Lenovo ThinkAgile MX Certified Node (Xeon SP Gen 1) with Hybrid Storage for Microsoft Azure Stack HCI

Product Guide (withdrawn product)

Lenovo ThinkAgile MX Certified Nodes are designed for deploying highly available, highly scalable hyper-converged infrastructure (HCI) and software-defined storage (SDS) from Microsoft on Lenovo enterprise platforms. The ThinkAgile MX Certified Nodes deliver fully validated and integrated Lenovo hardware and firmware that is certified for Microsoft Azure Stack HCI solutions.

The ThinkAgile MX Certified Nodes for hybrid storage are 2U rack-mount systems that support two processors, up to 1.5 TB of 2666 MHz TruDDR4 memory, 14x LFF hot-swap drive bays with an extensive choice of SAS and SATA SSDs for cache and NL SATA HDDs for capacity, and network connectivity with 10/25 GbE SFP28 ports or 100 GbE QSFP28 ports, and an option for 1 GbE RJ-45, 1/10 GbE RJ-45, or 10 GbE SFP+ ports.

The ThinkAgile MX Certified Nodes can be optimized for various types of workloads, including general purpose workloads for small and medium businesses, virtual desktop infrastructure (VDI), server virtualization, private/hybrid clouds, enterprise applications, databases, and data analytics.

The ThinkAgile MX Certified Node is shown in the following figure.

Figure 1. Lenovo ThinkAgile MX Certified Node

Did you know?

The ThinkAgile MX Certified Nodes are built on industry-leading Lenovo ThinkSystem servers that feature enterprise-class reliability, management, and security.

The ThinkAgile MX Certified Nodes deliver fully validated and integrated hardware and firmware that is certified for Microsoft Azure Stack HCI solutions.

Key features

The ThinkAgile MX Certified Nodes offer the following key features:

- Offer quick and convenient path to implement a hyperconverged solution powered by Windows Server 2016 or 2019 Datacenter with Microsoft Storage Spaces Direct (S2D) with a wide range of selection options for processors, memory, storage, and network connectivity.
- Built on proven and reliable Lenovo ThinkSystem servers featuring the first generation of the Intel Xeon Processor Scalable Family that provide compute power for a variety of workloads and applications.
- Meet various workload demands with cost-efficient hybrid storage configurations.
- Deliver fully validated and integrated hardware and firmware that is certified for Microsoft Azure Stack HCI solutions.
- Ready for out-of-box deployment with the optional Windows Server 2019 Datacenter preload.
- Provide flexibility in using the existing Microsoft Windows Server 2016 or 2019 enterprise license agreements or purchasing new software licenses from Microsoft or Lenovo.
- Offer optional Lenovo deployment services to get customers up and running quickly.

The Storage Spaces Direct software running on ThinkAgile MX Certified Nodes delivers the following key features:

- Distributed architecture that allows "pay-as-you-grow", non-disruptive scaling by adding new nodes to the cluster (scale-out) to increase capacity and performance.
- Scalability from 2 to 16 nodes with up to 1 PB of storage capacity per cluster.
- Consistent, low latency performance with hypervisor-embedded architecture, built-in read and write cache, and support for NVMe PCIe drives.
- Built-in resiliency sustains drive, server, or component failures for continuous availability.
- Per-VM storage performance management with policy-driven storage Quality of Service (QoS).
- Continuous built-in monitoring and alerting with cluster-wide performance and capacity metrics.

Components and connectors

The following figure shows the front view of the MX Certified Node.

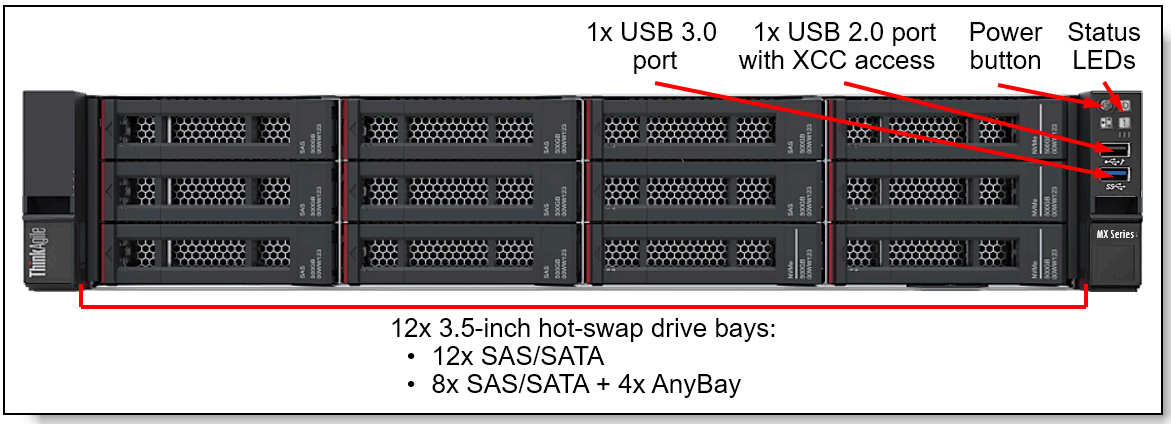

Figure 2. MX Certified Node front view

The front of the MX Certified Node includes the following components:

- 12x LFF hot-swap drive bays
- One USB 2.0 port with XClarity Controller access
- One USB 3.0 port
- A Power button
- Status LEDs

The following figure shows the rear view of the MX Certified Node.

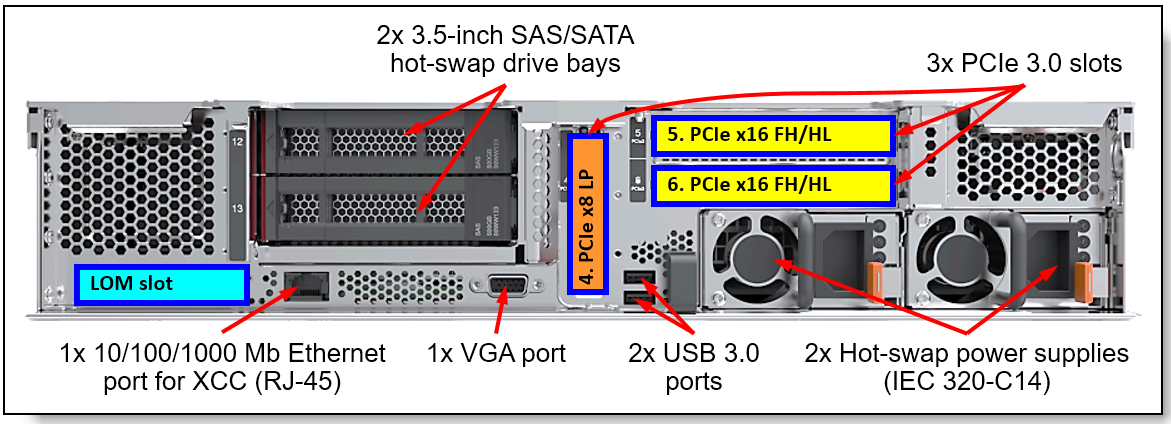

Figure 3. MX Certified Node rear view

The rear of the MX Certified Node includes the following components:

- 2x LFF hot-swap drive bays
- Three PCIe expansion slots
- One LOM card slot
- One 1 GbE port for XClarity Controller
- One VGA port
- Two USB 3.0 ports
- Two hot-swap power supplies

System specifications

The following table lists the system specifications of the ThinkAgile MX Certified Node.

Table 1. MX Certified Node system specifications

Attribute	Specification
Form factor	2U Rack-mount.
Processor	Two Intel Xeon Silver, Gold, or Platinum Gen 1 processors.
Chipset	Intel C624.
Memory	24 DIMM sockets (12 DIMMs per processor; six memory channels per processor with two DIMMs per channel). Support for RDIMMs or LRDIMMs. Memory types cannot be intermixed. Memory speed up to 2666 MHz.
Memory capacity	• With RDIMMs: Up to 768 GB with 24x 32 GB RDIMMs and two processors. • With LRDIMMs: Up to 1.5 TB with 24x 64 GB LRDIMMs and two processors.
Memory protection	Error correction code (ECC), Single Device Data Correction (SDDC; for x4-based memory DIMMs), Adaptive Double Device Data Correction (ADDDC; for x4-based memory DIMMs, requires Intel Xeon Gold or Platinum processors), patrol scrubbing, and demand scrubbing.

