

Lenovo ThinkServer RS140 Product Guide (withdrawn product)

The Lenovo ThinkServer RS140 is the ideal right-sized, value-priced, single-socket 1U rack solution for small and medium businesses that need optimized performance and flexibility for future growth. With support for a memory capacity of 32 GB and internal storage of 12 TB, the RS140 is ideal for small- to medium-sized business, workgroups, distributed locations, and webscale workloads.

The RS140 offers a wide range of processors - from Intel Core i3 to Intel Xeon E3-1200 v3. Also, it features integrated NICs and an additional PCIe expansion slot for advanced RAID protection, network scalability, or SSD acceleration.

Intel Active Management Technology (AMT) built into the RS140 offers easy-to-use, industry-standard management tools for remote diagnostics, updates, and repairs.

The following figure shows the Lenovo ThinkServer RS140.



Figure 1. Lenovo ThinkServer RS140

Did you know?

The RS140 runs a wide range of operating systems, including client OS capability for retail applications.

The RS140 is among the quietest server models in the industry.

The RS140 has just a 16.2-inch (411 mm) deep chassis and supports 4-post and 2-post racks, giving you more flexibility with your business footprint.

Key features

The ThinkServer RS140 server is a compact, cost-effective, single-processor 1U rack server that has been optimized to provide enterprise-class features to small-to-medium-sized businesses, retail stores, or distributed enterprises.

Scalability and performance

The RS140 offers numerous features to boost performance, improve scalability, and reduce costs:

- The Intel Xeon processor E3-1200 v3 improves productivity by offering affordable single-socket system performance with 4-core processors with up to 3.7 GHz core speeds and up to 8 MB cache.
- Choice of processors with up to four cores to enable the effective use of multithreaded applications.
- Intelligent and adaptive system performance with Intel Turbo Boost Technology 2.0 allows processor 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 (AVX) significantly improve floating point performance for compute-intensive technical and scientific applications.
- Up to four 1600 MHz DDR3 ECC UDIMMs provide speed, availability, and a capacity of up to 32 GB.
- The server offers PCI Express 3.0 I/O expansion capabilities that increase the theoretical maximum bandwidth by almost 100% (8 GTps per link using 128b/130b encoding) compared to the PCI Express 2.0 (5 GTps per link using 8b/10b encoding).
- With Intel Integrated I/O Technology, the PCI Express 3.0 controller is integrated into the Intel Xeon processor E3-1200 v3 product family. Such integration reduces I/O latency and increases overall system performance.
- Four 2.5-inch non-hot-swap drive bays or two 3.5-inch non-hot-swap (NHS) drive bays provide sufficient internal storage capacity in a compact 1U form factor.
- The use of solid-state drives (SSDs) instead of, or along with, traditional spinning drives (hard disk drives or HDDs) can significantly improve I/O performance.

Availability and serviceability

The RS140 provides many features to simplify serviceability and increase system uptime:

- The RS140 supports UDIMM memory with ECC protection which provides error correction not available in PC-class "servers" that use parity memory. Avoiding system crashes (and data loss) due to soft memory errors means greater system uptime.
- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as memory and adapter cards.
- A choice of affordable onboard SATA RAID or advanced hardware RAID redundancy offers data protection and greater system uptime.
- The use of SSDs can provide better reliability than the use of traditional HDDs, for greater uptime.
- Built-in Active Management Technology continuously monitors system parameters, sends alerts, and enables administrators to perform remote recovery actions to minimize downtime.
- The ThinkServer EasyUpdate firmware update tool enables you to keep your server firmware up-to-date and helps you avoid unnecessary server outages.
- The ThinkServer Diagnostics software speeds up troubleshooting tasks to reduce service time.
- One-year or three-year customer-replaceable unit (CRU) and onsite limited warranty with next business day response. Optional service upgrades are available.

Manageability and security

Powerful systems management features simplify local and remote management of the RS140:

- Active Management Technology (available with Intel Xeon E3-1200 v3 processors) monitors server availability and enables administrators to perform remote management.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- The ThinkServer EasyStartup tool simplifies the process of configuring RAID and installing supported Microsoft Windows and Linux operating systems, VMware hypervisors, and device drivers on a ThinkServer system.
- Integrated Trusted Platform Module (TPM) support enables advanced cryptographic functionality, such as digital signatures and remote attestation.
- Industry-standard Advanced Encryption Standard New Instructions (AES-NI) support improves the speed and strength of 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. This enables an application to run in its own isolated space, protected from all other software running on a system.

Energy efficiency

The RS140 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to a green environment:

- Energy-efficient planar components help lower operational costs.
- 80 PLUS Gold-certified power supply enables greater energy savings while providing flexibility to meet your business needs.
- Intelligent Cooling Engine (ICE) actively monitors component temperatures in real-time and optimally adjusts the speeds of the fans to keep the system cooler and quieter.
- The ThinkServer Power Planner tool provides information about the power consumption and electric current calculation for the different configurations of servers and other devices, which helps plan deployment of servers and devices in an efficient way.
- The Intel Xeon processor E3-1200 v3 product family offers better performance than the previous generation, while fitting into similar TDP limits.
- Intel Intelligent Power Capability powers individual processor elements on and off as needed, to reduce power draw.
- The use of SSDs can help lower power consumption compared to traditional spinning 2.5-inch HDDs.

Components and connectors

The following figure shows the front of the RS140.

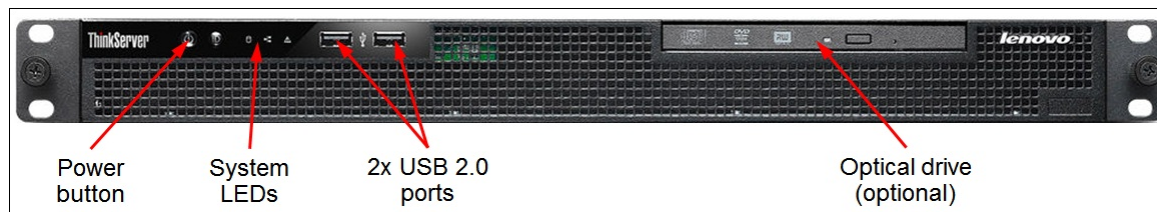


Figure 2. RS140 front view

The following figure shows the rear of the RS140.

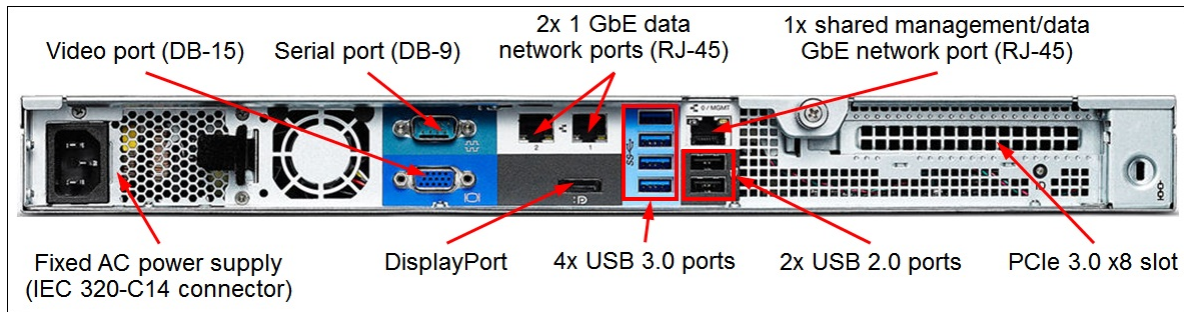


Figure 3. RS140 rear view

The following figure shows the internal components of the RS140.

