PERFORMANCE

Processor

Processor Family
8th 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 i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.1GHz</td>
<td>6MB</td>
<td>DDR4-2400</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>DDR4-2400</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>DDR4-2400</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Operating System

- Windows® 10 Home 64
- Windows 10 Pro 64
- Red Hat Enterprise Linux (certified only)
- Ubuntu Linux LTS
- No operating system

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

Supports up to 3 independent displays via native display and 2 external monitors; supports external monitors via HDMI® (up to 3840x2160@30Hz) or USB-C (up to 3840x2160@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

Memory Type
DDR4-2400

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

Max Memory

- Up to 48GB (16GB soldered + 32GB SO-DIMM)
- Up to 40GB (8GB soldered + 32GB SO-DIMM)

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
One drive, up to 2TB M.2 2280 SSD

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>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>-</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
MicroSD card reader

Multi-Media
Audio Chip
High Definition (HD) Audio, Realtek® ALC3287 codec
Speakers
Stereo speakers, 2W x2, Dolby® Audio™ Premium
Microphone
• Dual array microphone, far-field
• No microphone
Camera
• 720p, with ThinkShutter, fixed focus
• IR & 720p, 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: 15 hr (FHD ) or 10 hr (UHD)

Notes:
• All battery life claims are approximate maximum and based on results using the MobileMark 2014 and/or MobileMark 2018 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
• 65W USB-C AC adapter
• 65W USB-C slim AC adapter

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” FHD</td>
<td>(1920x1080)</td>
<td>Multi-touch IPS</td>
<td>250 nits Anti-glare</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.6” UHD</td>
<td>(3840x2160)</td>
<td>None IPS</td>
<td>500 nits Anti-glare</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% Adobe*</td>
<td>170°</td>
<td>Dolby Vision™, HDR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
• 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.calrecycle.ca.gov/Electronics/Consumer

Touchscreen
• On-cell touch, supports 10-point touch
• Non-touch
Input Device
Keyboard
6-row, spill-resistant, multimedia Fn keys, numeric keypad

Keyboard Backlight
LED backlight

UltraNav™
3-button TrackPoint® pointing device and 3-button Mylar® surface multi-touch touchpad

Mechanical
Dimensions (WxDxH)
365.8 x 248 x 19.1 mm (14.40 x 9.76 x 0.75 inches)

Weight
1.75 kg (3.87 lbs)

Case Color
Black

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

CONNECTIVITY

Network
Onboard Ethernet
• Gigabit Ethernet, Intel Ethernet Connection I219-V (non-vPro models)
• Gigabit Ethernet, Intel Ethernet Connection I219-LM (vPro models)

WLAN + Bluetooth™
• Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
• No WLAN and Bluetooth

WWAN
• Wireless WAN upgradable
• Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card
• Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
• Not Support

SIM Card
No SIM card

NFC
• Near Field Communication
• Not support

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

Notes:
• Depending on many factors, actual data transfer speed may be lower than theoretical speed

Optional Ports
• 1x smart card reader
ThinkPad P53s

- 1x Nano-SIM card slot (WWAN models)

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

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

Other Security
- (Optional) ThinkShutter camera cover
- (Optional) IR camera for Windows Hello

MANAGEABILITY

System Management
- Intel vPro Technology, DASH
- None

SERVICE

Warranty
Base Warranty
- 1-year depot service
- 3-year (1-yr battery) depot service
- 3-year (1-yr battery) limited onsite service

ACCESSORIES

Bundled Accessories
None

CERTIFICATIONS

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

**Other Certifications**

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

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