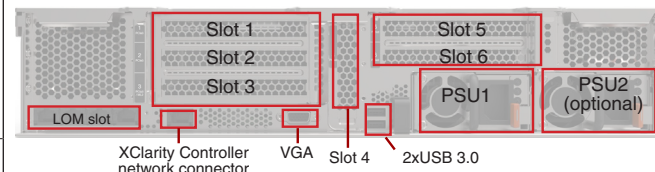


# ThinkSystem SR650 Platform Specifications

Product Specifications Reference (PSREF)

| 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. 3DS RDIMM is planned to available later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |                                                   |                  |             |              |                  |                  |          |         |        |            |          |             |     |      |      |     |   |        |            |          |             |     |     |      |    |   |        |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |        |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |                                                   |                  |             |              |                  |                  |          |         |        |            |          |             |     |      |      |     |   |        |            |          |             |     |     |      |    |   |        |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |        |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |
|                                                                                                                                                  | <table><tr><th>Feature</th><th>Interface</th><th>Drive type</th><th>RAID levels</th><th>JBOD</th><th>Cache</th><th>Cache protection</th><th>FastPath</th><th>Max qty</th></tr><tr><td>530-8i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50</td><td>Yes</td><td>None</td><td>None</td><td>Yes</td><td>2</td></tr><tr><td>730-8i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50</td><td>Yes</td><td>1GB</td><td>None</td><td>No</td><td>3</td></tr><tr><td>930-8i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50/6/60</td><td>Yes</td><td>2GB</td><td>Flash backup</td><td>Yes</td><td>3</td></tr><tr><td>930-16i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50/6/60</td><td>Yes</td><td>4GB</td><td>Flash backup</td><td>Yes</td><td>1</td></tr><tr><td>930-24i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50/6/60</td><td>Yes</td><td>4GB</td><td>Flash backup</td><td>Yes</td><td>1</td></tr><tr><td>430-8i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>-</td><td>Yes</td><td>None</td><td>None</td><td>-</td><td>3</td></tr><tr><td>430-16i</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>-</td><td>Yes</td><td>None</td><td>None</td><td>-</td><td>1</td></tr><tr><td>930-8e</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>0/1/10/5/50/6/60</td><td>Yes</td><td>4GB</td><td>Flash backup</td><td>Yes</td><td>5</td></tr><tr><td>430-8e</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>-</td><td>Yes</td><td>None</td><td>None</td><td>-</td><td>5</td></tr><tr><td>430-16e</td><td>12Gbps SAS</td><td>SATA/SAS</td><td>-</td><td>Yes</td><td>None</td><td>None</td><td>-</td><td>5</td></tr></table> | 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 |
|                                                                                                                                                  | 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.<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                |                                                   |                  |             |              |                  |                  |          |         |        |            |          |             |     |      |      |     |   |        |            |          |             |     |     |      |    |   |        |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |        |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |
| 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 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                                                   |                  |             |              |                  |                  |          |         |        |            |          |             |     |      |      |     |   |        |            |          |             |     |     |      |    |   |        |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |         |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |        |            |          |                  |     |     |              |     |   |        |            |          |   |     |      |      |   |   |         |            |          |   |     |      |      |   |   |
| Systems management                                                                                                                               | XClerity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClerity 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 XClerity Controller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Cooling                                           | Five fans (4+1) for single processor model, six fans (5+1) for dual processor model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Front ports                                       | One XClerity Controller USB connector, one USB 3.0, one optional VGA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Rear ports                                        | One VGA, two USB 3.0, one XClerity Controller network connector. Optional COM port                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Environmental specification                       | Supports ASHRAE A4 with limitations.<br><table border="1"> <tbody> <tr> <td>Temperature - operating</td><td>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)</td></tr> <tr> <td>Temperature - non operating (no package)</td><td>-10°C to 60°C (14°F to 140°F)</td></tr> <tr> <td>Temperature - non operating (with package)</td><td>-40°C to 70°C (-40°F to 158°F)</td></tr> <tr> <td>Altitude - operating</td><td>(Unpressurized): 0-10000ft (0-3048m)</td></tr> <tr> <td>Humidity - operating, non-condensing</td><td>A4: 8%-90%. A3:8%-85%. A2:20%-80%</td></tr> <tr> <td>Humidity - storage (with package), non-condensing</td><td>8%-90%</td></tr> </tbody> </table> <p>Models should meet the following requirements to support A3 and A4:</p> <ul style="list-style-type: none"> <li>NVMe drives not installed</li> <li>PCIe flash adapter not installed</li> <li>Graphic processing unit (GPU) not installed</li> <li>Must have redundant PSU</li> <li>Certain processors not installed: <ul style="list-style-type: none"> <li>Processors with TDP more than or equal to 150-watt not installed</li> <li>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)</li> </ul> </li> </ul> | 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%. A2:20%-80% | Humidity - storage (with package), non-condensing | 8%-90% |
| 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%. A2:20%-80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Humidity - storage (with package), non-condensing | 8%-90%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |
| Environmental certification                       | Energy Star Server 2.1 certified. More environmental information please see: <a href="http://www.lenovo.com/social_responsibility/us/en/environment/">www.lenovo.com/social_responsibility/us/en/environment/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                         |                                                                                                       |                                          |                               |                                            |                                |                      |                                      |                                      |                                   |                                                   |        |



| 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/x8x8ML2 PCIe FH Riser 1 Kit     |
| 7XH7A02678            | ThinkSystem SR550/SR590/SR650 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                    |