Lenovo Flex System x240 M5 (E5-2600 v4)
Product Guide (withdrawn product)

The Lenovo Flex System x240 M5 Compute Node is a high-performance server that offers enhanced security, efficiency, and reliability features to handle business-critical workloads. The blade server incorporates up to two Intel Xeon E5-2600 v4 processors. The processors feature up to 22 cores each and use new lightning-fast Lenovo TruDDR4 memory, which runs at speeds up to 2400 MHz.

Suggested uses: database, virtualization, enterprise applications, collaboration and email, streaming media, Web, HPC, and cloud applications.

Figure 1 shows the Flex System x240 M5 Compute Node.

Figure 1. Flex System x240 M5 Compute Node

Did you know?

The x240 M5 Compute Node uses TruDDR4 DIMM technology, which offers higher clock speeds, faster data transfer rates, and runs at a lower voltage (1.2V) than DDR3. With DDR4 technology and the new Intel Xeon E5-2600 v4 processors, memory DIMMs can now operate at speeds up to 2400 MHz, which provides lower latency times and enhanced computing power. The TruDDR4 memory portfolio includes RDIMMs with advanced error correction for reliability, performance, and maximum memory capacity. In addition, Lenovo's industry-unique TruDDR4 DIMMs support memory performance that exceeds industry standards. (See the Key Features section for details.)

The x240 M5 Compute Node integrates leadership security and reliability capabilities. System x Trusted Platform Assurance, an exclusive set of System x features and practices, establishes a highly secure foundation for your workloads. Enterprise-class data protection is provided with optional self-encrypting drives and simple, centralized key management through Security Key Lifecycle Management. Diagnostic tools facilitate reduced downtime and costs.

Key features

The Flex System x240 M5 Compute Node is a high-availability, scalable compute node that is optimized to support the next-generation microprocessor technology. It is ideally suited for medium and large businesses. This section describes the key features of the server.

Scalability and performance

The x240 M5 offers the following features to boost performance, improve scalability, and reduce costs:

- Improves productivity by offering superior system performance with up to 22-core processors, up to 55 MB of L3 cache, and up to 9.6 GT/s QPI interconnect links.
- Supports up to two processors, 44 cores, and 88 threads, which maximizes the concurrent execution of multi-threaded applications.
- Intelligent and adaptive system performance with energy-efficient Intel Turbo Boost Technology allows CPU cores to run at maximum speeds during peak workloads by temporarily going beyond processor thermal design power (TDP).
- Intel Hyper-Threading Technology boosts performance for multithreaded applications by enabling simultaneous multithreading within each processor core, up to two threads per core.
- Intel Virtualization Technology integrates hardware-level virtualization hooks that allow operating system vendors to better use the hardware for virtualization workloads.
- Intel Advanced Vector Extensions 2.0 (AVX 2.0) enable acceleration of enterprise-class workloads, such as databases and enterprise resource planning.
- Up to 2400 MHz memory speeds with two DIMMs per channel (2DPC) that are running at 2400 MHz to help maximize system performance.
- Up to 1.5 TB of memory capacity using 64 GB LRDIMMs.
- Optional support for high-performance PCIe-attached NVMe Flash Storage solid-state drives (SSDs) can significantly improve I/O performance.
- Supports the Storage Expansion Node, which provides another 12 hot-swap, 2.5-inch drive bays for local storage.
- Up to 32 virtual I/O ports per compute node with available 10 Gb Virtual Fabric Adapters, which offers the choice of Ethernet, iSCSI, or Fibre Channel over Ethernet (FCoE) connectivity.
- The x240 M5 offers PCI Express 3.0 I/O expansion capabilities that improve the theoretical maximum bandwidth by 60% (8 GT/s per link), compared with the previous generation of PCI Express 2.0.
- With Intel Integrated I/O Technology, the PCI Express 3.0 controller is integrated into the Intel Xeon processor E5 family. This integration helps to dramatically reduce I/O latency and increase overall system performance.
- Support for high-bandwidth I/O adapters; up to two in each x240 M5 Compute Node.
- Support for 40 Gb Ethernet, 16 Gb Fibre Channel, and FDR InfiniBand.
- Supports the PCIe Expansion Node for support for up to six more I/O adapters.
- High-speed USB 3.0 port for connectivity to external devices.

Availability and serviceability

The x240 M5 provides the following features to simplify serviceability and increase system up-time:

- Chipkill, memory mirroring, and memory rank sparing for redundancy if there is a non-correctable memory failure.
- Toolless cover removal provides easy access to upgrades and serviceable parts, such as CPU, memory, and adapter cards.
- Hot-swap drives support integrated RAID-1 redundancy for data protection and greater system up-time.

- A light path diagnostics panel and individual light path LEDs to quickly lead the technician to failed (or failing) components. This feature simplifies servicing, speeds up problem resolution, and helps improve system availability.
- Proactive Platform Alerts (including PFA and SMART alerts): Processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs, NVMe SSDs, flash storage adapters), fans, power supplies, RAID controllers, and server ambient and sub-component temperatures. Alerts can be surfaced through the system IMM to managers such as Lenovo XClarity Administrator, VMware vCenter, and Microsoft System Center. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- Solid-state drives (SSDs), which offer significantly better reliability than mechanical HDDs for greater uptime.
- Built-in Integrated Management Module II (IMM2) continuously monitors system parameters, triggers alerts, and performs recovering actions if there is a failure, to minimize downtime.
- Built-in diagnostics uses Dynamic Systems Analysis (DSA) Preboot to speed up troubleshooting tasks and reduce service time.
- Three-year customer replaceable unit and on-site limited warranty; next business day 9x5. Optional service upgrades are available.

Manageability and security

The following powerful systems management features simplify the local and remote management of the x240 M5:

- Support for Lenovo XClarity Administrator, providing auto-discovery, inventory tracking, monitoring, policy-based firmware updates, address pool management, configuration patterns and operating system installation.
- Includes an Integrated Mangement Module (IMM2) to monitor server availability and perform remote management.
- Integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Integrated Trusted Platform Module (TPM) 1.2 and 2.0 support (TPM 2.0 requires UEFI 2.21 or later) enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Supports Secure Boot to ensure only a digitally signed operating system can be used. Supported with HDDs and SSDs as well as SD Cards in the SD Media Adapter.
- System x Trusted Platform Assurance, an exclusive set of System x security features and practices, establishes a highly secure foundation for workloads by delivering firmware that is securely built, tested, digitally signed, and verified before execution.
- The server offers enterprise-class data protection with optional self-encrypting drives and simple, centralized key management through Security Key Lifecycle Management.
- Industry-standard AES NI support for faster, stronger encryption.
- Intel Execute Disable Bit functionality can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.
- Intel Trusted Execution Technology provides enhanced security through hardware-based resistance to malicious software attacks, which allows an application to run in its own isolated space that is protected from all other software that is running on a system.

Energy efficiency

The x240 M5 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to the green environment:

- The component-sharing design of the Flex System chassis provides ultimate power and cooling savings.
- The Intel Xeon E5-2600 v4 processor family offers significantly better performance than previous generations of processors, while fitting into the same thermal design power (TDP) limits.

- Intel Intelligent Power Capability powers individual processor elements on and off as needed, which reduces power draw.
- Low-voltage Intel Xeon processors draw less energy to satisfy demands of power and thermally constrained data centers and telecommunication environments.
- Low-voltage 1.2 V DDR4 memory DIMMs use up to 20% less energy than 1.35 V DDR3 DIMMs (even less compared to 1.5 V DIMMs).
- Solid state drives (SSDs) use as much as 80% less power than traditional spinning 2.5-inch HDDs.
- The x240 M5 uses hexagonal ventilation holes, which are a part of Calibrated Vectored Cooling technology. Hexagonal holes can be grouped more densely than round holes, which provides more efficient airflow through the system.

Locations of key components and connectors

Figure 2 shows the front of the server.

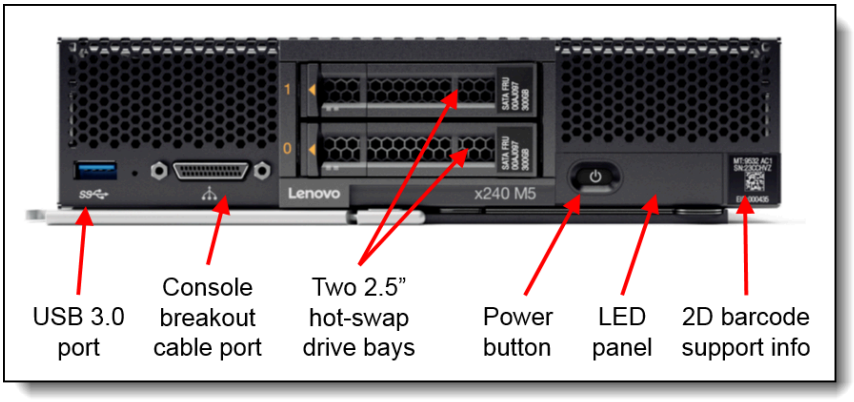

Figure 2. Front view of the Flex System x240 M5 Compute Node

Figure 3 shows the locations of key components inside the server.

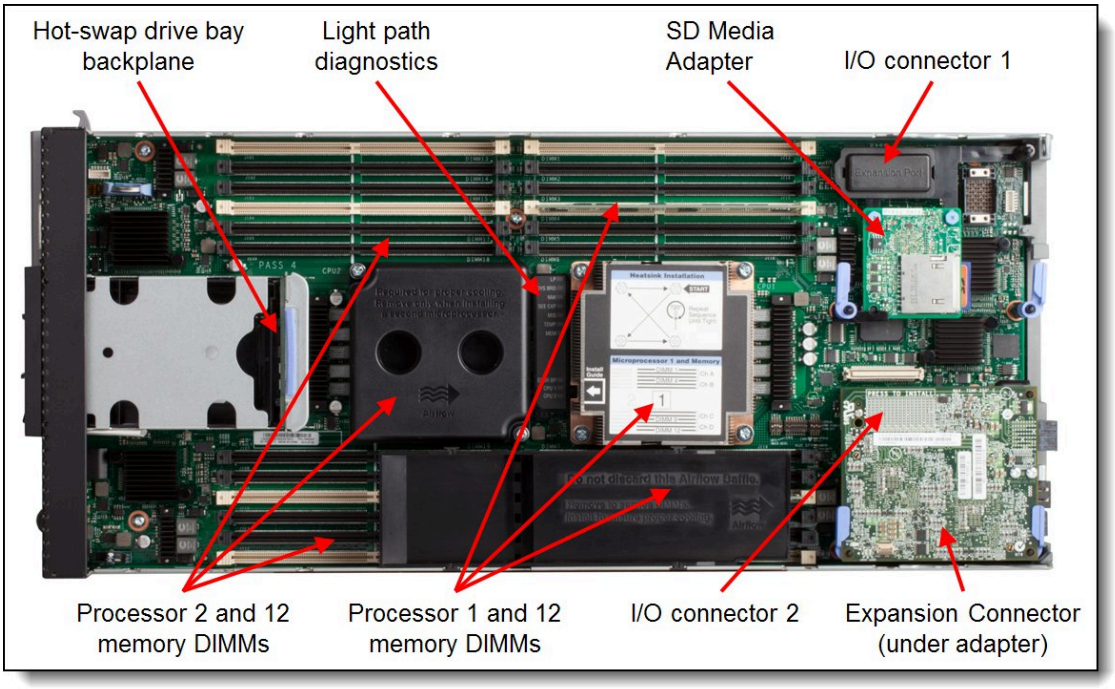

Figure 3. Inside view of the Flex System x240 M5 Compute Node

Standard specifications

The following table lists the standard specifications.

