerly named Lenovo Scalable Infrastructure, LeSI) is a framework for designing, manufacturing, integrating and delivering data center solutions, with a focus on High Performance Computing (HPC), Technical Computing, and Artificial Intelligence (AI) environments.

Benefits

Lenovo EveryScale provides Best Recipe guides to warrant interoperability of hardware, software and firmware among a variety of Lenovo and third-party components.

Addressing specific needs in the data center, while also optimizing the solution design for application performance requires a significant level of effort and expertise. Customers need to choose the right hardware and software components, solve interoperability challenges across multiple vendors, and determine optimal firmware levels across the entire solution to ensure operational excellence, maximize performance, and drive best total cost of ownership.

Lenovo EveryScale reduces this burden on the customer by pre-testing and validating a large selection of Lenovo and third-party components, to create a "Best Recipe" of components and firmware levels that work seamlessly together as a solution. From this testing, customers can be confident that such a best practice solution will run optimally for their workloads, tailored to the client's needs.

In addition to interoperability testing, Lenovo EveryScale hardware is pre-integrated, pre-cabled, pre-loaded with the best recipe and optionally an OS-image and tested at the rack level in manufacturing, to ensure a reliable delivery and minimize installation time in the customer data center.

With Lenovo EveryScale, customers can focus their efforts on maximizing their business value, instead of consuming valuable resources to design, optimize, install, and support the infrastructure required to meet business demands. Whether the need is for a small AI training solution, a mid-sized HPC cluster, or the world's largest supercomputers, customers can take advantage of the decades of Lenovo experience, innovation, and expertise in solution deployment with EveryScale. EveryScale delivers optimized IT solutions to the customer pre-integrated, pre-loaded, and tested, and ready to install, increasing time-to-value and reducing deployment risk.

Lenovo EveryScale solutions are based on:

- Industry-leading Lenovo ThinkSystem servers and storage
- Open source and OEM software
- Best-of-breed third-party components especially in high performance networking and acceleration.

Lenovo thoroughly tests and optimizes all Lenovo EveryScale components for reliability, interoperability and maximum performance, so clients can quickly deploy the system and get to work achieving their business goals.

Hardware components

Lenovo EveryScale supports the following hardware components.

- Servers
- Storage Expansion Units and Arrays
- Rack Cabinets and Options
- Other Lenovo ThinkSystem hardware
- GPUs
- Ethernet switches
- Ethernet cabling
- InfiniBand interconnects
- InfiniBand and Ethernet adapters
- Omni-Path interconnects

Servers

Servers with 4th Gen Intel Xeon Scalable processors

- ThinkSystem SR630 V3

  The Lenovo ThinkSystem SR630 V3 is an ideal 2-socket 1U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as maximizing performance and flexibility for future growth. The SR630 V3 is based on the new 4th generation Intel Xeon Scalable processor family (formerly codenamed "Sapphire Rapids"). For more information, see the lenovopress.lenovo.com/lp1600-thinksystem-sr630-v3-server">SR630 V3 product guide.

- ThinkSystem SR650 V3

  The Lenovo ThinkSystem SR650 V3 is an ideal 2-socket 2U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as maximizing performance and flexibility for future growth. For more information, see the lenovopress.lenovo.com/lp1601-thinksystem-sr650-v3-server">SR650 V3 product guide.

- ThinkSystem SD650 V3

  The ThinkSystem SD650 V3 Neptune DWC node is the next-generation high-performance server based on the fifth generation Lenovo Neptune™ direct water cooling platform. With two 4th Gen Intel Xeon Scalable processors or two Intel Max Series processors, the ThinkSystem SD650 V3 server combines the latest Intel processors and Lenovo's market-leading water-cooling solution, which results in extreme performance in an extreme dense packaging, supporting your application from Exascale to Everyscale™. For more information, see the lenovopress.lenovo.com/lp1603-thinksystem-sd650-v3-server">SD650 V3 product guide.

- ThinkSystem SD650-I V3

  The ThinkSystem SD650-I V3 Neptune DWC node is the next-generation high-performance server based on the fifth generation Lenovo Neptune™ direct water cooling platform. With two 4th Gen Intel Xeon Scalable or Intel Xeon CPU Max Series processors, along with four powerful Intel Data Center Max Series GPUs, the ThinkSystem SD650-I V3 server features the latest technology from Intel, combined with Lenovo's market-leading water-cooling solution, which results in extreme performance in an extreme dense packaging, supporting your application from Exascale to Everyscale™. For more information, see the lenovopress.lenovo.com/lp1602-thinksystem-sd650-i-v3-server">SD650-I V3 product guide.

- ThinkSystem SR850 V3

  The Lenovo ThinkSystem SR850 V3 is a 4-socket server that is densely packed into a 2U rack design. The server offers technology advances, including fourth-generation Intel Xeon Scalable processors, and scale-up capacity with up to 16TB of system memory, up to 12x PCIe slots, and up to 24x 2.5-inch drive bays. For more information, see the lenovopress.lenovo.com/lp1605-thinksystem-sr850-v3-server">SR850 V3 product guide.

Servers with 3rd Gen Intel Xeon Scalable processors

- ThinkSystem SD630 V2

  The Lenovo ThinkSystem SD630 V2 is a dense and economical two-socket server in a 0.5U rack form factor. Combining the efficiency and density of blades with the value and simplicity of rack-based servers, the SD630 V2 delivers a cost-efficient scale-out platform that is thermally designed to deliver maximum performance in the smallest footprint. The solution consists of a 2U ThinkSystem DA240 Enclosure containing up to four front-access SD630 V2 servers (nodes). Each node incorporates two third-generation Intel Xeon Scalable processors. For more information, see the SD630 V2 product guide.

- ThinkSystem SD650 V2

  The ThinkSystem SD650 V2 server is the next-generation high-performance server based on Lenovo's fourth generation Lenovo Neptune™ direct water cooling platform. With two third-generation Intel Xeon Scalable processors, the ThinkSystem SD650 V2 server combines the latest Intel processors and Lenovo's market-leading water cooling solution, which results in extreme performance in an extreme dense packaging, supporting your application From Exascale to Everyscale™. For more information, see the SD650 V2 product guide.

- ThinkSystem SD650-N V2

  The ThinkSystem SD650-N V2 server is the next-generation high-performance GPU-rich server based on Lenovo's fourth generation Lenovo Neptune™ direct water cooling platform. With four NVIDIA A100 SXM4 GPUs and two third-generation Intel Xeon Scalable processors, the ThinkSystem SD650-N V2 server combines advanced NVIDIA acceleration technology with the latest Intel processors and Lenovo's market-leading water cooling solution, which results in extreme performance in an extreme dense packaging supporting your accelerated application From Exascale to Everyscale™. For more information, see the SD650-N V2 product guide.

- ThinkSystem SR630 V2

  The Lenovo ThinkSystem SR630 V2 is an ideal 2-socket 1U rack server designed to take full advantage of the features of the 3rd generation Intel Xeon Scalable processors, such as the full performance of 270W 40-core processors, support for 3200 MHz memory and PCIe Gen 4.0 support. The server also offers onboard NVMe PCIe ports that allow direct connections to 12x NVMe SSDs, which results in faster access to store and access data to handle a wide range of workloads. For more information, see the SR630 V2 product guide.

- ThinkSystem SR650 V2

  The Lenovo ThinkSystem SR650 V2 is an ideal 2-socket 2U rack server for small businesses up to large enterprises that need industry-leading reliability, management, and security, as well as maximizing performance and flexibility for future growth. The SR650 V2 is a very configuration-rich offering, supporting 28 different drive bay configurations in the front, middle and rear of the server and 5 different slot configurations at the rear of the server. This level of flexibility ensures that you can configure the server to meet the needs of your workload. For more information, see the SR650 V2 product guide.

- ThinkSystem SR670 V2

  The Lenovo ThinkSystem SR670 V2 is a versatile GPU-rich 3U rack server that supports eight double-wide GPUs including the new NVIDIA A100 and A40 Tensor Core GPUs, or the NVIDIA HGX A100 4-GPU offering with NVLink and Lenovo Neptune hybrid liquid-to-air cooling. The server is based on the new third-generation Intel Xeon Scalable processor family (formerly codenamed "Ice Lake"). The server delivers optimal performance for Artificial Intelligence (AI), High Performance Computing (HPC) and graphical workloads across an array of industries. For more information, see the SR670 V2 product guide.

- ThinkSystem SR850 V2

  The Lenovo ThinkSystem SR850 V2 is a 4-socket server that is densely packed into a 2U rack design. The server offers technology advances, including third-generation Intel Xeon Scalable processors with support for Intel Optane Persistent Memory 200 Series, and scale-up capacity with up to 12TB of system memory, up to 7x PCIe slots, and up to 24x 2.5-inch drive bays. It is ideally suited for mission-critical scaling up from 2S systems such as enterprise virtualization, CRM, ERP, SQL databases, VDI and small-mid sized SAP HANA computing environments. For more information, see the SR850 V2 product guide.

Servers with 4th Gen AMD EPYC processors

- ThinkSystem SR635 V3

  The Lenovo ThinkSystem SR635 V3 is a 1-socket 1U server that features the AMD EPYC 9004 "Genoa" family of processors. With up to 96 processor cores and support for the new PCIe 5.0 standard for I/O, the SR635 V3 offers the ultimate in one-socket server performance in a 1U form factor. For more information, see the lenovopress.lenovo.com/lp1609-thinksystem-sr635-v3-server">SR635 V3 product guide.

- ThinkSystem SR645 V3

  The Lenovo ThinkSystem SR645 V3 is a 2-socket 1U server that features the AMD EPYC 9004 "Genoa" family of processors. With up to 96 cores per processor and support for the new PCIe 5.0 standard for I/O, the SR645 V3 offers the ultimate in two-socket server performance in a 1U form factor. For more information, see the lenovopress.lenovo.com/lp1607-thinksystem-sr645-v3-server">SR645 V3 product guide.

- ThinkSystem SR655 V3

  The Lenovo ThinkSystem SR655 V3 is a 1-socket 2U server that features the AMD EPYC 9004 "Genoa" family of processors. With up to 96 cores per processor and support for the new PCIe 5.0 standard for I/O, the SR655 V3 offers the ultimate in one-socket server performance in a 2U form factor. For more information, see the lenovopress.lenovo.com/lp1610-thinksystem-sr655-v3-server">SR655 V3 product guide.

- ThinkSystem SR665 V3

  The Lenovo ThinkSystem SR665 V3 is a 2-socket 2U server that features the AMD EPYC 9004 "Genoa" family of processors. With up to 96 cores per processor and support for the new PCIe 5.0 standard for I/O, the SR665 V3 offers the ultimate in two-socket server performance in a 2U form factor. For more information, see the lenovopress.lenovo.com/lp1608-thinksystem-sr665-v3-server">SR665 V3 product guide.

- ThinkSystem SD665 V3

  The ThinkSystem SD665 V3 Neptune DWC node is the next-generation high-performance server based on the fifth generation Lenovo Neptune™ direct water cooling platform. With two fourth-generation AMD EPYC processors, the ThinkSystem SD665 V3 node combines the latest AMD processors and Lenovo's market-leading water-cooling solution, which results in extreme performance in an extreme dense packaging, supporting your application from Exascale to Everyscale™. For more information, see the lenovopress.lenovo.com/lp1612-lenovo-thinksystem-sd665-v3-server">SD665 V3 product guide.

- ThinkSystem SR675 V3

  The Lenovo ThinkSystem SR675 V3 is a versatile GPU-rich 3U rack server that supports eight double-wide GPUs including the new NVIDIA H100 and L40 Tensor Core GPUs, or the NVIDIA HGX H100 4-GPU offering with NVLink and Lenovo Neptune hybrid liquid-to-air cooling. The server is based on the new AMD EPYC 9004 Series processors (formerly codenamed "Genoa"). For more information, see the lenovopress.lenovo.com/lp1611-thinksystem-sr675-v3-server">SR675 V3 product guide.

Servers with 3rd Gen AMD EPYC processors

- ThinkSystem SR645

  The Lenovo ThinkSystem SR645 is a 2-socket 1U server that features the AMD EPYC 7002 and 7003 families of processors. With up to 64 cores per processor and support for the new PCIe 4.0 standard for I/O, the SR645 offers the ultimate in two-socket server performance in a space saving 1U form factor. For more information, see the SR645 product guide.

- ThinkSystem SR665

  The Lenovo ThinkSystem SR665 is a 2-socket 2U server that features the AMD EPYC 7002 and 7003 families of processors. With up to 64 cores per processor and support for the new PCIe 4.0 standard for I/O, the SR665 offers the ultimate in two-socket server performance in a 2U form factor. For more information, see the SR665 product guide.

The following table lists all the Lenovo ThinkSystem Servers that are supported by Lenovo EveryScale.

