ThinkSystem SR650 Platform Specifications

Components	Specification
Form factor	2U rack
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)
Weight	Maximum configuration: 70.54 lb (32 kg)
Processor	Up to two 205W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.5GHz, up to 3.6GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s
Chipset	Intel C624 Platform Controller Hub
Memory	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, 3DS RDIMMs are supported, but memory types cannot be intermixed
Memory capacity	Up to 768GB with 24 x 32 GB RDIMMs and two processors. Or up to 1.5TB with 24 x 64 GB LRDIMMs and two processors. Or up to 3TB with 24 x 128 GB 3DS LRDIMMs and two -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket
Memory protection	ECC, memory mirroring, and memory sparing
Storage controllers	One dedicated internal RAID slot for most RAID/HBA adapters.

Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty
530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2
730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	3
930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	3
930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1
930-24i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1
430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	3
430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	1
930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	5
430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5
430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5

Note: 730-8i is available in China only. 930-8e, 430-8e, and 430-16e will be placed in slot 4 firstly. 930-24i will be placed in slot 1 firstly.

Disk drive bays	Supports 8 front 3.5" SATA/SAS HS bays, or 12 front 3.5" SATA/SAS HS bays with maximum 4 AnyBay, or 8 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay, or 24 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay. Optional 2 rear 3.5" HS bays are supported on 12 x 3.5" model, takes place in riser card 1 location. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring		
Internal storage	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB
		3.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/4TB SED FIPS/6TB/10TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB
		2.5" SSD, SATA6Gbps	240GB/480GB
		2.5" NVMe SSD, AnyBay	960GB/1.92TB/3.84TB
	For 2.5" bay	2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 10K	300GB/300GB SED/600GB/600GB SED/900GB/ 1.2TB/1.8TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB
		2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB/7.68TB
		2.5" SSD, SATA6Gbps	240GB/480GB
		2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB
	PCIe 3.0 x4, HHHL adapter	NVMe SSD	1.6TB/1.92TB/3.2TB/3.84TB
	M.2 boot drive	M.2 SATA SSD	32GB/128GB/480GB
Optical	No internal optical bay. Optional USB DVD±RW optical drive		
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.		
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel		
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3		
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics		
GPU support	Up to two optional GPU, requires riser card with PCIe x16 slot. 2nd GPU requires 2nd CPU. Supports Intel Xeon Phi 7240P, NVIDIA Quadro M60, or Quadro P100		

Components	Specification
Base warranty	MT 7X05: 1-year limited onsite service with 9x5/NBD MT 7X06: 3-year limited onsite service with 9x5/NBD
Power supply	Up to two redundant hot-swap 550W/750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium and 1600W Platinum are 200V - 240V, others are 100V - 240V
Video	Integrated Matrox G200 in XClarity Controller
Cooling	Five fans (4+1) for single processor model, six fans (5+1) for dual processor model
Front ports	One XClarity Controller USB connector, one USB 3.0, one optional VGA
Rear ports	One VGA, two USB 3.0, one XClarity Controller network connector. Optional COM port
Environmental specification	Supports ASHRAE A4 with limitations.

Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
Humidity - operating, non-condensing	A4: 8%~90%. A3:8%~85%. A2:8%~80%
Humidity - storage (with package), non-condensing	8%~90%

Models should meet the following requirements to support A3 and A4:
- *NVMe drives not installed*
- *PCIe flash adapter not installed*
- *Graphic processing unit (GPU) not installed*
- *Must have redundant PSU*
- *Certain processors not installed:*
  - *Processors with TDP more than or equal to 150-watt not installed*
  - *On 16 x 2.5", 24 x 2.5", and 12 x 3.5" models, the following processors not installed: Intel Xeon 4112, 5122, 6126, 6128*, 6132*, 6134, 6134M*, and 8156 processors (Processors marked with * will be available later)*

Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/

Expansion slots

Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, full length for x16. Full height, half length for x8 Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 1 and 3). Full height, half length Option 5: Two rear 3.5" disk bays, 12 x 3.5" models only
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, full length, requires 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU

System unique options

7XH7A06253	ThinkSystem SR590/SR650 Rear HDD Kit
7XH7A02681	ThinkSystem SR650 x8/x16ML2 PCIe FH Riser 1 Kit
7XH7A02680	ThinkSystem SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit
7XH7A02678	ThinkSystem SR550/SR590SR650 x16/x8 PCIe FH Riser 1 Kit
7XH7A02677	ThinkSystem SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit
7XH7A02679	ThinkSystem SR550/SR590/SR650 x16/x8(or x16) PCIe FH Riser 2 Kit
7XH7A06251	ThinkSystem SR650 2.5" AnyBay 8-Bay Backplane Kit
7XH7A06254	ThinkSystem SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Kit
7Z17A02578	ThinkSystem SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit
7Z17A02580	ThinkSystem 2U Security Bezel
7Z17A02577	ThinkSystem COM Port Upgrade Kit
7XH7A05899	ThinkSystem SR650 2nd GPU Upgrade Kit
7XH7A05897	ThinkSystem SR650 GPU Thermal Kit
7XH7A05898	ThinkSystem SR650(GPU) 1U Heatsink Option Kit

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