Table 1. Standard specifications

Components	Specification
Models	9532
Firmware	Lenovo-signed firmware
Form factor	Standard-width compute node.
Chassis support	Flex System Enterprise Chassis with CMM2. Flex System Carrier-Grade Chassis (non-NEBS mode)
Processor	Up to two Intel Xeon processor E5-2600 v4 product family CPUs: from 4 cores to 22 cores; core speeds from 1.7 GHz to 3.5 GHz; up to 55 MB L3 cache. Two QPI links up to 9.6 GT/s each. Up to 2400 MHz memory speed.
Chipset	Intel C612
Memory	Up to 24 DIMM sockets (12 DIMMs per processor). RDIMMs and LRDIMMs are supported. Memory types cannot be intermixed. Memory speed up to 2400 MHz. Four memory channels per processor (3 DIMMs per channel).
Memory maximums	With LRDIMMs: Up to 1.5 TB with 24x 64 GB LRDIMMs and two CPUs With RDIMMs: Up to 768 GB with 24x 32 GB RDIMMs and two CPUs
Memory protection	ECC, optional memory mirroring and memory rank sparing.
Disk drive bays	Two 2.5-inch hot-swap SAS/SATA drive bays that support SAS, SATA, and SSDs. Optional support for 2.5-inch NVMe PCIe SSDs. Optional support for up to four 1.8-inch SSDs in place of the two 2.5-inch bays. Up to 12 more 2.5-inch drive bays with the optional Storage Expansion Node.
Maximum internal storage	• With two 2.5-inch hot-swap drives: Up to 15.4 TB using 2x 7.68 TB 2.5-inch SATA SSDs or up to 4 TB using 2x 2 TB NL SAS HDDs. • With two 2.5-inch NVMe SSDs: Up to 4 TB using 2x 2 TB NVMe 2.5-inch G3HS Enterprise Value PCIe SSDs. • With four 1.8-inch SSDs: Up to 960 GB using 4x 240 GB 1.8-inch SSDs. More storage is available with an attached Flex System Storage Expansion Node.
RAID support	RAID-0, RAID-1 and RAID-1E with integrated ServeRAID M1210e controller (LSI SAS3004-based) or optional ServeRAID M5215. Optional RAID-5 support with ServeRAID M1200 RAID-5 Enablement Kit and 1.8-inch SSDs
Network interfaces	None standard; optional 1 Gb, 10 GbE, or 40 GbE adapters.
PCI Expansion slots	Two I/O connectors for adapters. PCI Express 3.0 x16 interface. Includes an Expansion Connector (PCIe 3.0 x16) to connect an expansion node, such as the PCIe Expansion Node. PCIe Expansion Node supports two full-height PCIe adapters, two low-profile PCIe adapters, and two Flex System I/O adapters.
Ports	Front: One USB 3.0 port and one console breakout cable port that provides local KVM and serial ports (cable standard with chassis; more cables optional). Internal: Optional SD Media Adapter provides two SD Media slots for VMware vSphere hypervisor support (RAID-1 pair).
Systems management	UEFI, Integrated Management Module 2 (IMM2) with Renesas SH7758 controller, Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator, Lenovo Energy Manager, and Lenovo ToolsCenter.
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM) 1.2 and 2.0 (TPM 2.0 requires UEFI 2.21 or later).
Video	Matrox G200eR2 video core with 16 MB video memory integrated into the IMM2. Maximum resolution is 1600x1200 at 75 Hz with 16 M colors.

Components	Specification
Limited warranty	Three-year customer-replaceable unit and on-site limited warranty with 9x5/NBD.
Operating systems supported	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware ESXi. See the Operating system support section for specifics.
Service and support	Optional service upgrades are available through Lenovo warranty services: 4-hour or 2-hour response time, 8-hour fix time, 1-year or 2-year warranty extension, remote technical support for Lenovo hardware and selected Lenovo and original equipment manufacturer (OEM) software.
Dimensions	Width: 215 mm (8.5 inches), height 51 mm (2.0 inches), depth 493 mm (19.4 inches).
Weight	Maximum configuration: 7.1 kg (15.6 lb).

The x240 M5 servers are shipped with the following items:

- Statement of Limited Warranty
- Important Notices
- Documentation flyer that contains the *Installation and User's Guide*

Standard models

The following table lists the standard models.

Canada customers: These standard models are not available in Canada.

Memory speeds: All models ship with TruDDR4 memory that is rated at 2400 MHz (as described in the Memory options section), however some models include processors that operate at a lower memory bus speed. As a result, memory installed in those models will operate at a speed that matches the processor, as indicated with parentheses in the Memory column.

Table 2. Standard models

Model*	Intel Xeon Processor (2 maximum)**	Memory	Disk controller	Drive bays† (used/max)	Disks	10 GbE	I/O slots (used / max)
9532-12x	1x E5-2620 v4 8C 2.1GHz 20MB 2133MHz 85W	1x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-13x	1x E5-2609 v4 8C 1.7GHz 20MB 1866MHz 85W	1x 16GB (1866 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-22x	1x E5-2630 v4 10C 2.2GHz 25MB 2133MHz 85W	1x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-23x	1x E5-2637 v4 4C 3.5GHz 15MB 2400MHz 135W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-32x	1x E5-2640 v4 10C 2.4GHz 25MB 2133MHz 90W	1x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-33x	1x E5-2643 v4 6C 3.4GHz 20MB 2400MHz 135W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-42x	1x E5-2650 v4 12C 2.2GHz 30MB 2400MHz 105W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-43U 9532-43G‡	1x E5-2683 v4 16C 2.1GHz 40MB 2400MHz 120W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-52x	1x E5-2660 v4 14C 2.0GHz 35MB 2400MHz 105W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-53G‡	1x E5-2667 v4 8C 3.2GHz 25MB 2400MHz 135W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-62x	1x E5-2680 v4 14C 2.4GHz 35MB 2400MHz 120W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-72x	1x E5-2690 v4 14C 2.6GHz 35MB 2400MHz 135W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-82x	1x E5-2697 v4 18C 2.3GHz 45MB 2400MHz 145W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-92x	1x E5-2699 v4 22C 2.2GHz 55MB 2400MHz 145W	1x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2

* The model numbers listed here include the letter x. The x represents a letter that varies by region and geography. For example, in the United States, the x is replaced with the letter U, so that model 12x is actually 12U in the US. In Europe, the letter x is replaced with G.
** Processor detail: Processor quantity, model, cores, core speed, L3 cache, memory speed, power TDP rating.
† The two 2.5-inch drive bays can be replaced with four 1.8-inch SSD bays.
‡ Model 43U is available in the US only; 43G and 53G are available in EMEA only.

TopSeller models

The following table lists the available TopSeller models.

Memory speeds: All models ship with TruDDR4 memory that is rated at 2400 MHz (as described in the Memory options section), however some models include processors that operate at a lower memory bus speed. As a result, memory installed in those models will operate at a speed that matches the processor, as indicated with parentheses in the Memory column.

Table 3. TopSeller models

Model	Intel Xeon Processor (2 maximum)*	Memory	Disk adapter	Drive bays†	Disks	10 GbE	I/O slots
TopSeller models - North America							
9532-EEx	2x E5-2660 v4 14C 2.0GHz 35MB 2400MHz 105W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EFx	2x E5-2650 v4 12C 2.2GHz 30MB 2400MHz 105W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EGx	2x E5-2640 v4 10C 2.4GHz 25MB 2133MHz 90W	4x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EHx	2x E5-2630 v4 10C 2.2GHz 25MB 2133MHz 85W	4x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EIx	2x E5-2620 v4 8C 2.1GHz 20MB 2133MHz 85W	2x 16GB (2133 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EJx	2x E5-2609 v4 8C 1.7GHz 20MB 1866MHz 85W	2x 16GB (1866 MHz)	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EKx	2x E5-2637 v4 4C 3.5GHz 15MB 2400MHz 135W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-ELx	2x E5-2667 v4 8C 3.2GHz 25MB 2400MHz 135W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EMx	2x E5-2690 v4 14C 2.6GHz 35MB 2400MHz 135W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-ENx	2x E5-2680 v4 14C 2.4GHz 35MB 2400MHz 120W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EOx	2x E5-2699 v4 22C 2.2GHz 55MB 2400MHz 145W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2
9532-EPx	2x E5-2697 v4 18C 2.3GHz 45MB 2400MHz 145W	4x 16GB 2400 MHz	ServeRAID M1210e	2.5” hot-swap (0 / 2)	Open	Open	0 / 2

* Processor detail: Processor quantity, model, cores, core speed, L3 cache, memory speed, power TDP rating.
† The two 2.5-inch drive bays can be replaced with four 1.8-inch SSD bays.

Chassis support

The x240 M5 Compute Node is supported in the Flex System chassis as listed in the following table.