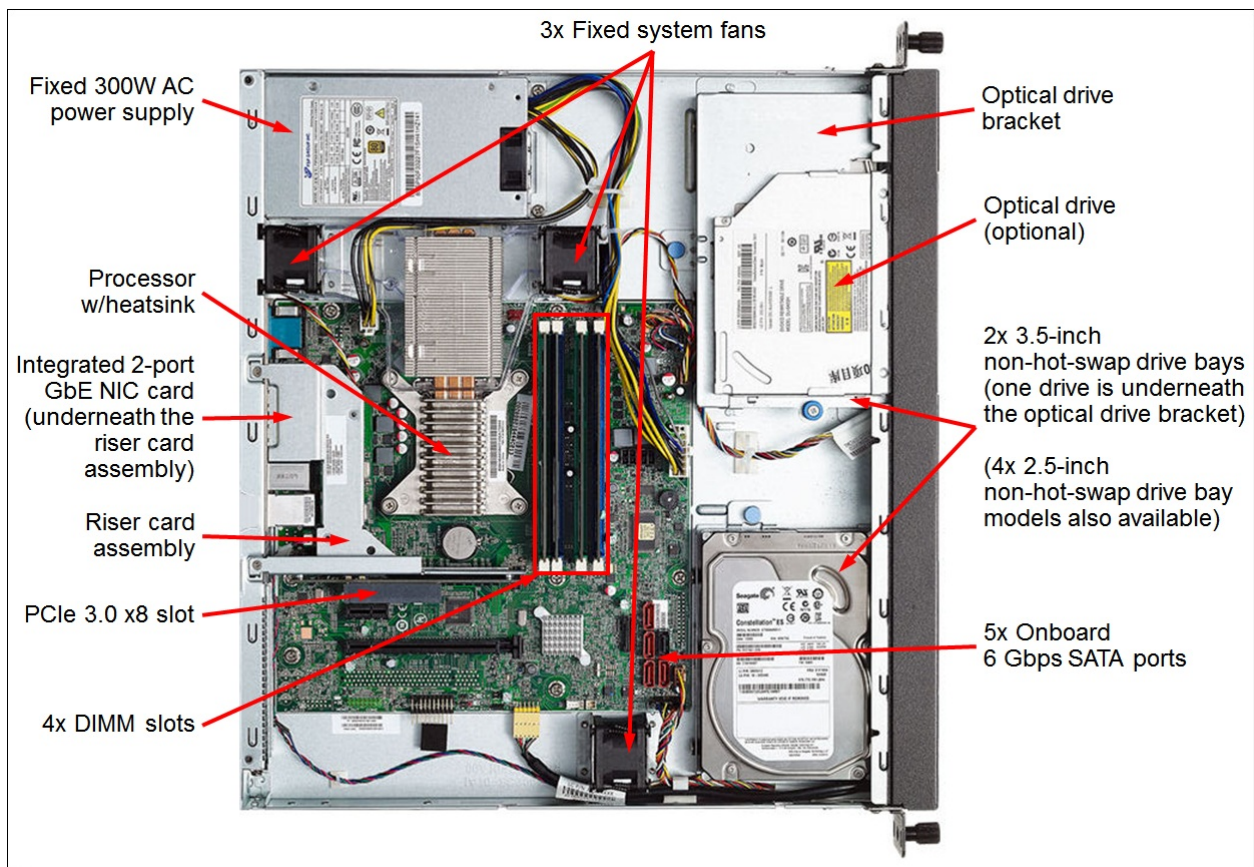


Figure 4. RS140 internal view (with 3.5-inch drives)

System specifications

The following table lists the system specifications.

Table 1. System specifications

Components	Specification
Form factor	1U rack-mount
Processor	<ul style="list-style-type: none"> One Intel Xeon processor E3-1200 v3 product family with four cores up to 3.7 GHz, 8 MB cache, and up to 1600 MHz memory speed; or One Intel Core-i3 Processor 4100/4300 product families with two cores up to 3.7 GHz, up to 4 MB cache, and 1600 MHz memory speed; or One Intel Pentium Processor G3200/G3400 product families with two cores up to 3.4 GHz, 3 MB cache, and up to 1600 MHz memory speed; or One Intel Celeron Processor G1800 product family with two cores up to 2.9 GHz, 2 MB cache, and up to 1333 MHz memory speed.
Chipset	Intel C226.
Memory	Four DIMM sockets. Support for UDIMMs. DIMM speeds up to 1600 MHz.
Memory maximums	Up to 32 GB with four 8 GB UDIMMs.
Memory protection	Error-correcting code (ECC) memory
Drive bays	<ul style="list-style-type: none"> Four 2.5-inch non-hot-swap SAS/SATA drive bays; or Two 3.5-inch SAS/SATA non-hot-swap drive bays.
Drive types	<p>2.5-inch drives:</p> <ul style="list-style-type: none"> SAS HDDs Nearline (NL) SATA HDDs SATA SSDs <p>3.5-inch drives</p> <ul style="list-style-type: none"> NL SAS HDDs NL SATA HDDs <p>Intermix of SAS and SATA HDDs and SSDs is supported within a system, but not within a RAID array.</p>
Maximum internal storage	Up to 3.6 TB with 900 GB 2.5-inch SAS HDDs; up to 4 TB with 1 TB 2.5-inch NL SAS/SATA HDDs; up to 2.4 TB with 600 GB 2.5-inch SATA SSDs; or up to 12 TB with 6 TB 3.5-inch NL SATA HDDs.
RAID support	<ul style="list-style-type: none"> Non-RAID with the integrated SATA controller or PMC8885e. RAID 0, 1, 10, and 5 with ThinkServer RAID 100. RAID 0, 1, and 10 with ThinkServer RAID 500; optional RAID 5 upgrade is available for Lenovo RAID 500. RAID 0, 1, 10, 5, and 6 with ThinkServer RAID 700.
Optical drive bays	One. Support for DVD-ROM or DVD-RW.
Tape drive bays	None.
Network interfaces	<p>Three integrated Gigabit Ethernet (10/100/1000 Mbps) RJ-45 ports:</p> <ul style="list-style-type: none"> One onboard shared port for management and data (Intel i217LM) Two ports on a LAN card (Intel i210AT) installed in a server
I/O expansion slots	One PCIe 3.0 x8 (x8-wired); full-height, half-length.
Ports	<ul style="list-style-type: none"> Front: Two USB 2.0 ports. Rear: Four USB 3.0 ports, two USB 2.0 ports, one DisplayPort, one DB-15 video port, one DB-9 serial port, three RJ-45 GbE network ports.
Cooling	Three fixed system fans with Intelligent Cooling Engine (ICE).

Components	Specification
Power supply	One fixed 300 W AC power supply (80 PLUS Gold certification).
Hot-swap parts	None.
Systems management	UEFI, system LEDs, ThinkServer EasyStartup, ThinkServer EasyUpdate, ThinkServer Power Planner, and ThinkServer Diagnostics. <ul style="list-style-type: none"> E3-1200 v3: Intel Active Management Technology (AMT) 9.0 Core i3, Pentium, and Celeron: Intel Standard Manageability (ISM)
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM), and security-lock slot.
Video	Intel HD Graphics integrated into a processor. Maximum resolution is 1920x1080 at 60 Hz with 32 bits per pixel (16M colors).
Operating systems	Microsoft Windows 7, 8, and 8.1; Microsoft Windows Server 2008 R2, 2012, 2012 R2, and 2016; Red Hat Enterprise Linux (RHEL) Server 5, 6, and 7; SUSE Linux Enterprise Server (SLES) 11; VMware vSphere (ESXi) 5.1 and 5.5.
Limited warranty	One-year or three-year (model dependent) customer-replaceable unit (CRU) and on-site limited warranty with 9x5 next business day (NBD).
Service and support	Optional service upgrades (country-specific) are available through Lenovo Services offerings: 8-hour or 4-hour response time, warranty extension up to 5 years, Priority Technical Support, and Keep Your Drive Multi-Drive.
Dimensions	Height: 43 mm (1.7 in.), width: 430 mm (16.9 in.), depth: 411 mm (16.2 in.)
Weight	Minimum: 7.4 kg (16.3 lb), maximum: 9.0 kg (19.8 lb)

TopSeller models

The following table (Parts 1, 2, and 3) lists TopSeller models of the RS140.

Product availability: TopSeller models of the ThinkServer RS140 listed in this section are withdrawn and no longer available for ordering.

