**PERFORMANCE**

**Processor**

**Processor Family**
8th / 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 i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>3.9GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.1GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.2GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8GHz</td>
<td>4.6GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9GHz</td>
<td>4.8GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10510U</td>
<td>4</td>
<td>8</td>
<td>1.8GHz</td>
<td>4.9GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10710U</td>
<td>6</td>
<td>12</td>
<td>1.1GHz</td>
<td>4.7GHz</td>
<td>12MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Notes:
1. 10th Generation Intel Core Processors are NOT available in EMEA

**Operating System**

**Operating System**
- Windows® 10 Home 64
- Windows 10 Pro 64
- Fedora Linux
- Linux
- Ubuntu Linux
- No operating system

**Graphics**

**Graphics**

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel UHD Graphics</td>
<td>Integrated</td>
<td>Shared</td>
<td>DirectX® 12</td>
</tr>
</tbody>
</table>

**Monitor Support**

**Monitor Support**
Supports up to 3 independent displays via native display and 2 external monitors; supports external monitors via HDMI® (up to 4K@24Hz) or Thunderbolt™ (up to 5K@60Hz)

**Chipset**

**Chipset**
Intel SoC (System on Chip) platform

**Memory**

**Max Memory**
- 8GB soldered memory, not upgradable
- 16GB soldered memory, not upgradable

**Memory Slots**
Memory soldered to systemboard, no slots

**Memory Type**
LPDDR3-2133

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**
One drive, up to 2TB M.2 2280 SSD, optional Intel Optane™ Memory integrated with SSD, 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>M.2 2280 SSD</td>
<td>SATA 6Gb/s</td>
<td>-</td>
<td>Opal2</td>
</tr>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>Opal2</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**
None

**Card Reader**
No card reader

**Multi-Media**

**Audio Chip**
High Definition (HD) Audio, Realtek® ALC3286 codec

**Speakers**
Stereo speakers, 2W x2 and 0.8W x2, Dolby® Atmos®

**Microphone**
Four array microphones, 360° far-field

**Camera**
- 720p, with ThinkShutter, fixed focus
- IR & 720p hybrid, with ThinkShutter, fixed focus

**Battery**

**Battery**
Integrated Li-Polymer 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

**Max Battery Life**
MobileMark® 2014: 18.3 hr
JEITA 2.0: 18.9 hr

**Notes:**
1. All battery life claims are approximate maximum and based on results using the MobileMark 2014, MobileMark 2018, and/or JEITA 2.0 battery-life benchmark tests. Actual battery life will vary and depends on many factors such as product configuration and usage, software use, wireless functionality, power management settings, and screen brightness. The maximum capacity of the battery will decrease with time and use.

**Power Adapter**

**Power Adapter**
- 45W USB-C AC adapter
- 65W USB-C slim AC adapter
- 65W USB-C AC adapter

**DESIGN**

**Display**

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Touch</th>
<th>Type</th>
<th>Brightness</th>
<th>Surface</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>FHD</td>
<td>Multi-</td>
<td>IPS</td>
<td>300 nits</td>
<td>Anti-</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
<td>170°</td>
<td>-</td>
</tr>
</tbody>
</table>
ThinkPad X1 Carbon (7th Gen)

<table>
<thead>
<tr>
<th>Model</th>
<th>Screen Type</th>
<th>Panel Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>IPS</th>
<th>Anti-Glare</th>
<th>Contrast Ratio</th>
<th>NTSC</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>None</td>
<td>IPS</td>
<td>400 nits</td>
<td>16:9</td>
<td>Anti-Glare</td>
<td>1000:1</td>
<td>72% NTSC</td>
<td>170°</td>
<td>ThinkPad Privacy Guard</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>None</td>
<td>IPS</td>
<td>400 nits</td>
<td>16:9</td>
<td>Anti-Glare</td>
<td>800:1</td>
<td>72% NTSC</td>
<td>170°</td>
<td>Low power</td>
</tr>
<tr>
<td>14.0&quot; UHD (3840x2160)</td>
<td>None</td>
<td>IPS</td>
<td>500 nits</td>
<td>16:9</td>
<td>Glossy</td>
<td>1400:1</td>
<td>90%</td>
<td>170°</td>
<td>Dolby Vision™, HDR 400</td>
</tr>
<tr>
<td>14.0&quot; WQHD (2560x1440)</td>
<td>None</td>
<td>IPS</td>
<td>300 nits</td>
<td>16:9</td>
<td>Anti-Glare</td>
<td>700:1</td>
<td>72% NTSC</td>
<td>170°</td>
<td>-</td>
</tr>
</tbody>
</table>