Table 4. Chassis support

Chassis models	Description	Supports x240 M5 (9532) with E5-2600 v4 processors
8721-HC1 based: 8721-A1x, LRx, DCx 8721-K1G, E1Y, E2Y	Lenovo Flex System Enterprise Chassis with CMM (68Y7030) standard	No
8721-HC2 based: 8721-ALx, DLx 8721-E3Y, E4Y	Lenovo Flex System Enterprise Chassis with CMM2 (00FJ669) standard	Yes
7385-DCx	Lenovo Flex System Carrier-Grade Chassis	Yes (non-NEBS)

Up to 14 x240 M5 Compute Nodes can be installed in the chassis; however, the actual number that can be installed in a chassis depends on the following factors:

- TDP power rating for the processors that are installed in the x240 M5
- Number of power supplies that are installed in the chassis
- Capacity of the installed power supplies (2100 W or 2500 W)
- Chassis power redundancy policy that is used (N+1 or N+N)

The following table provides guidelines about what number of x240 M5 Compute Nodes can be installed. For more information, use the Power Configurator, which is found at the following website:
https://support.lenovo.com/documents/LNVO-PWRCONF

The following color coding was used In the table:

- Green = No restriction on the number of x240 M5 Compute Nodes that can be installed
- Yellow = Some bays must be left empty in the chassis

Table 5. Maximum number of x240 M5 Compute Nodes that can be installed based on installed power supplies and power redundancy policy used

x240 M5 TDP rating	2100 W power supplies installed				2500 W power supplies installed			
	N+1, N=5 6 power supplies	N+1, N=4 5 power supplies	N+1, N=3 5 power supplies	N+N, N=3 6 power supplies	N+1, N=5 6 power supplies	N+1, N=4 5 power supplies	N+1, N=3 4 power supplies	N+N, N=3 6 power supplies
50 W	14	14	11	11	14	14	14	14
55 W	14	14	11	11	14	14	14	14
65 W	14	14	11	11	14	14	14	14
75 W	14	14	11	11	14	14	14	14
85 W	14	14	11	11	14	14	14	14
90 W	14	14	11	11	14	14	14	14
105 W	14	14	11	11	14	14	14	14
120 W	14	14	11	11	14	14	13	14
135 W	14	13	11	11	14	14	12	13
145 W	14	13	11	11	14	14	12	13

Processor options

The x240 M5 supports the processor options that are listed in the following table. The server supports one or two processors. The table also shows which server models have each processor standard, if any.

Note: This product guide covers the x240 Compute Node with E5 v4 processors. For information about the server with v3 processor support, see the x240 (E5-2600 v3) Product Guide at https://lenovopress.com/tips1199.

Table 6. Processor options

Part number	Feature code*	Intel Xeon processor description	Models where used
00MW744	ATCZ / ATDQ	Intel Xeon Processor E5-2603 v4 6C 1.7GHz 15MB 1866MHz 85W	-
00YE941	ATD0 / ATDR	Intel Xeon Processor E5-2608L v4 8C 1.6GHz 20MB 1866MHz 50W	-
00MW743	ATCY / ATDP	Intel Xeon Processor E5-2609 v4 8C 1.7GHz 20MB 1866MHz 85W	13x, EJx
00YE942	ATD1 / ATDS	Intel Xeon Processor E5-2618L v4 10C 2.2GHz 25MB 2133MHz 75W	-
00YD966	ATCN / ATDD	Intel Xeon Processor E5-2620 v4 8C 2.1GHz 20MB 2133MHz 85W	12x, EIx
00MW742	ATCX / ATDN	Intel Xeon Processor E5-2623 v4 4C 2.6GHz 10MB 2133MHz 85W	-
00YE943	ATD2 / ATDT	Intel Xeon Processor E5-2628L v4 12C 1.9GHz 30MB 2133MHz 75W	-
00YD965	ATCM / ATDC	Intel Xeon Processor E5-2630 v4 10C 2.2GHz 25MB 2133MHz 85W	22x, EHx
00MW741	ATCW / ATDM	Intel Xeon Processor E5-2630L v4 10C 1.8GHz 25MB 2133MHz 55W	-
00MW740	ATCV / ATDL	Intel Xeon Processor E5-2637 v4 4C 3.5GHz 15MB 2400MHz 135W	23x, EKx
00YD964	ATCL / ATDB	Intel Xeon Processor E5-2640 v4 10C 2.4GHz 25MB 2133MHz 90W	32x, EGx
00MW739	ATCU / ATDK	Intel Xeon Processor E5-2643 v4 6C 3.4GHz 20MB 2400MHz 135W	33x
00YE944	ATD3 / ATDU	Intel Xeon Processor E5-2648L v4 14C 1.8GHz 35MB 2400MHz 75W	-
00YD963	ATCK / ATDA	Intel Xeon Processor E5-2650 v4 12C 2.2GHz 30MB 2400MHz 105W	42x, EFx
00MW738	ATCT / ATDJ	Intel Xeon Processor E5-2650L v4 14C 1.7GHz 35MB 2400MHz 65W	-
00YE945	ATD4 / ATDV	Intel Xeon Processor E5-2658 v4 14C 2.3GHz 35MB 2400MHz 105W	-
00YD962	ATCJ / ATD9	Intel Xeon Processor E5-2660 v4 14C 2.0GHz 35MB 2400MHz 105W	52x, EEx
00MW737	ATCS / ATDH	Intel Xeon Processor E5-2667 v4 8C 3.2GHz 25MB 2400MHz 135W	ELx
00YD961	ATCH / ATD8	Intel Xeon Processor E5-2680 v4 14C 2.4GHz 35MB 2400MHz 120W	62x, ENx
00MW735	ATCR / ATDG	Intel Xeon Processor E5-2683 v4 16C 2.1GHz 40MB 2400MHz 120W	-
00YD960	ATCG / ATD7	Intel Xeon Processor E5-2690 v4 14C 2.6GHz 35MB 2400MHz 135W	72x, EMx
00MW733	ATCQ / ATDF	Intel Xeon Processor E5-2695 v4 18C 2.1GHz 45MB 2400MHz 120W	-
00YD959	ATCF / ATD6	Intel Xeon Processor E5-2697 v4 18C 2.3GHz 45MB 2400MHz 145W	82x, EPx
01GR328	AUK5 / AUK6	Intel Xeon Processor E5-2697A v4 16C 2.6GHz 40MB 2400MHz 145W	-
00MW732	ATCP / ATDE	Intel Xeon Processor E5-2698 v4 20C 2.2GHz 50MB 2400MHz 135W	-
00YD958	ATCE / ATD5	Intel Xeon Processor E5-2699 v4 22C 2.2GHz 55MB 2400MHz 145W	92x, EOx
01GV956	AVH7 / AVHF	Intel Xeon Processor E5-2699A v4 22C 2.4GHz 55MB Cache 2400MHz 145W	-
01GV957	AVH6 / AVHE	Intel Xeon Processor E5-2699R v4 22C 2.2GHz 55MB Cache 2400MHz 145W	-

* The first feature code is for processor 1 and second feature code is for processor 2.

Memory options

The x240 M5 with E5-2600 v4 processors uses Lenovo TruDDR4 memory operating at speeds up to 2400 MHz.

TruDDR4 Memory uses the highest quality components that are sourced from Tier 1 DRAM suppliers and only memory that meets the strict requirements of Lenovo is selected. It is compatibility tested and tuned on every System x server to maximize performance and reliability. TruDDR4 Memory has a unique signature that is programmed into the DIMM that enables System x servers to verify whether the memory that is installed is qualified or supported by Lenovo.

Because TruDDR4 Memory is authenticated, certain extended memory performance features can be enabled to extend performance over industry standards. From a service and support standpoint, Lenovo memory automatically assumes the Lenovo system warranty and Lenovo provides service and support worldwide.

The following table lists the supported memory options.

Table 7. Memory options for the x240 M5

Part number	Feature code	Description	Models where used
Registered DIMMs (RDIMMs)			
46W0821	ATC8	8GB TruDDR4 Memory (1Rx4, 1.2V) PC4-19200 CL17 2400MHz LP RDIMM	-
46W0825	ATC9	8GB TruDDR4 Memory (2Rx8, 1.2V) PC4-19200 CL17 2400MHz LP RDIMM	-
46W0829	ATCA	16GB TruDDR4 Memory (2Rx4, 1.2V) PC4-19200 CL17 2400MHz LP RDIMM	All models
01KN301	AVP0	16GB TruDDR4 Memory (2Rx8, 1.2V) PC4-19200 CL17 2400MHz LP RDIMM	-
46W0833	ATCB	32GB TruDDR4 Memory (2Rx4, 1.2V) PC4-19200 CL17 2400MHz LP RDIMM	-
Load-reduced DIMMs (LRDIMMs)			
46W0841	ATGG	64GB TruDDR4 Memory (4Rx4, 1.2V) PC4-19200 PC4 2400MHz LP LRDIMM	-

The server supports up to 12 TruDDR DIMMs when one processor is installed and up to 24 DIMMs when two processors are installed. Each processor has four memory channels, and there are three DIMMs per memory channel (3 DPC). RDIMMs and LRDIMMs are supported, but the mixing of these different types is not supported. UDIMMs are not supported. DIMMs can be installed individually; however, for best performance install them in sets of four (one for each of the four memory channels).

The following rules apply when the memory configuration is selected:

- Mixing of different types of DIMMs (RDIMM and LRDIMM) in the same server is not supported.
- The maximum number of supported ranks per channel is eight.
- The maximum quantity of DIMMs that can be installed in the server depends on the number of CPUs, DIMM ranks and operating voltage, as shown in the "Maximum quantity" row in the following table.
- All DIMMs in all CPU memory channels operate at the same speed, which is determined as the lowest value of the following factors:
    - Memory speed that is supported by the specific CPU.
    - Lowest maximum operating speed for the selected memory configuration that depends on rated speed, as shown in the "Maximum operating speed" section in the following table.

The following table shows the maximum memory speeds that are achievable based on the installed DIMMs and the number of DIMMs per channel. The table also shows the maximum memory capacity at any speed that is

supported by the DIMM and maximum memory capacity at rated DIMM speed.

In the table, cells that are highlighted in gray indicate when the specific combination of DIMM voltage and number of DIMMs per channel still allows the DIMMs to operate at the rated speed.

Table 8. Maximum memory speeds

Specification	**RDIMMs**		**LRDIMMs**
Rank	Single rank	Dual rank	Quad rank
Part numbers	46W0821 (8 GB)	46W0825 (8 GB) 46W0829 (16 GB) 46W0833 (32 GB)	46W0841 (64 GB)
Rated speed	2400 MHz	2400 MHz	2400 MHz
Rated voltage	1.2 V	1.2 V	1.2 V
Operating voltage	1.2 V	1.2 V	1.2 V
Maximum quantity*	24	24	24
Largest DIMM	8 GB	32 GB	64 GB
Max memory capacity	192 GB	768 GB	1.5 TB
Max memory at rated speed	128 GB	512 GB	1.0 TB
Maximum operating speed (MHz)			
One DIMM per channel	2400 MHz	2400 MHz	2400 MHz
Two DIMMs per channel	2400 MHz†	2400 MHz†	2400 MHz
Three DIMMs per channel	1866 MHz†	1866 MHz†	2133 MHz†

* The maximum quantity that is supported is shown for two processors that are installed. When one processor is installed, the maximum quantity that is supported is half of that shown.
† This speed is above the Intel standard and is achieved only when Lenovo TruDDR4 memory is used

The following memory protection technologies are supported:

- ECC
- Memory mirroring
- Memory sparing

If memory mirroring is used, DIMMs must be installed in pairs (minimum of one pair per CPU), and both DIMMs in a pair must be identical in type and size.