Table 1. Lenovo Server Selection

Description	Machine Type-Model	Feature code	Summary
AMD 4th Gen Xeon Scalable Processor Generation			
ThinkSystem SR635 V3	7D9GCTOLWW	BLK4 (10x2.5") BQ7M (4x2.5")	1-socket Mainstream AMD 1U rack server
ThinkSystem SR645 V3	7D9CCTOLWW	BLK4 (10x2.5") BLK3 (4x3.5") BQ7M (4x2.5")	2-socket Mainstream AMD 1U rack server
ThinkSystem SR655 V3	7D9ECTOLWW	BLKJ (12x3.5") BLKK (24x2.5")	1-Socket Mainstream AMD 2U rack server
ThinkSystem SR665 V3	7D9ACTOLWW	BLKJ (12x3.5") BLKK (24x2.5")	2-Socket Mainstream AMD 2U rack server

Description	Machine Type-Model	Feature code	Summary
ThinkSystem SD665 V3	7D9ACTOLWW	BPT6	Tray with 2-Socket AMD direct water cooled server 1U
ThinkSystem SR675 V3	7D9RCTOLWW	BR7E (HGX) BR7G (4DW) BR7F (8DW)	2-Socket GPU-rich AMD 3U rack server
Intel 4th Gen Xeon Scalable Processor Generation			
ThinkSystem SR630 V3	7D73CTOLWW	BLK4 (10x2.5") BLK3 (4x3.5") BQ7M (4x2.5")	2-Socket Mainstream Intel 1U rack server
ThinkSystem SR650 V3	7D76CTOLWW	BLKK (24x2.5") BLKJ (12x3.5")	2-Socket Mainstream Intel 2U rack server
ThinkSystem SD650 V3	7D7MCTOLWW	BKSG	Tray with two 2-Socket Direct Water Cooled 1U Intel server Eagle Stream
ThinkSystem SD650-I V3	7D7LCTOLWW	BKSH	Tray with 2-Socket Direct Water Cooled Accelerated 1U Intel server Eagle Stream and Intel GPU
ThinkSystem SR850 V3	7D96CTOLWW	BT67 (LP PCIe) BT68 (FH PCIe) BT69 (DW GPUs)	4-Socket High-End Intel 2U rack server
Intel 3rd Gen Xeon Scalable Processor Generation			
ThinkSystem SD630 V2	7D1KCTOLWW	BAFQ	2-Socket half-wide 1U dense server
ThinkSystem SD650 V2	7D1MCTO1WW	B94Y (DW612) BQQL (DW612S)	Tray with two 2-Socket Direct Water Cooled 1U Intel server
ThinkSystem SD650-N V2	7D1NCTO1WW	B94Z (DW612) BQQN (DW612S)	Tray with 2-Socket Direct Water Cooled Accelerated 1U Intel server
ThinkSystem SR630 V2	7Z71CTOLWW	B8N6 (LFF) B8N5 (SFF)	2-Socket Mainstream Intel 1U rack server
ThinkSystem SR650 V2	7Z73CTOLWW	BH8G (LFF) BH8H (SFF)	2-Socket Mainstream Intel 2U rack server
ThinkSystem SR670 V2	7Z23CTOLWW	BFCV (SXM model) BFCX (4-DW GPU) BFCW (8-DW GPU)	2-Socket GPU-rich Intel 3U rack server
ThinkSystem SR850 V2	7D32CTOLWW	BCPH	4-Socket High-End Intel 2U rack server
AMD EPYC 7002 / 7003 Processor Generation			
ThinkSystem SR645	7D2XCTOLWW	B8N6 (8/10 SFF) B8N5 (4 LFF)	2-Socket Mainstream AMD 1U rack server
ThinkSystem SR665	7D2VCTOLWW	B8M0 (12 LFF) B8LZ (24 SFF)	2-Socket Mainstream AMD 2U rack server
Watercooled Enclosures			
ThinkSystem DW612S	7D1LCTO2WW	BMCA	6U12N / 6U6N chassis for SD665 V3, SD650 V3, SD650-I V3
ThinkSystem DW612 Enclosure	7D1LCTO1WW	B950	6U12N / 6U6N chassis for SD650 V2 and SD650-N V2
ThinkSystem DA240 Enclosure	7D1JCTOLWW	BAF9	2U4N chassis for SD630 V2

Storage Expansion Units and Arrays

The Lenovo Expansion Units are designed to provide simplicity, speed, scalability, security, and high availability for small to large businesses. For more information on these products, see the product guides.

- Lenovo Storage D1224 Drive Enclosure

  The Lenovo Storage D1224 delivers enterprise-class storage technology in a cost-effective solution with flexible drive configurations and RAID or JBOD (non-RAID) host connectivity. For more information, see the D1224 product guide.

- Lenovo Storage D3284 External High Density Drive Expansion Enclosure

  The Lenovo Storage D3284 High Density Expansion Enclosure delivers enterprise-class storage technology in a cost-effective dense solution with flexible drive configurations of up to 84 drives in 5U and RAID or JBOD (non-RAID) host connectivity or Lenovo ThinkSystem DS Series storage area network (SAN) array expansion. For more information, see the D3284 product guide.

The following table lists all the Lenovo Storage Enclosures that are supported by Lenovo EveryScale.

Table 2. Lenovo Storage Enclosure selection

Description	Machine Type - Model	Feature Code	Summary
Lenovo Storage D1224 Drive Enclosure	4587-LC2	AU15	12Gb SAS 2U Enclosure for up to 24x 2.5-inch SFF SAS drives
Lenovo Storage D3284 External High Density Drive Expansion Enclosure	6413-LC1	AUDV	12G SAS 5U enclosure for up to 84x 3.5-inch LFF NL-SAS drives

In addition to the storage enclosures listed above, Lenovo EveryScale clusters may leverage the ThinkSystem DE Series Storage arrays.

- ThinkSystem DE Series All-Flash Storage Array

  The Lenovo ThinkSystem DE Series All-Flash Storage Arrays are designed to provide performance, simplicity, capacity, security, and high availability for customers. These storage arrays deliver enterprise-class storage management capabilities with a wide choice of host connectivity options, flexible drive configurations, and enhanced data management features. For more information, see the DE Series All-Flash Storage Array datasheet.

- ThinkSystem DE Series Hybrid Storage Array

  The Lenovo ThinkSystem DE Series Hybrid Storage Arrays are designed to provide high performance, simplicity, capacity security, and high availability for customers. These storage arrays deliver enterprise-class storage management capabilities in a performance-optimized system with a wide choice of host connectivity options, flexible drive configurations, and enhanced data management features. For more information, see the DE Series Hybrid Flash Array datasheet.

The following table lists the DE Series Storage arrays for use with Lenovo EveryScale. These arrays are not fully tested within EveryScale and are not part of the Best Recipe but may be used in conjunction with EveryScale deployments.

Table 3. Lenovo ThinkSystem DE Series Storage Array selection

Description	Machine Type Model	Summary
Lenovo ThinkSystem DE4000F All Flash Storage Array	7Y76CTOLWW (2U24 SFF)	2U form factor storage systems supporting up to 192 SSDs
Lenovo ThinkSystem DE2000H Hybrid Storage Array	7Y70CTOLWW (2U12 LFF) 7Y71CTOLWW (2U24 SFF)	2U form factor storage systems supporting up to 96 HDDs/SSDs
Lenovo ThinkSystem DE4000H Hybrid Storage Array	7Y74CTOLWW (2U12 LFF) 7Y75CTOLWW (2U24 SFF) 7Y77CTOLWW (4U60 LFF)	2U/4U form factor storage systems supporting up to 192 HDDs/120 SSDs
Lenovo ThinkSystem DE6600F All Flash NVMe 2U24	7DB7CTO1WW	2U rack form-factor with 24 small form-factor (2.5-inch SFF) NVMe drives and include two controllers, each with 32 GB or 128 GB system memory for a system total of 64 GB or 256 GB.
Lenovo ThinkSystem DE6600H Hybrid NVMe 2U24	7DB7CTO2WW	2U rack form-factor with 24 small form-factor (2.5-inch SFF) NVMe drives and include two controllers, each with 32 GB or 128 GB system memory for a system total of 64 GB or 256 GB.

Rack Cabinets and Options

The Lenovo rack cabinets are industry-standard 19-inch server cabinets that are designed for high availability server environments. They are optimized to help maximize floor space, expedite installation, simplify cable management, and increase accessibility for improved serviceability. Lenovo also offers rack options, including accessories like a front extension to the rack, heat exchangers and console kits and a rear door heat exchanger, which is part of Lenovo Neptune liquid cooling technologies. These options improve thermal performance and simplify rack management.

The following table lists all the rack cabinets and rack options that are supported by Lenovo EveryScale.

Table 4. Rack Cabinets and Options

Description	MTM / PN	Feature Code	Summary
Rack cabinets			
EveryScale Heavy Duty Rack Cabinet - the new rack cabinet for Lenovo EveryScale Solutions	1410-O42	BHC4	Black 42U 1200mm rack
	1410-P42	BJ5W	White 42U 1200mm rack
	1410-O48	BHCH	Black 48U 1200mm rack
	1410-P48	BJ64	White 48U 1200mm rack
Client Site Integration Kit	7X74-CTO1WW	B59Y	Lenovo EveryScale 42U Client Site Integration Kit
		B5PP	Lenovo EveryScale 48U Client Site Integration Kit
PDUs			
1U 12 C19/C13 switched and monitored 80A 3P Delta PDU	1410	BLC4	3 Phase 12 Port PDU
1U 12 C19/C13 switched and monitored 32A 3P WYE PDU	1410	BLC5	3 Phase 12 Port PDU
1U 12 C19/C13 switched and monitored 60A 3P Delta PDU	1410	BLC6	3 Phase 12 Port PDU
1U 18 C19/C13 switched and monitored 48A 3P WYE PDU - UL	1410	BNDV	3 Phase 18 Port PDU
1U 18 C19/C13 Switched and monitored 48A 3P WYE PDU - CE	1410	BNDW	3 Phase 18 Port PDU
Other			
Local 1X8 Console Manager (LCM8)	1754-HC3/A1X	0725	8-port analog KVM switch
Local 2X16 Console Manager (LCM16)	1754-HC4/A2X	0725	16-port analog KVM switch
Global 2X2X16 Console Manager (GCM16)	1754-HC1/D1X	6694	16-port KVM supporting 2 remote users
Global 4X2X16 Console Manager (GCM32)	1754-HC2/D2X	6695	16-port KVM supporting 4 remote users
Rack Lift Tool	7D5Y	None	Genie Lift GL-8 material lift

Other Lenovo ThinkSystem hardware

While Lenovo EveryScale maintains a set of best recipe configurations guaranteeing interoperability, this does not mean that other ThinkSystem hardware is never used. Other Lenovo ThinkSystem hardware system and configurations outside of the defined stack may be compatible with Lenovo EveryScale, though not formally covered by interoperability warranty/support.

For example, the ThinkSystem DM Series Unified Storage Arrays may be part of the optimal hardware choices for a client use case. Because Lenovo EveryScale strives to offer the optimal data center solution to every client, a special bid process is available for incorporating these hardware options. For more information, please check with your Lenovo sales representative.

GPUs

Lenovo EveryScale solutions include GPUs from NVIDIA and AMD. For a summary of GPU features, see the Lenovo ThinkSystem GPU Summary .

Click the links below to read the product briefs:

- NVIDIA Tesla Series
  - NVIDIA H100
  - NVIDIA A100
  - NVIDIA A40
  - NVIDIA L40
  - NVIDIA A30
  - NVIDIA Tesla T4
- AMD Instinct MI Series
  - AMD MI210

The following table lists all the graphics processing units (GPU) acceleration options that are supported by Lenovo EveryScale.

Table 5. GPU adapters

Feature code	Description	SR645	SR665	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SD630 V2	SD650 V2	SD650-N V2	SR630 V3	SR650 V3	SR635 V3	SR655 V3	SR645 V3	SR665 V3	SR675 V3	SR850 V3	SD650 V3	SD650-I V3	SD665 V3	SD665-N V3
NVIDIA GPUs																						
BT87	ThinkSystem NVIDIA L40 48GB PCIe Gen4 Passive GPU	N	3	N	3	8	N	N	N	N	N	3	N	N	N	N	8	2	N	N	N	N
BR9U	ThinkSystem NVIDIA H100 80GB PCIe Gen5 Passive GPU	N	N	N	N	8	N	N	N	N	N	3	N	3	N	3	8	2	N	N	N	N
BXAK	ThinkSystem NVIDIA H100 NVL 94GB PCIe Gen5 Passive GPU	N	N	N	N	8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
BHT3	ThinkSystem NVIDIA HGX A100 80GB 500W 4-GPU Board	N	N	N	N	1	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N
BCSL	ThinkSystem NVIDIA HGX A100 40GB 400W 4-GPU Board	N	N	N	N	1	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N
BQZP	ThinkSystem NVIDIA A100 80GB PCIe Gen4 Passive GPU w/o CEC	N	3	N	3	8	N	N	N	N	N	3	N	3	N	3	8	2	N	N	N	N
BEL5	ThinkSystem NVIDIA A100 40GB PCIe Gen4 Passive GPU	N	3	N	3	8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
BQZQ	ThinkSystem NVIDIA A40 48GB PCIe Gen4 Passive GPU w/o CEC	N	3	N	3	8	N	N	N	N	N	3	N	3	N	3	8	N	N	N	N	N
BJHG	ThinkSystem NVIDIA A30 24GB PCIe Gen4 Passive GPU	N	3	N	3	8	N	N	N	N	N	3	N	3	N	3	8	N	N	N	N	N
BQZR	ThinkSystem NVIDIA A30 24GB PCIe Gen4 Passive GPU w/o CEC	N	3	N	3	8	N	N	N	N	N	3	N	3	N	3	8	N	N	N	N	N
B4YB	ThinkSystem NVIDIA T4 16GB PCIe Passive GPU	3	8	3	8	8	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
AMD GPUs																						
BP04	ThinkSystem AMD Instinct MI210 PCIe Gen4 Passive Accelerator	N	3	N	3	8	N	N	N	N	N	3	N	3	N	3	8	2	N	N	N	N
Supporting options																						
BG3F	ThinkSystem NVIDIA Ampere NVLink 2-Slot Bridge	N	N	N	N	12	N	N	N	N	N	N	N	N	N	N	12	N	N	N	N	N
BRMD	ThinkSystem AMD Instinct MI210 4x Infinity Fabric Link Bridge Card	N	N	N	N	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Ethernet switches

Lenovo partners with NVIDIA Networking (formerly Mellanox) to provide Ethernet switches from the Spectrum Ethernet portfolio for Lenovo EveryScale. The Spectrum Ethernet switches are the most advanced on the market and are optimized for high-performance enterprise-class systems and storage. They offer a fully shared buffer to support fair bandwidth allocation and predictably low latency, as well as traffic flow prioritization and optimization technology. Lenovo EveryScale offers the NVIDIA Networking switches pre-installed with the NVIDIA Cumulus Linux Network Operating System, which provides rich routing and automation functionality for large scale applications.

