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Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

January 22, 2020 - Version 554

Additions in this update

► New product(s)
  None

► Others
  None

Withdrawals in this update

► Withdrawn product(s)
  None
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Burst Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<tr>
<td>m3-7Y30</td>
<td>2</td>
<td>4</td>
<td>1.0 GHz</td>
<td>2.6 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
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<td>i5-7Y54</td>
<td>4</td>
<td>4</td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
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<tr>
<td>Celeron N4100</td>
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<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
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<tr>
<td>Pentium Silver N5000</td>
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<td>2.7 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
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### Graphics
- Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display.
- Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset
- Intel SoC (System on Chip) platform

### Memory
- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

### Display
- Size: 11.6" HD (1366x768)
- Type: TN
- Brightness: 250 nits
- Aspect Ratio: 16:9
- Contrast Ratio: 400:1 or 500:1
- Color Gamut: 45% NTSC
- Viewing Angle: 170°

### Storage
- eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

### Optical
- None

### Ethernet
- Realtek RTL8111GUS Gigabit Network Connection

### WLAN + Bluetooth™
- One of the following, configurable by model:
  - Intel Wireless-AC 8260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card (US only)

### WWAN
- None

### Dimensions
- WxDxH: 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm
- Weight: Starting at 2.99 lb / 1.36 kg
- Case color: Black
- Case material: Display cover: PC/ABS+GF;
  Bottom: PC/ABS plastic

### Media reader
- MicroSD card reader

### Ports
- Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole

### Camera
- HD720p camera, fixed focus

### Audio support
- HD Audio, Realtek ALC3287 codec, stereo speakers, 2W x 2, Dolby Audio™, mono digital microphone, combo audio/micophone jack

### Keyboard
- 6-row, spill-resistant, multimedia Fn keys

### Touchpad
- Buttonless Mylar surface touchpad below keyboard, multi-touch

### Security
- Power-on password, supervisor password, security keyhole

### Battery
- Integrated Li-ion 42Wh battery
- Max battery life: MobileMark® 2014: 13.9 hr

### AC adapter
- 45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

### Operating system
- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro in S mode

### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

### Environment
- EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant

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Note: The specifications above may not be available in all regions.

Lenovo
December 2019
## ThinkPad Yoga 11e (5th Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Burst Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<tr>
<td>m3-7Y30</td>
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<td>2.6 GHz</td>
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<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
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<td>5Y54</td>
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<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
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<td>Celeron N4100</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
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<td>4MB</td>
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**Processor**

- 7th Generation Intel Core™ m / i5 Processor, Intel Celeron processor, or Intel Pentium® Silver processor

**Supported Graphics**

- Intel HD Graphics 615, Intel UHD Graphics 600 or 605

**Chipset**

- Intel SoC (System on Chip) platform

**Memory**

- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

**Display**

- **Dimensions**
  - WxDxH: 11.81" x 8.27" x 0.89"; 300mm x 210mm x 22.5mm
  - Weight: From 3.4 lb / 1.54kg

**Chipset**

- Intel SoC (System on Chip) platform

**Memory**

- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

**Display**

- 11.6" (295mm) HD (1366x768), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, Corning® Gorilla® Glass

**MultiTouch**

- Capacitive-type multi-touch, supports 10 fingers

**Hinge**

- Yoga hinge, 360 degree

**Convertible mode**

- Laptop, tent, stand and tablet

**Pen**

- Optional: ThinkPad Pen Pro, batteries required, on-board garage

**Storage**

- eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

**Optical**

- None

**Ethernet**

- Realtek RTL8111GUS-CG Gigabit Network Connection

**WLAN**

- One of the following, configurable by model:
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter

**Bluetooth**

- None

**WWAN**

- None

**Media reader**

- MicroSD card reader

**Ports**

- Two USB 3.1 Type-C GEN 1, one USB 3.1 Type-C GEN 1 (with the function of Power Delivery and DisplayPort), HDMI1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole

**Control buttons**

- Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Camera**

- One of the following, configurable by model:
  - 720p: HD720p resolution, low light sensitive, fixed focus
  - World facing: Rear camera, 5MP resolution, auto focus

**Audio support**

- HD Audio, Realtek® ALC3287 codec Dolby Audio™/ stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack

**Keyboard**

- 6-row, multimedia Fn keys

**UltraNav™**

- Two buttons click pad below keyboard, multi-touch

**Security chip**

- Power-on password, hard disk password, supervisor password, security keyhole

**System Mgt (opt)**

- Discrete TPM 2.0, TCG Certified

**Fingerprint reader**

- None

**Battery**

- Integrated Li-ion 42Wh battery

**Max battery life**

- MobileMark® 2014: 12 hrs

**AC adapter**

- 45W or 65W slim tip AC adapter or USB Type-C AC adapter

**Preload**

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro in S mode

**Limited warranty**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year depot repair service

**Mil-Spec test**

- MIL-STD-810G military testing

**Environment**

- EPEAT™ Gold; ENERGY STAR™ 6.1; RoHS-compliant

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**December 2019**

**Lenovo**
## ThinkPad E14 Platform Specifications

**Processor**

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<th># of Threads</th>
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<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<td>i5-10210U</td>
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<td>12MB</td>
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</table>

**Graphics**

- Integrated Graphics
- Discrete Graphics (Memory)
- Intel UHD Graphics
- AMD Radeon 625 (2GB GDDR5)
- AMD Radeon RX 640 Graphics (2GB GDDR5)

- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays;
- Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

**Chipset Memory**

Intel SoC (System on Chip) platform

- Intel max / 2666MHz DDR4, one DDR4 SO-DIMM socket

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
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<td>14.0&quot; FHD</td>
<td>(1920x1080)</td>
<td>250 nits</td>
<td>16.9</td>
<td>700:1</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Storage**

- Up to two drives (one M.2 SSD and one HDD)
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optical**

None

**Ethernet**

Gigabit Ethernet Connection, Realtek 8111GS

**WLAN + Bluetooth**

- One of the following, configurable by model:
  - Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

**WWAN**

None

**SIM card**

None

**Camera**

HD720p camera with optional ThinkShutter camera privacy, fixed focus

**Audio support**

HD Audio, Synaptic® CX11880 codec / stereo speakers, 2x2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

**Keyboard**

6-row, spill-resistant, multimedia Fn keys; optional LED backlight

**UltraNav™**

TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security**

Power-on password, hard disk password, supervisor password, security keyhole

**Security chip**

Integrated model: discrete TPM 2.0, TCG Certified

Discrete model: firmware TPM 2.0 integrated in chipset

**Battery**

Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max battery life**

MobileMark® 2014: 12.8 hr

*Battery life varies significantly with settings, usage, & other factors

**Operating system**

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode
- No OS

**Limited warranty**

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service

**Mil-Spec test**

MIL-STD-810G military testing (by the end of Dec. 2019)

**Environment**

EPEAT Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.
### ThinkPad E15 Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i7-10510U</td>
<td>6</td>
<td>12</td>
<td>1.8 GHz</td>
<td>4.9 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i7-10710U</td>
<td>6</td>
<td>12</td>
<td>1.1 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

**Graphics**

- Integrated Graphics: Intel UHD Graphics
- Discrete Graphics (Memory): AMD Radeon 652 (2GB GDDR5)
- AMD Radeon RX 640 Graphics (2GB GDDR5)

**Chipset**

- Intel SoC (System on Chip) platform
- 16GB max / 2666MHz DDR4, one DDR4 SO-DIMM socket

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; FHD (1920x1080)</td>
<td>TN Anti-glare</td>
<td>220 nits</td>
<td>16.9</td>
<td>400:1</td>
<td>90°</td>
<td></td>
</tr>
<tr>
<td>15.6&quot; FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits</td>
<td>16.9</td>
<td>700:1</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

**Multi-touch**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

**Storage**

- Up to two drives (one M.2 SSD and one HDD)
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage
- M.2 2280, PCIe NVMe 3.0 x 4

**Optical**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

**Ethernet**

- Gigabit Ethernet Connection, Realtek RTL8111GUS

**WLAN + Bluetooth™**

- Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

**WWAN**

- None

**SIM card**

- None

**Dimensions**

- WxDxH: 14.49" x 9.65" x 0.74"; 368mm x 245mm x 18.9mm

**Weight**

- Starting at 4.3 lb / 1.9 kg

**Case color**

- Black or silver

**Case material**

- Cover: Aluminum; Bottom: PC/ABS plastic

**Camera**

- HD720p camera with optional ThinkShutter camera privacy, fixed focus

**Audio support**

- HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio
- dual array microphone, headphone / microphone combo jack

**Keyboard**

- 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight

**UltraNav™**

- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security chip**

- Power-on password, hard disk password, supervisor password, optional keyhole

**Operating system**

- Windows 10 Pro in S mode
- Windows 10 Pro 64
- Windows 10 Pro in S mode

**Fingerprint reader**

- Optional: Touch style fingerprint reader on power button

**Battery**

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

**Max battery life**

- 12.2 hr

**AC adapter**

- 45W or 65W USB Type-C adapter

**Display port**

- Windows 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

**Limited warranty**

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service

**Environment**

- MIL-STD-810G MIL-Spec test, EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.

**Lenovo December 2019**
| Processor 7th Generation Intel® Core™ i3 / i5 Processor (i3-7130U is NOT available in US and EMEA) or Processor 8th Generation Intel Core i3 / i5 / i7 Processor | Dimensions | Weight | Case color | Case material | Smart card reader | Media reader | Ports | Graphics Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | Chipset Memory | Display | Multi-touch | Storage | Optane™ memory | Ethernet | WLAN | Bluetooth™ | WWAN | SIM card |
|-----------------------------------------------|---------------|---------|------------|---------------|-----------------|-----------------|--------|-----------------------------------------------|------------------------|-----------------|--------------------------|-----------------|---------|---------------|-----------------|---------------|-------|----------------|----------------------|---------------|
| 3-7020U | 2 | 4 | 2.3 GHz - 3.5 GHz | 3MB | 4MB | DDR4-2133 | Intel SoC (System on Chip) platform | 12.96" x 9.53" x 0.78" | 329mm x 242mm x 19.9mm | 12.96" x 9.53" x 0.83" | 329mm x 242mm x 21.9mm | 3.87 lb / 1.75kg | Black or silver | Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic | None | None |
| 3-7130U | 4 | 4 | 2.7 GHz - 3.0 GHz | 3MB | 4MB | DDR4-2133 | Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | 14.0" (355mm) HD (1366x768), anti-glare, LED backlight | Maximum resolution: 1920x1080 (HDMI)@60Hz | None | None | None | None | None | None |
| 3-7200U | 2 | 4 | 2.5 GHz - 3.1 GHz | 3MB | 4MB | DDR4-2133 | Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | System clocks down for processors with lower memory controller | None | None | None | None | None | None |
| 3-8130U | 2 | 4 | 2.2 GHz - 3.0 GHz | 3MB | 6MB | DDR4-2400 | Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio | Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio | None | None | None | None | None |
| 3-8550U | 4 | 4 | 1.6 GHz - 3.7 GHz | 3MB | 6MB | DDR4-2400 | Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio | None | None | None | None | None | None |
| 5-6500U | 2 | 4 | 1.6 GHz - 3.0 GHz | 3MB | 4MB | DDR4-2400 | Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio | None | None | None | None | None | None |
| 5-7200U | 2 | 4 | 1.8 GHz - 3.0 GHz | 3MB | 4MB | DDR4-2400 | Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display | Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio | None | None | None | None | None | None |

Note: The specifications above may not be available in all regions.

Lenovo August 2019
### ThinkPad E490 Platform Specifications

#### Processor
- **8th Generation Intel® Core™ i3 / i5 / i7 Processor**
  - Processor Number: i3-8145U, i5-8265U, i5-8365U, i7-8565U
  - **# of Cores**
    - 2
  - **# of Threads**
    - 4
  - **Base Frequency**
    - 2.1 GHz
  - **Max Turbo Frequency**
    - 3.9 GHz
  - **Max Turbo Frequency**
    - 1.6 GHz
  - **Max Turbo Frequency**
    - 4.1 GHz
  - **Max Turbo Frequency**
    - 1.8 GHz
  - **Cache**
    - 4MB, 6MB, 6MB
  - **Memory Types**
    - DDR4-2400
  - **Memory Graphics**
    - Intel UHD Graphics 620
  - **Processor Graphics**
    - Intel UHD Graphics 620

### Graphics
- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C;
- Supports Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset
- **Intel SoC (System on Chip) platform**
- Supports: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display
- **Size / Resolution**
  - 14.0" FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch
  - 14.0" FHD (1920x1080) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch

### Multi-touch
- **Surface**
  - Anti-glare TN
  - Anti-glare IPS

### Storage
- **Up to two drives (one M.2 SSD and one HDD)**
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System<sup>TM</sup>
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Memory
- **Optane™ memory**
  - Optional: 16GB Optane

### Optical
- **Optical**
  - None

### Ethernet
- **Gigabit Ethernet Connection, Realtek R8111GUS**

### WLAN + Bluetooth<sup>TM</sup>
- **One of the following, configurable by model:**
  - Realtek<sup>®</sup> RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WWAN
- None

### SIM card
- None

### Camera
- **HD720p camera, fixed focus**

### Audio support
- **HD Audio, Synaptic<sup>®</sup> CX11880 codec**
  - Stereo speakers, 1.5W x 2, Dolby<sup>®</sup> Advanced Audio
  - Dual array microphone, headphone / microphone combo jack

### Keyboard
- **6-row, spill-resistant, multimedia Fn keys, optional LED backlight**
  - TrackPoint<sup>™</sup> pointing device and buttonless Mylar surface multi-touch touchpad

### UltrNav<sup>™</sup>
- **Option:** Touch style fingerprint reader on the palm rest

### System Mgt
- **Fingerprint reader**
  - None

### Security chip
- **Integrated model:**
  - Discrete model: firmware TPM 2.0 integrated in chipset

### Battery
- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- **Max battery life**
  - MobileMark<sup>®</sup> 2014: 13 hr

### AC adapter
- **45W or 65W USB Type-C AC adapter**

### Operating system
- **Optional:** Windows<sup>®</sup> 10 Home or Windows 10 Pro

### Limited warranty
- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service
  - 1-year limited onsite service

### Mil-Spec test
- MIL-STD-810G military testing

### Environment
- EPEAT<sup>™</sup> Silver; ENERGY STAR<sup>®</sup> 7.1; RoHS-compliant

---

*Note: The specifications above may not be available in all regions.*
### ThinkPad E490s Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td>Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>1.8 GHz</td>
<td>4.5 GHz</td>
<td>1.8 GHz</td>
<td>4.5 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td>Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</td>
</tr>
</tbody>
</table>

**Chipset**

- Intel SoC (System on Chip) platform
- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*

**Display**

- **Size / Resolution**: 14.0" FHD (1920x1080) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch
- **Size / Resolution**: 14.0" FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch

**Storage**

- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - *Installed M.2 2280 SSD is PCIe 3x2 but run at PCIe 3x2 due to M.2 SSD adapter limitation*

**Optical**

- **Battery**: Integrated Li-ion 42Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- **Max battery life**: MobileMark 2014: 11.5 hr
- **AC adapter**: 45W or 65W USB Type-C AC adapter

**WWAN**

- **SIM card**: None
- **Operating system**: Optional: Windows® 10 Home 64 or Windows 10 Pro 64

**Note**: The specifications above may not be available in all regions.

**Lenovo September 2019**
## ThinkPad E495 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 3200U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>1MB L2/4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 3 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2/4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td>4</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2/4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 10 Graphics</td>
</tr>
</tbody>
</table>

### Graphics

- AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports dual independent displays;
- Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

### Chipset 

- AMD SoC (System on Chip) platform

### Memory

- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation*

### Display

<table>
<thead>
<tr>
<th>Size / Resolution</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Viewing Angle</th>
<th>Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; HD (1366x768)</td>
<td>Anti-glare</td>
<td>TN</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>Anti-glare</td>
<td>IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>600:1</td>
</tr>
</tbody>
</table>

### Storage

- Up to two drives (one M.2 SSD and one HDD)
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - None

### Optical

- None

### Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

### WLAN + Bluetooth™

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WWAN

- SIM card
  - None

### Dimensions

- Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm
- Weight: PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm
- Starting at 3.87 lb / 1.75 kg
- Case color: Black
- Case material: Aluminum or PC/ABS plastic;
  - Bottom: PC/ABS plastic

### Features

- Smart card reader: None
- Media reader: None
- Chipset: AMD SoC (System on Chip) platform
- Memory: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation*
- Display: None
- Multi-touch: None
- Camera: HD720p camera, fixed focus
- Audio support: HD Audio, Synaptic CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
- Keyboard: 6-row, spill-resistant, multimedia Fn keys
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
- Security chip: Power-on password, hard disk password, supervisor password, security keyhole
- Fingerprint reader: None
- Battery: Discrete TPM 2.0, TCG Certified
- AC adapter: 45W or 65W USB Type-C AC adapter
- Operating system: Optional: Windows® 10 Home 64 or Windows 10 Pro 64
- Limited warranty:
  - 1-year mail-in repair service
  - 1-year depot repair service
- Mil-Spec test: MIL-STD-810G military testing
- EPEAT® Silver: ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th Generation Intel® Core™ i3 / i5 Processor</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7th Generation Intel® Core™ i3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7th Generation Intel® Core™ i3-8130U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7th Generation Intel® Core™ i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UH Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display.
- Max resolution: 1920x1080 (HDMI) @ 60Hz

### Chipset

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- System clocks down for processors with lower memory controller

### Display

- Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio

### Storage

- Up to 2 drives (one M.2 SSD and one HDD)
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradeable, Active Protection System™
- Some: M.2 SSD / PCIe NVMe

### Optane™ memory

- Optional: Intel Optane memory, PCle NVMe, PCle 3.0 x 2

### Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

### MI-Opt test

- MIL-STD-810G military testing

### Environment

- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Memory Graphics</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
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<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>Intel UHD Graphics 620</td>
<td></td>
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</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>Intel UHD Graphics 620</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specifications Reference (PSREF)**

Note: The specifications above may not be available in all regions. Lenovo

August 2019

### Graphics

Intel UHD Graphics 620 in processor only or
Intel UHD Graphics 620 in processor and
AMD Radeon RX 550X Graphics, 2GB GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
supports dual independent display;
Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

15.6" HD (1366x768) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch
15.6" FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch

### Storage

Up to two drives (one M.2 SSD and one HDD):
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

### Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

### Optical

None

### Ethernet

Gigabit Ethernet Connection, Realtek 8111GS

### WLAN + Bluetooth™

One of the following, configurable by model:
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WWAN

None

### SIM card

None

### Dimensions

| WxDxH: | 14.53" x 9.94" x 0.78"; | 369mm x 252.5mm x 19.9mm |

### Weight

Starting at 4.68 lb / 2.12 kg

### Case color

Black or silver

### Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

### Smart card reader

None

### Media reader

MicroSD card reader

### Ports

One USB 2.0, two USB 3.1 Gen 1 (one Always On),
one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort),
HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack,
microSD card reader, security keyhole

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Monitor cable

Bundled Accy

### Camera

HD720p camera, fixed focus

### Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone, headphone / microphone combo jack

### Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight
TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Security

Power-on password, hard disk password, supervisor password, security keyhole
Integrated model: discrete TPM 2.0, TCG Certified
Discrete model: firmware TPM 2.0 integrated in chipset

### System Mgt

None

### Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

### Security chip

Integrated model: discrete TPM 2.0, TCG Certified
Discrete model: firmware TPM 2.0 integrated in chipset

### Battery

Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life

MobileMark® 2014: 11 hr

* Battery life varies significantly with settings, usage, & other factors

### AC adapter

45W or 65W USB Type-C AC adapter

### Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- 1-year mail-in repair service
- 1-year depot repair service

### Mil-Spec test

MIL-STD-810G military testing

### Environment

EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

August 2019
## ThinkPad E595 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 3200U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>1MB L2/4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 3 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2/4MB L3</td>
<td></td>
<td>Radeon Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td>8</td>
<td>16</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2/4MB L3</td>
<td></td>
<td>Radeon RX Vega 10 Graphics</td>
</tr>
</tbody>
</table>

### Graphics

- AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor;
- supports external digital monitor via HDMI or USB Type-C;
- supports dual independent display;
- Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

### Chipset

- AMD SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation

### Memory

- Optional: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Display

<table>
<thead>
<tr>
<th>Size / Resolution</th>
<th>Surface Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
<th>Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6” HD (1366x768)</td>
<td>Anti-glare TN</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>90°</td>
<td>Non-touch</td>
</tr>
<tr>
<td>15.6” FHD (1920x1080)</td>
<td>Anti-glare IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>600:1</td>
<td>170°</td>
<td>Non-touch</td>
</tr>
</tbody>
</table>

### Multi-touch

- None

### Storage

- Up to two drives (one M.2 SSD and one HDD)
  - HDD / SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™
  - M.2 2242 SSD / PCIe NVMe, PCie 3.0 x 2 or PCie 3.0 x 4
  - M.2 2280 SSD / PCIe NVMe, PCie 3.0 x 4
  - None

### Optical

- Gigabit Ethernet Connection, Realtek R8111GUS

### Ethernet

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

### WLAN + Bluetooth™

### WWAN

- None

### SIM card

- None

### Camera

- HD720p camera, fixed focus

### Audio support

- HD Audio, Dynapic® CX11880 codec /
- stereo speakers, 2W x 2, Dolby® Advanced Audio /
- dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys

### Security chip

- Power-on password, hard disk password, supervisor password, security keyhole

### Security

- Discrete TPM 2.0, TCG Certified

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Limited warranty

- 1-year mail-in repair service
- 1-year depot repair service

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year mail-in repair service
  - 1-year depot repair service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant
<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4 MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>8 MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-10510U</td>
<td>8</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.9 GHz</td>
<td>8 MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Graphics**
- Intel UHD Graphics in processor;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**
- Intel SoC (System on Chip) platform

**Memory**
- 4GB, 8GB, or 16GB / 2666MHz DDR4 / soldered to system board, no sockets

**Display**
- **Size:**
  - 13.3" HD (1366x768)
  - 13.3" FHD (1920x1080)
- **Resolution:**
  - HD: 1366x768
  - FHD: 1920x1080
- **Surface:**
  - Anti-glare
- **Type:**
  - TN (non-touch)
  - IPS (multi-touch)
- **Brightness:**
  - 250 nits
  - 300 nits
- **Aspect Ratio:**
  - 16:9
  - 16:9
- **Contrast Ratio:**
  - 500:1 (non-touch)
  - 800:1 (non-touch)
  - 700:1 (multi-touch)
- **Viewing Angle:**
  - 90°
  - 160°

**Multi-touch**
- On-cell touch, supports 10-finger gesture (FHD only)

**Storage**
- One of the following, configurable by model:
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
  - None

**Optical**
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro), RJ45 connector via optional ThinkPad Ethernet Extension Adapter Gen 2 or Lenovo USB-C to Ethernet Adapter

**Ethernet**
- RJ45 connector via optional ThinkPad Ethernet Extension Adapter Gen 2 or Lenovo USB-C to Ethernet Adapter

**WLAN + Bluetooth™**
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

**WWAN**
- None

**Dimensions**
- WXDXH: 12.26" x 8.62" x 0.69"; 311.5mm x 219mm x 17.6mm

**Weight**
- Starting at 3.06 lb / 1.38 kg

**Case color**
- Black or Silver

**Case material**
- Display cover: Aluminum
- Bottom: GFRP

**Port**
- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Camera**
- One of the following, configurable by model:
  - HD 720p camera with ThinkShutter camera privacy, fixed focus
  - HD 720p camera with ThinkShutter camera privacy, fixed focus

**Audio support**
- HD Audio, Synaptic CX11880 codec / stereo speakers, 2W x 2, Dolby Audio™ Premium / dual array microphone, headphone / microphone combo jack

**Battery**
- Integrated Li-ion 46Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max battery life**
- MobileMark 2014: 14.1 hr
- *Battery life varies significantly with settings, usage, & other factors*

**Operating system**
- Windows 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

**Limited warranty**
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

**Environment**
- EPEAT Silver; ENERGY STAR® 7.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.

Lenovo December 2019
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-10110U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>4.1 GHz</td>
<td>4MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-10510U</td>
<td>8</td>
<td></td>
<td>1.8 GHz</td>
<td>4.9 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics in processor;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C);
  4096x2160@30Hz (HDMI)

### Chipset Memory

- Intel SoC (System on Chip) platform
- 4GB, 8GB, or 16GB / 2666MHz DDR4 / soldered to system board, no sockets

### Display

- **Size**: 13.3" FHD (1920x1080) IPS
- **Resolution**: 1920x1080
- **Type**: Anti-reflection (AR)
- **Surface**: Yoga hinge, 360 degree
- **Weight**: Starting at 3.17lb / 1.43kg
- **Dimensions**: 12.26" x 8.62" x 0.69"; 311.5mm x 219mm x 17.6mm

### Smart card reader

- Optional: Smart card reader
- MicroSD card reader

### Media reader

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole
- Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Monitor cable

- (optional)
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to DisplayPort Adapter

### Bundled Accessories

- (optional)
- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m
- Lenovo USB-C to Ethernet Adapter
- ThinkPad Ethernet Extension Adapter Gen 2

### Camera

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - World facing camera, 5MP resolution, auto focus (fingerprint model only)
  - HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Audio support

- UltraNav™
- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

### Security chip

- Security chip
- Security chip System Mgt (opt)
- Intel vPro Technology

### Battery

- Integrated Li-ion 46Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### AC adapter

- 45W, 65W, or 65W slim USB-C AC adapter

### Light sensor

- G-sensor
- Gyroscope

### Display cover

- Magnesium / Aluminum
- Bottom: GFRP

### Operating system

- (optional)
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

### Limited warranty

- (optional)
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 3-year/1-year battery depot repair service
- 3-year/1-year battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver, ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

December 2019
### ThinkPad L380 Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 3965U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td></td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td></td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>4</td>
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<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td></td>
<td></td>
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<td>i5-7250U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td></td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8550U</td>
<td>4</td>
<td></td>
<td>1.6 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Graphics

- Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @30Hz (HDMI)
- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
  - None

#### Chipset

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller

#### Display

<table>
<thead>
<tr>
<th>Multi-touch (opt)</th>
<th>on-cell touch, supports 10-finger gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>One of the following, configurable by model:</td>
</tr>
<tr>
<td>Optical</td>
<td>M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)</td>
</tr>
<tr>
<td>Ethernet</td>
<td>M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

#### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

#### Mil-Spec test

- MIL-STD-810G military testing

#### Environment

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

**Note:** The specifications above may not be available in all regions.
### ThinkPad L380 Yoga Platform Specifications

#### 7th Generation Intel® Core™ i3 / i5 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i3-7130U</td>
<td>4</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td></td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

#### 8th Generation Intel® Core™ i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics
- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset
- Intel SoC (System on Chip) platform
- Up to 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller

#### Display
- 13.3" (338mm) FHD (1920x1080), LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, AR (anti-reflection), supports 10-finger gesture
- Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture
- Yoga hinge, 360 degree

#### Convert-mode Pen
- Laptop, tent, stand, yoga and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

#### Storage
- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe x4 x 4, 32GB/s (e.g. xxxGB SSD M.2 PCIe NVMe)

#### Optical
- None

#### Ethernet
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via optional ThinkPad Ethernet Extension Cable

#### WLAN + Bluetooth™
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Wireless card supports BT4.2 but is limited to BT4.1 by Windows OS

#### WWAN
- None

#### SIM card
- None

#### Processor
- **i3-7130U**
  - Processor Number: i3-7130U
  - Base Frequency: 2.2 GHz
  - Max Turbo Frequency: 3.4 GHz
  - # of Cores: 4
  - # of Threads: 4
  - Cache: 4MB

#### Memory
- DDR4-2133

#### Graphics
- Intel HD Graphics 620

#### Processor Number
- i3-7020U
- i3-7130U
- i5-7200U
- i3-8130U
- i5-8250U
- i5-8350U
- i7-8550U

#### Frequency
- Base Frequency
- Max Turbo Frequency
- Cache

#### Memory Types
- DDR4-2133

#### Processor Graphics
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620
- Intel HD Graphics 620

#### Dimensions
- WxDxH: 12.67" x 8.82" x 0.74"; 322mm x 224.2mm x 18.8mm

#### Weight
- Starting at 3.44 lb / 1.56 kg

#### Case color
- Black or Silver

#### Display cover
- Aluminum

#### Media reader
- MicroSD card reader

#### Operating system
- Windows 10 Home 64 or Windows 10 Pro 64

#### Max battery life
- 12.85 hrs

#### Battery life
- MobileMark® 2014: 12.85 hrs
- * Battery life varies significantly with settings, usage, & other factors

#### AC adapter
- 45W or 65W USB Type-C AC adapter

#### Power-on password
- Intel vPro Technology

#### Security chip
- Discrete TPM 2.0, TCG Certified

#### Security
- Power-on password, hard disk password, supervisor password, security keyhole

#### Security chip
- Intel vPro Technology

#### System Mgt (optional)
- Discrete TPM 2.0, TCG Certified

#### Fingerprint reader
- Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology

#### NFC (optional)
- Near Field Communication

#### PU (optional)
- None

#### Fingerprint reader
- Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology

#### Audio support
- HD Audio, Realtek ALC3287 codec, Dolby® Advance / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

#### Keyboard
- 6-row, multimedia Fn keys, optional LED backlight

#### Finger support
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

#### Ultrastar™
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

#### Operating system
- Windows 10 Home 64 or Windows 10 Pro 64

#### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery depot onsite service

#### Environment
- EPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant

#### Lenovo
- December 2019
## ThinkPad L390 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th>4305U</th>
<th>8145U</th>
<th>8265U</th>
<th>8565U</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Cores</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td># of Threads</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Frequency</td>
<td>2.2 GHz</td>
<td>2.1 GHz</td>
<td>1.6 GHz</td>
<td>1.6 GHz</td>
</tr>
<tr>
<td>Max Turbo Frequency</td>
<td></td>
<td>3.9 GHz</td>
<td>3.9 GHz</td>
<td>4.1 GHz</td>
</tr>
<tr>
<td>Cache</td>
<td>2MB</td>
<td>4MB</td>
<td>6MB</td>
<td>6MB</td>
</tr>
<tr>
<td>Memory Types</td>
<td>DDR4-2133</td>
<td>DDR4-2400</td>
<td>DDR4-2400</td>
<td>DDR4-2400</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 610 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

- **13.3'' HD (1366x768)**
  - Anti-glare TN
  - 250 nits
  - 16:9
  - 500:1
  - 90°
- **13.3'' FHD (1920x1080)**
  - Anti-glare IPS
  - 250 nits
  - 16:9
  - 700:1 (non-touch)
  - 800:1 (multi-touch)
  - 170°

### Storage

- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
- M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

### WLAN

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN

- None

### SIM card

- None

### Bluetooth

- Intel vPro Technology

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified

### Security chip

- Intel vPro Technology
- Fingerprint reader: Optional: Touch style fingerprint reader on the palm rest
- Near Field Communication
- Security
- Battery: Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Battery life varies significantly with settings, usage, & other factors
- AC adapter: 45W or 65W USB Type-C AC adapter
- MobileMark® 2014: 14.61 hr

### Operating system

- Optional: Windows® 10 Home 64 or Windows® 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 1-year limited onsite service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

### Dimensions

- WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm

### Weight

- Starting at 3.22 lb / 1.46 kg

### Case color

- Black or Silver

### Case material

- Display cover: Aluminum
- Bottom: GFRP

Note: The specifications above may not be available in all regions.
## ThinkPad L390 Yoga Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor</th>
<th>8th Generation Intel® Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>i3-8145U</td>
<td>2</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
</tr>
</tbody>
</table>