If memory rank sparing is used, a minimum of one quad-rank DIMM or two single-rank or dual-rank DIMMs must be installed per populated channel (the DIMMs do not need to be identical). In rank sparing mode, one rank of a DIMM in each populated channel is reserved as spare memory. The size of a rank varies depending on the DIMMs that are installed.

Internal storage

The x240 M5 server has two 2.5-inch hot-swap drive bays that are accessible from the front of the blade server (see Figure 2). These bays connect to the integrated ServeRAID M1210e 12 Gbps SAS/SATA controller.

The integrated ServeRAID M1210e controller has the following features:

- Based on the LSI SAS3004 RAID-on-Chip (ROC)
- 12 Gbps controller with four ports
- PCIe x4 Gen 2 host interface
- Two SAS ports routed internally to the two hot-swap drive bays
- Supports RAID-0, RAID-1 and RAID-1E
- Optional support for SED drives
- Optional support for RAID-5 and 4x 1.8-inch drive bays

The onboard M1210e controller optionally supports self-encrypting drives (SEDs) with the addition of Features on Demand license upgrade, ServeRAID M1200 Series Zero Cache/RAID 5 Upgrade, 00AE930. This license upgrade enables the LSI MegaRAID SafeStore service which offers instant secure erase and local key management for SEDs.

The two 2.5-inch front-accessible drive bays can be replaced with four 1.8-inch drive bays by using the ServeRAID M1200 RAID 5 Enablement Kit (00JX141). This kit contains a replacement backplane to connect the four 1.8-inch SSDs, however, to enable RAID 5 you will also need the ServeRAID M1200 Series Zero Cache/RAID 5 Features on Demand upgrade (00AE930).

The two standard 2.5-inch SAS/SATA drive bays can also be replaced with new NVMe (Non-Volatile Memory Express) drives that are directly connected to the PCIe bus of the second processor. Such connectivity, when combined with SSD drives, ensures the lowest possible latency while still using a standard drive form factor.

2nd processor required: Support for NVMe PCIe SSDs requires a replacement drive backplane for the two 2.5-inch drives, plus the second processor must also be installed in the server. The kit containing the backplane, NVMe Enterprise PCIe SSD Enablement Kit for Flex System x240 M5, is listed in the following table. The second processor is ordered separately.

Table 9. Internal storage upgrades

Part number	Feature code	Name and description	Maximum supported
00AE930	A5H5	ServeRAID M1200 Series Zero Cache/RAID 5 Upgrade for Systems-FoD	1
00JX141	A5SF	ServeRAID M1200 RAID 5 Enablement Kit for Flex System x240 M5	1
00JX177	A5SH	NVMe Enterprise PCIe SSD Enablement Kit for Flex System x240 M5	1
00JX142	A5SE	ServeRAID M5215 with 2GB Flash Enablement - Flex System x240 M5	1

Supported drives are listed in the Internal drive options section. The ServeRAID M5215 is described in the next section.

ServeRAID M5215 SAS/SATA controller

The ServeRAID M5215 SAS/SATA controller is an advanced RAID controller based on the LSI SAS 3108 chipset. The M5215 replaces the onboard SAS controller in the compute node and supports high-performance RAID-0 and RAID-1 to the two internal 2.5-inch drive bays. The M5215 is installed at the front of the server over the top of the drive bays, as shown in the following figure.

Note: The use of the ServeRAID M5215 requires that the second processor be installed.

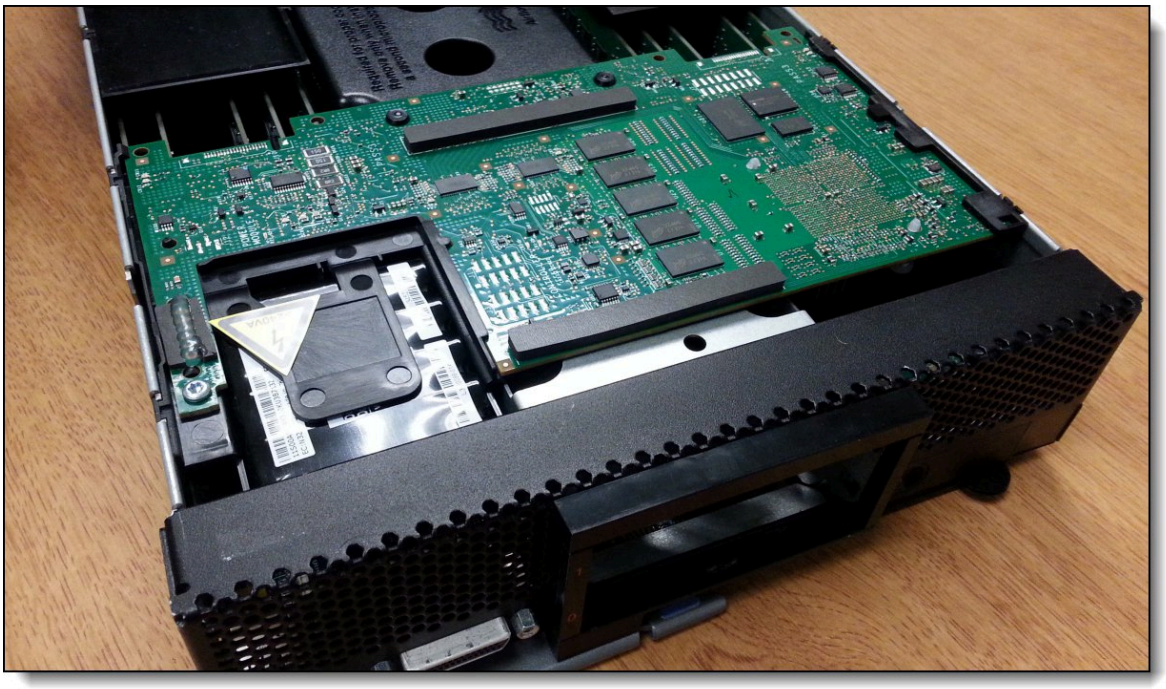

Figure 4. ServeRAID M5215 SAS/SATA controller installed in the Flex System x240 M5

The part numbers to order the ServeRAID M5215 controller and feature upgrade are listed in the following table.

Table 10. ServeRAID M5215 SAS/SATA controller

Part number	Feature code	Name and description	Maximum supported
Adapter			
00JX142	A5SE	ServeRAID M5215 with 2GB Flash Enablement	1
Feature on Demand upgrades			
47C8710	A3Z7	ServeRAID M5200 Series Performance Accelerator for FoD (MegaRAID FastPath)	1

The ServeRAID M5215 option includes the following components:

- RAID controller
- Flash power module
- Replacement 2-drive backplane

The following figure shows the adapter, flash power module and backplane that are included in the option. The included backplane replaces the standard backplane that came with the server. The backplane also serves as

the conduit to route the PCIe signals from the second processor to the RAID controller.

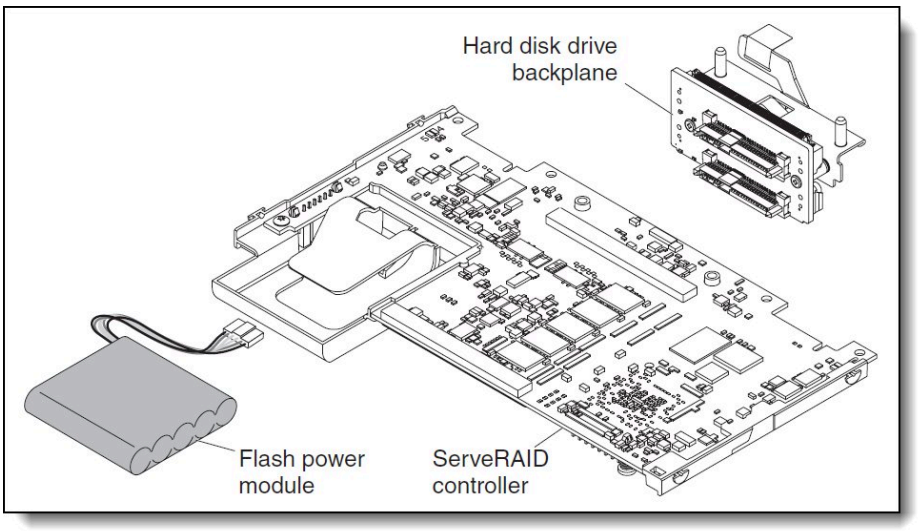

Figure 5. ServeRAID M5215

SAS/SATA controller

Note: The ServeRAID M5215 installed in the x240 M5 only supports two 2.5-inch drives using the supplied backplane. 1.8-inch drives are not supported.

The ServeRAID M5215 SAS/SATA controller has the following features:

- Eight internal 12 Gbps SAS/SATA ports (also supports 6 Gbps)
- PCI Express 3.0 x8 host interface
- 12 Gbps throughput per port
- LSI SAS3108 12 Gbps RAID on Chip (ROC) controller
- Onboard 2 GB data cache (DDR3 running at 1866 MHz)
- Support for RAID levels 0 and 1
- Standard flash power module (supercapacitor-based) provides the power capacity needed to off-load the cache to flash in the event of a power failure
- Support SAS and SATA HDDs and SSDs
- Support for intermixing SAS and SATA HDDs and SSDs; mixing different types of drives in the same array (drive group) is not recommended
- Support for self-encrypting drives, SEDs (LSI MegaRAID SafeStore)
- Optional support for SSD performance acceleration with MegaRAID FastPath
- Support for up to 64 virtual disks, up to 128 arrays, and up to 16 virtual disks per array
- Support for logical unit number (LUN) sizes up to 64 TB
- Configurable stripe size up to 1 MB
- Compliant with Disk Data Format (DDF) configuration on disk (COD)
- S.M.A.R.T. support
- MegaRAID Storage Manager management software

The Performance Accelerator upgrade (47C8710), implemented using the LSI MegaRAID FastPath software, provides high-performance I/O acceleration for SSD-based virtual drives by using an extremely low-latency I/O path to increase the maximum I/O per second (IOPS) capability of the controller. This feature boosts the performance of applications with a highly random data storage access pattern, such as transactional databases. Part number 47C8710 is a Feature on Demand license.