Drive bays	• 14 LFF hot-swap drive bays:
	  ◦ 12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)
	  ◦ 8x 3.5" SAS/SATA & 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear)

Drive capacities	• Capacity drives: 6 Gbps NL SATA LFF HDDs up to 14 TB
	• Cache drives:
	  ◦ 12 Gbps SAS LFF SSDs up to 3.2 TB (2.5" SSD in a 3.5" tray)
	  ◦ NVMe PCIe 3.0 x4 LFF SSDs up to 6.4 TB (2.5" SSD in a 3.5" tray)

Storage controller	1x 430-16i HBA (12 Gbps SAS/6 Gbps SATA non-RAID). 1x Onboard NVMe (non-RAID).

Network interfaces	• PCIe adapter ports (required):
	  ◦ 2x or 4x 10/25 GbE SFP28 ports; or
	  ◦ 1x or 2x 10/40 GbE SFP28 ports; or
	  ◦ 2x or 4x 100 GbE SFP28 ports.
	• LOM ports (optional): 2x or 4x 1 GbE RJ-45, or 1/10 GbE RJ-45, or 10 GbE SFP+ ports.

Boot drive	2x 480 GB M.2 non-hot-swap SSDs (RAID-1).
I/O expansion slots	Four slots: • Slot 4 (Onboard): PCIe 3.0 x8 (for the second 10/25 GbE network adapter) • Slot 5 (Riser Card 2): PCIe 3.0 x16 (for the second 100 GbE network adapter) • Slot 6 (Riser Card 2): PCIe 3.0 x16 (for the first 10/25 GbE or 100 GbE network adapter) • Slot 7 (Onboard): PCIe 3.0 x8 (for an internal storage controller)
Ports	• Front: 1x USB 2.0 port with XClarity Controller access, 1x USB 3.0 port. • Rear: 2x USB 3.0 ports, 1x VGA port, 1x RJ-45 10/100/1000 Mb Ethernet port for systems management.
Cooling	Six hot-swap system fans with N+1 redundancy.
Power supply	Two redundant hot-swap 1100 W (100 - 240 V) High Efficiency Platinum power supplies.
Video	Matrox G200 with 16 MB memory integrated into the XClarity Controller. Maximum resolution is 1920x1200 at 60 Hz with 32 bits per pixel.
Hot-swap parts	SSDs, HDDs, power supplies, and fans.
Systems management	Lenovo XClarity Controller (XCC) Enterprise (Pilot 4 chip), proactive platform alerts, light path diagnostics, Lenovo XClarity Administrator (optional), Lenovo XClarity Integrator for Microsoft System Center (optional), Lenovo XClarity Integrator for Microsoft Admin Center (optional), Lenovo XClarity Energy Manager (optional).

Attribute	Specification
Security features	Power-on password, administrator's password, secure firmware updates, Trusted Platform Module (TPM) 1.2 or 2.0 (configurable UEFI setting).
Software	Windows Server 2016 or 2019 Datacenter with Microsoft Storage Spaces Direct (S2D) (software licenses can be purchased from Lenovo or provided by the customer).
Warranty and support	Three-, four-, or five-year customer-replaceable unit and onsite limited warranty with selectable service levels: 9x5 coverage with next business day (NBD) parts delivered (base warranty), 9x5 coverage with NBD onsite response (Foundation Service), 24x7 coverage with 4-hour onsite response or 24-hour committed repair (select areas) (Essential Service), or 24x7 coverage with 2-hour onsite response or 6-hour committed repair (select areas) (Advanced Service). Also available are 1-year and 2-year post-warranty extensions, YourDrive YourData, and Enterprise Software Support.
Dimensions	Height: 87 mm (3.4 in.), width: 445 mm (17.5 in.), depth: 720 mm (28.3 in.).
Weight	Maximum configuration: 32 kg (70.5 lb).

Factory-integrated models

Factory-integrated models of the ThinkAgile MX Certified Nodes are configured by using the Lenovo Data Center Solution Configurator (DCSC):
http://dcsc.lenovo.com

During the configuration process, you are selecting the base Configure-to-Order (CTO) model first, and then you are selecting components (processors, memory, drives, network adapters, and software) for that model.

The following table lists the base CTO model of the MX Certified Nodes.

Table 2. Base CTO model

Description	Machine Type/Model
ThinkAgile MX Certified Node - Hybrid	7Z20CTO1WW

The following table lists the available chassis selection options for the MX Certified Nodes.

Table 3. Chassis selection options

Description	Feature code
ThinkAgile MX Certified Node - Hybrid	B4E2

The MX Certified Nodes ship with the following items:

- *Electronic Publications Flyer*
- Tool-less Slide Rail Kit
- Two customer-selected power cables

Processors

The ThinkAgile MX Certified Nodes ship with two processors. The following table lists the processor options that are available for selection.

Table 4. Processor selection options

Description	Feature code	Quantity
Intel Xeon Silver processors		
Intel Xeon Silver 4108 8C 85W 1.8GHz Processor	AWEG	2
Intel Xeon Silver 4110 8C 85W 2.1GHz Processor	AWEE	2
Intel Xeon Silver 4114 10C 85W 2.2GHz Processor	AWEC	2
Intel Xeon Silver 4116 12C 85W 2.1GHz Processor	AWER	2
Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor	AWEA	2
Intel Xeon Gold processors		
Intel Xeon Gold 5115 10C 85W 2.4GHz Processor	AWDU	2
Intel Xeon Gold 5117 14C 105W 2.0GHz Processor	B137	2
Intel Xeon Gold 5118 12C 105W 2.3GHz Processor	AWEP	2
Intel Xeon Gold 5120 14C 105W 2.2GHz Processor	AWE6	2
Intel Xeon Gold 6126 12C 125W 2.6GHz Processor	AWEL	2
Intel Xeon Gold 6130 16C 125W 2.1GHz Processor	AWEN	2
Intel Xeon Gold 6132 14C 140W 2.6GHz Processor	AWDY	2
Intel Xeon Gold 6134 8C 130W 3.2GHz Processor	AWE9	2
Intel Xeon Gold 6134M 8C 130W 3.2GHz Processor	B0X4	2
Intel Xeon Gold 6136 12C 150W 3.0GHz Processor	AWE3	2
Intel Xeon Gold 6138 20C 125W 2.0GHz Processor	AWDZ	2
Intel Xeon Gold 6140 18C 140W 2.3GHz Processor	AWE1	2
Intel Xeon Gold 6142 16C 150W 2.6GHz Processor	AWDW	2
Intel Xeon Gold 6142M 16C 150W 2.6GHz Processor	B0X3	2
Intel Xeon Gold 6148 20C 150W 2.4GHz Processor	AWDX	2
Intel Xeon Gold 6150 18C 165W 2.7GHz Processor	AWDT	2
Intel Xeon Gold 6152 22C 140W 2.1GHz Processor	AWDV	2
Intel Xeon Platinum processors		
Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor	AWDR	2
Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor	AWDS	2
Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor	AWDP	2
Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor	AWDM	2
Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor	AWDK	2
Intel Xeon Platinum 8170M 26C 165W 2.1GHz Processor	B0X2	2
Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor	AWDH	2
Intel Xeon Platinum 8176M 28C 165W 2.1GHz Processor	AWDG	2

The following table lists the specifications of the processors for the certified nodes.

