ThinkServer RD650 Platform Specifications

Components	Specification
Dimensions	2U rack. Height: 87 mm (3.4 in), width: 482 mm (19 in), depth: 764 mm (30 in)
Weight	Minimum configuration: 16 kg (35.3 lb), maximum: 32 kg (70.5 lb)
Processor	Up to two **145W Intel Xeon E5-2600 v3** family (code name: Haswell) processors with 18 cores up to 2.3GHz, 16 cores up to 2.3GHz, 14 cores up to 2.6GHz, 12 cores up to 2.6GHz, 10 cores up to 2.6GHz, 8 cores up to 3.2GHz, 6 cores up to 3.4GHz, 4 cores up to 3.5GHz. Two QPI link up to 9.6 GT/s. Up to 2133MHz memory speed. Up to 45MB cache
Chipset	Intel C612 Platform Controller Hub (PCH)
Memory DIMMs	24 DIMM sockets (12 DIMMs per processor), 8-channel capable (4-channel per processor). RDIMM and LRDIMM (cannot be intermixed), DDR4, 2133MHz
Memory capacity	384GB (RDIMM, 16GB x 24)/768GB (LRDIMM, 32GB x 24)
Memory protection	ECC, memory mirroring, lockstep, and memory sparing
AnyRAID support	RAID 0, 1, 10 with AnyRAID 110i. 6Gb/s SATA, optional key for RAID 5. RAID 0, 1, 10 with AnyRAID 510i, 6Gb/s SAS/SATA, optional key for RAID 5/50. RAID 0, 1, 10, 5, 50, 6, 60 with AnyRAID 720i/720ix. 12Gb/s SAS/SATA. 720i needs cache for RAID 6/60 support. 720ix must have cache. Optional cache for 720i/720ix: 1GB read-only memory. 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath
Disk drive bays	Up to 12 3.5", 24 2.5", or 6 2.5" plus 9 3.5" hot-swap disk bays on front. Up to 4 2.5" bays on 24 2.5" or 2.5" + 3.5" models can support easy-swap PCIe SSD via optional Anybay kit (consumes two PCIe slots). Up to 2 2.5" rear mounted hot-swap disk bays, optional. Up to 2 M.2 SSD drives via optional M.2 module. Up to one internal LTO-6 SAS tape drive on 8 x 2.5" and 720ix model, or external RDX tape drive via USB.
Internal disk drive	3.5" HDD up to 8TB (SATA/SAS). 2.5" HDD up to 1.8TB (SAS)/2TB (SATA). 2.5" SSD up to 1.6TB (SATA/SAS). Easy-swap PCIe SSD up to 1.6TB. PCIe SSD adapter up to 3.2TB. M.2 SSD up to 120GB. 2.5" SSD and HDD are compatible with 3.5" bay
SD module	Up to 2 SDHC flash cards via optional SD module, 8GB or 32GB each
Optical drive	Optional one 9.5mm optical drive on 8 or 16 x 2.5" model, DVD-ROM or DVD±RW
Network interfaces	One dedicated management port, one AnyFabric slot for customized LOM. Discrete network options is also available via PCIe slots
Security features	Power-on and administrator password. Optional TPM (TCG 1.2-compliant)
Systems management	Supports ThinkServer System Manager (TSM), optional TSM Premium. UEFI. Onboard Aspeed AST2400 graphics/management processor, IPMI 2.0-compliant baseboard management controller (BMC). Control Panel LEDs shows the status of power, ID, network, system. Supports ThinkServer management software: Diagnostics, Deployment Manager, Energy Manager, System Manager, Partner Pack for VMware vCenter and Microsoft System Center Operations Manager, Power Planner

Disk bay configuration	AnyRAID requirements and optional drives supported			
	RAID110i	RAID510i	RAID720i	RAID720ix
6x3.5"	•	•	•	
12x3.5"				• (optional rear bay/M.2)
8x2.5"		•	•	• (optional tape/rear bay/M.2)
16x2.5"				• (optional rear bay/M.2)
24x2.5"				• (optional Anybay/rear bay/M.2)
6x2.5"+9x3.5"				• (optional Anybay/rear bay/M.2)