*Note: The specifications above may not be available in all regions. Lenovo December 2019*

### Graphics
- Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

### Chipset
- Intel SoC (System on Chip) platform

### Memory
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display
- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 2
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4
- None

### Optical
- None

### Ethernet
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

### WLAN Bluetooth™
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN
- None

### SIM card
- None

### Dimensions
- WxDxH: 12.67” x 8.83” x 0.74”; 321.8mm x 224.2mm x 18.8mm

### Weight
- Starting at 3.44 lbs / 1.56 kg

### Case color
- Black or Silver

### Case material
- Bottom: Magnesium / Aluminum

### Smart card reader
- None

### Media reader
- MicroSD card reader

### Ports
- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole

### Monitor cable (optional)
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Bundled Accessories (optional)
- Lenovo USB-C to VGA plus Power Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to HDMI plus Power Adapter
- Lenovo USB-C to DisplayPort Adapter
- Lenovo USB-C to Ethernet Adapter
- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m

### Camera
- One of the following, configurable by model:
  - HD720p camera, fixed focus
  - IR camera and HD720p camera, fixed focus (black model only)
  - World facing camera, 5MP resolution, auto focus
  - (mutually exclusive with fingerprint reader)
- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Audio support
- One of the following, configurable by model:
  - Lenovo USB-C to USB-C Cable
  - Lenovo USB-C to USB-A Adapter
  - Lenovo USB-C to Ethernet Adapter
  - Lenovo USB-C to DisplayPort Adapter
  - Lenovo USB-C to HDMI Adapter
  - Lenovo USB-C to USB-C Cable 2m

### Security chip
- System Mgt (opt): Intel vPro Technology

### Finger print reader (optional)
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

### Security
- Power-on password, hard disk password, supervisor password, security keyhole

### Security chip
- Support Intel vPro Technology

### Battery
- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life
- MobileMark® 2014: 12.17 hr
- 45W or 65W USB-C AC adapter

### Operating system
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Limited warranty
- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Mil-Spec test
- MIL-STD-810G military testing

### Environment
- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

**Lenovo December 2019**
## ThinkPad L480 Platform Specifications

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th>Core(s)</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron®</td>
<td>4</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>Intel® Core™ i3</td>
<td>2</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>Intel® Core™ i5</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>Intel® Core™ i7</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>Intel® Core™ i3</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

* 3-7130U is NOT available in US and EMEA

8th Generation Intel Core™ i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th>Core(s)</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron®</td>
<td>4</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
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<td>Intel® Core™ i3</td>
<td>2</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>Intel® Core™ i5</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
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<td>Intel® Core™ i5</td>
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<td>Intel HD Graphics 620</td>
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<tr>
<td>Intel® Core™ i7</td>
<td>4</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
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<tr>
<td>Intel® Core™ i3</td>
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<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 610 / 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB DDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)
- Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
- Integrated Mobile Broadband LTE-A, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, M.2 card

### Chipset

- Intel® SoC (System on Chip) platform
- Intel Ethernet Connection I219-V (Jacksonville)
- Intel® vPro Technology

### Display

**Some:**
- 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

**Some:**
- 14.0" (355mm) HD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 170° viewing angle

### Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WiFi + Bluetooth™ (optional)

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only)
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)

### SIM card (optional)

- * For non-WWAN model, it means the model is NOT WWAN upgradable
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Monitor cable (optional)

- USB-C to VGA: Lenovo USB-C to VGA Adapter

### Camera (optional)

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint™ pointing device and buttonless Mylar surface multi-touch touchpad

### Audio

- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- Integrate Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology

### NFC (optional)

- Near Field Communication

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### System

- Windows® 10 Home 64 or Windows 10 Pro 64

### Warranty

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Note: The specifications above may not be available in all regions.
ThinkPad L490 Platform Specifications

Product Specifications Reference (PSREF)

Processor Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 4305U</td>
<td>2</td>
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<td></td>
<td>2MB DDR4-2133</td>
<td>Intel UHD Graphics 610</td>
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</tr>
<tr>
<td>3-8145U</td>
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<td>3.9 GHz</td>
<td>4MB DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>5-8265U</td>
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<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
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<tr>
<td>5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
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<tr>
<td>7-8565U</td>
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<td>8MB</td>
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<td>7-8665U</td>
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<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphics Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

Chipset Intel SoC (System on Chip) platform

WLAN + (optional) One of the following, configurable by model:
- Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA)
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

Optane™ memory M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Optical None

Display 14.0” HD (1366x768) TN Anti-glare 220 nits 16:9 500:1 45° 90°
14.0” FHD (1920x1080) IPS Anti-glare 250 nits 16:9 8001 45° 170°

Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)

Storage • HDD / SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™
• SSD / SATA 6.0Gb/s, 2.5” wide, 7mm high
• M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
• M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Optane™ memory None

Ethernet Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WWAN (optional) One of the following, configurable by model:
- Wireless WAN upgradeable (special bid only in EMEA)
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  * For non-WWAN model, it means the model is NOT WWAN upgradeable

SIM card None

Dimensions WxDxH: 13.19” x 9.25” x 0.89”; 335mm x 235mm x 22.5mm

Weight Starting at 3.72 lb / 1.69 kg

Case color Black

Case material PC/ABS plastic

Camera (optional) One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2. Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life MobileMark® 2014: 12 hr

Operating system Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty One of the following, configurable by model:
- 1-year depot repair service
- 3-year/1-yr battery depot repair service

.environment EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo October 2019
ThinkPad L580 Platform Specifications

**Processor Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Type</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 3965U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>3-7020U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>5-7200U</td>
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<td>8</td>
<td>2.5 GHz</td>
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<td>3MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>5-7300U</td>
<td>4</td>
<td>8</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
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<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

8th Generation Intel Core i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Type</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
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<td>DDR4-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

* 3-7130U is NOT available in US and EMEA

**Graphics**

- Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA);
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

**Chipset Memory**

- Intel SoC (System on Chip) platform
- Supports external display monitors via HDMI or USB Type-C;
- Supports three independent displays;
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Display**

- Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

**Multi-touch**

- None

**Storage**

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gbps
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gbps, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

**Optical**

- None

**Ethernet**

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN + Bluetooth™ (optional)**

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only)
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - Intel 8265ac card supports BT 4.2 but is limited to BT 4.1 by Windows OS

**WWAN (optional)**

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE-A
  - Intel XMM™ 7630 (Fibocom L850-GL), M.2 card
  - Intel XMM™ 7662 (Fibocom L830-EB), M.2 card
  - One of the following, configurable by model:
  - Hybrid WWAN (3G/4G)
  - SIM card (opt)
  - Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Dimensions**

- Weight: 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm
- Starting at 4.46 lb / 2 kg

**Case color**

- Black

**Case material**

- PC/ABS plastic

**Battery**

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Operating system**

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year limited onsite service

**Environment**

- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
**Processor Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 4305U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>-</td>
<td>0 MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics 610</td>
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<tr>
<td>3-8145U</td>
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<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory** (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

**Chipset Memory** Intel SoC (System on Chip) platform

*Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation*

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; HD</td>
<td>(1366x768)</td>
<td>TN</td>
<td>Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>15.6&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>45%</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Multi-touch** None

**Storage**

- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation

**Optane™ memory** None

**Optical**

- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Battery life varies significantly with settings, usage, & other factors
- Battery life: MobileMark® 2014: 12 hr

**Ethernet**

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WWAN (optional)**

- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA)
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

**WWAN (optional)**

- One of the following, configurable by model:
  - Wireless WAN upgradable (special bid only in EMEA)
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - *For non-WWAN model, it means the model is NOT WWAN upgradable*

**SIM card** None

**Note:** The specifications above may not be available in all regions.
## ThinkPad P1 Platform Specifications

### Processor
- **Processor Number**: 8th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® E Processor
- **Number of Cores**: # of Cores
- **Frequency**: Base Frequency, Max Turbo Frequency
- **Cache**: Cache
- **Memory Types**: Memory Types
- **Processor Graphics**: Intel UHD Graphics 630, Intel UHD Graphics 630

### Graphics
- **Intel UHD Graphics 630 or P630 in processor and NVIDIA® Quadro® P1000 or P2000, 4GB GDDR5 memory**;
- **supports external digital monitor via HDMI or Thunderbolt™**;
- **supports four independent displays**;
- **Max resolution**: SK@60Hz (Thunderbolt): 4K@60Hz (HDMI)

### Chipset Memory
- **Mobile Intel CM246 Chipset**
- **Memory**: 64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

### Display
- **Display resolution**: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio,
- **Some**: 15.6" (396mm) UHD (3840x2160), anti-reflection, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle,
- **Multi-touch (opt)**: Capacitive-type multi-touch, supports 10-finger gesture (4K only)

### Storage
- **Up to two M.2 SSD, supports single sided M.2 2280 drives only**
- **RAID (optional)**: RAID 0/1 support

### RAID (optional)
- **Optical**: None
- **Ethernet**: Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)

### WLAN Bluetooth™
- **Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card**
- **Bluetooth**: Bluetooth 5.0, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN™
- **None**

### Dimensions
- **WxDxH (non-touch)**: 14.24" x 9.67" x 0.72";
- **WxDxH (multi-touch)**: 14.24" x 9.67" x 0.74";

### Weight
- **Non-touch model**: starting at 3.76 lb / 1.7 kg;
- **Multi-touch model**: starting at 4.06 lb / 1.8 kg

### Case color
- **Black**

### Case material
- **Display cover**: CFRP/GFRP hybrid;
- **Bottom**: Aluminum alloy

### Note: The specifications above may not be available in all regions.

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**Lenovo November 2019**

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**Lenovo November 2019**
## ThinkPad P1 (2nd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>8</td>
<td>2.90 GHz</td>
<td>4.40 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>i7-9750H</td>
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<td>12</td>
<td>2.60 GHz</td>
<td>4.50 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i9-9880H</td>
<td>8</td>
<td>16</td>
<td>2.30 GHz</td>
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<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<td>E-2276M</td>
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<td>12</td>
<td>2.80 GHz</td>
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<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 630 in processor only or
- Intel UHD Graphics P630

### Chipset

- Mobile Intel CM246 Chipset
- Mobile Intel CM266 Chipset

### Memory

- 4GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>169</td>
<td>72% NTSC</td>
<td>170°</td>
</tr>
<tr>
<td>15.6&quot; UHD</td>
<td>(3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>169</td>
<td>72% NTSC</td>
<td>170°</td>
</tr>
<tr>
<td>15.6&quot; UHD</td>
<td>(3840x2160)</td>
<td>OLED</td>
<td>Anti-reflection</td>
<td>400 nits, HDR 3000 nits (peak)</td>
<td>169</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch (optional)

- Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), AR (anti-reflection) / AS (anti-smudge) coating

### Pen (optional)

- Lenovo Pen Pro (special bid only)

### Storage

- Up to two M.2 SSD, supports single sided M.2 2280 drives only
- M.2 2280 SSD / PCIe NVMe 3.0 x 4

### RAID (optional)

- RAID 0/1 support

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)

### WLAN (optional)

<table>
<thead>
<tr>
<th>Bluetooth 5.0 (opt)</th>
<th>Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWAN</td>
<td>None</td>
</tr>
<tr>
<td>SIM card</td>
<td>None</td>
</tr>
</tbody>
</table>

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-years/1-year battery depot repair service
  - 3-years/1-year battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

### Note:
The specifications above may not be available in all regions.
# **ThinkPad P43s Platform Specifications**

**Product Specifications Reference (PSREF)**

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel UHD Graphics 620 in processor and NVIDIA Quadro® P520, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 3840x2160 @60Hz (USB-C); 3840x2160 @30Hz (HDMI)

**Chipset Memory**

- Intel SoC (System on Chip) platform
- 8GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Multi-touch (opt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits (non-touch) 300 nits (multi-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD Low Power</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (2018)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>WQHD (2560x1440)</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

**Storage**

- Supports single sided M.2 2280 drives only
- M.2 2280 SSD / Sata 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optical**

- None

**Ethernet**

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

- One of the following, configurable by model:
  - Wireless WAN upgradable (special bid only in EMEA)
  - Integrated Mobile Broadband 4G LTE, Fibocom LB30-EH, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom LB50-G, M.2 card

**SIM card (optional)**

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

---

**Dimensions**

<table>
<thead>
<tr>
<th>Weight Models</th>
<th>FHD</th>
<th>FHD Low Power</th>
<th>WQHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.43 lb / 1.55 kg</td>
<td>3.28 lb / 1.49 kg</td>
<td>3.24 lb / 1.47 kg</td>
</tr>
</tbody>
</table>

**Camera (optional)**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional dual array far-field microphone, headphone / microphone combo jack

**Audio support**

- Stereo speakers, 2W x 2, Dolby® Audio™ Premium / UltraNav™
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security Chip System Mgt (opt)**

- Intel vPro Technology
- Security chip: Discrete TPM 2.0, TCG Certified
- Security chip: Near Field Communication

**Battery**

- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Battery life varies significantly with settings, usage, & other factors

**Operating system**

- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

**NFC (optional)**

- 65W or 65W slim USB Type-C AC adapter

**Display cover**

- PP/S / 50% GF
- Bottom: PA / 50% GF

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**Lenovo November 2019**

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**Note:** The specifications above may not be available in all regions.
# ThinkPad P51 Platform Specifications

## Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-6620HQ</td>
<td>4</td>
<td>8</td>
<td>2.7 GHz</td>
<td>3.6 GHz</td>
<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 530</td>
</tr>
<tr>
<td>E3-1505M v5</td>
<td>4</td>
<td>8</td>
<td>2.8 GHz</td>
<td>3.7 GHz</td>
<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 530</td>
</tr>
<tr>
<td>7-7700HQ</td>
<td>4</td>
<td>8</td>
<td>2.8 GHz</td>
<td>3.8 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 630</td>
</tr>
<tr>
<td>E3-1555M v6</td>
<td>4</td>
<td>8</td>
<td>2.9 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics 630</td>
</tr>
</tbody>
</table>

## Graphics

- Intel HD Graphics 530, 630, P530, or P630 in processor and NVIDIA Quadro M1200 or M2200, 4GB memory; supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 4096x2160@24Hz (HDMI)

## Chipset

- Mobile Intel CM238 Chipset
- 64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets

## Display

- Some: 15.6” (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
- Some: 15.6” (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle

## Multi-touch (opt)

- Optional: Smart card reader
- Optional: Smart card reader

## Storage

- Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only
- Some: SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™

## RAID (optional)

- Optional: Smart card reader

## Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

## WLAN

- One of the following, configurable by model:
  - Intel Dual Band Wireless-Ac 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
  - Intel Dual Band Wireless-Ac 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

## Bluetooth™

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS

## WWAN (optional)

- One of the following, configurable by model:
  - Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card

## SIM card (opt)

- Micro-SIM card slot, opt Verizon LTE (US) or Lenovo™ Connect (EMEA) SIM card

## Specifications

- Processor: 6th or 7th Generation Intel® Core™ i7 Processor or Intel Xeon® Processor E3 v5 or v6 Family
- Memory: 64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Mobile Intel CM238 Chipset)
- Chipset: Mobile Intel CM238 Chipset
- Display: 15.6” (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
- Multi-touch: Optional: Smart card reader
- Storage: Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only
- RAID: Optional: Smart card reader
- Ethernet: Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- WLAN: One of the following, configurable by model:
  - Intel Dual Band Wireless-Ac 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
  - Intel Dual Band Wireless-Ac 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Bluetooth™: Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
- WWAN (optional): One of the following, configurable by model:
  - Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
- SIM card (opt): Micro-SIM card slot, opt Verizon LTE (US) or Lenovo™ Connect (EMEA) SIM card

## Operating System

- One of the following, configurable by model:
  - Windows® 7 Professional 64
  - Windows® 10 Home 64
  - Windows® 10 Pro 64
  - Windows® 10 Pro 64 for Workstations

## Limited Warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1 yr battery limited onsite service

## Mil-Spec Test

- MIL-STD-810G military testing

## Environmental

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

November 2019
### ThinkPad P52 Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Type</th>
<th>Number of Cores</th>
<th>Core Frequency</th>
<th>Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th-8750H</td>
<td>8</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>7th-8850H</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i9-8950HK</td>
<td>12</td>
<td>2.9 GHz</td>
<td>4.8 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2176M</td>
<td>6</td>
<td>2.7 GHz</td>
<td>4.4 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

**Chipset**

- Mobile Intel CM246 Chipset
- NVIDIA Quadro P1000 (4GB memory), P2000 (4GB memory), or P3200 (6GB memory, VR ready); supports dual-channel capable, four DDR4 SO-DIMM sockets.
- Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation.
- 128GB non-ECC memory for special bid only.

**Display**

- 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 128GB non-ECC memory for special bid only.
- Capacitive-type multi-touch, supports 10-finger gesture (4K only).

**Storage**

- Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only.
- Some: M.2 SSD / PCie NVMe, PCie 3.0 x 4, 32Gb/s.
- Optional memory: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2.
- RAID (optional): RAID 0/1 support.
- Optical: None.

**Ethernet**

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card.
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter.

**WWAN (optional)**

- One of the following, configurable by model:
  - Wireless WAN upgradable

**SIM card (optional)**

- Nano-SIM card slot, optional Verizon LTE (US) SIM card.

**Camera (optional)**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

**Audio support**

- HD Audio, Realtek ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone.

**Security**

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: vPro (optional)
- Fingerprint reader: Touch style match on chip fingerprint reader on the palm rest
- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: vPro (optional)
- Fingerprint reader: Touch style match on chip fingerprint reader on the palm rest
- None
- None
- None
- None

**Battery**

- Swappable Li-ion 90Wh battery
- 170W slim tip AC adapter
- Discrete: 6.1 hr; Hybrid: 8.9 hr
- Battery life varies significantly with settings, usage, & other factors

**Dimensions**

- WxDxH: 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm
- Weight: 14.86" x 9.93" x 1.02-2.11"; 377.4mm x 252.3mm x 25.8-30.7mm
- Non-touch model: starting at 4.3 lb / 1.95kg
- Multi-touch model: starting at 4.5 lb / 2.05kg

**Media reader**

- Ports: 4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card
- Four USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole
  - * Power Delivery only supports power-out for charging peripherals
  - * Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Case material**

- Top: Black
- Bottom: Magnesium/Aluminum
- Display cover: Glass-Fiber Reinforced Plastic

**Environment**

- EPEAT Silver; ENERGY STAR® 6.1; RoHS-compliant
- MIL-STD-810G military testing

**Note:** The specifications above may not be available in all regions.
### ThinkPad P52s Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th Generation Intel® Core™ i5 / i7 Processor</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>8th Generation Intel® Core™ i5 / i7 Processor</td>
<td>8</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.8 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics

Intel UHD Graphics 620 in processor and NVIDIA Quadro® P500, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset

Intel SoC (System on Chip) platform

#### Display

- **Some:** 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 45% gamut, 170° viewing angle
- **Some:** 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

#### Storage

- **System has one HDD slot or one M.2 2280 slot exclusively for storage, and supports single sided M.2 2280 drives only**
- **Some:** HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- **Some:** SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- **Some:** M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- **Some:** 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

#### WWAN

One of the following, configurable by model:
- Wireless WAN upgradeable
- Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-E8), M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
- For non-WWAN model, it means the model is NOT WWAN upgradeable

#### SIM card (optional)

NANO-SIM card slot, optional Verizon LTE (US) SIM card

#### Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight

#### Optical Drive

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

#### Integrated Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

#### Display

Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)
supports three independent displays;
supports external digital monitor via HDMI or USB Type-C;

#### Security Chip

Security chip

#### Security Chip

Security chip

#### Smart card reader

Optional: Smart card reader

#### Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

#### Ports

Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

#### Monitor cable (optional)

USB-C to DP: Lenovo USB-C to DisplayPort Adapter

#### Camera (optional)

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

#### Audio support

HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional dual array microphone, headphone / microphone combo jack

#### Keyboards

- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
- Lenovo USB-C to DisplayPort Adapter
- Lenovo HDMI to VGA Monitor Adapter

#### Battery

Optional integrated Li-ion 32Wh battery and swappable Li-ion 24Wh, 48Wh, or 72Wh battery

#### Maximum battery life

- Models: 48Wh, 72Wh, 32Wh + 24Wh, 32Wh + 48Wh, 32Wh + 72Wh
- Max battery life: 12.2 hr, 18.5 hr, 13.5 hr, 20.1 hr, 26.3 hr

#### AC adapter

65W USB Type-C AC adapter

#### Environment

EPEAT® Silver; ENERGY STAR® 6.1; RoHS-compliant

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**Note:** The specifications above may not be available in all regions.

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Lenovo

November 2019
### ThinkPad P53 Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.3 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-9750H</td>
<td>8</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.5 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-8850H</td>
<td>8</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.6 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i9-9880H</td>
<td>8</td>
<td>16</td>
<td>2.3 GHz</td>
<td>4.8 GHz</td>
<td>16MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2276M</td>
<td>8</td>
<td>12</td>
<td>2.8 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
</tbody>
</table>

**Graphics**

- Intel UHD Graphics 630 or P630 in processor and NVIDIA® Quadro® T1000 (4GB GDDR5), T2000 (4GB GDDR5), RTX 3000 (6GB GDDR6, VR ready), RTX 4000 (8GB GDDR6, VR ready), or RTX 5000 (16GB GDDR6, VR ready); supports external digital monitor via HDMI or Thunderbolt™; supports five independent displays; Max resolution: 5K@60Hz (Thunderbolt), 4K@60Hz (USB-C or HDMI)

**Chipset**

- Mobile Intel CM246 Chipset
- 128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets

**Display**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
<td>160°</td>
<td></td>
</tr>
<tr>
<td>15.6&quot; FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>72%</td>
<td>160°</td>
<td></td>
</tr>
<tr>
<td>15.6&quot; UHD (3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>15.6&quot; UHD (3840x2160)</td>
<td>OLED</td>
<td>Anti-glare</td>
<td>SDR 400nit, HDR 500nit</td>
<td>16:9</td>
<td>100000:1</td>
<td>100% DCI-P3</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

**Multi-touch (optional)**

- Capacitive-type multi-touch, supports 10-finger gesture (UHD only), anti-reflective (AR), anti-smudge (AS) coating

**Pen (optional)**

- Lenovo Pen Pro (special bid only)

**Storage**

- Up to 3 drives (3x M.2 SSD or 1x HDD + 2x M.2 SSD), supports single sided M.2 2280 drives only
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- * HDD is only available for T1000 and T2000 graphics model

**Optane™ memory (optional)**

- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

**RAID (optional)**

- RAID 0/1/5 support

**Optical**

- None

**Ethernet**

- Non-vPro model: Intel Ethernet Connection i219-V (Jacksonville)
- vPro model: Intel Ethernet Connection i219-LM (Jacksonville)

**WLAN (optional)**

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

- One of the following, configurable by model:
  - Wireless WAN upgradeable (special bid only in EMEA)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- * For non-WWAN model, it means the model is NOT WWAN upgradeable

**SIM card (optional)**

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Dimensions**

- WxDxH (non-touch): 14.86" x 9.93" x 0.96-1.16";
  - 377.4mm x 252.3mm x 24.5-29.4mm
- WxDxH (multi-touch): 14.86" x 9.93" x 1.02-1.21";
  - 377.4mm x 252.3mm x 25.8-30.7mm

**Weight**

- Non-touch model: starting at 5.51 lb / 2.5 kg
- Multi-touch model: starting at 6.4 lb / 2.9 kg

**Case color**

- Black

**Case material**

- Display cover: Glass-Fiber Reinforced Plastic;
- Bottom: Magnesium/Niobium

**Smart card reader**

- Optional: Smart card reader

**ExpressCard**

- None

**Media reader**

- 4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card
- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader,
- 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole
- Power Delivery only supports power-out for charging peripherals
- * USB-C Dock is not supported in right-side USB-C port
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Monitor cable (optional)**

- HDMI to VGA: Lenovo HDMI-USB-C to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

**Bundled Accy (optional)**

- None

**Camera (optional)**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Dynapic™ CX11880 codec / stereo speakers, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

**Audio support**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Dynapic™ CX11880 codec / stereo speakers, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

**Keyboard**

- UltraNav™: 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight
- 3-button TrackPoint® pointing device
- 3-button Mylar surface multi-touch touchpad

**Security**

- Power-on password, hard disk password, supervisor password, security keyhole
- Intel vPro Technology
- Fingerprint reader
- Touch style match on chip fingerprint reader on the palm rest
- Color calibration
  - Optional: X-Rite Pantone factory color calibration (UHD model only)
  - Near Field Communication

**Battery**

- Integrated Li-ion 90Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- * Battery life varies significantly with settings, usage, & other factors
  - Hybrid mode: 13 hr

**AC adapter**

- 170W or 230W slim tip AC adapter

**Operating system**

- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro 64 for Workstations

**Limited warranty**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

**Mil-Spec test**

- MIL-STD-810G military testing

**Environment**

- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
November 2019
**ThinkPad P53s Platform Specifications**

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8665U</td>
<td>8</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.6GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor and NVIDIA Quadro P520, 2GB GDDR5 memory;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI).

### Chipset

- Intel SoC (System on Chip) platform
- 8GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to system board, one DDR4 SO-DIMM socket
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation.

### Display

#### Size

<table>
<thead>
<tr>
<th>Type</th>
<th>Resolution</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6&quot; FHD</td>
<td>1920x1080</td>
<td>IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>15.6&quot; UHD</td>
<td>(3840x2160)</td>
<td>IPS</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
</tbody>
</table>

#### Multi-touch (opt)

- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- Supports single sided M.2 2280 drives only
- M.2 2280 SSD / Sata 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- 10/100/1000 vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

### Bluetooth™

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable (special bid only in EMEA)
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Nano-SIM card slot, optional Verizon LTE (US) SIM card

### SIM card (opt)

- SIM card slot, optional Verizon LTE (US) SIM card

**Note:** The specifications above may not be available in all regions.

Lenovo

November 2019
## ThinkPad P72 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-8750H</td>
<td>6</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
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<tr>
<td>7-8850H</td>
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<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2176M</td>
<td>6</td>
<td>2.7 GHz</td>
<td>4.4 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>E-2186M</td>
<td>6</td>
<td>2.9 GHz</td>
<td>4.8 GHz</td>
<td>12MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro P600 (4GB memory), P2000 (4GB memory), P3200 (6GB memory), P4200 (8GB memory), or P5200 (16GB memory); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays. 

Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)

**Chipset**

Mobile Intel CM246 Chipset

**Memory**

128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets. *Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation*

**Display**

Some: 17.3" (1439mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle. 

Some: 17.3" (1439mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe gamut, 170° viewing angle.

**Multi-touch**

None

**Pen**

Supports pen accessory, please see the accessory compatibility for details

**Storage**

Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only. 

Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ 

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

**Optane™ memory**

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 

**Optical**

None

**Ethernet**

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN**

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card 

Bluetooth™

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN**

None

**SIM card**

None

**Camera (optional)**

IR camera and HD720p camera, fixed focus

**Audio support**

HD Audio, Realtek ALC3286 codec / stereo speakers, 2W x 2, Dolby Audio™ Premium / optional dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

**Keyboard**

UltraNav™ 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight 

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

**Security chip**

Discrete TPM 2.0, TCG Certified Intel vPro Technology

**Fingerprint reader**

Touch style match on chip fingerprint reader on the palm rest

**Color calibration**

None

**NFC (optional)**

Near Field Communication

**Battery**

Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max battery life**

MobileMark 2014: 16 hr

*Battery life varies significantly with settings, usage, & other factors

**AC adapter**

230W slim tip AC adapter

**Operating system (optional)**

One of the following, configurable by model: 

- Windows® 10 Home 64 
- Windows 10 Pro 64 
- Windows 10 Pro 64 for Workstations

**Limited warranty**

One of the following, configurable by model: 

- 1-year depot repair service 
- 3-year/1-yr battery depot repair service 
- 3-year/1-yr battery limited onsite service

**Mil-Spec test**

MIL-STD-810G military testing

**Environment**

EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant

**Dimensions**

WxDxH: 16.38" x 11.06" x 0.96-1.16"; 416mm x 281mm x 24.5-29.4mm

**Weight**

Starting at 7.5 lb / 3.4kg

**Case color**

Black

**Case material**

Display cover: GFRP + PPS; Bottom: Magnesium/Aluminum

**Smart card reader**

Optional: Smart card reader

**ExpressCard**

None

**Media reader**

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

**Ports**

Four USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole

* Power Delivery only supports power-out for charging peripherals

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Optional: Lenovo Mini-DisplayPort to DisplayPort Monitor Cable

**Monitor cable**

**Camera (optional)**

IR camera and HD720p camera, fixed focus

**Audio support**

HD Audio, Realtek ALC3286 codec / stereo speakers, 2W x 2, Dolby Audio™ Premium / optional dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

**Keyboard**

UltraNav™ 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight 

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

**Security chip**

Discrete TPM 2.0, TCG Certified Intel vPro Technology

**Fingerprint reader**

Touch style match on chip fingerprint reader on the palm rest

**Color calibration**

None

**NFC (optional)**

Near Field Communication

**Battery**

Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Max battery life**

MobileMark 2014: 16 hr

*Battery life varies significantly with settings, usage, & other factors

**AC adapter**

230W slim tip AC adapter

**Operating system (optional)**

One of the following, configurable by model: 

- Windows® 10 Home 64 
- Windows 10 Pro 64 
- Windows 10 Pro 64 for Workstations

**Limited warranty**

One of the following, configurable by model: 

- 1-year depot repair service 
- 3-year/1-yr battery depot repair service 
- 3-year/1-yr battery limited onsite service

**Mil-Spec test**

MIL-STD-810G military testing

**Environment**

EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

November 2019
ThinkPad P73 Platform Specifications

Product Specifications Reference (PSREF)

**Processor**
- 9th Generation Intel® Core™ i5 / i7 / i9 Processor or Intel Xeon® E Processor
- Number
- Base Frequency
- Max Turbo Frequency
- Cache
- Memory Types
- Processor Graphics
- Intel UHD Graphics 630
- Intel UHD Graphics P630

**Graphics**
- Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P620 (4GB GDDR5), T2000 (4GB GDDR5), RTX 3000 (6GB GDDR6, VR ready), RTX 4000 Max-Q (8GB GDDR6, VR ready), or RTX 5000 Max-Q (16GB GDDR6, VR ready);
- supports external digital monitor via HDMI or Thunderbolt®;
- supports five independent displays;
- Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (USB-C or HDMI)

**Chipset**
- Mobile Intel CM246 Chipset

**Display**
- Size: 17.3" FHD (1920x1080) IPS Anti-glare
- Brightness: 300 nits
- Aspect Ratio: 16:9
- Contrast Ratio: 700:1
- Color Gamut: 72% 160°

**Storage**
- Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only;
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™;
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

**Optane™ memory Optional:** Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

**RAID (optional)**
- RAID 0/1 support

**Ethernet**
- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- Intel Ethernet Connection I219-LM (Jacksonville)

**WLAN (optional)**
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (opt)**
- None

**SIM card**
- None

**Memory**
- DDR4-2666
- 16GB x 2
- Converts to 32GB on Dual Channel
- Dual-channel capable, four DDR4 SO-DIMM sockets

**Processors**
- Number
- Base Frequency
- Max Turbo Frequency
- Cache
- Memory Types
- Processor Graphics

**Dimensions**
- Wx Dx H: 16.38" x 11.06" x 1.02-1.22";
- 416mm x 281mm x 25.9-31mm

**Weight**
- Starting at 7.5 lb (3.4kg)

**Case color**
- Black

**Case material**
- Display cover: GFRP + PPS;
- Bottom: Magnesium/Aluminum

**Smart card reader**
- Optional: Smart card reader

**ExpressCard**
- None

**Media reader**
- 4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

**Ports**
- Three USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole
- *Power Delivery only supports power-out for charging peripherals
- *Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Monitor cable (optional)**
- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