Table 5. CPU specifications (HT = Hyper-Threading, TB = Turbo Boost, VT = Virtualization Technology)

CPU model	Core frequency (Base / TB Max)	Number of cores / threads	Cache	Max DDR4 frequency	Max memory per socket	UPI speed	TDP	HT	TB	VT-x	VT-d
Intel Xeon Silver processors											
4108	1.8 / 3.0 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85 W	Yes	Yes	Yes	Yes
4110	2.1 / 3.0 GHz	8 / 16	11 MB	2400 MHz	768 GB	9.6 GT/s	85 W	Yes	Yes	Yes	Yes
4114	2.2 / 3.0 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	9.6 GT/s	85 W	Yes	Yes	Yes	Yes
4116	2.1 / 3.0 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	9.6 GT/s	85 W	Yes	Yes	Yes	Yes
4116T	2.1 / 3.0 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	9.6 GT/s	85 W	Yes	Yes	Yes	Yes
Intel Xeon Gold processors											
5115	2.4 / 3.2 GHz	10 / 20	13.75 MB	2400 MHz	768 GB	10.4 GT/s	85 W	Yes	Yes	Yes	Yes
5117	2.0 / 2.8 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	105W	Yes	Yes	Yes	Yes
5118	2.3 / 3.2 GHz	12 / 24	16.5 MB	2400 MHz	768 GB	10.4 GT/s	105 W	Yes	Yes	Yes	Yes
5120	2.2 / 3.2 GHz	14 / 28	19.25 MB	2400 MHz	768 GB	10.4 GT/s	105 W	Yes	Yes	Yes	Yes
6126	2.6 / 3.7 GHz	12 / 24	19.25 MB	2666 MHz	768 GB	10.4 GT/s	125 W	Yes	Yes	Yes	Yes
6130	2.1 / 3.7 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	125 W	Yes	Yes	Yes	Yes
6132	2.6 / 3.7 GHz	14 / 28	19.25 MB	2666 MHz	768 GB	10.4 GT/s	140 W	Yes	Yes	Yes	Yes
6134	3.2 / 3.7 GHz	8 / 16	24.75 MB	2666 MHz	768 GB	10.4 GT/s	130 W	Yes	Yes	Yes	Yes
6134M	3.2 / 3.7 GHz	8 / 16	24.75 MB	2666 MHz	1.5 TB	10.4 GT/s	130 W	Yes	Yes	Yes	Yes
6136	3.0 / 3.7 GHz	12 / 24	24.75 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
6138	2.0 / 3.7 GHz	20 / 40	27.5 MB	2666 MHz	768 GB	10.4 GT/s	125 W	Yes	Yes	Yes	Yes
6140	2.3 / 3.7 GHz	18 / 36	24.75 MB	2666 MHz	768 GB	10.4 GT/s	140 W	Yes	Yes	Yes	Yes
6142	2.6 / 3.7 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
6142M	2.6 / 3.7 GHz	16 / 32	22 MB	2666 MHz	1.5 TB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
6148	2.4 / 3.7 GHz	20 / 40	27.5 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
6150	2.7 / 3.7 GHz	18 / 36	24.75 MB	2666 MHz	768 GB	10.4 GT/s	165 W	Yes	Yes	Yes	Yes
6152	2.1 / 3.7 GHz	22 / 44	30.25 MB	2666 MHz	768 GB	10.4 GT/s	140 W	Yes	Yes	Yes	Yes
Intel Xeon Platinum processors											
8153	2.0 / 2.8 GHz	16 / 32	22 MB	2666 MHz	768 GB	10.4 GT/s	125 W	Yes	Yes	Yes	Yes
8158	3.0 / 3.7 GHz	12 / 24	24.75 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
8160	2.1 / 3.7 GHz	24 / 48	33 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
8164	2.0 / 3.7 GHz	26 / 52	35.75 MB	2666 MHz	768 GB	10.4 GT/s	150 W	Yes	Yes	Yes	Yes
8170	2.1 / 3.7 GHz	26 / 52	35.75 MB	2666 MHz	768 GB	10.4 GT/s	165 W	Yes	Yes	Yes	Yes
8170M	2.1 / 3.7 GHz	26 / 52	35.75 MB	2666 MHz	1.5 TB	10.4 GT/s	165 W	Yes	Yes	Yes	Yes
8176	2.1 / 3.8 GHz	28 / 56	38.5 MB	2666 MHz	768 GB	10.4 GT/s	165 W	Yes	Yes	Yes	Yes
8176M	2.1 / 3.8 GHz	28 / 56	38.5 MB	2666 MHz	1.5 TB	10.4 GT/s	165 W	Yes	Yes	Yes	Yes

Memory

The ThinkAgile MX Certified Nodes support Lenovo TruDDR4 memory. TruDDR4 memory uses the highest-quality components sourced from Tier 1 DRAM suppliers and only memory that meets strict requirements is selected. It is compatibility tested and tuned to maximize performance and reliability.

The MX Certified Nodes support up to 24 DIMMs with two processors. Each processor has six memory channels, and there are two DIMMs per channel. The following rules apply when selecting the memory configuration:

- The nodes support RDIMMs or LRDIMMs.
- Mixing different types of memory (RDIMMs and LRDIMMs) is not supported.
- Mixing RDIMMs and RDIMMs of different capacity is supported (see Table 6 for details).
- All DIMMs in the node operate at the same speed up to 2666 MHz, which is determined by the maximum memory speed supported by the specific processor.
  Note: Maximum memory speed can be achieved when Max performance mode is enabled in UEFI.
- The following maximum memory capacities supported by the node:
  - RDIMMs: 768 GB (384 GB per processor).
  - LRDIMMs: 1.5 TB (768 GB per processor).

The following memory protection technologies are supported:

- ECC
- SDDC (for x4-based memory DIMMs)
- ADDDC (for x4-based memory DIMMs; Gold and Platinum processors only)
- Patrol scrubbing
- Demand scrubbing

The following table lists the memory options that are available for selection.

Table 6. Memory selection options

Description	Part number	Feature code	Quantity							
			64 GB*	96 GB	192 GB	288 GB	384 GB	576 GB	768 GB	1.5 TB
ThinkSystem 2666 MHz RDIMMs										
8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM	7X77A01301	AUU1	8	12	24	12 + 12	-	-	-	-
16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM	7X77A01303	AUNC	-	-	12		24	12 + 12	-	-
32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM	7X77A01304	AUND	-	-	-	-	12		24	-
ThinkSystem 2666 MHz LRDIMMs										
64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM	7X77A01305	AUNE	-	-	-	-	-	-	12	24

* The selection is available in India only.

Internal storage

The ThinkAgile MX Certified Nodes support 14 hot-swap drive bays:

a. 12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)
b. 8x 3.5" SAS/SATA & 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear)

In addition, the MX Certified Nodes support two internal M.2 SATA SSDs for the Windows Server boot volume.

The following figure shows the internal drive bay configurations.

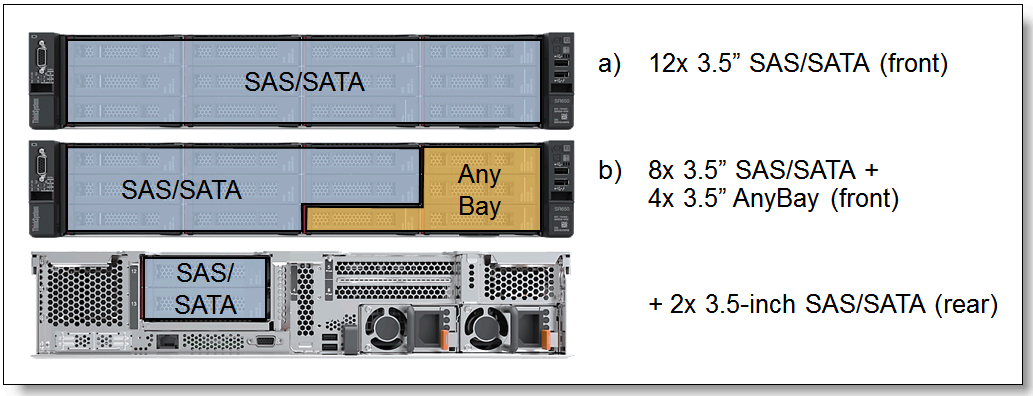

Figure 4. Drive bay configurations

The following table lists the internal storage options for the MX Certified Nodes.