- 1 Gb Ethernet

  The NVIDIA Spectrum SN2201 switch has two key use cases: a top-of-rack switch, connecting up to 48x 1G/100M/10M Base-T host-ports with non-blocking 100 GbE spine uplinks, or as an out-of-band (OOB) management switch. Featuring highly advanced hardware and software, along with ASIC-level telemetry and a 16MB fully shared buffer, the SN2201 delivers unique and innovative features to 1G switching. See the SN2201 datasheet.

- 10 and 25 Gb Ethernet

  The NVIDIA Networking Spectrum Ethernet portfolio is an ideal top-of-rack solution for HPC, hyperconverged, and storage fabric deployments. Lenovo EveryScale offers two 25GbE switches from this family: the SN2410, with 48x QSFP28 ports running at 25Gb/s and 8x QSFP28 ports running at 100Gb/s, and the half-wide SN2010, with 18x SFP28 ports running at 25Gb/s and 4x QSFP28 ports running at 100Gb/s. The SN2410 is ideal for 25GbE fabrics and larger aggregation scenarios, while the SN2010 is more suited for storage and hyperconverged use cases, as well as small aggregation for HPC deployments. For more information, see the SN2000 series datasheet.

  As data-center switching architectures increasingly adopt 100GbE, the SN3420 offers a high-performance, cost-effective way to evolve host connectivity from 10G to 25G. Equipped with 48 ports of 10/25GbE and 12 ports of up to 100GbE in a compact 1U form factor. The SN3420 is an ideal ToR switch platform, delivering a total throughput of up to 2.4 Tb/s with a processing capacity of 3.58 Bpps. The SN3420 enables the seamless use of QSFP28 connections for leaf-spine topology and future-proofing the data center. For more information, see the SN3420 datasheet.

- 100 Gb Ethernet

  The NVIDIA Networking SN3700C Spectrum-2 Ethernet Switch is a high performance 100 Gigabit Ethernet Layer 3 switch family featuring 32 ports; with 32x QSFP28 ports running at 100Gb/s. The SN3700C also fully supports 4-to-1 breakout cables, enabling 128 ports running at 25Gb/s. The 3700C is ideal for high-performance Ethernet fabrics as well as 100G aggregation scenarios. For more information, see the SN3700 series datasheet.

- 200 Gb Ethernet

  The NVIDIA Networking SN3700V offers 32 ports of 200GbE in a compact 1U form factor. It enables connectivity to endpoints at different speeds and carries a throughput of 12.8Tb/s, with a landmark 8.33Bpps processing capacity. As an ideal spine solution, the SN3700 allows maximum flexibility, with port speeds spanning from 10GbE to 200GbE per port. For more information, see the SN3700 series datasheet.

  The NVIDIA Spectrum-3 SN4600V Ethernet switch offers 64 ports of 200GbE in a 2U form factor doubling the networking capacity over the SN3700. The SN4600V can be used as a high density leaf, fully splittable to up to 128x 10/25/50GbE ports when used with splitter cables. SN4600 allows for maximum flexibility, with ports spanning from 1 to 200GbE and port density that enables full rack connectivity to any server at any speed, and a variety of blocking ratios.

  The NVIDIA ConnectX-6 DX 200GbE QSFP56 1-port PCIe Ethernet Adapter is the industry's most secure and advanced datacenter network interface card to accelerate mission-critical applications, such as security, virtualization, SDN/NFV, big data, machine learning, and storage. Its Advanced Timing and Synchronization capabilities with PTP hardware clock, PTP-based packet pacing, and nanosecond-level accuracy make it the ideal choice for OVX real-time accurate Digital Twin simulation. The ConnectX-6 Dx 1-port 200GbE PCIe Adapter provides a single-port of 200Gb/s Ethernet connectivity.

The following table summarizes all the Lenovo Ethernet Switches that are supported by Lenovo EveryScale.

Table 6. NVIDIA Networking Ethernet Switch Selection

Description	Orientation	MTM	Summary
NVIDIA SN2201 1GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTO0FWW	1U ToR L2/3 1Gbit Switch with 4x QSFP28 ports up to 100 GbE
	Front to Rear (oPSE)	7D5FCTO0GWW	
Mellanox SN2010 25GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTO3WW	1U "half-wide" 25Gbit Switch with 18x 25Gbit QSFP28 and 4x 100Gbit QSFP28 ports
	Front to Rear (oPSE)	7D5FCTO4WW	
Mellanox SN2410 25GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTO7WW	1U 25Gbit Switch with 48x 25Gbit QSFP28 and 8 100Gbit QSFP28 ports
	Front to Rear (oPSE)	7D5FCTO8WW	
NVIDIA SN3420 25GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTOKWW	1U 25Gbit Switch with 48x SFP28 25GbE + 12x QSFP28 100GbE
	Front to Rear (oPSE)	7D5FCTOLWW	
Mellanox SN3700C 100GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTO9WW	1U 100Gbit Switch with 32x 100Gbit QSFP28 ports
	Front to Rear (oPSE)	7D5FCTOAWW	
Mellanox SN3700V 200GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTOBWW	1U 200Gbit Switch with 32x 200Gbit QSFP56 ports
	Front to Rear (oPSE)	7D5FCTOCWW	
NVIDIA SN4600V 200GbE Managed Switch with Cumulus	Rear to Front (PSE)	7D5FCTOHWW	2U 200Gbit Switch with 64x 200Gbit QSFP56 ports
	Front to Rear (oPSE)	7D5FCTOJWW	

The InfiniBand and Ethernet Adapters table summarizes all the Lenovo high-performance Ethernet adapters that are supported by Lenovo EveryScale.

Ethernet cabling

The following cable types can be purchased, with the lists of cables given in the tables below:

- Cables for 10 GbE and 1 GbE RJ-45 adapters
- Cables for 10 GbE SFP+ adapters
- Cables for 25 GbE SFP28 adapters
- Cables for 100 GbE QSFP28 networks
- Cables for 200GbE QSFP56 networks
- Transceivers
- Cables for network transceivers

For 200 GbE cables, Lenovo EveryScale also leverages the HDR InfiniBand cables found in the InfiniBand section below.

> **Note**: Generally, Mellanox InfiniBand cables and transceivers work in NVIDIA end-to-end Ethernet systems, however, NVIDIA Ethernet cables and transceivers do NOT work in InfiniBand systems.

The following table lists cables for the 10 GbE and 1 GbE RJ-45 adapters.

Table 7. Cables for 10 GbE and 1 GbE RJ-45 ports

Description	Part number	Feature code
UTP Category 5e cables (Blue) for 1 GbE RJ-45 ports		
0.6m Blue Cat5e Cable	40K5679	3801
0.75m Blue Cat5e Cable	00WE111	AVFT
1.0m Blue Cat5e Cable	00WE114	AVFU
1.25m Blue Cat5e Cable	00WE119	AVFV
1.5m Blue Cat5e Cable	40K8785	3802
3m Blue Cat5e Cable	40K5581	3803
10m Blue Cat5e Cable	40K8927	3804
25m Blue Cat5e Cable	40K8930	3805
UTP Category 5e cables (Green) for 1 GbE RJ-45 ports		
0.6m Green Cat5e Cable	40K5563	3796
0.75m Green Cat5e Cable	00WE099	AVFQ
1.0m Green Cat5e Cable	00WE103	AVFR
1.25m Green Cat5e Cable	00WE107	AVFS
1.5m Green Cat5e Cable	40K5643	3797
3m Green Cat5e Cable	40K5793	3798
10m Green Cat5e Cable	40K5794	3799
25m Green Cat5e Cable	40K8869	3800
UTP Category 5e cables (Yellow) for 1 GbE RJ-45 ports		
0.6m Yellow Cat5e Cable	40K8933	3791
1.5m Yellow Cat5e Cable	40K8951	3792
3m Yellow Cat5e Cable	40K8957	3793
10m Yellow Cat5e Cable	40K8801	3794
25m Yellow Cat5e Cable	40K8807	3795

The following table lists cables for 10 GbE SFP+ port connection.

Table 8. Cables for 10 GbE SFP+ ports

Description	Part number	Feature code
SFP+ passive direct-attach cables - 10 GbE		
Lenovo 0.5m Passive SFP+ DAC Cable	00D6288	A3RG
Lenovo 1m Passive SFP+ DAC Cable	90Y9427	A1PH
Lenovo 1.5m Passive SFP+ DAC Cable	00AY764	A51N
Lenovo 2m Passive SFP+ DAC Cable	00AY765	A51P
Lenovo 3m Passive SFP+ DAC Cable	90Y9430	A1PJ
Lenovo 5m Passive SFP+ DAC Cable	90Y9433	A1PK
Lenovo 7m Passive SFP+ DAC Cable	00D6151	A3RH
SFP+ active direct-attach cables - 10 GbE		
Lenovo 1m Active DAC SFP+ Cable	00VX111	AT2R
Lenovo 3m Active DAC SFP+ Cable	00VX114	AT2S
Lenovo 5m Active DAC SFP+ Cable	00VX117	AT2T
SFP+ active optical cables - 10 GbE		
Lenovo 1m SFP+ to SFP+ Active Optical Cable	00YL634	ATYX
Lenovo 3m SFP+ to SFP+ Active Optical Cable	00YL637	ATYY
Lenovo 5m SFP+ to SFP+ Active Optical Cable	00YL640	ATYZ
Lenovo 7m SFP+ to SFP+ Active Optical Cable	00YL643	ATZ0
Lenovo 15m SFP+ to SFP+ Active Optical Cable	00YL646	ATZ1
Lenovo 20m SFP+ to SFP+ Active Optical Cable	00YL649	ATZ2

The following table lists cables for 25 GbE SFP28 port connection.

Table 9. Cables for 25 GbE SFP28 ports

Description	Part number	Feature code
SFP28 passive direct-attach copper cables - 25 GbE		
Lenovo 1m Passive 25G SFP28 DAC Cable	7Z57A03557	AV1W
Lenovo 3m Passive 25G SFP28 DAC Cable	7Z57A03558	AV1X
Lenovo 5m Passive 25G SFP28 DAC Cable	7Z57A03559	AV1Y
SFP28 active optical cables - 25 GbE		
Lenovo 3m 25G SFP28 Active Optical Cable	7Z57A03541	AV1F
Lenovo 10m 25G SFP28 Active Optical Cable	7Z57A03543	AV1H

The following table lists cables for 100 GbE QSFP28 port connection.

Table 10. Cables for 100 GbE QSFP28 ports

Description	Part number	Feature code
QSFP28 passive direct-attach copper cables - 100 GbE		
Lenovo 1m Passive 100G QSFP28 DAC Cable	7Z57A03561	AV1Z
Lenovo 3m Passive 100G QSFP28 DAC Cable	7Z57A03562	AV20
Lenovo 5m Passive 100G QSFP28 DAC Cable	7Z57A03563	AV21
QSFP28 active optical cables - 100 GbE		
Lenovo 1m 100G QSFP28 Active Optical Cable	4Z57A10844	B2UZ
Lenovo 3m 100G QSFP28 Active Optical Cable	7Z57A03546	AV1L
Lenovo 5m 100G QSFP28 Active Optical Cable	7Z57A03547	AV1M
Lenovo 10m 100G QSFP28 Active Optical Cable	7Z57A03548	AV1N
Lenovo 15m 100G QSFP28 Active Optical Cable	7Z57A03549	AV1P
Lenovo 20m 100G QSFP28 Active Optical Cable	7Z57A03550	AV1Q
QSFP28 direct attach copper breakout cables - 100 GbE to 4x 25 GbE		
Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03564	AV22
Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03565	AV23
Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable	7Z57A03566	AV24
QSFP28 active optical breakout cables - 100 GbE to 4x 25 GbE		
Lenovo 3m 100G to 4x25G Breakout Active Optical Cable	7Z57A03551	AV1R
Lenovo 5m 100G to 4x25G Breakout Active Optical Cable	7Z57A03552	AV1S
Lenovo 15m 100G to 4x25G Breakout Active Optical Cable	7Z57A03554	AV1U
Lenovo 20m 100G to 4x25G Breakout Active Optical Cable	7Z57A03555	AV1V

The following table lists cables for 200 GbE QSFP56 port connection.