Internal drive options

The x240 M5 supports the following 2.5-inch and 1.8-inch drives internally to the server:

- Table 11: 2.5-inch hot-swap 12 Gb SAS HDDs
- Table 12: 2.5-inch hot-swap 6 Gb SAS/SATA HDDs
- Table 13: 2.5-inch hot-swap 12 Gb SAS SSDs
- Table 14: 2.5-inch hot-swap 6 Gb SAS/SATA SSDs

Table 11. 2.5-inch hot-swap 12 Gb SAS HDDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap HDDs - 12 Gb SAS 10K			
00WG685	AT89	300GB 10K 12Gbps SAS 2.5" G3HS HDD	2
00WG690	AT8A	600GB 10K 12Gbps SAS 2.5" G3HS HDD	2
00WG695	AT8B	900GB 10K 12Gbps SAS 2.5" G3HS HDD	2
00WG700	AT8C	1.2TB 10K 12Gbps SAS 2.5" G3HS HDD	2
00NA271	ASBM	1.8TB 10K 12Gbps SAS 2.5" G3HS 512e HDD	2
2.5-inch hot-swap HDDs - 12 Gb SAS 15K			
00WG660	AT84	300GB 15K 12Gbps SAS 2.5" G3HS HDD	2
00WG665	AT85	600GB 15K 12Gbps SAS 2.5" G3HS HDD	2
2.5-inch hot-swap HDDs - 12 Gb NL SAS			
00NA491	AT7Z	1TB 7.2K 12Gbps NL SAS 2.5" G3HS HDD	2
00NA496	AT80	2TB 7.2K 12Gbps NL SAS 2.5" G3HS 512e HDD	2
2.5-inch hot-swap SED HDDs - 12 Gb SAS 10K			
00WG705	AT8D	300GB 10K 12Gbps SAS 2.5" G3HS SED	2
00WG710	AT8E	600GB 10K 12Gbps SAS 2.5" G3HS SED	2
00WG715	AT8F	900GB 10K 12Gbps SAS 2.5" G3HS SED	2
00WG720	AT8G	1.2TB 10K 12Gbps SAS 2.5" G3HS SED	2

Table 12. 2.5-inch hot-swap 6 Gb SAS/SATA HDDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap HDDs - 6 Gb NL SATA			
00AJ141	A4TX	1TB 7.2K 6Gbps NL SATA 2.5" G3HS HDD	2
00NA526	AT81	2TB 7.2K 6Gbps NL SATA 2.5" G3HS 512e HDD	2

Table 13. 2.5-inch hot-swap 12 Gb SAS SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 12 Gb SAS - Enterprise Performance (10+ DWPD)			
01GV711	AVL0	400GB Enterprise Performance 12G SAS G3HS 2.5" SSD	2
01GV716	AVL1	800GB Enterprise Performance 12G SAS G3HS 2.5" SSD	2
01GV721	AVL2	1.6TB Enterprise Performance 12G SAS G3HS 2.5" SSD	2

Table 14. 2.5-inch hot-swap 6 Gb SAS/SATA SSDs

Part number	Feature	Description	Maximum supported
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Mainstream (3-5 DWPD)			
4XB7A08499	B10A	Intel S4600 240GB Enterprise Mainstream SATA G3HS 2.5" SSD	2
7SD7A05713	B10B	Intel S4600 480GB Enterprise Mainstream SATA G3HS 2.5" SSD	2
7SD7A05712	B10C	Intel S4600 960GB Enterprise Mainstream SATA G3HS 2.5" SSD	2
7SD7A05711	B10D	Intel S4600 1.92TB Enterprise Mainstream SATA G3HS 2.5" SSD	2
2.5-inch hot-swap SSDs - 6 Gb SATA - Enterprise Entry (<3 DWPD)			
7SD7A05732	B0Z8	Intel S4500 240GB Enterprise Entry SATA G3HS 2.5" SSD	2
7SD7A05731	B0Z9	Intel S4500 480GB Enterprise Entry SATA G3HS 2.5" SSD	2
7SD7A05730	B0ZA	Intel S4500 960GB Enterprise Entry SATA G3HS 2.5" SSD	2
4XB7A08493	B0ZB	Intel S4500 1.92TB Enterprise Entry SATA G3HS 2.5" SSD	2
01GR836	AVHP	PM863a 240GB Enterprise Entry SATA G3HS 2.5" SSD	2
01GR841	AVHQ	PM863a 480GB Enterprise Entry SATA G3HS 2.5" SSD	2
01GR846	AVHR	PM863a 960GB Enterprise Entry SATA G3HS 2.5" SSD	2
01GR711	AUE7	1.92TB Enterprise Entry SATA G3HS 2.5" SSD	2

Flex System Storage Expansion Node

The x240 M5 supports the attachment of the Flex System Storage Expansion Node.

Withdrawn: The Storage Expansion Node is withdrawn from marketing.

The Flex System Storage Expansion Node provides the ability to attach another 12 hot-swap 2.5-inch HDDs or SSDs locally to the attached compute node. The Storage Expansion Node provides storage capacity for Network Attach Storage (NAS) workloads, which provides flexible storage to match capacity, performance, and reliability needs.

The following figure shows the Flex System Storage Expansion Node attached to a compute node.

Figure 6. Flex System Storage Expansion Node (right) attached to the x240 M5 (left)

The ordering information for the Storage Expansion Node is shown in the following table.

Table 15. Ordering part number and feature code

Part number	Feature code	Description	Maximum supported
68Y8588*	A3JF	Flex System Storage Expansion Node	1

* Withdrawn from marketing

The Storage Expansion Node has the following features:

- Connects directly to supported compute nodes via a PCIe 3.0 interface to the compute node's expansion connector (see the internal view in the Locations of key components and connectors section).
- Supports 12 hot-swap 2.5-inch drives, accessible via a sliding tray.
- Supports 6 Gbps SAS and SATA drives, both HDDs and SSDs.
- Based on an LSI SAS2208 6 Gbps RAID on Chip (ROC) controller.
- Supports RAID-0, 1, and 10 as standard. JBOD also supported. Optional RAID-5 and 50 with cache upgrade.
- Optional 512 MB or 1 GB cache with cache-to-flash super capacitor offload and RAID 5/50 support.

Notes:

- The use of the Storage Expansion Node requires that the x240 M5 Compute Node have both processors installed.
- The Storage Expansion Node uses a different hot-swap drive tray (G2HS) to the x240 M5 (G3HS). As a result, the SEN drives and x240 M5 drives not interchangable.

For more information, including the supported drive options, see the Lenovo Press Product Guide: http://lenovopress.com/tips0914

Internal tape drives

The server does not support an internal tape drive. However, it can be attached to external tape drives by using Fibre Channel connectivity.

Optical drives

The server does not support an internal optical drive option, however, you can connect an external USB optical drive. See http://support.lenovo.com/en/documents/pd011281 for information about available external optical drives from Lenovo. Alternatively, use the remote media feature of the IMMv2 and the Chassis Management Module.

Note: The USB port on the compute nodes supplies up to 0.5 A at 5 V. For devices that require more power, another power source is required.

I/O expansion options

The x240 M5 has two I/O expansion connectors for attaching I/O adapter cards. There is a third expansion connector that is designed to connect an expansion node, such as the Storage Expansion Node. The I/O expansion connectors use a high-density, 216-pin PCIe connection. Installing I/O adapter cards allows the server to connect with switch modules in the chassis. Each slot has a PCI Express 3.0 x16 host interface and both slots support the same form-factor adapters.

The following figure shows the location of the I/O expansion connectors.

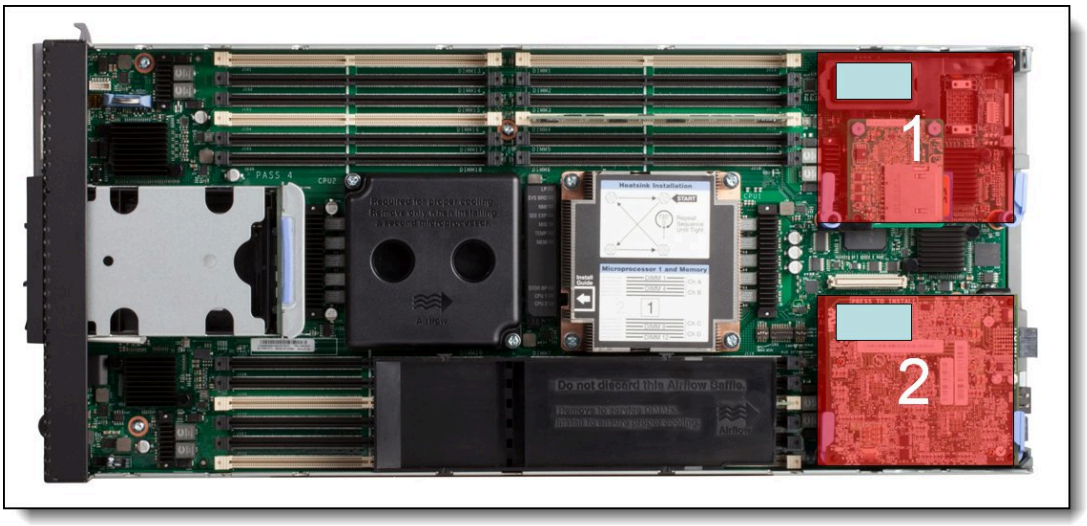

Figure 7.

Location of the I/O adapter slots in the Flex System x240 M5 Compute Node

All I/O adapters are the same shape and can be used in any available slot.. A compatible switch or pass-through module must be installed in the corresponding I/O bays in the chassis, as indicated in the following table. Installing two switches means that all ports of the adapter are enabled, which improves performance and network availability.

Table 16. Adapter to I/O bay correspondence

I/O adapter slot in the server	Port on the adapter	Corresponding I/O module bay in the chassis
Slot 1	Port 1	Module bay 1
	Port 2	Module bay 2
	Port 3 (for 4-port cards)	Module bay 1
	Port 4 (for 4-port cards)	Module bay 2
Slot 2	Port 1	Module bay 3
	Port 2	Module bay 4
	Port 3 (for 4-port cards)	Module bay 3
	Port 4 (for 4-port cards)	Module bay 4

The following figure shows the location of the switch bays in the Flex System Enterprise Chassis.

