ThinkSystem PM1735 Mainstream NVMe PCIe 4.0 x8 Flash Adapters

Product Guide

The Lenovo PM1735 Mainstream NVMe PCIe flash storage adapters, available in capacities up to 6.4TB, are high-performance NVMe PCIe add-in cards. They are engineered for greater performance and endurance in a cost-effective design, and to support a broader set of workloads.

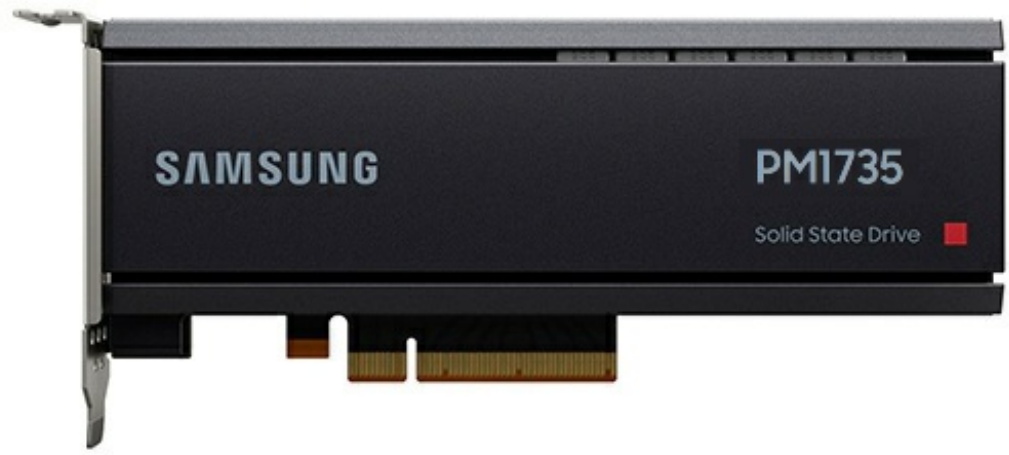

Figure 1. ThinkSystem PM1735 Mainstream NVMe PCIe 4.0 x8 Flash Adapter

Did you know?

The PM1735 family of flash storage adapters are the first PCIe 4.0 add-in cards (AICs) in the ThinkSystem portfolio. By having a Gen 4 host interface, sequential performance is increased compared to Gen 3 adapters. The NVMe host interface also maximizes flash storage performance and minimizes latency.

Lenovo Mainstream flash adapters are suitable for mixed read-write and general-purpose data center workloads, however their NVMe PCIe interface means the adapters also offer high performance. Overall, these AICs provide outstanding IOPS/watt and cost/IOPS for enterprise solutions.

Part number information

The following table lists the part numbers and feature codes for ThinkSystem servers.

Table 1. Ordering information

Part number	Feature code	Description
4XB7A14075	B8JH	ThinkSystem HHHL PM1735 1.6TB Mainstream NVMe PCIe 4.0 x8 Flash Adapter
4XB7A14076	B8HW	ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe 4.0 x8 Flash Adapter
4XB7A14077	B96M	ThinkSystem HHHL PM1735 6.4TB Mainstream NVMe PCIe4.0 x8 Flash Adapter

The part numbers include the following items:

- One adapter
- Low profile (2U) bracket attached with Full height (3U) bracket in the box
- Documentation flyer

Features

The PM1735 offers outstanding performance with a PCIe 4.0 interface (supports up to 16 Gbps per lane) and the the highly efficient NVMe protocol. The PM1735 delivers bandwidth of up to 8.0 GB/s for sequential read speed and up to 3.8 GB/s for sequential write speed. The PM1735 also delivers latency of 100 µs for random 4KB read of 1500K IOPS and 25 µs for random 4KB write of 250K IOPS in a sustained state.

By combining the enhanced reliability of Samsung NAND flash memory silicon with NAND flash management technologies, the PM1735 deliver the extended endurance of up to 3 drive writes per day (DWPD) for 5 years, which is suitable for enterprise applications.

The PM1735 Mainstream NVMe Flash Adapters has the following features:

- PCIe 4.0 x8 connection, resulting in up to 8 GBps overall throughput.
- Advanced ECC Engine and End-to-End Data Protection
- Samsung’s SSD virtualization technology allows a single SSD to be subdivided into smaller SSDs, up to 64, providing independent virtual workspaces. It also enables SSDs to take on certain tasks typically carried out by the server CPUs, such as Single-Root I/O Virtualization (SR-IOV), requiring fewer server CPUs and SSDs.
- V-NAND Machine Learning enables the flash adapter to accurately predict and verify cell characteristics, as well as detect any variations in circuit patterns.
- Fail-In-Place technology ensures the flash adapter operates normally even when errors occur at the chip level. It allows the PM1735 to identify failing NAND cells, and actually recover then relocate the data without interrupting normal operations or impacting performance.
- Protect data integrity from unexpected power loss with Samsung's advanced power-loss protection architecture
- Supports Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T).