HDR Cables can be used for 200 GbE: See the list of passive direct-attach copper cables in the InfiniBand cables table.

Table 11. Cables for 200 GbE QSFP56 ports

Description	Part number	Feature code
QSFP56 passive direct-attach copper cables - 200 GbE		
Lenovo 1m Passive 200G QSFP56 Ethernet DAC Cable	4X97A11113	BF6W
Lenovo 3m Passive 200G QSFP56 Ethernet DAC Cable	4X97A12613	BF92

The following table lists support transceivers.

Table 12. Network transceivers

Description	Part number	Feature code
Transceivers		
SFP 1000Base-T (RJ-45) Transceiver	00FE333	A5DL
Lenovo Dual Rate 1G/10GB SFP Transceiver for MMF	00MY034	ATTJ
Brocade 10Gb SFP+ SR Optical Transceiver	49Y4216	0069
QLogic 10Gb SFP+ SR Optical Transceiver	49Y4218	0064
ThinkSystem Accelink 10G SR SFP+ Ethernet transceiver	4TC7A78615	BNDR
SFP+ SR Transceiver (10Gb)	46C3447	5053
10GBASE-LR SFP+Transceiver	00FE331	B0RJ
Lenovo Dual Rate 10G/25G SFP28 85C Transceiver	4TC7A69045	BF10
Lenovo Dual Rate 10G/25G SR SFP28 Transceiver	7G17A03537	AV1B
Lenovo 25Gb SR SFP28 Ethernet Transceiver	4M27A67041	BFH2
Lenovo 100GBase-SR4 QSFP28 Transceiver	7G17A03539	AV1D
Lenovo 100Gb SR4 QSFP28 Ethernet Transceiver	4M27A67042	BFH1
Mellanox 100GBase-LR4 QSFP28 transceiver (LC-LC, 1310nm, upto 10km)	7G17A03540	AV1E

The following table lists cables for 10 GbE SR SFP+, 25Gbit SR SFP28, 40Gb SR QSFP+ and 100Gb SR QSFP28 transceiver connections.

Table 13. Cables for network transceiver ports

Description	Part number	Feature code
OM3 optical cables for 10 GbE SR SFP+ and 25 GbE SR SFP28 transceivers		
Lenovo 0.5m LC-LC OM3 MMF Cable	00MN499	ASR5
Lenovo 1m LC-LC OM3 MMF Cable	00MN502	ASR6
Lenovo 3m LC-LC OM3 MMF Cable	00MN505	ASR7
Lenovo 5m LC-LC OM3 MMF Cable	00MN508	ASR8
Lenovo 10m LC-LC OM3 MMF Cable	00MN511	ASR9
Lenovo 15m LC-LC OM3 MMF Cable	00MN514	ASRA
Lenovo 25m LC-LC OM3 MMF Cable	00MN517	ASRB
Lenovo 30m LC-LC OM3 MMF Cable	00MN520	ASRC
OM3 Optical breakout cables for 100 GbE QSFP28 SR4 transceivers		
Lenovo 1m MPO-4xLC Breakout OM3 MMF Cable	00FM412	A5UA
Lenovo 3m MPO-4xLC Breakout OM3 MMF Cable	00FM413	A5UB
Lenovo 5m MPO-4xLC Breakout OM3 MMF Cable	00FM414	A5UC
OM4 optical cables for 10 GbE SR SFP+ and 25 GbE SR SFP28 transceivers		
Lenovo 0.5m LC-LC OM4 MMF Cable	4Z57A10845	B2P9
Lenovo 1m LC-LC OM4 MMF Cable	4Z57A10846	B2PA
Lenovo 3m LC-LC OM4 MMF Cable	4Z57A10847	B2PB
Lenovo 5m LC-LC OM4 MMF Cable	4Z57A10848	B2PC
Lenovo 10m LC-LC OM4 MMF Cable	4Z57A10849	B2PD
Lenovo 15m LC-LC OM4 MMF Cable	4Z57A10850	B2PE
Lenovo 25m LC-LC OM4 MMF Cable	4Z57A10851	B2PF
Lenovo 30m LC-LC OM4 MMF Cable	4Z57A10852	B2PG
OM4 Optical cables for 100 GbE QSFP28 SR4 transceivers		
Lenovo 5m MPO-MPO OM4 MMF Cable	7Z57A03567	AV25
Lenovo 7m MPO-MPO OM4 MMF Cable	7Z57A03568	AV26
Lenovo 10m MPO-MPO OM4 MMF Cable	7Z57A03569	AV27
Lenovo 15m MPO-MPO OM4 MMF Cable	7Z57A03570	AV28
Lenovo 20m MPO-MPO OM4 MMF Cable	7Z57A03571	AV29
Lenovo 30m MPO-MPO OM4 MMF Cable	7Z57A03572	AV2A
OM4 Optical breakout cables for 100 GbE QSFP28 SR4 transceivers		
Lenovo 1m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03573	AV2B
Lenovo 3m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03574	AV2C
Lenovo 5m MPO-4xLC Breakout OM4 MMF Cable	7Z57A03575	AV2D

InfiniBand interconnects

- NVIDIA Networking QM9700 Series

  The NVIDIA Quantum-2-based QM9700 and QM9790 switch systems deliver an unprecedented 64 ports of NDR 400Gb/s InfiniBand per port in a 1U standard chassis design. Supporting the latest NDR technology, NVIDIA Quantum-2 brings a high-speed, extremely low-latency and scalable solution. As an ideal rack-mounted InfiniBand solution, the QM9700 and QM9790 NDR InfiniBand fixed-configuration switches allow maximum flexibility, as they enable a variety of topologies. They're also backwards compatible to previous generations and include expansive software ecosystem support.

  Today's complex research demands ultra-fast processing of high-resolution simulations, extreme-size datasets, and complex, highly parallelized algorithms that need to exchange information in real time. The QM9700 NDR InfiniBand switches extend NVIDIA In-Network Computing technologies and introduce the third generation of NVIDIA SHARP technology, SHARPv3. Creating virtually unlimited scalability for large data aggregation through the data center network, participating in the application's runtime and reducing the amount of data needed to traverse the network.

  By implementing NVIDIA port-split technology, the QM9700 and QM9790 switches provide a double-density radix for 200Gb/s (NDR200) data speeds, reducing the cost of network design and network topologies. Supporting up to 128 ports of 200Gb/s, NVIDIA delivers the densest top-of-rack (TOR) switch available on the market. The QM9700 family of switches enables small to medium-sized deployments to scale with a two-level Fat Tree topology while reducing power, latency, and space requirements. For more information, see the product briefs below:

  - NVIDIA Quantum-2 QM9700 Series Data Sheet

- Mellanox QM8700 Series

  Built with NVIDIA Networking's Quantum InfiniBand switch device, the QM8700 series provides up to 200Gb/s full bi-directional bandwidth per port. QM8700 is the world's smartest network switch, designed to enable in-network computing through the Co-Design Scalable Hierarchical Aggregation Protocol (SHARP) technology. The Co-Design architecture enables the usage of all active data center devices to accelerate the communications frameworks using embedded hardware, result in order of magnitude applications performance improvements. For more information, see the product briefs below:

  - Mellanox QM8700 – 40-port Non-blocking Managed HDR 200Gb InfiniBand Smart Switch
  - Mellanox QM8790 – 40-port Non-blocking Externally-managed HDR 200Gb InfiniBand Smart Switch

- InfiniBand Adapters

  Data centers, high scale storage systems and cloud computing require I/O services such as bandwidth, consolidation and unification, and flexibility. NVIDIA Networking InfiniBand adapters provide advanced levels of data center IT performance, efficiency and scalability. In addition, NVIDIA Networking's InfiniBand adapters support traffic consolidation and provides hardware acceleration for server virtualization as well as functioning as both InfiniBand and Ethernet adapters. For more information, see the product briefs below:

  - Mellanox ConnectX-6 HDR InfiniBand Adapter
  - NVIDIA Networking ConnectX-7 NDR Infiniband Adapter

The following table lists all the InfiniBand switches that are supported by Lenovo EveryScale.

Table 14. InfiniBand switches

Description	Orientation	Part Number	Machine Type - Model	Feature Code	Summary
InfiniBand Switches					
NVIDIA QM9700 NDR InfiniBand Switch	PSE	None	0724-HEC	BP63	1U 64 Port Managed 400Gb/s Quantum-2 InfiniBand Switch
	oPSE	None	0724-HEB	BP62	
NVIDIA QM9790 NDR InfiniBand Switch	PSE	None	0724-HEE	BP65	1U 64 Port Unmanaged 400Gb/s Quantum-2 InfiniBand Switch
	oPSE	None	0724-HED	BP64	
Mellanox QM8700 HDR InfiniBand Switch	PSE	None	0724-HD7	B4RH	1U 40 Port Managed 200Gb/s Quantum InfiniBand Switch
	oPSE	None	0724-HD8	B4RJ	
Mellanox QM8790 HDR InfiniBand Switch	PSE	None	0724-HD9	B4RK	1U 40 Port Unmanaged 200Gb/s Quantum InfiniBand Switch
	oPSE	None	0724-HEA	B4RL	
InfiniBand Switch Options					
NVIDIA QM97xx Enterprise RMK w/Air Duct	PSE	4XF7A81998	None	BRET	Mounting kit with Air Duct for 1U NDR InfiniBand switches
NVIDIA QM97xx Enterprise Rack Mount Kit	oPSE	4XF7A83342	None	BP66	Mounting kit for 1U NDR InfiniBand switches
Mellanox QM87xx RMK w/ Air Duct	PSE	4M27A16331	None	B5RV	Mounting kit with air duct for 1U HDR InfiniBand Switches
Mellanox QM87xx RMK for Recessed Mounting	oPSE	4M27A16332	None	B5RW	Recessed Mounting kit for 1U HDR InfiniBand Switches

InfiniBand and Ethernet adapters

The following table lists all InfiniBand and Ethernet adapters that are supported by Lenovo EveryScale.

Table 15. InfiniBand and Ethernet adapters

Feature code	Description	SR645	SR665	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SD630 V2	SD650 V2	SD650-N V2	SR630 V3	SR650 V3	SR635 V3	SR655 V3	SR645 V3	SR665 V3	SR675 V3	SR850 V3	SD650 V3	SD650-I V3	SD665 V3	SD665-N V3
NDR Adapters																						
BQ1N	ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
BQBN	ThinkSystem NVIDIA ConnectX-7 NDR200/HDR QSFP112 2-Port PCIe Gen5 x16 InfiniBand Adapter	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	Y	N	N	N	N	N
BNDQ	ThinkSystem NVIDIA PCIe Gen4 x16 Passive Aux Kit	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
HDR Adapters																						
B4R9	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 1-port PCIe VPI Adapter	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
B4RA	ThinkSystem Mellanox ConnectX-6 HDR100/100GbE QSFP56 2-port PCIe VPI Adapter	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
B4RC	ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-port PCIe 4 VPI Adapter	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
B952	ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-Port PCIe 4 VPI Adapter DWC	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N
B951	ThinkSystem Mellanox ConnectX-6 HDR/200GbE QSFP56 1-Port PCIe 4 VPI Adapter (SharedIO) DWC	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
B4RB	ThinkSystem Mellanox HDR/200GbE 2x PCIe Aux Kit	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	N	N	N
Ethernet-only Adapters																						
BQX9	ThinkSystem NVIDIA ConnectX-6 DX 200GbE QSFP56 1-Port PCIe Ethernet Adapter	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Data Processing Units (DPUs)																						
BVBG	ThinkSystem NVIDIA BlueField-3 VPI QSFP112 2P 200G PCIe Gen5 x16	N	N	N	Y	Y	N	N	N	N	N	N	N	N	Y	N	Y	Y	N	N	N	N

The following table lists all the InfiniBand cables and transceivers that are supported by Lenovo EveryScale.