Table 2. TopSeller models (Part 1: North America)

Model number	Intel processor	RAM	RAID controller	Drive bays (NHS)	Drives	NIC	PCIe I/O slots	DVD drive	Power supply (fixed)	Wty\$ (On-site)
3.5-inch non-hot-swap drive bay models										
70F90007UX	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000AUX	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	1 Yr
70F9001MUX	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9001SUX	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90008UX	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000BUX	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	1 Yr
70F9000DUX	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	1 Yr
70F9000FUS	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500	2x3.5"	2x500GB RAID 1‡	3xGbE	1**	DVD-RW	1x300W	1 Yr

70F9000HUS	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500	2x3.5"	2x500GB RAID 1*	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9001NUX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001TUX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001UUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1†	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001VUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1*	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001QUX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F90009UX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9000CUX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9000EUX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	2x8GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9000GUS	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	2x8GB	RAID 500	2x3.5"	2x500GB RAID 1‡	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9001PUX	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001RUX	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
2.5-inch non-hot-swap drive bay models										
70F30006UX	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30017UX	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001CUX	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30007UX	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30009UX	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000DUS	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500 w/RAID 5	4x2.5"	2x500GB RAID 1‡	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F30018UX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001DUX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001EUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	2x500GB RAID 1†	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001FUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	2x500GB RAID 1*	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001GUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	2x120GB RAID 1†	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001HUS	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	2x120GB RAID 1*	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001AUX	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F30008UX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3000AUX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr

70F3000BUX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 500 w/RAID 5	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000CUX	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 700 512MB	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000EUS	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	2x8GB	RAID 700 512MB	4x2.5"	4x500GB RAID 5†	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F30019UX	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3001BUX	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr

§ Wty = Warranty, Yr = Year.

† Ships with the Windows Server 2012 R2 Foundation preload.

* Ships with the Windows Server 2012 R2 Essential preload.

‡ Ships with the Windows Server 2012 R2 Standard preload.

** The slot is occupied by the RAID controller.

Table 2. TopSeller models (Part 2: Europe, Middle East, Africa - EMEA)

Model number	Intel processor	RAM	RAID controller	Drive bays (NHS)	Drives	NIC	PCIe I/O slots	DVD drive	Power supply (fixed)	Wty§ (On-site)
3.5-inch non-hot-swap drive bay models										
70F9001FEA	1x Celeron G1850 2.9GHz 2MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001EEA	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001DEA	1x Pentium G3240 3.1GHz 3MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001BEA	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	2x1TB RAID 1	3xGbE	1**	DVD- RW	1x300W	3 Yr
70F9001AEA	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500	2x3.5"	2x1TB RAID 1	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9001CEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001JEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD- RW	1x300W	3 Yr
70F9001LEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	2x3.5"	2x1TB RAID 1	3xGbE	1**	DVD- RW	1x300W	3 Yr
70F9001HEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9001KEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 500	2x3.5"	2x1TB RAID 1	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F9001GEA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
2.5-inch non-hot-swap drive bay models										
70F30016EA	1x Celeron G1850 2.9GHz 2MB 1333MHz 2C (53W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30014EA	1x Core i3 4150 3.5GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30015EA	1x Pentium G3240 3.1GHz 3MB 1333MHz 2C (53W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F30012EA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3000YEA	1x Xeon E3-1226 v3 3.3GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr

70F30013EA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F3000XEA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	1 Yr
70F30010EA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD-RW	1x300W	3 Yr
70F30011EA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	3 Yr
70F3000WEA	1x Xeon E3-1246 v3 3.5GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 700 512MB w/battery	4x2.5"	Open bay	3xGbE	1**	DVD-RW	1x300W	1 Yr

§ Wty = Warranty, Yr = Year.

** The slot is occupied by the RAID controller.

Table 2. TopSeller models (Part 3: Country-specific EMEA models)

Model number#	Intel processor	RAM	RAID controller	Drive bays (NHS)	Drives	NIC	PCIe I/O slots	DVD drive	Power supply (fixed)	Wty§ (On-site)
3.5-inch non-hot-swap drive bay models										
70F90004xx†	1x Celeron G1830 2.8GHz 2MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90012xx†	1x Celeron G1830 2.8GHz 2MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000UAT‡	1x Celeron G1830 2.8GHz 2MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90007xx‡	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90011xx†	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000TAT‡	1x Core i3 4130 3.4GHz 3MB 1600MHz 2C (54W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90003xx‡	1x Pentium G3220 3.0GHz 3MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90010xx†	1x Pentium G3220 3.0GHz 3MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000SAT‡	1x Pentium G3220 3.0GHz 3MB 1333MHz 2C (53W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90006xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr
70F90008xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000Yxx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F90015xx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr
70F90017xx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr
70F90019xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr
70F9000KMB‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr
70F9000RAT‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD-RW	1x300W	1 Yr
70F9000XAT‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD-RW	1x300W	3 Yr

70F9000JMB‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90005xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90014xx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90016xx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90018xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x1TB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9000WAT‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	2x3.5"	2x500GB RAID 1	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90009xx‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F90013xx†	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F9000VAT‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 100	2x3.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
2.5-inch non-hot-swap drive bay models										
70F30003xx‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3000Txx†	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3000NAT‡	1x Xeon E3-1225 v3 3.2GHz 8MB 1600MHz 4C (84W)	2x4GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	1 Yr
70F3000Axx‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000Sxx†	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000MAT‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x4GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F30004xx‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	3 Yr
70F3000Uxx†	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	3 Yr
70F3000PAT‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 100	4x2.5"	Open bay	3xGbE	1	DVD- RW	1x300W	3 Yr
70F30005xx‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	3 Yr
70F3000Vxx†	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	3 Yr
70F3000QAT‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 500	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	3 Yr
70F30002xx‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 700 512MB w/battery	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000Rxx†	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 700 512MB w/battery	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr
70F3000LAT‡	1x Xeon E3-1245 v3 3.4GHz 8MB 1600MHz 4C (84W)	1x8GB	RAID 700 512MB w/battery	4x2.5"	Open bay	3xGbE	1**	DVD- RW	1x300W	1 Yr

The letters "xx" in the model number represent one of the following region codes: RU (Russia), FR (France), GE (Germany), IT (Italy), MB (Belgium), MD (Denmark), ND (Netherlands), SP (Spain), UK (United Kingdom).

§ Wty = Warranty, Yr = Year.

† Ships with the 1.8 m C13 - C14 rack power cord.

‡ Ships with a 1.8 m line cord.

** The slot is occupied by the RAID controller.

The RS140 servers are shipped with the following items:

- *Read Me First* printed publication
- Documentation DVD containing the *RS140 User's Guide*
- ThinkServer EasyStartup software DVD
- Rack mount kit:
 - 4-post slide rail kit (All North America models that are listed in Table 2 (Part 1) except 70F3001CUX, 70F3001DUX, 70F9001TUX, and 70F9001SUX)
 - 2-post slide rail kit (Models 70F3001CUX, 70F3001DUX, 70F9001TUX, and 70F9001SUX only)
- One power cable
 - 1.8 m 10A/100-250V, C13 to IEC 320-C14 rack power cable (All EMEA models that are listed in Table 2 (Part 2) and select EMEA region-specific models - see Table 2 (Part 3) for details)
 - 1.8 m line cord (All North America models that are listed in Table 2 (Part 1) and select EMEA region-specific models - see Table 2 (Part 3) for details)

Processors

The RS140 supports one processor. The following table lists the specifications of the processors that are available for the RS140.

Table 3. Processor specifications (HT = Hyper-Threading, TB = Turbo Boost, VT = Virtualization Technology)

Processor model	Core frequency (Base / TB Max)	Number of cores / threads	Cache	DDR3 frequency	TDP	HT	TB	VT-x	VT-d	Mgt*
Intel Xeon processors										
E3-1225 v3	3.2 / 3.6 GHz	4 / 4	8 MB	1333/1600 MHz	84 W	No	Yes	Yes	Yes	AMT
E3-1226 v3	3.3 / 3.7 GHz	4 / 4	8 MB	1333/1600 MHz	84 W	No	Yes	Yes	Yes	AMT
E3-1245 v3	3.4 / 3.8 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1246 v3	3.5 / 3.9 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1275 v3	3.5 / 3.9 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1276 v3	3.6 / 4 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1285 v3	3.6 / 4 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1286 v3	3.7 / 4.1 GHz	4 / 8	8 MB	1333/1600 MHz	84 W	Yes	Yes	Yes	Yes	AMT
E3-1286L v3	3.2 / 4 GHz	4 / 8	8 MB	1333/1600 MHz	65 W	Yes	Yes	Yes	Yes	AMT
Intel Core processors										
i3-4330	3.5 GHz	2 / 4	4 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4340	3.6 GHz	2 / 4	4 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4350	3.6 GHz	2 / 4	4 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4360	3.7 GHz	2 / 4	4 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4130	3.4 GHz	2 / 4	3 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4150	3.5 GHz	2 / 4	3 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
i3-4150T	3 GHz	2 / 4	3 MB	1333/1600 MHz	35 W	Yes	No	Yes	No	ISM
i3-4170	3.7 GHz	2 / 4	3 MB	1333/1600 MHz	54 W	Yes	No	Yes	No	ISM
Intel Pentium processors										
G3420	3.2 GHz	2 / 2	3 MB	1333/1600 MHz	53 W	No	No	Yes	No	ISM
G3430	3.3 GHz	2 / 2	3 MB	1333/1600 MHz	53 W	No	No	Yes	No	ISM
G3440	3.3 GHz	2 / 2	3 MB	1333/1600 MHz	53 W	No	No	Yes	No	ISM

