

# ThinkServer RD450 Platform Specifications

Product Specifications Reference (PSREF)

| 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: 27 kg (59.52 lb)                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Processor                | Up to two <b>105W Intel Xeon E5-2600 v4 or E5-2600 v3</b> family processors.                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
|                          | E5-2660 v4                                                                                                                                                                                                                                                                                                                                                                  | 14C/2GHz/35MB/105W/DDR4-2400                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2650 v4                                                                                                                                                                                                                                                                                                                                                                  | 12C/2.2GHz/30MB/105W/DDR4-2400                                                                                                                                                                                                                                                                                     |                                       |                                        |
|                          | E5-2640 v4                                                                                                                                                                                                                                                                                                                                                                  | 10C/2.4GHz/25MB/90W/DDR4-2133                                                                                                                                                                                                                                                                                      |                                       |                                        |
|                          | E5-2630 v4                                                                                                                                                                                                                                                                                                                                                                  | 10C/2.2GHz/20MB/85W/DDR4-2133                                                                                                                                                                                                                                                                                      |                                       |                                        |
|                          | E5-2623 v4                                                                                                                                                                                                                                                                                                                                                                  | 4C/2.6GHz/10MB/85W/DDR4-2133                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2620 v4                                                                                                                                                                                                                                                                                                                                                                  | 8C/2.1GHz/20MB/85W/DDR4-2133                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2609 v4                                                                                                                                                                                                                                                                                                                                                                  | 8C/1.7GHz/20MB/85W/DDR4-1866                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2603 v4                                                                                                                                                                                                                                                                                                                                                                  | 6C/1.7GHz/15MB/85W/DDR4-1866                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2650L v4                                                                                                                                                                                                                                                                                                                                                                 | 14C/1.7GHz/35MB/65W/DDR4-2400                                                                                                                                                                                                                                                                                      |                                       |                                        |
|                          | E5-2630L v4                                                                                                                                                                                                                                                                                                                                                                 | 10C/1.8GHz/25MB/55W/DDR4-2133                                                                                                                                                                                                                                                                                      |                                       |                                        |
|                          | E5-2660 v3                                                                                                                                                                                                                                                                                                                                                                  | 10C/2.6GHz/25MB/105W/DDR4-2133                                                                                                                                                                                                                                                                                     |                                       |                                        |
|                          | E5-2650 v3                                                                                                                                                                                                                                                                                                                                                                  | 10C/2.3GHz/25MB/105W/DDR4-2133                                                                                                                                                                                                                                                                                     |                                       |                                        |
|                          | E5-2640 v3                                                                                                                                                                                                                                                                                                                                                                  | 8C/2.6GHz/20MB/90W/DDR4-1866                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2630 v3                                                                                                                                                                                                                                                                                                                                                                  | 8C/2.4GHz/20MB/85W/DDR4-1866                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2623 v3                                                                                                                                                                                                                                                                                                                                                                  | 4C/3GHz/10MB/105W/DDR4-1866                                                                                                                                                                                                                                                                                        |                                       |                                        |
|                          | E5-2620 v3                                                                                                                                                                                                                                                                                                                                                                  | 6C/2.4GHz/15MB/85W/DDR4-1866                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2609 v3                                                                                                                                                                                                                                                                                                                                                                  | 6C/1.9GHz/15MB/85W/DDR4-1600                                                                                                                                                                                                                                                                                       |                                       |                                        |
|                          | E5-2603 v3                                                                                                                                                                                                                                                                                                                                                                  | 6C/1.6GHz/15MB/85W/DDR4-1600                                                                                                                                                                                                                                                                                       |                                       |                                        |
| E5-2650L v3              | 12C/1.8GHz/30MB/65W/DDR4-2133                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| E5-2630L v3              | 8C/1.8GHz/20MB/55W/DDR4-1866                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Chipset                  | Intel C610 Series Chipset                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Memory DIMMs             | 16 DIMM sockets with 8 channels. 4 channels per processor, 2 DIMMs per channel <b>RDIMM</b> or <b>LRDIMM</b> (cannot be intermixed), DDR4, DDR4-2133 or DDR4-2400                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Memory capacity          | 512GB (RDIMM, 32GB x 16)/1024GB (LRDIMM, 64GB x 16), 2nd CPU is needed                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Memory protection        | ECC, memory mirroring, lockstep, and memory sparing                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| RAID controller          | RAID controller                                                                                                                                                                                                                                                                                                                                                             | Drive type                                                                                                                                                                                                                                                                                                         | RAID support                          | Compatible models                      |
|                          | Onboard RAID110i                                                                                                                                                                                                                                                                                                                                                            | 6Gbs SATA                                                                                                                                                                                                                                                                                                          | 0/1/10, 5 with optional key           | 8x3.5" HS/ES, 8x2.5" HS                |
|                          | RAID500 PCIe                                                                                                                                                                                                                                                                                                                                                                | 6Gbs SAS/SATA                                                                                                                                                                                                                                                                                                      | 0/1/10, 5/50 with optional key        | 8x3.5" HS                              |
|                          | RAID520i PCIe                                                                                                                                                                                                                                                                                                                                                               | 12Gbs SAS/SATA                                                                                                                                                                                                                                                                                                     | 0/1/10, 5/50 with optional key        | 8x3.5" HS/ES, 8x2.5" HS                |
|                          | RAID710 PCIe (1GB memory)                                                                                                                                                                                                                                                                                                                                                   | 6Gbs SAS/SATA                                                                                                                                                                                                                                                                                                      | 0/1/10/5/50/6/60                      | 8x3.5" HS                              |
|                          | RAID720i PCIe                                                                                                                                                                                                                                                                                                                                                               | 12Gbs SAS/SATA                                                                                                                                                                                                                                                                                                     | 0/1/10/5/50, 6/60 with optional cache | 8x3.5" HS/ES, 8x2.5" HS                |
|                          | AnyRAID 110i                                                                                                                                                                                                                                                                                                                                                                | 6Gbs SATA                                                                                                                                                                                                                                                                                                          | 0/1/10, 5 with optional key           | 8x2.5" HS                              |
|                          | AnyRAID 510i                                                                                                                                                                                                                                                                                                                                                                | 6Gbs SAS/SATA                                                                                                                                                                                                                                                                                                      | 0/1/10, 5/50 with optional key        | 8x2.5" HS                              |
|                          | AnyRAID 720i                                                                                                                                                                                                                                                                                                                                                                | 12Gbs SAS/SATA                                                                                                                                                                                                                                                                                                     | 0/1/10/5/50, 6/60 with optional cache | 8x2.5" HS                              |
|                          | AnyRAID 720ix                                                                                                                                                                                                                                                                                                                                                               | 12Gbs SAS/SATA                                                                                                                                                                                                                                                                                                     | 0/1/10/5/50/6/60                      | 16/24x2.5" HS, 8x2.5" HS+optional tape |
|                          |                                                                                                                                                                                                                                                                                                                                                                             | Optional cache for RAID 710: CacheVault flash cache with super capacitor, CacheCade Pro, or FastPath.<br>Optional cache for RAID 720/AnyRAID 720i and 720ix: 1GB read-only memory or 1GB/2GB/4GB flash with super capacitor. Flash options include CacheVault, CacheCade Pro, and FastPath. 720ix must have cache. |                                       |                                        |
| Disk drive bays          | Up to 8x3.5" hot-swap, 8x3.5" easy-swap, or 24x2.5" hot-swap disk bays on front. Up to one internal LTO-6 SAS tape drive on 8x2.5" and 720ix model, or external RDX tape drive via USB.                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Maximum internal storage | 3.5" HS model: up to 64TB with 7.2K SATA or SAS HDD, up to 14.4TB with 10K SAS HDD, up to 4.8TB with 15K SAS HDD, or up to 12.8TB with SATA SSD.<br>3.5" ES model: up to 24TB with 7.2K SATA, up to 48TB with 7.2K SAS.<br>2.5" HS model: up to 48TB with 7.2K SATA HDD, up to 43.2TB with 10K SAS HDD, up to 14.4TB with 15K SAS HDD, or up to 38.4TB with SATA or SAS SSD |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| SD module                | Up to 2 SDHC flash cards via optional SD module, 8GB or 32GB each                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| PCIe SSD adapter         | Supports 1.6TB or 3.2TB SSD via PCIe adapter                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |
| Optical drive            | Optional one 9.5mm optical on 3.5" or 8/16 x 2.5" models, DVD-ROM or DVD±RW                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                    |                                       |                                        |