**Bundled Accy**
- None

**Camera (optional)**
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

**Audio support**
- HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2 /
- dual array far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

**Audio support (optional)**
- Dolby Atmos® sound system

**Keyboard**
- 6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight
- 3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad

**Security**
- Power-on password, hard disk password, supervisor password, security keyhole

**Security chip**
- Intel vPro Technology

**Fingerprint reader**
- Touch style match on chip fingerprint reader on the palm rest

**Color calibration (optional)**
- Optional: X-Rite Pantone factory color calibration (UHD model only)

**NFC (optional)**
- Near Field Communication

**Battery**
- Integrated Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- *Battery life varies significantly with settings, usage, & other factors

**AC adapter**
- 170W or 230W slim tip AC adapter

**Operating system**
- One of the following, configurable by model:
  - Windows® 10 Home 64
  - Windows 10 Pro 64
  - Windows 10 Pro for Workstations

**Limited warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

**Mi-Spec test**
- MIL-STD-810G military testing

**Environment**
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
November 2019
ThinkPad T470 Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6300U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.0 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6500U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
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<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-6600U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
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</table>

7th Generation Intel Core i3 / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
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<th>Memory Types</th>
<th>Processor Graphics</th>
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<td>4</td>
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<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
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<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
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<td>2.7 GHz</td>
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<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

Note: The specifications above may not be available in all regions. Lenovo

Dimensions

- Length: 12.15 in (308.6 mm)
- Width: 7.98 in (202.6 mm)
- Height: 0.66 in (16.7 mm)

Weight

- Models: 3-cell or 3-cell, 6-cell or 3-cell, 6-cell or 6-cell
- PPS: Magnesium 34.9 lb / 1.58 kg, 39.2 lb / 1.78 kg
- PPS: 3.63 lb / 1.65 kg, 4.35 lb / 1.96 kg

Case material

- Black
- Display cover: Magnesium Hybrid or PPS
- Bottom: Glass-Fiber Reinforced Plastic

Smart card reader

- Optional: Smart card reader

Media reader

- 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I

Ports

- Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector
- Depending on many factors, actual data transfer speed may be lower than theoretical speed

WiGig dock (optional)

- ThinkPad WiGig dock

Monitor cable

- Optional: Lenovo USB-C to VGA Adapter

Audio support

- HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 /
dual array microphone, combo audio/microphone jack

Chipset

- Intel SoC (System on Chip) platform
- Memory: 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller

Display

- Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
- Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio
- Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- Multi-touch (opt): On-cell touch, supports 10-finger gesture (FHD IPS panel with PPS cover only)

Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16GB/s
- Some: 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig

Optical

- None

Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN

- One of the following, configurable by model (WiGig can coexist with WLAN): Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
- Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

Bluetooth®

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
- * Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS

WWAN (optional)

- One of the following, configurable by model (WWAN can coexist with WiGig):
  - Integrated Mobile Broadband 4G LTE-A
  - Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
  - Integrated Mobile Broadband 4G LTE
  - Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only)

SIM card (opt)

- Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card

Camera

- 720p IR & 720p HD camera and HD720p camera (mutually exclusive with WiGig)

Internal battery

- Li-Polymer 3-cell (24Wh) + Li-ion 6-cell (48Wh or 72Wh)

External battery

- Max battery life (MobileMark® 2014)

- Models: 3-cell or 3-cell, 6-cell or 3-cell, 6-cell or 6-cell
- Integrated: 6.9 hr, 13.9 hr, 20.9 hr, 20.9 hr, 27.1 hr
- Discrete: 6.9 hr, 13.9 hr, 14.3 hr, 21.6 hr, 21.2 hr, 28.6 hr

AC adapter

- * Battery life varies significantly with settings, usage, & other factors
- 45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

Operating system

- One of the following, configurable by model:
  - Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
  - Windows 10 Home 64
  - Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 1-year limited onsite service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Lenovo

December 2019
## ThinkPad T470s Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
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<tr>
<td>i5-6300U</td>
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<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
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<td>i7-6600U</td>
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<td>4MB</td>
<td>DDR4-2133</td>
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or 7th Generation Intel Core i5 / i7 Processor

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<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
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### Graphics

- Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)
- Graphics Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 20GB or 24GB max / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket
- *System clocks down for processors with lower memory controller

### Display

- Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
- Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
- On-screen touch, supports 10-finger gesture, 250 nits (FHD only)

### Multi-touch (opt)

- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
  - None

### Optical

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

- One of the following, configurable by model (WiGig is mutually exclusive with WWAN):
  - Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
  - Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card

### Bluetooth™

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - *Intel 8265ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model (mutually exclusive with WiGig):
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Qualcomm Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
  - Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card

### Smart card reader

- Optional: Smart card reader

### Media reader

- 4-in-1 reader (MMC, SD, SDHC, SDXC)

### Ports

- Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector
- *Depending on many factors, actual data transfer speed may be lower than theoretical speed

### WWAN dock (opt)

- ThinkPad WiGig dock, mutually exclusive with WWAN

### Monitor cable (optional)

- ThinkPad WiGig dock, mutually exclusive with WWAN

### Internal battery

- Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated

### Max battery life

- MobileMark® 2014: up to 10.5 hr
- *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

### Operating system

- One of the following, configurable by model:
  - Windows® 7 Professional 64 preinstalled
  - through downgrade rights in Windows 10 Pro 64
  - Windows 10 Home 64
  - Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### MIL-Spec test

- MIL-STD-810G military testing

### Environmental

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

---

**Dimensions:** WxHxT: 13.03" x 9.33" x 0.67-0.74"; 331mm x 226.8mm x 16.9-18.8mm

**Weight:** Starting at 2.9 lb / 1.32 kg

**Case color:** Black or Silver

**Case material:** Display cover: CFRP Hybrid; Bottom: Magnesium

**Smart card reader:** Optional: Smart card reader

**Media reader:** 4-in-1 reader (MMC, SD, SDHC, SDXC)

**Ports:** Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector

**WWAN dock (opt):** ThinkPad WiGig dock, mutually exclusive with WWAN

**Monitor cable (optional):** ThinkPad WiGig dock, mutually exclusive with WWAN

**Camera (optional):** HD720p resolution, fixed focus

**Audio support:** (models without camera are NOT available in EMEA)

**Keyboards:** 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

**Security chip:** * Depending on many factors, actual data transfer speed may be lower than theoretical speed

**NFC:** (optional) Near Field Communication

**Internal battery:** Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated

**Max battery life:** MobileMark® 2014: up to 10.5 hr

**AC adapter:** 45W slim tip AC adapter, 45W or 65W USB Type-C AC adapter

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Lenovo

April 2019
### ThinkPad T480 Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

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<td>4</td>
<td>2.5 GHz</td>
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<td>Intel HD Graphics 620</td>
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<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
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</tr>
</tbody>
</table>

or 8th Generation Intel Core i3 / i5 / i7 Processor

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<td>Intel UHD Graphics 620</td>
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<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
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<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics

Intel HD Graphics 620 or Intel UHD Graphics 620 in processor or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA GeForce MX150, 2GB GDDR5 memory (discrete graphics is available only on i7 models in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

#### Chipset

Intel SoC (System on Chip) platform

#### Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

#### Display

**Some:** 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio

**Some:** 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

**Some:** 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

#### Multi-touch (optional)

On-cell touch, supports 10-finger gesture (FHD only)

#### Storage

System has one HDD slot or one M.2 2280 slot exclusively for storage

**Some:** HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

**Some:** SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)

**Some:** M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

**Some:** 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

**Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation**

#### Optane™ memory

Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

#### Optical

None

#### Ethernet

Non-vPro model: Intel Ethernet Connection i219-V (Jacksonville)

vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

#### WWAN (optional)

One of the following, configurable by model (mutually exclusive with Intel Optane memory):

- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (E6MA only)
- Integrated Mobile Broadband 4G LTE-A

#### SIM card (optional)

* For non-WWAN model, it means the model is NOT WWAN upgradable

NANO-SIM card slot, optional Verizon LTE (US) SIM card

#### Dimensions

<table>
<thead>
<tr>
<th>Width (mm)</th>
<th>Depth (mm)</th>
<th>Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.25</td>
<td>206.62</td>
<td>17.14</td>
</tr>
</tbody>
</table>

#### Weight

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>24Wh or 24Wh + 24Wh</td>
<td>3.49 lb / 1.62 kg</td>
</tr>
<tr>
<td>48Wh, 72Wh, or 24Wh + 24Wh</td>
<td>3.92 lb / 1.82 kg</td>
</tr>
</tbody>
</table>

#### Smart card reader

Optional: Smart card reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

#### Monitor cable (optional)

USB-C to DP: Lenovo USB-C to DisplayPort Adapter

#### Camera (optional)

One of the following, configurable by model:

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus
- HD Audio, Realtek® ALC297 codec / Stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone (optional for special bid model), headphone / microphone combo jack

#### Security

Power-on password, hard disk password, supervisor password, security keyhole

Discrete TPM 2.0, TCG Certified

#### Security chip

Intel vPro Technology

Fingerprint reader (optional): Touch style match onchip fingerprint reader on the keyboard bezel, anti-spoofing technology

#### NFC (optional)

Near Field Communication

#### Battery

Models 24Wh or 24Wh + 24Wh

Optimal integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

#### Max battery life (MobileMark® 2014)

24Wh, 48Wh, 72Wh

#### AC adapter

Models 24Wh, 48Wh, 72Wh

Optimal integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

#### Operating system

Optional: Windows 10 Home 64 or Windows 10 Pro 64

#### Warranty

Limited warranty (optional)

- 1-year depot repair service
- 1-year depot repair service
- 1-year battery limited onsite service
- 3-year/3-yr battery limited onsite service

* Battery life varies significantly with settings, usage, & other factors

#### Environment

EPEAT® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.
ThinkPad T480s Platform Specifications

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</tr>
</tbody>
</table>

Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA GeForce MX150, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA GeForce MX150, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB or 8GB memory soldered to systemboard; one DDR4 SO-DIMM socket

Storage

- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

Optical

- None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)

vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7362 (Fibocom L830-EB), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

- WxDxH: 13.03” x 8.93” x 0.73”
- 331mm x 226.8mm x 18.45mm

Weight

- Starting at 2.9 lb / 1.32 kg

Case color

- Black or Silver

Case material

- Display cover: CFRP Hybrid;
- Bottom: Magnesium

Smart card reader

- Optional: Smart card reader

Media reader

- 4-in-1 reader (MMC, SD, SDHC, SDXC)

Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of PowerDelivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole

Monitor cable

- (optional)

Camera

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

Audio support

- HD Audio, Realtek ALC3287 codec / stereo speakers, 1W x 2, Dolby Audio Premium / dual array microphone, headphone / microphone combo jack

Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

Security chip

- vPro (optional)

Fingerprint reader

- Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

NFC

- Optional: Near Field Communication

Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter

Max battery life

- MobileMark 2014: 15.6 hr

AC adapter

- 45W or 65W USB Type-C AC adapter

Operating system

- Optional: Windows 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yer battery depot repair service
  - 3-year/1-yer battery limited onsite service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT Silver; ENERGY STAR 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

August 2019
## ThinkPad T490 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>10th Gen i7-10510U</td>
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<td>8</td>
<td>1.8 GHz</td>
<td>4.3 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 or Intel UHD Graphics in processor only or Intel UHD Graphics 620 or Intel UHD Graphics in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory.
- Supports external digital monitor via HDMI or Thunderbolt.
- Supports three independent displays.
- Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI).

### Chipset

- Intel SoC (System on Chip) platform.
- 4GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket.
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation.

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>HD (1366x768)</td>
<td>TN</td>
<td>Anti-glare</td>
<td>220 nits</td>
<td>16.9</td>
<td>400:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits (non-touch) 300 nits (multi-touch)</td>
<td>16.9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080) Low Power</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16.9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080) ThinkPad Privacy Guard</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16.9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>WQHD (2560x1440) HDR, Dolby Vision™</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16.9</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Storage

- M.2 2280 SSD / SATA 6.0Gb/s (NOT available in EMEA)
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection i219-V (Jacksonville)
- vPro model: Intel Ethernet Connection i219-LM (Jacksonville)

### WLAN + Bluetooth™ (optional)

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 (AX201 for 10th Gen processor only)

### WWAN (optional)

- Wireless WAN upgradable (special bid only in EMEA)
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Operating system

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-year battery depot repair service
  - 1-year + 2-year/1-year battery limited onsite service
  - 3-year + 1-year limited onsite service

### Environment

- EPEAT Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
November 2019
### ThinkPad T490 Secure Access / Healthcare Edition Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
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<tr>
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<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>8</td>
<td>8</td>
<td>1.8 GHz</td>
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<tr>
<td>i7-8665U</td>
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<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

#### Graphics

- Intel UHD Graphics 620 in processor only
- Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

#### Chipset

Intel SoC (System on Chip) platform

#### Memory

- 8GB or 16GB memory soldered to system board, one DDR4 SO-DIMM socket
- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*

#### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>250 nits</td>
<td>16.9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16.9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
</tbody>
</table>

#### Storage

- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

#### Optical

None

#### Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)

vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

#### WLAN (optional)

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

Bluetooth™ (opt)

**Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter**

#### WWAN (optional)

One of the following, configurable by model:

- Wireless WAN upgradeable (special bid only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

*For non-WWAN model, it means the model is NOT WWAN upgradeable

#### SIM card (opt)

None

#### SIM card (opt)

None

#### Security

- Security: Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0, TCG Certified
- System Mgl (opt): Intel vPro Technology

#### Camera

One of the following, configurable by model:

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio Premium / dual array far-field microphone, headphone / microphone combo jack

#### Audio

- Audio: HD Audio, Realtek

#### Battery

Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

#### Operating system

Optional: Windows® 10 Pro 64

#### Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

#### Mil-Spec test

MIL-STD-810G military testing

#### Dimensions

- WxDxH: 12.95" x 8.94" x 0.70": 329mm x 227mm x 17.9mm

#### Weight

- Models: FHD
- Privacy Guard
  - Weight: 3.41 lb / 1.55 kg
  - 3.56 lb / 1.61 kg

---

**Note:** The specifications above may not be available in all regions.
## ThinkPad T490s Platform Specifications

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
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</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>8MB</td>
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<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor;
- supports external digital monitor via HDMI or Thunderbolt;
- supports three independent displays;
- Max resolution: 4096x2304 @60Hz (Thunderbolt); 4096x2160 @24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets

### Memory

- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*
- One of the following, configurable by model:
  - Non-vPro
  - vPro
- • Intel Optane
- • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- • M.2 2280 SSD / SATA 6.0Gb/s
- • M.2 2280, PCIe NVMe 3.0 x 4

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>250 nits (non-touch) / 300 nits (multi-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
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<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>ThinkPad Privacy Guard</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>WQHD (2560x1440)</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

- On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- • M.2 2280 SSD / SATA 6.0Gb/s
- • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- • Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN - Bluetooth™ (optional)

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

### SIM card (opt)

- *For non-WWAN model, it means the model is NOT WWAN upgradeable
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH (black with FHD / Privacy Guard):
  - 12.95" x 8.90" x 0.66": 329.0mm x 226.15mm x 16.7mm
- WxDxH (black with FHD Low Power / WQHD):
  - 12.94" x 8.99" x 0.63": 328.8mm x 225.8mm x 16.1mm
- WxDxH (silver):
  - 12.96" x 8.92" x 0.68": 329.15mm x 226.45mm x 17.2mm

### Weight

- Models
  - Black with FHD
  - Black with FHD Low Power / WQHD / Privacy Guard
  - Silver

### Case color

- Black or Silver

### Case material

- Black or Silver

### Display cover:

- CFRP Hybrid (black) or Aluminum (silver); Bottom: Magnesium

### Media reader

- Optional: MicroSD card reader

### Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), head phone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

### Camera

- *Depending on many factors, actual data transfer speed may be lower than theoretical speed
- HDmi to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter
- Optional: ThinkPad Ethernet Extension Adapter Gen 2

### Audio support

- Headphone / microphone combo jack, optional smart card reader, ALC3287 codec / 8-channel HD Audio
- Realtek ALC3287 codec / ALC3287 codec / stereo speakers, 1W x 2. Dolby Audio Premium / dual array far-field microphone (optional for special bid model), headphone / microphone combo jack

### Keyboard

- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0, TCG Certified

### Security chip

- Intel vPro Technology

### Fingerprint reader

- Optional: Touch style match on chip fingerprint reader on the palm rest

### NFC (optional)

- Near Field Communication

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life

- MobileMark 2014: 20 hr
- *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W, 65W, or 65W slim USB-C AC adapter

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot repair service with 2-year system board repair service
  - 3-year/1-yr battery depot repair service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT Gold / ENERGY STAR® 7.1; RoHS-compliant

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Note: The specifications above may not be available in all regions.

Lenovo
October 2019
### ThinkPad T495 Platform Specifications

**Processor**
- AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics
  - Processor Number
  - Core
  - Frequency Base
  - Frequency Max
  - Turbo Frequency
  - Cache Memory
  - Processor Graphics

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Frequency</th>
<th>L2 Cache</th>
<th>L3 Cache</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 Pro 3300U</td>
<td>4</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.5 GHz</td>
<td>2MB L2</td>
<td>4MB L3</td>
<td>Radeon Vega 6 Graphics</td>
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<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2</td>
<td>4MB L3</td>
<td>Radeon Vega 8 Graphics</td>
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<tr>
<td>Ryzen 7 Pro 3700U</td>
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<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2</td>
<td>4MB L3</td>
<td>Radeon Vega 10 Graphics</td>
</tr>
</tbody>
</table>

**Graphics**
- AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports four independent displays; Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@60Hz (HDMI)

**Chipset**
- AMD SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket

**Memory**
- 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
- 32GB max / 2400MHz DDR4, dual-channel capable
- Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@60Hz (HDMI)

**Display**
- 14.0" HD (1366x768) TN Anti-glare 220 nits 16:9 400:1 45% 90°
- 14.0" FHD (1920x1080) IPS Anti-glare 250 nits (non-touch) 300 nits (multi-touch) 16:9 700:1 45% 170°
- 14.0" FHD (1920x1080) Low Power IPS Anti-glare 400 nits 16:9 800:1 72% 170°

**Multi-touch (opt)**
- On-cell touch, supports 10-finger gesture (FHD only)

**Storage**
- • M.2 2280 SSD / SATA 6.0Gb/s
- • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

**Optical**
- None

**Ethernet**
- Realtek® RTL8111 Gigabit Ethernet connection

**WLAN**
- One of the following, configurable by model:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

**Bluetooth™**
- Bluetooth 4.2 or 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**
- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - For non-WWAN model, it means the model is NOT WWAN upgradable

**SIM card (opt)**
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Case color**
- Black

**Case material**
- Display cover: PPS / 50% GF;
- Bottom: PA / 50% GF

**Smart card reader**
- Optional: Smart card reader

**Media reader**
- Optional: Media reader

**Smart card reader**
- Optional: Smart card reader

**Media reader**
- Optional: Media reader

**Worldwide Accessory**
- None

**Bundled Accy**
- Optional: Bundled Accy

**Camera**
- One of the following, configurable by model:
  - 1080p camera with ThinkShutter camera privacy, fixed focus
  - HD720p camera with ThinkShutter camera privacy, fixed focus

**Audio support**
- HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone (optional for special bid model),
- Headphone / microphone combo jack

**Camera (optional)**
- Optional: Camera (optional)

**Audio**
- HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone (optional for special bid model),
- Headphone / microphone combo jack

**Keyboard**
- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

**Security**
- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip System Mgt DASH Management
- Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest
- NFC None

**Battery**
- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Max battery life MobileMark 2014: 13.4 hr

**Operating system**
- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty (optional)**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 1-year + 2-year/1-yr battery limited onsite service
  - 3-year/1-yr battery limited onsite service

**NFC**
- None

**Lenovo Limited Warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 1-year + 2-year/1-yr battery limited onsite service
  - 3-year/1-yr battery limited onsite service

**Mil-Spec test**
- MIL-STD-810G military testing

**Environment**
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant
### ThinkPad T495s Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>3.7 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>4</td>
<td>8</td>
<td>2.3 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 10</td>
</tr>
</tbody>
</table>

#### Graphics

- AMD Radeon Vega 8 Graphics
- AMD Radeon Vega 10 Graphics

**Note:** The specifications above may not be available in all regions. Lenovo December 2019

#### Chipset

- AMD SoC (System on Chip) platform
- 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

#### Display

- 14.0" FHD (1920x1080)
- IPS Anti-glare
- Brightness: 250 nits (non-touch) 300 nits (multi-touch)
- Aspect Ratio: 16.9
- Contrast Ratio: 700:1
- Color Gamut: 45% 170°

- 14.0" FHD (1920x1080)
- Low Power
- IPS Anti-glare
- Brightness: 400 nits
- Aspect Ratio: 16.9
- Contrast Ratio: 800:1 72% 170°

- 14.0" FHD (1920x1080)
- ThinkPad Privacy Guard
- IPS Anti-glare
- Brightness: 400 nits
- Aspect Ratio: 16.9
- Contrast Ratio: 1000:1 72% 170°

**Multi-touch (opt)**

- On-cell touch, supports 10-finger gesture (FHD only)

#### Memory

- Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation

#### Optical Storage

- M.2 2280 SSD / PCIe NVMe
- M.2 3000 SSD / PCIe NVMe
- M.2 2280 PCIe NVMe

#### Ethernet

- Realtek® RTL8111EPV Gigabit Ethernet connection

#### WLAN (optional)

- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN (optional)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

**SIM card (opt)**

- For non-WWAN model, it means the model is NOT WWAN upgradable
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

#### Chipset

- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### Graphics

- Supports three independent displays;
- Supports external digital monitor via USB-C or HDMI;
- Supports external digital monitor via USB-C or HDMI;
- Supports external digital monitor via USB-C or HDMI;
- Supports external digital monitor via USB-C or HDMI;

#### Media reader

- Smart card reader
- MicroSD card reader

#### Ports

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - Two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, nano-SIM card slot (WWAN models), head phone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

- Monitor cable (optional)
- Bundled Accy

- Optional: Smart card reader
- Optional: ThinkPad Ethernet Extension Adapter Gen 2

#### Keyboard

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - Two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort)
  - HDMI 2.0, Ethernet extension connector, nano-SIM card slot (WWAN models)
  - Dual array far-field microphone, headphone / microphone combo jack

#### Audio support

- Optional: ThinkPad Bluetooth Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to VGA Adapter

#### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG certified
- DASH Management

#### Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- With 65W AC adapter
- MobileMark® 2014: 16.4 hr
- Battery life varies significantly with settings, usage, & other factors
- 45W or 65W USB Type-C AC adapter

#### Operating system

- Windows® 10 Home 64 or Windows 10 Pro 64

#### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

#### Mil-Spec test

- MIL-STD-810G military testing

#### Environment

- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.

Lenovo December 2019
ThinkPad T580 Platform Specifications

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8550U</td>
<td>2</td>
<td>4</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7-8650U</td>
<td>2</td>
<td>4</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

Graphics

Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce MX150, 2GB DDR5 memory, supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Display

Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch (opt)

On-cell touch, supports 10-finger gesture (FHD only)

Storage

System has one HDD slot or one M.2 2280 slot exclusively for storage

Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxxGB SSD)

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)

vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

Ethernet + Bluetooth™

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

WWAN (optional)

One of the following, configurable by model:

- Wireless WAN upgradeable (special bid only)
- Integrated Mobile Broadband 4G LTE
- Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A
- Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
- For non-WWAN model, it means the model IS NOT WWAN upgradeable

SIM card (opt)

WWAN (optional): One of the following, configurable by model:

- Wireless WAN upgradeable (special bid only)
- Integrated Mobile Broadband 4G LTE
- Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A
- Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

* For non-WWAN model, it means the model IS NOT WWAN upgradeable

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Note: The specifications above may not be available in all regions.
## ThinkPad T590 Platform Specifications

### Processor
<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th Generation Intel® Core™ i5 / i7 Processor</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>8th Generation Intel® Core™ i5 / i7 Processor</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>6MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics
- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays, Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

### Chipset
- Intel SoC (System on Chip) platform
- 4GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
  *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*

### Display
<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6'' FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
</tr>
<tr>
<td>15.6'' UHD (3840x2160)</td>
<td>HDR, Dolby Vision™</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% Adobe</td>
<td>170°</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)
- On-cell touch, supports 10-finger gesture (FHD only)

### Storage
- M.2 2280 SSD / SATA 6.0Gbps
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical
- None

### Ethernet
- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN (optional)
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)
- Wireless WAN upgradeable (special bid only in EMEA)
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  *For non-WWAN model, it means the model is NOT WWAN upgradable *
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### SIM card
- One of the following, configurable by model:
  - 45W or 65W USB Type-C AC adapter
  - MobileMark® 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)

### Battery
- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Max battery life
  - MobileMark® 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)
  - *Battery life varies significantly with settings, usage, & other factors*

### Limited warranty
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

### Environment
- EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant

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Note: The specifications above may not be available in all regions.
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>3MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**or 8th Generation Intel Core i5 / i7 Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
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<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8550U</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8650U</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;
- Max resolution: 5120x2880 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform

### Memory

- 8GB or 16GB / 2133MHz LPDDR3 / soldered to system board, no sockets
- *System clocks down for processors with lower memory controller*

### Display

- One of the following, configurable by model:
  - 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
  - 14.0" (355mm) QWHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
  - 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision®, glossy, LED backlight, IPS, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle
- On-cell touch, supports 10-finger gesture (FHD only)

### Multi-touch (optional)

### Storage

- One of the following, configurable by model:
  - M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
  - M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optical

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN + Bluetooth™

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- *Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card
- *For non-WWAN model, it means the model is NOT WWAN upgradable

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm

### Weight

- Starting at 2.49 lb / 1.13 kg

### Case color

- Black or Silver (silver case is NOT available in EMEA)

### Case material

- Display cover: CFRP/GFPR hybrid

### Smart card reader

- None

### Media reader

- MicroSD card reader, supports UHS-III

### Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader, side docking connector, security keyhole

### Monitor cable (optional)

- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP*: Lenovo USB-C to DisplayPort Adapter

### Bundled Accy

- Optional: ThinkPad Ethernet Extension Adapter Gen 2

### Camera (optional)

- *One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera, fixed focus

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Intel vPro Technology
- Discrete TPM 2.0, TCG Certified

### NFC (optional)

- Near Field Communication

### Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

### Max battery life

- MobileMark® 2014: 19.3 hr

### AC adapter

- 45W, 65W, or 65W Low Halogen USB-C AC adapter

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

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*Lenovo

August 2019*
ThinkPad X1 Carbon (7th Gen) Platform Specifications

Processor 8th Generation Intel® Core™ i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Thread(s)</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory</th>
<th>Processor Graphics</th>
</tr>
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<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
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<tr>
<td>i5-8565U</td>
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<td>8</td>
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<td>4.6 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
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<tr>
<td>i7-8565U</td>
<td>6</td>
<td>12</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
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<tr>
<td>i7-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i7-10710U</td>
<td>6</td>
<td>12</td>
<td>1.6 GHz</td>
<td>4.9 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
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</tr>
</tbody>
</table>

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Thread(s)</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i7-10710U</td>
<td>6</td>
<td>12</td>
<td>1.1 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>LPDDR3-2133 Intel UHD Graphics 620</td>
<td></td>
</tr>
</tbody>
</table>

Graphics Intel UHD Graphics 620 or Intel UHD Graphics in processor; supports external digital monitor via HDMI or USB Type-C / Thunderbolt; supports three independent displays; Max resolution: 5K@60Hz (Thunderbolt); 4K@24Hz (HDMI)

Chipset Memory Intel SoC (System on Chip) platform 8GB or 16GB / 2133MHz LPDDR3 / soldered to system board, no sockets

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; FHD (1920x1080) Multi-touch</td>
<td>IPS</td>
<td>Anti-reflection Anti-smudge</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080) Low Power</td>
<td>IPS</td>
<td>Anti-Glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; WQHD (2560x1440) ThinkPad Privacy Guard</td>
<td>IPS</td>
<td>Anti-Glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot; UHD (3840x2160) HDR 400, Dolby Vision™</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1400:1</td>
<td>90%</td>
<td>170°</td>
</tr>
</tbody>
</table>

Multi-touch (opt) Capacitive-type multi-touch supports 10-finger gesture (FHD only), anti-reflection (AR) / anti-smudge (AS) coating

Storage One of the following, configurable by model:
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical None

Ethernet Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™ One of the following, configurable by model:
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 (AX201 for 10th Gen processor only and NOT available in AP)

WWAN (optional) One of the following, configurable by model:
- Wireless WAN upgradable (special bid only)
- Integrated Mobile Broadband 4G LTE-A, Fibocam L850-GL, M.2 card
- Integrated Mobile Broadband 4G LTE-A, Fibocam L860-GL, MIMO 2x2, M.2 card
- For non-WWAN model, it means the model is NOT WWAN upgradable

SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

<table>
<thead>
<tr>
<th>WWAN model:</th>
<th>WWAN model:</th>
</tr>
</thead>
<tbody>
<tr>
<td>WXDVXH (Privacy Guard):</td>
<td>WXDVXH (other model):</td>
</tr>
<tr>
<td>12.72&quot; x 8.54&quot; x 0.61&quot;</td>
<td>12.72&quot; x 8.54&quot; x 0.59&quot;</td>
</tr>
<tr>
<td>323mm x 217mm x 15.4mm</td>
<td>323mm x 217mm x 14.95mm</td>
</tr>
</tbody>
</table>

Weight

- Other model: starting at 2.66 lb / 1.21 kg
- Other model: starting at 2.4 lb / 1.09 kg

Case color

- Black paint or black weave
- Other color: Other model

Case material

- Display cover: Carbon Fiber;
- Bottom: magnesium alloy

Smart card reader

- None
- Other model: Lenovo HDMI to VGA Monitor Adapter

Media reader

- None
- Other model: Lenovo HDMI to VGA Monitor Adapter

Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3
- HDMI 1.4b
- Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole
- Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Optional: Lenovo HDMI to VGA Monitor Adapter

Monitor cable

- Bundled Accy
- Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera (optional)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek ALC3286 codec / Dolby™ Atmos™ speaker system, 2W x 2, 0.8 x 2 / four 360° far-field microphones, headphone / microphone combo jack

Audio support

- 6.1; RoHS-compliant
- UltraNav™ TrackPoint™ pointing device and buttonless glass surface multi-touch touchpad

Keyboard

- 6-row, spill-resistant, multimedia Fn keys, LED backlight
- Security chip
- System Mgl (opt)
- Intel vPro Technology
- Fingerprint reader
- Touch style match on chip fingerprint reader on the palm rest

Near Field Communication

Battery

- Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
- Battery life varies significantly with settings, usage, & other factors
- Battery life varies significantly with settings, usage, & other factors
- AC adapter
  - 45W, 65W, or 65W slim USB-C AC adapter
- Operating system
  - Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

Environmental

- MIL-STD-810G military testing
- EPEAT™ Gold; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo December 2019
ThinkPad X1 Extreme (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-9300H</td>
<td>4</td>
<td>8</td>
<td>2.4 GHz</td>
<td>4.1 GHz</td>
<td>8 MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>i5-9400H</td>
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<td>8</td>
<td>2.5 GHz</td>
<td>3.9 GHz</td>
<td>8 MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
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<tr>
<td>i7-9750H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
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<td>12 MB</td>
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<td>12 MB</td>
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<td>Intel UHD Graphics 630</td>
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<tr>
<td>i9-9880H</td>
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<td>16</td>
<td>2.3 GHz</td>
<td>4.8 GHz</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

