# ThinkSystem SR650 7X06A04LEA

**Product**
ThinkSystem SR650

**Region**
EMEA

**Machine Type**
7X06

**TopSeller**
TopSeller

**Processor**
1x Xeon Silver 4110 8C/2.1GHz/11MB/85W/DDR4-2400

**Memory**
1x 16GB RDIMM DDR4-2666 (2Rx8)

**Storage Controller**
1x 930-8i 2GB Flash

**Chassis**
24x 2.5"

**Disk Bays**
8x 2.5" SATA/SAS HS

**Disks**
Open

**M.2 Drives**
None

**PCIe Flash Adapter**
None

**GPU**
None

**Onboard Networking Ports**
1x Mgmt

**Additional Networking (LOM/ML2/PCIe)**
None

**Fibre Channel I/O**
None

**Standard Extension Slots**
1x LOM, 1x RAID slot, 1x PCIe x8 LP

**Available Extension Slots via Riser Cards**
None

**Front VGA**
Front VGA

**Optical**
None

**TPM**
TPM 1.2

**System Management**
XClarity Enterprise

**Power Supply**
1x750W Platinum

**Preload**
None

**Warranty**
3-year

**Ann Date (mm/yy)**
07/17

Note:
* Country Code "US" is for United States, "++" is for EMEA countries (e.g. AD - Saudi, Arabia, AT - Austria, BM - Bulgaria, etc.), "xx" is for EAST countries (e.g. BM - Bulgaria, CX - Hungary, CY - Cyprus, etc.), and "**" is for MEA countries (e.g. AD - Saudi, Arabia, ED - Egypt, EQ - Sweden, etc.). Please be aware that the EMEA/ EAST/MEA models listed above might not be available in all countries
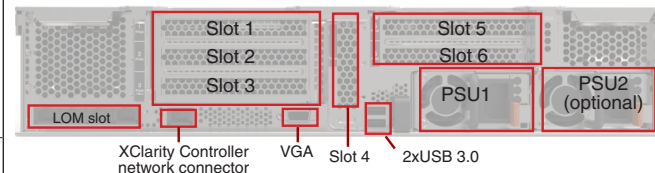
**http://psref.lenovo.com**
Visit psref website for the latest version of Product Specifcations Reference.

| 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.*

| Components | Specification |
|---|---|
| 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.<br>Optional 2 rear 3.5" HS bays are supported on 12 x 3.5" model, takes place in riser card 1 location.<br>Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring |

**Internal storage**

| | | | |
|---|---|---|---|
| For 3.5" bay<br>(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 | |

| Components | Specification |
|---|---|
| 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<br>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)<br>A3: 5°C to 40°C (41°F to 104°F)<br>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)*

| Components | Specification |
|---|---|
| Environmental certification | Energy Star Server 2.1 certified. More environmental information please see:<br>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:<br>Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length.<br>Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, full length for x16. Full height, half length for x8<br>Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length<br>Option 4: PCIe 3.0 x8/x16 ML2 (slot 1 and 3). Full height, half length<br>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 |

# ThinkSystem SR650