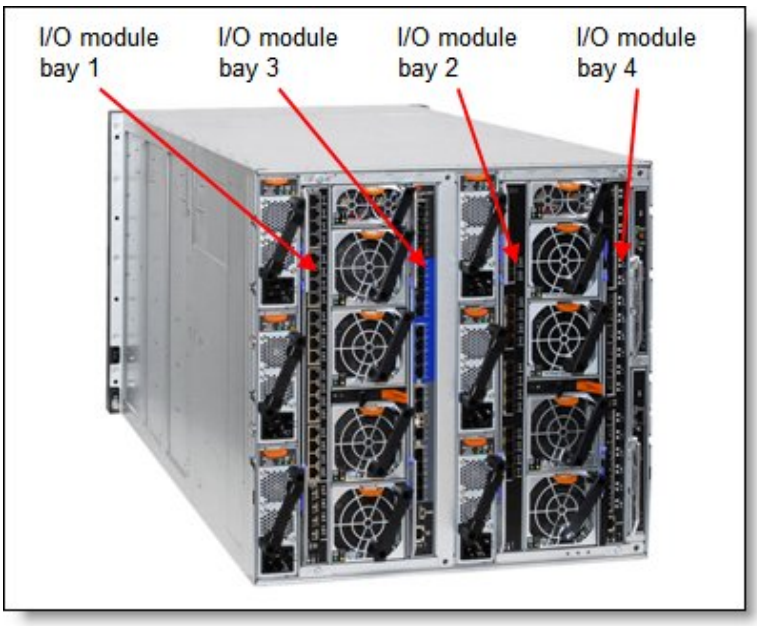

Figure 8. Location of the switch bays in the Flex System Enterprise Chassis

The following figure shows how two-port adapters are connected to switches that are installed in the chassis.

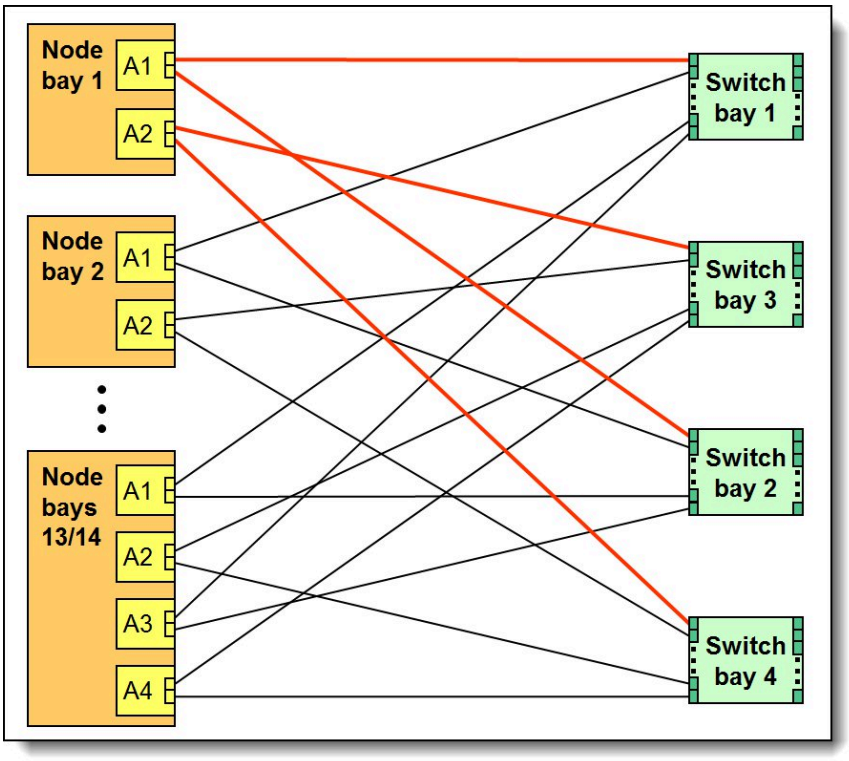

Figure 9. Logical layout of the interconnects between I/O adapters and I/O modules

Flex System PCIe Expansion Node

The x240 M5 supports the attachment of the Flex System PCIe Expansion Node.

Withdrawn: The PCIe Expansion Nodeis withdrawn from marketing.

By using the Flex System PCIe Expansion Node, more PCI Express cards can be attached, such as High IOPS SSD adapters, fabric mezzanine cards, and next-generation graphics processing units (GPU) to supported Flex System compute nodes. This capability is ideal for many applications that require high performance I/O, special telecommunications network interfaces, or hardware acceleration that uses a PCI Express card. The PCIe Expansion Node supports up to four PCIe 2.0 adapters and two more Flex System expansion adapters.

The PCIe Expansion Node is attached to a Flex System compute node, as shown in the following figure.

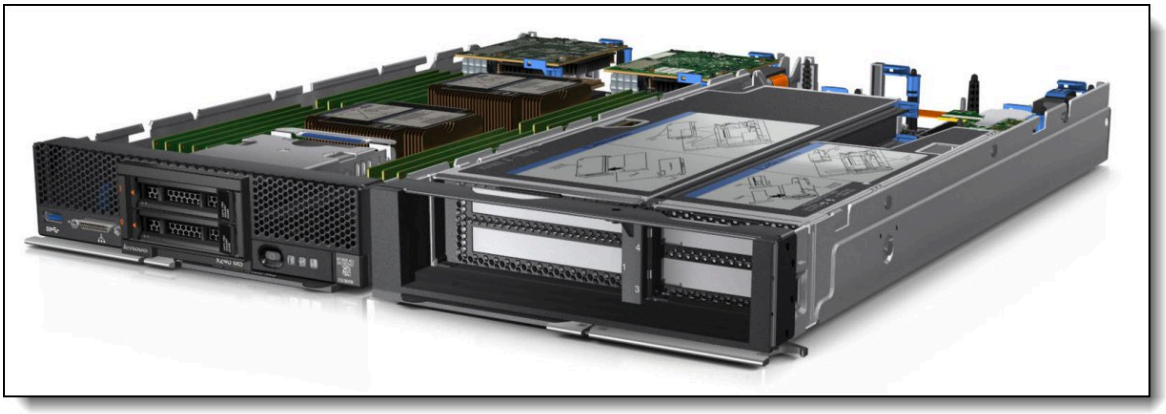

Figure 10. PCIe Expansion Node attached to the x240 M5

The ordering information for the PCIe Expansion Node is shown in the following table.

Table 17. Ordering part number and feature code

Part number	Feature code	Description	Maximum supported
81Y8983	A1BV	Flex System PCIe Expansion Node	1

The PCIe Expansion Node has the following features:

- Support for up to four standard PCIe 2.0 adapters:
  - Two PCIe 2.0 x16 slots that support full-length, full-height adapters
  - Two PCIe 2.0 x8 slots that support half-length, low-profile adapters
- Support for PCIe 3.0 adapters by operating them in PCIe 2.0 mode
- Support for one full-length, full-height double-wide adapter (that uses the space of the two full-length, full-height adapter slots)
- Support for PCIe cards with higher power requirements; a single adapter card (up to 225W) or to two adapters (up to 150W each)
- Two Flex System I/O expansion connectors to further expand the I/O capability of the attached compute node

Note: The use of the PCIe Expansion Node requires that the x240 M5 Compute Node has both processors installed.

For more information, see the Lenovo Press Product Guide: http://lenovopress.com/tips0906

Network adapters

The following table lists the supported network adapters and upgrades. Adapters can be installed in either slot. However, compatible switches must be installed in the corresponding bays of the chassis. All adapters can also be installed in the PCIe Expansion Node. The "Maximum supported" column in the table indicates the number of adapters that can be installed in the server and in the PCIe Expansion Node (PEN).

Table 18. Network adapters

Part number	Feature code	Description	Number of ports	Maximum supported (x240 M5 / PEN)
10 Gb Ethernet				
01CV780	AU7X	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced (with FCoE / iSCSI)	2	2 / 2
00AG540	ATBT	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter	2	2 / 2
00JY804	A5RV	Flex System CN4052 Virtual Fabric Adapter SW Upgrade (FoD) (License to enable FCoE and iSCSI on 00AG540 or 00JY800)	License	2 / 2
01CV790	AU7Y	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced (with FCoE / iSCSI)	4	2 / 2
00AG590	ATBS	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter	4	2 / 2
00AG594	ATBU	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter SW Upgrade (License to enable FCoE and iSCSI on 00AG590)	License	2 / 2
94Y5164	A4R9	Flex System CN4058S Virtual Fabric Adapter SW Upgrade (FoD) (License to enable FCoE and iSCSI on 94Y5160)	License	2 / 2
00AG530	A5RN	Flex System EN4172 2-port 10Gb Ethernet Adapter	2	2 / 2
InfiniBand				
90Y3454	A1QZ	Flex System IB6132 2-port FDR InfiniBand Adapter	2	2 / 2

For details about these adapters, see the Lenovo Press product guides in the Network adapters category: https://lenovopress.com/servers/blades/nic

For more information about adapter-to-switch compatibility, see the Flex System Interoperability Guide: http://lenovopress.com/fsig

Storage host bus adapters

The following table lists storage HBAs that are supported by the x240 M5 server, both internally in the compute node and in the PCIe Expansion Node.

Table 19. Storage adapters

Part number	Feature code	Description	Number of ports	Maximum supported (x240 M5 / PEN)
Fibre Channel				
95Y2391	A45S	Flex System FC5054 4-port 16Gb FC Adapter	4	1 / 1 (Slot 2)
69Y1938	A1BM	Flex System FC3172 2-port 8Gb FC Adapter	2	1 / 1 (Slot 2)

For details about these adapters, see the Lenovo Press product guides in the Storage adapters category: https://lenovopress.com/servers/blades/hba

For more information about adapter-to-switch compatibility, see the Flex System Interoperability Guide: http://lenovopress.com/fsig

GPU adapters

The compute node supports the GPU adapters listed in the following table. These adapters are installed in an attached PCIe Expansion Node.

Table 20. GPU adapters

Part number	Feature code	Description	Maximum supported
7C57A02891	AX8L	NVIDIA Tesla M10 GPU, PCIe (passive)	1‡

‡ Supported only when the x240 M5 has 1 TB or less memory installed.

Power supplies

Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.

Integrated virtualization

The x240 M5 supports the VMware vSphere (ESXi) hypervisor on one or two SD cards with the optional SD Media Adapter for System x. This adapter is installed in a dedicated slot beneath I/O Adapter slot 1, as shown in the following figure.

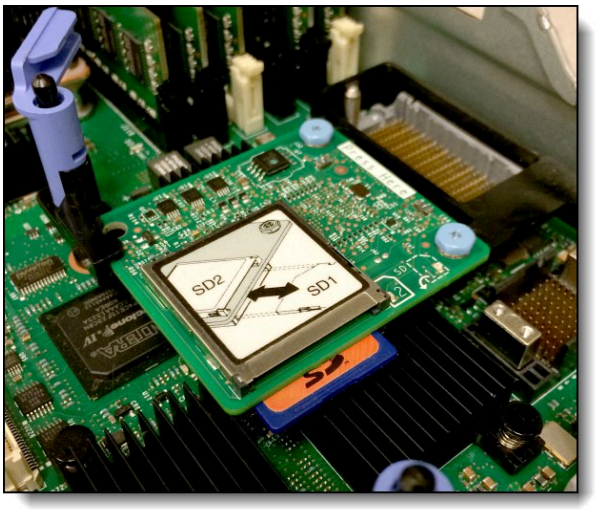

Figure 11. SD Media Adapter for System x

When only one SD card is installed in the adapter, you can create up to 16 volumes, each of which is presented to UEFI as a bootable device. When two SD Media cards are inserted, volumes can be mirrored (RAID-1) across both cards, up to a total of eight mirrored volumes. The use of mirrored volumes improves system availability because the server remains operational, even if one SD card fails. The RAID functionality is handled internally by the SD Media Adapter.