Table 16. InfiniBand cables and transceivers

Description	Part number	Feature code
NDRx2 Switch to Switch Copper Cables		
Lenovo 0.5M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	4X97A81744	BQJF
Lenovo 1M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	4X97A82957	BQJG

Description	Part number	Feature code
Lenovo 1.5M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	4X97A82958	BQJH
Lenovo 2M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Passive Copper Cable	4X97A82959	BQJJ
Lenovo 3M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Active Copper Cable	4X97A81747	BQJK
Lenovo 5M NVIDIA NDRx2 OSFP800 to NDRx2 OSFP800 Active Copper Cable	4X97A82960	BQJL
NDR Optical Multi Mode Cables		
Lenovo 3M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A81748	BQJN
Lenovo 5M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A81749	BQJP
Lenovo 7M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A81750	BQJQ
Lenovo 10M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A81751	BQJR
Lenovo 20M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A81752	BQJS
Lenovo 30M NVIDIA NDR Multi Mode MPO12 APC Optical Cable	4X97A85349	BSN6
NDRx2 Switch to 2x NDR OSFP Adapter Copper Splitter Cables		
Lenovo 1M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	4X97A81827	BQJV
Lenovo 1.5M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	4X97A81828	BQJW
Lenovo 2M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	4X97A81829	BQJX
Lenovo 3M NVIDIA NDRx2 OSFP800 to 2x NDR OSFP400 Passive Copper Splitter Cable	4X97A81830	BQJY
NDRx2 Switch to 4x NDR200 QSFP112 Adapter Copper Splitter Cables		
Lenovo 1M NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	4X97A81832	BQK0
Lenovo 1.5M NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	4X97A81833	BQK1
Lenovo 2M NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	4X97A81834	BQK2
Lenovo 3M NVIDIA NDRx2 OSFP800 to 4x NDR200 QSFP112 Passive Copper Splitter Cable	4X97A81835	BQK3
NDR to 2x NDR200 Optical Multi Mode Cables		
Lenovo 3M NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	4X97A81836	BQK4
Lenovo 5M NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	4X97A81837	BQK5
Lenovo 7M NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	4X97A81838	BQK6
Lenovo 10M NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	4X97A81839	BQK7
Lenovo 20M NVIDIA NDR to 2x NDR200 Multi Mode MPO12 APC Optical Cable	4X97A81840	BQK8
NDRx2 Switch to 2x HDR QSFP56 Switch/Adapter Splitter Cables		
Lenovo 1M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	4X97A81841	BQK9
Lenovo 1.5M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	4X97A81842	BQKA
Lenovo 2M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Passive Copper Splitter Cable	4X97A81843	BQKB

Description	Part number	Feature code
Lenovo 5M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	4X97A81844	BQKC
Lenovo 10M NVIDIA NDRx2 OSFP800 to 2x HDR QSFP56 Active Optical Splitter Cable	4X97A81845	BQKD
NDRx2 Switch to 4x HDR100 QSFP56 Adapter Splitter Cables		
Lenovo 1M NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	4X97A81846	BQKE
Lenovo 1.5M NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	4X97A81847	BQKF
Lenovo 2M NVIDIA NDRx2 OSFP800 to 4x HDR100 QSFP56 Passive Copper Splitter Cable	4X97A81848	BQKG
NDR Transceivers		
ThinkSystem NDRx2 OSFP800 IB Multi Mode Twin-Transceiver	4TC7A81740	BQJD
ThinkSystem NDRx2 OSFP800 IB Multi Mode Twin-Transceiver Flat Top	4TC7A83365	BQMJ
ThinkSystem NDR OSFP400 IB Multi Mode Solo-Transceiver	4TC7A81826	BQJT
ThinkSystem NDR/NDR200 QSFP112 IB Multi Mode Solo-Transceiver	4TC7A81831	BQJZ
QSFP56 HDR InfiniBand Passive Copper Cables		
0.5m Mellanox HDR IB Passive Copper QSFP56 Cable	4Z57A14182	B4QQ
1m Mellanox HDR IB Passive Copper QSFP56 Cable	4Z57A14183	B4QR
1.5m Mellanox HDR IB Passive Copper QSFP56 Cable	4Z57A14184	B4QS
2m Mellanox HDR IB Passive Copper QSFP56 Cable	4Z57A14185	B4QT
QSFP56 HDR to 2x HDR100 InfiniBand Passive Copper Splitter Cables		
1m Mellanox HDR IB Passive Copper Splitter QSFP56 Cable	4Z57A14193	B4R1
1.5m Mellanox HDR IB Passive Copper Splitter QSFP56 Cable	4Z57A14194	B4R2
2m Mellanox HDR IB Passive Copper Splitter QSFP56 Cable	4Z57A11477	B68L
QSFP56 HDR InfiniBand Active Optical Cables		
3m Mellanox HDR IB Active Optical QSFP56 Cable	4Z57A14188	B4QW
5m Mellanox HDR IB Active Optical QSFP56 Cable	4Z57A14189	B4QX
10m Mellanox HDR IB Active Optical QSFP56 Cable	4Z57A14190	B4QY
15m Mellanox HDR IB Active Optical QSFP56 Cable	4Z57A14191	B4QZ
20m Mellanox HDR IB Active Optical QSFP56 Cable	4Z57A14192	B4R0
QSFP56 HDR to 2x HDR100 InfiniBand Active Optical Splitter Cables		
3m Mellanox HDR IB Active Optical Splitter QSFP56 Cable	4Z57A14196	B4R4
5m Mellanox HDR IB Active Optical Splitter QSFP56 Cable	4Z57A14197	B4R5
10m Mellanox HDR IB Active Optical Splitter QSFP56 Cable	4Z57A14198	B4R6
15m Mellanox HDR IB Active Optical Splitter QSFP56 Cable	4Z57A14199	B4R7
20m Mellanox HDR IB Active Optical Splitter QSFP56 Cable	4Z57A14214	B4R8

Omni-Path interconnects

Cornelis Networks: Intel has spun off the Omni-Path business to Cornelis Networks, an independent Intel Capital portfolio company. Cornelis Networks will continue to serve and sell to existing and new customers by delivering leading purpose-built high-performance network products for high performance computing and artificial intelligence.

- Cornelis Omni-Path Express Edge Switch

  Cornelis Omni-Path Express Edge Switches deliver 100Gb port bandwidth with low latency at scale. They cost-effectively deliver high bandwidth and use advanced technologies to meet the key challenges to application performance, maximizing message rate while minimizing average and tail latency. For more information, see the product brief:

    - Cornelis 48-Port Omni-Path Express Edge Switch
- OPA Adapters

  Omni-Path Express adapters cost-effectively deliver high bandwidth and use advanced technologies to meet the key challenges to application performance, maximizing cluster scalability and message rate while minimizing average and tail latency. For more information, see the product brief:

    - Cornelis Omni-Path Express Accelerated Host Fabric Adapter

The following table lists all the Omni-Path switches that are supported by Lenovo EveryScale.

Table 17. OPA switches

Description	Orientation	Part Number	Machine Type - Model	Feature Code	Summary
OPA Switches					
Intel OPA 100 Series 48-port Unmanaged Edge Switch	PSE	None	0449-HCR	AU08	1U 48 Port Unmanaged 100Gb/s OPA Switch
	oPSE	None	0449-HCS	AU09	
OPA Switch Options					
Intel OPA 100 Series Edge Switch Management Card	Not applicable	00WE075	None	AU0C	Management Card for 1U 48P OPA Switch
Intel 1U Switch Air Duct Kit for Enterprise Racks	Not applicable	00WE079	None	AU0D	Air duct for recessed 1U 48P OPA Switch

The following table lists all Omni-Path adapters that are supported by Lenovo EveryScale.

Table 18. OPA adapters

Description	Part Number	Feature Code	SD630 V2	SD650 V2	SD650-N V2	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR635	SR645	SR655	SR665
Intel OPA 100 Series Single-port PCIe 3.0 x16 HFA	00WE027	AU0B	1	1	2	3	6	4	N	N	N	N	N

The following table lists all the Omni-Path cables that are supported by Lenovo EveryScale.

Table 19. OPA cables

Description	Part number	Feature code
QSFP28 OPA Passive Copper Cables		
0.5m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE031	AU0E
1m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE039	AU0G
1.5m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE047	AU0J
2m Intel OPA 100 Series Passive Copper QSFP28 Cable	00WE051	AU0K
QSFP28 OPA Active Optical Low Power Cables		
5m Intel OPA 100 Series Active Optical QSFP28 Low Power Cable	4X97A11034	B22J
10m Intel OPA 100 Series Active Optical QSFP28 Low Power Cable	4X97A11035	B22K
15m Intel OPA 100 Series Active Optical QSFP28 Low Power Cable	4X97A11036	B22L
20m Intel OPA 100 Series Active Optical QSFP28 Low Power Cable	4X97A11037	B22M

Software components

Lenovo EveryScale best recipe supports the following software components. The licenses are usually packaged with 3 years subscription and/or support, with the option to extend the license coverage to 5 years. For additional years or renewal of existing licenses bought through Lenovo, please contact your Lenovo Services sales representative.

- Operating systems
- Orchestration and management
- Programming environment
- Storage Software / File Systems

Operating systems

The following operating systems software is available with Lenovo EveryScale:

- **SUSE Linux Enterprise Server** (Best Recipe interoperability)

  SUSE Linux Enterprise Server (SLES) is a world-class, secure open source server operating system, built to power physical, virtual and cloud-based mission-critical workloads. The operating system further raises the bar in helping organizations to accelerate innovation, enhance system reliability, meet tough security requirements and adapt to new technologies. For more information, see the SLES Product Features web page.

- **Red Hat Enterprise Linux Server** (Best Recipe interoperability)

  Red Hat Enterprise Linux Server (RHEL) is the world's leading enterprise Linux platform. Red Hat Enterprise Linux Server orchestrates the hardware resources that fulfill the infrastructure's basic computing requirements such as CPU, memory, networking, and storage. For more information, see the RHEL product page.

  Current EveryScale support: RHEL 9.0
  4Q23 EveryScale planned support: RHEL 9.2

- **Rocky Linux** (Best Recipe interoperability)
  On December 8, 2020, Red Hat announced that they would discontinue development of CentOS, which was a production-ready downstream version of Red Hat Enterprise Linux, in favor of a newer upstream development variant of that operating system known as "CentOS Stream". In response, original founder of CentOS, Gregory Kurtzer, announced via a comment on the CentOS website that he would again start a project to achieve the original goals of CentOS. It's name was chosen as a tribute to early CentOS co-founder Rocky McGaugh. Rocky Linux is an open-source enterprise operating system designed to be 100% bug-for-bug compatible with Red Hat Enterprise Linux®. For More information: Rocky Linux

  Current EveryScale support: Rocky Linux 9.0
  4Q23 EveryScale planned support: Rocky Linux 9.2

The following table lists the HPC versions of all the commercial operating systems that are supported by Lenovo EveryScale. Other versions are supported as well, but would exceed the limits of documentation here.

Table 20. Commercial Operating Systems

Description	Part number	Feature code
SUSE Linux Enterprise Server (SLES) – Single Server and HPC only listed, others available		
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 1 Year	7S0G003JWW	S6RN
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 3 Year	7S0G003KWW	S6RP
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 5 Year	7S0G003LWW	S6RQ
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 1 Year	7S0G003FWW	S6RK
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 3 Year	7S0G003GWW	S6RL
SUSE Linux Enterprise Server, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 5 Year	7S0G003HWW	S6RM
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 1 Year	7S0G004KWW	S6SP
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 3 Year	7S0G004LWW	S6SQ
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Standard Support 5 Year	7S0G004MWW	S6SR
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 1 Year	7S0G004GWW	S6SL
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 3 Year	7S0G004HWW	S6SM
SUSE Linux Enterprise High Performance Computing, 1-2 Sockets or 1-2 Virtual Machines, Lenovo Priority Support 5 Year	7S0G004JWW	S6SN
High Performance Computing Long Term Service Pack Support, 1-2 Sockets with Inherited Virtualization per Code Stream, Inherited Subscription, 1 Year	7S0G003WWW	S6S0
Red Hat Enterprise Linux (RHEL) – Single Server and HPC only listed, others available		
RHEL Server Physical or Virtual Node, 2 Skt Std Sub w/ Lenovo Sup 1Yr	7S0F0001WW	S0N5
RHEL Server Physical or Virtual Node, 2 Skt Std Sub w/ Lenovo Sup 3Yr	7S0F0002WW	S0N6
RHEL Server Physical or Virtual Node, 2 Skt Std Sub w/ Lenovo Sup 5Yr	7S0F0003WW	S0N7

Description	Part number	Feature code
RHEL Server Physical or Virtual Node, 2 Skt Prem Sub w/ Lenovo Sup 1Yr	7S0F0004WW	S0N8
RHEL Server Physical or Virtual Node, 2 Skt Prem Sub w/ Lenovo Sup 3Yr	7S0F0005WW	S0N9
RHEL Server Physical or Virtual Node, 2 Skt Prem Sub w/ Lenovo Sup 5Yr	7S0F0006WW	S0NA
RHEL for HPC Head Node Sub w/ Lenovo Std Sup 1Yr	7S0F002AWW	S4ML
RHEL for HPC Head Node Sub w/ Lenovo Std Sup 3Yr	7S0F002BWW	S4MM
RHEL for HPC Head Node Sub w/ Lenovo Std Sup 5Yr	7S0F002CWW	S4MN
RHEL for HPC Head Node Sub w/ Lenovo Prem Sup 1Yr	7S0F0027WW	S4MH
RHEL for HPC Head Node Sub w/ Lenovo Prem Sup 3Yr	7S0F0028WW	S4MJ
RHEL for HPC Head Node Sub w/ Lenovo Prem Sup 5Yr	7S0F0029WW	S4MK
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Std Sup 1Yr	7S0F000RWW	S0NV
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Std Sup 3Yr	7S0F000SWW	S0NW
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Std Sup 5Yr	7S0F000TWW	S0NX
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Prem Sup 1Yr	7S0F000UWW	S0NY
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Prem Sup 3Yr	7S0F000VWW	S0NZ
RHEL for HPC Head Node w/ Smart Mgmt Sub w/ Lenovo Prem Sup 5Yr	7S0F000WWW	S0P0
RHEL for HPC Compute Node Sub w/ RedHat L3 only Sup 1Yr	7S0F002DWW	S4MP
RHEL for HPC Compute Node Sub w/ RedHat L3 only Sup 3Yr	7S0F002EWW	S4MQ
RHEL for HPC Compute Node Sub w/ RedHat L3 only Sup 5Yr	7S0F002FWW	S4MR

Orchestration and management

The following orchestration software is available with Lenovo EveryScale:

- **Confluent** (Best Recipe interoperability)

  Confluent is Lenovo-developed open source software designed to discover, provision, and manage HPC clusters and the nodes that comprise them. Confluent provides powerful tooling to deploy and update software and firmware to multiple nodes simultaneously, with simple and readable modern software syntax. Additionally, Confluent's performance scales seamlessly from small workstation clusters to thousand-plus node supercomputers. For more information, see the Confluent documentation.

