## 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>Power button</td>
</tr>
<tr>
<td>3</td>
<td>Card reader *</td>
</tr>
<tr>
<td>4</td>
<td>Microphone (3.5mm)</td>
</tr>
<tr>
<td>5</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>6</td>
<td>USB-C 3.2 Gen 1</td>
</tr>
<tr>
<td>7</td>
<td>2x USB 3.2 Gen 1</td>
</tr>
<tr>
<td>8</td>
<td>2x USB 3.2 Gen 2</td>
</tr>
<tr>
<td>9</td>
<td>Line-out (3.5mm)</td>
</tr>
<tr>
<td>10</td>
<td>Serial</td>
</tr>
<tr>
<td>11</td>
<td>2x DisplayPort</td>
</tr>
<tr>
<td>12</td>
<td>2x PS/2 ports (keyboard / mouse) *</td>
</tr>
<tr>
<td>13</td>
<td>Optional Video Port (HDMI / DP / USB-C) *</td>
</tr>
<tr>
<td>14</td>
<td>Ethernet (RJ-45)</td>
</tr>
<tr>
<td>15</td>
<td>2x USB 3.2 Gen 1</td>
</tr>
<tr>
<td>16</td>
<td>2x USB 3.2 Gen 1</td>
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<tr>
<td>17</td>
<td>Power connector</td>
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<tr>
<td>18</td>
<td>Serial *</td>
</tr>
<tr>
<td>19</td>
<td>Optional ports on expansion cards *</td>
</tr>
</tbody>
</table>

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

Processor

Processor Family
Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 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>Celeron G5900</td>
<td>2</td>
<td>2</td>
<td>3.4GHz</td>
<td></td>
<td>2MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 610</td>
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<tr>
<td>Celeron G5905</td>
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<td>3.5GHz</td>
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<tr>
<td>Celeron G5920</td>
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<td>3.5GHz</td>
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<td>2MB</td>
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<tr>
<td>Celeron G5925</td>
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<tr>
<td>Pentium Gold G6400</td>
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<td>4</td>
<td>4.0GHz</td>
<td></td>
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<td>DDR4-2666</td>
<td>Intel UHD Graphics 610</td>
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<tr>
<td>Pentium Gold G6500</td>
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<td>4</td>
<td>4.1GHz</td>
<td></td>
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<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Pentium Gold G6600</td>
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<td>4</td>
<td>4.2GHz</td>
<td></td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Core i3-10100</td>
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<td>3.6GHz</td>
<td>4.3GHz</td>
<td>6MB</td>
<td>DDR4-2666</td>
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<tr>
<td>Core i3-10300</td>
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<td>8</td>
<td>3.7GHz</td>
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<tr>
<td>Core i3-10320</td>
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<td>3.8GHz</td>
<td>4.6GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Core i5-10400</td>
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<td>DDR4-2666</td>
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<tr>
<td>Core i5-10400F</td>
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<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Core i5-10600</td>
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<tr>
<td>Core i7-10700</td>
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<td>16</td>
<td>2.9GHz</td>
<td>4.8GHz</td>
<td>16MB</td>
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<tr>
<td>Core i7-10700F</td>
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<td>2.9GHz</td>
<td>4.8GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Core i9-10900</td>
<td>10</td>
<td>20</td>
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<td>5.2GHz</td>
<td>20MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>Core i9-10900F</td>
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<td>20</td>
<td>2.8GHz</td>
<td>5.2GHz</td>
<td>20MB</td>
<td>DDR4-2933</td>
<td>-</td>
</tr>
</tbody>
</table>

Operating System

Operating System
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 IoT Enterprise
- Ubuntu Linux
- No operating system

Graphics

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Connector</th>
<th>Max Resolution</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel UHD graphics 610</td>
<td>Integrated</td>
<td>Shared</td>
<td>2x DP, 1x optional video port (HDMI® / 3rd DP / USB-C)</td>
<td>4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 4096x2304@60Hz(USB-C)</td>
<td>DirectX® 12</td>
</tr>
<tr>
<td>Intel UHD graphics 630</td>
<td>Integrated</td>
<td>Shared</td>
<td>2x DP, 1x optional video port (HDMI® / 3rd DP / USB-C)</td>
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<td>DirectX 12</td>
</tr>
<tr>
<td>AMD Radeon™ 520</td>
<td>Discrete</td>
<td>2GB</td>
<td>GDDR5</td>
<td>2x DP 1.2</td>
<td>4096x2160@60Hz(DP)</td>
</tr>
<tr>
<td>AMD Radeon RX 550X</td>
<td>Discrete</td>
<td>4GB</td>
<td>GDDR5</td>
<td>1x HDMI 2.0, 1x VGA, 1x DP 1.4</td>
<td>4096x2160@60Hz(HDMI), 2048x1536@85Hz(VGA), 3840x2160@60Hz(DP)</td>
</tr>
<tr>
<td>NVIDIA® GeForce® GT</td>
<td>Discrete</td>
<td>2GB</td>
<td>GDDR5</td>
<td>1x VGA, 1x HDMI 1.4</td>
<td>2048x1536@75Hz(VGA), 3840x2160@30Hz(HDMI)</td>
</tr>
</tbody>
</table>
NVIDIA GeForce GTX 1660 SUPER
Discrete 6GB GDDR6
1x HDMI 2.0b, 1x DP 1.4, 1x DVI-D
4096x2160@60Hz(HDMI), 7680x4320@60Hz with DSC(DP), 2560x1600@60Hz(DVI-D)
DirectX 12, PCIe 3.0 x16, 125 watts, occupies two slots

