# OVERVIEW

<table>
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<tr>
<th>1.</th>
<th>2x Flex bay</th>
<th>8.</th>
<th>Ethernet (RJ-45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Power button</td>
<td>9.</td>
<td>4x USB 3.1 Gen 1</td>
</tr>
<tr>
<td>3.</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
<td>10.</td>
<td>2x USB 2.0</td>
</tr>
<tr>
<td>4.</td>
<td>4x USB 3.1 Gen 1</td>
<td>11.</td>
<td>Microphone (3.5mm)</td>
</tr>
<tr>
<td>5.</td>
<td>Card reader</td>
<td>12.</td>
<td>Line-out (3.5mm)</td>
</tr>
<tr>
<td>6.</td>
<td>2x PS/2 ports (keyboard / mouse)</td>
<td>13.</td>
<td>Line-in (3.5mm)</td>
</tr>
<tr>
<td>7.</td>
<td>Serial *</td>
<td></td>
<td></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>
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<td>-</td>
</tr>
<tr>
<td>Xeon W-2123</td>
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<td>8</td>
<td>3.6GHz</td>
<td>3.9GHz</td>
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<tr>
<td>Xeon W-2125</td>
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<td>8</td>
<td>4.0GHz</td>
<td>4.5GHz</td>
<td>8.25MB</td>
<td>DDR4-2466</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>DDR4-2466</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>DDR4-2466</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>DDR4-2466</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>DDR4-2466</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>DDR4-2466</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>DDR4-2466</td>
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<tr>
<td>Xeon W-2223</td>
<td>4</td>
<td>8</td>
<td>3.6GHz</td>
<td>3.9GHz</td>
<td>8.25MB</td>
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<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>
<tr>
<td>Xeon W-2255</td>
<td>10</td>
<td>20</td>
<td>3.7GHz</td>
<td>4.5GHz</td>
<td>19.25MB</td>
<td>DDR4 2933</td>
<td>-</td>
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<tr>
<td>Xeon W-2265</td>
<td>12</td>
<td>24</td>
<td>3.5GHz</td>
<td>4.6GHz</td>
<td>19.25MB</td>
<td>DDR4 2933</td>
<td>-</td>
</tr>
<tr>
<td>Xeon W-2275</td>
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<td>28</td>
<td>3.3GHz</td>
<td>4.6GHz</td>
<td>19.25MB</td>
<td>DDR4 2933</td>
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<tr>
<td>Xeon W-2295</td>
<td>18</td>
<td>36</td>
<td>3.0GHz</td>
<td>4.6GHz</td>
<td>24.75MB</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
- No operating system

Graphics

Discrete Graphics Support
Supports up to one NVIDIA® Quadro® RTX 8000, or two NVIDIA RTX A6000 with NVLink

<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>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Graphics Card</th>
<th>Memory Type</th>
<th>Power</th>
<th>Connectors</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<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>SLI</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 T400 4GB</td>
<td>4GB 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>
<tr>
<td>NVIDIA T1000 8GB</td>
<td>8GB GDDR6</td>
<td>50W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDR6</td>
<td>160W</td>
<td>3x DP 1.4, 1x VirtualLink</td>
<td>None</td>
</tr>
<tr>
<td>Quadro RTX 5000</td>
<td>16GB GDDR6</td>
<td>265W</td>
<td>4x DP 1.4, 1x VirtualLink, NVLink</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 6000</td>
<td>24GB GDDR6</td>
<td>295W</td>
<td>4x DP 1.4, 1x VirtualLink, NVLink</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 8000</td>
<td>48GB GDDR6</td>
<td>295W</td>
<td>4x DP 1.4, 1x VirtualLink</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA RTX A2000</td>
<td>6GB GDDR6</td>
<td>70W</td>
<td>4x miniDP 1.4a</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA RTX A2000 12GB</td>
<td>12GB GDDR6</td>
<td>70W</td>
<td>4x miniDP 1.4a</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA RTX A4000</td>
<td>16GB GDDR6 with ECC</td>
<td>140W</td>
<td>4x DP 1.4a</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA RTX A4500</td>
<td>20GB GDDR6 with ECC</td>
<td>200W</td>
<td>4x DP 1.4</td>
<td>None</td>
</tr>
<tr>
<td>NVIDIA RTX A5000</td>
<td>24GB GDDR6 with ECC</td>
<td>230W</td>
<td>4x DP 1.4a</td>
<td>NVLink</td>
</tr>
<tr>
<td>NVIDIA RTX A6000</td>
<td>48GB GDDR6 with ECC</td>
<td>300W</td>
<td>4x DP 1.4a</td>
<td>NVLink</td>
</tr>
<tr>
<td>Quadro GP100</td>
<td>16GB HBM2</td>
<td>235W</td>
<td>1x DVI-D DL, 4x DP</td>
<td>NVLink</td>
</tr>
<tr>
<td>Quadro GV100</td>
<td>32GB HBM2</td>
<td>250W</td>
<td>4x DP 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\(^1\)

