## OVERVIEW

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smart card reader *</td>
</tr>
<tr>
<td>2</td>
<td>USB 3.2 Gen 1 (Always On)</td>
</tr>
<tr>
<td>3</td>
<td>Ethernet (RJ-45)</td>
</tr>
<tr>
<td>4</td>
<td>Kensington Security Slot</td>
</tr>
<tr>
<td>5</td>
<td>USB-C 3.2 Gen 1</td>
</tr>
<tr>
<td>6</td>
<td>USB-C 3.2 Gen 2 / Thunderbolt 3</td>
</tr>
<tr>
<td>7</td>
<td>Side docking connector</td>
</tr>
<tr>
<td>8</td>
<td>USB 3.2 Gen 1</td>
</tr>
<tr>
<td>9</td>
<td>HDMI 1.4b</td>
</tr>
<tr>
<td>10</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>11</td>
<td>MicroSD card reader</td>
</tr>
</tbody>
</table>

**Notes:**
- Ports with * are only available on selected models
- Optional nano-SIM card slot on the rear side (not shown on the sample product above)
- The combination of 5, 6 and 7 is side docking connector
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 i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.2GHz</td>
<td>6MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i5-10310U</td>
<td>4</td>
<td>8</td>
<td>1.7GHz</td>
<td>4.4GHz</td>
<td>6MB</td>
<td>DDR4-2666</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>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10610U</td>
<td>4</td>
<td>8</td>
<td>1.8GHz</td>
<td>4.9GHz</td>
<td>8MB</td>
<td>DDR4-2666</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>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10810U</td>
<td>6</td>
<td>12</td>
<td>1.1GHz</td>
<td>4.9GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Operating System

<table>
<thead>
<tr>
<th>Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows® 10 Pro 64</td>
</tr>
<tr>
<td>Windows 10 Home 64</td>
</tr>
<tr>
<td>Ubuntu Linux LTS</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux (certified only)</td>
</tr>
<tr>
<td>No operating system</td>
</tr>
</tbody>
</table>

Graphics

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVIDIA® Quadro® P520</td>
<td>Discrete</td>
<td>2GB GDDR5</td>
<td>DirectX® 12</td>
</tr>
</tbody>
</table>

Monitor Support

<table>
<thead>
<tr>
<th>Monitor Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports up to 3 independent displays via native display and 2 external monitors; supports external monitors via HDMI® (up to 4096x2160@24Hz), USB-C (up to 4096x2304@60Hz) or Thunderbolt™ (up to 4096x2304@60Hz)</td>
</tr>
</tbody>
</table>

Chipset

<table>
<thead>
<tr>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel SoC (System on Chip) platform</td>
</tr>
</tbody>
</table>

Memory

Max Memory[1]
- Up to 40GB (8GB soldered + 32GB SO-DIMM) DDR4-2666
- Up to 48GB (16GB soldered + 32GB SO-DIMM) DDR4-2666

Memory Slots
One memory soldered to systemboard, one DDR4 SO-DIMM slot, dual-channel capable

Memory Type[2]
- DDR4-2666 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 DDR4-3200 but may run at DDR4-2666 due to processor limitation

Storage

<table>
<thead>
<tr>
<th>Storage Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>One drive, up to 2TB M.2 2280 SSD</td>
</tr>
</tbody>
</table>
**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 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>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>

Notes:
1. M.2 2242 is special bid only

**Removable Storage**

**Optical**
None

**Card Reader**
MicroSD card reader

**Multi-Media**

**Audio Chip**
High Definition (HD) Audio, Realtek® ALC3287 codec

**Speakers**
Stereo speakers, 2W x2, Dolby® Audio™

**Microphone**
- Dual array microphone, near-field
- No microphone

**Camera**
- 720p, with ThinkShutter, fixed focus
- IR & 720p hybrid, with ThinkShutter, fixed focus
- No camera

**Battery**

**Battery**
Integrated Li-Polymer 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max Battery Life**
- MobileMark® 2014: 16.5 hr
- MobileMark 2018: 10.48 hr
- JEITA 2.0: 16.5 hr

Notes:
1. All battery life claims are approximate maximum and based on results using the MobileMark 2014, MobileMark 2018, JEITA 2.0, continuous 1080p video playback (with 150nits brightness and default volume level) or Google Power Load Test (PLT) 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**
- 65W USB-C slim (3-pin) AC adapter
- 65W USB-C slim (2-pin) AC adapter
- 65W USB-C (2-pin) AC adapter
- 65W USB-C (3-pin) AC adapter
- No power adapter