**Touchscreen**
- Capacitive-type multi-touch, supports 10-point touch
- Non-touch

**Input Device**

**Keyboard**
- 6-row, spill-resistant, multimedia Fn keys

**Keyboard Backlight**
- LED backlight

**UltraNav™**
- TrackPoint® pointing device and glass surface multi-touch touchpad

**Mechanical**

**Dimensions (WxDxH)**

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHD Privacy Guard models</td>
<td>323 x 217 x 15.4 mm (12.72 x 8.54 x 0.61 inches)</td>
</tr>
<tr>
<td>Non-Privacy Guard models</td>
<td>323 x 217 x 14.95 mm (12.72 x 8.54 x 0.59 inches)</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>FHD Privacy Guard models</td>
<td>1.21 kg (2.66 lbs)</td>
</tr>
<tr>
<td>Non-Privacy Guard models</td>
<td>1.09 kg (2.4 lbs)</td>
</tr>
</tbody>
</table>

**Case Color**
- Black, paint
- Black, weave

**Case Material**
- Carbon fiber (top), magnesium alloy (bottom)

**Notes:**
- 1. The system weight varies depending on configurations

**CONNECTIVITY**

**Network**

**Onboard Ethernet**
- Gigabit Ethernet, Intel Ethernet Connection I219-V (non-vPro models), RJ45 via optional ThinkPad Ethernet Extension Adapter Gen 2
- Gigabit Ethernet, Intel Ethernet Connection I219-LM (vPro models), RJ45 via optional ThinkPad Ethernet Extension Adapter Gen 2
WLAN + Bluetooth®
Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1

WWAN
Wireless WAN upgradable to 4G
Integrated Mobile Broadband 4G LTE-A, CAT9, Fibocom L850-GL, M.2 card
Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card
No support

SIM Card
Gemalto eSIM
No SIM card inbox

NFC
Near Field Communication
No support

Notes:
1. BT5.1 is supported on Windows 10 version 2004 or above (limited to BT5.0 on earlier version)
2. WWAN upgradable is for special bid only
   For non-WWAN model, it means the model is NOT WWAN upgradable

Ports
Standard Ports
1x USB 3.1 Gen 1
1x USB 3.1 Gen 1 (Always On)
2x USB-C 3.1 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort™ 1.2)
1x HDMI 1.4b
1x Ethernet extension connector
1x headphone / microphone combo jack (3.5mm)
1x side docking connector

Optional Ports
1x Nano-SIM card slot (WWAN model)

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. Depending on many factors, actual data transfer speed may be lower than theoretical speed

Monitor Cable

Monitor Cable

- Lenovo HDMI to VGA Monitor Adapter
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip
Discrete TPM 2.0, TCG certified

Physical Locks
Kensington® Security Slot

Smart Card Reader
No smart card reader

Fingerprint Reader
Touch style fingerprint reader on palm rest, match-on-chip

**BIOS Security**
- Supervisor password
- Power-on password
- Hard disk password
- Self-healing BIOS

**Other Security**
- ThinkShutter camera cover
- (Optional) IR camera for Windows Hello
- (Optional) Privacy Guard with Privacy Alert

Notes:
1. Discrete TPM 2.0 with L3 Security Support is for special bid only

**MANAGEABILITY**

**System Management**

**System Management**
- Intel vPro Technology, DASH
- None

**SERVICE**

**Warranty**

**Base Warranty**
- 1-year depot service
- 1-year depot with 2-year system board service
- 3-year (1-yr battery) depot service
- 3-year (1-yr battery) limited onsite service

**ACCESSORIES**

**Bundled Accessories**

**Bundled Accessories**
- ThinkPad Ethernet Extension Adapter Gen 2
- None

**CERTIFICATIONS**

**Green Certifications**

**Green Certifications**
- EPEAT™ Gold
- ENERGY STAR® 8.0
- TCO
- RoHS compliant

**Other Certifications**

**Mil-Spec Test**

MIL-STD-810G military test passed