## OVERVIEW

<table>
<thead>
<tr>
<th>Port Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Power button</td>
</tr>
<tr>
<td>2. Card reader</td>
</tr>
<tr>
<td>3. Headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>4. 4x USB 3.2 Gen 1</td>
</tr>
<tr>
<td>5. 3x Flex bay</td>
</tr>
<tr>
<td>6. Microphone (3.5mm)</td>
</tr>
<tr>
<td>7. Audio line-in (3.5mm)</td>
</tr>
<tr>
<td>8. Audio line-out (3.5mm)</td>
</tr>
<tr>
<td>9. Serial *</td>
</tr>
<tr>
<td>10. 2x PS/2 ports (keyboard / mouse)</td>
</tr>
<tr>
<td>11. 2x USB 2.0</td>
</tr>
<tr>
<td>12. 4x USB 3.2 Gen 1</td>
</tr>
<tr>
<td>13. 2x Ethernet (RJ-45)</td>
</tr>
</tbody>
</table>

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

### Processor

**Processor Family**

Up to two 205W Gen 1 or Gen 2 Intel® Xeon® Scalable family processors, Bronze, Silver, Gold, or Platinum

<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 Bronze 3104</td>
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<td>6</td>
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<td>Xeon Silver 4112</td>
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<td>4.2GHz</td>
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<td>DDR4-2666</td>
<td>-</td>
</tr>
</tbody>
</table>
### Processor Sockets

2x FCLGA3647

### Operating System

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

### Graphics

#### Discrete Graphics Support
Supports up to two NVIDIA® Quadro® RTX 8000 with NVLink

#### Discrete Graphics Offering

<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>
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<tr>
<td>Quadro P620</td>
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<td>40W</td>
<td>4x miniDP 1.4</td>
<td>None</td>
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<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4x miniDP 1.4</td>
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</tr>
<tr>
<td>Quadro P2000</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4x DP</td>
<td>None</td>
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<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>SLI</td>
</tr>
<tr>
<td>Quadro P6000</td>
<td>24GB GDDR5X</td>
<td>250W</td>
<td>1x DVI-D DL, 4x DP 1.4</td>
<td>SLI</td>
</tr>
<tr>
<td>GPU Model</td>
<td>Memory Type</td>
<td>Power</td>
<td>Port Options</td>
<td>Monitor Support</td>
</tr>
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<td>--------------</td>
<td>-------------</td>
<td>-------</td>
<td>--------------------</td>
<td>-------------------------</td>
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<tr>
<td>NVIDIA T600</td>
<td>4GB GDDR6</td>
<td>40W</td>
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<td>None</td>
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<tr>
<td>NVIDIA T1000</td>
<td>4GB GDDR6</td>
<td>50W</td>
<td>4x miniDP 1.4</td>
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<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
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<td>3x DP 1.4, 1x VirtualLink</td>
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<td>265W</td>
<td>4x DP 1.4, 1x VirtualLink</td>
<td>NVLink</td>
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<td>4x DP 1.4, 1x VirtualLink</td>
<td>NVLink</td>
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<td>4x DP 1.4, 1x VirtualLink</td>
<td>NVLink</td>
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<td>4x DP 1.4a</td>
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<td>230W</td>
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<td>NVLink</td>
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<tr>
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<td>250W</td>
<td>4x DP 1.4</td>
<td>NVLink</td>
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</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 C621 chipset

**Memory**

Max Memory

Up to 1TB DDR4-2933

Memory Type

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

Memory Slots

16 DDR4 DIMM slots, 12 channels capable (8 DIMM slots with 6 channels per processor)

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 6x 3.5” SATA HDD / 10x 2.5” SATA HDD / 8x 2.5” SAS HDD / 10x 2.5” SATA SSD / 4x 2.5” PCIe SSD + 9x M.2 PCIe SSD + 2x PCIe AIC SSD

- 3.5” HDD up to 6TB each
- 2.5” SATA HDD up to 500GB each
- 2.5” SAS HDD up to 600GB each
- 2.5” SATA SSD up to 2TB each
- M.2 SSD up to 2TB each
- 2.5” PCIe SSD up to 1.5TB 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>
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<tbody>
<tr>
<td>2.5” PCIe SSD</td>
<td>PCIe NVMe</td>
<td>-</td>
<td>1.5TB</td>
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### Storage Controllers

