OVERVIEW

1. Power connector
2. Thunderbolt 4
3. Thunderbolt 4
4. HDMI
5. Headphone (3.5mm)
6. SD card reader
7. Nano-SIM card slot
8. USB 3.2 Gen 1
9. USB 3.2 Gen 1 (Always On)
10. Kensington Security Slot
PERFORMANCE

Processor

**Processor Family**

11th Generation Intel® Core™ i7 / i9 or Intel Xeon® 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 i7-11800H</td>
<td>8</td>
<td>16</td>
<td>2.3GHz</td>
<td>4.6GHz</td>
<td>24MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i7-11850H</td>
<td>8</td>
<td>16</td>
<td>2.5GHz</td>
<td>4.8GHz</td>
<td>24MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i9-11950H</td>
<td>8</td>
<td>16</td>
<td>2.6GHz</td>
<td>5.0GHz</td>
<td>24MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Xeon W-11855M</td>
<td>6</td>
<td>12</td>
<td>3.2GHz</td>
<td>4.9GHz</td>
<td>18MB</td>
<td>DDR4-3200</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

Operating System

**Operating System**[2]

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

**Notes:**

1. As preloaded OS, Fedora and Ubuntu Linux will be available on October 2021

Graphics

**Graphics**[1]

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Boost Clock</th>
<th>TGP</th>
<th>Connector</th>
<th>Max Resolution</th>
<th>Key Features</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel UHD Graphics</td>
<td>Integrated</td>
<td>Shared</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA® GeForce® RTX™ 3070</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA GeForce RTX 3080</td>
<td>Discrete</td>
<td>16GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA RTX A3000</td>
<td>Discrete</td>
<td>6GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA RTX A5000</td>
<td>Discrete</td>
<td>16GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA RTX A2000</td>
<td>Discrete</td>
<td>4GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NVIDIA RTX A4000</td>
<td>Discrete</td>
<td>8GB GDDR6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>DirectX 12</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Notes:**

1. Vapor Chamber cooling is available only with NV RTX A3000 /A4000 / A5000 and GeForce RTX 3070 / 3080 GPUs

Monitor Support

**Monitor Support**

Supports up to 4 independent displays via native display and 3 external monitors; supports external monitors via HDMI® (up to 4K@60Hz on NVIDIA TI200 or Intel UHD model, or 8K@60Hz on other discrete graphics model) or Thunderbolt™ (up to 5120x3200@60Hz)

Chipset

**Chipset**

Intel WM590 chipset
Memory

Max Memory\(^{(1)}\)
Up to 64GB DDR4-3200

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

Memory Type
• DDR4-3200 ECC
• DDR4-3200 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\textsuperscript{\textregistered} memory offerings. The system may support more memory as the technology develops.

Storage

Storage Support\(^{(2)}\)
Up to two drives, 2x M.2 SSD
• M.2 2280 SSD up to 2TB

Storage Slot\(^{(2)}\)
Two M.2 2280 PCIe slots for SSD:
• 1x M.2 2280 PCIe Gen 4x4 slot, supports M.2 2280 SSD
• 1x M.2 2280 PCIe Gen 3x4 slot, supports M.2 2280 SSD

Storage Type

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Offering</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 4.0</td>
<td>-</td>
<td>512GB / 1TB / 2TB</td>
<td>Opal2</td>
</tr>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 3.0</td>
<td>-</td>
<td>256GB / 512GB / 1TB</td>
<td>Opal2</td>
</tr>
</tbody>
</table>

RAID
RAID 0/1 support (All M.2 SSD drives will work at PCIe Gen 3 in RAID mode)

Notes:
1. Dual storage is only available on models with Intel UHD graphics, NVIDIA T1200, and NVIDIA RTX A2000
2. M.2 PCIe Gen 4 SSD in a M.2 PCIe Gen 3 slot runs at PCIe Gen 3 speeds

Removable Storage

Optical
None

Card Reader
SD card reader

Multi-Media

Audio Chip
High Definition (HD) Audio, Realtek\textsuperscript{\textregistered} ALC3306 codec

Speakers
Stereo speakers, Dolby\textsuperscript{\textregistered} Atmos\textsuperscript{\textregistered}

Microphone
• Dual array microphone, far-field
• No microphone

Camera
• 1080p, with privacy shutter, fixed focus
• IR & 1080p hybrid, with privacy shutter, fixed focus
• No camera
**Battery**

Integrated Li-Polymer 90Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max Battery Life**