The following table shows the available options. The table also indicates whether the option includes the SD Media RAID Adapter and how many SD cards are included.

Table 21. Virtualization options

Part number	Feature code	Description	Includes Adapter	Includes Media
00ML706	A5TJ	SD Media Adapter for Systems x (Option 00ML706 includes 2 blank 32GB SD cards)	Yes	Yes (2)*
00ML700	AS2V	Blank 32GB SD Media for System x	No	Yes (1)
None**	ASCG	RAID Adapter for SD Media w/ VMware ESXi 5.1 U2 (1 SD Media)	Yes	Yes (1)
None**	AS4B	RAID Adapter for SD Media w/ VMware ESXi 5.1 U2 (2 SD Media, RAIDed)	Yes	Yes (2)
None**	ASCH	RAID Adapter for SD Media w/ VMware ESXi 5.5 U2 (1 SD Media)	Yes	Yes (1)
None**	AS4C	RAID Adapter for SD Media w/ VMware ESXi 5.5 U2 (2 SD Media, RAIDed)	Yes	Yes (2)
None**	ATZK	RAID Adapter for SD Media w/ VMware ESXi 5.5 U3B (1 SD Media)	Yes	Yes (1)
None**	ATZJ	RAID Adapter for SD Media w/ VMware ESXi 5.5 U3B (2 SD Media,RAIDed)	Yes	Yes (2)
None**	ATSA	RAID Adapter for SD Media w/ VMware ESXi 6.0 U1A (1 SD Media)	Yes	Yes (1)
None**	ATS9	RAID Adapter for SD Media w/VMware ESXi 6.0 U1A (2 SD Media, RAIDed)	Yes	Yes (2)
None**	ATZM	RAID Adapter for SD Media w/ VMware ESXi 6.0 U2 (1 SD Media)	Yes	Yes (1)
None**	ATZL	RAID Adapter for SD Media w/ VMware ESXi 6.0 U2 (2 SD Media, RAIDed)	Yes	Yes (2)

Part number	Feature code	Description	Includes Adapter	Includes Media
None**	AVNX	Adapter for SD Media w/ VMware ESXi 6.5 (1 SD Media)	Yes	Yes (1)
None**	AVNY	Adapter for SD Media w/ VMware ESXi 6.5 (2 SD Media, RAIDed)	Yes	Yes (2)

* Option 00ML706 includes two 32GB SD cards; however, for CTO orders, feature code A5TJ does not include SD media and the 32GB cards and VMware vSphere preload must be selected separately.
** CTO only.

Light path diagnostics

For quick problem determination when you are physically at the server, the x240 M5 offers the following three-step guided path:

1. Illuminate the Fault LED on the front panel.
2. Identify the fault in the light path diagnostics panel, as shown in the following figure.
3. Illuminate LEDs on the system board next to the faulty components.

The x240 M5 light path diagnostics panel is inside the server between the two processors, as shown in the following figure.

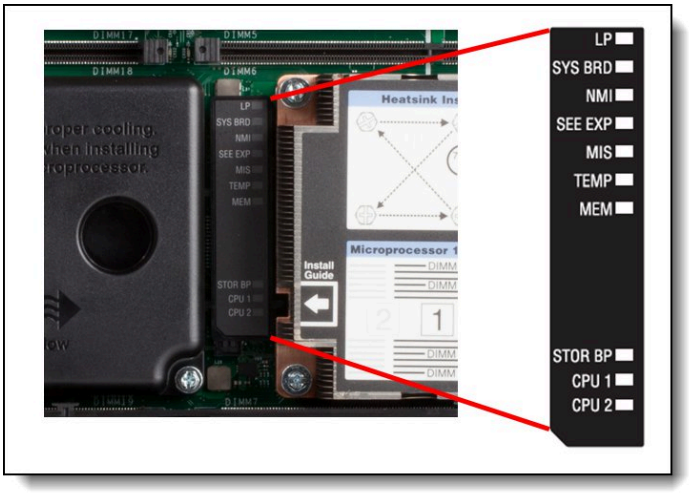

Figure 12. Location of x240 M5 light path diagnostics panel

To illuminate the light path diagnostics LEDs, power off the compute node, slide it out of the chassis, and press the power button. The power button doubles as the light path diagnostics reminder button when the server is removed from the chassis.

The meanings of the LEDs in the light path diagnostics panel are listed in the following table.

Table 22. Light path diagnostic panel LEDs

LED	Meaning
LP	The light path diagnostics panel is operational.
SYS BRD	A system board error is detected.
NMI	A non-maskable interrupt (NMI) occurred.
SEE EXP	A fault is detected in the adjacent expansion unit (if installed).
MIS	A mismatch occurred between the processors, DIMMs, or HDDs within the configuration as reported by POST.
TEMP	An over-temperature condition occurred that was critical enough to shut down the server.
MEM	A memory fault occurred. The corresponding DIMM error LEDs on the system board are also lit.

Remote management

Lenovo XClarity Administrator is a centralized resource management solution designed to reduce complexity, speed response, and enhance the availability of Lenovo systems and solutions.

Lenovo XClarity Administrator provides agent-free hardware management for ThinkServer, System x and Flex System servers. The administration dashboard, shown in the following figure, based on HTML 5, allows fast location of resources so tasks can be run quickly.

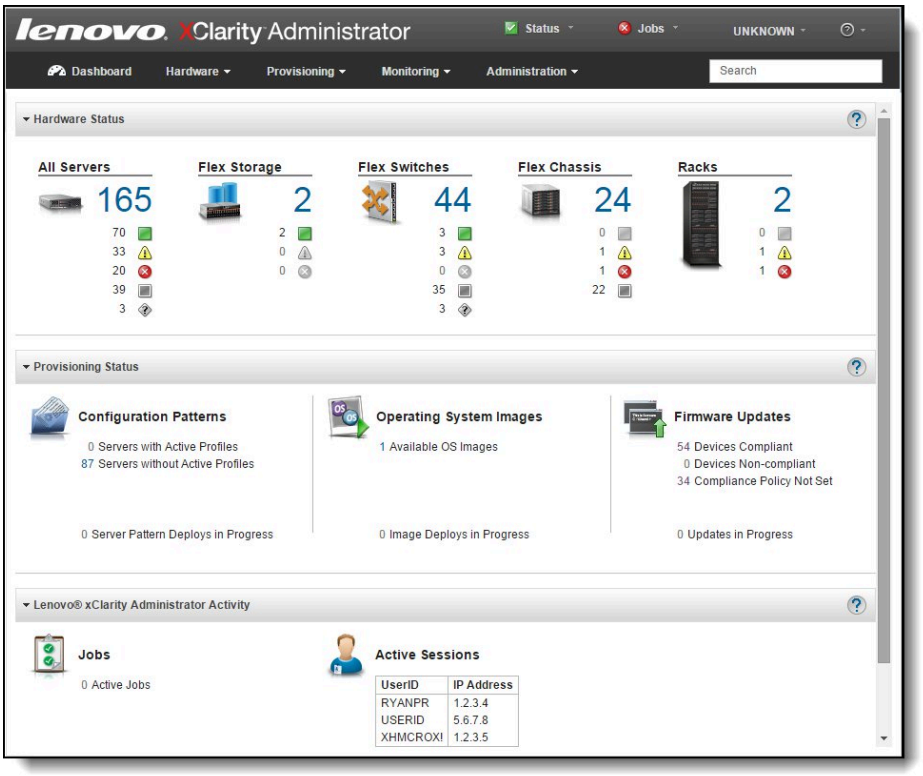

Figure 13. Lenovo XClarity Administrator dashboard

Because Lenovo XClarity Administrator does not include any agent software that must be installed on the managed endpoints, there are no CPU cycles spent on agent execution and no memory is used, which means that up to 1GB of RAM and 1 - 2% CPU usage is saved, compared to a typical managed system where an agent is required.

Lenovo XClarity Administrator supports the following functions with Flex System systems:

- Discovery
- Inventory
- Monitoring and alerting
- Call home
- Centralized user management
- Cryptography modes, server certificates, and encapsulation
- Configuration patterns
- Operating system deployment
- Firmware updates

For more information about Lenovo XClarity Administrator, including ordering part numbers, see the Lenovo XClarity Administrator Product Guide:
https://lenovopress.com/tips1200-lenovo-xclarity-administrator

The server contains an Integrated Management Module II (IMM2), which interfaces with the advanced management module in the chassis. The combination of these modules provides advanced service-processor

control, monitoring, and an alerting function. If an environmental condition exceeds a threshold or if a system component fails, LEDs on the system board are lit to help you diagnose the problem, the error is recorded in the event log, and you are alerted to the problem. A virtual presence capability comes standard for remote server management.

Remote server management is provided through the following industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Common Information Model (CIM)
- Web browser

The server also supports virtual media and remote control features, which provide the following functions:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz with up to 23 bits per pixel, regardless of the system state.
- Remotely accessing the server by using the keyboard and mouse from a remote client.
- Mapping the CD or DVD drive, diskette drive, and USB flash drive on a remote client, and mapping ISO and diskette image files as virtual drives that are available for use by the server.
- Uploading a diskette image to the IMM2 memory and mapping it to the server as a virtual drive.
- Capturing blue-screen errors.