| Components                  | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                      |      |      |       |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|------|-------|
| Network interfaces          | One dedicated management port, two Gigabit Ethernet ports. Supports optional discrete network adapters 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 |                                      |      |      |       |
| 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               | 1 or 3-year limited onsite service with 9x5/NBD                                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |      |      |       |
| Power supply                | Up to two redundant hot-swap 450W/550W/750W/1100W power supplies. 450 W is 80 PLUS Gold qualified. 550W and 1100W are 80 PLUS Platinum qualified. 750W is 80 PLUS Platinum or Titanium qualified. 750W Titanium is 200V - 240V, others are 110V - 240V.                                                                                                                                                                                                            |                                      |      |      |       |
|                             | Disk bay configuration                                                                                                                                                                                                                                                                                                                                                                                                                                             | PSU requirements                     |      |      |       |
|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 450W                                 | 550W | 750W | 1100W |
|                             | 8x3.5"                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                    | •    | •    | •     |
|                             | 8x2.5"                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                    | •    | •    | •     |
|                             | 8x2.5"+ Tape                                                                                                                                                                                                                                                                                                                                                                                                                                                       | •                                    | •    | •    | •     |
|                             | 16x2.5"                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      | •    | •    | •     |
| 24x2.5"                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | •                                    | •    | •    |       |
| Graphics                    | Onboard Aspeed AST2400 with 16MB memory                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      |      |      |       |
| Front ports                 | Two USB 2.0. One DisplayPort (one VGA on E5-2600 v4 models instead)                                                                                                                                                                                                                                                                                                                                                                                                |                                      |      |      |       |
| Rear ports                  | One VGA, two USB 3.0, one RJ-45 (dedicated mgmt), two ethernet, one serial (9-pin)                                                                                                                                                                                                                                                                                                                                                                                 |                                      |      |      |       |
| Cooling                     | 4 (3+1, dual processors) or 3 (2+1, single processor) fans, non-hot swap                                                                                                                                                                                                                                                                                                                                                                                           |                                      |      |      |       |
| Noise emissions             | Operating: < 6.5 Bels. Idle: < 5.6 Bels (Maximum configuration)                                                                                                                                                                                                                                                                                                                                                                                                    |                                      |      |      |       |
| Environmental specification | Temperature - operating                                                                                                                                                                                                                                                                                                                                                                                                                                            | 50 °F to 95 °F (10 °C to 35 °C)      |      |      |       |
|                             | Temperature - non operating (no package)                                                                                                                                                                                                                                                                                                                                                                                                                           | -10 °C to 60 °C                      |      |      |       |
|                             | Temperature - non operating (with package)                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 °C to 70 °C                      |      |      |       |
|                             | Altitude - operating                                                                                                                                                                                                                                                                                                                                                                                                                                               | (Unpressurized): 0-10000ft (0-3048m) |      |      |       |
|                             | Humidity - operating                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8%~90%, non-condensing               |      |      |       |
|                             | Humidity - storage (with package)                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8%~90%, non-condensing               |      |      |       |