- MobileMark® 2018: 10.9 hr
- JEITA 2.0: 13.7 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**

- 135W slim tip (3-pin) AC adapter
- 170W slim tip (3-pin) AC adapter
- 230W slim tip (3-pin) 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>16.0&quot;</td>
<td>WQXGA (2560x1600)</td>
<td>None</td>
<td>IPS</td>
<td>400 nits</td>
<td>Anti-glare</td>
<td>16:10</td>
<td>1200:1</td>
<td>100% sRGB</td>
<td>170°</td>
<td>Low blue light, DC dimming</td>
</tr>
<tr>
<td>16.0&quot;</td>
<td>WQUXGA (3840x2400)</td>
<td>None</td>
<td>IPS</td>
<td>600 nits</td>
<td>Anti-glare</td>
<td>16:10</td>
<td>1500:1</td>
<td>100% Adobe*</td>
<td>170°</td>
<td>Low blue light, Dolby Vision™, HDR 400, DC dimming</td>
</tr>
<tr>
<td>16.0&quot;</td>
<td>WQUXGA (3840x2400)</td>
<td>Multi-</td>
<td>IPS</td>
<td>600 nits</td>
<td>Anti-glare, Anti-smudge</td>
<td>16:10</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
<td>Low blue light, Dolby Vision, HDR 400, DC dimming</td>
</tr>
</tbody>
</table>

**Color Calibration**

- X-Rite Pantone factory color calibration
- No color calibration

**Touchscreen**

- Capacitive-type on-cell multi-touch, 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
2. For non-OLED display, HDR is only supported under hybrid mode

**Input Device**

**Pen**

- Lenovo Pen Pro
- No support (non-touch display doesn't support pen input)

**Keyboard**

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

**Keyboard Backlight**
LED backlight

UltraNav™
3-button 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>Touch models</td>
<td>359.5 x 253.8 x 18.2 mm (14.15 x 9.99 x 0.72 inches)</td>
</tr>
<tr>
<td>Non-touch models</td>
<td>359.5 x 253.8 x 17.7 mm (14.15 x 9.99 x 0.7 inches)</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-touch models</td>
<td>1.81 kg (3.99 lbs)</td>
</tr>
<tr>
<td>Touch models</td>
<td>1.86 kg (4.1 lbs)</td>
</tr>
</tbody>
</table>

**Case Color**

Black

**Case Material**

- 37-degree twill CF Weave (top), Aluminium (bottom)
- CF plate / GFRP hybrid (top), aluminium (bottom)

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

---

**CONNECTIVITY**

**Network**

**Onboard Ethernet**

- Ethernet support via optional Lenovo USB-C to Ethernet Adapter
- No Ethernet

**WLAN + Bluetooth®**

Intel Wi-Fi® 6E AX210, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2

**WWAN**

- Qualcomm® Snapdragon™ X55 5G Modem M.2 card - RF System with embedded eSIM functionality
- No support

**SIM Card**

- Nano SIM card, Lenovo Connect 24 months, 4G LTE
- No SIM card inbox

**NFC**

No support

**Notes:**
1. WWAN is only available on models with Intel UHD graphics, NVIDIA T1200, and NVIDIA RTX A2000

**Ports**

**Standard Ports**

- 2x USB 3.2 Gen 1 (one Always On)
- 2x Thunderbolt 4 / USB4™ 40Gbps (support data transfer, Power Delivery 3.0 and DisplayPort™ 1.4a)
- 1x SD card reader
- 1x headphone / microphone combo jack (3.5mm)

**Optional Ports**

- 1x Nano-SIM card slot (WWAN model)
- 1x HDMI 2.0 (model with integrated graphics)
- 1x HDMI 2.0 (model with NVIDIA T1200 graphics)
- 1x HDMI 2.1 (model with Geforce RTX graphics)
1x HDMI 2.1 (model with NVIDIA RTX graphics)

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
- Lenovo USB-C to DisplayPort Adapter
- Lenovo USB-C to VGA Adapter

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 (2.5 x 6 mm)

Fingerprint Reader
- Touch style fingerprint reader on power button, match-on-chip

BIOS Security
- Supervisor password
- Power-on password
- NVMe password
- Self-healing BIOS

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)
• Operating: 5°C (41°F) to 35°C (95°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)

ACCESSORIES

Bundled Accessories

Bundled Accessories
• Lenovo USB-C to Ethernet Adapter
• None

CERTIFICATIONS

Green Certifications

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

Other Certifications

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

ISV Certifications

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