Table 7. Internal storage options

Description	Feature code	Quantity (min / max)
Factory-installed backplane kits		
ThinkSystem SR550/SR650 3.5" SATA/SAS 12-Bay Backplane Kit	AUR9	0 / 1
ThinkSystem SR650 3.5" AnyBay 12-Bay Backplane Kit	AUR8	0 / 1
ThinkSystem SR590/SR650 3.5" Rear HDD Kit	AURZ	1 / 1
M.2 enablement kits		
ThinkSystem M.2 with Mirroring Enablement Kit	AUMV	1 / 1

Configuration notes:

- The AnyBay 12-Bay Backplane (AUR8) is required for selection if the NVMe PCIe SSDs are used as cache drives. If the NVMe PCIe SSDs are not used, the SATA/SAS 12-Bay Backplane (AUR9) must be selected.
- The Rear HDD Kit (AURZ) is pre-selected, and it cannot be removed from the configuration.
- The M.2 with Mirroring Enablement Kit (AUMV) is connected to the Intel PCH via the PCIe link, and the kit supports two M.2 SATA SSDs configured in a RAID-1 drive group for a boot volume.

The following table lists M.2 drive selection options for the boot volume.

Table 8. Drive options for boot volume

Description	Feature code	Quantity
ThinkSystem M.2 5100 480GB SATA 6Gbps Non-Hot-Swap SSD	B11V	2
ThinkSystem M.2 5300 480GB SATA 6Gbps Non-Hot Swap SSD	B919	2

The following table lists the storage controllers for internal storage of the MX Certified Nodes.

Table 9. Controllers for internal storage

Description	Feature code	Quantity
12 Gb SAS/SATA non-RAID HBA		
ThinkSystem 430-16i SAS/SATA 12Gb HBA	AUNM	1
NVMe PCIe interface (non-RAID)		
Onboard NVMe interface (4-port)	None	1

Configuration notes:

- The 430-16i SAS/SATA HBA is connected to the front and rear drive bays, and it occupies the PCIe x8 slot 7 on the system board.
- The onboard NVMe interface provides 4x PCIe 3.0 x4 ports for JBOD (non-RAID) connectivity to NVMe PCIe SSDs in the AnyBay drive bays.

The following table lists internal storage configurations with the SAS/SATA and AnyBay backplanes.

Table 10. Internal storage configurations: 12 LFF front and 2 LFF rear drive bays

Hot-swap drive bay configuration	Backplane kit type and quantity			Storage controller type and quantity*
	12x3.5" SATA/ SAS	12x3.5" Any Bay	2x3.5" Rear HDD	
12x 3.5" SAS/SATA (front) + 2x 3.5" SAS/SATA (rear)	1	0	1	1x 430-16i HBA (14)
8x 3.5" SAS/SATA (front) + 4x 3.5" AnyBay (front) + 2x 3.5" SAS/SATA (rear)	0	1	1	1x 430-16i HBA (14) + 1x Onboard NVMe (4)

* The number in brackets (x) specifies the quantity of drive bays connected to each of the controllers.

Drives for internal storage

The following tables list drive options for the MX Certified Node.

Table 11. LFF drive options for MX Certified Node

Description	Feature code	Quantity (min / max)
Capacity drives: 6 Gbps NL SATA hot-swap HDDs		
ThinkSystem 3.5" 4TB 7.2K SATA 6Gb Hot Swap 512n HDD	AUU8	4 / 10

Description	Feature code	Quantity (min / max)
ThinkSystem 3.5" 6TB 7.2K SATA 6Gb Hot Swap 512e HDD	AUUA	4 / 10
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	AUU9	4 / 10
ThinkSystem 3.5" 10TB 7.2K SATA 6Gb Hot Swap 512e HDD	AUUB	4 / 10
ThinkSystem 3.5" 12TB 7.2K SATA 6Gb Hot Swap 512e HDD	B118	4 / 10
ThinkSystem 3.5" 14TB 7.2K SATA 6Gb Hot Swap 512e HDD	B497	4 / 10
Cache drives: SS300 Performance 12 Gbps SAS hot-swap SSDs		
ThinkSystem 3.5" HUSMM32 800GB Performance SAS 12Gb Hot Swap SSD	B170	2 / 4
ThinkSystem 3.5" HUSMM32 1.6TB Performance SAS 12Gb Hot Swap SSD	B171	2 / 4
Cache drives: SS530 Performance 12 Gbps SAS hot-swap SSDs		
ThinkSystem 3.5" SS530 800GB Performance SAS 12Gb Hot Swap SSD	B4Y8	2 / 4
ThinkSystem 3.5" SS530 1.6TB Performance SAS 12Gb Hot Swap SSD	B4Y9	2 / 4
ThinkSystem 3.5" SS530 3.2TB Performance SAS 12Gb Hot Swap SSD	B4YA	2 / 4
Cache drives: PM1645a Mainstream 12 Gbps SAS hot-swap SSDs		
ThinkSystem 3.5" PM1645a 800GB Mainstream SAS 12Gb Hot Swap SSD	B8HT	2 / 4
ThinkSystem 3.5" PM1645a 1.6TB Mainstream SAS 12Gb Hot Swap SSD	B8JN	2 / 4
ThinkSystem 3.5" PM1645a 3.2TB Mainstream SAS 12Gb Hot Swap SSD	B8JK	2 / 4
Cache drives: P4600 Mainstream NVMe PCIe hot-swap SSDs		
ThinkSystem 3.5" Intel P4600 1.6TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	B2XF	2 / 4
ThinkSystem 3.5" Intel P4600 3.2TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	B2XG	2 / 4
Cache drives: P4610 Mainstream NVMe PCIe hot-swap SSDs		
ThinkSystem 3.5" Intel P4610 1.6TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	B58C	2 / 4
ThinkSystem 3.5" Intel P4610 3.2TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	B58D	2 / 4
ThinkSystem 3.5" Intel P4610 6.4TB Mainstream NVMe PCIe 3.0 x4 Hot Swap SSD	B58E	2 / 4

Configuration notes:

- A minimum of four and a maximum of ten capacity HDDs must be selected. All HDDs in the certified node must be of the same type and capacity.
- A minimum of two and a maximum of four cache SSDs must be selected. All SSDs in the certified node must be of the same model and capacity.

I/O expansion

The MX Certified Nodes for Hybrid Storage provide four PCIe slots: one slot on the system planar that is dedicated to an internal storage controller, one regular PCIe slot on the system planar, and two PCIe slots on the Riser Card 2.

The slot form factors are as follows:

- Slot 4 (Onboard): PCIe 3.0 x8; low profile (for the second10/25 GbE network adapter)
- Slot 5 (Riser Card 2): PCIe 3.0 x16; full-height, half-length (for the second 100 GbE network adapter)
- Slot 6 (Riser Card 2): PCIe 3.0 x16; full-height, half-length (for the first 10/25 GbE or 100 GbE network adapter)
- Slot 7 (Onboard): PCIe 3.0 x8 (dedicated to an internal storage controller)

The locations of the PCIe slots are shown in the Components and connectors.

The following table lists the PCIe Riser Card 2 that is derived by the configurator in all configurations.

Table 12. PCIe Riser Card 2

Description	Feature code	Quantity
ThinkSystem 2U (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit	AURC	1

Network connectivity

The ThinkAgile MX Certified Nodes provide two- or four-port 10/25 GbE SFP28 or 100 GbE QSFP28, or one- or two-port 10/40 GbE QSFP+ network connectivity with the PCIe Ethernet adapters. Optionally, a LOM card can be selected to provide two- or four-port 1 GbE RJ-45, or 1/10 GbE RJ-45, or 10 GbE SFP+ external network connectivity to the cluster.

The following table lists the network adapters available for selection.