## Expansion slots



|                       |                                                                                  |
|-----------------------|----------------------------------------------------------------------------------|
| Slot 1 (riser card 1) | PCIe 3.0 x8, half length, full height, CPU1                                      |
| Slot 2 (riser card 1) | PCIe 3.0 x8, half length, full height, CPU1                                      |
| Slot 3 (riser card 2) | PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU |
| Slot 4 (riser card 2) | PCIe 3.0 x8, low-profile, half length, CPU2, requires 2nd riser card and 2nd CPU |
| Slot 5 (riser card 2) | PCIe 3.0 x8, low-profile, half length, CPU1, requires 2nd riser card             |
| Slot 6 (onboard)      | PCIe 3.0 x16 (x8 elec), low-profile, half length, requires 2nd CPU               |

For a list of all supported options, please see [https://download.lenovo.com/pccbbs/options\\_iso/ocm\\_september\\_2016\\_thinkserver.xlsx](https://download.lenovo.com/pccbbs/options_iso/ocm_september_2016_thinkserver.xlsx) sheet

| Model             | 70Q90010EA                                |
|-------------------|-------------------------------------------|
| Product           | ThinkServer RD450                         |
| Region            | EMEA                                      |
| Machine Type      | 70Q9                                      |
| TopSeller         | TopSeller                                 |
| Processor         | 1xE5-2620 v4 8C/2.1GHz/20MB/85W/DDR4-2133 |
| 2nd CPU           | 4XG0G89080                                |
| Memory            | 1x16GB RDIMM DDR4-2400 ECC                |
| RAID Controller   | 520i (PCIe)                               |
| Disk Bays         | 8x2.5" HS                                 |
| Storage           | Open                                      |
| Slots             | 2xFH HL                                   |
| Optical           | 9.5mm DVD±RW                              |
| Add-on NIC        | None                                      |
| TPM               | None                                      |
| System Management | TSM                                       |
| Operating System  | None                                      |
| Warranty          | 3-year                                    |
| Power Supply      | 450Wx1 Gold                               |
| Ann Date (mm/yy)  | 03/16                                     |





