# OVERVIEW

<table>
<thead>
<tr>
<th>1. Power button</th>
<th>8. HDMI 1.4b</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Headphone / microphone combo jack (3.5mm)</td>
<td>9. VGA</td>
</tr>
<tr>
<td>3. USB-C 3.2 Gen 1</td>
<td>10. 2x USB 2.0</td>
</tr>
<tr>
<td>4. USB 3.2 Gen 1</td>
<td>11. Ethernet (RJ-45)</td>
</tr>
<tr>
<td>5. USB 3.2 Gen 1</td>
<td>12. 2x USB 2.0</td>
</tr>
<tr>
<td>7. Line-out (3.5mm)</td>
<td>14. Optional ports on expansion cards</td>
</tr>
</tbody>
</table>

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

### Processor

**Processor Family**
10th Generation Intel® Core™ i5 / i7 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>
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<td>Core i5-10400F</td>
<td>6</td>
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<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>
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<td>-</td>
</tr>
</tbody>
</table>

### Operating System

- Windows® 10 Home 64
- Windows 10 Pro 64

### 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>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>
</tbody>
</table>

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 2 independent displays via onboard ports (VGA and HDMI), more displays support via discrete graphics

### Chipset

**Chipset**
Intel B460 chipset

### Memory

**Max Memory**
Up to 32GB DDR4-2933

**Memory Slots**
Two DDR4 UDIMM 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.
2. Installed memory is actually 2666MHz or 2933MHz, but may run at 2666MHz or 2933MHz depending on the memory support capability of processor

Storage
Storage Support
Up to two drives, 1x 3.5" HDD + 1x M.2 SSD
• 3.5" HDD up to 1TB
• M.2 SSD up to 512GB

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.5&quot; SATA HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>M.2 2242 SSD</td>
<td>PCIe NVMe</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

RAID
No support

Removable Storage
Optical
None
Card Reader
• 3-in-1 card reader (SD, SDHC, SDXC)
• No card reader

Multi-Media
Audio Chip
High Definition (HD) Audio, Realtek® ALC222-CG codec

Power Supply
Power Supply
<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>310W</td>
<td>Fixed</td>
<td>92%</td>
<td>100V - 240V</td>
</tr>
<tr>
<td>380W</td>
<td>Fixed</td>
<td>92%</td>
<td>100V - 240V</td>
</tr>
</tbody>
</table>

DESIGN
Input Device
Keyboard
Lenovo Calliope Keyboard (USB connector), black
Mouse
Lenovo Calliope Mouse (USB connector), black

Mechanical
Form Factor
Tower (13.6L)
Dimensions (WxDxH)
145 x 292.2 x 365 mm (5.71 x 11.5 x 14.37 inches)
Weight
5.8 kg (12.79 lbs)
Case Color
Raven black
Bays
1x 2.5" disk bay
1x 3.5" disk bay

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

Cooling System (Fan&Cooler)
(Optional) 1x front system fan, 1x rear system fan

CONNECTIVITY

Network
Onboard Ethernet
Gigabit Ethernet, 1x RJ45

WLAN + Bluetooth®
- 802.11ac 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Wi-Fi 6, 802.11ax 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card

Ports
Front Ports
- 2x USB 3.2 Gen 1
- 1x USB-C 3.2 Gen 1 (support data transfer and 5V@3A charging)
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports
1x card reader

Rear Ports
- 4x USB 2.0
- 1x VGA
- 1x HDMI 1.4b
- 1x Ethernet (RJ-45)
- 1x headphone / microphone combo jack (3.5mm)

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
BIOS Security
- Administrator password
- Power-on password
- Hard disk password

SERVICE

Warranty
Base Warranty
- 1-year mail-in service
• 1-year depot service
• 2-year depot service

ENVIRONMENTAL

Operating Environment

Temperature
Storage: -40°C (-40°F) to 60°C (140°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

ENERGY STAR® 8.0 (on some models)
ErP Lot 3
RoHS compliant