Table 13. Network adapter selection options

Description	Feature code	Quantity (min / max)
1 GbE RJ-45 ports		
ThinkSystem 1Gb 2-port RJ-45 LOM	AUKG	0 / 1
ThinkSystem 1Gb 4-port RJ-45 LOM	AUKH	0 / 1
1/10 GbE RJ-45 ports		
ThinkSystem 10Gb 2-port Base-T LOM	AUKL	0 / 1
ThinkSystem 10Gb 4-port Base-T LOM	AUKM	0 / 1
10 GbE SFP+ ports		
ThinkSystem 10Gb 2-port SFP+ LOM	AUKJ	0 / 1
ThinkSystem 10Gb 4-port SFP+ LOM	AUKK	0 / 1
10/25 GbE SFP28 ports		
Mellanox ConnectX-4 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	AUAJ	1 / 2
QLogic QL41262 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	B21R	1 / 2
40 GbE network adapters (PCIe 3.0 x8)		
Mellanox ConnectX-4 Lx 1x40GbE QSFP+ Adapter	ATRN	1 / 2
100 GbE network adapters (PCIe 3.0 x16)		
Mellanox ConnectX-4 1x100GbE/EDR IB QSFP28 VPI Adapter	ASWQ	1 / 2
Mellanox ConnectX-4 2x100GbE/EDR IB QSFP28 VPI Adapter	ATRP	1 / 2

Configuration notes:

- A minimum of one and a maximum of two PCIe network adapters can be selected. If two PCIe network adapters are used, they must be of the same model.
- The selection of a LOM card is optional (a LOM card is not supported for RDMA storage traffic and can be used only for the external network connectivity to the cluster).
- A two-node cluster supports direct node-to-node (no external switch is needed) or switched (an external switch is needed) network connectivity with the network ports on the PCIe network adapters. For three or more nodes, an external switch is required.
- Supported transceivers or DAC cables should be purchased for the SFP+ and SFP28 network adapter ports, supported active optical cables should be purchased for the QSFP28 ports, and UTP Category 6 or Category 5e cables should be purchased for the 10 GbE (Cat6) or 1 GbE (Cat5e or Cat6) RJ-45 network adapter ports. The maximum number of cables that are supported per adapter equals the quantity of the adapter ports, and all adapter ports must have the same type of the cable selected.

The following transceiver and cables can be purchased:

- UTP cables for 10 GbE and 1 GbE RJ-45 ports
- Transceivers and cables for 10 GbE SFP+ ports
- Transceivers and cables for 25 GbE SFP28 ports
- Transceivers and cables for 40 GbE QSFP+ ports
- Cables for 100 GbE QSFP28 ports

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

Table 14. Cables for 10 GbE and 1 GbE RJ-45 ports

Description	Part number	Feature code
UTP Category 6 cables (Green) for 10 GbE and 1 GbE RJ-45 ports		
0.75m Cat6 Green Cable	00WE123	AVFW
1.0m Cat6 Green Cable	00WE127	AVFX
1.25m Cat6 Green Cable	00WE131	AVFY
1.5m Cat6 Green Cable	00WE135	AVFZ
3m Cat6 Green Cable	00WE139	AVG0
10m Cat6 Green Cable	90Y3718	A1MT
25m Cat6 Green Cable	90Y3727	A1MW
UTP Category 5e cables (Blue) for 1 GbE RJ-45 ports		
0.75m Blue Cat5e Cable	00WE111	AVFT
1.0m Blue Cat5e Cable	00WE115	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

The following table lists transceivers and cables for the 10 GbE SFP+ ports.

Table 15. Transceivers and cables for 10 GbE SFP+ ports

Description	Part number	Feature code
10 GbE SFP+ SR transceivers for 10 GbE SFP+ ports		
Lenovo 10GBASE-SR SFP+ Transceiver	46C3447	5053
Lenovo 10GBASE-LR SFP+ Transceiver	00FE331*	B0RJ*
Optical cables for 10 GbE SFP+ SR 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
Passive SFP+ DAC cables for 10 GbE SFP+ ports		

Description	Part number	Feature code
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*

* Not supported with the Mellanox QSFP+ to SFP+ adapter (00D9676).

The following table lists transceivers and cables for the 25 GbE SFP28 ports.

Table 16. Transceivers and cables for 25 GbE SFP28 ports

Description	Part number	Feature code
25 GbE SFP28 SR transceivers for 25 GbE SFP28 ports		
Lenovo 25GBase-SR SFP28 Transceiver	7G17A03537	AV1B
Optical cables for 25 GbE SFP28 SR 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
Passive copper cables for 25 GbE SFP28 ports		
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

The following table lists transceivers and cables for the 40 GbE QSFP+ ports.

Table 17. Transceivers and cables for 40 GbE QSFP+ ports

Description	Part number	Feature code
40 GbE QSFP+ transceivers for 40 GbE QSFP+ ports		
Lenovo 40GBASE-SR4 QSFP+ Transceiver	49Y7884	A1DR
Optical cables for 40 GbE QSFP+ SR4 transceivers		
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	00VX003	AT2U
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	00VX005	AT2V
Passive direct-attach copper cables for 40 GbE QSFP+ ports		
Lenovo 1m Passive QSFP+ DAC Cable	49Y7890	A1DP
Lenovo 3m Passive QSFP+ DAC Cable	49Y7891	A1DQ
Lenovo 5m Passive QSFP+ DAC Cable	00D5810	A2X8
Lenovo 7m Passive QSFP+ DAC Cable	00D5813	A2X9
QSFP+ to SFP+ adapter (40 GbE QSFP+ to 10 GbE SFP+)		
Mellanox QSFP+ to SFP+ Adapter	00D9676	ARZH

The following table lists active optical cable options for the 100 GbE QSFP28 ports.

Table 18. Active optical cables for 100 GbE QSFP28 ports

Description	Part number	Feature code
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

For more information, see the list of Product Guides in the Ethernet Adapters category:
http://lenovopress.com/servers/options/ethernet#rt=product-guide

Power supplies and cables

The MX Certified Nodes ship with two 1100 W (230V/115V) Platinum hot-swap power supplies listed in the following table.

Table 19. Power supplies

Description	Feature code	Quantity
ThinkSystem 1100W (230V/115V) Platinum Hot-Swap Power Supply	AVWF	2

Configuration notes:

- Two power supplies are required per node.
- The power supplies support AC (Worldwide) and HVDC (China only) power sources.

The MX Certified Nodes ship with two customer-configured power cords. The following table lists the rack power cables and line cords that can be ordered for the MX Certified Nodes.

Table 20. Power cables

Description	Part number	Feature code
Rack power cables		
1.0m, 10A/125-250V, C13 to IEC 320-C14 Rack Power Cable	00Y3043	A4VP
1.0m, 13A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08367	B0N5
1.2m, 16A/100-250V, 2 Short C13s to Short C20 Rack Power Cable	47C2491	A3SW
1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7937	6201
1.5m, 13A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08368	B0N6
2.0m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08365	B0N4
2.0m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08369	6570
2.5m, 16A/100-250V, 2 Long C13s to Short C20 Rack Power Cable	47C2492	A3SX
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08366	6311
2.8m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08370	6400
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	39Y7938	6204
2.8m, 16A/100-250V, 2 Short C13s to Long C20 Rack Power Cable	47C2493	A3SY
4.1m, 16A/100-250V, 2 Long C13s to Long C20 Rack Power Cable	47C2494	A3SZ
4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	39Y7932	6263
4.3m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	4L67A08371	6583
Line cords		
Argentina 2.8m, 10A/250V, C13 to IRAM 2073 Line Cord	39Y7930	6222
Argentina 4.3m, 10A/250V, C13 to IRAM 2073 Line Cord	81Y2384	6492
Australia/New Zealand 2.8m, 10A/250V, C13 to AS/NZS 3112 Line Cord	39Y7924	6211
Australia/New Zealand 4.3m, 10A/250V, C13 to AS/NZS 3112 Line Cord	81Y2383	6574
Brazil 2.8m, 10A/250V, C13 to NBR 14136 Line Cord	69Y1988	6532
Brazil 4.3m, 10A/250V, C13 to NBR14136 Line Cord	81Y2387	6404
China 2.8m, 10A/250V, C13 to GB 2099.1 Line Cord	39Y7928	6210
China 4.3m, 10A/250V, C13 to GB 2099.1 Line Cord	81Y2378	6580

