PERFORMANCE

Processor

Processor Family
10th Generation Intel® Core™ 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>Core i5-10400</td>
<td>6</td>
<td>12</td>
<td>2.9GHz</td>
<td>4.3GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i5-10400F</td>
<td>6</td>
<td>12</td>
<td>2.9GHz</td>
<td>4.3GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>-</td>
</tr>
<tr>
<td>Core i7-10700</td>
<td>8</td>
<td>16</td>
<td>2.9GHz</td>
<td>4.8GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i7-10700F</td>
<td>8</td>
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<td>2.9GHz</td>
<td>4.8GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>-</td>
</tr>
<tr>
<td>Core i7-10700K</td>
<td>8</td>
<td>16</td>
<td>3.8GHz</td>
<td>5.1GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>Core i9-10900</td>
<td>10</td>
<td>20</td>
<td>2.8GHz</td>
<td>5.2GHz</td>
<td>20MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics 630</td>
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<td>Core i9-10900F</td>
<td>10</td>
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<td>5.2GHz</td>
<td>20MB</td>
<td>DDR4-2933</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes:
• Intel UHD Graphics 630 in processor is disabled

Operating System
• Windows® 10 Home 64
• Windows 10 Pro 64
• FreeDOS

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>AMD Radeon™ RX S500</td>
<td>Discrete</td>
<td>4GB GDDR6</td>
<td>1x HDMI 2.0, 3x DP 1.4</td>
<td>4096x2160@60Hz(HDMI), 7680x4320@60Hz(DP)</td>
<td>DirectX® 12</td>
</tr>
<tr>
<td>AMD Radeon RX S700XT</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>1x HDMI 2.0, 3x DP 1.4</td>
<td>7680x4320@60Hz(DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce GTX 1650 SUPER</td>
<td>Discrete</td>
<td>4GB GDDR6</td>
<td>1x HDMI 2.0b, 2x DP 1.4</td>
<td>7680x4320@60Hz(DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce GTX 1660 SUPER</td>
<td>Discrete</td>
<td>6GB GDDR6</td>
<td>1x DVI, 1x HDMI 2.0b, 1x DP 1.4</td>
<td>7680x4320@60Hz(DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX™ 2060 CD</td>
<td>Discrete</td>
<td>6GB GDDR6</td>
<td>1x HDMI 2.0b, 3x DP 1.4</td>
<td>4096x2160@60Hz(HDMI), 7680x4320@60Hz with DSC(DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 2070 CD</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>1x HDMI 2.0b, 3x DP 1.4</td>
<td>7680x4320@60Hz(DP)</td>
<td>DirectX 12 VR ready</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 2070 SUPER</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>1x HDMI 2.0b, 1x USB Type-C Gen 2, 3x DP 1.4</td>
<td>7680x4320@60Hz(DP)</td>
<td>DirectX 12 VR ready</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 3070</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>3x DP 1.4a, 1x HDMI 2.1</td>
<td>7680x4320@60Hz(HDMI); 7680x4320@60Hz(DP)</td>
<td>DirectX 12</td>
</tr>
</tbody>
</table>

Notes:
• Integrated graphics information and onboard video ports information are not applicable for all models without integrated graphics (for the details, please refer to processor section)

Monitor Support
Supports up to 5 independent displays via discrete graphics ports** (DP, HDMI, USB-C 3.2 Gen2, and DVI)

Notes:
• Ports may vary by the discrete graphics.

Chipset
Intel B460 chipset

**Memory**

**Memory Type**
- DDR4-2933
- DDR4-3200, Armor

Notes:
- Installed memory is actually 2933MHz or 3200MHz, but may run at 2666MHz or 2933MHz depending on the memory support capability of processor

**Memory Slots**
Four DDR4 UDIMM slots, dual-channel capable

**Memory Protection**
Non-ECC

**Max Memory**
Up to 128GB DDR4-2933

Notes:
- 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 2 drives, 1x 3.5" HDD + 1x M.2 SSD
- 3.5" HDD up to 2TB
- M.2 SSD up to 1TB
- Optional Intel Optane™ Memory Integrated with SSD, M.2

**RAID**
Not support

**Storage Type**

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

**Removable Storage**

**Optical**
- DVD burner (DVD±RW), SATA 1.5Gb/s, slim (9.0mm)
- Not configured

**Card Reader**
Not Support

**Multi-Media**

**Audio Chip**
High Definition (HD) Audio, Realtek® ALC887 codec

**Speakers**
Not Support

**Power Supply**

<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>350W</td>
<td>Fixed</td>
<td>-</td>
<td>100V - 240V</td>
</tr>
<tr>
<td>400W</td>
<td>Fixed</td>
<td>-</td>
<td>100V - 240V</td>
</tr>
<tr>
<td>650W</td>
<td>Fixed</td>
<td>-</td>
<td>100V - 240V</td>
</tr>
</tbody>
</table>
DESIGN

Input Device

Keyboard
- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Keyboard (USB connector), black
- Not configured

Mouse
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Mouse (USB connector), black
- Not configured

Mechanical

Form Factor
Tower (28L)

Dimensions (WxDxH)
184.5mm x 455.8mm x 457mm (7.26 x 17.94 x 17.99 inches)

Weight
14 kg (30.86 lbs)

Case Color
Phantom black

Bays
2x 3.5" disk bay

Expansion Slots
- One PCIe 3.0 x16
- One PCIe 3.0 x4
- Two PCIe 3.0 x1
- Three M.2 slots (one for WLAN, two for SSD)

Cooling System (Fan&Cooler)
- (Optional) Front system fan, rear system fan for airflow or liquid
- (Optional) 65W Air-Cooler, 95W Air-Cooler, 150W Air-Cooler or 150W Liquid-Cooler

System Lighting
- Front panel light; optional ARGB cooler light and ARGB system fan light
- Not configured

Others
- Carry handle
- None

CONNECTIVITY

Network
Onboard Ethernet
Gigabit Ethernet, 1x RJ45

WLAN + Bluetooth™
- 802.11ac 2x2 Wi-Fi + Bluetooth 5.0, M.2 Card
- 802.11ax 2x2 Wi-Fi + Bluetooth 5.0, M.2 Card
- Not configured

Ports
Front Ports
Not Support

Notes:
- 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;

**Rear Ports**
- 2x USB 2.0
- 2x USB 3.2 Gen 1
- 1x USB-C 3.2 Gen 1
- 1x Ethernet (RJ-45)
- 1x microphone (3.5mm)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x power connector

**Notes:**
- For video ports on discrete graphics, please see graphics section

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

**SECURITY & PRIVACY**

**Security**

**Security Chip**
Firmware TPM 2.0 integrated in chipset

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

**SERVICE**

**Warranty**

**Base Warranty**
- 1-year mail-in service
- 1-year depot service
- 1-year limited onsite service
- 2-year depot service
- OB

**CERTIFICATIONS**

**Green Certifications**
- ENERGY STAR® 8.0
- ErP Lot 3
- RoHS