Entry solid-state devices and Mainstream solid-state devices have similar read and write IOPS performance, but the key difference between them is their endurance (or lifetime) (that is, how long they can perform write operations because flash adapters have a finite number of program/erase (P/E) cycles). Mainstream devices have better endurance but lower cost/IOPS ratio compared to Entry devices. Write endurance is typically measured by the number of program/erase (P/E) cycles that the devices incurs over its lifetime, listed as the total bytes of written data (TBW) in the device specification.

The TBW value assigned to a solid-state device is the total bytes of written data (based on the number of P/E cycles) that a device can be guaranteed to complete (% of remaining P/E cycles = % of remaining TBW). Reaching this limit does not cause the device to immediately fail. It simply denotes the maximum number of writes that can be guaranteed. A solid-state device will not fail upon reaching the specified TBW. At some point based on manufacturing variance margin, after surpassing the TBW value, the device will reach the end-of-life point, at which the device will go into a read-only mode.

Because of such behavior, careful planning must be done to use SSDs in the application environments to ensure that the TBW of the device is not exceeded before the required life expectancy.

For example, the 1.6 TB PM1735 has an endurance of 8,760 TB of total bytes written (TBW). This means that for full operation over five years, write workload must be limited to no more than 4,800 GB of writes per day, which is equivalent to 3.0 full drive writes per day (DWPD). For the device to last three years, the write workload must be limited to no more than 8,000 GB of writes per day, which is equivalent to 5.0 full drive writes per day.

Technical specifications

The following tables present technical specifications for the PM1735 Mainstream NVMe Flash Adapters.

Table 2. Technical specifications

Feature	**1.6 TB adapter**	**3.2 TB adapter**	**6.4 TB adapter**
Interface	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x8
Capacity	1.6 TB	3.2 TB	6.4 TB
Endurance (total bytes written)	8.76 PB	17.52 PB	35.04 PB
Endurance (drive writes per day for 5 years)	3 DWPD	3 DWPD	3 DWPD
Data reliability (UBER)	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read	< 1 in 10^{17} bits read
MTBF	2,000,000 hours	2,000,000 hours	2,000,000 hours
IOPS reads (4 KB blocks)	1,000,000	1,500,000	1,500,000
IOPS writes (4 KB blocks)	200,000	250,000	250,000
Sequential read rate (128 KB blocks) (PCIe 4.0)	7000 MBps	8000 MBps	8000 MBps
Sequential write rate (128 KB blocks) (PCIe 4.0)	2400 MBps	3800 MBps	3800 MBps
Latency (random R/W)	100 µs / 25 µs	100 µs / 25 µs	100 µs / 25 µs
Latency (sequential R/W)	220 µs / 80 µs	220 µs / 80 µs	220 µs / 80 µs
Typical power (R/W)	17 W / 17 W	19 W / 22 W	19 W / 22 W

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 3. Server support (Part 1 of 2)

Part Number	Description	Edge		1S Intel V2			2S Intel V2				AMD				Dense V2				4S V2		8S
		SE350 (7Z46 / 7D1X)	SE450 (7D8T)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	SR670 V2 (7Z22 / 7Z23)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)
4XB7A14075	ThinkSystem HHHL PM1735 1.6TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	Y
4XB7A14076	ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	Y
4XB7A14077	ThinkSystem HHHL PM1735 6.4TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	Y

Table 4. Server support (Part 2 of 2)

Part Number	Description	1S Intel V1				2S Intel V1							Dense V1				4S V1		
		ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)	ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)
4XB7A14075	ThinkSystem HHHL PM1735 1.6TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	N	Y	Y	N	Y	N	Y	N	N	N	Y	Y	Y
4XB7A14076	ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	N	Y	Y	N	Y	N	Y	N	N	N	Y	Y	Y
4XB7A14077	ThinkSystem HHHL PM1735 6.4TB Mainstream NVMe PCIe4.0 x8 Flash Adapter	N	N	N	N	N	N	N	Y	Y	N	Y	N	Y	N	N	N	Y	Y	Y

Operating system support

The following table lists the supported operating systems.

Tip: This table is automatically generated based on data from Lenovo ServerProven.

Table 5. Operating system support for ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe3.0 x4 Flash Adapter, 4XB7A14076 (Part 1 of 2)

Operating systems	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	SR635	SR645	SR655	SR665	SD530 (Gen 2)	SR570 (Gen 2)	SR590 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR850P	SR860 (Gen 2)	SR950 (Gen 2)
Microsoft Windows Server 2012 R2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Microsoft Windows Server version 1803	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.10	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 6.9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Red Hat Enterprise Linux 7.6	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	N	N	N	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 11 SP4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP2 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 12 SP3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N
SUSE Linux Enterprise Server 12 SP3 with Xen	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N
SUSE Linux Enterprise Server 12 SP4	N	N	N	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	N	N	N	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y