Graphics

- Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1650, 4GB GDDR5 memory;
- supports external digital monitor via HDMI or Thunderbolt™;
- supports four independent displays;
- Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

Chipset Memory

- Mobile Intel CM246 Chipset
- 64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.6”</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>72% NTSC</td>
<td>170°</td>
</tr>
<tr>
<td>15.6”</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>72% NTSC</td>
</tr>
<tr>
<td>15.6”</td>
<td>UHD (3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100% Adobe</td>
</tr>
<tr>
<td>15.6”</td>
<td>UHD (3840x2160)</td>
<td>OLED</td>
<td>Anti-reflection</td>
<td>SDR 400nit</td>
<td>16:9</td>
<td>100000:1</td>
<td>100% DCI-P3</td>
</tr>
</tbody>
</table>

Multi-touch (optional)

- Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), anti-reflection (AR), anti-smudge (AS) coating

Pen (optional)

Lenovo Pen Pro (special bid only)

Storage

- Up to two M.2 SSD
- M.2 2280 SSD / PCIe NVMe 3.0 x 4
- RAID 0/1 support

RAID (optional)

Optical

- None

Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via bundled or optional ThinkPad Ethernet Extension Cable

WLAN (optional)

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

- None

SIM card

- None

Dimensions

- WxDxH (non-touch): 14.24” x 9.67” x 0.72”; 361.8mm x 245.7mm x 18.4mm
- WxDxH (multi-touch): 14.24” x 9.67” x 0.74”; 361.8mm x 245.7mm x 18.7mm

Weight

- Non-touch model: starting at 3.75 lb / 1.7 kg
- Multi-touch model: starting at 4.0 lb / 1.81 kg

Case color

- Black paint (FHD model) or black weave (UHD model)

Case material

- Display cover: CFRP/GFRP hybrid;
- Bottom: Aluminum alloy

Smart card reader

- Optional: Smart card reader

Media reader

- SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card

Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3
- HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, SD card reader, security keyhole, slim tip AC adapter
- * Power Delivery only supports power-out for charging peripherals
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter

Monitor cable (optional)

- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Bundled Accy

- Optional: ThinkPad Ethernet Extension Cable

Camera (optional)

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

- HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional dual 360° far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

Keyboard

- 6-row, spill-resistant, multimedia Fn keys, LED backlight

Security

- Power-on password, hard disk password, supervisor password, security keyhole

Security chip

- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology

Fingerprint reader

- Touch style match on chip fingerprint reader on the keyboard bezel

Color calibration

- Optional: X-Rite Pantone factory color calibration (UHD model only)
- NFC

Battery

- Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- * Battery life varies significantly with settings, usage, & other factors

Max battery life

- MobileMark® 2014: 14 hr
- AC adapter: 135W slim tip AC adapter

Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

Mil-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo

December 2019
## ThinkPad X1 Yoga (3rd Gen) Platform Specifications

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>7th Generation Intel® Core™ i5 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td>i5-7300U</td>
</tr>
<tr>
<td># of Cores</td>
<td>2</td>
</tr>
<tr>
<td># of Threads</td>
<td>4</td>
</tr>
<tr>
<td>Base Frequency</td>
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<tr>
<td>Max Turbo Frequency</td>
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<tr>
<td>Cache</td>
<td>3MB</td>
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<tr>
<td>Memory Types</td>
<td>LPDDR3-1866</td>
</tr>
<tr>
<td>Processor Graphics</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### 8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>8th Generation Intel Core i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td>i5-8250U</td>
</tr>
<tr>
<td># of Cores</td>
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</tr>
<tr>
<td># of Threads</td>
<td>8</td>
</tr>
<tr>
<td>Base Frequency</td>
<td>1.6 GHz</td>
</tr>
<tr>
<td>Max Turbo Frequency</td>
<td>3.4 GHz</td>
</tr>
<tr>
<td>Cache</td>
<td>6MB</td>
</tr>
<tr>
<td>Memory Types</td>
<td>LPDDR3-2133</td>
</tr>
<tr>
<td>Processor Graphics</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 5120x2880 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

### Display

- 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS, AR (anti-reflection)
- 14.0" (355mm) QHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS, AR (anti-reflection)
- 14.0" (355mm) WQHD (2560x1440) with Dolby Vision™, LED backlight, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle, IPS, AR (anti-reflection)

### Multi-touch

- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10%

### Hinge

- Yoga hinge, 360 degree

### Convert-mode Pen (optional)

- Laptop, tent, stand, and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

### Storage

- M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gbps (e.g. xxxG SSD PCIe NVMe)

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection WGI219-LM (vPro)
- via optional ThinkPad Ethernet Extension Cable

### WLAN

- One of the following, configurable by model:
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A
- Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

### SIM card (opt)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### Dimensions

- WxDxH: 13.11" x 9.02" x 0.67"; 333mm x 229mm x 17.05mm

### Weight

- Starting at 3.08 lb / 1.4kg

### Case color

- Black or silver

### Case material

- Carbon-Fiber and Glass-Fiber hybrid

### Display cover

- Bottom: magnesium-PPS hybrid

### Camera (optional)

- One of the following, configurable by model:
  - 720p: HD720p camera with ThinkShutter camera privacy, fixed focus
  - 1080p: HD720p camera, fixed focus

### Audio support

- HD Audio, Realtek ALC3286 codec, Dolby Audio™ Premium / stereo speakers, 1W x 2 / 360° Noise-cancelling Dual Array Far Field, headphone / microphone combo jack

### Keyboard

- 6-row wave keyboard (rise & fall), spill-resistant, multimedia Fn keys, LED backlit

### Security

- Power-on password, hard disk password, supervisor password, security keyhole

### System Mgt (opt)

- Intel vPro Technology

### Fingerprint reader

- Touch style match on chip fingerprint reader on the palm rest

### NFC (optional)

- Near Field Communication

### Battery

- Integrated Li-Ion 54Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

### Max battery life

- MobileMark® 2014: 15.4 hrs
- *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Power-on password

- 3D gyrometer
- 3D accelerometer
- Ambient Light Sensor

### Preload

- Windows® 10 Pro 64

### Limited warranty (optional)

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Silver; ENERGY STAR®; RoHS-compliant

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Lenovo
December 2019
ThinkPad X1 Yoga (4th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
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<td>LPDDR3-2133</td>
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<td>12</td>
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<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
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</table>

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<tr>
<td>10i5-10210U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.2 GHz</td>
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<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
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<tr>
<td>10i7-10510U</td>
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<td>12</td>
<td>1.1 GHz</td>
<td>4.7 GHz</td>
<td>12MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

Note: The specifications above may not be available in all regions. Lenovo December 2019

WWAN (optional) One of the following, configurable by model:

- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card
  * For non-WWAN model, it means the model is NOT WWAN upgradable

SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

- WxDxH (Privacy Guard): 12.71" x 8.58" x 0.63"; 323mm x 218mm x 15.95mm
- WxDxH (other model): 12.71" x 8.58" x 0.61"; 323mm x 218mm x 15.5mm

Weight

- Privacy Guard model: starting at 3.24 lb / 1.47 kg
- Other model: starting at 2.99 lb / 1.36 kg

Case color

- Iron Grey

Case material

- Display cover: Aluminium;
  - Bottom: Magnesium

Smart card reader

- None

Media reader

- None

Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3
- with (the function of Power Delivery and DisplayPort), HDMI 1.4b,
- Ethernet extension connector, nano-SIM card slot (WWAN models),
- headphone / microphone combo jack, side docking connector, security keyhole
  * Depending on many factors, actual data transfer speed may be lower than theoretical speed

Monitor cable

- Optional: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy

- Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera (optional) One of the following, configurable by model:

Audio support

- HD720p camera with ThinkShutter camera privacy, fixed focus
- 1080p camera with ThinkShutter camera privacy, fixed focus
- HD Audio, Realtek ALC3286 codec / Dolby Atmos speaker system, 2W x 2, 0.8 x 2 / four 360° far-field microphones, headphone / microphone combo jack

Keyboard

- TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

- Security chip
- System Mgt (opt)
- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Finger print reader
- Touch style match on chip fingerprint reader on the palm rest
- NFC (optional)

Battery

- Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- with 65W AC adapter
- AC adapter
  - MobileMark 2014: 18.1 hr
  - Battery life varies significantly with settings, usage, & other factors

Max battery life

- 45W, 65W, or 65W slim USB-C AC adapter

Operating system

- Optional: Windows 10 Home 64 or Windows 10 Pro 64

Limited warranty (optional)

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 3-year/1yr battery depot repair service
- 3-year/1yr battery limited onsite service

Mi-Spec test

- MIL-STD-810G military testing

Environment

- EPEAT™ Gold; ENERGY STAR® 7.1; RoHS-compliant

Lenovo December 2019

Note: The specifications above may not be available in all regions.
## ThinkPad X270 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th>Frequency</th>
<th>Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-6006U</td>
<td>2</td>
<td>4</td>
<td>2.0 GHz</td>
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<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
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</table>

### 7th Generation Intel Core™ / i5 / i7 Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th>Frequency</th>
<th>Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7100U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 520 or 620 in processor:
  - Supports external digital monitor via HDMI or USB Type-C;
  - Supports three independent displays;
  - Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
  - 16GB max / 2400MHz DDR4, one DDR4 SO-DIMM socket
  - System clocks down for processors with lower memory controller

### Display

- 12.5” (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16.9 aspect ratio, 500:1 contrast ratio
- 12.5” (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS, 300 nits, 16.9 aspect ratio, 170° viewing angle
- 12.5” (317.5mm) FHD (1920x1080), anti-glare, LED backlight, 300 nits, 16.9 aspect ratio, 170° viewing angle
  - On-cell touch, supports 10-finger gesture (FHD only)

### Storage

- System has one HDD slot or one M.2 SSD slot exclusively for storage
  - SSD / SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™
  - HDD / SATA 6.0Gb/s, 2.5” wide, 7mm high, Active Protection System™
  - 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage

### Optical

- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

### WLAN

- One of the following, configurable by model (WiGig is mutually exclusive with WWAN):
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1

### Bluetooth

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
  - Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model (mutually exclusive with WiGig):
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A
  - Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
  - Integrated Mobile Broadband 4G LTE
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1
  - Intel XMM™ 7160 (Fibocom LB311-EAU) (EMEA only)

### SIM card (optional)

- Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card

---

### Dimensions

<table>
<thead>
<tr>
<th>WxDxH</th>
<th>Weight Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.03” x 8.21” x 0.80”</td>
<td>No + 3-cell</td>
</tr>
<tr>
<td>305.5mm x 208.5mm x 20.3mm</td>
<td>3-cell + 3-cell</td>
</tr>
</tbody>
</table>

### Weight

- 2.79 lb / 1.27 kg
- 2.98 lb / 1.36 kg
- 3.33 lb / 1.52 kg

---

### Smart card reader

- Optional: Smart card reader

---

### Memory

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Frequency</th>
<th>Frequency</th>
</tr>
</thead>
</table>

### Processor

- Processor Number
- Processor Number
- Processor Number

---

### Media reader

- 4-in-1 reader (MMC, SD, SDHC, SDXC)

### Ports

- Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector

### WiGig dock (optional)

- ThinkPad WiGig dock, mutually exclusive with WWAN (US only)

### Camera

- HD720p resolution, fixed focus

### Audio support

- HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack

---

### Security

- Security chip: Discrete TPM 2.0, TCG Certified

### Operating system

- One of the following, configurable by model:
  - Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
  - Windows 10 Home 64
  - Windows 10 Pro 64

### Limited warranty

- Battery life varies significantly with settings, usage, & other factors

---

### Lenovo

August 2019
## ThinkPad X280 Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
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<tbody>
<tr>
<td>i3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>4.2 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
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</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
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</table>

or 8th Generation Intel Core / i5 / i7 Processor

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<th># of Cores</th>
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<td>3.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
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<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8550U</td>
<td>2</td>
<td>4</td>
<td>1.6 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
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<td>i5-8650U</td>
<td>2</td>
<td>4</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB-C; supports three independent displays; supports external digital monitor via HDMI or USB-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Memory

4GB, 8GB, or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

* 4GB memory is NOT available in US and EMEA

* System clocks down for processors with lower memory controller

### Display

- **12.5" (317.5mm)** HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio

- **12.5" (317.5mm)** FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

### Multi-touch (opt)

On-cell touch, supports 10-finger gesture (FHD only)

* FHD non-touch model is NOT available in US

### Storage

- **M.2 SSD / SATA 6.0Gb/s** (e.g. xxxGB SSD M.2)
- **M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s** (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optical

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### Ethernet + Bluetooth

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN (optional)

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE
  - Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A
  - Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

* For non-WWAN model, the model is NOT WWAN upgradable

### SIM card (opt)

- Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizion LTE (US) SIM card

### Operating system

Optional: Windows 10 Home 64 or Windows 10 Pro 64

### Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

### Security chip

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TG Certified
- Intel vPro Technology
- Fingerprint reader
- Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

### Security

- Near Field Communication

### Battery

Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

- 16.6 hr

* Battery life varies significantly with settings, usage, & other factors

AC adapter

- 45W or 65W USB-C AC adapter

### Environment

EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
September 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
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</thead>
<tbody>
<tr>
<td>5-7200U</td>
<td>2</td>
<td>4</td>
<td></td>
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<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i3 / i5 / 7 Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<tbody>
<tr>
<td>3-8130U</td>
<td>2</td>
<td>4</td>
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<td>2.2 GHz</td>
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<tr>
<td>5-8250U</td>
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<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**

Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**

Intel SoC (System on Chip) platform

8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

* System clocks down for processors with lower memory controller

**Display**

13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS

300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, AR (anti-reflection)

**Multi-touch**

Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

**Hinge**

Yoga hinge, 360 degree

**Pen**

Laptop, tent, stand, yoga and tablet

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

**Storage**

Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)

Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)

**Optical**

None

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)

via optional ThinkPad Ethernet Extension Cable

**WLAN**

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card

Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**

One of the following, configurable by model:

- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

Nano-SIM card slot

**SIM card (opt)**

None

**Dimensions**

WxDxH: 12.34" x 8.75" x 0.72"; 313.5mm x 222.2mm x 18.2mm

**Weight**

Starting at 3.17 lb / 1.43kg

**Case color**

Black or silver

**Case Material**

Carbon-Fiber Hybrid

---

**Smart card reader**

Optional: Smart card reader (mutually exclusive with NFC)

**Media reader**

One microSD card slot (microSD, microSDHC, microSDXC), UHS-I

**Ports**

Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector, one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (Power Delivery, DisplayPort, Data transfer), HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

**WiGig dock Monitor cable (optional)**

None

USB-C to VGA: Lenovo USB-C to VGA Plus Power Adapter

USB-C to DP: Lenovo USB-C to DisplayPort Adapter

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter

**Camera**

One of the following, configurable by model:

720p:

- HD720p camera, fixed focus

- IR & 720p: IR camera and HD720p camera, fixed focus

**Audio support**

HD Audio, Conexant® CX11771 codec / stereo speakers, 2W x 2 / optional dual array microphone, headphone / microphone combo jack

**Keyboard**

6-row, spill-resistant, multimedia Fk keys, LED backlight

**UltraNav™**

TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

**Security**

Power-on password, hard disk password, supervisor password, security keyhole

**System Mgt (opt)**

Optional: Touch style match on chip fingerprint reader on the palm rest

**Battery**

Li-Ion 51Wh battery

**Battery life**

MobileMark® 2014: 13.6 hrs

* Battery life varies significantly with settings, usage, & other factors

**AC adapter**

45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter

**Light sensor**

Ambient Light Sensor

3D accelerometer and 3D magnetometer

3D compass

3D gyrometer

**Operating system**

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

One of the following, configurable by model:

- 1-year depot repair service

- 1-year depot with 2-year system board service

- 3-year/1-yr battery depot repair service

- 3-year/1-yr battery limited onsite service

**Environment**

EPEAT Gold; ENERGY STAR®; RoHS-compliant

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Lenovo

December 2019
**ThinkPad X390 Platform Specifications**

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Processor Group</th>
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</thead>
<tbody>
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<td>2</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>1 MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>1.6 GHz</td>
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<td>6 MB</td>
<td>Intel UHD Graphics 620</td>
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<tr>
<td>i5-8365U</td>
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<td>1.8 GHz</td>
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<td>Intel UHD Graphics 620</td>
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<td>8 MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 or Intel UHD Graphics in processor;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays;
- Max resolution: 4096x2304 @ 60Hz (Thunderbolt); 4096x2160 @ 24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- Requires DDR4 / DDR3L / DDR3 memory
- Supports three independent displays

### Memory

- 4GB, 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- 2GB memory is NOT available for models with 10th Gen processor
- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
<th>Multi-touch (opt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3&quot; HD</td>
<td>1366x768</td>
<td>TN</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>45% 90°</td>
<td></td>
</tr>
<tr>
<td>13.3&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72% 170°</td>
<td></td>
</tr>
<tr>
<td>13.3&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72% 178°</td>
<td></td>
</tr>
</tbody>
</table>

### Storage

- M.2 2280 SSD / SATA 6.0Gbps
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN (optional)

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

### Bluetooth™ (opt)

- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Wireless WAN upgradeable (special bid only in EMEA)
- Integrated Mobile Broadband 4G LTE, Fibocom LB30-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom LB50-GL, M.2 card
- *For non-WWAN model, it means the model is NOT WWAN upgradeable

### SIM card (opt)

- Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card

### Dimensions

<table>
<thead>
<tr>
<th>Models</th>
<th>FHD Non-touch</th>
<th>HD / FHD Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP5</td>
<td>311.9mm x 217.0mm x 16.5mm</td>
<td>12.28&quot; x 8.54&quot; x 0.65&quot;</td>
</tr>
<tr>
<td>PPS</td>
<td>321.0mm x 217.2mm x 16.9mm</td>
<td>12.28&quot; x 8.55&quot; x 0.67&quot;</td>
</tr>
</tbody>
</table>

### Weight

<table>
<thead>
<tr>
<th>Models</th>
<th>FHD Non-touch</th>
<th>HD</th>
<th>FHD Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP5</td>
<td>2.76 lb / 1.22 kg</td>
<td>2.93 lb / 1.33 kg</td>
<td>2.84 lb / 1.28 kg</td>
</tr>
<tr>
<td>PPS</td>
<td>2.95 lb / 1.29 kg</td>
<td>2.93 lb / 1.33 kg</td>
<td>2.84 lb / 1.28 kg</td>
</tr>
</tbody>
</table>

### Case color

- Black

### Case material

- Display cover: Carbon Fiber (FHD non-touch only) or PP5; Bottom: Magnesium/Aluminum

### Smart card reader

- Optional: Smart card reader

### Media reader

- MicroSD card reader, in the combo slot with nano-SIM card
- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector
- Combo slot of nano-SIM card (WWAN models) and microSD card reader
- Headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole

### Monitor cable (optional)

- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter
- Optional: ThinkPad Ethernet Extension Adapter Gen 2

### Bundled Accy

- AC adapter
  - 45W, 65W, or 65W slim USB-C AC adapter
- Battery
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Audio support

- HD Audio, Realtek ALC3287 codec / stereo speakers, 1W x 2. Dolby® Audio™ Premium / dual array far-field microphone (optional for special bid model), headphone / microphone combo jack
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified Intel vPro Technology
- Near Field Communication
- Fingerprint reader
  - Optional: Touch style match on chip fingerprint reader on the palm rest

### Security chip

- System Mgt (opt)
- Security chip

### Keyboard

- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
- 6-row, spill-resistant, multimedia Fn keys, optional LED backlight

### Battery

- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- *Battery life varies significantly with settings, usage, & other factors

### AC adapter

- MobileMark® 2014: 17.6 hr
- 45W, 65W, or 65W slim USB-C AC adapter
- 85W, 90W, or 135W AC adapter

### Operating system

- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

### MI-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT® Gold, ENERGY STAR® 7.1, RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
December 2019
### ThinkPad X390 Yoga Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor
<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

- **Graphics**: Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @ 60Hz (Thunderbolt); 4096x2160 @ 24Hz (HDMI)

#### Chipset
- Intel SoC (System on Chip) platform

#### Memory
- 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- *Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation*

#### Display
- **Size**: 13.3" FHD (1920x1080)
- **Type**: IPS
- **Resolution**: Anti-reflection 300 nits
- **Brightness**: 16:9 800:1
- **Contrast Ratio**: 72%
- **Color Gamut**: 170°

#### Multi-touch
- Capacitive-type multi-touch, supports 10-finger gesture, anti-reflection (AR), AS (anti-smudge), could reduce the brightness by up to 10%

#### Hinge
- Yoga hinge, 360 degree

#### Pen
- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

#### Storage
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2242 SSD / PCIe NVMe VMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe VMe, PCIe 3.0 x 4
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

#### Optical
- None

#### Ethernet
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

#### WLAN (optional)
- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### Bluetooth™ (opt)
- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

#### WWAN (optional)
- Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EAME only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

#### SIM card (opt)
- Nano-SIM card slot, optional Verizon LTE (US) SIM card for special bid only

#### WWAN (optional)
- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EAME only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

- For non-WWAN model, it means the model is NOT WWAN upgradable

#### Camera
- One of the following, configurable by model:
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD camera and HD720p camera with ThinkShutter camera privacy, fixed focus

#### Audio support
- HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2. Dolby® Audio™ Premium / 
  dual array far-field microphone, headphone / microphone combo jack

#### Security chip
- Security chip System Mgt (opt)
  - Power-on password, hard disk password, supervisor password, security keyhole
  - Discrete TPM 2.0, TCG Certified

#### Security Key
- Intel vPro Technology

#### FingerPrint Reader
- Touch style match on chip fingerprint reader on the palm rest

#### Near Field Communication (NFC) (optional)
- Optional: ThinkPad Ethernet Extension Adapter Gen 2

#### Battery
- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

#### Max battery life
- MobileMark® 2014: 14.5 hr
  - Battery life varies significantly with settings, usage, & other factors

#### AC adapter
- 45W, 65W, or 65W slim USB-C AC adapter

#### Operating system
- Optional: Windows® 10 Home 64 or Windows 10 Pro 64

#### Limited warranty (optional)
- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot with 2-year system board repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/3-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service
  - 3-year/3-yr battery limited onsite service

#### MIL-Spec test
- MIL-STD-810G military testing

#### Environment
- EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

---

**Note:** The specifications above may not be available in all regions.

*Lenovo January 2020*
### ThinkPad X395 Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Ryzen® PRO Mobile Processors with Radeon® Vega Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>Ryzen 3 Pro 3300U</td>
<td>4</td>
</tr>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>4</td>
</tr>
</tbody>
</table>

| Graphics | AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports three independent displays; Max resolution: 4096x2304 @ 60Hz (USB-C): 4096x2160 @ 24Hz (HDMI) |

| Chipset Memory | AMD SoC (System on Chip) 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets |

<table>
<thead>
<tr>
<th>Display</th>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Surface</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3&quot; HD (1366x768)</td>
<td>TN</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>300:1</td>
<td>45%</td>
<td>90°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.3&quot; FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>800:1 (non-touch) / 700:1 (multi-touch)</td>
<td>72%</td>
<td>170°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.3&quot; FHD (1920x1080)</td>
<td>ThinkPad Privacy Guard</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>178°</td>
<td></td>
</tr>
</tbody>
</table>

| Multi-touch (opt) | On-cell touch, supports 10-finger gesture (FHD only) |

<table>
<thead>
<tr>
<th>Storage</th>
<th>M.2 2280 SSD / SATA 6.0Gb/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical</td>
<td>M.2 2280 SSD / PCle NVMe, PCle 3.0 x 4 None</td>
</tr>
</tbody>
</table>

| Ethernet | Native Realtek® RTL8153 Gigabit Ethernet connection via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2 |

| WLAN (optional) Bluetooth™ | Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 |

| WWAN (optional) | One of the following, configurable by model: |
| SIM card (opt) | Wireless WAN upgradable |
|                  | Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card |
|                  | For non-WWWAN model, it means the model is NOT WWAN upgradable |
|                  | Nano-SIM card slot, optional Verizon LTE (US) SIM card |

| Dimensions | WxDxH: 12.28" x 8.55" x 0.67"; 311.9mm x 217.2mm x 16.9mm |
| Weight     | Models |
|            | HD / FHD multi-touch | FHD non-touch | FHD Privacy Guard |
|            | Weight | 2.91 lb / 1.32 kg | 2.82 lb / 1.28 kg | 3.01 lb / 1.37 kg |

| Case color | Black |
| Case material | Display cover: PPS/GF; Bottom: Magnesium/Aluminum |

| Smart card reader | Optional: Smart card reader |
| Media reader | MicroSD card reader, in the combo slot with nano-SIM card |
| Ports | One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole |

| Monitor cable (optional) | Bundled Acy |
| USB-C to VGA: Lenovo HDMI to VGA Monitor Adapter |
| Optional: ThinkPad Ethernet Extension Adapter Gen 2 |

| Camera (optional) | One of the following, configurable by model: |
| Audio support | • HD720p camera with ThinkShutter camera privacy, fixed focus |
| Security | • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus |
| Security chip | HD Audio, Realtek ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack |
| Security keyhole | On-cell touch, supports 10-finger gesture (FHD only) |
| System Mgt | Power-on password, hard disk password, supervisor password, security keyhole |
| Fingerprint reader | Discrete TPM 2.0, TCG Certified |
| Optional | DASH Management |
| TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad |

| Battery | Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) |
| Max battery life | 14.5 hr |
| * Battery life varies significantly with settings, usage, & other factors |
| AC adapter | 45W or 65W USB Type-C AC adapter |

| Operating system | Optional: Windows® 10 Home 64 or Windows 10 Pro 64 |
| Limited warranty | One of the following, configurable by model: |
|                   | • 1-year depot repair service |
|                   | • 3-year/1-yr battery depot repair service |
|                   | • 3-year/1-yr battery limited onsite service |

| Mil-Spec test | MIL-STD-810G military testing |
| Environment | EPEAT® Silver; ENERGY STAR® 7.1; RoHS-compliant |

Note: The specifications above may not be available in all regions.

Lenovo December 2019
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**Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

**Included software:** may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

**Battery life:** Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


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Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.
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</tr>
<tr>
<td>Legal Information</td>
<td>6</td>
</tr>
</tbody>
</table>
Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

October 30, 2019 - Version 550

Additions in this update

► New product(s)
  None

► New model(s)
  None

► Others
  ThinkPad X1 Tablet (3rd Gen) - Spec updated

Withdrawals in this update

► Withdrawn product(s)
  None
## ThinkPad X1 Tablet (3rd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor, supports external digital monitor via USB Type-C

### Chipset

- Intel SoC (System on Chip) platform

### Memory

- 8GB or 16GB / 2133MHz LPDDR3, soldered to systemboard, no sockets

### Display

- 13.0” (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS, anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing), 400 nits, 3.2 aspect ratio, 1200:1 contrast ratio
- Capacitive touch panel, supports ten-finger gesture
- Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro)
- Opening angle up to 170 degrees

### Storage

- One of the following, configurable by model:
  - M.2 2280 SSD / SATA 6.0Gb/s
  - M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- One MicroSD card reader, in the combo slot with nano-SIM card, support
  - USH-I, microSDHC, microSDXC

### Ethernet

- None

### WLAN

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card
- Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
- Nano-SIM card slot, in the combo slot with microSD card reader

### SIM card (optional)

- None

### Dimensions

- Tablet only: 11.97” x 8.9” x 0.35“; 304.1mm x 226mm x 8.9mm
- Tablet + keyboard: 11.97” x 8.9” x 0.57“; 304.1mm x 226mm x 14.4mm

### Weight

- Tablet only: starting at 1.96 lb / 0.89kg
- Tablet + keyboard: starting at 2.8 lb / 1.27kg

### Case color

- Black

### Case material

- Magnesium/Aluminum

### Ports

- Two USB 3.1 Type-C Gen 1 ((with the function of Power Delivery and DisplayPort), one Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack, combo slot of nano-SIM card (WWAN models) and microSD card reader

### Control buttons

- Power button, volume control button, reset switch

### Dock (Optional)

- Thin Keyboard (Magnetic Detachable)
- USB-C Dock Gen 2

### Monitor cable

- None

### Bundled Accy (optional)

- USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
- USB-C to VGA: Lenovo USB C to VGA Plus Power Adapter
- USB-C to HDMI: Lenovo USB-C to HDMI Plus Power Adapter

### Camera

- Front camera: 2.0-megapixel, fixed focus
- Rear camera: 8.0-megapixel, auto focus

### IR Camera

- Optional: IR camera, fixed focus (mutually exclusive with NFC)

### Audio support

- Realtek® ALC3278 codec / stereo speakers, 1W x 2 /
- dual array microphones, combo audio/microphone jack

### Pogo keyboard

- Magnetic attached thin keyboard, with TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch, backlit

### Keyboard color

- Black

### Security

- Kensington lock slot

### Security chip

- Discrete TPM 2.0 TCG Certified

### System Mgt (opt)

- Intel vPro Technology

### Fingerprint reader

- Optional: Touch style Fingerprint reader

### NFC (optional)

- Near Field Communication (mutually exclusive with IR camera)

### Battery

- Integrated Li-Ion 42Wh battery
- Max battery life
  - MobileMark® 2014: 9.5 hrs
  - * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Light sensor

- Ambient Light Sensor

### G-sensor

- 3D accelerometer

### Gyroscope

- 3D gyrometer

### GPS (optional)

- GPS function is integrated into WWAN module

### Monitor cable

- USB-C Dock Gen 2
- Lenovo USB-C to VGA Plus Power Adapter
- Lenovo USB-C to HDMI Plus Power Adapter

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 1-year depot repair service bundled with 2-year system board service
  - 3-year/1-year battery depot repair service
  - 3-year/1-year battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT® Silver, GREENGUARD, Low Halogen, RoHS

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Lenovo

July 2019
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**Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

**Lenovo Services:**

- **Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.
- **Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business. If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

**Included software:** may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

**Battery life:** Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


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Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.
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Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

January 2020 - Version 554

Additions in this update

► New product(s)
   ThinkSmart Edition Tiny M920q for Zoom Rooms

► New model(s)
   None

► Others
   None

Withdrawals in this update

► Withdrawn product(s)
   None
## ThinkCentre M820z Platform Specifications

### Processor

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<th>Cores/Threads</th>
<th>Frequency Base/MHz</th>
<th>Cache</th>
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<th>Integrated Graphics</th>
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</table>

### Memory

- 32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- * System clocks down for the processors with lower memory controller

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" (SSD)
- Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Media reader: Optional 3-in-1 media card reader

### Graphics

- Intel HD Graphics 610 / 630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™
- Max resolution: 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz
- 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color, Borderless design
- TFT-LCD, In-Plane Switching technology (In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA), Wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode
- Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology
- Optional 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°)
- Controls: Physical buttons on side for microphone mute and power on/off

### Chipset

- Intel B360 Chipset

### Rear ports

- Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort, one optional serial (9-pin), one USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Type-C Gen 1, one optional card reader, one headphone jack / microphone combo jack (3.5mm)

### Audio support

- High Definition (HD) Audio, Realtek ALC232 / two internal speakers (2W x 2), Dolby® Audio™ Premium

### Power supply

- 150 watts, autosensing, 90% PSU

### Limited warranty

- 1-year or 3-year, depot repair service / service upgrades available
- 1-year or 3-year, limited onsite service / service upgrades available

### Preload

- Preloaded operating system
  - Windows 10 Pro 64-bit
  - Windows 10 Home 64-bit
- Preloaded applications (only some listed)
  - Lenovo Vantage
  - Microsoft Office preloaded; purchase a product key to activate
  - Cyberlink PowerDVD (only for models with DVD / DVD±RW)
  - Cyberlink Power2GO (only for models with DVD±RW)
  - LinkedIn

### Environment

- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus)

### Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, June 2019
## ThinkCentre M920z Platform Specifications

**Product Specifications Reference (PSREF)**

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<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900K</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable

* System clocks down for the processors with lower memory controller

### Storage

<table>
<thead>
<tr>
<th>Storage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Drive / SATA 6.0Gbps, 2.5&quot;, 5400 rpm or 7200 rpm, supports up to two HDDs (2nd HDD occupies ODD bay), RAID0/1 support (RAID preset only available via special bid model)</td>
<td></td>
</tr>
<tr>
<td>Solid State Drive (SSD) / SATA 6.0Gbps, 2.5&quot;</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4</td>
<td></td>
</tr>
</tbody>
</table>

### Optical

<table>
<thead>
<tr>
<th>Optical</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD-ROM SATA 1.5Gbps Drive, slim (9.0mm)</td>
<td></td>
</tr>
<tr>
<td>DVD Burner (DVD+RW), SATA 1.5Gbps Drive, slim (9.0mm)</td>
<td></td>
</tr>
</tbody>
</table>

### Audio support

Audio support: High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby Audio™ Premium

### WLAN

WLAN: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1

### Bluetooth

Bluetooth™: 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter

### Mechanical

- Business black color
- Toolless back cover, stand, disk, memory removal
- Support VESA mount (100mm)

### Dimensions (WxDxH)

Without stand (No camera):

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>MAX WEIGHT</th>
<th>ADJUSTMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.3 X 18 X 13.7 (inch)</td>
<td>542 X 46 X 349 (mm)</td>
<td>(Touch) 14.0 / 6.34</td>
</tr>
<tr>
<td>(Non-touch)</td>
<td>13.5 / 6.13</td>
<td>N/A</td>
</tr>
</tbody>
</table>

With Full Function Monitor stand (No camera):

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>MAX WEIGHT</th>
<th>ADJUSTMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.3 X 9.9 X 15.9 to 20.2 (inch)</td>
<td>542 X 252 X 405 to 514 (mm)</td>
<td>(Non-touch) 18.2 / 8.26</td>
</tr>
<tr>
<td>Tilt: 45° back, -5° forward;</td>
<td>Lift: 110mm; Swivel: +/-45°</td>
<td></td>
</tr>
</tbody>
</table>

With UltraFlex III stand (No camera):

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>MAX WEIGHT</th>
<th>ADJUSTMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.3 X 9.9 X 14.3 to 17.5 (inch)</td>
<td>542 X 252 X 363 to 444 (mm)</td>
<td>(Touch) 19.7 / 8.94</td>
</tr>
<tr>
<td>(Non-touch)</td>
<td>19.2 / 8.73</td>
<td>Lift: up to 136mm (flat mode) / up to 81mm (vertical mode); Swivel: +/-45°</td>
</tr>
</tbody>
</table>

### Rear ports*

- Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort in/out combo port, one optional serial (9-pin)
- One USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one optional card reader, one headphone / microphone combo jack (3.5mm)

### Side ports*

- Two M.2 Card slots (one for WLAN, one for SSD/Optane)

Note: The specifications above may not be available in all regions.