Description	Part number	Feature code
Denmark 2.8m, 10A/250V, C13 to DK2-5a Line Cord	39Y7918	6213
Denmark 4.3m, 10A/250V, C13 to DK2-5a Line Cord	81Y2382	6575
Europe 2.8m, 10A/250V, C13 to CEE7-VII Line Cord	39Y7917	6212
Europe 4.3m, 10A/250V, C13 to CEE7-VII Line Cord	81Y2376	6572
India 2.8m, 10A/250V, C13 to IS 6538 Line Cord	39Y7927	6269
India 4.3m, 10A/250V, C13 to IS 6538 Line Cord	81Y2386	6567
Israel 2.8m, 10A/250V, C13 to SI 32 Line Cord	39Y7920	6218
Israel 4.3m, 10A/250V, C13 to SI 32 Line Cord	81Y2381	6579
Italy 2.8m, 10A/250V, C13 to CEI 23-16 Line Cord	39Y7921	6217
Italy 4.3m, 10A/250V, C13 to CEI 23-16 Line Cord	81Y2380	6493
Japan 2.8m, 12A/125V, C13 to JIS C-8303 Line cord	46M2593	A1RE
Japan 2.8m, 12A/250V, C13 to JIS C-8303 Line Cord	4L67A08357	6533
Japan 4.3m, 12A/125V, C13 to JIS C-8303 Line Cord	39Y7926	6335
Japan 4.3m, 12A/250V, C13 to JIS C-8303 Line Cord	4L67A08362	6495
Korea 2.8m, 12A/250V, C13 to KS C8305 Line Cord	39Y7925	6219
Korea 4.3m, 12A/250V, C13 to KS C8305 Line Cord	81Y2385	6494
South Africa 2.8m, 10A/250V, C13 to SABS 164 Line Cord	39Y7922	6214
South Africa 4.3m, 10A/250V, C13 to SABS 164 Line Cord	81Y2379	6576
Switzerland 2.8m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	39Y7919	6216
Switzerland 4.3m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	81Y2390	6578
Taiwan 2.8m, 10A/125V, C13 to CNS 10917-3 Line Cord	23R7158	6386
Taiwan 2.8m, 10A/250V, C13 to CNS 10917-3 Line Cord	81Y2375	6317
Taiwan 2.8m, 15A/125V, C13 to CNS 10917-3 Line Cord	81Y2374	6402
Taiwan 4.3m, 10A/125V, C13 to CNS 10917-3 Line Cord	4L67A08363	AX8B
Taiwan 4.3m, 10A/250V, C13 to CNS 10917-3 Line Cord	81Y2389	6531
Taiwan 4.3m, 15A/125V, C13 to CNS 10917-3 Line Cord	81Y2388	6530
United Kingdom 2.8m, 10A/250V, C13 to BS 1363/A Line Cord	39Y7923	6215
United Kingdom 4.3m, 10A/250V, C13 to BS 1363/A Line Cord	81Y2377	6577
United States 2.8m, 10A/125V, C13 to NEMA 5-15P Line Cord	90Y3016	6313
United States 2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord	46M2592	A1RF
United States 2.8m, 13A/125V, C13 to NEMA 5-15P Line Cord	00WH545	6401
United States 4.3m, 10A/125V, C13 to NEMA 5-15P Line Cord	4L67A08359	6370
United States 4.3m, 10A/250V, C13 to NEMA 6-15P Line Cord	4L67A08361	6373
United States 4.3m, 13A/125V, C13 to NEMA 5-15P Line Cord	4L67A08360	AX8A

Configuration note: If the 1100 W AC power supplies in the MX Certified Node are connected to a low-voltage power source (100 - 125 V), the only supported power cables are those that are rated above 10 A; cables that are rated at 10 A are not supported.

Rack installation

The MX Certified Nodes ship with a rail kit shown in the following table.

Table 21. Rack installation

Description	Feature code	Quantity
ThinkSystem Tool-less Slide Rail (4-post)	AXCA	1

The following table summarizes the rail kit features and specifications.

Table 22. Rail kit features and specifications summary

Feature	Tool-less Slide Rail
Rail length	730 mm (28.74 in.)
Rail type	Full-out slide (ball bearing)
Tool-less installation	Yes
In-rack server maintenance	Yes
1U PDU support	Yes
0U PDU support	Limited*
Rack type	IBM and Lenovo 4-post, IEC standard-compliant
Mounting holes	Square or round
Mounting flange thickness	2 mm (0.08 in.) – 3.3 mm (0.13 in.)
Distance between front and rear mounting flanges^	609.6 mm (24 in.) – 863.6 mm (34 in.)

* If a 0U PDU is used, the rack cabinet must be at least 1100 mm (43.31 in.) deep.
^ Measured when mounted on the rack, from the front surface of the front mounting flange to the rear most point of the rail.

Software

The ThinkAgile MX Certified Nodes support the Windows Server 2016 or 2019 Datacenter edition with Microsoft Storage Spaces Direct (S2D). Windows Server Datacenter is installed on the 2x 480 GB internal M.2 SSDs configured in a RAID-1 drive group.

Customers can use the existing Windows Server 2016 or 2019 Datacenter software licenses, or they can purchase new software licenses from Lenovo or Microsoft. If the licenses are purchased from Lenovo, Windows Server 2019 can be factory-installed or shipped in the box with the certified node for the installation at the customer site.

The following table lists the Windows Server software options that are available for selection from Lenovo.

Table 23. Windows Server Datacenter software selection options

Description	Feature code
Windows Server 2019 Datacenter (16-core license, factory-installed)	
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - English (factory installed)	B6P2
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Japanese (factory installed)	B6P3
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Simplified Chinese (factory installed)	B6P4
Windows Server 2019 Datacenter (16-core license, not preinstalled)	

Description	Feature code
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Multilanguage (not pre-installed)	B6NY
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Japanese (not pre-installed)	B6NZ
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Traditional Chinese (not pre-installed)	B6P1
Windows Server Datacenter 2019 for Microsoft Azure Stack HCI - Simplified Chinese (not pre-installed)	B6P0

Configuration notes:

- The selection of Windows Server software licenses is optional.
- The quantity of core-based licenses should be sufficient to cover all processor cores in the certified node.

Systems management

The ThinkAgile MX Certified Nodes support the following systems management tools:

- Lenovo XClarity Controller
- Light path diagnostics
- Lenovo XClarity Administrator and XClarity Pro
- Lenovo XClarity Integrator for Microsoft Admin Center
- Lenovo XClarity Integrator for Microsoft System Center
- Lenovo XClarity Energy Manager

Lenovo XClarity Controller

The ThinkAgile MX Certified Nodes contain Lenovo XClarity Controller (XCC) Enterprise, which provides advanced service-processor control, monitoring, and alerting functions.

XClarity Controller Enterprise offers the following capabilities for the MX Certified Nodes:

- Gathering and viewing system information and inventory
- Monitoring system status and health
- Alerting and notifications
- Event logging
- Syslog alerting
- Configuring security
- Updating system firmware
- Real-time power usage monitoring
- Displaying graphics for real-time and historical power usage data and temperature
- Capping power usage
- Remotely controlling power (Power on, Power off, Restart)

The XClarity Controller provides remote node management through the following interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Common Information Model (CIM)
- Data Center Manageability Interface (DCMI) Version 1.5
- Redfish REpresentational State Transfer (REST) API
- Web browser with HTML5 support
- Command-line interface
- Virtual Operator Panel with XClarity Mobile App via the front USB port with XClarity Controller access

Virtual Operator Panel provides quick access to system status, firmware, network, health, and alerts information. With proper authentication, it also allows to configure systems management and network

settings and to control system power (Power on, Power off, Restart). The Virtual Operator Panel can be accessed from the XClarity Mobile App running on the Android or iOS mobile device that is connected to the front USB port with XClarity Controller access (See Components and connectors).

Light path diagnostics

The ThinkAgile MX Certified Nodes include basic light path diagnostics, which provides the system LEDs on the front of the node and the LEDs near the monitored components (for example, the DIMM error LEDs on the system board).

Lenovo XClarity Administrator and XClarity Pro

Lenovo XClarity Administrator is a centralized systems management solution that helps administrators deliver infrastructure faster. This solution integrates easily with Lenovo x86 servers, ThinkAgile MX certified nodes, RackSwitch switches, and DS Series storage, providing automated agent-less discovery, monitoring, firmware updates, and configuration management across multiple systems.