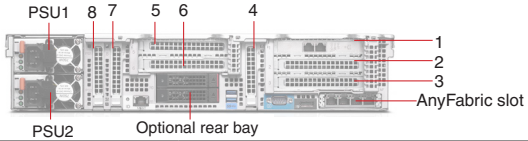
Components	Specification
Operating systems supported	Microsoft Windows Server 2016/2012 R2/2012/2008 R2. Windows Small Business Server 2011. Red Hat Enterprise Linux 6.5/6.6/7. SUSE Linux Enterprise Server 11. VMware vSphere (ESXi) 5.1 P5/5.5 U2/6.0
Base warranty	3-year limited onsite service with 9x5/NBD.
Power supply	Up to two redundant hot-swap 550W/750W/1100W/1600W power supplies. 550W, 1100W, and 1600W are 80 PLUS Platinum qualified. 750W is 80 PLUS Platinum or Titanium qualified.
Graphics	Onboard Aspeed AST2400 with 16MB memory, one DisplayPort on rear
Front ports	(Only 2.5" bay models) Two USB 2.0, one DisplayPort
Rear ports	One DisplayPort, two USB 3.0, one RJ-45 (dedicate mgmt), one serial (9-pin)
Cooling	Six (5+1, dual processors) or four (3+1, single processor), hot-swap
Noise emissions	Operating: < 6.5 Bels. Idle: < 6 Bels (Maximum configuration)
Environmental specification	Temperature - operating: 41 °F to 113 °F (5 °C to 45 °C) Temperature - non operating (no package): -10 °C to 60 °C Temperature - non operating (with package): -40 °C to 60 °C Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 8%~90%, non-condensing Humidity - storage (with package): 8%~90%, non-condensing

Disk bay configuration	PSU requirements			
	550W	750W	1100W	1600W
6x3.5"	•	•	•	•
12x3.5"	• (up to 135W CPU)	•	•	•
8x2.5"	•	•	•	•
16x2.5"	• (up to 105W CPU+24 DIMMs or 135W+16 DIMMs)	•	•	•
24x2.5"		•	•	•
2.5"+3.5"		•	•	•

Note: 1. 750W Titanium is 200V - 240V, others are 110V - 240V. 2. 1600W will automatically operate in 1100W if the system line input is 100-127V.

Note: 45 ° C continuous operation configuration limitation: no 135W or 145W CPU/no GPU card/redundant PSU/no FLFH card/no PCIe SSD adapter.

Expansion slots



Slot 1 (riser card 1)	PCIe 3.0 x 16, half length, full height
Slot 2 (riser card 1)	PCIe 3.0 x 16, half length, full height
Slot 3 (riser card 1)	PCIe 3.0 x 16, half length, full height
Slot 4 (onboard)	PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 5 (riser card 2)	PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x 16, half length, full height, requires 2nd riser card and 2nd CPU
Slot 7 (onboard)	PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU
Slot 8 (onboard)	PCIe 3.0 x 16, low-profile, half length, requires 2nd CPU

Notes:
On 2.5" disk bay models, slots 1 and 2 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height. Slots 5 and 6 can be replaced with one PCIe 3.0 x16 slot, double wide, full length, full height.

For a list of all supported options, please see *https://download.lenovo.com/pccbbs/options_iso/ocm_september_2016_thinkserver.xlsx sheet*

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Model	70DR002WEA
Product	ThinkServer RD650
Region	EMEA
Machine Type	70DR
TopSeller	TopSeller
Processor	1xE5-2630 v3 8C/2.4GHz/20MB/85W/DDR4-1866
2nd CPU	4XG0F28818
Memory	1x16GB RDIMM DDR4-2133 ECC
RAID Controller	AnyRAID 720i+2GB Flash
Disk Bays	8x2.5" HS
Storage	Open
Slots	3xFH HL
Optical	None
Add-on NIC	GbEx4 RJ-45 AnyFabric
TPM	None
System Management	TSM
Operating System	None
Warranty	3-year
Power Supply	750Wx1 Platinum
Ann Date (mm/yy)	07/15