Operating system support

The server supports the following operating systems:

- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Microsoft Windows Server 2019
- Microsoft Windows Server, version 1709
- Red Hat Enterprise Linux 6.7 x64
- Red Hat Enterprise Linux 6.8 x64
- Red Hat Enterprise Linux 6.10 x64
- Red Hat Enterprise Linux 7.2
- Red Hat Enterprise Linux 7.3
- Red Hat Enterprise Linux 7.4
- Red Hat Enterprise Linux 7.5
- Red Hat Enterprise Linux 7.6
- Red Hat Enterprise Linux 7.7
- Red Hat Enterprise Linux 7.8
- Red Hat Enterprise Linux 7.9
- SUSE Linux Enterprise Server 11 Xen x64 SP4
- SUSE Linux Enterprise Server 11 x64 SP4
- SUSE Linux Enterprise Server 12 SP1
- SUSE Linux Enterprise Server 12 SP2
- SUSE Linux Enterprise Server 12 SP3
- SUSE Linux Enterprise Server 12 SP4
- SUSE Linux Enterprise Server 12 SP5
- SUSE Linux Enterprise Server 12 Xen SP1
- SUSE Linux Enterprise Server 12 Xen SP2
- SUSE Linux Enterprise Server 12 Xen SP3
- SUSE Linux Enterprise Server 12 Xen SP4
- SUSE Linux Enterprise Server 12 Xen SP5
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 SP1
- SUSE Linux Enterprise Server 15 SP2
- SUSE Linux Enterprise Server 15 SP3
- SUSE Linux Enterprise Server 15 SP4
- SUSE Linux Enterprise Server 15 Xen
- SUSE Linux Enterprise Server 15 Xen SP1
- SUSE Linux Enterprise Server 15 Xen SP2
- SUSE Linux Enterprise Server 15 Xen SP3
- SUSE Linux Enterprise Server 15 Xen SP4
- VMware ESXi 5.5 U3
- VMware ESXi 6.0 U2
- VMware ESXi 6.0 U3
- VMware ESXi 6.5
- VMware ESXi 6.5 U1
- VMware ESXi 6.5 U2
- VMware ESXi 6.5 U3
- VMware ESXi 6.7
- VMware ESXi 6.7 U1
- VMware ESXi 6.7 U2
- VMware ESXi 6.7 U3

For a complete list of supported, certified and tested operating systems, plus additional details and links to relevant web sites, see the Operating System Interoperability Guide:
https://lenovopress.com/osig#servers=x240-m5-9532-e5-v4

Physical specifications

The server features the following dimensions and weight (approximate):

- Height: 51 mm (2.0 in)
- Depth: 493 mm (19.4 in)
- Width: 215 mm (8.5 in)
- Maximum weight: 7.1 kg (15.6 lb)

The server features the following shipping dimensions and weight (approximate):

- Height: 197 mm (7.8 in)
- Depth: 603 mm (23.7 in)
- Width: 430 mm (16.9 in)
- Weight: 8 kg (17.6 lb)

Supported environment

The Flex System x240 M5 compute node complies with ASHRAE Class A3 specifications.

The following Power on operating environment is supported:

- Temperature: 5 - 40 °C (41 - 104 °F)
- Humidity, non-condensing: -12 °C dew point (10.4 °F) and 8 - 85% relative humidity
- Maximum dew point: 24 °C (75 °F)
- Maximum altitude: 3048 m (10,000 ft)
- Maximum rate of temperature change: 5 °C/hr (41 °F/hr)

The following power-off operating environment is supported:

- Temperature: 5 - 45 °C (41 - 113 °F)
- Relative humidity: 8 - 85%
- Maximum dew point: 27 °C (80.6 °F)

The following Storage (non-operating) operating environment is supported:

- Temperature: 1 - 60 °C (33.8 - 140 °F)
- Altitude: 3050 m (10,006 ft)
- Relative humidity: 5 - 80%
- Maximum dew point: 29 °C (84.2°F)

The following Shipment (non-operating) environment is supported:

- Temperature: -40 - 60 °C (-40 - 140 °F)
- Altitude: 10,700 m (35,105 ft)
- Relative humidity: 5 - 100%
- Maximum dew point: 29 °C (84.2 °F)

Warranty upgrades and post-warranty support

The Flex System x240 M5, 9532, has a three-year warranty.

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

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

For more information, consult our Lenovo Operational Support Services for Data Centers Services Brochure.

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

Services

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

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

In this section:

- Lenovo Advisory Services
- Lenovo Implementation Services
- Infrastructure Deployment Services
- Lenovo Support Services
- Lenovo Managed Services
- Lenovo Sustainability Services

Lenovo Advisory Services

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

- **Assessment Services**

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

Lenovo Implementation Services

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

Infrastructure Configuration Services

- **Factory Integrated Services**

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

Infrastructure Deployment Services

Lenovo Infrastructure Deployment Services help you move from hardware delivery toward production with the planning, installation, configuration, integration, validation, documentation, and operational handoff support your project requires. Choose from clearly defined Premier Deploy for Infrastructure options, Specialized Deployment Services, or Hardware Installation Services based on your platform, project complexity, internal IT

capabilities, and desired level of assurance.

For more information, consult our Lenovo Infrastructure Deployment Services Catalog.

- **Premier Deploy for Infrastructure**

  Clearly defined deployment options for eligible ThinkSystem servers, ThinkSystem storage arrays, and ThinkAgile solutions.

  Table 23. Premier Deploy for Infrastructure

	Standard Deploy	Premier Deploy	Premier Deploy Plus
Choose when:	You need straightforward physical hardware installation and customer acceptance.	You need operating system installation and/or system configuration, integration and validation.	You need extended post-deployment assurance and visibility after implementation.
You gain:	An installed, accepted, and documented hardware foundation.	A validated, integrated environment ready to move into production.	Added assurance as your team transitions into ongoing operations.

  For more information, see the Premier Deploy for Infrastructure 1-pager.

- **Specialized Deployment Services**

  Focused deployment expertise for specific technologies or project requirements when Premier Deploy for Infrastructure is not supported or is not the right fit for your project. Services can support ThinkSystem storage arrays, ThinkAgile solutions, HPC, liquid cooling, and private cloud environments through activities such as readiness planning, configuration, integration, validation, documentation, knowledge transfer, and operational handoff, as applicable. Availability and scope vary by platform, project requirements, geography, and service scope.

- **Hardware Installation Services**

  Expert physical installation for eligible hardware outside the Premier Deploy for Infrastructure scope, or for projects that require installation only.

- **Hardware Installation Plus**

  Extends Hardware Installation Services with:

  - RAID configuration
  - Supported operating system installation
  - Driver-level verification

Lenovo Support Services

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

- **Premier Support for Infrastructure**

  Helps you build business resilience with expert-led support, responsive issue resolution, and coordinated troubleshooting across supported Lenovo server and storage environments. Direct access to Lenovo expertise and accountable end-to-end case ownership help reduce disruption and simplify ongoing infrastructure operations.

- **Premier Support Plus for Infrastructure**

  Gain all the benefits of Premier Support for Infrastructure, with proactive and predictive support capabilities, designated account oversight, preventative maintenance guidance, and Keep Your Drive to help identify potential issues earlier, plan service more effectively, and maintain control of sensitive data.

- **Committed Service Repair (CSR)**

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

- **Multivendor Support Services (MVS)**

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

- **Keep Your Drive (KYD)**

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

- **Technical Account Manager (TAM)**

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

- **Enterprise Software Support (ESS)**

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

For more information, consult our Lenovo Operational Support Services for Data Centers Services Brochure.

Lenovo Managed Services

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

- **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 the latest patches, critical updates, and firmware levels, to ensure your systems are providing business value through optimized performance.

Lenovo Sustainability Services

Lenovo Sustainability Services helps you address sustainability priorities across the IT lifecycle, from offsetting emissions associated with device purchases and extending equipment life to securely managing assets at end of life. Together, these services support more circular IT practices while helping you protect data, manage costs, and recover value from technology investments.

- **Asset Recovery Services**

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

- **CO2 Offset Services**

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

- **Lenovo Certified Refurbished**

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

Lenovo TruScale

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

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

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

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

Regulatory compliance

The server conforms to the following standards:

- ASHRAE Class A3
- FCC - Verified to comply with Part 15 of the FCC Rules Class A
- Canada ICES-004, issue 3 Class A
- UL/IEC 60950-1
- CSA C22.2 No. 60950-1
- Japan VCCI, Class A
- IEC 60950-1 (CB Certificate and CB Test Report)
- Taiwan BSMI CNS13438, Class A; CNS14336
- Australia/New Zealand AS/NZS CISPR 22, Class A
- Korea KN22, Class A, KN24
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2,
- EN61000-3-3)
- TUV-GS (EN60950-1/IEC 60950-1, EK1-ITB2000)

Lenovo Financial Services

Why wait to obtain the technology you need now? No payments for 90 days and predictable, low monthly payments make it easy to budget for your Lenovo solution.

- **Flexible**

  Our in-depth knowledge of the products, services and various market segments allows us to offer greater flexibility in structures, documentation and end of lease options.

- **100% Solution Financing**

  Financing your entire solution including hardware, software, and services, ensures more predictability in your project planning with fixed, manageable payments and low monthly payments.

- **Device as a Service (DaaS)**

  Leverage latest technology to advance your business. Customized solutions aligned to your needs. Flexibility to add equipment to support growth. Protect your technology with Lenovo's Premier Support service.

- **24/7 Asset management**

  Manage your financed solutions with electronic access to your lease documents, payment histories, invoices and asset information.

- **Fair Market Value (FMV) and $1 Purchase Option Leases**

  Maximize your purchasing power with our lowest cost option. An FMV lease offers lower monthly payments than loans or lease-to-own financing. Think of an FMV lease as a rental. You have the flexibility at the end of the lease term to return the equipment, continue leasing it, or purchase it for the fair market value. In a $1 Out Purchase Option lease, you own the equipment. It is a good option when you are confident you will use the equipment for an extended period beyond the finance term. Both lease types have merits depending on your needs. We can help you determine which option will best meet your technological and budgetary goals.

Ask your Lenovo Financial Services representative about this promotion and how to submit a credit application. For the majority of credit applicants, we have enough information to deliver an instant decision and send a notification within minutes.

Related publications and links

For more information, see the following resources:

- Flex System x240 M5 Compute Node product page
  https://www3.lenovo.com/us/en/data-center/servers/flex-blade-servers/compute-nodes/Flex-System-x240-M5/p/77XS7PF7P0C
- Customer Successes - case studies & videos of customers using the x240 M5
  https://lenovosuccess.com/search#term=&systems=Flex%2520System&system_models=x240%2520M5
- Flex System Information Center
  https://pubs.lenovo.com/systemx
- Flex System x240 M5 Compute Node Installation and Service Guide
  https://pubs.lenovo.com/x240-m5/
- ServerProven hardware compatibility page for the x240 M5
  http://www.lenovo.com/us/en/serverproven/flex/9532.shtml
- Operating System Interoperability Guide for x240 M5 (E5-2600 v4)
  https://lenovopress.com/osig#servers=x240-m5-9532-e5-v4&support=all
- Flex System Interoperability Guide
  http://lenovopress.com/fsig
- xREF - System x Reference
  http://lenovopress.com/xref
- Support Portal for the x240 M5
  http://support.lenovo.com/products/Servers/Lenovo-x86-servers/Lenovo-x240-M5-Compute-Node/9532
- US Announcement Letter
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS114-140

Related product families

Product families related to this document are the following:

- Blade Servers

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