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>
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<td>1.8GHz</td>
<td>4.9GHz</td>
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<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>
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</tr>
</tbody>
</table>

Operating System

Operating System
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Government Edition 64 (for special bids models)
- 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

Monitor Support
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)

Chipset

Chipset
Intel SoC (System on Chip) platform

Memory

Memory Type
- DDR4-2666 Non-ECC

Memory Slots
One memory soldered to systemboard, 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:
1. Installed memory is actually DDR4-3200 but may run at DDR4-2666 due to processor limitation
2. 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>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, with ThinkShutter, fixed focus
- No camera

## Battery

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

**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, 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**
- 65W USB-C slim AC adapter (3-pin)
- 65W USB-C slim AC adapter (2-pin)
- 65W USB-C AC adapter (2-pin)
- 65W USB-C AC adapter (3-pin)

## 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</th>
<th>Contrast</th>
<th>Color</th>
<th>Viewing</th>
<th>Key Features</th>
</tr>
</thead>
</table>
### Color Calibration
- X-Rite Pantone factory color calibration (UHD display)
- No color calibration

### Touchscreen
- On-cell touch on selected FHD models, supports 10-point touch
- 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.calrecycle.ca.gov/Electronics/Consumer

### Input Device

- **Pen**
  Not support

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

#### Keyboard Backlight
- LED backlight
- Not support

#### UltraNav™
TrackPoint® pointing device and 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 (3.86 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 Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- No WLAN and Bluetooth

##### WWAN
- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE-A, Fibocom LB50-GL, M.2 card
- Integrated Mobile Broadband 4G LTE-A, Fibocom LB80-GL, MIMO 2x2, M.2 card
SIM Card
- Gemalto eSIM
- No SIM card

NFC
- Near Field Communication
- Not support

Ports
**Standard Ports[^1]**
- 1x USB-C 3.2 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort™)
- 2x USB 3.2 Gen 1 (one Always On)
- 1x Security keyhole
- 1x USB-C 3.2 Gen 1 (support data transfer, Power Delivery and DisplayPort 1.4)
- 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 Smart card reader
- 1x Nano-SIM card slot (WWAN models)

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

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**
- 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
- 1-year limited onsite service
- 1-year depot with 2-year system board 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

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/