Lenovo XClarity Administrator is an optional software component for managing ThinkAgile MX Certified Nodes which can be downloaded and used at no charge to discover and monitor the nodes and manage firmware upgrades for them.

If software support is required for XClarity Administrator and XClarity Integrator for System Center, Lenovo XClarity Pro software subscription should be ordered. Lenovo XClarity Pro is licensed on a per managed system basis, that is, each managed Lenovo system requires a license.

The following table lists the Lenovo XClarity Pro license options available for selection.

Table 24. Lenovo XClarity Pro licenses

Description	Feature code
Lenovo XClarity Pro, per Managed Server w/3 Yr SW S&S	B3XS
Lenovo XClarity Pro, per Managed Server w/5 Yr SW S&S	B3XT

Lenovo XClarity Administrator offers the following standard features that are available at no charge:

- Auto-discovery and monitoring of Lenovo x86 servers, appliances, certified nodes, RackSwitch switches, Flex System chassis, and DM/DE/DS Series storage systems
- Firmware updates and compliance enforcement
- External alerts and notifications via SNMP traps, syslog remote logging, and e-mail
- Secure connections to managed endpoints
- NIST 800-131A or FIPS 140-2 compliant cryptographic standards between the management solution and managed endpoints
- Integration into existing higher-level management systems such as cloud automation and orchestration tools through REST APIs, providing extensive external visibility and control over hardware resources
- An intuitive, easy-to-use GUI
- Scripting with Windows PowerShell, providing command-line visibility and control over hardware resources

Lenovo XClarity Administrator offers the following premium features that require an optional Pro license:

- Pattern-based configuration management that allows to define configurations once and apply repeatedly without errors when deploying new nodes or redeploying existing nodes without disrupting the fabric
- Bare-metal deployment of operating systems and hypervisors to streamline infrastructure provisioning

For more information, refer to the Lenovo XClarity Administrator Product Guide:
http://lenovopress.com/tips1200

Lenovo XClarity Integrator for Microsoft Admin Center

Lenovo XClarity Integrator for Microsoft Admin Center is a software plug-in module for Lenovo XClarity Administrator that provides customers a smooth and seamless management experience across Windows Server hyperconverged and physical infrastructure in a single unified user interface.

Lenovo XClarity Integrator for Admin Center offers the following features:

- Monitoring health status of cluster hardware and generating alerts
- Collecting inventory, including available firmware updates
- Managing firmware updates for nodes and clusters
- Performing remote management, including remote power on/off and remote control.

Lenovo XClarity Integrator for Admin Center can be downloaded and used at no charge. For more information, refer to the Lenovo XClarity Integrator for Microsoft System Center web page:
http://support.lenovo.com/us/en/solutions/ht507549

Lenovo XClarity Integrator for Microsoft System Center

Lenovo XClarity Integrator for Microsoft System Center is a software plug-in module for Lenovo XClarity Administrator that allows customers to integrate the management features of the Lenovo x86 servers, appliances, and certified nodes with Microsoft System Center.

Lenovo XClarity Integrator for System Center offers the following features:

- Ability to discover, manage, and monitor Lenovo node hardware from the virtualization management tool
- Deployment of firmware updates and configuration patterns to MX Certified Nodes from the virtualization management tool
- Non-disruptive node maintenance in clustered environments that reduces workload downtime by dynamically migrating workloads from affected hosts during rolling node updates or reboots
- Greater service level uptime and assurance in clustered environments during unplanned hardware events by dynamically triggering workload migration from impacted hosts when impending hardware failures are predicted

Lenovo XClarity Integrator for System Center can be downloaded and used at no charge. For more information, refer to the Lenovo XClarity Integrator for Microsoft System Center web page: http://support.lenovo.com/us/en/solutions/lnvo-msuim

Lenovo XClarity Energy Manager

Lenovo XClarity Energy Manager provides a stand-alone, web-based agent-less power management console that provides real time data and enables you to observe, plan and manage power and cooling for Lenovo servers, appliances, and certified nodes. Using built-in intelligence, it identifies node power consumption trends and ideal power settings and performs cooling analysis so that you can define and optimize power-saving policies.

Lenovo XClarity Energy Manager offers the following capabilities:

- Monitors room, row, rack, and device levels in the data center
- Reports vital system information, such as power, temperature and resource utilization
- Monitors inlet temperature to locate hot spots, reducing the risk of data or device damage
- Provides finely-grained controls to limit platform power in compliance with IT policy
- Generates alerts when a user-defined threshold is reached

Lenovo XClarity Energy Manager is an optional software component for MX Certified Nodes that is licensed on a per managed node basis, that is, each managed system requires a license. The 1-node Energy Manager license is included in the XClarity Controller Enterprise upgrade.

For more information, refer to the Lenovo XClarity Energy Manager web page: http://datacentersupport.lenovo.com/us/en/solutions/lnvo-lxem

Physical specifications

The ThinkAgile MX Certified Nodes have the following dimensions and weight (approximate):

- Height: 87 mm (3.4 in.)
- Width: 445 mm (17.5 in.)
- Depth: 720 mm (28.3 in.)
- Weight (maximum): 32 kg (70.5 lb)

Operating environment

The ThinkAgile MX Certified Nodes comply with ASHRAE class A2 specifications. The node performance might be impacted when the operating temperature is outside the ASHRAE A2 specifications.

The ThinkAgile MX Certified Nodes are supported in the following environment:

- 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 (supported in China only)
- Acoustics (maximum configuration, operating): 6.2 bels
- Vibration:
  - Operating: 0.21 G rms at 5 Hz to 500 Hz for 15 minutes across 3 axes
  - Non-operating: 1.04 G rms at 2 Hz to 200 Hz for 15 minutes across 6 surfaces
- Shock:
  - Operating: 15 G for 3 milliseconds in each direction (positive and negative X, Y, and Z axes)
  - Non-operating:
    - 12 kg - 22 kg: 50 G for 152 in./sec velocity change across 6 surfaces
    - 23 kg - 31 kg: 35 G for 152 in./sec velocity change across 6 surfaces

The following table lists the maximum system power load, rated inlet current, and system heat output based on the power supply and source voltage.

Table 25. Rated system power, inlet current, and system heat output

Power supply	Source voltage	Maximum power load per system (two power supplies)	Rated current per inlet	System heat output
1100 W Platinum	100 - 127 V AC	1382 W	12 A	4715 BTU/hour
	200 - 240 V AC	1408 W	6 A	4804 BTU/hour
	180 - 300 V DC	1408 W	5.1 A	4804 BTU/hour

Regulatory compliance

The ThinkAgile MX Certified Nodes conform to the following regulations:

- United States FCC Part 15, Class A
- Canada ICES-003/NMB-03, Class A
- UL/CSA 60950-1
- Mexico NOM-019
- Argentina IEC60950-1
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22, Class A
- China CCC GB4943.1, GB9254 Class A, GB17625.1
- Taiwan BSMI CNS13438, Class A; CNS14336-1
- Korea KN22, Class A; KN24
- Russia/GOST ME01; IEC-60950-1; GOST R 51318.22, 51318.24, 51317.3.2, and 51317.3.3
- IEC 60950-1 (CB Certificate and CB Test Report)
- Europe CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- Germany TUV-GS (EN60950-1/IEC60950-1, EK1-ITB2000)
- Reduction of Hazardous Substances (ROHS)
- Energy Star 3.0

Warranty and support

The ThinkAgile MX Certified Nodes can be configured with a three-, four-, or five-year hardware warranty and various levels of service coverage with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

The base warranty provides 9x5 Next Business Day response with parts delivered. Lenovo's additional support services provide a sophisticated, unified support structure for a customer's data center, with an experience consistently ranked number one in customer satisfaction worldwide.