Lenovo, June 2019
### ThinkCentre M90n-1 Nano Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i3-8145U</td>
<td>2 / 4</td>
<td>2.1G / 3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
<tr>
<td>Core i5-8265U</td>
<td>4 / 8</td>
<td>1.6G / 3.9G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
<tr>
<td>Core i7-8865U</td>
<td>4 / 8</td>
<td>1.9G / 4.8G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
</tbody>
</table>

#### Memory

- 8GB or 16GB / DDR4-2400 / soldered to system board, no sockets, non-ECC
- * System automatically clocks down for the processors with lower memory controller

#### Storage

- Support up to two M.2 SSD
  - Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
  - Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celleron)
- * M.2 SSD / Optane with SSD in PCIe 3.0 x 2 M.2 slot can only run at PCIe 3.0 x 2

#### RAID

- RAID 0/1 support (RAID preset only available via special bid model)
- None

#### Graphics

- Intel UHD Graphics 620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one USB 3.1 Type-C Gen2 with display function, up to 2 independent displays;
- Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz;
- Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

#### Monitor cable

- optional 3.5mm earphone jack (3.5mm)

#### Chipset

- Intel SoC (System on Chip) platform

#### Front ports (Std.)

- 2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm)

#### Rear ports (Std.)

- 2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2 (with display function, support power-in [20V and >45W]), 1x ethernet (RJ-45), 1x DisplayPort

#### Realtek ALC333VB / internal speaker (1watt)

- 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
- 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
- 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

#### Bluetooth

- Bluetooth 5.0, wireless, integrated in Wi-Fi + BT combo adapter

#### Ethernet

- Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN

#### Keyboard

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

#### Mechanical

- Nano (0.35L), black color; metal case
- Three M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2) and one for WLAN

#### Mounting

- VESA mount bracket kit, supports VESA 75mm
- Lenovo mount bracket kit with adapter holder, supports VESA 75mm
- DIN rail mount bracket kit

#### Floor Stand

- None

#### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (Not for TIO models)

#### Limited warranty

- 1-year, limited onsite service / service upgrades available
- 3-year, limited onsite service / service upgrades available

#### Preload

- Preloaded operating system
- Windows® 10 Pro 64-bit
- Windows 10 Home 64-bit

#### Environment

- ENERGY STAR® 7.1, EPEAT™ Silver rating (North America), ErP Lot 3, TCO 8.0, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH

#### MIL-SPEC test


#### Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, July 2019
## Product Specifications Reference (PSREF)

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron 4205U</td>
<td>2 / 2</td>
<td>1.8G</td>
<td>2 MB</td>
<td>DDR4-2133</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8145U</td>
<td>2 / 4</td>
<td>2.1G / 3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
</tbody>
</table>

### Memory

4GB / DDR4-2666* / soldered to systemboard, no sockets, non-ECC

* System automatically clocks down for the processors with lower memory controller

### Storage

Support up to two M.2 SSD

- M.2: 2280 SSD / PCIe NVMe, PCIe 3.0 x 4*
- M.2: 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Some: Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celeron)

* M.2 SSD / Optane with SSD in PCIe 3.0 x 2 M.2 slot can only run at PCIe 3.0 x 2

RAID 0/1 support (RAID preset only available via special bid model)

### Optical

None

### Graphics

Intel UHD Graphics 610/620 in processor, uses main memory, DirectX™ 12, one DisplayPort™, one USB 3.1 Type-C Gen2 with display support, up to 2 independent displays;

Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz;
Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to DP dongle

### Chipset

Intel SoC (System on Chip) platform

### Monitor cable

2x RJ-45

### Audio support

Realtek ALC233VB / internal speaker (1watt)

### WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1

Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1

### Bluetooth

Some: Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter

With Core i3: Two gigabit ethernet, Realtek RTL8111K and RTL8111HN, 2x RJ-45 Wake on LAN®

### Mechanical

Nanom (fanless 0.55L), black color; metal case

Four M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2), one for WLAN, and one for WWAN

### Power supply

Some: 65 watts AC/DC adapter*, autosensing, 88% PSU

Some: 65 watts AC/DC adapter (wide temperature)*, autosensing, 88% PSU (only for Machine Type 11AS)

* Not for the models with I/O box

### Limited warranty

Some: 1-year, limited onsite service / service upgrades available

Some: 3-year, limited onsite service / service upgrades available

### Notable features

- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Chassis intrusion switch
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Calliope Wireless Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Calliope Wireless Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Windows 10 Home 64-bit
- Windows 10 Pro 64-bit
- Windows 10 Home 64-bit
- Windows 10 Home 64-bit
- Windows 10 IoT Enterprise (only available via special bid model)
- ENERGY STAR® 7.1*, EPEAT Silver rating (North America)*, ErP Lot 3, TCO 8.0, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH
- MIL-STD-810H* (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Solar Radiation)
- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

Note: The specifications above may not be available in all regions.

Lenovo, January 2020
Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium G4400</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
</tr>
<tr>
<td>Pentium G4560</td>
<td>2 / 4</td>
<td>3.5G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 4</td>
<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4</td>
<td>3.4G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

Memory

<table>
<thead>
<tr>
<th>Storage</th>
<th>Optical</th>
<th>Onboard SATA Media reader</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: Hard Drive / SATA 6.0Gb/s, 2.5&quot; or 3.5&quot;, 5400 rpm or 7200 rpm</td>
<td>Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5&quot;</td>
<td>Some: Intel Optane™ Memory (with 7th gen Core processor), M.2</td>
<td>Intel HD Graphics 510/530/610/630</td>
</tr>
<tr>
<td>Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s</td>
<td>Some: DVD ROM SATA 1.5Gb/s Drive, slim (9.0mm)</td>
<td>Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</td>
<td>Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz</td>
</tr>
<tr>
<td>Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort) @ 60Hz</td>
<td>Optional 7-in-1 media reader</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chipset

<table>
<thead>
<tr>
<th>Monitor cable</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4</td>
<td>Intel B250 Chipset</td>
</tr>
</tbody>
</table>

Front ports

<table>
<thead>
<tr>
<th>Rear ports*</th>
<th>Rear audio ports*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)</td>
<td>Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)</td>
</tr>
<tr>
<td>Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse); additional DisplayPort on optional graphics on some models</td>
<td>None</td>
</tr>
</tbody>
</table>

Audio support

<table>
<thead>
<tr>
<th>WLAN*</th>
<th>Bluetooth™ Ethernet Modem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1</td>
<td>None</td>
</tr>
<tr>
<td>Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2</td>
<td>None</td>
</tr>
<tr>
<td>Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1</td>
<td>None</td>
</tr>
<tr>
<td>Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2</td>
<td>None</td>
</tr>
<tr>
<td>Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter</td>
<td>None</td>
</tr>
</tbody>
</table>

Environment

<table>
<thead>
<tr>
<th>Security features</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security slot (in rear for optional Kensington® MicroSaver® cable)</td>
<td>SFF (8.4L), black color; metal case</td>
</tr>
<tr>
<td>Padlock loop</td>
<td>(Win8WX) 3.6 X 11.4&quot; X 13.5&quot;; 92.5mm X 290.5mm X 342.5mm</td>
</tr>
<tr>
<td>Smart USB protection, allows keyboards/mouse only, blocks all storage devices</td>
<td>Approx. 13.2 lb (6.0 kg), weight may vary by configuration</td>
</tr>
<tr>
<td>Optional cable lock to physically lock both keyboard and mouse</td>
<td>Touchless cover, disk, optical removal</td>
</tr>
<tr>
<td></td>
<td>Optional dust filter</td>
</tr>
<tr>
<td>Power-on password</td>
<td>Bay 1: Slim external ODD bay</td>
</tr>
<tr>
<td>Administrator password</td>
<td>Bay 2: 3.5&quot;, 1&quot; high, internal, HDD/SSD</td>
</tr>
<tr>
<td>Hard disk password</td>
<td>Bay 3: 2.5&quot;, internal, HDD/SSD (optional bay)</td>
</tr>
<tr>
<td>Boot sequence control</td>
<td>Slot 1: low-profile (length &lt; 150mm, height &lt; 68mm), PCIe 3.0 x16*</td>
</tr>
<tr>
<td>Individual USB port disablement</td>
<td>Slot 2: low-profile (length &lt; 150mm, height &lt; 68mm), PCIe 3.0 x1</td>
</tr>
<tr>
<td>Optional chassis intrusion switch</td>
<td>Slot 3: low-profile (length &lt; 150mm, height &lt; 68mm), PCIe 3.0 x1</td>
</tr>
<tr>
<td>Preload operating system</td>
<td>Slot 4: no slot, only bracket for optional port extension*</td>
</tr>
<tr>
<td>Windows® 7 Professional 32/64</td>
<td>M.2 card slots: Two (one for WLAN, one for SSD/ Optane)</td>
</tr>
<tr>
<td>preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)</td>
<td>* Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot</td>
</tr>
<tr>
<td>Windows® 10 Home 64-bit</td>
<td>Optional system floor stand for vertical orientation</td>
</tr>
<tr>
<td>Only for Windows 7</td>
<td>Power supply</td>
</tr>
<tr>
<td>Windows® 10 Pro 64-bit</td>
<td>Some: 180 watts, autosensing, 85% PSU</td>
</tr>
<tr>
<td>Windows® 10 Home 64-bit</td>
<td>Some: 210 watts, autosensing, 92% PSU (only available via special bid)</td>
</tr>
<tr>
<td>Preloaded applications (only some listed)</td>
<td>Some: 1-year or 3-year, depot service / service upgrades available</td>
</tr>
<tr>
<td>Microsoft Office preloaded; purchase a product key to activate</td>
<td>Some: 1-year or 3-year, limited onsite service / service upgrades available</td>
</tr>
<tr>
<td>- Only for Window 10</td>
<td>Lenovo ThinkVantage Tools</td>
</tr>
<tr>
<td>Lenovo Companion</td>
<td>Lenovo Solution Center</td>
</tr>
<tr>
<td>Adobe® Reader</td>
<td>Create Recovery Media</td>
</tr>
<tr>
<td>Cyberlink PowerDVD Create (DVs+RW)</td>
<td>TUV low noise verified (on some models)</td>
</tr>
<tr>
<td>ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)</td>
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<tr>
<td>For compatible accessories, please go to <a href="http://www.lenovoquickpick.com">http://www.lenovoquickpick.com</a></td>
<td>Limited warranty</td>
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<td>Some: 1-year or 3-year, limited warranty (North America)</td>
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<tr>
<td>Limited warranty (North America)</td>
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<tr>
<td>Some: 3-year, limited warranty (North America)</td>
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Note: The specifications above may not be available in all regions.
Processor | Intel® Celeron™, Intel Pentium™, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor
---|---
Celeron G3900 | 2 / 2 | 2.8G | 2 MB | DDR4-2133 | HD 510
Celeron G3930 | 2 / 2 | 2.9G | 3 MB | DDR4-2133 | HD 610
Pentium G4400 | 2 / 2 | 3.0G | 3 MB | DDR4-2133 | HD 530
Pentium G4600 | 2 / 2 | 3.5G | 3 MB | DDR4-2400 | HD 610
Pentium G4660 | 2 / 2 | 3.6G | 3 MB | DDR4-2400 | HD 630
Core i3-6100 | 2 / 2 | 3.7G | 3 MB | DDR4-2133 | HD 530
Core i5-6400 | 4 / 4 | 2.7G / 3.3G | 6 MB | DDR4-2133 | HD 530
Core i5-6500 | 4 / 4 | 3.2G / 3.6G | 6 MB | DDR4-2133 | HD 530
Core i7-6700 | 4 / 8 | 3.4G / 4.0G | 8 MB | DDR4-2133 | HD 530
Core i3-7100 | 2 / 4 | 3.9G | 3 MB | DDR4-2133 | HD 630
Core i3-7300 | 2 / 4 | 4.0G | 3 MB | DDR4-2133 | HD 630
Core i5-7400 | 4 / 4 | 3.0G / 3.5G | 6 MB | DDR4-2133 | HD 630
Core i7-7500 | 4 / 4 | 3.4G / 3.8G | 6 MB | DDR4-2400 | HD 630
Core i5-7600 | 4 / 4 | 3.5G / 4.1G | 6 MB | DDR4-2400 | HD 630
Core i7-7700 | 4 / 8 | 3.6G / 4.2G | 8 MB | DDR4-2400 | HD 630
Memory | 32GB max, UDIMM, DDR4-2400*, two 288-pin DIMM sockets, non-ECC, dual-channel capable
Security features | • Security slot (in rear for optional Kensington® MicroSaver® cable)
• Padlock loop
• Smart USB protection, allows keyboard / mouse only, blocks all storage devices
• Optional smart card clip to physically lock both keyboard and mouse
Keyboard | Some: Lenovo Calliope Keyboard (USB connector), black
Some: Lenovo Traditional Keyboard (USB connector), black
Some: Lenovo Calliope Mouse (USB connector), black
Mouse | Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
Mechanical | • SFF (7.4L), black color, metal case
• (Wx Dx H) 3.9" x 11.9" x 10.8"; 100mm X 303.5mm X 273.5mm
• Approx. 9.37 lb (4.25 kg), weight may vary by configuration
• Bay 1: Slim external ODD bay
• Bay 2: 3.5", 1" high, internal, supports 2.5" or 3.5" HDD/SSD (2.5 to 3.5 bracket comes with disk)
• Slot 1: low-profile (length < 152mm, height <= 64mm), PCIe x1
• Slot 2: low-profile (length < 152mm, height <= 64mm), PCIe x1
• M.2 card slots: one for SSD
Environmental | ENERGY STAR® 6.1, EPEAT® Silver rating (North America), ErP Lot 3, RoHS-compliant, WEEE
Floor Stand | • Optional rear 2x USB2.0 / parallel occupies one expansion slot
• Optional system floor stand for vertical orientation
Packaging | (Wx Dx H) 7.7" x 15.4" x 19.7"; 195mm X 390mm X 500mm
• Cross weight (approx.) 14.22 lb (6.45 kg)
Power supply | Some: 180 watts, autosensing, 85% PSU
Limited warranty | Some: 1-year or 3-year, depot service / service upgrades available
Some: 1-year or 3-year, limited onsite service / service upgrades available
Preload | Preloaded operating system
• Some: Windows 10 Pro 64-bit
• Some: Windows 10 Home 64-bit
• Some: Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit(not available with 7th Gen Intel processor)
Preloaded applications (only some listed) | • Microsoft Office preloaded;
• purchase a product key to activate
• Cyberlink PowerDvd (DVD, DVD±RW)
• Cyberlink PowerDvd Create (DVD±RW)
• Only for Windows 10
• Only for Windows 7
• Lenovo Solution Center
• Lenovo System Update
• Create Recovery Media
• Adobe® Reader®
Environment | ENERGY STAR® 6.1, EPEAT® Silver rating (North America), ErP Lot 3, RoHS-compliant, WEEE
Accessories | For compatible accessories, please go to http://www.lenovoquickpick.com

Note: The specifications above may not be available in all regions.

Lenovo, January 2018
ThinkCentre M715 SFF Platform Specifications

Processor

<table>
<thead>
<tr>
<th>APU / processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>L2 Cache</th>
<th>Integrated Graphics</th>
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<td>4 / 4</td>
<td>3.8 / 4.2</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

Memory

- 64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable*
- * System automatically clocks down for the processors with lower memory controller support

Storage

- RAID 0, 1, 5, 10, JBOD
- Onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

Optical

- AMD Radeon™ Graphics in processor (not for AMD Ryzen processor), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are invalid on the models with AMD Ryzen processors), supports 3 independent displays, works along with AMD discrete graphics to support more displays;
- Max resolution: 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz

Chipset

- AMD B350 Chipset

WLAN

- 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1
- 11ac wireless, M.2 Card, Qualcomm Atheros QCA8827A (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 2x2
- 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1

Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt )

Bluetooh

- Support for Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

- Gigabit ethernet, Realtek RTL8111E/PV, Wake on LAN®

Manageability

- TPM (Trusted Platform Module) 2.0, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

Security features

- Security slot (in rear for optional Kensington™ MicroSaver™ cable)
- Power-on password
- Administrator password
- Padlock loop
- Hard disk password
- Smart USB protection, allows keyboards / mouse only, blocks all storage devices
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Optional chassis intrusion switch

Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Mouse (USB connector), black

Mouse

- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mechanical

- SFF (8.4L), black color; metal case
- (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm
- Approx. 13.2 lb (6.0 kg), weight may vary by configuration
- Toolless cover, disk, optical removal
- Optional dust filter

Power supply

- Some: 180 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 92% PSU (only available via special bid)

Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

- Preloaded operating system
- Some: Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (Only available with Pro A6/A10/A12-8xxx APUs)
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Microsoft Office preloaded;
- purchase a product key to activate
- Only for Window 10
- Lenovo Companion
- Only for Windows 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader®
- Cyberlink PowerDVD Create (DVD±RW)

Environment

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant

Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com

Note: The specifications above may not be available in all regions.

Lenovo, July 2017
### ThinkCentre M720 SFF Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ / i3 / i5 / i7 / i9 Processor</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
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<tbody>
<tr>
<td>Celeron G4900</td>
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<td>2 MB</td>
<td>DDR4-2400</td>
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<tr>
<td>Core i9-9900</td>
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<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
</tr>
</tbody>
</table>

#### Memory

64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable*  
* System automatically clocks down for the processors with lower memory controller.

#### Storage

| Some: | Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm |  
| Some: | Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" |  
| Some: | M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s |  
| Some: | M.2 SSD (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s |  
| Some: | Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 |  
| Some: | DVD-ROM SATA 5.25b/s Drive, slim (9.0mm) |  
| Some: | DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm) |  
| Optional: | Three onboard SATA 6.0Gb/s connectors |  
| Optional: | Optional 7-in-1 media reader |  

#### Graphics

Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, and provides display support through discrete graphics.  
Some: NVIDIA GeForce® GT 730 (End Of Life), DirectX 12, 2GB GDDR5, PCIe 3.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)  
Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)

#### Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, or Collage Display with integrated graphics card, or DP to HDMI 1.4 dongle

#### Chipset

Intel® B360 Chipset

#### Front ports* (Std.)

2x USB 3.1 Gen1, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

#### Rear ports* (Opt.):

1x media reader

#### Rear ports* (Std.):

4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 1x DisplayPort, 1x line-out (3.5mm)

#### Audio support

High Definition (HD) Audio, Realtek ALC2323VB2 / internal speaker (2 watt)

#### LAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

#### LAN Wireless

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

#### Mechanical

Some: SFF (8.4L), black color, metal case  
Some: WiX/DXH 3.64" x 11.44" x 13.52", 92.5mm X 290.5mm X 343.5mm  
Some: Kaby Lake R, approx. 13.24 lb (6.0 kg), weight may vary by configuration  
Some: Toolless cover, disk, optical, and extension card removal  
Some: Optional dust filter  
Bay 1: Slim external ODD bay  
Bay 2: 3.5" *1 high, internal, HDD/SSD  
Bay 3: 2.5", internal, HDD/SSD (optional bay)  
Slot 1: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x16  
Slot 2: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1  
Slot 3: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1  
Slot 4: no slot, only bracket for optional port extension  
M.2 card slots: Two (one for WLAN, one for SSD/Optane)  
Optional system floor stand for vertical orientation

#### Power supply

Some: 180 watts, autoseeking, 85% PSU  
Some: 210 watts, autoseeking, 85% PSU  
Some: 260 watts, autoseeking, 92% PSU (only available via special bid)

#### Accessory Kit

Lenovo Vantage Toolless cover, disk, optical, and extension card removal

#### Preload operating system

Some: Windows® 10 Pro 64-bit  
Some: Windows 10 Home 64-bit

Preloaded applications (only some listed)

- Lenovo Vantage
- Microsoft Office preloaded
- CyberLink PowerDVD (only for models with DVD / DVD+RW)
- CyberLink Power2Go (only for models with DVD / DVD+RW)
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver)
- Lenovo Traditional Keyboard (USB connector)
- Lenovo Calliope Mouse (USB connector)
- Lenovo Calliope Mouse (PS/2 connector, black (only available via special bid)
- Lenovo Mouse (PS/2 connector, black (only available via special bid)

#### Limited warranty

Some: 1-year or 3-year, depot service / service upgrades available  
Some: 1-year or 3-year, limited onsite service / service upgrades available

#### Environment

Lenovo, December 2019

Note: The specifications above may not be available in all regions.
### ThinkCentre M720e SFF Platform Specifications

#### Processor

<table>
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<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
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<tr>
<td>Celeron G4900</td>
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<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

**Memory**
2GB max, DIMM, DDR4-2666*, two 288-pin DIMM sockets, non-ECC, dual-channel capable

* Memory may be underclocked to DDR4-2400 for the lower memory controller in processor.

**Storage**

- Some: Hard Drive / SATA 6.0Gb/s; 2.5" or 3.5"; 5400 rpm or 7200 rpm
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
- Some: Intel Optane™ Memory, M.2 2280, PCIe NVMe, PCIe 3.0 x 2
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVDr/Drw), SATA 1.5Gb/s Drive, slim (9.0mm)
- Optional 7-in-1 media reader

**Graphics**

- Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, one DisplayPort™, supports 2 independent displays, works along with discrete graphics to support more displays:
  - Max resolution: 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz
  - Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, one VGA, one HDMI, 30 watts (Max)
- Max resolution: 3840x2160 (HDMI)@30Hz; 2048x1536 (VGA)@85Hz
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

**Monitor cable**

Optional front 2x USB2.0 / parallel occupies one expansion slot

**Chipset**

- Intel B365 Chipset

**Front ports**

- Standalone: Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

**Rear ports**

- Standalone: Two USB 3.1 Gen1, two USB 2.0, serial (9-pin), ethernet (RJ-45), one VGA, one DisplayPort, Line-out jack (3.5mm)

**Audio support**

High Definition (HD) Audio, Realtek ALC623 / internal speaker (2 watt)

**Accessories**

- For compatible accessories, please go to http://www.lenovoquickpick.com

**Environment**

ENERGY STAR® 7, EPEAT Silver rating (North America), ErP Lot 3, RoHS-compliant, WEEE

**Limited warranty**

Some: 1-year or 3-year, depot service / service upgrades available
Some: 1-year or 3-year, limited onsite service / service upgrades available

**Power supply**

180 watts, autosensing, 85% PSU

**Preload**

Preloaded operating system

Some: Windows 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Linux Ubuntu

**Security features**

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional smart card clip to physically lock both keyboard and mouse
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Optional chassis intrusion switch

Note: The specifications above may not be available in all regions.

Lenovo, September 2019
## ThinkCentre M725 SFF Platform Specifications

**Processor AMD A6 / A8 / A10 and Ryzen 3 / 5 / 7 series processor**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>L2 / L3 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO A6-9500</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>DDR4-2400</td>
<td>Radeon R5</td>
</tr>
<tr>
<td>PRO A8-9600</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A10-9700</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>PRO A12-9800</td>
<td>4 / 4</td>
<td>3.8 / 4.2</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 3 2300X</td>
<td>4 / 4</td>
<td>3.5 / 4.0</td>
<td>2MB / 8MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 2500X</td>
<td>4 / 4</td>
<td>3.6 / 4.0</td>
<td>2MB / 8MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 3 5300G</td>
<td>4 / 8</td>
<td>3.5 / 3.6</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega 8</td>
</tr>
<tr>
<td>Ryzen 5 5400G</td>
<td>4 / 8</td>
<td>3.6 / 3.8</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
<td>Radeon RX Vega 11</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2400G</td>
<td>4 / 8</td>
<td>3.6 / 3.8</td>
<td>2MB / 4MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700</td>
<td>6 / 12</td>
<td>3.4 / 3.9</td>
<td>3MB / 16MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700</td>
<td>8 / 16</td>
<td>3.2 / 4.1</td>
<td>4MB / 16MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
</tbody>
</table>

**Memory**

- 64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- Systemboard supports up to DDR4-2666, memory frequency may automatically clock down for the lower capability of memory controller in processor

**Storage**

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD), SATA 6.0Gb/s, 2.5"
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- * 128GB SSD M.2 (2242) PCIe NVMe and AMD A6 / A8 / A10 / A12 processor only supports PCIe 3.0 x 2, 16Gb/s

**Optical**

- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)

**Onboard SATA**

- Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

**Media reader**

- Optional 7-in-1 media reader

**Graphics AMD Radeon™ Graphics in processor**

- (only for some processors), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard Video Graphics). All ports are only available on the models with integrated graphics, supports 3 independent displays, works along with AMD discrete graphics to support more displays;
- **Max resolution:** 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz
- Some: NVIDIA GeForce® GT 730, Directx 12, 2GB GDDR5, PCIe 2.0 x16 (x8 elec.), adapter, two DisplayPort, 35 watts;
- **Max resolution:** 3840x2160 (DisplayPort) @ 60Hz

**Monitor cable**

- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

**Chipsat AMD B450 Chipset**

**Front ports** (Std.) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)

**Front ports** (Opt.) Optional: 1x media reader, 2x USB 3.1 Type-C Gen2 via PCIe card (special bid only)

**Rear ports** (Std.) 2x USB 3.1 Gen1, 2x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA**, 2x DisplayPort**, 2x PS/2 ports (keyboard / mouse); 1x line-in (3.5mm), 1x line-out (3.5mm), 1x microphone (3.5mm)

**Rear ports** (Opt.) Optional: 2x USB 2.0, 1x 2nd serial (9-pin), 1x parallel (25-pin), additional RJ-45 and video ports available on optional graphics or ethernet card

**Audio support** High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt )

**WLAN**

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x

**Bluetooth**

- Some: Bluetooth 4.2, wireless, integrated in Wi-Fi + BT combo adapter
- * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1

**Ethernet Ethernet (Opt.)**

- Gigabit ethernet, RealtekRTL8111EPV, Wake on LAN®
- Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)

**Manageability Security chip Security features**

- DASH 10/1.1
- Discire TPM 2.0, TCG Certified
- ● Security slot (in rear for optional Kensington™ MicroSaver® cable)
- ● Padlock loop
- ● Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- ● Optional cable lock to physically lock both keyboard and mouse
- ● Power-on password
- ● Administrator password
- ● Hard disk password
- ● Boot sequence control
- ● Boot without keyboard and mouse
- ● Individual USB port disablement
- ● Optional chassis intrusion switch

**Keyboard**

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Keyboard (PS/2 connector), black (only available via special bid)
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

**Mouse**

- Optional: 2x USB 3.1 Gen2, 1x USB 2.0, 1x serial (9-pin), 1x parallel (25-pin), optional battery pack, additional RJ-45 and video ports available on optional graphics or ethernet card

**Mechanical**

- ● SFF (8.4L), black color; metal case
- ● (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm
- ● Approx. 13.2 lb (6.0 kg), weight may vary by configuration
- ● Toolless cover, disk, optical removal
- ● Optional dust filter
- ● Bay 1: Slim external ODD bay
- ● Bay 2: 3.5", internal, HDD/SSD
- ● Bay 3: 2.5" internal, HDD/SSD (bay only comes with 2.5" 2nd disk)
- ● Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16
- ● Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- ● Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
- ● Slot 4: low-profile (length < 150mm, height < 68mm), PCIe 3.0
- ● M.2 card slots: two (one for LAN, one for SSD)

**Floor Stand**

- Optional system floor stand for vertical orientation

**Power supply**

- Some: 180 watts, autoelecting, 85% PSU
- Some: 210 watts, autoelecting, 85% PSU
- Some: 260 watts, autoelecting, 92% PSU (only available via special bid)

**Limited warranty**

- 1-year or 3-year, limited onsite service / service upgrades available

**Preload**

- Preloaded operating system
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Preloaded applications (only some listed)
- ● Lenovo Vantage
- ● Microsoft Office preload; purchase a product key to activate
- ● Cyberlink PowerDVD (only for models with DVD / DVD+RW)
- ● Cyberlink Power2GO (only for models with DVD+RW)

**Environment**

- ENERGY STAR® 7.0, EPEAT® Silver rating* (*not for non-OS models);
- ErP Lot 3; RoHS-compliant

**Accessories**

- For compatible accessories, please go to http://smartfind.lenovo.com

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Note: The specifications above may not be available in all regions.