Notes:
1. No power adapter is for special bid only

**DESIGN**
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>15.6”</td>
<td>FHD (1920x1080)</td>
<td>None</td>
<td>IPS</td>
<td>250 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>800:1</td>
<td>45% NTSC</td>
<td>170°</td>
<td>-</td>
</tr>
<tr>
<td>15.6”</td>
<td>FHD (1920x1080)</td>
<td>Multi-</td>
<td>IPS</td>
<td>300 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>800:1</td>
<td>45% NTSC</td>
<td>170°</td>
<td>-</td>
</tr>
<tr>
<td>15.6”</td>
<td>UHD (3840x2160)</td>
<td>None</td>
<td>IPS</td>
<td>600 nits</td>
<td>Anti-glare</td>
<td>16:9</td>
<td>1400:1</td>
<td>100% Adobe® RGB</td>
<td>170°</td>
<td>Dolby Vision™, HDR 400</td>
</tr>
</tbody>
</table>

Color Calibration
- X-Rite® Pantone® factory color calibration (UHD display)
- No color calibration

Touchscreen
- On-cell touch, supports 10-point touch (FHD models only)
- Non-touch

Notes:
1. California Electronic Waste Recycling Fee
   In California, per state law, Lenovo charges an electronic waste recycling fee on this covered device at the time of sale of the product.
   For more information, go to https://www.carecycle.ca.gov/Electronics/Consumer

Input Device

Pen
No support

Keyboard
6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad

Keyboard Backlight
- LED backlight
- No support

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

Mechanical

Dimensions (WxDxH)

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>365.8 x 248 x 19.1 mm (14.40 x 9.76 x 0.75 inches)</td>
</tr>
</tbody>
</table>

Weight

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>1.75 kg (3.86 lbs)</td>
</tr>
</tbody>
</table>

Case Color
Black

Case Material
PPS / 50% GF (top), PA / 50% GF (bottom)

Notes:
1. The system weight varies depending on configurations

CONNECTIVITY
Network

Onboard Ethernet**
- Gigabit Ethernet, Intel Ethernet Connection I219-LM (vPro models), supports Wake-on-LAN
- Gigabit Ethernet, Intel Ethernet Connection I219-V (non-vPro models), supports Wake-on-LAN

WLAN + Bluetooth®
- Intel Wi-Fi® 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- No WLAN and Bluetooth

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

Ports

Standard Ports
- 2x USB 3.2 Gen 1 (one Always On)
- 1x USB-C 3.1 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort™ 1.2)
- 1x USB-C 3.2 Gen 1 (support data transfer, Power Delivery and DisplayPort 1.2)
- 1x HDMI 1.4b
- 1x microSD card reader
- 1x Ethernet (RJ-45)
- 1x Headphone / microphone combo jack (3.5mm)
- 1x Side docking connector

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

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

Monitor Cable

Monitor Cable**
- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to DisplayPort Adapter
- Lenovo USB-C to VGA Adapter
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip**
- Discrete TPM 2.0, TCG certified
- Firmware TPM 2.0 integrated in chipset
• Disabled (in some regions)

**Physical Locks**

Kensington® Security Slot

**Smart Card Reader**

• Smart card reader  
• No smart card reader

**Fingerprint Reader**

• Touch style fingerprint reader on palm rest, match-on-chip  
• No fingerprint reader

**BIOS Security**

• Supervisor password  
• Power-on password  
• Hard disk password  
• Self-healing BIOS

**Other Security**

• (Optional) ThinkShutter camera cover  
• (Optional) IR camera for Windows Hello

**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  
• 1-year limited onsite service  
• 1-year + 2-year depot service  
• 1-year + 2-year limited onsite service  
• 3-year (1-yr battery) depot service  
• 3-year (1-yr battery) limited onsite service  
• No base warranty

**ENVIRONMENTAL**

**Operating Environment**

**Temperature**

• Storage and transportation in original shipping packaging: -20°C (-4°F) to 60°C (140°F)  
• Storage without package: 5°C (41°F) to 43°C (109°F)

**Humidity**

Storage and transportation: 5% to 95% at wet-bulb temperature 27°C (81°F)

**Altitude**

Maximum altitude (without pressurization): 3048 m (10,000 ft)

**Notes:**

1. When you charge the battery, its temperature must be no lower than 10°C (50°F)

**ACCESSORIES**
Bundled Accessories

None

CERTIFICATIONS

Green Certifications

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

Other Certifications

Mil-Spec Test
MIL-STD-810G military test passed

ISV Certifications

ISV Certifications
Please visit www.thinkworkstations.com/isv-certifications/

• Feature with ** means that only one offering listed under the feature is configured on selected models.

• Feature with *** means that one or more offerings listed under the feature could be configured on selected models.

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