The following Lenovo support services are available for selection:

- **Warranty service level upgrades (Preconfigured Support)** are available to meet the on-site response time targets that match the criticality of customer's 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, with optional YourDrive YourData.
    - **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select regions), bundled with YourDrive YourData.
    - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select regions), bundled with YourDrive YourData.
- **Managed Services**
  Lenovo Managed Services provide continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of a customer's data center using state of the art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

  Quarterly reviews check error logs, verify firmware and operating system device driver levels, and software as needed. Lenovo will also maintain records of latest patches, critical updates, and firmware levels, to ensure customer's systems are providing business value through optimized performance.

- **Technical Account Management (TAM)**
  A Lenovo Technical Account Manager helps customers optimize operations of their data centers based on a deep understanding of customer's business. Customers gain direct access to a Lenovo TAM, who serves as their single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. Also, a TAM helps proactively make service recommendations and manage service relationship with Lenovo to make certain that customer's needs are met.
- **Enterprise Software Support**
  Lenovo Enterprise Software Support is an additional support service that provides 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 compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.
- **YourDrive YourData**
  Lenovo's YourDrive YourData service is a multi-drive retention offering that ensures that customer's data is always under their control, regardless of the number of drives that are installed in their Lenovo server. In the unlikely event of a drive failure, customers retain possession of their drive while Lenovo replaces the failed drive part. Customer's data stays safely on customer premises, in their hands. The YourDrive YourData service can be purchased in convenient bundles with Foundation, Essential, or Advanced services.
- **Health Check**
  Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that customer systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

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

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

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

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

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

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

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

Deployment services

The following optional Lenovo basic installation services are available for the ThinkAgile MX Certified Nodes:

- Unpacking and inspecting the systems
- Mounting the systems in a rack cabinet
- Connecting the systems to electrical power and network
- Checking and updating firmware to the latest levels
- Verifying operations
- Disposal of the packaging materials (within the customer site)

The following optional Lenovo deployment services are available for the ThinkAgile MX Certified Nodes to get customers up and running quickly:

- Conducting remote preparation and planning
- Verifying firmware versions and performing firmware updates, if needed
- Configuring XCC management settings
- Configuring Storage Spaces Direct
- Configuring Microsoft System Center and discovering hosts and storage (if System Center is used)
- Configuring Lenovo XClarity network settings and performing discovery and inventory (if XClarity is selected)
- Transferring knowledge
- Developing post-installation documentation

For more information, refer to the Data Center Deployment Services web page:
http://www.lenovo.com/us/en/data-center/services/deployment

Ethernet LAN switches

The following table lists the Ethernet LAN switches that are offered by Lenovo that can be used with the ThinkAgile MX Certified Nodes.

Table 26. Ethernet LAN switches

Description	Part number
1 Gb Ethernet switches (Out-of-band hardware management)	
Lenovo ThinkSystem NE0152T RackSwitch (Rear to Front)	7Y810011WW
Lenovo ThinkSystem NE0152TO RackSwitch (Rear to Front, ONIE)	7Z320O11WW
Lenovo RackSwitch G7028 (Rear to Front)	7159BAX
Lenovo RackSwitch G7052 (Rear to Front)	7159CAX
Lenovo CE0128TB Switch (3-Year Warranty)	7Z340011WW
Lenovo CE0128TB Switch (Limited Lifetime Warranty)	7Z360011WW
Lenovo CE0128PB Switch (3-Year Warranty)	7Z340012WW
Lenovo CE0128PB Switch (Limited Lifetime Warranty)	7Z360012WW
Lenovo CE0152TB Switch (3-Year Warranty)	7Z350021WW
Lenovo CE0152TB Switch (Limited Lifetime Warranty)	7Z370021WW
Lenovo CE0152PB Switch (3-Year Warranty)	7Z350022WW
Lenovo CE0152PB Switch (Limited Lifetime Warranty)	7Z370022WW
10 Gb Ethernet switches (10 GbE host connectivity)	
Lenovo ThinkSystem NE1032 RackSwitch (Rear to Front)	7159A1X
Lenovo ThinkSystem NE1032T RackSwitch (Rear to Front)	7159B1X
Lenovo ThinkSystem NE1064TO RackSwitch (Rear to Front, ONIE)	7Z330O11WW
Lenovo ThinkSystem NE1072T RackSwitch (Rear to Front)	7159C1X
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
25 Gb Ethernet switches (10/25 GbE host connectivity)	
Lenovo ThinkSystem NE2572 RackSwitch (Rear to Front)	7159E1X
Lenovo ThinkSystem NE2572O RackSwitch (Rear to Front, ONIE)	7Z210O21WW
Lenovo ThinkSystem NE2580O RackSwitch (Rear to Front, ONIE)	7Z330O21WW
100 Gb Ethernet switches (40 GbE/100 GbE aggregation layer; 10 GbE/25 GbE breakout host connectivity)	
Lenovo ThinkSystem NE10032 RackSwitch (Rear to Front)	7159D1X
Lenovo ThinkSystem NE10032O RackSwitch (Rear to Front, ONIE)	7Z210O11WW

For more information, see the list of Product Guides in the Top-of-rack Switches category:
http://lenovopress.com/servers/options/switches#rt=product-guide

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used with the ThinkAgile MX Certified Nodes.

Table 27. Rack cabinets

Description	Part number
12U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 1YR Warranty	7D2B0001WW
12U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 3YR Warranty	7D2N0001WW
18U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 1YR Warranty	7D2C0001WW
18U 1200mm Deep Micro Datacenter Rack (no sidewall compartments), 3YR Warranty	7D2P0001WW
25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072RX
25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072PX
42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments)	93074RX
42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments)	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments)	93634EX
42U 1200mm Deep Dynamic Rack (6 sidewall compartments)	93604PX
42U 1200mm Deep Static Rack (6 sidewall compartments)	93614PX
42U Enterprise Rack (1105 mm deep; 4 sidewall compartments)	93084PX
42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments)	93084EX

For more information, see the list of Product Guides in the Rack Cabinets category:
http://lenovopress.com/servers/options/racks#rt=product-guide

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used with the ThinkAgile MX Certified Nodes.

Table 28. Power distribution units

Description	Part number
0U Basic PDUs	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776
0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord	00YJ777
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 cord	00YJ778
0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 cord	00YJ780
0U 18 C13/6 C19 Switched and Monitored 32A/200-240/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003

Description	Part number
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord (32A)	40K9617
DPI Korean 8305 Line Cord (30A)	40K9618

For more information, see the list of Product Guides in the Power Distribution Units category:
http://lenovopress.com/servers/options/pdu#rt=product-guide

Uninterruptible power supply units

The following table list the uninterruptible power supply (UPS) units that are currently offered by Lenovo that can be used with the ThinkAgile MX Certified Nodes.

Table 29. Uninterruptible power supply units

Description	Part number
Worldwide models	
RT1.5kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-15R 12A outlets)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC) (8x NEMA 5-20R 16A outlets)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC) (6x NEMA 5-20R 16A, 1x NEMA L5-30R 24A outlets)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x IEC 320 C19 16A outlets)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x IEC 320 C19 16A outlets)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55949PX
ASEAN, HTK, INDIA, and PRC models	
ThinkSystem RT3kVA 2U Standard UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)	55943KT
ThinkSystem RT3kVA 2U Long Backup UPS (200-230VAC) (2x C13 10A, 2x GB 10A, 1x C19 16A outlets)	55943LT
ThinkSystem RT6kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)	55946KT
ThinkSystem RT10kVA 5U UPS (200-230VAC) (2x C13 10A outlets, 1x Terminal Block output)	5594XKT

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

Lenovo Financial Services

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

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile MX Certified Node product page
  http://www.lenovo.com/us/en/p/WMD00000377
- Microsoft Azure Stack HCI documentation
  http://docs.microsoft.com/en-us/azure-stack/hci/overview
- Lenovo Data Center Solution Configurator (DCSC):
  http://dcsc.lenovo.com
- Lenovo ThinkAgile MX for Microsoft Azure Stack HCI Best Recipes
  http://datacentersupport.lenovo.com/us/en/solutions/ht507406

Related product families

Product families related to this document are the following:

- Hyperconverged Infrastructure
- Microsoft Alliance
- ThinkAgile MX Series for Microsoft Azure Local

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