G3440T	2.8 GHz	2 / 2	3 MB	1333/1600 MHz	35 W	No	No	Yes	No	ISM
G3450	3.4 GHz	2 / 2	3 MB	1333/1600 MHz	53 W	No	No	Yes	No	ISM
G3220	3 GHz	2 / 2	3 MB	1333 MHz	53 W	No	No	Yes	No	ISM
G3240	3.1 GHz	2 / 2	3 MB	1333 MHz	53 W	No	No	Yes	No	ISM
G3240T	2.7 GHz	2 / 2	3 MB	1333 MHz	35 W	No	No	Yes	No	ISM
G3260	3.3 GHz	2 / 2	3 MB	1333 MHz	53 W	No	No	Yes	No	ISM
Intel Celeron processors										
G1820	2.7 GHz	2 / 2	2 MB	1333 MHz	53 W	No	No	Yes	No	ISM
G1830	2.8 GHz	2 / 2	2 MB	1333 MHz	53 W	No	No	Yes	No	ISM
G1840	2.8 GHz	2 / 2	2 MB	1333 MHz	53 W	No	No	Yes	No	ISM
G1840T	2.5 GHz	2 / 2	2 MB	1333 MHz	35 W	No	No	Yes	No	ISM
G1850	2.9 GHz	2 / 2	2 MB	1333 MHz	53 W	No	No	Yes	No	ISM

* Mgt = Management

Memory

Lenovo DDR3 memory is compatibility tested and tuned for optimal ThinkServer performance and throughput. From a service and support standpoint, Lenovo memory automatically assumes the system warranty, and Lenovo provides service and support worldwide.

The RS140 server has four DIMM slots, and it supports DDR3 UDIMMs with ECC memory protection. The processor has two memory channels and supports two DIMMs per channel.

The following rules apply when selecting the memory configuration:

- The RS140 server supports memory configurations with 1, 2, 3, or 4 UDIMMs.
- The RS140 server supports up to 1600 MHz memory speeds for one DIMM per channel and two DIMMs per channel configurations, provided that the processors support this memory speed (see Table 3 for details).

The following table summarizes memory speeds and capacities that are supported by the RS140 server.

Table 4. RS140 maximum memory speeds and capacities

DIMMs per channel	UDIMM	
	Memory bus speed	Maximum capacity
1 DPC	1600 MHz	16 GB (2x 8 GB)
2 DPC	1600 MHz	32 GB (4x 8 GB)

The following table lists the memory options that are available for the RS140 server.

Table 5. Memory options

Description	Part number	Maximum supported
ThinkServer 4GB DDR3L-1600MHz (1Rx8) ECC UDIMM	0C19499	4
ThinkServer 8GB DDR3L-1600MHz (2Rx8) ECC UDIMM	0C19500	4

Internal storage

The RS140 server supports the following internal storage configurations:

- Two 3.5-inch large form factor (LFF) SAS/SATA NHS drive bays
- Four 2.5-inch small form factor (SFF) SAS/SATA NHS drive bays

The following figure shows the drive bay configurations.

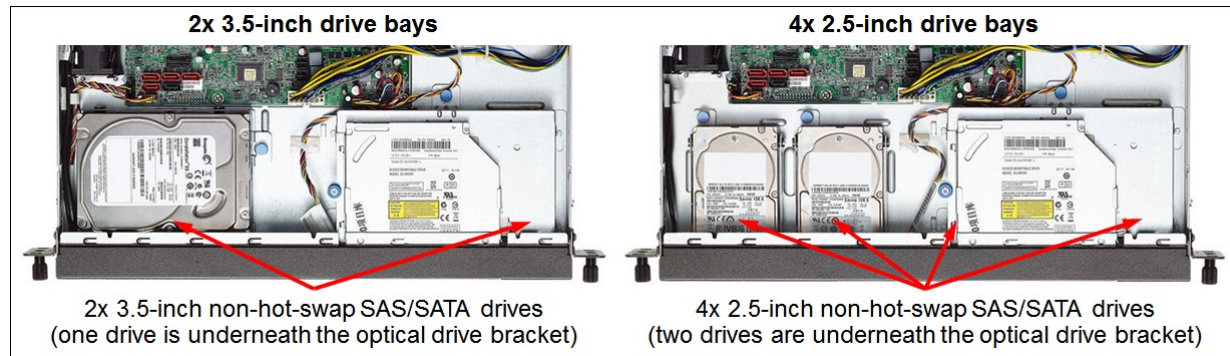


Figure 4. Drive bay configurations

Controllers for internal storage

The following table lists the internal RAID controllers, HBAs, and the additional options that are used for the internal disk storage of the RS140 server.

Table 6. Controllers for internal storage

Description	Part number	Maximum supported
ThinkServer RAID 100 Controller	None#	1
ThinkServer RAID 500 Adapter II	0A89464	1
ThinkServer RAID 500 Upgrade Key for Advanced RAID	0A89407	1*
ThinkServer RAID 700 Adapter II	0A89463	1
ThinkServer RAID 700 Battery	67Y2647	1†
ThinkServer 8885e PCIe 12Gb SAS Adapter by PMC	4XB0G88714	1

RAID 100 is an onboard hardware-assist RAID controller.

* RAID 5 upgrade key for RAID 500 Adapter (0A89464).

† Battery backup upgrade for RAID 700 Adapter (0A89463).

ThinkServer RAID 100 is an onboard RAID controller that does *not* consume a PCIe slot. The RAID 500, RAID 700, and 8885e adapters are supported in the PCIe expansion slot.

Important: RAID 100 is not supported by virtualization hypervisors, including VMware vSphere (ESXi), Linux KVM, Xen, and Microsoft Hyper-V.

The following table lists drive types and internal drive bay configurations that are supported by the internal RAID controllers and HBAs.

Table 7. RAID controllers and HBAs, drive types, and internal drive bays

Drive controller	Drive type	2x 3.5-in. simple-swap	4x 2.5-in. simple-swap
RAID 100	SAS/NL SAS HDD	No support	No support
	NL SATA HDD	Yes	Yes
	SATA SSD	Not available*	Yes
RAID 500	SAS/NL SAS HDD	Yes	Yes
	NL SATA HDD	Yes	Yes
	SATA SSD	Not available*	Yes
RAID 700	SAS/NL SAS HDD	Yes	Yes
	NL SATA HDD	Yes	Yes
	SATA SSD	Not available*	Yes
8885e HBA	SAS/NL SAS HDD	Yes	Yes
	NL SATA HDD	Yes	Yes
	SATA SSD	Not available*	Yes

* There are no 3.5-inch SSDs available for the RS140.

The following table summarizes features of supported drive controllers.

Table 8. Drive controller features and specifications summary

Feature	RAID 100	RAID 500	RAID 700	8885e***
Part number	None	0A89464	0A89463	4XB0G88714
Form factor	Onboard	Low profile	Low profile	Low profile
Controller chip	Not applicable	LSI SAS2008	LSI SAS2108	PMC 8885e
Host interface	Not applicable	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 3.0 x8
Port interface	6 Gbps SATA	6 Gbps SAS	6 Gbps SAS	12 Gbps SAS
Number of internal drive ports	5*	8	8	8
Internal port connectors	5x L-shape SATA	2x Mini-SAS (SFF-8087)	2x Mini-SAS (SFF-8087)	2x Mini-SAS HD (SFF-8643)
Drive interface	SATA	SAS, SATA	SAS, SATA	SAS, SATA
Drive type	HDD, SSD	HDD, SSD	HDD, SSD	HDD, SSD
Maximum number of drives	4	4**	4**	4**
RAID levels	0/1/10/5	0/1/10, Optional 5	0/1/10/5/50/6#	None
JBOD mode	Yes	No	No	Yes
Cache	None	None	512 MB	1,024 MB
Cache protection	None	None	Optional battery backup	None

* Four internal ports are used for SATA HDDs or SSDs, and the remaining port is used for an optical drive.