Lenovo, July 2018
### ThinkCentre M75s-1 SFF Platform Specifications

**Product Specifications Reference (PSREF)**

| Processor AMD Athlon PRO and Ryzen 3 / 5 / 7 PRO series processor | Ethernet Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td><strong>Ethernet (Opt.)</strong></td>
</tr>
<tr>
<td><strong>Core/Thread</strong></td>
<td><strong>Manageability, Security chip, Security features</strong></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td><strong>DASH 10/1.1, Discrete TPM 2.0, TCG Certified</strong></td>
</tr>
<tr>
<td><strong>L2 / L3 Cache</strong></td>
<td><strong>– Security slot (in rear for optional Kensington® MicroSaver® cable)</strong></td>
</tr>
<tr>
<td><strong>Memory Support</strong></td>
<td><strong>– Padlock loop</strong></td>
</tr>
<tr>
<td><strong>Integrated Graphics</strong></td>
<td><strong>– Smart USB protection, allows keyboard/mouse only, blocks all storage devices</strong></td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td><strong>– Optional smart cable clip to physically lock both keyboard and mouse</strong></td>
</tr>
<tr>
<td><strong>Athlon PRO 300GE</strong></td>
<td><strong>– Individual USB port disablement</strong></td>
</tr>
<tr>
<td>2 / 4</td>
<td><strong>– Optional chassis intrusion switch</strong></td>
</tr>
</tbody>
</table>
| **Ryzen 3 PRO 3200G** | **Audio support**
| 4 / 4 | **High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt)** |
| **Ryzen 5 PRO 3400G** | **WLAN**
| 4 / 8 | **11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2** |
| **Ryzen 5 PRO 3600** | **Some:**
| 6 / 12 | **11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2** |
| **Ryzen 7 PRO 3700** | **Some:**
| 8 / 16 | **11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2** |
| **Ryzen 9 PRO 3900** | **Some:**
| 12 / 24 | **Bluetooth®**
| 3.1 / 4.3 | **11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2** |

| Memory 64GB max, UDIMM, DDR4-2466*, four 288-pin DIMM sockets, non-ECC, dual-channel capable | Storage Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
| --- | --- |
| Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4 | Optical Some: DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)
| Optional Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model) | Onboard SATA Media reader Optional 7-in-1 media reader

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Monitor cable Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4</th>
</tr>
</thead>
</table>
| AMD Radeon™ Graphics in processor (for only some processors), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are only available on the models with integrated graphics), supports 3 independent displays, works along with AMD discrete graphics to support more displays; Max resolution: 1080x2160 (DP)@60Hz | Some: DVI-D to HDMI 1.4, optional.jpg
| Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, two DisplayPort, 30 watts (Max) | Slot 4: low-profile (length < 150mm, height < 70mm), PCIe Gen 3.0, x16
| Max resolution: 4096x2160 (DP)@60Hz | Slot 3: low-profile (length < 150mm, height < 70mm), PCIe 2.0 x1
| Chipset | Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1
| AMD PRO 560 FCH | Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16
| Front ports* (Std.) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm) | Mechanical Some: SFF (6.4L), black color; metal case
| Front ports* (Opt.) Optional: 1x media reader | Some: (Wx Dx H) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm
| Rear ports* (Std.) 2x USB 3.1 Gen1 (one support Smart Power-On), 2x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA**, 2x DisplayPort**, 2x PS/2 ports (keyboard / mouse); 1x line-in (3.5mm), 1x line-out (3.5mm), 1x microphone (3.5mm) | Some: Approx. 13.2 lb (6.0 kg), weight may vary by configuration
| Rear ports* (Opt.) Optional: 2x USB 2.0, 1x parallel (25-pin), additional video ports available on optional graphics card | Some: Toolless cover, disk, optical, and extension card removal
| * Depending on many factors, actual data transfer speed may be lower than theoretical speed only available on the models with integrated graphics | Security features
| Audio support | **Power-on password**
| High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt) | **Hard disk password**
| **WLAN** Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2 | **Boot sequence control**
| Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 | **Boot without keyboard and mouse**
| **Bluetooth** Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter | **Individual USB port disablement**

**Note:** The specifications above may not be available in all regions.

Lenovo, September 2019
### ThinkCentre M910 SFF Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7300</td>
<td>2 / 2</td>
<td>4.0G / --</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 8</td>
<td>3.0G / 3.3G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 8</td>
<td>3.4G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
<td>3.5G / 4.1G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

#### Memory

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

#### Storage

| Some: | Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm |
| Some: | Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" |
| Some: | Intel Optane™ Memory (with 7th gen Core processor), M.2 |
| Some: | DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) |
| Some: | DVD Burner (DVD±R/RW), SATA 1.5Gb/s Drive, slim (9.0mm) |

#### Optical

| Some: | Optional rear-facing cameras (optional) |
| Some: | Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial / cable lock / Wi-Fi antenna occupies one expansion slot |

#### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

#### Chipset

- Intel Q270 Chipset

#### Front ports

- Four USB 3.1 Gen 1, optional two USB 3.1 Type-C ports (2 only available via special bid), microphone (3.5mm), headphone (3.5mm)

#### Rear ports

- Four USB 3.1 Gen 1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse)
- Additional DisplayPort on optional graphics on some models
- Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)

#### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A7 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

#### Bluetooth

- Optional Bluetooth 4.1 wireless, integrated in Wi-Fi + BT adapter, Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN

#### Manageability

- Intel Active Management Technology 11.0 (Intel AMT 11.0)
- Intel vPro technology on some models (requiring choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

#### Security chip

- TPM (Trusted Platform Module) 2.0, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

#### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse

#### Mechanical

- * SFF (8.4L), black color, metal case
- *(WinXfX)* 3.6" X 11.44" X 13.5"; 92.5mm X 290.5mm X 342.5mm
- Approx. 11.92 lb (5.4 kg), weight may vary by configuration
- * Toolless cover, disk, optical, graphic card removal
- * Optional dust filter
- * Bay 1: Slim external ODD bay
- * Bay 2: 3.5", 1" high, internal, HDD/SSD
- * Slot 1: low-profile (length < 150mm, height < 68mm), PCle 3.0 x16
- * Slot 2: low-profile (length < 150mm, height < 68mm), PCle 3.0 x1
- * Slot 3: low-profile (length < 150mm, height < 68mm), PCle 3.0 x16 (x4 signal)
- * Slot 4: no slot, only bracket for optional port extension
- * M.2 card slots: Two (one for WLAN, one for SSD/Optane)
- * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial / cable lock / Wi-Fi antenna occupies one expansion slot

#### Floor Stand

Optional system floor stand for vertical orientation

#### Power supply

- Some: 180 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 210 watts, autosensing, 92% PSU (only available via special bid)

#### Preload

**Preloaded operating system**

- Windows 7 Professional 32/64 preinstalled with downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
- Microsoft Office preloaded
- purchase a product key to activate
- Only for Window 10
- Lenovo Companion
- Only for Window 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader
- Cyberlink PowerDVD Create (DVD+R/W)

#### Environment

- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

#### Accessories

For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

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Note: The specifications above may not be available in all regions.

Lenovo, August 2017
ThinkCentre M920 SFF Platform Specifications

Processor

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<th>Frequency (Max)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron G4900</td>
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<td>UHD 610</td>
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<td>Intel Core i5-8400</td>
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<td>Intel Core i5-9400</td>
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<td>Intel Core i7-9500</td>
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<td>9MB</td>
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<td>UHD 630</td>
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<td>Intel Core i7-9700</td>
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<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

Audio support

| High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt) |

WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2

- Some: Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter
- Some: NVIDIA GeForce GTX 1050 Ti, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN
- Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
- Some: Intel 82583V, gigabit ethernet, 1x RJ-45, PCIe x1

Bluetooth

- Bluetooth (300 Mbps, BT 4.2 or BT 5.0 wireless)

Ethernet (Opt.)

- Gigabit Ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN
- Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

Manageability

- Intel Active Management Technology 12 (Intel AMT 12)
- Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

- Discrete TPM 2.0, TCG Certified

Security features

- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Smart USB protection, allows keyboard/ mouse only, blocks all storage devices

Memory

| 64GB max, DDR4-2666, four 288-pin DIMM sockets, dual-channel capable |

Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s
- Some: Intel Optane Memory (not support Celeron / Pentium Processor)

Optical

- Some: DVD-Rom, SATA 6.0Gb/s, drive (9.0mm)
- Some: Dvd Burner (Dvd+rw), SATA 1.5Gb/s, drive (9.0mm)

Onboard SATA

- Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader

- Optional 7-in-1 media reader

Graphics

- Intel UHD Graphics 610/630 in processor, uses main memory, DirectX 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
- Some: NVIDIA GeForce GT 730 (End Of Life), DirectX 12, 2GB GDDR5, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
- Some: AMD Radeon RX 550, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
- Some: AMD Radeon RX 550, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)

Monitor cable

- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with Intel integrated graphics), or DP to HDMI 1.4 dongle

Chipset

| Intel® Q370 Chipset |

Front ports* (Std.)

- 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone, 1x headphone / microphone combo jack (3.5mm)
- Front ports* (Opt.): 1x media reader

Rear ports* (Std.)

- 4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)
- Rear ports* (Opt.): 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card

* Depending on many factors, actual data transfer speed may be lower than theoretical speed.
# ThinkCentre M625 Tiny Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>APU</th>
<th>Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A9-9420e</td>
<td>2</td>
<td>1.8 / 2.7 GHz</td>
<td>1 MB</td>
<td>DDR4-1866</td>
<td>Radeon R5 Series</td>
</tr>
</tbody>
</table>

**Memory**

- 8GB max, DDR4-2666, one 260-pin SO-DIMM socket
- *System frequency automatically clocks down for the lower capability of memory controller in processor*
- Memory preloaded for Some:
  - ENERG STAR
  - 8GB max, DDR4-2666, one 260-pin SO-DIMM socket

**Optical Drive**

- None
- One SATA 6.0Gb/s connector on planar

**Graphics**

- **Graphics** AMD Radeon™ Graphics in processor, uses main memory, DirectX 12, two DisplayPort™, optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays:
  - Max resolution: 3840x2160 (USB 2.0 Type-C)@60Hz;
  - 3840x2160 (USB 2.0 Type-C)@60Hz;
  - Two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)
  - *Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Monitor cable**

- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

**Chipset**

- AMD SoC platform

**Front ports**

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

**Rear ports**

- One USB 3.1 Gen1, three USB 2.0, ethernet (RL-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)

**Audio support**

- High Definition (HD) Audio, Realtek ALC233-VB2-CG; internal speaker (1.5 watt)

**WLAN™**

- 11ac wireless, M.2 Card, Realtek RTLB822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

**Bluetooth™**

- 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

**Ethernet**

- Gigabit ethernet, Realtek RTL8111H, Wake on LAN

**Security chip and features**

- None
  - Security slot (in rear for optional Kensington® MicroSaver® cable)
  - Smart USB protection, allows keyboard/mouse only, blocks all storage devices
  - Power-on password
  - Administrator password
  - Hard disk password
  - Boot sequence control
  - Boot without keyboard and mouse
  - Individual USB port disablement
  - Chassis intrusion switch

**Environment**

- ENERGY STAR® 6.1*, EPEAT™ Silver rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

**MIL-STD-810G**


**Limited warranty**

- Some: 1-year, depot service / service upgrades available
- Some: 1-year, limited onsite service / service upgrades available

**Preload**

- Preloaded operating system:
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit

- Preloaded applications (only some listed):
  - Windows 10 only
  - Lenovo Vantage
  - LinkedIn
  - Microsoft Office preloaded;
  - purchase a product key to activate
  - Factory Recovery
  - User Guide Viewer
  - Microsoft Office preloaded;
  - purchase a product key to activate
  - Adobe® Reader®

**Environment**

- ENERGY STAR® 6.1*, EPEAT™ Silver rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

**MIL-STD-810G**


**Accessories**

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)
## ThinkCentre M625 Tiny Thin Client Platform Specifications

### Processor

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<tr>
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<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2-9000e</td>
<td>2</td>
<td>1.5 / 2.0 GHz</td>
<td>1 MB DDR4-1866</td>
<td>Radeon R2 Series</td>
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</tr>
</tbody>
</table>

### Memory

- 8GB max, DDR4-2666, one 260-pin SO-DIMM socket

* System frequency automatically clocks down for the lower capability of memory controller in processor

### Disk

- Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
- Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface

### Optical Onboard SATA Media reader

- None
- one SATA 6.0Gb/s connector on planar

### Graphics

- **AMD Radeon™ Graphics** in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays;
- **Max resolution**: 3840x2160 (DP) @60Hz; 2048x1280 (VGA) @60Hz;
- 3840x2160 (USB 2.0 Type-C) @60Hz

### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

### Chipset

- **AMD SoC platform**

### Front ports*

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

### Rear ports*

- One USB 3.1 Gen1, three USB 2.0, ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial)

### I/O box

- * Depending on many factors, actual data transfer speed may be lower than theoretical speed
- None

### Audio support

- High Definition (HD) Audio, Realtek ALC233-VB2-CG / internal speaker (1.5 watt)

### WLAN

- **Some**: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- **Some**: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

### Bluetooth

- **Some**: Bluetooth 4.2/5.0* wireless, integrated in Wi-Fi + BT combo adapter
  - *Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1

### Ethernet Modem

- Gigabit ethernet, Realtek RTL8111HN, Wake on LAN

### Manageability

- None

### Security chip Security features

- None
- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington® MicroSaver™ cable)
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Keyboard Mouse

- **Some**: Full-size USB Keyboard (USB connector), black, Lenovo logo
- **Some**: USB Optical Wheel Mouse, black, Lenovo logo

### Mechanical

- Tiny (1L), fan-less design, black color, metal case
- Toolless chassis open (for models with optional toolless chassis screw)
- Toolless SSD, memory, Wi-Fi removal
- **M625 Tiny Thin Client only:**
  - 7.05" W x 7.20" D x 1.36" H
  - 179mm W x 182.9mm D x 34.5mm H
  - 2.9 lb (1.3 kg), weight may vary by configuration

### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Preload

- **Preloaded operating system**
  - **Some**: Windows Embedded Standard 7 V2 (WES 7 V2)
  - **Some**: Windows 10 IoT Enterprise
  - **Some**: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

### Environment

- ENERGY STAR® 6.1*, EPEAT™ Silver rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

### MIL-SPEC test


### Accessories

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

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*Lenovo, May 2018*
# ThinkCentre M630e Tiny Platform Specifications

## Processor

<table>
<thead>
<tr>
<th>Processor Type</th>
<th>Cores / Threads</th>
<th>Frequency Base/MHz</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
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</thead>
<tbody>
<tr>
<td>Pentium Gold 5405U</td>
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<td>DDR4-2133</td>
<td>UHD 610</td>
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<td>Core i3-8145U</td>
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<td>2.1G / 3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
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<tr>
<td>Core i5-8265U</td>
<td>4 / 8</td>
<td>1.6G / 3.9G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 620</td>
</tr>
</tbody>
</table>

## Memory

- 16GB max, DDR4-3200*, one 260-pin SO-DIMM sockets, non-ECC
- * System automatically clocks down for the processors with lower memory controllers

## Storage

- Some: Hard Drive / SATA 6.0Gbps, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gbps, 2.5"
- Some: M.2 SSD (2280) / PCIe NVMe, PCIe 3.0 x 4, 32GB/s
- Some: M.2 SSD (2242) / PCIe NVMe, PCIe 3.0 x 2, 16GB/s
- One onboard SATA 6.0Gbps connector

## Onboard SATA

- M.2 SSD (2280) / PCIe NVMe, PCIe 3.0 x 4, 32GB/s
- One onboard SATA 6.0Gbps connector

## Graphics

- Intel HD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, up to 2 independent displays;
- Max resolution: 4096x2304 (DP) @ 60Hz, 4096x2304 (HDMI) @ 24Hz
- Optional DP to VGA dongle or DP to HDMI 1.4 dongle

## Chipset

- Intel SoC (System on Chip) platform

## Front ports (Std.)

- One USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

## Rear ports (Opt.)

- Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI
- None

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

## Audio support

- Realtek ALC233VB / internal speaker (1.5 watt)

## WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

## Bluetooth

- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

## Ethernet

- Gigabit ethernet, Realtek RTL8111HN-CG
- None

## Keyboard

- None

## Security chip

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Chassis intrusion switch
- Power-on password
- Administrator password
- Hard disk password

## Manageability

- None

## Preloaded operating system

- Windows 10 Home 64-bit
- Windows 10 Pro 64-bit

## Limited warranty

- Some: 1-year, depot service / service upgrades available
- Some: 1-year, limited onsite service / service upgrades available

## Power supply

- Some: 65 watts adapter, autosensing, 88% PSU

## Environment

- ENERGY STAR® 7.0, EPEAT™ Silver rating, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH

## Preloaded applications (only some listed)

- Lenovo Vantage
- Microsoft Office preloaded;
- Lenovo Vantage
- Microsoft Office preloaded;
- LinkedIn

## MIL-SPEC test

- Coming soon

## Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

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**Note:** The specifications above may not be available in all regions.

Lenovo, October 2019
### ThinkCentre M710 Tiny Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor</th>
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</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® G4400T, Intel® G4560T, Intel® G4600T, Core i3-6100T, Core i5-6500T, Core i7-6700T, Core i3-7100T, Intel® G4640T, Intel® G4600T, Core i5-7500T, Core i5-7400T, Core i5-7600T, Core i7-7700T</td>
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<td>Cores / Threads</td>
<td>2 / 2, 2 / 4, 2 / 4, 2 / 4, 2 / 4, 4 / 8, 2 / 4, 2 / 4, 4 / 4, 4 / 8, 4 / 8</td>
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<tr>
<td>Base/Max (GHz)</td>
<td>2.9G, 2.9G, 3.0G, 3.2G, 2.5G / 3.1G, 2.85 / 3.6G, 3.4G, 2.4G / 3.0G, 2.7G / 3.3G, 2.8G / 3.6G, 2.9G / 3.8G</td>
</tr>
<tr>
<td>Cache</td>
<td>3 MB, 3 MB, 3 MB, 3 MB, 3 MB, 3 MB, 3 MB, 6 MB, 6 MB, 6 MB</td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td>DDR4-2133, DDR4-2400, DDR4-2400, DDR4-2133, DDR4-2133, DDR4-2133, DDR4-2133, DDR4-2133, DDR4-2133, DDR4-2133</td>
</tr>
<tr>
<td>Integrated Graphics</td>
<td>HD 510, HD 610, HD 630, HD 530, HD 530, HD 530, HD 530, HD 530, HD 530, HD 530</td>
</tr>
</tbody>
</table>

### Memory

- 32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable, * System automatically clocks down for the processors with lower memory controller.

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (models with 7th gen Core processor, M.2)
- Some: DVD Burner (DVD+RW), slim (9.9mm), via USB external ODD box
- Some: One onboard SATA 6.0Gb/s connector

### Optical

- Some: DVD-ROM, slim (9.0mm), via USB external ODD box
- Some: DVD-ROM, slim (9.0mm), via USB external ODD box
- Some: DVD-ROM, slim (9.0mm), via USB external ODD box

### Onboard SATA

- One onboard SATA 6.0Gb/s connector

### Media reader

- None

### Graphics

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX™ 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays.
- Max resolution: 4906x2304 (DP) @ 60Hz; 4906x2304 (Type-C) @ 60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz

### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Chipset

- Intel B250 Chipset

### Front ports

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)
- Four USB 3.1 Gen1 (optional external optical box or external I/O box) occupies one or two specific USB 3.1 Gen1 on some models), ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)
- Optional external I/O box, extends two USB 3.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny)
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Audio support

- High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth

- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet Modem

- Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN

### Manageability

- TPM (Trusted Platform Module) 2.0*, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Security features

- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Mechanical

- Tiny (1L), black color; metal case
- Tiltless chassis open
- Tiltless HDD, SSD, memory removal
- Optional toolless chassis screw
- Optional dust filter

### Dimensions (WxDxH)

- M710 Tiny only 7.05" X 7.20" X 1.36" (179mm X 182.9mm X 34.5mm, vary by config

### Weight (Approx.)

- With VESA mount & ODD box 2.91 lb (1.32 kg), vary by config
- With VESA mount & I/O box 3.66 lb (1.66 kg), vary by config

### VESA mount Floor Stand

- Optional VESA mount bracket kit, supports VESA 75mm and 100mm optional system floor stand for vertical orientation

### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
- 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)

### Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

### Preload

- Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Preloaded applications (only some listed)
  - Microsoft Office preloaded; purchase a product key to activate
  - Only for Window 10
  - Lenovo Companion
  - Only for Window 7
  - Lenovo Solution Center
  - Lenovo ThinkVantage Tools
  - Create Recovery Media
  - Adobe® Reader
  - Adobe® Flash Player
  - ESPowerDVD Create (DVD+RW)

### Environment

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

### MIL-SPEC test


### Accessories

- For compatible accessories, please go to http://www.lenovoclickpick.com

See footnotes for more detailed information © Lenovo (M710 Tiny-Spec) February 2017
ThinkCentre M715 Tiny (2nd Gen) Platform Specifications

Processor:
- AMD Athlon, A6, A10, A12, or Ryzen processor

Memory:
- 32GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- System automatically clocks down for the lower memory controller

Disk:
- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s
  - 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s
- Some: DVD±RW, 9.0mm high, via USB external ODD box
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s

Graphics:
- AMD Radeon™ Graphics in processor, uses main memory, DirectX™ 12, two DisplayPort®, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays when using HDMI
- Supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays;
- Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz;
- Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

Chipset:
- AMD B300 Chipset

Front ports* (Std.):
- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

Rear ports* (Std.):
- One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone

Rear ports* (Opt.):
- One optional port (VGA*, or serial on some models)

Audio support:
- High Definition (HD) Audio, Realtek ALC233-VB2 / internal speaker (1.5 watt)

WLAN:
- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

Bluetooth:
- Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter

Ethernet:
- Gigabit ethernet, Realtek RTL8111E PV, Wake on LAN®

Manageability:
- DASH 1.0/1.1
- Security chip: Discrete TPM 2.0, TCG Certified

Security features:
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password

Keyboards:
- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black

Mice:
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mechanical:
- Tiny (1L), black color, metal case
- Optional dust filter

Power supply:
- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

Limited warranty:
- 1-year or 3-year, limited onsite service / service upgrades available

Preload:
- Preloaded operating system
  - Some: Windows 10 Home 64-bit
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 7 Professional 64
- Preloaded applications (only some listed)
  - Windows 10 only
    - Lenovo Vantage
    - Microsoft Office preloaded;
    - Cyberlink PowerDVD (only for models with DVD / DVD±RW)
    - Cyberlink Power2GO (only for models with DVD±RW)
    - LinkedIn
    - Windows 7 only
    - Lenovo Solution Center
    - Lenovo Support System
    - Cyberlink Power2GO (only for models with DVD±RW)
    - LinkedIn
    - Windows 7 only
    - Lenovo Solution Center
    - ThinkVantage System Update
    - Create Recovery Media
    - Microsoft Office preloaded;
    - Lenovo Support System
    - Cyberlink Power2GO (only for models with DVD±RW)
    - LinkedIn

Environment:
- ENERGY STAR® 7.0", EPEAT™ Silver rating® (*Not for non-QS models; ErP Lot 3; RoHS-compliant

MIL-SPEC test:
- MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)

Accessories:
- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, July 2018
## ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>APU</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max</th>
<th>L2 / L3 Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlon PRO 200GE</td>
<td>2 / 4</td>
<td>3.2 GHz</td>
<td>1 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 3</td>
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<tr>
<td>PRO A6-8570E</td>
<td>2 / 2</td>
<td>3.0 / 3.4 GHz</td>
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<td>DDR4-2400</td>
<td>Radeon R5</td>
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<tr>
<td>PRO A10-8770E</td>
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<td>2 MB / -</td>
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<td>Radeon R7</td>
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<tr>
<td>Ryzen 3 PRO 2200GE</td>
<td>4 / 4</td>
<td>3.2 / 3.6 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega 8</td>
</tr>
</tbody>
</table>

**Memory**

- 8GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- * System automatically clocks down for the lower memory controller

**Disk**

- Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
- Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 2
- None
- One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

**Optical Onboard Sata**

- AMD Radeon™ Graphics in processor, uses main memory, DirectX¹², two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays), Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz
- Monitor cable Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

**Chipset**

- AMD B300 Chipset

**Front ports**

- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

**Rear ports**

- One USB 3.1 Gen1 and three USB 2.0, ethernet (FJ-45), two DisplayPort, one headphone/one microphone

**Audio support**

- High Definition (HD) Audio, Realtek ALC223-VB2 / internal speaker (1.5 watt)

**WLAN**

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

**Bluetooth**

- * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1

**Security features**

- DASH 1.0/1.1
- Discrete TPM 2.0, TCG Certified
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

**Environmental**

- ENERGY STAR® 6.1*, EPEAT™ Silver rating® (*not for non-OS models); EnP Lot 3; RoHS-compliant

**Mechanical**

- Tiny (1L), black color; metal case
  - Toolless chassis open (need optional toolless chassis screw)
  - Optional dust filter
- VESA mount
  - Optional VESA mount bracket kit, supports VESA 75mm and 100mm
- Floor Stand
  - Optional system floor stand for vertical orientation

**Power supply**

- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

**Limited warranty**

- 1-year or 3-year, limited onsite service / service upgrades available

**Preload**

- Preloaded operating system
  - Some: Windows Embedded Standard 7 V2 (WES 7 V2)
  - Some: Windows 10 IoT Enterprise
  - Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

**Accessories**

- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

Note: The specifications above may not be available in all regions.

Lenovo, July 2018
### ThinkCentre M720 Tiny Platform Specifications

**Product Specifications Reference (PSREF)**

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron™, Intel Pentium™, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cores / Threads</td>
</tr>
<tr>
<td>Intel Celeron G4900T</td>
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<td>Intel Pentium G5400T</td>
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<td>6 / 6</td>
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<td>Core i7-9700T</td>
<td>8 / 8</td>
</tr>
<tr>
<td>Core i9-9900T</td>
<td>8 / 16</td>
</tr>
</tbody>
</table>

#### Memory

- 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

#### Storage

- Some: Hard Drive / SATA 6.0Gbps, 2.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gbps, 2.5" SSD
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gbps/s
- * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gbps/s
- Some: Intel Optane Memory (not support Celeron / Pentium Processor), M.2
- Some: DVD-ROM, slim (9.0mm), via USB external ODD box
- Some: DVD Burner (DVD+RW), slim (9.0mm), via USB external ODD box
- Onboard SATA: One onboard SATA 6.0Gbps connector

#### Graphics

- Intel HD Graphics 610/630 in processor, uses main memory. DirectX® 12, one DisplayPort®, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz; 4096x2160 (onboard HDMI) @ 24Hz; 2048x1536 (VGA) @ 50Hz
- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 display

#### Chipset

Intel B360 Chipset

#### Front ports (Std.)

- one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)
- Rear ports (Std.): 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI
- Rear ports (Opt.): Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function; Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 2x serial (9-pin) via PCIe x1
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### Audio support

Realtek ALC233VB / optional internal speaker (1.5 watt or 2 watt)

#### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

#### Bluetooth

- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

#### Ethernet (Opt.)

- Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

#### Mechanical

- Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Toolless HDD, SSD, memory removal
- Optional dust filter
- one 2.5" bay for HDD/SSD, one PCIe 3.0 x 8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive
- None

#### Power supply

- 65 watts AC/DC adapter, autosensing, 88% PSU
- 90 watts AC/DC adapter, autosensing, 88% PSU
- 135 watts AC/DC adapter, autosensing, 88% PSU

#### Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

#### Preload

- Preloaded operating system
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Preloaded applications (only some listed)
- Lenovo Vantage
- Microsoft Office preloaded; purchase a product key to activate
- Cyberlink PowerDVD (only for models with DVD / DVD+RW)
- Cyberlink Power2GO (only for models with DVD+RW)
- LinkedIn

#### Environment

- ENERGY STAR® 7.0, EPEAT Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant

#### MIL-SPEC test


#### Accessories

For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

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Note: The specifications above may not be available in all regions.

Lenovo, June 2019
**ThinkCentre M75q-1 Tiny Platform Specifications**

**Processor**
- AMD Athlon PRO or Ryzen 3 / 5 PRO series processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max</th>
<th>L2 / L3 Cache</th>
<th>Memory Support</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlon PRO 200GE</td>
<td>2 / 4</td>
<td>3.2 GHz</td>
<td>1 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 3</td>
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<tr>
<td>Athlon PRO 300GE</td>
<td>2 / 4</td>
<td>3.4 GHz</td>
<td>1 MB / 4 MB</td>
<td>DDR4-2666</td>
<td>Radeon Vega 3</td>
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<td>Ryzen 3 PRO 2200GE</td>
<td>4 / 8</td>
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<td>2 MB / 4 MB</td>
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<td>2 MB / 4 MB</td>
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<td>Radeon Vega 8</td>
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<tr>
<td>Ryzen 3 PRO 3200GE</td>
<td>4 / 8</td>
<td>3.3 / 3.8 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega 8</td>
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<tr>
<td>Ryzen 5 PRO 3400GE</td>
<td>4 / 8</td>
<td>3.3 / 4.0 GHz</td>
<td>2 MB / 4 MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega 11</td>
</tr>
</tbody>
</table>

**Memory**
- 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable
- System automatically clocks down for the lower memory controller

**Disk**
- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
- Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

**Optical**
- Some: DVD±RW, 9.0mm high, via USB external ODD box

**Onboard SATA**
- One SATA 6.0Gb/s connector on system board

**Graphics**
- AMD Radeon Graphics in processor, uses main memory, DirectX 12, one DisplayPort™, one HDMI, one optional port (VGA, 2nd DP, or 2nd HDMI), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or port to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays);
- Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz

**Monitor cable**
- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

**Chipset**
- AMD B300 Chipset

**Front ports** (Std.):
- One USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone jack (3.5mm)
- Rear ports* (Opt.):
  - Two optional ports: Port 1 for VGA / 2nd DP / 2nd HDMI / serial; Port 2 for serial;
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed

**Audio support**
- High Definition (HD) Audio, Realtek ALC222CG / internal speaker (1.5 watt)

**WLAN**
- Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

**Bluetooth**
- Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

**Ethernet**
- Gigabit ethernet, Realtek RTL8111EVP-CG, Wake on LAN

**Manageability**
- DASH 1.0/1.1

**Security chip**
- Discrete TPM 2.0, TCG Certified

**Security features**
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

**Keyboard**
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mouse**
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mechanical**
- Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Toolless HDD, SSD, memory removal
- Optional dust filter

**M75q Tiny only:**
- 7.05" W x 7.20" D x 1.36" H
- 179mm W x 182.9mm D x 34.5mm H
- 2.91 lb (1.32 kg), weight may vary by configuration

**Preload**
- Preloaded operating system
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Some: Windows 10 IoT Enterprise
- Some: Linux Ubuntu

**Environmental**
- ENERGY STAR® 7.1*, EPEAT Silver rating® (*Not for non-OS models)
- ErP Lot 3; RoHS-compliant; TUV low noise verified

**VESA mount**
- Optional VESA mount bracket kit, supports VESA 75mm and 100mm

**Floor Stand**
- Optional system floor stand for vertical orientation

**Power supply**
- Some: 65 watts adapter, autosensing, 88% PSU (not included for TIO models)
- Some: 135 watts adapter, autosensing, 88% PSU (not included for TIO models)

**Limited warranty**
- 1-year or 3-year, limited onsite service / service upgrades available

**Preload**
- Preloaded operating system
- Some: Windows 10 Pro 64-bit
- Some: Windows 10 Home 64-bit
- Some: Windows 10 IoT Enterprise
- Some: Linux Ubuntu

**Environment**
- ENERGY STAR® 7.1*, EPEAT Silver rating® (*Not for non-OS models)
- ErP Lot 3; RoHS-compliant; TUV low noise verified

**MIL-SPEC test**

**Accessories**
- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, October 2019
## ThinkCentre M910 Tiny Platform Specifications

### Product Specifications Reference (PSREF)

---

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base(Max/GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-6500T</td>
<td>4 / 4</td>
<td>2.50 / 3.1G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700T</td>
<td>4 / 8</td>
<td>2.80 / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-7500T</td>
<td>4 / 8</td>
<td>2.80 / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-7700T</td>
<td>4 / 8</td>
<td>2.90 / 3.8G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
</tbody>
</table>

**Security features**
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Power-on password

**Mechanical**
- Tiny (1L), black color; metal case
- Toolless chassis open
- Toolless system floor stand for vertical orientation

**Power supply**
- 60W AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
- Limited warranty*: 1-year or 3-year, depot service / service upgrades available
- Preload: Windows® 7 Professional 32/64 bit (preinstalled through downgrade rights in Windows 10 Pro 64-bit)

**Environment**
- ENERGY STAR® 6.1, EPEAT® Gold rating (North America)

**MIL-SPEC test**

---

### Memory

32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable
* System automatically clocks down for the processors with lower memory controller.

