OVERVIEW

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Optical drive *</td>
</tr>
<tr>
<td>2.</td>
<td>Microphone (3.5mm)</td>
</tr>
<tr>
<td>3.</td>
<td>Headphone (3.5mm)</td>
</tr>
<tr>
<td>4.</td>
<td>Card reader</td>
</tr>
<tr>
<td>5.</td>
<td>2x USB 3.1 Gen 1</td>
</tr>
<tr>
<td>6.</td>
<td>Power button</td>
</tr>
<tr>
<td>7.</td>
<td>2x PS/2 ports (keyboard / mouse)</td>
</tr>
<tr>
<td>8.</td>
<td>Serial *</td>
</tr>
<tr>
<td>9.</td>
<td>2x USB 2.0</td>
</tr>
<tr>
<td>10.</td>
<td>Ethernet (RJ-45)</td>
</tr>
<tr>
<td>11.</td>
<td>4x USB 3.1 Gen 1</td>
</tr>
<tr>
<td>12.</td>
<td>Microphone (3.5mm)</td>
</tr>
<tr>
<td>13.</td>
<td>Line-out (3.5mm)</td>
</tr>
<tr>
<td>14.</td>
<td>Line-in (3.5mm)</td>
</tr>
</tbody>
</table>

Notes:
- Ports with * are only available on selected models
PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon® W-2100 / W-2200 Processor

<table>
<thead>
<tr>
<th>Processor Name</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Max Frequency</th>
<th>Cache</th>
<th>Memory Support</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon W-2102</td>
<td>4</td>
<td>4</td>
<td>2.9GHz</td>
<td>-</td>
<td>8.25MB</td>
<td>DDR4-2400</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2104</td>
<td>4</td>
<td>4</td>
<td>3.2GHz</td>
<td>-</td>
<td>8.25MB</td>
<td>DDR4-2400</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2123</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>3.9GHz</td>
<td>8.25MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2125</td>
<td>4</td>
<td>8</td>
<td>4.0GHz</td>
<td>4.5GHz</td>
<td>8.25MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2133</td>
<td>6</td>
<td>12</td>
<td>3.6GHz</td>
<td>3.9GHz</td>
<td>8.25MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2135</td>
<td>6</td>
<td>12</td>
<td>3.7GHz</td>
<td>4.5GHz</td>
<td>8.25MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2145</td>
<td>8</td>
<td>16</td>
<td>3.7GHz</td>
<td>4.5GHz</td>
<td>11MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2155</td>
<td>10</td>
<td>20</td>
<td>3.3GHz</td>
<td>4.5GHz</td>
<td>13.75MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2175</td>
<td>14</td>
<td>28</td>
<td>2.5GHz</td>
<td>4.3GHz</td>
<td>19MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2195</td>
<td>18</td>
<td>36</td>
<td>2.3GHz</td>
<td>4.3GHz</td>
<td>24.75MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2223</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>3.9GHz</td>
<td>8.25MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2225</td>
<td>4</td>
<td>8</td>
<td>4.1GHz</td>
<td>4.6GHz</td>
<td>8.25MB</td>
<td>DDR4 2933</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2235</td>
<td>6</td>
<td>12</td>
<td>3.8GHz</td>
<td>4.6GHz</td>
<td>8.25MB</td>
<td>DDR4 2933</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2245</td>
<td>8</td>
<td>16</td>
<td>3.9GHz</td>
<td>4.5GHz</td>
<td>16.5MB</td>
<td>DDR4 2933</td>
<td>-</td>
</tr>
</tbody>
</table>

Processor Sockets

1x FCLGA2066

Operating System

Operating System**

- Windows® 11 Pro 64 for Workstations
- Windows 11 DG Windows 10 Pro 64 for Workstations
- Windows 10 Pro 64 for Workstations
- Ubuntu Linux LTS
- Red Hat Enterprise Linux 8.5 (certified only, for detailed and latest information, please visit Red Hat Certified Hardware)
- No operating system

Graphics

Discrete Graphics Support

Supports up to one NVIDIA® RTX A5000

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>SLI / NVlink</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadro® P400</td>
<td>2GB GDDR5</td>
<td>30W</td>
<td>3x miniDP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P600</td>
<td>2GB GDDR5</td>
<td>45W</td>
<td>4x miniDP</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>2GB GDDR5</td>
<td>40W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4x DP</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P2200</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4x DP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>8GB GDDR5</td>
<td>120W</td>
<td>4x DP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro P5000</td>
<td>16GB GDDR5X</td>
<td>180W</td>
<td>1x DVI-D DL, 4x DP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA T400</td>
<td>2GB GDDR6</td>
<td>40W</td>
<td>3x miniDP 1.4</td>
<td>None</td>
</tr>
</tbody>
</table>
### Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use.