Operating systems	SR630 V2	SR650 V2	SR670 V2	SR850 V2	SR860 V2	SR635	SR645	SR655	SR665	SD530 (Gen 2)	SR570 (Gen 2)	SR590 (Gen 2)	SR650 (Gen 2)	SR850 (Gen 2)	SR850P	SR860 (Gen 2)	SR950 (Gen 2)
SUSE Linux Enterprise Server 15 SP1	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.5 U2	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	N	N	N	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.7 U1	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 6. Operating system support for ThinkSystem HHHL PM1735 3.2TB Mainstream NVMe PCIe3.0 x4 Flash Adapter, 4XB7A14076 (Part 2 of 2)

Operating systems	SD530 (Gen 1)	SR570 (Gen 1)	SR590 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Microsoft Windows Server 2012 R2	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2016	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2019	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server 2022	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1709	Y	Y	Y	Y	Y	Y	Y
Microsoft Windows Server version 1803	Y	N	N	Y	Y	Y	Y
Red Hat Enterprise Linux 6.10	Y	Y	Y	Y	Y	Y	Y

Operating systems	SD530 (Gen 1)	SR570 (Gen 1)	SR590 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
Red Hat Enterprise Linux 6.9	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.3	Y	N	N	Y	Y	N	Y
Red Hat Enterprise Linux 7.4	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.5	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.6	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.7	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.8	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 7.9	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.0	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.1	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.2	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.3	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.4	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.5	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 8.6	Y	Y	Y	Y	Y	Y	Y
Red Hat Enterprise Linux 9.0	N	N	N	N	N	N	N
SUSE Linux Enterprise Server 11 SP4	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP2	Y	N	N	Y	Y	N	Y
SUSE Linux Enterprise Server 12 SP2 with Xen	Y	N	N	N	Y	N	Y
SUSE Linux Enterprise Server 12 SP3	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP4 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 12 SP5 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP1 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP2 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 SP3 with Xen	Y	Y	Y	Y	Y	Y	Y
SUSE Linux Enterprise Server 15 with Xen	Y	Y	Y	Y	Y	Y	Y
Ubuntu 18.04.5 LTS	N	N	N	N	N	N	N
Ubuntu 20.04 LTS	N	N	N	N	N	N	N
Ubuntu 22.04 LTS	N	N	N	N	N	N	N
VMware vSphere Hypervisor (ESXi) 6.0 U3	Y	Y	Y	Y	Y	Y	Y

Operating systems	SD530 (Gen 1)	SR570 (Gen 1)	SR590 (Gen 1)	SR650 (Gen 1)	SR850 (Gen 1)	SR860 (Gen 1)	SR950 (Gen 1)
VMware vSphere Hypervisor (ESXi) 6.5	Y	N	N	Y	Y	N	Y
VMware vSphere Hypervisor (ESXi) 6.5 U1	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U2	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.5 U3	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U1	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U2	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 6.7 U3	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U1	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U2	Y	Y	Y	Y	Y	Y	Y
VMware vSphere Hypervisor (ESXi) 7.0 U3	Y	Y	Y	Y	Y	Y	Y

Warranty

The PM1735 flash adapters carry a one-year, customer-replaceable unit (CRU) limited warranty. When the adapters are installed in a supported server, these adapters assume the server's base warranty and any warranty upgrades.

Solid State Memory cells have an intrinsic, finite number of program/erase cycles that each cell can incur. As a result, each solid state device has a maximum amount of program/erase cycles to which it can be subjected. The warranty for Lenovo flash adapters is limited to adapters that have not reached the maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the product. An adapter that reaches this limit may fail to operate according to its Specifications.

Physical specifications

The PM1735 flash adapters have the following physical specifications:

- Height: 69 mm (2.7 in.)
- Depth: 168 mm (6.6 in.)
- Weight: 310 g (10.9 oz)

Operating environment

The adapters are supported in the following environment:

- Temperature (operating): 0 to 70 °C (32 to 158 °F)
- Temperature (non-operating): -40 to 85 °C (-40 to 185 °F)
- Relative humidity (non-operating): 5 to 95% (noncondensing)
- Maximum altitude: 3,050 m (10,000 ft)
- Shock, operating: 1,500 G (Max) at 0.5 ms
- Vibration: 20 G_{PEAK} (10-2000 Hz) at 15 mins per axis

Agency approvals

The adapters conform to the following regulations:

- Safety:
  - cUL
  - CE
  - TUV-GS
  - CB
- EMC:
  - CE (EU)
  - BSMI (Taiwan)
  - KC (South Korea)
  - VCCI (Japan)
  - RCM (Australia)
  - FCC (USA) / IC (Canada)

Related publications and links

For more information, see the following documents:

- Lenovo ThinkSystem storage options product web page
  https://lenovopress.com/lp0761-storage-options-for-thinksystem-servers
- Samsung product page for Enterprise SSDs
  https://www.samsung.com/semiconductor/ssd/enterprise-ssd/

Related product families

Product families related to this document are the following:

- PCIe Flash Adapters

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