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 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 i7-10700KF</td>
<td>8</td>
<td>16</td>
<td>3.8GHz</td>
<td>5.1GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>-</td>
</tr>
<tr>
<td>Core i9-10850K</td>
<td>10</td>
<td>20</td>
<td>3.6GHz</td>
<td>5.2GHz</td>
<td>20MB</td>
<td>DDR4-2933</td>
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</tr>
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<td>Core i9-10900K</td>
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<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
- 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>AMD Radeon™ RX 5700XT</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 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 3060 Ti</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>
<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>
<tr>
<td>NVIDIA GeForce RTX 3080</td>
<td>Discrete</td>
<td>10G GDDR6X</td>
<td>3x DP 1.4a, 1x HDMI 2.1</td>
<td>7680x4320 @ 60Hz (HDMI), 7680x4320 @ 60Hz (DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 3090</td>
<td>Discrete</td>
<td>24G GDDR6X</td>
<td>3x DP 1.4a, 1x HDMI 2.1</td>
<td>7680x4320 @ 60Hz (HDMI), 7680x4320 @ 60Hz (DP)</td>
<td>DirectX 12</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 2080 SUPER</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>
</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 Z490 chipset**

**Memory**

**Memory Type**
- DDR4-3200
- DDR4-3200, Armor
- DDR4-3600, RGB Armor, XMP

**Notes:**
- Installed memory is actually 3200MHz or 3600MHz, but may run at 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 4 drives, 2x 3.5" HDD + 2x M.2 SSD
- 3.5" HDD up to 2TB each
- M.2 SSD up to 1TB each

**RAID**
RAID 0/1/5 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, PCIe 4.0 x4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.2 2280 SSD</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® ALC892 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>550W</td>
<td>Fixed</td>
<td>88%</td>
<td>220V</td>
</tr>
<tr>
<td>650W</td>
<td>Fixed</td>
<td>90%</td>
<td>100V - 240V</td>
</tr>
<tr>
<td>850W</td>
<td>Fixed</td>
<td>90%</td>
<td>100V - 240V</td>
</tr>
</tbody>
</table>
DESIGN

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

Mechanical
Form Factor
Tower (34L)
Dimensions (WxDxH)
211 x 450 x 483 mm (8.3 x 17.7 x 19 inches)
Weight
12.5 kg (27.6 lbs)
Case Color
Raven black
Bays
- 2x 3.5" disk bay
- 4x 2.5" disk bay
Expansion Slots
- Two PCIe 3.0 x16
- Three 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) Front system fan, rear system fan with ARGB
- (Optional) Three front system fan with ARGB, one rear system fan with ARGB
- (Optional) Three front system fan with ARGB, one rear system fan with ARGB, two top system fan with ARGB
- (Optional) 150W side flow Air-Cooler, or 200W Liquid-Cooler
System Lighting
Front panel light; optional ARGB cooler light and ARGB system fan light
Others
- Carry handle
- None

CONNECTIVITY

Network
Onboard Ethernet
Gigabit Ethernet, 1x RJ45
WLAN + Bluetooth™
802.11ax 2x2 Wi-Fi + Bluetooth 5.0, M.2 Card
Ports
Rear Ports
- 4x USB 2.0
- 2x USB 3.2 Gen 1
- 1x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 2
- 1x Ethernet (RJ-45)
• 1x microphone in (pink)
• 1x line in (blue)
• 1x line out/one front output (green)
• 1x centre and subwoofer combine output (orange)
• 1x side surround output (grey)
• 1x rear surround output (black)
• 1x power connector

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

Top Ports
• 2x USB 2.0
• 2x USB 3.2 Gen 1
• 1x headphone (3.5mm)
• 1x microphone (3.5mm)

SECURITY & PRIVACY

Security
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 (On some models)
• ErP Lot 3
• RoHS