### Storage

<table>
<thead>
<tr>
<th>Some:</th>
<th>Hard Drive / SATA 6.0Gb/s, 2.5&quot;, 5400 rpm or 7200 rpm, APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some:</td>
<td>Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5&quot;</td>
</tr>
<tr>
<td>Some:</td>
<td>M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s</td>
</tr>
<tr>
<td>Some:</td>
<td>Intel Optane™ Memory (models with 7th gen Core processor), M.2</td>
</tr>
<tr>
<td>Some:</td>
<td>DVD-ROM, slim (9.0mm), via USB external ODD box</td>
</tr>
<tr>
<td>Some:</td>
<td>DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box</td>
</tr>
</tbody>
</table>

### Optical

| Some: | Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4 |

### Monitor cable

- Optional I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny)

**Audio support**
- High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)
- WLAN*: Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

**Bluetooh™**:
- * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1
- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

**Ethernet**
- Gigabit ethernet, Intel Ethernet Connection (219-LM/Jacksonville), Wake on LAN®

**Manageability**
- Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

**Security chip**
- TPM (Trusted Platform Module) 2.0*, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

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*See footnotes for more detailed information © Lenovo (M910 Tiny-Spec) February 2017*
**ThinkCentre M920 Tiny Platform Specifications**

**Product Specifications Reference (PSREF)**

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>32GB max, DDR4-2666* , two 260-pin SO-DIMM sockets, dual-channel capable</td>
</tr>
<tr>
<td>Storage</td>
<td>Some: Hard Drive / SATA 6.0Gb/s, 2.5&quot;, 5400 rpm or 7200 rpm</td>
</tr>
<tr>
<td>Optical</td>
<td>Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen 1 with DisplayPort function), up to 3 independent displays, Max resolution: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz; 4096x2160 (onboard HDMI) @ 24Hz; 2048x1536 (VGA) @ 50Hz</td>
</tr>
<tr>
<td>Monitor cable</td>
<td>Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel Q370 Chipset</td>
</tr>
<tr>
<td>Front ports (Std.*)</td>
<td>one USB 3.1 Gen 1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>Rear ports (Opt.)</td>
<td>two USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI</td>
</tr>
<tr>
<td>Audio support</td>
<td>Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)</td>
</tr>
<tr>
<td>WLAN</td>
<td>Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x1</td>
</tr>
<tr>
<td>Preload</td>
<td>Preloaded operating system</td>
</tr>
<tr>
<td>Environment</td>
<td>ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, EU ultra low noise verified (coming soon, on some models), RoHS-compliant</td>
</tr>
<tr>
<td>Accessories</td>
<td>For compatible accessories, please go to <a href="http://smartfind.lenovo.com">http://smartfind.lenovo.com</a></td>
</tr>
</tbody>
</table>

**Note:** The specifications above may not be available in all regions.

Lenovo, June 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400 UHD 610</td>
<td></td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400 UHD 610</td>
<td></td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400 UHD 610</td>
<td></td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 2</td>
<td>3.6G</td>
<td>8 MB</td>
<td>DDR4-2400 UHD 610</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monitor cable</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel 8700</td>
<td>Intel HD Graphics 610/630*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storage</th>
<th>Onboard SATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: DVD-RW (screw-in)</td>
<td>Onboard SATA 6 Gb/s connector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optical</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: DVD-Writer (DVD+/-RW, DVD-RW)</td>
<td>Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP), or USB 3.1 Type-C Gen1 with DisplayPort function, up to 3 independent displays;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>Dimensions (WxDxH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32GB max, DDR4-2666*, two 250-pin SO-DIMM sockets, dual-channel capable</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The specifications above may not be available in all regions.

Lenovo, June 2019
## ThinkSmart Edition Tiny M920q for Zoom Rooms Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® 9th Gen Core™ i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i7-9700T</td>
<td>8 / 8</td>
</tr>
<tr>
<td>Memory</td>
<td>16GB (8GB x 2) DDR4-2666, two 260-pin SO-DIMM sockets, dual-channel capable</td>
</tr>
<tr>
<td>Storage</td>
<td>128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</td>
</tr>
<tr>
<td>Optical Onboard SATA</td>
<td>None</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel HD Graphics 630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI (onboard), one 2nd HDMI (internal DP to HDMI dongle), up to 3 independent displays; Max resolution: 4096x2304 (DP) @60Hz; 4096x2160 (onboard HDMI) @24Hz</td>
</tr>
<tr>
<td>Monitor cable</td>
<td>None</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel Q370 Chipset</td>
</tr>
<tr>
<td>Front ports (Std.)*</td>
<td>one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>Rear ports (Std.)*</td>
<td>2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 2x HDMI</td>
</tr>
<tr>
<td>Audio support</td>
<td>Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)</td>
</tr>
<tr>
<td>WLAN</td>
<td>11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2</td>
</tr>
<tr>
<td>Bluetooth Ethernet</td>
<td>Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter</td>
</tr>
<tr>
<td>Manageability</td>
<td>Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)</td>
</tr>
<tr>
<td>Security chip Security features</td>
<td>Discrete TPM 2.0, TCG Certified</td>
</tr>
<tr>
<td>Keyboard Mouse</td>
<td>Lenovo Traditional Keyboard (USB connector), black</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Tiny (1L), black color; metal case</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Lenovo Calliope Mouse (USB connector), black</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>Tiny only: 7.05&quot; X 7.20&quot; X 1.36&quot;</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>179mm X 182.9mm X 34.5mm</td>
</tr>
<tr>
<td>Power supply</td>
<td>135 watts AC/DC adapter, autosensing, 88% PSU</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3-year, limited onsite service with premier support / service upgrades available</td>
</tr>
<tr>
<td>Preload</td>
<td>Preloaded operating system</td>
</tr>
<tr>
<td>Environment</td>
<td>Windows® 10 IoT Enterprise with Zoom Rooms preload</td>
</tr>
<tr>
<td>Accessory</td>
<td>VESA mount bracket kit, supports VESA 75mm and 100mm</td>
</tr>
<tr>
<td>Accessory</td>
<td>Optional system floor stand for vertical orientation</td>
</tr>
<tr>
<td>Accessory</td>
<td>Preloaded operating system</td>
</tr>
<tr>
<td>Accessory</td>
<td>Windows® 10 IoT Enterprise with Zoom Rooms preload</td>
</tr>
<tr>
<td>Accessory</td>
<td>ENERGY STAR® 7.0, EPEAT™ Silver rating, ErP Lot 3, TCO, TUV ultra low noise verified (on some models), RoHS-compliant</td>
</tr>
<tr>
<td>Accessories</td>
<td>For compatible accessories, please go to <a href="http://smartfind.lenovo.com">http://smartfind.lenovo.com</a></td>
</tr>
</tbody>
</table>

Note: The specifications above may not be available in all regions. Lenovo, January 2020
# ThinkCentre Tiny-in-One (TIO) 22 Gen3

**Product Specifications Reference (PSREF)**

**Lenovo, October 2019**

## Model

<table>
<thead>
<tr>
<th>Form factor</th>
<th>Non-touch model: 10R1PAR1++/10R1PAT1++; Touch model: 10R0PAR1++/10R0PAT1++</th>
</tr>
</thead>
</table>

## Compatible Tiny

Non-touch model: offers a full All-In-One experience when optional Tiny slots into the back of TIO, can change flipping and effortlessly setup

Compatible Tiny: P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93p / M83 / M73 / M53 / Chromebox Tiny

## Power Supply

**Power consumption**

- All models: 19 watts typical, 32 watts maximum, <0.5 watts standby / suspend

**Limited warranty**

- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

**Power supply**

- 90 watts AC/DC adapter, 88% PSU, universal

## Display

<table>
<thead>
<tr>
<th>Preset resolutions</th>
<th>640x350 @ 70Hz</th>
<th>640x480 @ 60Hz, 66Hz, 72Hz, 75Hz</th>
<th>720x400 @ 70Hz</th>
<th>800x600 @ 60Hz, 72Hz, 75Hz</th>
<th>1024x768 @ 60Hz, 70Hz, 75Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1152x864 @ 75Hz</td>
<td>1280x800 @ 60Hz</td>
<td>1280x1024 @ 60Hz, 72Hz, 75Hz</td>
<td>1366x768 @ 60Hz</td>
<td>1440x900 @ 60Hz, 75Hz</td>
</tr>
<tr>
<td></td>
<td>1600x1200 @ 60Hz, 70Hz, 75Hz</td>
<td>1680x1050 @ 60Hz</td>
<td>1920x1080 @ 60Hz</td>
<td>720p Tiny, M73 Tiny</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

- The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port

## Presets / user settings

- Presets: 25; user settings: 25

## On screen display

- Control features:
  - Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button
  - Volume up button, Volume down button

## Security

- Security keyhole for attachment of optional cable lock (Kensington™ lock compatible, locks optional Tiny with TIO together, more security features offered by Tiny installed (optional))

## Mechanical

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>TIO without stand</th>
<th>TIO with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H (inch)</td>
<td>19.26 x 2.85 x 13.35</td>
<td>19.26 x 10.76 x 14.59 - 18.93</td>
</tr>
<tr>
<td>W x D x H (mm)</td>
<td>489.3 x 72.5 x 339</td>
<td>489.3 x 273.3 x 370.7 - 480.7</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>7.01 lb / 3.19 kg</td>
<td>11.77 lb / 5.34 kg</td>
</tr>
</tbody>
</table>

## Accessories

- For compatible accessories, please go to [http://www.lenovouquickpick.com](http://www.lenovouquickpick.com)

## Sensitivity

- Anti-reflective

## Anti-reflective

- 250 nits or cd/m² (typical)

## Camera

- 720p camera with dual microphone for VOIP, LED indicator

## EPEAT

- 7.0, TCO 7.0, TCO Edge 2.0, WEEE, ENERGY STAR™ 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC

## Windows certifications

- Windows 7 and Windows 10 certified

## Ergonomics

- ISO 9241-307, TUE Eye Comfort certified

## Environmental

- FCC Class B

## Energy consumption

- 19 watts typical, 32 watts maximum, <0.5 watts standby / suspend

## Pivot:

- Swivel: 4.3” (110mm)
- Tilt: -5° to 30°
- Clockwise 0° to 90°

## Mounting features

- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI™ (100mm mount)

## Mechanical

- Adjustable stand:
  - Swivel: +/- 45°
  - Tilt: 30° back, -5° forward

## Model

<table>
<thead>
<tr>
<th>Model</th>
<th>P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93p Tiny M90n Nano (with TIO kit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All models</td>
<td>All models</td>
</tr>
<tr>
<td>All models</td>
<td>Not support</td>
</tr>
<tr>
<td>TIO models</td>
<td>All models</td>
</tr>
<tr>
<td>All models</td>
<td>All models</td>
</tr>
</tbody>
</table>

## On screen display

- Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button

## Security

- Security keyhole for attachment of optional cable lock (Kensington™ lock compatible, locks optional Tiny with TIO together, more security features offered by Tiny installed (optional))

## Presets / user settings

- Presets: 25; user settings: 25

## Tilt:

- -5° to 30°

## Tilt:

- Clockwise 0° to 90°

## Rear ports

- One DisplayPort in port, one USB upstream port, one power connector

## Security

- locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)

## Mechanical

- Dimensions:
  - TIO without stand: 19.26 x 2.85 x 13.35
  - TIO with stand: 19.26 x 10.76 x 14.59 - 18.93
  - W x D x H (mm): 489.3 x 72.5 x 339
  - Weight (Approx.): 7.01 lb / 3.19 kg

## Side ports (TIO)

- One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port)

## Side ports (Tiny)

- One DisplayPort in port, one USB upstream port, one power connector

## Tilt:

- -5° to 30°

## Tilt:

- Clockwise 0° to 90°
### ThinkCentre Tiny-in-One (TIO) 24 Gen3

#### Form factor
- **Non-touch model:** TIO without stand
  - Dimensions: 21.25 x 2.85 x 14.47 x 21.25 x 11.11 x 15.72
  - Weight: 7.96 lb / 3.61 kg
- **Touch model:** TIO with stand
  - Dimensions: 21.25 x 11.11 x 15.72
  - Weight: 12.92 lb / 5.86 kg

#### Panel
- **TFT-LCD, In-Plane Switching technology**, White LED backlight
- Viewable image size: 23.8" (604.7mm) diagonal
- Bezel Width: Top / Side: 2mm, Bottom: 22.1mm
- Native resolution: 1920x1080
- Multi-touch: Optional, 10-point multi-touch, supports Wake on Touch
- Aspect ratio: 16:9
- Pixel pitch (mm): 0.2745mm
- Dot/Pixel per inch: 92.6 dpi
- Brightness: 250 nits or cd/m² (typical)
- Contrast ratio: 72%
- Anti-reflective: Anti-glare

#### Preset resolutions
- 640x350 @ 70Hz
- 640x480 @ 60Hz, 67Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz
- 1152x864 @ 75Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz

#### Presets / user settings
- Presets: 25; user settings: 25

#### Control features
- **On screen display:** On screen display with digital user controls (8 languages)
- **Tiny-in-One Power On:** Pressing Alt + P on USB KB
- **Side ports (TIO):**
  - USB 3.1 Gen1 / USB 2.0
  - USB upstream port
- **Side ports (Tiny):**
  - USB upstream port
- **Rear ports:** One DisplayPort in port, one USB upstream port, one power connector
- **Camera:** 1080p camera with dual microphone for VOIP, LED indicator

#### Mechanical
- **Dimensions:**
  - TIO without stand: W x D x H (inch) 21.25 x 2.85 x 14.47
  - TIO with stand: W x D x H (inch) 21.25 x 11.11 x 15.72
  - Weight (Approx.): 7.96 lb / 3.61 kg

#### Wooden features
- Wall or desk mounting using the extend arm or third-party accessories

#### Adjustable stand
- **Tilt:** 30° back, -5° forward; 4.3" (110mm); +/-45°; 0° to 90°

#### Power supply
- 90 watts AC/DC adapter, 88% PSU, universal
- 19 watts typical, 19.2 watts maximum, <0.5 watts standby / suspend

#### Limited warranty
- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

#### Accessories
- For compatible accessories, please go to [http://www.lenovouickpick.com](http://www.lenovouickpick.com)
## Form factor
Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup

### Compatible Tiny:
- ThinkCentre Tiny
- ThinkCentre Nano
- ThinkStation Tiny

### Panel
- TFT-LCD, In-Plane Switching technology**, White LED backlight
- Notes: In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA

### Viewable image size
- 27" (685.8mm) diagonal

### Max view area (W x H)
- 23.49" x 13.22" / 596.7mm x 335.7mm

### Bezel Width
- Top / Side: 2mm, Bottom: 23.3mm

### Native resolution
- **2560x1440**

### Preset resolutions
- 640x480 @ 70Hz
- 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz
- 720x400 @ 70Hz
- 800x600 @ 60Hz, 72Hz, 75Hz
- 1024x768 @ 60Hz, 70Hz, 75Hz
- 1152x864 @ 75Hz
- 1280x768 @ 60Hz
- 1280x800 @ 60Hz
- 1280x1024 @ 60Hz, 72Hz, 75Hz
- 1366x768 @ 60Hz
- 1440x900 @ 60Hz, 75Hz
- 1600x1200 @ 60Hz, 70Hz, 75Hz
- 1680x1050 @ 60Hz
- 1920x1080 @ 60Hz
- 2560x1440 @ 60Hz

### Presets / user settings
- Presets: 27; user settings: 25

### On screen display
- On screen display with digital user controls (8 languages)

### Control features
- Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Brightness button, Enter / Menu button, Power button
- Bottom: Volume up button, Volume down button

### Tiny-in-One Power On
- Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some support, see Compatible Matrix)
- Notes: The USB ports are enabled by installing a Tiny or connecting USB upstream port; the audio port is enabled by installing a Tiny or connecting USB upstream, DisplayPort(in), or HDMI(in) port

### Side ports (TIO)
- Two USB 3.1 Gen1 (downgrade to USB 2.0 when installing M73 or M53 or connecting USB 2.0 via USB upstream port), one headphone / microphone combo jack

### Side ports (Tiny)
- Side ports offered by the installed Tiny (optional)

### Rear ports
- One DisplayPort(in) port, one HDMI(in) port, one USB (Type-B) upstream port, one power connector

### 3-in-1 Cable
- Undetachable 3-in-1 cable, connecting to the power connector, one USB, and one DisplayPort of the installed Tiny (optional)

### Camera
- RGBIR camera with dual microphone, supports Window Hello and Facial Recognition, Think Shutter for Privacy Security, LED indicator

### Internal Speaker
- 2 watt x2

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)

### Mechanical

<table>
<thead>
<tr>
<th>Feature</th>
<th>TIO without stand</th>
<th>TIO with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H mm / inch)</td>
<td>614.0 x 73.89 x 413.1 / 24.17 x 2.91 x 16.26</td>
<td>614.0 x 329.0 x 444.25 / 24.17 x 12.95 x 17.49</td>
</tr>
<tr>
<td>Weight (Approx.)</td>
<td>4.91 kg / 10.82 lb</td>
<td>7.95 kg / 17.53 lb</td>
</tr>
</tbody>
</table>

### Mounting features
- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPFM (100mm mount)
- Tilt: ±3° back, -5° forward;
- Swivel: ±45°;
- Pivot: clockwise -5° to 90°

### Power supply
- 170 watts adapter, 88% PSU, universal
- 37 watts typical, 57 watts maximum, <0.5 watts standby / suspend

### Limited warranty
- 3-years, Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)

### VESA-compliant
- VESA DDC/CI, VESA DPMS-compliant

### Ergonomics
- ISO 9241-307, TUV Eye Comfort certified

### Emission standards
- FCC Class B

### Windows certifications
- Windows 7 and Windows 10 certified

### Ship group
- TIO 27 (Monitor), detachable stand, power adapter, power cord, reference and driver CD

### Accessories
- For compatible accessories, please go to [http://smartfind.lenovo.com](http://smartfind.lenovo.com)

### ThinkCentre Tiny-in-One 27 Compatible Matrix

<table>
<thead>
<tr>
<th>Model</th>
<th>P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny / M90n Nano (with TIO kit) / Chromebox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn on TIO and Tiny together via Alt + P on USB KB</td>
<td>All models</td>
</tr>
<tr>
<td>Turn on Tiny together via TIO Power Button</td>
<td>All models</td>
</tr>
</tbody>
</table>
## ThinkCentre M710 Tower Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max/(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel G4400</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 510</td>
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<tr>
<td>Intel G4560</td>
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<td>3.5G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 610</td>
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<tr>
<td>Intel G4600</td>
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<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
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<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 590</td>
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<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>4.1G / 4.8G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
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<td>3.0G / 3.5G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4</td>
<td>3.4G / 3.8G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
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<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Security chip

- TPM (Trusted Platform Module) 2.0, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Security features

- Security slot (in rear for optional Kensington MicroSaver cable)
- Power-on password
- Administrator password
- Hard disk password
- Boot sequence control
- Individual USB port disablement
- Optional chassis intrusion switch

### Keyboard

- Some: Lenovo Calliope keyboard (USB connector), black
- Some: Lenovo Traditional keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mechanical

- Tower (15L), black color, metal case
- (WxRxH) 5.7* X 11.5* X 14.4*; 145mm X 292.7mm X 366mm
- Approx. 14.3 lb (6.5 kg), weight may vary by configuration
- Optional dust filter

### Memory

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- System automatically clocks down for the processors with lower memory controller

### Storage

- Some: Hard drive / SATA 6.0Gb/s, 2.5", or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane Memory (models with 7th generation Core processor), M.2
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

### Optical

- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

### Onboard SATA

- Three onboard SATA 6.0Gb/s connectors

### Media reader

- Optional 7-in-1 media reader

### Graphics

- Intel HD graphics 510/530/610/630 in processor, uses main memory, DirectX* 12, one VGA, two DisplayPort, supports 3 independent displays, works along with discrete graphics to support more displays
- Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz
- Some: NVIDIA GeForce GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts
- Max resolution: 3840x2160 (DisplayPort) @ 60Hz.
- Some: NVIDIA GeForce GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, one HDMI, one VGA, one DVI-D, 75 watts, occupies two slots
- Max resolution: 4096x2160 (DisplayPort) @24Hz; 2048x1536 (VGA) @ 85Hz

### Monitor Cable

- Optional DP to VGA, DP to DVI-D, single link, DP to dual DP, or DP to HDMI 1.4

### Chipset

- Intel B250 Chipset

### Front ports

- Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)

### Rear ports

- Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse)

### Rear audio ports

- IEEE 1394b
- Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)

### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watts)

### WLAN

- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

### Bluetooth

- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

- Gigabit Ethernet, Realtek RTL8111GN, Wake on LAN

### Modem

- None

### Environment

- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)

### Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com

Note: The specifications above may not be available in all regions.
ThinkCentre M715 Tower Platform Specifications

Processor

<table>
<thead>
<tr>
<th>APU / processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>L2 Cache</th>
<th>Integrated Graphics</th>
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<tbody>
<tr>
<td>Ryzen 3 PRO 1200</td>
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<td>3.5 / 3.7</td>
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<tr>
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<td>3.5 / 3.8</td>
<td>1MB</td>
<td>Radeon R7 Series</td>
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<td>PRO A10-9700</td>
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<td>3.5 / 3.8</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
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<td>PRO A12-9800</td>
<td>4 / 4</td>
<td>3.8 / 4.2</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

Memory

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controller

Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVDs+RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: Three onboard SATA 6.0Gb/s connectors

Optical

- Optional

Onboard SATA Media reader

- Optional 7-in-1 media reader

Graphics

- AMD Radeon™ Graphics in processor (not for AMD Ryzen processor), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are invalid on the models with AMD Ryzen processor), supports 3 independent displays, works along with AMD discrete graphics to support more displays;
  - Max resolution: 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz
  - Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x 8 adapter, two DisplayPort, 35 watts;
  - Some: AMD Radeon™ RX 550, DirectX 12, 2GB, PCIe 3.0 x 8 adapter, one VGA, one HDMI, one DisplayPort, 50 watts, occupies two slots;
  - Max resolution: 4096x2160 (HDMI) @ 60Hz; 2048x1536 (VGA) @ 60Hz; 5120x2880 (DP) @ 60Hz

Monitor Cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Chipset

- AMD B350 Chipset

Front ports

- Two USB 3.1 Gen2, two USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)

Rear ports

- Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA and two DisplayPort (not available on models with AMD Ryzen processor), two PS/2 ports (keyboard / mouse);
- additional VGA, DisplayPort, or HDMI on optional graphics on some models

Rear audio ports

- IEEE 1394a Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
- None

Audio support

- High Definition (HD) Audio, Realtek ALC862 / optional internal speaker (1.5 watt )

WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1

Bluetooth

- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet Modern

- Gigabit ethernet, Realtek RTL8111E/PV, Wake on LAN

Note: The specifications above may not be available in all regions.

Lenovo, July 2017
ThinkCentre M720 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
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<td>Celeron G4920</td>
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<td>3.2G</td>
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<td>DDR4-2400</td>
<td>UHD 610</td>
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<td>Pentium Gold G5400</td>
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<td>3.7G</td>
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<td>UHD 630</td>
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<tr>
<td>Pentium Gold G5500</td>
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<tr>
<td>Pentium Gold G5600</td>
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<td>3.9G</td>
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<td>UHD 630</td>
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<tr>
<td>Core i3-8100</td>
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<td>UHD 630</td>
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<tr>
<td>Core i5-8400</td>
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<td>UHD 630</td>
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<td>UHD 630</td>
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<td>Core i9-9900</td>
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<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
</tbody>
</table>

Memory

- 64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable
- System automatically clocks down for the processors with lower memory controller

Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5” or 3.5”, 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5”
- Some: 2.5” SSD (2242 / 2280) / PCIe 3.0 x2 or PCIe 3.0 x4
- Some: Intel Oplane™ Memory (not support Celeron / Pentium Processor), M.2
- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA Media reader

- Three onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

Graphics

- Intel UHD Graphics in processor, uses main memory, DirectX™ 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
- Some: NVIDIA GeForce® GT 730 (End Of Life), DirectX 12, 2GB, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
- Some: AMD Radeon™ 520, DirectX 12, 2GB GDDR5, PClie 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
- Some: AMD Radeon RX 550X, DirectX 12, 4GB GDDR5, PClie 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048x1536@85Hz)
- Optional DP to VGA dongle, DP to DVI dongle, DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle

Monitor Cable

- Monitor Port: 180 watts, autosensing, 92% PSU
- Some: 210 watts, autosensing, 85% PSU
- Some: 260 watts, autosensing, 92% PSU (only available via special bid)

Limited warranty

- Some: 1-year or 3-year, depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

Preload

- Preloaded operating system
  - Windows® 10 Pro 64-bit
  - Windows 10 Home 64-bit
- Preloaded applications (only some listed)
  - Lenovo Vantage
  - Microsoft Office preloaded;
  - Cyberlink PowerDVD (only for models with DVD / DVD+RW)
  - Cyberlink Power2GO (only for models with DVD+RW)
  - Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver)

Environment

- ENERGY STAR® 6.1, EPEAT® Silver rating (North America), ErP Lot 3, TCO
- TUV low noise verified (coming soon, on some models), RoHS-compliant
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max (GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>6 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
<td>3.4G / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-7300</td>
<td>2 / 4</td>
<td>4.0G / 4.1G</td>
<td>4 MB</td>
<td>DDR4-2133</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 6</td>
<td>3.0G / 3.5G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7500</td>
<td>4 / 8</td>
<td>3.4G / 3.8G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7600</td>
<td>4 / 8</td>
<td>3.5G / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
<td>3.6G / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-EC, dual-channel capable
- * System automatically clocks down for the processors with lower memory controllers

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 B Key State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2
- Some: Front accessible and removable HDD, 3.5", lockable via physical key
- Some: DVD-ROM, SATA 1.5Gb/s, 5.25" or slim (9.0mm)
- Some: WD Burner (DVD+RW), SATA 1.5Gb/s, 5.25" or slim (9.0mm)
- Onboard SATA
  - Four onboard SATA 6.0Gb/s connectors (1x eSATA and 3x SATA), RAID 0/1 support (RAID preset only available via special bid model)

### Optical

- Some: Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX* 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;
  - Max resolution: 4096x2304 (DP) @ 60Hz; 2048x1336 (VGA) @ 50Hz
  - Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe X 2.0, x8 adapter, two DisplayPort, 35 watts;
  - Max resolution: 3840x2160 (DisplayPort) @ 60Hz
  - Some: AMD Radeon™ R7 350, DirectX 11, 2GB, PCIe 3.0 x 8 adapter, one VGA, one HDMI, 75 watts, occupies two slots;
  - Max resolution: 4096x2160 (HDMI) @ 24Hz; 2048x1336 (VGA) @ 85Hz
  - Some: NVIDIA GeForce GTX™ 1080 (only available via special bid model), DirectX 12, 8GB, PCIe 3.0 x 16 adapter, one DVI-D, one HDMI, three DisplayPort, 180 watts, occupies two slots;
  - Max resolution: 2560x1600 (DVI-D) @ 60Hz; 4096x2160 (HDMI) @ 60Hz
  - Some: NVIDIA GeForce GTX™ 1070 (only available via special bid model), DirectX 12, 8GB, PCIe 3.0 x 16 adapter, one DVI-D, one HDMI, three DisplayPort, 180 watts, occupies two slots;
  - Max resolution: 2560x1600 (DVI-D) @ 60Hz; 4096x2160 (HDMI) @ 60Hz
  - Some: NVIDIA GeForce GTX™ 1060 (only available via special bid model), DirectX 12, 6GB, PCIe 3.0 x 16 adapter, one DVI-D, one HDMI, three DisplayPort, 180 watts, occupies two slots;
  - Max resolution: 2560x1600 (DVI-D) @ 60Hz; 4096x2160 (HDMI) @ 60Hz

### Chipset

- Intel Q270 Chipset

### Rear ports

- Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid model), microphone (3.5mm), headphone (3.5mm)
- Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse);
- Rear audio port:
  - Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
  - None

### Audio support

- High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt )
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A2 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet

- Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

### Manageability

- Intel Active Management Technology 11.0 (Intel AMT 11.0);
- Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection);
- TPM (Trusted Platform Module) 2.0, TCG Certified;
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Security chip

- • Security slot (in rear for optional Kensington® MicroSaver® cable)
- • Hard disk password
- • Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
- • Optional cable lock to physically lock both keyboard and mouse
- • Power-on password
- • Administrator password
- • Boot sequence control
- • Boot without keyboard and mouse
- • Individual USB port disablement
- • Optional chassis intrusion switch

### Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mouse

- • Tower (18L), black color, metal case
- • (Wx Dx H) 6.5” x 12.65” x 16.15”; 165mm X 321.35mm X 410.25mm
- • Approx. 15.45 lb (7 kg), weight may vary by configuration
- • Touchless cover, disk, optical, graphic card removal
- • Optional carry handle, dust filter
- • Bay 1: Slim external odd bay
- • Bay 2: 5.25”, 1.6” high, external, ODD / optional front access HDD
- • Bay 3: 3.5”, 1” high, internal, HDD/SSD
- • Bay 4: 3.5”, 1” high, internal, HDD/SSD (optional bay, bay comes with disk)
- • Bay 5: 2.5” high, internal, HDD/SSD (optional bay)

### Mechanical

- Notes: M910 Tower supports up to 3 SATA devices (ODD/HDD/SSD) and 1 eSATA device (front access HDD)
- Slot 1: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x 16
- Slot 2: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x 16
- Slot 3: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x 16
- Slot 4: no slot, only bracket for optional port extension*
- M.2 card slots: Two (one for WLAN, one for SSD/Optane)
- * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot

### Power supply

- Some: 180 watts, autosensing, 85% PSU
- Some: 250 watts, autosensing, 85% PSU
- Some: 400 watts, autosensing, 92% PSU (only available via special bid)

### Limited warranty

- 1-year or 3-year, depot service / service upgrades available
- 1-year or 3-year, limited onsite service / service upgrades available

### Preload

- Preloaded operating system
  - Some: Windows® 7 Professional 32/64 preloaded through downgrade (not available with 7th Gen Intel processor)
  - Some: Windows 10 Pro 64-bit
  - Some: Windows 10 Home 64-bit

### Preloaded applications (only some listed)

- Microsoft Office preloaded;
  - Only for Windows 10
- Lenovo Companion
  - Only for Windows 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Lenovo USB 3.0 Drivers
- Lenovo Backup
- Cyberlink PowerDVD Create (DVD+RW)

### Environment

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), EPEAT Gold rating (North America); RoHS-compliant, TUV low noise verified (on some models)

### Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com
## ThinkCentre M920 Tower Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel® Pentium®, or 8th/9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i7-9700</td>
<td>8 / 8 3.0G / 4.7G 12 MB DDR4-2666 UHD 620</td>
</tr>
<tr>
<td>Core i9-9900K</td>
<td>8 / 16 3.5G / 5.0G 16 MB DDR4-2666 UHD 710</td>
</tr>
</tbody>
</table>

### Processor Cores / Threads

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency Base/Max(GHz)</th>
<th>Cache</th>
<th>Memory Support (Up to)</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron® G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB DDR4-2400</td>
<td>UHD 610</td>
<td></td>
</tr>
<tr>
<td>Intel® Celeron® G4930</td>
<td>2 / 2</td>
<td>2.4G</td>
<td>2 MB DDR4-2400</td>
<td>UHD 610</td>
<td></td>
</tr>
<tr>
<td>Intel® Celeron® G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB DDR4-2400</td>
<td>UHD 630</td>
<td></td>
</tr>
<tr>
<td>Intel® Pentium® Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB DDR4-2400</td>
<td>UHD 630</td>
<td></td>
</tr>
<tr>
<td>Intel® Pentium® Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB DDR4-2400</td>
<td>UHD 630</td>
<td></td>
</tr>
<tr>
<td>Intel® Pentium® Gold G5620</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>6 MB DDR4-2400</td>
<td>UHD 630</td>
<td></td>
</tr>
<tr>
<td>Intel® Pentium® Gold G5800</td>
<td>4 / 4</td>
<td>4.6G</td>
<td>8 MB DDR4-2400</td>
<td>UHD 630</td>
<td></td>
</tr>
</tbody>
</table>

### Memory

- 64GB max, DDR4-2666*, four 288-pin DIMM sockets, dual-channel capable
- System automatically clocks down for the processors with lower memory controller speed

### Storage

- Hard Drive / SATA 6.0Gb/s
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s
- Some: M.2 SSD
- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor)
- Optional: DVD±R / DVD±RW,ATA 1.5Gb/s Drive, slim (9.0mm)

### Optical Drive

- Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5"
- Some: 5400 rpm or 7200 rpm

### Rack and Security Features

- Rear ports* (Std.)
- Front ports* (Opt.)
- Intel Q370 Chipset
- Intel® Celeron®
- Intel® Pentium®
- or 8th/9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor
- Processor Cores / Threads
- Frequency Base/Max(GHz)
- Cache
- Memory Support (Up to)
- Integrated Graphics
- Audio support
- High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)
- WLAN
- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
- Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8889EAC (dual band), 2x2
- Power-on password
- Hard disk password
- Boot sequence control
- Individually user port disablement

### Optical Onboard SATA

- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor)
- Some: Intel® Celeron®
- Some: Intel® Pentium®
- Some: 8th / 9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor
- Some: M.2 SSD

### Mechanical

- Tower (18L), black color, metal case
- TUV low noise verified (coming soon, on some models), RoHS-compliant

### Monitor Cable

- Some: AMD Radeon RX 500X
- Some: NVIDIA GeForce GTX 1060 (special bid only)
- Some: NVIDIA GeForce® GT 730 (End Of Life)
- Some: AMD Radeon™ 520
- Some: NVIDIA GeForce® GTX 1060

### Chipset

- Some: NVIDIA GeForce GTX 1060
- Some: Intel® Celeron®
- Some: Intel® Pentium®
- Some: 8th / 9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor
- Some: M.2 SSD
- Some: Intel Optane™ Memory (not support Celeron / Pentium Processor)
- Some: Intel® Celeron®
- Some: Intel® Pentium®
- Some: 8th / 9th Gen Intel® Core™ i3 / i5 / i7 / i9 Processor
- Some: M.2 SSD

### Power supply

- 400 watts, autosensing, 92% PSU
- 92% PSU

### Limited warranty

- Some: 1-year or 3-year depot service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.