### Chipset

**Chipset**

Intel C422 chipset

### Memory

**Max Memory**

- Up to 128GB (4x 32GB DDR4-2666 RDIMMs)
- Up to 256GB (4x 64GB RDIMMs) DDR4-2933

**Memory Type**

- DDR4-2666 RDIMM ECC
- DDR4-2933 RDIMM ECC

**Memory Slots**

4 DDR4 DIMM slots, 4 channels capable

**Memory Protection**

ECC

**Notes:**

1. The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.

### Storage

**Storage Support**

Up to 4x 3.5” SATA HDD / 2.5” SATA HDD / 2.5” SATA SSD + 5x M.2 PCIe® SSD

- 3.5” HDD up to 6TB each
- 2.5” SATA HDD up to 500GB each
- 2.5” SATA SSD up to 2TB each
- 2.5” SAS HDD up to 600GB each
- M.2 SSD up to 2TB each

**Storage Type**

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5” SAS HDD</td>
<td>SAS 12Gb/s</td>
<td>10K</td>
<td>300GB / 600GB</td>
</tr>
<tr>
<td>2.5” SATA SSD</td>
<td>SATA 6Gb/s</td>
<td>-</td>
<td>256GB / 512GB / 1TB / 2TB</td>
</tr>
</tbody>
</table>

**Notes:**

1. NVIDIA Quadro RTX 5000 supports manufacture configure only, none standalone option is available.
### Storage Controllers

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>RAID</th>
<th>Cache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RSTe SATA RAID</td>
<td>Standard</td>
<td>SATA 6.0Gb/s</td>
<td>0/1/10/5</td>
<td>None</td>
</tr>
<tr>
<td>9440-8i PCIe</td>
<td>Optional</td>
<td>SAS 12.0Gb/s, SATA 6.0Gb/s</td>
<td>0/1/10/5</td>
<td>None</td>
</tr>
<tr>
<td>NVMe Basic</td>
<td>Optional</td>
<td>PCIe NVMe</td>
<td>0/1/10</td>
<td>None</td>
</tr>
<tr>
<td>NVMe for Intel SSD</td>
<td>Optional</td>
<td>PCIe NVMe</td>
<td>0/1/10/5</td>
<td>None</td>
</tr>
</tbody>
</table>

**Notes:**
1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

### Removable Storage

**Optical Support**
Up to two HH or 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

**Card Reader**
- SD card reader
- 15-in-1 card reader
- No card reader

### Multi-Media

**Audio Chip**
High Definition (HD) Audio, Realtek® ALC662 codec

**Speakers**
Single speaker

### Power Supply

**Power Supply**

<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>500W</td>
<td>Fixed</td>
<td>92%</td>
<td>Autosensing, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td>625W</td>
<td>Fixed</td>
<td>92%</td>
<td>Autosensing, 80 PLUS Platinum qualified</td>
</tr>
</tbody>
</table>

### DESIGN

**Mechanical**

**Form Factor**
Tower (25L)

**Dimensions (WxDxH)**
175 x 426 x 376 mm (6.89 x 16.77 x 14.8 inches, with feet)

**Weight**
14.5 kg (31.96 lbs, maximum configuration)

**Bays**
- 2x 3.5" disk bay (standard)
- 2x 3.5" disk bay (optional, via flex bay)

**Flex Bays**
2x flex bays, supports the following:
- 2x half-height optical drives
- 2x 5.25" 9.0mm optical drives
• 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD
• 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure
• 1x flex module for the following options:
  Tray 1: 9.0mm optical
  Tray 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt™, or 4-digit diagnostic display
• Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA

**M.2 Slots**
Up to 5x M.2 SSD:
• 2 via onboard slots
• 3 via Single M.2 to PCIe adapter

**Expansion Slots**
- One PCIe 3.0 x4
- One PCIe 3.0 x8
- Two PCIe 3.0 x16

**Expansion Slots Offering**
- Slot 1: PCIe 3.0 x16, full height, full length, 75W, by CPU
- Slot 2: PCIe 3.0 x8, full height, full length, 25W, open ended, by CPU
- Slot 3: PCIe 3.0 x16, full height, full length, 75W, by CPU
- Slot 4: PCIe 3.0 x4, full height, half length, 25W, open ended, by PCH

**CONNECTIVITY**

**Network**

**Onboard Ethernet**
- Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

**Optional Ethernet**
- Two additional Ethernet adapters support, up to four additional 10 GbE ports
  - Gigabit Ethernet, Intel I210-T1, 1x RJ-45, PCIe x1
  - Gigabit Ethernet, Intel I350-T2, 2x RJ-45, PCIe x4
  - Gigabit Ethernet, Intel X540-T2, 2x RJ-45, PCIe x8
  - Gigabit Ethernet, Intel X550-T2, 2x RJ-45, PCIe x4
  - Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
  - Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe x4
  - Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe x1
  - 5 Gigabit Ethernet, Marvell AQtion AQN-108, 1x RJ-45, PCIe x1
  - 10 Gigabit Ethernet, Intel X710-DA2, 2x SFP+, PCIe x8
  - 10 Gigabit Ethernet, Marvell AQtion AQN-107, 1x RJ-45, PCIe x4

**WLAN + Bluetooth®**
- Intel Dual-Band Wireless-AC 8265, 802.11ac Dual-Band 2x2 Wi-Fi® + Bluetooth 4.2
- No WLAN and Bluetooth

**Notes:**
1. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitation

**Ports**

**Front Ports**
- 2x USB 3.1 Gen 1
- 1x headphone (3.5mm)
- 1x microphone (3.5mm)

**Optional Front Ports**
- 2x Thunderbolt 3 (with flex module, USB-C® form, one supports video-out)
- 1x eSATA (with flex module)
- 1x USB-C 3.1 Gen 1 (with flex module)

**Rear Ports**
- 2x USB 2.0
- 4x USB 3.1 Gen 1
- 2x PS/2 ports (keyboard / mouse)
- 1x Ethernet (RJ-45)
**SECURITY & PRIVACY**

**Security**

Security Chip
Discrete TPM 2.0, TCG certified

**Physical Locks**
Kensington® Security Slot™, 3 x 7 mm

**Chassis Intrusion Switch**
- Chassis intrusion switch
- No chassis intrusion switch

**BIOS Security**
- Administrator password
- Power-on password

**MANAGEABILITY**

**System Management**

System Management[1][2]

Intel vPro with Intel AMT 11.0

Notes:
1. Intel vPro offers a superset of DASH’s defined capabilities.
2. Intel vPro offers a superset of DASH’s defined capabilities.

**Diagnostic**

Diagnostic
- Photo-audio transfer with Lenovo PC Diagnostics for Android™ and iOS
- ThinkStation® Diagnostics for Windows
- Front 4-digit diagnostic
- Lenovo UEFI Bootable Diagnostics
- None

**SERVICE**

**Warranty**

Base Warranty**:[1]

- 1-year limited onsite service
- 3-year limited onsite service
- No base warranty

Notes:
1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.

USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;

2. For video ports on discrete graphics, please see graphics section
Notes:

ENVIRONMENTAL

Operating Environment

Temperature
• Operating: 10°C (50°F) to 35°C (95°F)
• Storage: -40°C (-40°F) to 60°C (140°F)

Altitude
• Operating: 0 m (0 ft) to 3048 m (10,000 ft)
• Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity
• Operating: 20% to 80%
• Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications
• EPEAT™ Silver
• ENERGY STAR® 8.0 (on model 30BX0095US)
• GREENGUARD®
• RoHS compliant

ISV Certifications

ISV Certifications
Please visit www.thinkworkstations.com/isv-certifications/

• Feature with ** means that only one offering listed under the feature is configured on selected models.
• Feature with *** means that one or more offerings listed under the feature could be configured on selected models.

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