** The adapter supports more than four drives, however, the maximum number of drives supported by the RS140 server is four.

*** In addition to eight internal ports listed in Table 8, the ThinkServer 8885e adapter has eight external ports for external storage expansion connectivity (For details, refer to the External storage expansion section).

The RAID level 50 requires minimum 6 drives; therefore, RAID 50 is not supported on the RS140.

Drives for internal storage

The RS140 server supports the drive options that are listed in the following table.

Table 9. Supported drive options

Description	Part number	Maximum supported
3.5-inch non-hot-swap NL SATA HDDs		
ThinkServer 3.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28664	2
ThinkServer 3.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28665	2
ThinkServer 3.5" 2TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28666	2
ThinkServer 3.5" 3TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28667	2
ThinkServer 3.5" 4TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28668	2
ThinkServer 3.5" 6TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0G88753	2
3.5-inch non-hot-swap NL SAS HDDs		
ThinkServer 3.5" 1TB 7.2K SAS 6Gbps Hard Drive for RS-Series	4XB0F28669	2
ThinkServer 3.5" 2TB 7.2K SAS 6Gbps Hard Drive for RS-Series	4XB0F28670	2
ThinkServer 3.5" 3TB 7.2K SAS 6Gbps Hard Drive for RS-Series	4XB0F28671	2
ThinkServer 3.5" 4TB 7.2K SAS 6Gbps Hard Drive for RS-Series	4XB0F28685	2
2.5-inch non-hot-swap SAS HDDs		
ThinkServer 2.5" 146GB 15K SAS 6Gbps Hard Drive for RS-Series	4XB0G45751	4
ThinkServer 2.5" 300GB 10K SAS 6Gbps Hard Drive for RS-Series	4XB0F28672	4
ThinkServer 2.5" 300GB 15K SAS 6Gbps Hard Drive for RS-Series	4XB0F28675	4
ThinkServer 2.5" 600GB 10K SAS 6Gbps Hard Drive for RS-Series	4XB0F28673	4
ThinkServer 2.5" 900GB 10K SAS 6Gbps Hard Drive for RS-Series	4XB0F28674	4
2.5-inch non-hot-swap NL SATA HDDs		
ThinkServer 2.5" 500GB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28676	4
ThinkServer 2.5" 1TB 7.2K Enterprise SATA 6Gbps Hard Drive for RS-Series	4XB0F28677	4
2.5-inch non-hot-swap SATA SSDs - Enterprise Entry		
ThinkServer 2.5" 120GB S3510 Enterprise Entry SATA 6Gbps SSD for RS-Series	4XB0K12274	4
ThinkServer 2.5" 240GB S3510 Enterprise Entry SATA 6Gbps SSD for RS-Series	4XB0K12275	4
ThinkServer 2.5" 480GB S3510 Enterprise Entry SATA 6Gbps SSD for RS-Series	4XB0K12276	4
ThinkServer 2.5" 800GB S3510 Enterprise Entry SATA 6Gbps SSD for RS-Series	4XB0K12277	4
2.5-inch non-hot-swap SATA SSDs - Value Read-Optimized		
ThinkServer 2.5" 120GB Value Read-Optimized SATA 6Gbps SSD for RS-Series	4XB0F28678	4
ThinkServer 2.5" 240GB Value Read-Optimized SATA 6Gbps SSD for RS-Series	4XB0F28679	4
ThinkServer 2.5" 300GB Value Read-Optimized SATA 6Gbps SSD for RS-Series	4XB0G88722	4
ThinkServer 2.5" 480GB Value Read-Optimized SATA 6Gbps SSD for RS-Series	4XB0F28680	4
ThinkServer 2.5" 600GB Value Read-Optimized SATA 6Gbps SSD for RS-Series	4XB0G88723	4

Optical drives

The RS140 server models that are listed in Table 2 come standard with the DVD-RW optical drive. If needed, an external USB optical drive can be ordered (see the following table).

Table 10. Optical drive options

Description	Part number	Maximum supported
ThinkPad UltraSlim USB DVD Burner	4XA0E97775	1

I/O expansion options

The RS140 server has one PCIe 3.0 x8 (x8-wired) full-height, half-length expansion slot (Refer to Figure 4 for slot location). The following adapter types are supported in the PCIe slot:

- RAID adapters (Refer to the Controllers for internal storage and External storage expansion sections)
- Network adapters (Refer to the Network adapters section)
- Host bus adapters (Refer to the Storage host bus adapters section)
- Serial port adapters (Refer to Table 11)

The RS140 server supports the serial port adapter option listed in the following table to increase the number of available serial ports.

Table 11. Serial port adapter option

Description	Part number	Maximum supported
ThinkServer Dual Serial Port PCIe Adapter	0C19511	1

Network adapters

The RS140 server has three integrated Gigabit Ethernet ports:

- One onboard GbE port that is based on the Intel I217LM NIC (A shared port for operating system access and management network)
- Two GbE ports on the integrated network card that is based on the Intel I210AT NIC

The integrated GbE ports have the following features:

- 1 Gb Ethernet IEEE 802.3, 802.3u, and 802.3ab PHY specifications compliant
- Integrated PHY for 10/100/1000 Mbps with speed and duplex auto-negotiation
- Energy Efficient Ethernet (IEEE 802.3az)
- Wake on LAN
- VLAN tagging (IEEE 802.1Q)
- Class of Service (CoS) priority (IEEE 802.1p) marking
- TCP/UDP checksum and segmentation offload (IPv4 and IPv6)
- Receive Side Scaling
- Jumbo Frames (up to 9K)
- Timing and Synchronization (IEEE 802.1as / IEEE 1588)
- Load balancing and failover teaming support:
 - Adapter fault tolerance (AFT)
 - Switch fault tolerance (SFT)
 - Adaptive load balancing (ALB)
 - Virtual Machine load balancing (VMLB) (not supported on the I217LM NIC)
 - Link aggregation (static, IEEE 802.3ad) (not supported on the I217LM NIC)

Important: The onboard I217LM GbE port does not support VMware vSphere (ESXi).

The following table lists the network adapter options for the RS140 server.

Table 12. Network adapter options

Description	Part number	Maximum supported
ThinkServer 1Gbps Ethernet I350-T2 Server Adapter by Intel (2x RJ-45 ports)	0C19506	1
ThinkServer 1Gbps Ethernet I350-T4 Server Adapter by Intel (4x RJ-45 ports)	0C19507	1

Storage host bus adapters

The following table lists the storage host bus adapter options for the RS140 server.

Table 13. Storage host bus adapter options

Description	Part number	Maximum supported
Lenovo ThinkServer 8885e PCIe 12Gb SAS Adapter by PMC (2x external Mini-SAS HD SFF-8644 connectors)	4XB0G88714	1

Power supplies and cables

The RS140 server supports one 300 W AC fixed power supply. The power supply is 80 PLUS Gold certified.

The RS140 models that are listed in Table 2 come with one line cord or one rack power cable (See the TopSeller models section for details). Other line cords and rack power cables that are listed in the following table can be ordered if needed.