- Up to 256GB (8x 32GB RDIMMs) DDR4-2666
- Up to 512GB (8x 64GB RDIMMs) DDR4-2933

Memory Type\(^2\)

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

Memory Slots

8 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\(^3\)

Up to 6x 3.5" SATA HDD / 2.5" SATA HDD / 2.5" SATA SSD + 9x M.2 PCIe® SSD + 1x PCIe AIC 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 PCIe SSD up to 2TB each
• PCIe AIC SSD up to 480GB 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&quot; SAS HDD</td>
<td>SAS 12Gb/s</td>
<td>10K</td>
<td>300GB / 600GB</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>SATA 6Gb/s</td>
<td>-</td>
<td>256GB / 512GB / 1TB / 2TB</td>
</tr>
<tr>
<td>2.5&quot; SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>500GB / 500GB FIPS</td>
</tr>
<tr>
<td>3.5&quot; 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>
<tr>
<td>PCIe AIC SSD</td>
<td>PCIe NVMe</td>
<td>-</td>
<td>480GB</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>
<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>9460-16i PCIe</td>
<td>Optional</td>
<td>SAS 12.0Gb/s, SATA 6.0Gb/s</td>
<td>0/1/10/5/6</td>
<td>4GB DDR4, SuperCap</td>
</tr>
<tr>
<td>NVMe Basic</td>
<td>Optional</td>
<td>PCIe NVMe</td>
<td>0/1/10</td>
<td>None</td>
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<tr>
<td>NVMe Premium</td>
<td>Optional</td>
<td>PCIe NVMe</td>
<td>0/1/10/5</td>
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<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 Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>690W</td>
<td>Fixed</td>
<td>92% Autosensing, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td>900W</td>
<td>Fixed</td>
<td>92% Autosensing, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td>1000W</td>
<td>Fixed</td>
<td>92% Autosensing, 80 PLUS Platinum qualified</td>
</tr>
</tbody>
</table>

## DESIGN

### Mechanical
Form Factor
Tower (33L)

Dimensions (WxDxH)
165 x 460 x 440 mm (6.5 x 18.1 x 17.3 inches, with feet)

Weight
24 kg (52.91 lbs, maximum configuration)

Bays
- 2x 3.5" disk bay (standard)
- 4x 3.5" disk bay (optional):
  - 2 bays come with 3rd disk or Storage Bay Upgrade Kit
  - 2 bays 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 9x M.2 SSD:
- 2 via onboard slots
- 4 via Quad M.2 to PCIe adapter
- 3 via Single M.2 to PCIe adapter

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

Expansion Slots Offering
Slot 1: PCIe 3.0 x8, full height, full length, 25W, open ended, by CPU
Slot 2: PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU
Slot 3: PCIe 3.0 x4, full height, half length, 25W, open ended, by PCH
Slot 4: PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU
Slot 5: PCI, full height, full length, 25W
Slot 6: 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
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

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

Ports
Front Ports
- 1x USB 3.1 Gen 1 (Always On and fast charge)
ThinkStation P520

- 3x USB 3.1 Gen 1
- 1x headphone / microphone combo jack (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)
- 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 3
- 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 3/4: 40 Gbit/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
- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot, 3 x 7 mm

BIOS Security
- Administrator password
- Power-on password

MANAGEABILITY

System Management
- 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
- Photo-audio transfer with Lenovo PC Diagnostics for Android™ and iOS
- ThinkStation® Diagnostics for Windows
- Front 4-digit diagnostic
- Lenovo UEFI Bootable Diagnostics
SERVICE

Warranty

Base Warranty**(1)

- 1-year limited onsite service
- 3-year limited onsite service with 9x5 NBD (for most models)

Notes:
1. More information of warranty policy, please access https://pcsupport.lenovo.com/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

- EPEAT™ Silver
- ENERGY STAR® 8.0 (on model 30BE00B7US)
- 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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