## OVERVIEW

<table>
<thead>
<tr>
<th>Number</th>
<th>Port 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

**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® 10 Pro 64 for Workstations
- Ubuntu Linux LTS
- No operating system

Graphics

Discrete Graphics Support
Supports up to one NVIDIA® Quadro® RTX 5000 or two NVIDIA Quadro P4000

Discrete Graphics Offering**[i]

<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>
<tr>
<td>NVIDIA T600</td>
<td>4GB GDDR6</td>
<td>40W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA T1000</td>
<td>4GB GDDR6</td>
<td>50W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
</tr>
</tbody>
</table>
Quadro RTX 4000 | 8GB GDDR6 | 160W | 3x DP 1.4, 1x VirtualLink | None
Quadro RTX 5000 | 16GB GDDR6 | 265W | 4x DP 1.4, 1x VirtualLink | None
NVIDIA RTX A2000 | 6GB GDDR6 | 70W | 4x miniDP 1.4a | None
NVIDIA RTX A4000 | 16GB GDDR6 with ECC | 140W | 4x DP 1.4a | None
NVIDIA RTX A5000 | 24GB GDDR6 with ECC | 230W | 4x DP 1.4a | None

Notes:
1. NVIDIA Quadro RTX 5000 supports manufacture configure only, none standalone option is available

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\(^1\)
- 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 SSD 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>
<tr>
<td>2.5” SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>500GB / 500GB FIPS</td>
</tr>
<tr>
<td>3.5” SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>1TB / 2TB / 4TB / 6TB</td>
</tr>
<tr>
<td>M.2 PCIe SSD</td>
<td>PCIe NVMe*</td>
<td>-</td>
<td>256GB / 512GB / 1TB / 2TB</td>
</tr>
</tbody>
</table>

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>
</tbody>
</table>
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

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)

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>175 x 426 x 376 mm (6.89 x 16.77 x 14.8 inches, with feet)</td>
</tr>
</tbody>
</table>

Weight

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>14.5 kg (31.96 lbs, maximum configuration)</td>
</tr>
</tbody>
</table>

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
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 RJ45, supports Wake-on-LAN

Optional Ethernet
Additional Ethernet options via PCIe adapter

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

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

Optional Front Ports
- 1x eSATA (with flex module)
- 2x Thunderbolt (with flex module, USB-C form, one supports video-out)
- 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)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x microphone (3.5mm)

Optional Rear Ports
- 2x USB-C 3.1 Gen 2 (via 2-port USB-C expansion card)
- 1x Thunderbolt
- 1x serial

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: 40 Gbit/s;
   - FireWire 400: 400 Mbit/s;
   - FireWire 800: 800 Mbit/s
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security
Security Chip
Discrete TPM 2.0, TCG certified

**Physical Locks**

Kensington® Security Slot

**Chassis Intrusion Switch**

• Chassis intrusion switch
• No chassis intrusion switch

**BIOS Security**

• Administrator password
• Power-on password

**MANAGEABILITY**

**System Management**

System Management

Intel vPro with Intel AMT 11.0

**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-year limited onsite service
• 3-year limited onsite service with 9x5 NBD (for most models)
• No base warranty

**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

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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