  Note: Confluent is the validated cluster management software for Lenovo EveryScale solutions and optimized for Lenovo EveryScale cluster environments beyond what Lenovo OneCLI as the standalone system management software can provide. We strongly recommend customers leverage Confluent for all Lenovo EveryScale system management.

- **Lenovo Intelligent Computing Orchestration** (Best Recipe interoperability)

  Lenovo Intelligent Computing Orchestration (LiCO) is a Lenovo-developed software solution that simplifies the management and use of distributed clusters for High Performance Computing (HPC) and Artificial Intelligence (AI) environments. LiCO provides a consolidated Graphical User Interface (GUI) for monitoring and usage of Lenovo EveryScale cluster resources, allowing you to easily run both HPC and AI workloads across a choice of Lenovo infrastructure, including both CPU and GPU solutions to suit varying application requirements. For more information, see the LiCO product guide.

- **NVIDIA Unified Fabric Manager (UFM)** (ISV supported)

  NVIDIA Unified Fabric Manager (UFM) is InfiniBand networking management software that combines enhanced, real-time network telemetry with fabric visibility and control to support scale-out InfiniBand data centers. For more information, see the NVIDIA UFM product page.

  The two offerings available from Lenovo are as follows:

- **UFM Telemetry** for Real-Time Monitoring

    The UFM Telemetry platform provides network validation tools to monitor network performance and conditions, capturing and streaming rich real-time network telemetry information, application workload usage, and system configuration to an on-premises or cloud-based database for further analysis.

- **UFM Enterprise** for Fabric Visibility and Control

    The UFM Enterprise platform combines the benefits of UFM Telemetry with enhanced network monitoring and management. It performs automated network discovery and provisioning, traffic monitoring, and congestion discovery. It also enables job schedule provisioning and integrates with industry-leading job schedulers and cloud and cluster managers, including Slurm and Platform Load Sharing Facility (LSF).

The following table lists all Orchestration software available with Lenovo EveryScale. Only LiCO is being fully tested within Lenovo EveryScale and part of the Best Recipe. The other packages are supported by the respective software vendor for use within Lenovo EveryScale.

Table 21. Orchestration Software

Description	Part number	Feature code
Lenovo Intelligent Computing Orchestration (LiCO) HPC AI version		
Lenovo HPC AI LiCO Software 90 Day Evaluation License	7S090004WW	B1YC
Lenovo HPC AI LiCO Webportal w/1 yr S&S	7S09002BWW	S93A
Lenovo HPC AI LiCO Webportal w/3 yr S&S	7S09002CWW	S93B
Lenovo HPC AI LiCO Webportal w/5 yr S&S	7S09002DWW	S93C
IBM Spectrum LSF (not tested within Lenovo EveryScale / no Solution Interoperability Support)		
Spectrum LSF Suite for HPC per Inst w/1Yr S&S	7S0A0001WW	B1YW
Spectrum LSF Suite for HPC per Inst w/3Yr S&S	7S0A0002WW	B1YX
Spectrum LSF Suite for HPC per Inst w/4Yr S&S	7S0A0003WW	B1YY
Spectrum LSF Suite for HPC per Inst w/5Yr S&S	7S0A0004WW	B1YZ
Spectrum LSF Suite for Enterprise per Inst w/1Yr S&S	7S0A0005WW	B1Z0
Spectrum LSF Suite for Enterprise per Inst w/3Yr S&S	7S0A0006WW	B1Z1
Spectrum LSF Suite for Enterprise per Inst w/4Yr S&S	7S0A0007WW	B1Z2
Spectrum LSF Suite for Enterprise per Inst w/5Yr S&S	7S0A0008WW	B1Z3
Spectrum LSF Suite for Workgroup per Inst w/1Yr S&S	7S0A0009WW	B1Z4
Spectrum LSF Suite for Workgroup per Inst w/3Yr S&S	7S0A000AWW	B1Z5
Spectrum LSF Suite for Workgroup per Inst w/4Yr S&S	7S0A000BWW	B1Z6
Spectrum LSF Suite for Workgroup per Inst w/5Yr S&S	7S0A000CWW	B1Z7
Spectrum LSF Suite per Server w/1Yr S&S	7S0A000HWW	B1ZC
Spectrum LSF Suite per Server w/3Yr S&S	7S0A000JWW	B1ZD
Spectrum LSF Suite per Server w/4Yr S&S	7S0A000KWW	B1ZE
Spectrum LSF Suite per Server w/5Yr S&S	7S0A000LWW	B1ZF
Spectrum LSF Suite per User w/1Yr S&S	7S0A000DWW	B1Z8
Spectrum LSF Suite per User w/3Yr S&S	7S0A000EWW	B1Z9
Spectrum LSF Suite per User w/4Yr S&S	7S0A000FWW	B1ZA
Spectrum LSF Suite per User w/5Yr S&S	7S0A000GWW	B1ZB
UFM Telemetry		

Description	Part number	Feature code
UFM Telemetry 1-year License and Gold-Support for Lenovo clusters. Per node.	7S02003HWW	S88D
UFM Telemetry 3-year License and Gold-Support for Lenovo clusters. Per node.	7S02003JWW	S88E
UFM Telemetry 5-year License and Gold-Support for Lenovo clusters. Per node.	7S02003KWW	S88F
UFM Enterprise		
UFM Enterprise 1-year License and Gold-Support for Lenovo clusters. Per node.	7S02003LWW	S88G
UFM Enterprise 3-year License and Gold-Support for Lenovo clusters. Per node.	7S02003MWW	S88H
UFM Enterprise 5-year License and Gold-Support for Lenovo clusters. Per node.	7S02003NWW	S88J

Programming environment

The following programming software is available with Lenovo EveryScale:

- **NVIDIA CUDA**

  NVIDIA CUDA is a parallel computing platform and programming model for general computing on graphical processing units (GPUs). With CUDA, developers are able to dramatically speed up computing applications by harnessing the power of GPUs. When using CUDA, developers program in popular languages such as C, C++, Fortran, Python and MATLAB and express parallelism through extensions in the form of a few basic keywords. For more information, see the NVIDIA CUDA Zone.

- **NVIDIA HPC Software Development Kit**

  The NVIDIA HPC SDK C, C++, and Fortran compilers support GPU acceleration of HPC modeling and simulation applications with standard C++ and Fortran, OpenACC directives, and CUDA. GPU-accelerated math libraries maximize performance on common HPC algorithms, and optimized communications libraries enable standards-based multi-GPU and scalable systems programming. Performance profiling and debugging tools simplify porting and optimization of HPC applications, and containerization tools enable easy deployment on-premises or in the cloud. For more information, see the NVIDIA HPC SDK.

The following table lists the relevant ordering part numbers.

Table 22. NVIDIA CUDA and NVIDIA HPC SDK part numbers

Description	Part number
NVIDIA CUDA	
CUDA Support and Maintenance (up to 200 GPUs), 1 Year	7S02002KWW
CUDA Support and Maintenance (up to 500 GPUs), 1 Year	7S02002LWW
NVIDIA HPC SDK	
HPC Compiler Support Services, 1 Year	7S020029WW
HPC Compiler Support Services, 3 Years	7S02002AWW
HPC Compiler Support Services, EDU, 1 Year	7S02002BWW
HPC Compiler Support Services, EDU, 3 Years	7S02002CWW
HPC Compiler Support Services - Additional Contact, 1 Year	7S02002DWW
HPC Compiler Support Services - Additional Contact, EDU, 1 Year	7S02002EWW
HPC Compiler Premier Support Services, 1 Year	7S02002FWW
HPC Compiler Premier Support Services, EDU, 1 Year	7S02002GWW
HPC Compiler Premier Support Services - Additional Contact, 1 Year	7S02002HWW
HPC Compiler Premier Support Services - Additional Contact, EDU, 1 Year	7S02002JWW

Storage Software / File Systems

The following storage software is available with Lenovo EveryScale:

- **IBM Spectrum Scale** (Best Recipe interoperability)

  IBM Spectrum Scale is a cluster file system that provides concurrent access to a single file system or a set of file systems from multiple nodes. The nodes can be SAN attached, network attached, a mixture of SAN and network attached, or in a shared nothing cluster configuration. This enables high performance access to this common set of data to support a scale-out solution or to provide a high availability platform. For more information, see the IBM Spectrum Scale product documentation.

The following storage software systems are not fully tested within Lenovo EveryScale but are available:

- **WekaIO** (ISV supported)
  WekaIO Matrix software is the industry's first flash-native parallel file system that delivers unmatched performance to the most demanding applications, scaling to massive amounts of data in a single namespace. The software-only solution is an NVMe-native, fully parallel and distributed, POSIX compliant file system designed from the ground up to scale to thousands of compute nodes and petabytes of storage. For more information, see the WekaIO web site.

- **BeeGFS** (ISV supported)

  BeeGFS is a hardware-independent POSIX-compliant parallel file system (a.k.a Software-defined Parallel Storage) developed with a strong focus on performance and designed for ease of use, simple installation, and management. BeeGFS is created on an Available Source development model (source code is publicly available), offering a self-supported Community Edition and a fully supported Enterprise Edition with additional features and functionalities. BeeGFS is designed for all performance-oriented environments including HPC, AI and Deep Learning, Life Sciences, and Oil & Gas (to name a few). For more information, see the BeeGFS website and documentation.

The following table lists the storage software available with Lenovo EveryScale. Only IBM Spectrum Scale file system software is being fully tested within Lenovo EveryScale and part of the Best Recipe. WekaIO and BeeFGS are supported by the respective software vendor for use within Lenovo EveryScale.

Table 23. File System Software

Description	Part number	Feature code
IBM Spectrum Scale		
Spectrum Scale Data Management Edition per Disk Drive w/1Yr S&S	None	AVZ7
Spectrum Scale Data Management Edition per Disk Drive w/3Yr S&S	None	AVZ8
Spectrum Scale Data Management Edition per Disk Drive w/4Yr S&S	None	AVZ9
Spectrum Scale Data Management Edition per Disk Drive w/5Yr S&S	None	AVZA
Spectrum Scale Data Management Edition per Flash Drive w/1Yr S&S	None	AVZB
Spectrum Scale Data Management Edition per Flash Drive w/3Yr S&S	None	AVZC
Spectrum Scale Data Management Edition per Flash Drive w/4Yr S&S	None	AVZD
Spectrum Scale Data Management Edition per Flash Drive w/5Yr S&S	None	AVZE
Spectrum Scale Data Management Edition per TiB w/1Yr S&S	None	AVZ3
Spectrum Scale Data Management Edition per TiB w/3Yr S&S	None	AVZ4
Spectrum Scale Data Management Edition per TiB w/4Yr S&S	None	AVZ5
Spectrum Scale Data Management Edition per TiB w/5Yr S&S	None	AVZ6
Spectrum Scale Data Access Edition per Disk Drive w/1Yr S&S	None	S189
Spectrum Scale Data Access Edition per Disk Drive w/3Yr S&S	None	S18A
Spectrum Scale Data Access Edition per Disk Drive w/4Yr S&S	None	S18B
Spectrum Scale Data Access Edition per Disk Drive w/5Yr S&S	None	S18C
Spectrum Scale Data Access Edition per Flash Drive w/1Yr S&S	None	S18D
Spectrum Scale Data Access Edition per Flash Drive w/3Yr S&S	None	S18E
Spectrum Scale Data Access Edition per Flash Drive w/4Yr S&S	None	S18F
Spectrum Scale Data Access Edition per Flash Drive w/5Yr S&S	None	S18G
Spectrum Scale Data Access Edition per TiB w/1Yr S&S	None	S185
Spectrum Scale Data Access Edition per TiB w/3Yr S&S	None	S186
Spectrum Scale Data Access Edition per TiB w/4Yr S&S	None	S187
Spectrum Scale Data Access Edition per TiB w/5Yr S&S	None	S188
Spectrum Scale Erasure Code Edition per TiB w/1Yr S&S	None	S2D0
Spectrum Scale Erasure Code Edition per TiB w/3Yr S&S	None	S2D1
Spectrum Scale Erasure Code Edition per TiB w/4Yr S&S	None	S2D2
Spectrum Scale Erasure Code Edition per TiB w/5Yr S&S	None	S2D3
BeeGFS and and BeeOND Enterprise Support*		
BeeGFS Single Target Server Support per node w/3Yr S&S	None	S4XR
BeeGFS Single Target Server Support per node w/4Yr S&S	None	S5EB
BeeGFS Single Target Server Support per node w/5Yr S&S	None	S4XX
BeeGFS Multi Target Server Support per node w/3Yr S&S	None	S4XS
BeeGFS Multi Target Server Support per node w/4Yr S&S	None	S5EC
BeeGFS Multi Target Server Support per node w/5Yr S&S	None	S4XY
BeeGFS Unlimited Target Server Support per node w/3Yr S&S	None	S4XT
BeeGFS Unlimited Target Server Support per node w/4Yr S&S	None	S5ED
BeeGFS Unlimited Target Server Support per node w/5Yr S&S	None	S4XZ
ThinkParq BeeGFS Remote Consulting and Training (per Day)	None	S4Y3

* Note: BeeGFS and BeeOND support requires Lenovo Premier Support both on the Server and Storage systems. For Storage components that are part of the BeeGFS system, the BeeGFS Solution Feature Code BHNM.