Table 14. Power cable options

Description	Part number	Maximum supported
Rack power cords		
ThinkServer C13-C14 WW 250V 10A 1.8m Jumper Cord	4X90F92964	1
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	39Y7938	1
Line cords		
ThinkServer C13-NEMA_5-15P US 125V 10A 1.8m Power Cord	4X90F92965	1
ThinkServer C13-JIS_C8303 Japan 125V 7A 1.8m Power Cord	4X90F92966	1
ThinkServer C13-BS_1363A UK 250V 10A 1.8m Power Cord	4X90F92970	1
ThinkServer C13-DK_2.5A Denmark 250V 10A 1.8m Power Cord	4X90F92971	1
ThinkServer C13-CEE_7.7 Europe 250V 10A 1.8m Power Cord	4X90F92974	1
ThinkServer C13-CE123_50 Italy 250V 10A 1.8m Power Cord	4X90F92975	1
ThinkServer C13-NRB_14136 Brazil 250V 10A 1.8m Power Cord	4X90F92976	1
ThinkServer C13-IRAM_2073 LA 250V 10A 1.8m Power Cord	4X90F92977	1
ThinkServer C13-SI_32 Israel 250V 10A 1.8m Power Cord	4X90F92973	1
ThinkServer C13-SABS_164 South Africa 250V 6A 1.8m Power Cord	4X90F92978	1
Japan 12A/125V C13 to JIS C-8303 2.8m power cord	46M2593	1

Operating systems

The RS140 supports the following operating systems:

- Microsoft (client operating systems)
 - Windows 7 Ultimate (x86 and x64) SP1
 - Windows 7 Professional (x86 and x64) SP1
 - Windows 8 (x86 and x64)
 - Windows 8 Professional (x86 and x64)
 - Windows 8.1 (x86 and x64)
- Microsoft (server operating systems)
 - Windows Server 2008 R2 x64 SP1 Foundation, Standard, Enterprise
 - Windows Small Business Server 2011 Essentials, Standard
 - Windows Small Business Server 2011 Premium Add-on
 - Windows Server 2012 Foundation, Essentials, Standard
 - Windows Storage Server 2012 Standard
 - Windows Server 2012 R2 Foundation, Essentials, Standard, Datacenter, Hyper-V
 - Windows Storage Server 2012 R2 Standard
 - Microsoft Windows Server 2016
- SUSE
 - SUSE Linux Enterprise Server 11 for x86 SP3
 - SUSE Linux Enterprise Server 11 for AMD64/EM64T SP3
- Red Hat
 - Red Hat Enterprise Linux Server 5.10 (x86 and x64)
 - Red Hat Enterprise Linux Server 6.5 (x86 and x64)
 - Red Hat Enterprise Linux Server 7
 - Red Hat Enterprise Linux Server 7.1
 - Red Hat Enterprise Linux Server 7.2
- VMware
 - VMware ESXi 5.5
 - VMware ESXi 5.5 U1
 - VMware ESXi 5.5 U2
 - VMware ESXi 5.5 U3

Important: VMware ESXi support requires an Intel Xeon E3-1200 v3 processor and a PCIe RAID adapter. The onboard RAID 100 adapter and the shared GbE port (I217LM) are not supported by VMware ESXi.

For the latest information about the specific versions and service levels that are supported and any other prerequisites, see the Operating System Interoperability Guide: <http://lenovopress.com/redposig>.

Systems management

The RS140 models with Intel Xeon E3-1200 v3 processors support Intel Active Management Technology (AMT) which provides out-of-band, hardware-based advanced system control, monitoring, alerting, and remote presence functions. The RS140 models with Intel Core-i3, Pentium, or Celeron processors support Intel Standard Manageability (ISM), which is a subset of the AMT features.

Both AMT and ISM offer the following features:

- Out-of-band management
- System health and status monitoring
- System event log and alerting
- Hardware inventory
- Boot device selection
- Remote power control
- Serial over LAN
- IDE Redirect for mounting remote media

In addition, AMT supports KVM (keyboard, video, mouse) redirection.

Important: Health monitoring, event log, alerts, hardware inventory, boot device selection, and remote power control features are accessible out-of-band with a web browser. Serial over LAN, IDE Redirect, and KVM redirection features require third-party tools that are not supplied or supported by Lenovo.

Both AMT and ISM operate independently of the server and remain operational even if the server is powered off. Out-of-band management is performed through the Ethernet port 0, which is a shared port for data and management.

AMT and ASM support the following management protocols:

- DASH 1.1
- WS-MAN
- SNMP Platform Event Traps (PET)

AMT and ASM support the following management user interfaces:

- Web browser
- A third-party platform management software, including but not limited to the following tools:
 - RealVNC Viewer Plus (for remote KVM)
 - Intel Platform Solution Manager (for comprehensive support of AMT features)

Lenovo offers the following software tools that can help you set up, use, and maintain the server at no additional cost:

- ThinkServer EasyStartup

The ThinkServer EasyStartup tool simplifies the process of configuring RAID and installing supported Microsoft Windows and Linux operating systems, VMware hypervisors, and device drivers on a ThinkServer system.

- ThinkServer EasyUpdate

The ThinkServer EasyUpdate firmware update tool enables you to maintain your server firmware up-to-date and helps you avoid unnecessary server outages.

- ThinkServer Diagnostics

The ThinkServer Diagnostics software speeds up troubleshooting tasks to reduce service time.

Rack installation

The following table lists the rack installation options that are available for the RS140 server.

Table 15. Rack installation options

Description	Part number
ThinkServer 2 Post Rail kit for RS-Series	4XF0F28767
ThinkServer 4 Post Rail kit for RS-Series	4XF0F28772

Physical specifications

The RS140 has the following dimensions and weight (approximate):

- Height: 43 mm (1.7 in.)
- Width: 430 mm (16.9 in.)
- Depth: 411 mm (16.2 in.)
- Weight:
 - Minimum: 7.4 kg (16.3 lb)
 - Maximum: 9.0 kg (19.8 lb)

Operating environment

The RS140 server is supported in the following environment:

- Air temperature:
 - Operating: 10 °C - 35 °C (50 °F - 95 °F)
 - Storage: -40 °C - 70 °C (-40 °F - 158 °F) in the original shipping package
- Altitude: 0 m - 3,048 m (0 ft - 10,000 ft) in an unpressurized environment
- Humidity:
 - Operating: 10% - 80% (non-condensing)
 - Storage without a package: 10% - 80% (non-condensing)
 - Storage in the original shipping package: 10% - 90% (non-condensing)
- Electrical:
 - 100 - 127 (nominal) V AC; 50 Hz or 60 Hz
 - 200 - 240 (nominal) V AC; 50 Hz or 60 Hz

Warranty

The RS140 server has a three-year or one-year warranty (model dependent) with 24x7 standard call center support and 9x5 next business day onsite coverage. Lenovo offers warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, and length of service coverage.

The Lenovo QuickPick tool helps locate compatible accessories and services and warranty information. Services offered may vary by geographic location. Access the tool via the following URL:

<http://lenovoquickpick.com>

The following table explains warranty service definitions in more detail.

Table 16. Warranty service definitions

Term	Description
On-site service	A service technician will go to the client's location for equipment service.
24x7x4 hour	A service technician is scheduled to arrive at the client's location within four hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
24x7x8 hour	A service technician is scheduled to arrive at the client's location within eight hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
9x5x4 hour	A service technician is scheduled to arrive at the client's location within four business hours after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday-Friday, excluding Lenovo holidays. For example, if a customer reports an incident at 3:00 pm on Friday, the technician will arrive by 10:00 am the following Monday.
9x5 next business day	A service technician is scheduled to arrive at the client's location on the business day after remote problem determination is completed. Lenovo provides service 8:00 am - 5:00 pm in the client's local time zone, Monday - Friday, excluding Lenovo holidays. Calls received after 4:00 pm local time require an extra business day for service dispatch.

The following Lenovo warranty service upgrades are available:

- Warranty and maintenance service upgrades:
 - Three, four, or five years of 9x5 or 24x7 service coverage
 - Onsite response time from next business day to 4 hour same-day
 - Warranty extension of up to 5 years
 - Post warranty extensions offered in 1-year increments

- Priority Technical Support

Lenovo's Priority Support Offering enhances our award-winning call center support to provide top priority queue assignment to specialized Lenovo technicians. Priority support accelerates call center troubleshooting to get your problems resolved quickly, and includes other value-added support for Lenovo provided software tools. Priority support can be purchased stand alone to match the base warranty of your system or in convenient bundles with our same-day response services.

- Keep Your Drive Multi-Drive

Lenovo's Keep Your Drive Multi-Drive service is a multi-drive hard drive retention offering that ensures your data is always under your control, regardless of the number of hard drives that are installed in your Lenovo server. In the unlikely event of a hard drive failure, you retain possession of your hard drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. Keep Your Drive Multi-Drive covers multiple drives and multiple failures with one service offering at one value price. This service can be purchased stand-alone to match the base warranty of your system or in convenient bundles with our same-day response services.