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>RAID</th>
<th>Cache</th>
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<td>9440-8i PCIe</td>
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<td>SAS 12.0Gb/s, SATA 6.0Gb/s</td>
<td>0/1/10/5</td>
<td>None</td>
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<tr>
<td>9460-16i PCIe</td>
<td>Optional</td>
<td>SAS 12.0Gb/s, SATA 6.0Gb/s</td>
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<td>4GB DDR4, SuperCap</td>
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<td>NVMe Basic</td>
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<td>PCIe NVMe</td>
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<td>NVMe Premium</td>
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<td>PCIe NVMe</td>
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<td>Standard</td>
<td>SATA 6.0Gb/s</td>
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### Removable Storage

**Optical Support**
Up to three HH or two 9.0mm optical drives, DVD-ROM, DVD±RW, or 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

**Power Supply**

<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
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</thead>
<tbody>
<tr>
<td>1400W</td>
<td>Fixed</td>
<td>92%</td>
<td>Autosensing, 80 PLUS Platinum qualified. Countries with input voltage under 115V, output power limited to 1125 watts</td>
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### DESIGN

**Mechanical**

**Form Factor**
Tower (55L)

**Dimensions (WxDxH)**

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
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</thead>
<tbody>
<tr>
<td>All models</td>
<td>200 x 620 x 446 mm (7.87 x 24.4 x 17.56 inches, with feet)</td>
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</table>

**Weight**

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>37 kg (81.6 lbs, maximum configuration)</td>
</tr>
</tbody>
</table>

**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**

3x flex bay, supports the following:
- 3x half-height optical drives
- 2x 5.25” 9.0mm optical drives
- 1x 5.25” 9.0mm optical drive + 1x 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 3.2 Gen 1 reader or 2x Thunderbolt™
  - Port 1 and 2: Front USB 3.2 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**

- Three PCIe 3.0 x4
- Five PCIe 3.0 x16 (2nd CPU needed)

**Expansion Slots Offering**

<table>
<thead>
<tr>
<th>Slot</th>
<th>PCIe Width</th>
<th>Height</th>
<th>Length</th>
<th>Power</th>
<th>CPU or PCH</th>
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</thead>
<tbody>
<tr>
<td>Slot 1 (CPU1)</td>
<td>PCIe 3.0 x16</td>
<td>full</td>
<td>full</td>
<td>75W</td>
<td>by CPU1</td>
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<td>Slot 2 (CPU1)</td>
<td>PCIe 3.0 x4</td>
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<td>full</td>
<td>25W</td>
<td>open ended, by CPU1</td>
</tr>
<tr>
<td>Slot 3 (CPU1)</td>
<td>PCIe 3.0 x16</td>
<td>full</td>
<td>full</td>
<td>75W</td>
<td>double-width, by CPU1</td>
</tr>
<tr>
<td>Slot 4 (CPU1)</td>
<td>PCIe 3.0 x4</td>
<td>full</td>
<td>full</td>
<td>25W</td>
<td>open ended, by CPU1</td>
</tr>
<tr>
<td>Slot 5 (PCH)</td>
<td>PCIe 3.0 x4</td>
<td>full</td>
<td>half</td>
<td>25W</td>
<td>open ended, by PCH</td>
</tr>
<tr>
<td>Slot 6 (CPU2)</td>
<td>PCIe 3.0 x16</td>
<td>full</td>
<td>half</td>
<td>75W</td>
<td>by CPU2</td>
</tr>
<tr>
<td>Slot 7 (CPU2)</td>
<td>PCIe 3.0 x16</td>
<td>full</td>
<td>full</td>
<td>75W</td>
<td>double-width, by CPU2</td>
</tr>
<tr>
<td>Slot 8 (CPU2)</td>
<td>PCIe 3.0 x16</td>
<td>full</td>
<td>full</td>
<td>75W</td>
<td>by CPU2</td>
</tr>
</tbody>
</table>

**Notes:**
1. 4x 3.5” bay can also support up to 8x 2.5” SSD / HDD with 2 disks per bay. Additional 9440-8i or 9460-16i PCIe adapter and other parts are needed

**CONNECTIVITY**

**Network**

**Onboard Ethernet**

Two gigabit Ethernet, Intel Ethernet Connection I219-LM and I210-AT, 2x 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**

- 1x USB 3.1 Gen 1 (Always On and fast charge)
- 3x USB 3.1 Gen 1
- 1x headphone / microphone combo jack (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)
• 2x 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
• (Optional) Access Panel Lock Kit with Common Key
• (Optional) Access Panel Lock Kit with Unique Key
• Kensington® Security Slot

Chassis Intrusion Switch
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

SERVICE

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

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: -15.2 m (-50 ft) to 3048 m (10,000 ft)
• Storage: -15.2 m (-50 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 30BC003WUS)
• 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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