The following table lists the available WekaIO MatrixFS software.

Table 24. WekaIO MatrixFS software

Description	Part Number	Feature Code
Weka MatrixFS (not tested within Lenovo EveryScale / no solution interoperability support)		
WekaIO Matrix SW License for Flash SSD Tier Per TB, 1Yr	7SZZ101589	V27G
WekaIO Matrix SW License for Flash SSD Tier Per TB, 3Yr	7SZZ101590	V27H
WekaIO Matrix SW License for Flash SSD Tier Per TB, 5Yr	7SZZ101591	V27J
WekaIO Matrix SW License for Object Tier Per TB Usable, 1Yr	7SZZ101592	V27K
WekaIO Matrix SW License for Object Tier Per TB Usable, 3Yr	7SZZ101593	V27L
WekaIO Matrix SW License for Object Tier Per TB Usable, 5Yr	7SZZ101594	V27M

Lenovo EveryScale factory integration

Lenovo manufacturing implements a robust testing and integration program to insure Lenovo EveryScale components are fully operational when shipped out of the factory. In addition to the standard component level validation performed on all hardware components produced by Lenovo, Lenovo EveryScale performs rack level testing to verify that the Lenovo EveryScale cluster operates as a solution. The rack level testing and validation includes the following:

- Performing a power on test. Assure device power is present, with no error indicators
- Set up RAID (when required)
- Set up storage devices and verify functionality
- Validate network connectivity and functionality
- Verify functionality of server hardware, network infrastructure, and server configuration correctness. Verify health of components
- Configure all devices per Best Recipe software settings
- Perform stress testing of server CPU and memory via software and power cycling
- Data collection for quality records and test results

Lenovo EveryScale onsite installation

Lenovo experts will manage the physical installation of your pre-integrated Racks so you can quickly benefit from your investment. Working at a time convenient to you, the technician will unpack and inspect the systems at your site, finalize the cabling, verify operation, and dispose of the packaging at the on-site location.

Any racked EveryScale solution comes with this basic Lenovo Hardware Installation services included, automatically sized and configured based on the solution scope detailed in the Lenovo EveryScale Hardware Installation Statement of Work.

Table 25. Lenovo EveryScale onsite installation

Part number	Description	Purpose
5AS7B07693	Lenovo EveryScale Rack Setup Services	Base service per rack
5AS7B07694	Lenovo EveryScale Basic Networking Services	Service per device cabled out of the rack with 12 or less cables
5AS7B07695	Lenovo EveryScale Advanced Networking Services	Service per device cabled out of the rack with more than 12 cables

Customized installation services beyond the basic Lenovo Hardware Installation services are also available to meet the specific needs of the client and for solutions with Client Site Integration Kit.

Before installation, the client should complete the following steps to ensure the hardware will be successfully installed:

- Backing up the data being migrated to the new hardware
- Ensuring the new hardware is available and in place
- Assign a technical lead to act as liaison with Lenovo, who can coordinate access to other resources if required
- Designated data center location has the required power and cooling in place to support purchased solution
- Providing a safe workspace and appropriate access for the technician

Once the client is ready, an expert technician will perform the basic Lenovo Hardware Installation services. This process will include the following:

- Verify receipt and condition of all rack(s) and components
- Verify the client environment is ready for consequent installation
- Unpack and visually inspect hardware for damage
- Place rack(s) and complete installation and inter-rack cabling as specified by the solution configuration
- Connect the equipment to customer-supplied power
- Ensure the equipment is operational: Power on equipment, check for green lights and obvious issues
- Remove packaging and other waste materials to the customer designated dumpster
- Provide completion form for customer to authorize
- If a hardware failure occurs during the installation, service call will be opened.

Additional client requirements beyond the basic Lenovo Hardware Installation services scope, can be offered with customized installation services sized specifically to the client's needs.

To get operational a final onsite software installation and configuration for the specific environment is required. Lenovo can also provide comprehensive onsite configuration of software, including integration and validation for operating systems and software, virtualization and high-availability configurations.

For additional information, see the Services section.

Client Site Integration Kit onsite installation

Besides shipping fully integrated into the Lenovo 1410 rack cabinet, Lenovo EveryScale solution gives clients the choice of shipping with the Lenovo Client Site Integration Kit (7X74) which allows clients to contract Lenovo or a business partner to install the solution in a rack of their own choosing. The Lenovo Client Site Integration Kit enables clients to gain the interoperability warranty benefit of a Lenovo EveryScale solution while also providing them flexibility in custom-fitting into the client data center.

With the Lenovo Client Site Integration Kit, the Lenovo EveryScale solution is built and tested at the rack level in Lenovo manufacturing just like described for factory integration above. Afterwards it is disassembled again, and Servers, switches and other items are packaged in individual boxes with a ship group box for cables, publications, labeling, and other rack documentation. Clients who do not have the skills in-house can purchase installation services from Lenovo or a business partner for the physical setup. The installation team will install the solution at the customer site into the customer provided rack per racking diagrams and point-to-point instructions.

Operating environment

Lenovo EveryScale does fully comply with ASHRAE class A2 specifications for the air-cooled data center, with ASHRAE class W4 for direct to node water cooling for the Lenovo EveryScale exclusive Lenovo ThinkSystem SD650 V2 and SD650-N V2.

Depending on the hardware configuration, some server models comply with ASHRAE class A3 and class A4 specifications, however the server performance might be impacted when the operating temperature is outside the ASHRAE A2 specifications. Please find more details in the product guides of the individual components.

- Air temperature:
  - Operating: ASHRAE Class A2: 10 °C - 35 °C (50 °F - 95 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature by 1 °C for every 300-m (984-ft) increase in altitude
  - Non-operating: 5 °C - 45 °C (41 °F - 113 °F)
  - Storage: -40 °C - +60 °C (-40 °F - 140 °F)
- Maximum altitude: 3,050 m (10,000 ft)
- Humidity:
  - Operating: ASHRAE Class A2: 8% - 80% (non-condensing); maximum dew point: 21 °C (70 °F)
  - Storage: 8% - 90% (non-condensing)
- Electrical:
  - 100 - 127 (nominal) V AC; 50 Hz / 60 Hz
  - 200 - 240 (nominal) V AC; 50 Hz / 60 Hz
  - 180 - 300 V DC (HVDC; supported in China only)

Regulatory compliance

Lenovo EveryScale adopts the conformity of its individual components to international standards, as minimum however

- UL/IEC / CSA C22.2 No. 60950-1
- United States FCC Part 15, Class A
- Canada ICES-003, Class A
- Europe CE Mark (EN55032 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- New Zealand/Australia CISPR 22, Class A
- Russia/GOST ME01; IEC-60950-1; GOST R 51318.22, 51317.3.2, and 51317.3.3
- Japan VCCI, Class A
- China CCC Class A
- CISPR 22, Class A

Please find more details on the regulatory compliance for the individual components in their respective product guides.

Warranty and Support

Lenovo EveryScale exclusive components (Machine Types 1410, 7X74, 0724, 0449, 7D5F; for the other Hardware and Software components configured within Lenovo EveryScale their respective warranty terms apply) have a three-year customer replaceable unit (CRU) and onsite limited (for field-replaceable units (FRUs) only) 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.

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

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

- **Premier Support**

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

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

- **Warranty Upgrade (Preconfigured Support)**

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

  - 3, 4, or 5 years of service coverage
  - 1-year or 2-year post-warranty extensions
  - **Foundation Service**: 9x5 service coverage with next business day onsite response. YourDrive YourData is an optional extra (see below).
  - **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select markets). Bundled with YourDrive YourData.
  - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select markets). Bundled with YourDrive YourData.

- **Managed Services**

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

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

- **Technical Account Management (TAM)**

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

- **Enterprise Server Software Support**

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

- **YourDrive YourData**

  Lenovo's YourDrive YourData is a multi-drive retention offering that ensures your data is always under your control, regardless of the number of drives that are installed in your Lenovo server. In the unlikely event of a drive failure, you retain possession of your drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. The YourDrive YourData service can be purchased in convenient bundles and is optional with Foundation Service. It is bundled with Essential Service and Advanced Service.

- **Health Check**

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

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

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

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

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

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

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

- Lenovo Statement of Limited Warranty for 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

Warranty Upgrades

The Warranty Upgrades that are available for Lenovo EveryScale are listed in the following tables:

- 7X74 Integration Kit
- Mellanox Ethernet Switches
- Mellanox InfiniBand Switches
- Intel Omni-Path Switches

7X74 Integration Kit

Table 26. Warranty upgrade part numbers – 7X74 Integration Kit

Description	Option Part Number	
	Standard Support	Premier Support
Client Side Integration Kit (7X74)		
Premier Support Service - 3Yr Integration Kit	Not available	5WS7A35451
Premier Support Service - 4Yr Integration Kit	Not available	5WS7A35452
Premier Support Service - 5Yr Integration Kit	Not available	5WS7A35453

Mellanox Ethernet Switches

Table 27. Warranty upgrade part numbers – Mellanox Ethernet Switches

Description	Option Part Number	
	Standard Support	Premier Support
Mellanox AS4610 1GbE Managed Switch (7D5F-CTO1WW, -CTO2WW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A87780	5WS7A87830
Foundation Service w/Next Business Day Response, 4Yr	5WS7A87782	5WS7A87832
Foundation Service w/Next Business Day Response, 5Yr	5WS7A87784	5WS7A87834
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A87795	5WS7A87845
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A87797	5WS7A87847
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A87799	5WS7A87849
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A87810	5WS7A87860
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A87812	5WS7A87862
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A87814	5WS7A87864
NVIDIA SN2201 1GbE Managed Switch (7D5F-CTOFWW, -CTOGWW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7B14371	5WS7B14380
Foundation Service w/Next Business Day Response, 4Yr	5WS7B14372	5WS7B14381
Foundation Service w/Next Business Day Response, 5Yr	5WS7B14373	5WS7B14382
Essential Service w/24x7 4Hr Response, 3Yr	5WS7B14377	5WS7B14386
Essential Service w/24x7 4Hr Response, 4Yr	5WS7B14378	5WS7B14387
Essential Service w/24x7 4Hr Response, 5Yr	5WS7B14379	5WS7B14388
Mellanox SN2410B 10GbE Managed Switch (7D5F-CTO5WW, -CTO6WW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A88480	5WS7A88330
Foundation Service w/Next Business Day Response, 4Yr	5WS7A88482	5WS7A88332
Foundation Service w/Next Business Day Response, 5Yr	5WS7A88484	5WS7A88334
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A88495	5WS7A88345
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A88497	5WS7A88347
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A88499	5WS7A88349
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A88510	5WS7A88360
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A88512	5WS7A88362
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A88514	5WS7A88364
Mellanox SN2010 25GbE Managed Switch (7D5F-CTO3WW, -CTO4WW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A88080	5WS7A88130

Description	Option Part Number	
	Standard Support	**Premier Support**
Foundation Service w/Next Business Day Response, 4Yr	5WS7A88082	5WS7A88132
Foundation Service w/Next Business Day Response, 5Yr	5WS7A88084	5WS7A88134
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A88095	5WS7A88145
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A88097	5WS7A88147
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A88099	5WS7A88149
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A88110	5WS7A88160
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A88112	5WS7A88162
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A88114	5WS7A88164
Mellanox SN2410 25GbE Managed Switch (7D5F-CTO7WW, -CTO8WW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A88580	5WS7A88630
Foundation Service w/Next Business Day Response, 4Yr	5WS7A88582	5WS7A88632
Foundation Service w/Next Business Day Response, 5Yr	5WS7A88584	5WS7A88634
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A88595	5WS7A88645
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A88597	5WS7A88647
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A88599	5WS7A88649
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A88610	5WS7A88660
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A88612	5WS7A88662
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A88614	5WS7A88664
Mellanox SN3700C 100GbE Managed Switch (7D5F-CTO9WW, -CTOAWW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A88880	5WS7A88930
Foundation Service w/Next Business Day Response, 4Yr	5WS7A88882	5WS7A88932
Foundation Service w/Next Business Day Response, 5Yr	5WS7A88884	5WS7A88934
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A88895	5WS7A88945
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A88897	5WS7A88947
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A88899	5WS7A88949
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A88910	5WS7A88960
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A88912	5WS7A88962
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A88914	5WS7A88964
Mellanox SN3700V 200GbE Managed Switch (7D5F-CTOBWW, -CTOCWW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A98953	5WS7A98998
Foundation Service w/Next Business Day Response, 4Yr	5WS7A98955	5WS7A99000
Foundation Service w/Next Business Day Response, 5Yr	5WS7A98957	5WS7A99002
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A98968	5WS7A99013
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A98970	5WS7A99015
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A98972	5WS7A99017
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A98983	5WS7A99028
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A98985	5WS7A99030
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A98987	5WS7A99032
NVIDIA SN4600V 200GbE Managed Switch (7D5F-CTOHWW, -CTOJWW)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7B10745	5WS7B10757
Foundation Service w/Next Business Day Response, 4Yr	5WS7B10746	5WS7B10758