Regulatory compliance

The RS140 server conforms to the following regulations:

- RoHS
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, Class A
- EU Council Directive 2004/108/EC
- European Standard EN55022, Class A
- Korea Class A compliance
- Taiwan Class A compliance
- Japan VCCI, Class A

External drive enclosures

The RS140 server can be connected to the Lenovo Storage drive enclosures by using supported RAID adapters and HBAs that are listed in the following table.

Table 17. RAID adapters and HBAs for external storage expansion

Description	Part number	Maximum supported
ThinkServer 9280-8e 6Gb 8-port RAID adapter by LSI (2x external Mini-SAS SFF-8088 connectors)	4XB0F28645	1
ThinkServer RAID 700 Battery (optional battery for 4XB0F28645)	67Y2647	1
ThinkServer 8885e PCIe 12Gb SAS Adapter by PMC (2x external Mini-SAS HD SFF-8644 connectors)	4XB0G88714	1

The following table summarizes features of supported drive controllers.

Table 18. Drive controller features and specifications summary

Feature	9280-8e	8885e*
Part number	4XB0F28645	4XB0G88714
Form factor	Low profile	Low profile
Controller chip	LSI SAS2108	PMC PM8063
Host interface	PCIe 2.0 x8	PCIe 3.0 x8
Port interface	6 Gbps SAS	12 Gbps SAS
Number of external ports	8	8
External port connectors	2x Mini-SAS (SFF-8088)	2x Mini-SAS HD (SFF-8644)
Drive interface	SAS, SATA	SAS, SATA
Drive type	HDD, SSD	HDD, SSD
Maximum number of devices	240	256
Maximum number of expansion units	8x SA120	8x SA120
RAID levels	0/1/10/5/50/6/60	None
JBOD mode	No	Yes
Cache	512 MB	1,024 MB
Cache protection	Optional battery backup (67Y2647)	None

* In addition to eight external ports, the ThinkServer 8885e adapter has eight internal ports for internal storage connectivity (For details, refer to the Controllers for internal storage section).

The following table lists the external drive enclosures that are offered by Lenovo that can be used with the RS140 for storage expansion.

Table 19. External drive enclosures

Description	Part number
Lenovo Storage E1012 LFF Disk Expansion Single SAS IO Module, Rail Kit, 9x5 NBD	64111B1
Lenovo Storage E1012 LFF Disk Expansion Dual SAS IO Module, Rail Kit, 9x5 NBD	64111B2
Lenovo Storage E1024 SFF Disk Expansion Single SAS IO Module, Rail Kit, 9x5 NBD	64111B3
Lenovo Storage E1024 SFF Disk Expansion Dual SAS IO Module, Rail Kit, 9x5 NBD	64111B4

For details about supported drives and cables for the Lenovo Storage E1012 and E1024, see the Lenovo Press Product Guide:

<http://lenovopress.com/lp0043>

External storage systems

The RS140 server can be attached to external NAS storage via 1 Gb Ethernet network, or to external SAN storage systems via 1 Gb iSCSI with an iSCSI software initiator in the operating system. The following table lists the external storage systems that are offered by Lenovo and support 1 Gb Ethernet NAS or 1 Gb iSCSI connectivity.

Table 20. External storage systems

Description	Part number
Lenovo N Series (NAS storage connectivity)	
Lenovo Storage N3310	70FX / 70FY*
Lenovo Storage N4610	70G0 / 70G1*
Lenovo Storage S Series (iSCSI storage connectivity)	
Lenovo Storage S2200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B1
Lenovo Storage S2200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B2
Lenovo Storage S2200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64114B3
Lenovo Storage S2200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64114B4
Lenovo Storage S3200 LFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B1
Lenovo Storage S3200 LFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B2
Lenovo Storage S3200 SFF Chassis FC/iSCSI Single Controller, Rack Kit, 9x5NBD	64116B3
Lenovo Storage S3200 SFF Chassis FC/iSCSI Dual Controller, Rack Kit, 9x5NBD	64116B4
Lenovo Storage V Series (iSCSI storage connectivity)	
Lenovo Storage V3700 V2 LFF Control Enclosure	6535C1D
Lenovo Storage V3700 V2 LFF Control Enclosure (Top Seller)	6535EC1
Lenovo Storage V3700 V2 SFF Control Enclosure	6535C2D
Lenovo Storage V3700 V2 SFF Control Enclosure (Top Seller)	6535EC2
Lenovo Storage V3700 V2 XP LFF Control Enclosure	6535C3D
Lenovo Storage V3700 V2 XP LFF Control Enclosure (Top Seller)	6535EC3
Lenovo Storage V3700 V2 XP SFF Control Enclosure	6535C4D
Lenovo Storage V3700 V2 XP SFF Control Enclosure (Top Seller)	6535EC4
Lenovo Storage V5030 LFF Control Enclosure 3Yr S&S	6536C12
Lenovo Storage V5030 LFF Control Enclosure 5Yr S&S	6536C32

Description	Part number
Lenovo Storage V5030 SFF Control Enclosure 3Yr S&S	6536C22
Lenovo Storage V5030 SFF Control Enclosure 5Yr S&S	6536C42
IBM Storwize for Lenovo (iSCSI storage connectivity)	
IBM Storwize V3500 3.5-inch Dual Control Storage Controller Unit	6096CU2**
IBM Storwize V3500 2.5-inch Dual Control Storage Controller Unit	6096CU3**
IBM Storwize V3700 3.5-inch Storage Controller Unit	6099L2C
IBM Storwize V3700 2.5-inch Storage Controller Unit	6099S2C
IBM Storwize V3700 2.5-inch DC Storage Controller Unit	6099T2C
IBM Storwize V5000 LFF Control Enclosure, w/3 Yr S&S	6194L2C†
IBM Storwize V5000 LFF Control Enclosure, w/3 Yr S&S (LA)	6194L2L‡
IBM Storwize V5000 LFF Control Enclosure, w/5 Yr S&S	61941A1†
IBM Storwize V5000 LFF Control Enclosure, w/5 Yr S&S (LA)	61941AL‡
IBM Storwize V5000 SFF Control Enclosure, w/3 Yr S&S	6194S2C†
IBM Storwize V5000 SFF Control Enclosure, w/3 Yr S&S (LA)	6194S2L‡
IBM Storwize V5000 SFF Control Enclosure, w/5 Yr S&S	61941C1†
IBM Storwize V5000 SFF Control Enclosure, w/5 Yr S&S (LA)	61941CL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S	6195SC5†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/3 Yr S&S (LA)	6195SCL‡
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S	61951F1†
IBM Storwize V7000 2.5-inch Storage Controller Unit, w/5 Yr S&S (LA)	61951FL‡

* Machine Type; see the respective Product Guide in the NAS Storage category (<http://lenovopress.com/storage/nas>) for models.

** Available only in China.

† Available worldwide except Latin America.

‡ Available only in Latin America.

For more information, see the list of Product Guides in the following categories:

- Lenovo N Series storage: <http://lenovopress.com/storage/nas>
- Lenovo S Series and V Series storage: <http://lenovopress.com/storage/san/lenovo>
- IBM Storwize storage: <http://lenovopress.com/storage/san/ibm>

External backup units

The RS140 can be connected to an external RDX backup unit via USB. The following table lists ordering information for the RDX backup unit and RDX cartridges.

Table 21. External backup units

Description	Part number
External RDX unit	
ThinkServer External RDX Tape Drive	4XF0G88929
RDX cartridges	
ThinkServer 1TB 3Gbps RDX Cartridge	4XB0F28660
ThinkServer 1.5TB 3Gbps RDX Cartridge	4XB0F28659
ThinkServer 2TB SATA 3Gbps RDX Cartridge	4XB0G88711

For more information, see the Product Guide: <http://lenovopress.com/tips0894-rdx-usb-30>.

Top-of-rack Ethernet switches

The following table lists the top-of-rack Ethernet switches that are offered by Lenovo that can be used in RS140 solutions.