NVIDIA GeForce RTX™ 2060
Discrete 6GB GDDR6
1x HDMI 3x DP
4096x2160@60Hz(HDMI), 7680x4320@60Hz with DSC(DP)
DirectX 12, PCIe 3.0 x16, 125 watts

Notes:
1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support
Monitor Support
Supports up to 3 independent displays via onboard ports** (2x DisplayPort™ + 1x optional port [HDMI / 3rd DP / USB-C]), more displays support via discrete graphics

Notes:
1. Onboard video ports are only available for the models with integrated graphics

Chipset
Chipset
Intel Q470 chipset

Memory
Max Memory
Up to 128GB DDR4-2933
Memory Slots
Four DDR4 DIMM slots, dual-channel capable

Memory Type
• DDR4-2666
• DDR4-2933

Memory Protection
Non-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 five drives, 2x 2.5”/3.5” HDD + 1x 2.5” HDD + 2x M.2 2242/2280 SSD
• 2.5” HDD up to 1TB each
• 3.5” HDD up to 2TB each
• M.2 SSD up to 2TB each
• Optional Intel Optane™ Memory, M.2

Storage Type

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5&quot; SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>-</td>
</tr>
<tr>
<td>3.5&quot; SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>-</td>
</tr>
<tr>
<td>M.2 2242 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>Opal</td>
</tr>
<tr>
<td>Intel Optane Memory M10</td>
<td>PCIe NVMe, PCIe 3.0 x2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

RAID

ThinkCentre M90t - May 27 2021
**RAID 0/1 support** (RAID preset only available via special bid model)

**Removable Storage**

**Optical**
- DVD-ROM, SATA 1.5Gb/s, slim (9.0mm)
- DVD burner (DVD±RW), SATA 1.5Gb/s, slim (9.0mm)
- None

**Card Reader**
- 3-in-1 card reader (SD, SDHC, SDXC)
- No card reader

**Multi-Media**

**Audio Chip**
- High Definition (HD) Audio, Realtek® ALC623-CG codec

**Speakers**
- Single speaker, 2W x1

**Power Supply**

<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>180W</td>
<td>Fixed</td>
<td>85%</td>
<td>-</td>
</tr>
<tr>
<td>300W</td>
<td>Fixed</td>
<td>85%</td>
<td>-</td>
</tr>
<tr>
<td>300W</td>
<td>Fixed</td>
<td>90%</td>
<td>-</td>
</tr>
<tr>
<td>500W</td>
<td>Fixed</td>
<td>92%</td>
<td>-</td>
</tr>
</tbody>
</table>

**DESIGN**

**Input Device**

**Keyboard**
- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

**Mouse**
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

**Mechanical**

**Form Factor**
- Tower (17L)

**Dimensions (WxDxH)**
- 170 x 298 x 376 mm (6.7 x 11.7 x 14.8 inches)

**Weight**
- 6.5 kg (14.3 lbs)

**Case Color**
- Black

**Bays**
- 1x 2.5” disk bay (bay comes with disk)
- 1x 3.5” disk bay
- 1x 3.5” disk bay (optional, or bay comes with disk)
- 1x slim ODD bay

**Expansion Slots**
- One PCIe 3.0 x1, full-height (length < 245mm)
- One PCIe 3.0 x4, full-height (length < 245mm)
- One PCIe 3.0 x16, full-height (length < 245mm)
- One dummy slot, only bracket for optional port extension
- Three M.2 slots (one for WLAN, two for SSD)

Others
- (Optional) Dust filter
- Supports Smart Power On

**CONNECTIVITY**

**Network**

Onboard Ethernet
Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ45, supports Wake-on-LAN

Optional Ethernet
- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- 2.5 Gigabit Ethernet, Realtek RTL8125BS, 1x RJ-45, PCIe x1
- No optional Ethernet

WLAN + Bluetooth®
- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, Intel vPro technology support, M.2 Card
- No WLAN and Bluetooth

**Ports**

Front Ports
- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

Optional Front Ports
- 1x card reader
- None

Rear Ports
- 4x USB 3.2 Gen 1
- 2x DisplayPort
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports
- 2x USB 2.0 (via 2-port adapter)
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- Optional video port (one of HDMI / DisplayPort / USB-C 3.2 Gen 1 with DisplayPort function)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

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

**Monitor Cable**

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- No monitor cable

**SECURITY & PRIVACY**

**Security**

**Security Chip**

Discrete TPM 2.0, TCG certified

**Physical Locks**

- (Optional) E-lock
- (Optional) Smart Cable Clip
- Kensington® Security Slot
- Padlock Loop

**Chassis Intrusion Switch**

- Chassis intrusion switch
- No chassis intrusion switch

**Fingerprint Reader**

- Touch style fingerprint reader on mouse
- No fingerprint reader

**BIOS Security**

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

**MANAGEABILITY**

**System Management**

**System Management[^1]**

- Intel vPro with Intel AMT 14.0
- None

Notes:

1. Require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection

**SERVICE**

**Warranty**

**Base Warranty**

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

Operating Environment

Temperature
• Storage: -40°C (-40°F) to 60°C (140°F)
• Operating: 5°C (41°F) to 35°C (95°F)

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

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)

CERTIFICATIONS

Green Certifications

Green Certifications
• EPEAT™ Gold
• EPEAT Silver
• ENERGY STAR® 8.0 (only available for MT 11D0/11CY)
• ErP Lot 3
• TCO Certified 8.0
• RoHS compliant

Other Certifications

Other Certifications
• (Optional) TÜV Rheinland Ultra Low Noise
• None