Description	Option Part Number	
	Standard Support	Premier Support
Foundation Service w/Next Business Day Response, 5Yr	5WS7B10747	5WS7B10759
Essential Service w/24x7 4Hr Response, 3Yr	5WS7B10751	5WS7B10763
Essential Service w/24x7 4Hr Response, 4Yr	5WS7B10752	5WS7B10764
Essential Service w/24x7 4Hr Response, 5Yr	5WS7B10753	5WS7B10765
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7B10754	5WS7B10766
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7B10755	5WS7B10767
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7B10756	5WS7B10768

Mellanox InfiniBand Switches

Table 28. Warranty upgrade part numbers – Mellanox InfiniBand Switches

Description	Option Part Number	
	Standard Support	Premier Support
NVIDIA QM9700 NDR InfiniBand Switch (0724-HEC, -HEB)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7B14251	5WS7B14260
Foundation Service w/Next Business Day Response, 4Yr	5WS7B14252	5WS7B14261
Foundation Service w/Next Business Day Response, 5Yr	5WS7B14253	5WS7B14262
Essential Service w/24x7 4Hr Response, 3Yr	5WS7B14257	5WS7B14266
Essential Service w/24x7 4Hr Response, 4Yr	5WS7B14258	5WS7B14267
Essential Service w/24x7 4Hr Response, 5Yr	5WS7B14259	5WS7B14268
NVIDIA QM9790 NDR InfiniBand Switch (0724-HEE, -HED)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7B14287	5WS7B14296
Foundation Service w/Next Business Day Response, 4Yr	5WS7B14288	5WS7B14297
Foundation Service w/Next Business Day Response, 5Yr	5WS7B14289	5WS7B14298
Essential Service w/24x7 4Hr Response, 3Yr	5WS7B14293	5WS7B14302
Essential Service w/24x7 4Hr Response, 4Yr	5WS7B14294	5WS7B14303
Essential Service w/24x7 4Hr Response, 5Yr	5WS7B14295	5WS7B14304
Mellanox QM8700 HDR InfiniBand Switch (0724-HD7, -HD8)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A30560	5WS7A30564
Foundation Service w/Next Business Day Response, 4Yr	5WS7A30574	5WS7A30578
Foundation Service w/Next Business Day Response, 5Yr	5WS7A30588	5WS7A30592
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A30568	5WS7A30571
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A30582	5WS7A30585
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A30596	5WS7A30599
Mellanox QM8790 HDR InfiniBand Switch (0724-HD9, -HEA)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A30700	5WS7A30704
Foundation Service w/Next Business Day Response, 4Yr	5WS7A30714	5WS7A30718
Foundation Service w/Next Business Day Response, 5Yr	5WS7A30728	5WS7A30732
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A30708	5WS7A30711
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A30722	5WS7A30725
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A30736	5WS7A30739

Intel Omni-Path Switches

Table 29. Warranty upgrade part numbers – Intel Omni-Path Switches

Description	Option Part Number	
	Standard Support	Premier Support
Intel OPA 100 Series 48-port Edge Switch (0449-HCR, -HCS)		
Foundation Service w/Next Business Day Response, 3Yr	5WS7A17483	5WS7A69179
Foundation Service w/Next Business Day Response, 4Yr	5WS7A17487	5WS7A69183
Foundation Service w/Next Business Day Response, 5Yr	5WS7A17491	5WS7A69187
Essential Service w/24x7 4Hr Response, 3Yr	5WS7A17503	5WS7A69199
Essential Service w/24x7 4Hr Response, 4Yr	5WS7A17506	5WS7A69202
Essential Service w/24x7 4Hr Response, 5Yr	5WS7A17509	5WS7A69205
Advanced Service w/24x7 2Hr Response, 3Yr	5WS7A17518	5WS7A69214
Advanced Service w/24x7 2Hr Response, 4Yr	5WS7A17521	5WS7A69217
Advanced Service w/24x7 2Hr Response, 5Yr	5WS7A17524	5WS7A69220

Solution Interoperability Support

On top of their individual warranty and maintenance scope or support entitlement, Lenovo EveryScale offers solution-level interoperability support for HPC and AI configurations based on the above selection of Lenovo ThinkSystem portfolio and OEM components.

The extensive testing results in a "Best Recipe" release of software and firmware levels Lenovo warrants to work seamlessly together as a fully integrated data center solution instead of a collection of individual components at the time of implementation.

To see the latest Best Recipe for Lenovo EveryScale, see the following link:
https://support.lenovo.com/us/en/solutions/HT505184#5

The Solution Support is engaged by opening a hardware ticket based on the Lenovo EveryScale Rack (Model 1410) or Lenovo EveryScale Client Site Integration Kit (Model 7X74). The Lenovo EveryScale Support team then will triage the issue and recommend next steps for you, including potentially to open tickets with other components of the solution.

For issues that require debugging beyond hardware and firmware (Driver, UEFI, IMM/XCC) an additional ticket will have to be opened with the software vendor (e.g. Lenovo SW Support or 3rd party SW vendor) to assist working towards a fix. The Lenovo EveryScale Support team will then work with the SW Support team in isolating root cause and fixing the defect.

For more information about opening tickets, as well as the scope of support for different Lenovo EveryScale components, see the Lenovo EveryScale Support Plan information page .

When a cluster ships the most recent Best Recipe is its compliant version, which is always defined exactly for that specific EveryScale release and the cluster is delivered as a solution of that specific release. Using a Support call clients can request a review if their solution is also compatible with a newer Best Recipe release and if it is, are able to upgrade to that while maintaining solution interoperability support.

As long as a cluster (Model 1410, 7X74) is under Lenovo warranty or maintenance entitlement, full solution interoperability support will be provided for the original Best Recipes. Even when newer Best Recipes are available the previous Recipe will remain valid and supported.

Of course, any client is free to choose to not adhere to the Best Recipe and instead deploy different software and firmware versions or integrate other components that were not tested for interoperability. While Lenovo cannot warrant interoperability with those deviations from the tested scope, a client continues to receive full break & fix support for the components based on the individual warranty and maintenance entitlement of the components. This is comparable to the level of support clients will receive when not buying it as a Lenovo EveryScale solution, but building the solution from individual components – so-called "roll your own" (RYO).

In those cases, to minimize risk we suggest still staying as close as possible to the Best Recipe even when deviating. We also suggest when deviating first to test it on a small portion of the cluster and only roll it out completely if this test was stable.

For clients who need to upgrade the firmware or software of a component – for example due to OS entitlement support issues or Common Vulnerabilities and Exposures (CVE) fixes – that is part of the best recipe, a support call should be placed on the 1410/7X74 rack and serial number. Lenovo product engineering will review the proposed changes, and advise the client on the viability of an upgrade path. If an upgrade can be supported and is performed, Lenovo EveryScale will note the change in the support records for the solution.

Services

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

Note: Some service options may not be available in all countries. For 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 article, Reduce E-Waste and Grow Your Bottom Line with Lenovo Asset Recovery Services.

- **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.

- **Data Center Power and Cooling Services**

  The Data Center Infrastructure team will provide solution design and implementation services to support the power and cooling needs of the multi-node chassis and multi-rack solutions. This includes designing for various levels of power redundancy and integration into the customer power infrastructure. The Infrastructure team will work with site engineers to design an effective cooling strategy based on facility constraints or customer goals and optimize a cooling solution to ensure high efficiency and availability. The Infrastructure team will provide the detailed solution design and complete integration of the cooling solution into the customer data center. In addition, the Infrastructure team will provide rack and chassis level commissioning and stand-up of the water-cooled solution which includes setting and tuning of the flow rates based on water temperature and heat recovery targets. Lastly, the Infrastructure team will provide cooling solution optimization and performance validation to ensure the highest overall operational efficiency of the solution.

Table 30. HPC Professional Services part numbers

Description	Part number	Feature code
Lenovo Professional Services		
HPC Technical Consultant Hourly Unit (Remote)	5MS7A85671	None
HPC Technical Consultant Labor Unit (Remote)	5MS7A85672	None
HPC Technical Consultant Hourly Unit (Onsite)	5MS7A85673	None
HPC Technical Consultant Labor Unit (Onsite)	5MS7A85674	None
HPC Principal Consultant Hourly Unit (Remote)	5MS7A85675	None
HPC Principal Consultant Labor Unit (Remote)	5MS7A85676	None
HPC Principal Consultant Hourly Unit (Onsite)	5MS7A85677	None
HPC Principal Consultant Labor Unit (Onsite)	5MS7A85678	None
HPC Technical Consultant Services Bundle (Small)	5MS7A85679	None
HPC Technical Consultant Services Bundle (Medium)	5MS7A85680	None
HPC Technical Consultant Services Bundle (Large)	5MS7A85681	None
HPC Technical Consultant Services Bundle (Extra Large)	5MS7A85682	None

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Lenovo Financial Services reinforces Lenovo's commitment to deliver pioneering products and services that are recognized for their quality, excellence, and trustworthiness. Lenovo Financial Services offers financing solutions and services that complement your technology solution anywhere in the world.

We are dedicated to delivering a positive finance experience for customers like you who want to maximize your purchase power by obtaining the technology you need today, protect against technology obsolescence, and preserve your capital for other uses.

We work with businesses, non-profit organizations, governments and educational institutions to finance their entire technology solution. We focus on making it easy to do business with us. Our highly experienced team of finance professionals operates in a work culture that emphasizes the importance of providing outstanding customer service. Our systems, processes and flexible policies support our goal of providing customers with a positive experience.

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:

https://www.lenovo.com/us/en/landingpage/lenovo-financial-services/

Lenovo EveryScale solution - DSS-G

Lenovo Distributed Storage Solution for IBM Spectrum Scale (DSS-G) is a software-defined storage (SDS) solution for dense scalable file and object storage suitable for high-performance and data-intensive environments. Enterprises or organizations running HPC, Big Data or cloud workloads will benefit the most from the DSS-G implementation.

DSS-G combines the performance of the Lenovo ThinkSystem SR650 servers, Lenovo D1224 and D3284 storage enclosures, and industry leading IBM Spectrum Scale software to offer a high performance, scalable building block approach to modern storage needs.

For more information, see the DSS-G product guide.

Lenovo EveryScale solution – NVIDIA Certified OVX Solution

Before you can deploy any new device or autonomous agent in a real-world environment, organizations need to understand how they will behave in the physical world. This can be achieved through first simulating the change in a digital twin. Digital twins must be physically accurate representations of their real-world counterparts. True-to-life simulations require precision timing, ensuring synchronization across the physical and digital worlds with interactions occurring within the same real-time space for all actors in the simulation.

Lenovo and NVIDIA have worked together to deliver real-time remote work and Digital Twin capabilities through the Lenovo EveryScale OVX solution enabled by NVIDIA Omniverse™ Enterprise software and Lenovo ThinkSystem™ platforms leveraging the latest NVIDIA GPU accelerators and networking.

For more information, see the OVX Solution Brief.

Case studies and references

These customers have already implemented Lenovo EveryScale solutions. Click the links to review the customer case studies.

Harvard University Faculty of Arts & Sciences (FAS) Research Computing

- Harvard University Faculty of Arts & Sciences Research Computing

  Learn how Harvard University Faculty of Arts & Sciences Research Computing accelerates ground-breaking research with a new high-performance computing cluster based on Lenovo ThinkSystem servers, 2nd Gen Intel® Xeon® Scalable processors, and Lenovo Neptune™ liquid cooling technology.

- University of Florida

  As a prominent academic institution on the cutting edge of research, The University of Florida is continually working to meet the needs of researchers with its powerful HiPerGator supercomputer. The latest version, HiPerGator 3.0, will be supported by Lenovo's ThinkSystem servers with AMD EPYC™ processors.

- Vienna Scientific Cluster

  To push the boundaries of science, researchers need access to high-performance computing (HPC) resources. Supporting academics of all disciplines, the Vienna Scientific Cluster strengthened its HPC infrastructure with a next-generation supercomputer built on Lenovo ThinkSystem servers.

- Leibniz Supercomputing Centre
  The Leibniz Supercomputing Centre supports trailblazing scientific research with an energy-efficient, next-generation HPC cluster from Lenovo. As scientific research advances, the need for computation power increases. With a new HPC cluster based on Lenovo ThinkSystem SD650 servers with Lenovo Neptune liquid cooling technologies and Intel Xeon Scalable processors, the Leibniz Supercomputing Center is supporting ground-breaking new research. Learn more with this YouTube video.

Related publications and links

For more information, see these resources:

- Lenovo EveryScale product page:
  https://www.lenovo.com/us/en/data-center/servers/high-density/Lenovo-Scalable-Infrastructure/p/WMD00000276

- Lenovo EveryScale support page:
  https://datacentersupport.lenovo.com/us/en/solutions/ht505184

- Lenovo DSS-G product page:
  https://www.lenovo.com/us/en/data-center/servers/high-density/Distributed-Storage-Solution-for-IBM-Spectrum-Scale/p/WMD00000275

- LiCO website:
  https://www.lenovo.com/us/en/data-center/software/lico/

- Lenovo HPC website:
  https://www.lenovo.com/us/en/data-center/solutions/hpc/

- x-config configurator:
  https://lesc.lenovo.com/products/hardware/configurator/worldwide/bhui/asit/x-config.jnlp

- Best recipe index:
  https://support.lenovo.com/us/en/solutions/HT505184#5

Related product families

Product families related to this document are the following:

- Artificial Intelligence
- High Performance Computing
- Software-Defined Storage
- Supercomputing Servers

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This document, LP0900, was created or updated on March 22, 2024.

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