Table 22. Top-of-rack Ethernet switches

Description	Part number
1 Gb Ethernet top-of-rack switches	
Lenovo RackSwitch G7028 (Rear to Front)	7159BAX
Lenovo RackSwitch G7052 (Rear to Front)	7159CAX
Lenovo RackSwitch G8052 (Rear to Front)	7159G52
10 Gb Ethernet top-of-rack switches	
Lenovo RackSwitch G8124E (Rear to Front)	7159BR6
Lenovo RackSwitch G8264 (Rear to Front)	7159G64
Lenovo RackSwitch G8264CS (Rear to Front)	7159DRX
Lenovo RackSwitch G8272 (Rear to Front)	7159CRW
Lenovo RackSwitch G8296 (Rear to Front)	7159GR6
40 Gb Ethernet top-of-rack switches	
Lenovo RackSwitch G8332 (Rear to Front)	7159BRX

For more information, see the list of Product Guides in the Top-of-rack switches categories:

- 1 Gb Ethernet switches: <http://lenovopress.com/networking/tor/1gb?rt=product-guide>
- 10 Gb Ethernet switches: <http://lenovopress.com/networking/tor/10gb?rt=product-guide>
- 40 Gb Ethernet switches: <http://lenovopress.com/networking/tor/40gb?rt=product-guide>

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used in RS140 solutions.

Table 23. Rack cabinets

Description	Part number
11U Rack Office Enablement Kit	201886X
25U S2 Standard Rack	93072RX
25U Static S2 Standard Rack	93072PX
42U S2 Standard Rack	93074RX
42U 1100mm Enterprise V2 Dynamic Rack	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack	93634EX
42U 1200mm Deep Dynamic Rack	93604PX
42U 1200mm Deep Static Rack	93614PX
42U Enterprise Rack	93084PX
42U Enterprise Expansion Rack	93084EX

For more information, see the list of Product Guides in the Rack Cabinets category:
<http://lenovopress.com/servers/options/racks>

KVM switches and consoles

The following table lists the console switches and monitor kits that are available from Lenovo that can be used in RS140 solutions.

Table 24. KVM switch and console options

Description	Part number
Monitor kits and keyboard trays	
1U 18.5" Standard Console	17238BX
Console keyboards	
Keyboard w/ Int. Pointing Device USB - US Eng 103P RoHS v2	46W6712
Keyboard w/ Int. Pointing Device USB - Arabic 253 RoHS v2	46W6713
Keyboard w/ Int. Pointing Device USB - Belg/UK 120 RoHS v2	46W6714
Keyboard w/ Int. Pointing Device USB - Chinese/US 467 RoHS v2	46W6715
Keyboard w/ Int. Pointing Device USB - Czech 489 RoHS v2	46W6716
Keyboard w/ Int. Pointing Device USB - Danish 159 RoHS v2	46W6717
Keyboard w/ Int. Pointing Device USB - Dutch 143 RoHS v2	46W6718
Keyboard w/ Int. Pointing Device USB - French 189 RoHS v2	46W6719
Keyboard w/ Int. Pointing Device USB - Fr/Canada 445 RoHS v2	46W6720
Keyboard w/ Int. Pointing Device USB - German 129 RoHS v2	46W6721
Keyboard w/ Int. Pointing Device USB - Greek 219 RoHS v2	46W6722
Keyboard w/ Int. Pointing Device USB - Hebrew 212 RoHS v2	46W6723
Keyboard w/ Int. Pointing Device USB - Hungarian 208 RoHS v2	46W6724
Keyboard w/ Int. Pointing Device USB - Italian 141 RoHS v2	46W6725
Keyboard w/ Int. Pointing Device USB - Japanese 194 RoHS v2	46W6726
Keyboard w/ Int. Pointing Device USB - Korean 413 RoHS v2	46W6727
Keyboard w/ Int. Pointing Device USB - LA Span 171 RoHS v2	46W6728
Keyboard w/ Int. Pointing Device USB - Norwegian 155 RoHS v2	46W6729
Keyboard w/ Int. Pointing Device USB - Polish 214 RoHS v2	46W6730
Keyboard w/ Int. Pointing Device USB - Portugese 163 RoHS v2	46W6731
Keyboard w/ Int. Pointing Device USB - Russian 441 RoHS v2	46W6732
Keyboard w/ Int. Pointing Device USB - Slovak 245 RoHS v2	46W6733
Keyboard w/ Int. Pointing Device USB - Spanish 172 RoHS v2	46W6734
Keyboard w/ Int. Pointing Device USB - Swed/Finn 153 RoHS v2	46W6735
Keyboard w/ Int. Pointing Device USB - Swiss F/G 150 RoHS v2	46W6736
Keyboard w/ Int. Pointing Device USB - Thai 191 RoHS v2	46W6737
Keyboard w/ Int. Pointing Device USB - Turkish 179 RoHS v2	46W6738
Keyboard w/ Int. Pointing Device USB - UK Eng 166 RoHS v2	46W6739
Keyboard w/ Int. Pointing Device USB - US Euro 103P RoHS v2	46W6740
Keyboard w/ Int. Pointing Device USB - Slovenian 234 RoHS v2	46W6741
Console switches	
Global 4x2x32 Console Manager (GCM32)	1754D2X
Global 2x2x16 Console Manager (GCM16)	1754D1X
Local 2x16 Console Manager (LCM16)	1754A2X

Local 1x8 Console Manager (LCM8)	1754A1X
Console cables	
Single Cable USB Conversion Option (UCO)	43V6147
USB Conversion Option (4 Pack UCO)	39M2895
Virtual Media Conversion Option Gen2 (VCO2)	46M5383
Serial Conversion Option (SCO)	46M5382

For more information, see the list of Product Guides in the KVM Switches and Consoles category:
<http://lenovopress.com/servers/options/kvm>

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used in RS140 solutions.

Table 25. Power distribution units

Description	Part number
0U Basic PDUs	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776
0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord	00YJ777
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 line cord	00YJ778
0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P line cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 line cord	00YJ780
0U 18 C13/6 C19 Switched / Monitored 32A/200-240V/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 line cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/125V Front-end PDU with NEMA L5-30P line cord	39Y8938
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934

Description	Part number
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
NEMA PDUs (6x NEMA 5-15R outlets)	
DPI 100-127V PDU with fixed NEMA L5-15P line cord	39Y8905
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord	40K9617

For more information, see the list of Product Guides in the Power Distribution Units category:
<http://lenovopress.com/servers/options/pdu>

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo that can be used in RS140 solutions.

Table 26. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (100-125VAC)	55941AX
RT1.5kVA 2U Rack or Tower UPS (200-240VAC)	55941KX
RT2.2kVA 2U Rack or Tower UPS (100-125VAC)	55942AX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC)	55942KX
RT3kVA 2U Rack or Tower UPS (100-125VAC)	55943AX
RT3kVA 2U Rack or Tower UPS (200-240VAC)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC)	55949PX

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

Lenovo Financial Services

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

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

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

We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

For your region specific offers please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:

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

Related publications and links

For more information, see these resources:

- ThinkServer RS140 product page
<http://shop.lenovo.com/us/en/systems/servers/racks/thinkserver/rs140>
- ThinkServer RS140 User Guide and Hardware Maintenance Manual
https://download.lenovo.com/ibmdl/pub/pc/pccbbs/thinkservers/rs140_hmm_ug_en.pdf
- Lenovo Quick Pick for ThinkServer RS140
<http://www.lenovoquickpick.com/usa/system/thinkserver/rs-series/rs140>
- Lenovo Support for ThinkServer RS140
<http://support.lenovo.com/us/en/products/servers/thinkserver-rack-servers/thinkserver-rs140>
- ThinkServer Power Planner
<http://support.lenovo.com/us/en/downloads/ds101155>
- Lenovo Press Product Guides for servers and options (filter by the Product Guide resource type)
<http://lenovopress.com>
- Lenovo PSREF for ThinkServer RS140
<http://psref.lenovo.com/Product/25>

Related product families

Product families related to this document are the following:

- [1-Socket Rack Servers](#)

Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
8001 Development Drive
Morrisville, NC 27560
U.S.A.

Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2025. All rights reserved.

This document, LP0033, was created or updated on March 21, 2017.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP0033>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP0033>.

Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®

ThinkPad®

ThinkServer®

ThinkSystem®

The following terms are trademarks of other companies:

Intel®, Celeron®, Intel Core®, Pentium®, and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Linux® is the trademark of Linus Torvalds in the U.S. and other countries.

Microsoft®, Hyper-V®, Windows Server®, and Windows® are trademarks of Microsoft Corporation in the United States, other countries, or both.

IBM® and Storwize® are trademarks of IBM in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.