## OVERVIEW

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>2</td>
<td>SD card reader</td>
</tr>
<tr>
<td>3</td>
<td>HDMI 2.0</td>
</tr>
<tr>
<td>4</td>
<td>2x USB 3.2 Gen 1</td>
</tr>
<tr>
<td>5</td>
<td>Ethernet (RJ-45)</td>
</tr>
<tr>
<td>6</td>
<td>Kensington Security Slot</td>
</tr>
<tr>
<td>7</td>
<td>Power connector</td>
</tr>
<tr>
<td>8</td>
<td>USB-C 3.2 Gen 2 / Thunderbolt 3</td>
</tr>
<tr>
<td>9</td>
<td>Smart card reader *</td>
</tr>
</tbody>
</table>

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

Processor

Processor Family
10th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® W 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 i5-10300H</td>
<td>4</td>
<td>8</td>
<td>2.5GHz</td>
<td>4.5GHz</td>
<td>8MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10750H</td>
<td>6</td>
<td>12</td>
<td>2.6GHz</td>
<td>5.0GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10850H</td>
<td>6</td>
<td>12</td>
<td>2.7GHz</td>
<td>5.1GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-10875H</td>
<td>8</td>
<td>16</td>
<td>2.3GHz</td>
<td>5.1GHz</td>
<td>16MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Xeon W-10855M</td>
<td>6</td>
<td>12</td>
<td>2.8GHz</td>
<td>5.1GHz</td>
<td>12MB</td>
<td>DDR4-2933</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Operating System

Operating System
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations
- 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>Intel UHD Graphics</td>
<td>Integrated</td>
<td>Shared</td>
<td>DirectX® 12</td>
</tr>
<tr>
<td>NVIDIA® Quadro® P620</td>
<td>Discrete</td>
<td>4GB 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 4K@60Hz) or Thunderbolt™ (up to 5K@60Hz)

Chipset

Chipset
Intel WM490 chipset

Memory

Max Memory
Up to 64GB

Memory Slots
Two DDR4 SO-DIMM slots, dual-channel capable

Memory Type
- DDR4-2933 ECC
- DDR4-2933 non-ECC

Memory Protection
ECC on models with ECC DIMMs and Xeon processor

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. Non-ECC memory is actually DDR4-3200 but may run at DDR4-2933 due to processor limitation

Storage
Storage Support
Up to two drives, 2x M.2 2280 SSD
• M.2 2280 SSD up to 2TB each

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>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>Opal2</td>
</tr>
</tbody>
</table>

RAID
RAID 0/1 support

Removable Storage
Optical
None
Card Reader
SD card reader

Multi-Media
Audio Chip
High Definition (HD) Audio, Realtek® ALC3287 codec
Speakers
Stereo speakers, 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 68Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Max Battery Life[1]
MobileMark® 2014: 10 hr
MobileMark 2018: 7.2 hr
JEITA 2.0: 11 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
• 135W slim tip AC adapter (2-pin)
• 135W slim tip AC adapter (3-pin)

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>None</td>
<td>IPS</td>
<td>250 nits</td>
<td>Anti-</td>
<td>16:9</td>
<td>800:1</td>
<td>45% NTSC</td>
<td>170°</td>
<td>-</td>
<td></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
- Non-touch

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### 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™**
- 3-button TrackPoint® pointing device and mylar surface multi-touch touchpad

### Mechanical

**Dimensions (WxDxH)**
- 366.5 x 250 x 22.7 mm (14.43 x 9.84 x 0.89 inches)

**Weight**
- 2.07 kg (4.57 lbs)

**Case Color**
- Black

**Case Material**
- PC + ABS (top), PC + ABS (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**
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, MIMO 2x2, M.2 card
- Wireless WAN upgradable to 4G
- Not Support

**SIM Card**
- None
No SIM card
NFC
Not support

**Ports**

**Standard Ports**
- 2x USB 3.2 Gen 1 (one Always On)
- 1x USB-C 3.2 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort™)
- 1x HDMI 2.0
- 1x SD card reader
- 1x Ethernet (RJ-45)
- 1x headphone / microphone combo jack (3.5mm)
- 1x Security keyhole

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

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**

- 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

**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

ENVIRONMENTAL

Operating Environment

Temperature
• Operating: 5°C (41°F) to 35°C (95°F)
• Storage without packaging: 5°C (41°F) to 43°C (109°F)
• Storage and transportation in original shipping packaging: -20°C (-4°F) to 60°C (140°F)

Humidity
• Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)
• 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)
2. When charging the battery pack, the environment temperature must be no lower than 10°C (50°F)

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/