Lenovo, November 2019
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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

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- **Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.
- **Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Visit [www.lenovo.com/warranty](http://www.lenovo.com/warranty) for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


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Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.
Summary of Changes

This section describes the changes made in this version of ThinkStation PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

December 31, 2019 - Version 553
► Add Xeon W-2200 series Processor and DDR4-2933 memory on ThinkStation P520c and P520

December 11, 2019 - Version 552
► Add Xeon Gold 6226 and 6244 on ThinkStation P920 and P720

August 7, 2019 - Version 546
► Update processor information on ThinkStation P330 Tiny

July 17, 2019 - Version 545
► Update EPEAT rating to Silver on most ThinkStation

June 26, 2019 - Version 544
► Add ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 CPU Async update

May 15, 2019 - Version 542
► New ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 announced on April 2019
► Update ThinkStation P920/P720/P520 specifications, add Quadro RTX 8000, DDR4-2933, Xeon Scalable Gen 2

March 13, 2019 - Version 539
► Add Intel vPro information on ThinkStation P330 Tower/P330 SFF/P520c/P520/P720/P920

February 20, 2019 - Version 538
► New ThinkStation P330 Tower models announced on February 2019
► Update ThinkStation P920/P720/P520/P520c specifications, add Quadro RTX4000/5000/6000

August 22, 2018 - Version 529
► New ThinkStation P330 Tower/SFF/Tiny models announced on August 2018
► Update ThinkStation P920/P720 specifications, update flex bay and graphics adapter section

August 1, 2018 - Version 528
► New product ThinkStation P330 Tower/SFF/Tiny announced on July 2018
► Update ThinkStation P920/P720/P520/P520c, add Refresh 2.0 information
► Remove all MTM PNs from PDF version

June 20, 2018 - Version 526
► New ThinkStation P320 Tower models announced on June 2018
► Update ThinkStation P720 and P920 models, remove EOL models for US
► Update Windows 10 Pro 64 for Workstations for some ThinkStation P720/P920 models

May 30, 2018 - Version 525
► Added ThinkStation P720/P920 EMEA May 2018 models

April 18, 2018 - Version 523
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/P920 models announced on April 2018

March 28, 2018 - Version 522
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P920 announced on March 2018

March 7, 2018 - Version 521
► New ThinkStation P320 Tower/ P320 SFF/P720/P920 announced on February 2018
January 30, 2018 - Version 519
► New ThinkStation P520c and P520 announced on January 2018
► New ThinkStation P320 Tower/P320 SFF announced on January 2018

December 20, 2017 - Version 517
► New ThinkStation P920 models announced on December 2017
► Add Optional Ports on ThinkStation P320 Tiny

September 29, 2017 - Version 513
► New ThinkStation P920 and P720 announced on September 2017
► New ThinkStation P320 Tower/P320 SFF/P410/P510/P710/P910 announced on September 2017

September 12, 2017 - Version 512
► New ThinkStation P320 Tower and P320 SFF models announced on August 2017

August 23, 2017 - Version 511
► New ThinkStation P320 Tiny models announced on August 2017

August 2, 2017 - Version 510
► New ThinkStation P320 Tiny/P320 Tower/ P320 SFF/P410/P510 models announced on July 2017

June 21, 2017 - Version 508
► New ThinkStation P320 Tiny announced on June 2017

May 26, 2017 - Version 507
► Add ThinkStation P410/P510/P710/P910 Refresh 3.0 Wave 1 models and update platform specifications

April 19, 2017 - Version 505
► New ThinkStation P320 Tower announced on April 2017
► New ThinkStation P320 SFF announced on April 2017

March 29, 2017 - Version 504
► Added ThinkStation P310 Tower and SFF models announced on March 2017
► Added ThinkStation P410 models announced on March 2017

January 25, 2017 - Version 501
► Update quantity of PCIe SSD adapter in ThinkStation P510/P910

January 4, 2017 - Version 500
► Added ThinkStation P310 models announced on December 2016

December 14, 2016 - Version 499
► Added ThinkStation P410/P510/P710/P910 EMEA models
► Added 1TB M.2 PCIe SSD, Quadro P5000, Quadro P6000 support on ThinkStation P510/P710/P910
► Added Quadro P5000 support on ThinkStation P410
► Added 6TB 7.2K SATA6Gbs HDD support on ThinkStation P410/P510/P710/P910
► Added ThinkStation P410/P510/P710/P910 models announced on December 2016

November 23, 2016 - Version 498
► Removed ThinkStation P500/P900 due to EOL
► Added ThinkStation P310 Tower and SFF models announced on November 2016

October 12, 2016 - Version 496
► Removed flash option on ThinkStation P510/P710/P910
► Added ThinkStation P310/P410/P510/P710/P910 models announced on September 2016

August 3, 2016 - Version 493
► Removed ThinkStation P500/P700/P900 Windows 7 DG from Win8.1 U.S. models
► Added keyboard and mouse features on all ThinkStation
July 13, 2016 - Version 492
► Added ThinkStation P500, P700, and P900 Windows 10 downgrade to Windows 7 models
► Updated Maximum configuration weight of ThinkStation P410
► Added ThinkStation P710 and P910 models announced on July 2016
► Added "Maximum drives in 3.5\" bay\" feature on ThinkStation P500/P510/P700/P710/P900/P910

June 22, 2016 - Version 491
► Added new product ThinkStation P410/P510
► Added NVIDIA Quadro M2000 on ThinkStation P310 Tower
► Added keyboard and mouse information on ThinkStation P710/P910
► Added internal USB information on ThinkStation P710/P910

June 2, 2016 - Version 490
► Added ThinkStation P710/P910 US models
► Updated ThinkStation P710/P910 processor information

May 19, 2016 - Version 489
► Added NVIDIA Quadro M2000 on compatible product
► Updated maximum weight on ThinkStation P710
► Removed 30AT000BUS

April 27, 2016 - Version 488
► Added ThinkStation P710 and P910 models for EMEA, announced on April 2016
► Updated Energy star information on ThinkStation P500/P700/P710/P900/P910

April 6, 2016 - Version 487
► New ThinkStation P710 and P910, announced April 5, 2016 (specification only)

March 23, 2016 - Version 486
► Added processors specifications for P310/P500/P700/P900

February 24, 2016 - Version 485
► Added ThinkStation P310 and P700 models for US, announced on February 2016
► Added ThinkStation P700 and P900 models for EMEA, announced on February 2016

December 9, 2015 - Version 482
► New ThinkStation P310 Tower and SFF, announced November 24, 2015

November 18, 2015 - Version 481
► Combines ThinkStation PSREF United States version and Western Europe version.
► Extends the supported GEO into Europe, Middle East and Africa.
► Covers all TopSeller and Relationship models for US and all focus models for EMEA
# ThinkStation P330 SFF Gen 2 (30D1 and 30D2) Platform Specifications

## Components Specification

<table>
<thead>
<tr>
<th>Form factor</th>
<th>8.4L mini-tower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 13.23 lb (6.0kg)</td>
</tr>
</tbody>
</table>

- Supports one of the following processors:
  - Xeon E-2276G 8C/12T/3.8GHz/12MB/65W/DDR4-2666 (260W PSU needed)
  - Xeon E-2277G 8C/12T/4.0GHz/12MB/65W/DDR4-2666
  - Xeon E-2278G 8C/12T/4.0GHz/12MB/65W/DDR4-2666

## Processor

- **Memory Protection ECC on models with UDIMM ECC memory**
- **Memory Capacity** 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
- **Memory Types** 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC
- **Memory Sockets** 4 DIMM sockets with 2 channels
- **Expansion slots**
  - Slot 1 PCIe 3.0 x16, low profile, links to CPU
  - Slot 2 PCIe 3.0 x1, low profile, links to PCH
  - Slot 3 PCIe 3.0 x1 (negotiable link width x4), low profile, links to PCH

## Chipset

- **Memory Sockets** 4 DIMM sockets with 2 channels
- **Memory Types** 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB/32GB DDR4-2666 UDIMM non-ECC
- **Memory Capacity** 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
- **Memory Protection** ECC on models with UDIMM ECC memory
- **Memory Sockets** 4 DIMM sockets with 2 channels
- **Memory Types** 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC
- **Memory Capacity** 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
- **Memory Protection** ECC on models with UDIMM ECC memory

## Discrete graphics card

- **Adapter**
  - **Quadro P4000**
  - **Quadro P620**
  - **Quadro P1000**
- **Cores**
  - **Quadro P4000**: 256
  - **Quadro P620**: 128
  - **Quadro P1000**: 640
- **Memory**
  - **Quadro P4000**: 8GB GDDR5
  - **Quadro P620**: 4GB GDDR5
  - **Quadro P1000**: 4GB GDDR5
- **Power**
  - **Quadro P4000**: 125W
  - **Quadro P620**: 75W
  - **Quadro P1000**: 115W
- **Connectors**
  - **Quadro P4000**: 1x Mini-DisplayPort, 2x DisplayPort
  - **Quadro P620**: 1x Mini-DisplayPort, 1x DisplayPort
  - **Quadro P1000**: 1x Mini-DisplayPort, 1x DisplayPort
- **Max qty**
  - **Quadro P4000**: 2
  - **Quadro P620**: 2
  - **Quadro P1000**: 2

## Storage Controller

- **Controller types**
  - **Onboard Intel RST SATA RAID**: Sata 6Gb/s, 3Gb/s, SSD, 0/1
  - **Onboard Intel RST PCIe RAID**: PCIe NVMe, M.2 PCIe SSD, 0/1
- **Notes**: M.2 SSD support is limited, please see Storage bay section for more information

## Storage Support

- **Disk Type**
  - **3.5" SATA HDD**
  - **2.5" SATA SSD**
  - **Optane Memory**
  - **M.2 PCIe SSD**
- **Interface**
  - **SATA 6Gb/s**: 1, 2, 3
  - **SATA 6Gb/s**: 1, 2, 3
  - **SATA 6Gb/s**: 1, 2, 3
- **RPM**
  - **1500**: 1
  - **5400**: 2
  - **7200**: 3
- **Max QTY**
  - **1TB**: 1
  - **500GB**: 2
  - **256GB**: 3
  - **128GB**: 3
- **Notes**: 1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
  - 2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

## Power Supply

- **Internal PSU**: 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 Plus Bronze qualified.
- **Optional power supply**
  - **210W power supply**: Supports one 210W power supply.
  - **260W power supply**: Supports one 260W power supply.
- **Power supply**: 210W is 100V - 240V, 85% efficiency, and 80 Plus Bronze qualified.
  - **260W power supply**: Supports one 260W power supply.

## Processor graphics

- **Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i5 or i3 processors.**
- **Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional).**
- **Up to two PCIe x16 slots for discrete graphics adapters** (Slot 1 and 3). Supports the following graphics adapters:
  - **Adapter**
    - **Quadro P4000**: 125W
    - **Quadro P620**: 75W
    - **Quadro P1000**: 115W
  - **Cores**
    - **Quadro P4000**: 256
    - **Quadro P620**: 128
    - **Quadro P1000**: 640
  - **Memory**
    - **Quadro P4000**: 8GB GDDR5
    - **Quadro P620**: 4GB GDDR5
    - **Quadro P1000**: 4GB GDDR5
  - **Power**
    - **Quadro P4000**: 125W
    - **Quadro P620**: 75W
    - **Quadro P1000**: 115W
  - **Connectors**
    - **Quadro P4000**: 1x Mini-DisplayPort, 2x DisplayPort
    - **Quadro P620**: 1x Mini-DisplayPort, 1x DisplayPort
    - **Quadro P1000**: 1x Mini-DisplayPort, 1x DisplayPort
  - **Max qty**
    - **Quadro P4000**: 2
    - **Quadro P620**: 2
    - **Quadro P1000**: 2

## Network interfaces

- **Front ports**
  - **2x USB 3.1 Gen 1 Type A**, 2x USB 3.1 Gen 2 Type A, 1x Audio line-out
- **Rear ports**
  - **2x USB 3.1 Gen 1 Type A**, 2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 2x DP
- **Supports the following via PCIe adapter:**
  - 1x Audio line-out
  - **Notes**: DP needs Core, Pentium, or -G suffix Xeon processor
- **Optional rear ports**
  - **Supports the following via cable:**
    - 1x Audio line-out
  - **Notes**: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor

## Temperature

- **Operating**
  - **50 °F to 104 °F (10 °C to 40 °C)**
  - **50 °F to 104 °F (10 °C to 40 °C)**
  - **50 °F to 140 °F (10 °C to 60 °C)**

## Humidity

- **Operating**
  - **30% to 90%, non-condensing**

## Environmental certification

- **RoHS-compliant. GREENGUARD. EPEAT Silver rating and ENERGY STAR 7.1 qualified.**

## Specifications Reference (PSREF)

- **Base warranty**
  - US models come with 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs

## Lenovo, July 2019
## ThinkStation P330 Tiny Platform Specifications - I of II

### Components Specifications

**Form factor**
- 1L, Optional VESA mount bracket kit, supports VESA 75mm and 100mm.
- Optional floor stand for vertical orientation.
- Optional tool-less chassis open.
- Optional dust filters.

**Dimensions**
- Height: 179 mm (7.0 in).
- Width: 36.5 mm (1.437 in).
- Depth: 182.9 mm (7.2 in).

**Weight**
- Maximum configuration: 3.08 lb (1.4kg).

**Recommended monitors**
- Lenovo recommends ThinkVision P series monitors for best display performance and productivity.

**Memory Capacity**
- 64GB (2x 32GB)

**Chipset**
- Intel Q370 Chipset

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
<th>Graphics</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i9-9900T</td>
<td>8</td>
<td>16</td>
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<td>DDR4-2666</td>
<td>Intel UHD</td>
<td>Graphics 630</td>
</tr>
</tbody>
</table>

**Graphics - Discrete graphics card**
- One of the following discrete graphics cards on 35W processor models:
  - Quadro P620, 512 GB DDR5, 40W
  - Quadro P1000, 640 GB DDR5, 47W

**Storage controllers**
- Integrated Intel AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5" HDD.

**Optical**
- Optional: None, using USB adapter.

**HD Audio**
- Intel HD Audio interface with Realtek ALC233 Codec.

**Media reader**
- None, using USB adapter.

**Network interfaces**
- Onboard GbE port via integrated gigabit Ethernet Intel i219LM, supports Wake-on-LAN. Optional Intel i350-T4 for 4x GbE ports, using PCIe slot.

**Security features**

**Intel vPro Technology**
- Supports vPro on models with the following processors: Core i7-8700T, Core i5-8600T, Core i5-8600, Core i5-8500T, Core i5-8500. vPro also requires Wireless-AC 9560 if Wi-Fi is needed.

**Intel Active Manageability**
- Intel System Management Technology 12 on vPro models, Intel Standard Manageability on other models.

**Base warranty**
- US models come with 3-year limited warranty with 9x5/NBD. 1 or 3-year limited onsite service with 9x5NBD in EMEA or other GEOs.

**HD Audio**
- Intel HD Audio interface with Realtek ALC233 Codec.

**Front standard ports**
- 1x USB 3.1 Gen 1 Type A (charging), 1x USB 3.1 Gen 1 Type-C, 1x Mic-in, 1x Combo jack.

**Rear standard ports**
- 2x USB 3.1 Gen 2 Type A, 2x USB 3.1 Gen 1 Type-A, 1x RJ-45, 1x DP, 1x HDMI.

**Optional rear ports - via punch out cable**
- Up to two optional rear ports via punch out cable. Port 1 supports one of the following: 1x USB 3.1 Gen 1 Type-C, also supports DP function. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM.
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
</table>
| Optional rear ports via PCIe adapter | Supports one of the following:  
4x miniDP with Quadro P620 or P1000, 35W processor models only  
2x USB 3.1 Gen 1.  
4x RJ-45 GbE with Intel I350-T4.  
4x COM  
Note: Punch out cable and PCIe adapter are mutually exclusive |
| Temperature                       | Operating: 50°F to 95°F (10°C to 35°C)  
Non operating (with package): -40°F to 140°F (-40°C to 60°C) |
| Altitude                          | Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft).  
Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft) |
| Humidity                          | Operating: 20%–80%, non-condensing  
Storage (with package): 20%–90%, non-condensing |
| MIL-SPEC                         | Certified |
| Environmental certification       | RoHS-compliant, GREENGUARD, EPEAT Silver rating and ENERGY STAR 7 qualified |
| Power supply                      | Supports one 135W power adapter, 100V - 240V, 88% PSU |
| SV certifications                 | Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/) |
### ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - I of II

**Product Specifications Reference (PSREF)**

#### Memory Protection ECC on models with UDIMM ECC memory

- **Memory Capacity**
  - 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC

#### Processor

- **Chipset** Intel C246 Chipset
- **Memory Sockets** 4 DIMM sockets with 2 channels
- **Memory Types**
  - 8GB/16GB DDR4-2666 UDIMM ECC
  - 4GB/8GB/16GB/32GB DDR4-2666 UDIMM non-ECC
- **Memory Capacity** 64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
- **Memory Protection** ECC on models with UDIMM ECC memory

#### Expansion slots

- **Expansion slots**
  - Three PCIe 3.0 slots as follows:
    - Slot 1 PCIe 3.0 x16, full height, half length, links to CPU
    - Slot 2 PCIe 3.0 x1, full height, full length, links to PCH
    - Slot 3 PCIe 3.0 x16 (negligible link width x4), full height, half length, links to PCH

#### Processor graphics

- **Processor graphics**
  - Integrated Intel UHD Graphics P630 in -G suffix Xenon processors, or Intel UHD Graphics 630 in Core i7, i5, i3, or Pentium processors.
  - Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)

#### Discrete Graphics Offering

- **Discrete Graphics Offering**
  - Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3).

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadro P400</td>
<td>2GB GDDR5</td>
<td>30W</td>
<td>3x miniDP</td>
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<tr>
<td>Quadro P600</td>
<td>2GB GDDR5</td>
<td>40W</td>
<td>4x miniDP</td>
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</tr>
<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4x miniDP</td>
<td>2</td>
</tr>
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<td>Quadro P2000</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4x DP</td>
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<tr>
<td>Quadro P2200</td>
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<td>Quadro P4000</td>
<td>8GB GDDR5</td>
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<tr>
<td>Quadro P5000</td>
<td>16GB GDDR5X</td>
<td>180W</td>
<td>DVI-D + 4x DP</td>
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</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
<td>160W</td>
<td>3x DP, 1x VirtualLink</td>
<td>1</td>
</tr>
</tbody>
</table>

**Note:** 2x Quadro P2000, Quadro P4000, Quadro P5000, or Quadro RTX 4000 needs 400W PSU

### Storage Controller

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>Disk Type</th>
<th>RAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RST SATA RAID</td>
<td>Std</td>
<td>SATA 6Gb/s</td>
<td>HDD or SSD</td>
<td>0/1:10/5</td>
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<tr>
<td>Onboard Intel PCIe NVMe RAID</td>
<td>Std</td>
<td>PCIe NVMe</td>
<td>M.2 PCIe SSD</td>
<td>0/1</td>
</tr>
</tbody>
</table>

#### Storage Support

- **Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5” HDD plus 1x 2.5” SSD, or 4x 2.5” HDD/SSD**

<table>
<thead>
<tr>
<th>Storage Bays</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay 1</td>
<td>Primary disk bay</td>
<td>3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 2</td>
<td>2.5” SATA bay, cannot be available when 2nd Quadro P2000 is used</td>
<td></td>
</tr>
<tr>
<td>Bay 3</td>
<td>Secondary disk bay</td>
<td>3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 4</td>
<td>4x25&quot; Flex bay, supports one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Flex module for optional front eSATA/Thunderbolt/IEEE1394</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3rd disk bay, 3.5&quot; or 2.5&quot;, removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3rd disk bay, 3.5&quot; or 2.5&quot;, via 5.25&quot; to 3.5&quot; HDD Kit</td>
<td></td>
</tr>
<tr>
<td>Bay 5</td>
<td>9mm Slim ODD bay</td>
<td></td>
</tr>
</tbody>
</table>

- **M.2**
  - M.2 PCIe SSD (1 onboard, 2 via PCIe to M.2 adapter)

#### Network

- **Network**
  - One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available

#### Storage Controller

- **Onboard Intel RST SATA RAID**
  - std SATA 6Gb/s
  - HDD or SSD
  - 0/1:10/5

#### Security features

- **Security features**
  - Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant.
  - Optional chassis intrusion switch, e-loack, cable lock, Kensington lock, and pad lock

- **Intel vPro**
  - Supports Intel vPro on Xeon models
  - vPro also requires Wireless-Ac 9560 if Wi-Fi is needed

- **Intel AMT**
  - Intel Active Management Technology 12 on Xeon models
  - Intel Standard Manageability on other models

- **Base warranty**
  - US models come with 3-year limited onsite service with 9x5/NBD.
  - Europe models come with 3-year limited onsite service with 5x10/NBD

- **Lenovo, November 2019**

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**Note:** 2x Quadro P2000, Quadro P4000, Quadro P5000, or Quadro RTX 4000 needs 400W PSU
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: 30%–90%, non-condensing Storage (with package): 20%–90%, non-condensing</td>
</tr>
<tr>
<td>Environmental certification</td>
<td>RoHS-compliant. GREENGUARD. EPEAT Silver rating and ENERGY STAR 7 qualified</td>
</tr>
<tr>
<td>Power supply</td>
<td>Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.</td>
</tr>
<tr>
<td>ISV certifications</td>
<td>Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a></td>
</tr>
</tbody>
</table>

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

![Diagram of ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - II of II](image-url)
**ThinkStation P520 Platform Specifications - I of II**

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Form factor</th>
<th>33L Tower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>165mm/6.5” W x 460mm/18.1” D x 440mm/17.3” H (with feet)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 52.91 lb (24kg)</td>
</tr>
</tbody>
</table>

### Processor Support

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
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<tr>
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<td>16</td>
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<td>3.3GHz</td>
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<td>DDR4-2933</td>
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<td>3.3GHz</td>
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<td>3.5GHz</td>
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<td>165W</td>
<td>DDR4-2933</td>
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<td>Xeon W-2255</td>
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<td>3.7GHz</td>
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<td>16</td>
<td>3.9GHz</td>
<td>16.5MB</td>
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<td>DDR4-2933</td>
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<td>4.1GHz</td>
<td>8.25MB</td>
<td>130W</td>
<td>DDR4-2933</td>
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<td>Xeon W-2225</td>
<td>4</td>
<td>8</td>
<td>4.3GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2933</td>
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<tr>
<td>Xeon W-2215</td>
<td>3</td>
<td>6</td>
<td>4.5GHz</td>
<td>8.25MB</td>
<td>120W</td>
<td>DDR4-2933</td>
</tr>
</tbody>
</table>

### Memory Protection ECC

- Memory Capacity: 512GB with 8 x 64GB DDR4-2933 RDIMMs
- Chipset: Intel C422 Chipset

### Expansion slots

- Slot 1 (CPU): PCIe 3.0 x8, full height, full length, 25W, open ended
- Slot 2 (CPU): PCIe 3.0 x16, full height, full length, 75W, double-width
- Slot 3 (PCH): PCIe 3.0 x4, full height, half length, 25W, open ended
- Slot 4 (CPU): PCIe 3.0 x16, full height, full length, 75W, double-width
- Slot 5: PCI, full height, full length, 25W
- Slot 6 (PCH): PCIe 3.0 x4, full height, half length, 25W, open ended

### Storage Support

- **Storage Bays**
  - **Bay Type**: Maximum Drives Qty
  - **M.2 slot**: 2 flex bays. Supports the following:
    - 2x half-height optical drives
    - 2x 5.25” 9.0mm optical drives
  - **Flex Bay**: 1x flex module for the following options:
    - Tray 1: 9.0mm optical
    - Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display

### Maximum Storage

- Supports up to 9x M.2 SSD + 6x 3.5” HDD/6x 2.5” SATA disks/4x 2.5” SATA SSD + 1x PCIe AIC SSD
- All HDD: 3TB using 6x 3.5” HDD
- All SSD: 30.48TB using 6x 2.5” SATA SSD, 9x M.2 SSD, and 1x PCIe AIC SSD

### Power supply

- Supports one of the following:
  - One fixed 690W, autotuning, 92%, 80 PLUS Platinum qualified
  - One fixed 900W, autotuning, 92%, 80 PLUS Titanium qualified

### Media reader

- Supports SD USB 2.0, card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module

### Graphics Offering

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>connector</th>
<th>SLI / NV-link</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS 810</td>
<td>4GB DDR3</td>
<td>68W</td>
<td>8xminiDP</td>
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<td></td>
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<tr>
<td>Quadro P400</td>
<td>2GB GDDR5</td>
<td>30W</td>
<td>3xminiDP</td>
<td>2</td>
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<tr>
<td>Quadro P600</td>
<td>2GB GDDR5</td>
<td>45W</td>
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<td>Quadro P620</td>
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<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4xminiDP</td>
<td>2</td>
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<td>Quadro P2000</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4xDP</td>
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<td>Quadro P4000</td>
<td>8GB GDDR5</td>
<td>120W</td>
<td>4xDP</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Network interfaces

- Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available
- Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

### Security features

- Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock

### Diagnostics

- Front panel LED, ThinkStation Diagnostics for Windows, Photo-audio transfer to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock

### Storage Controller

- **Onboard Intel HS 16i Std**: SATA 6Gb/s 1x/2/5/10/15
- **9440-8i PCIe**: Opt SAS 12Gb/s, SATA 6Gb/s 0/1/10/5
- **9460-16i PCIe**: Opt SAS 12Gb/s, SATA 6Gb/s 0/1/10/5

### HD Audio

- Realtek ALC662 codec

### Front ports

- 2x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)

### Rear ports

- 2x USB 2.0, 4x USB 3.0, 1x RJ-45, 4x analog audio ports (line-in, line-out, mic-in), 2x PS/2

### Additional features

- 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out
- 1x eSATA on flex module
- 1x USB Type-C on flex module, USB 3.1 gen 1
- 1x COM port
- 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W internal
- 1x internal USB 3.0 port

---

Lenovo, December 2019
## Environmental Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature - operating</td>
<td>50 °F to 95 °F (10 °C to 35 °C)</td>
</tr>
<tr>
<td>Temperature - storage (no package)</td>
<td>14 °F to 140 °F (-10 °C to 60 °C)</td>
</tr>
<tr>
<td>Temperature - storage (with package)</td>
<td>-40 °F to 140 °F (-40 °C to 60 °C)</td>
</tr>
<tr>
<td>Altitude - operating (Unpressurized)</td>
<td>-50ft to 10,000ft (-15.2m to 3048m)</td>
</tr>
<tr>
<td>Humidity - operating</td>
<td>10%–80%, non-condensing</td>
</tr>
<tr>
<td>Humidity - storage (with package)</td>
<td>10%–80%, non-condensing</td>
</tr>
</tbody>
</table>

## Environmental Certifications
- RoHS-compliant
- GREENGUARD
- EPEAT Silver rating
- ENERGY STAR 6.1 qualified on model 30BE0008US and 30BE0009US

## ISV Certifications
Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
**ThinkStation P520c Platform Specifications**

**Product Specifications Reference (PSREF)**

### Storage Support

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Offering</th>
<th>Max Qty</th>
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<tbody>
<tr>
<td>3.5&quot; SATA HDD</td>
<td>SAT 6Gb/s</td>
<td>7,2K</td>
<td>1T/2T/4T/8T</td>
<td>4</td>
</tr>
<tr>
<td>2.5&quot; SATA HDD</td>
<td>SAT 6Gb/s</td>
<td>7,2K</td>
<td>500GB/500GB FIPS</td>
<td>4</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>SAT 6Gb/s</td>
<td>256GB/512GB/1TB/2TB</td>
<td>4</td>
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<tr>
<td>M.2 PCIe SSD</td>
<td>PCIe NVMe</td>
<td>256GB/512GB/1TB/2TB</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

### Max Storage

- Supports up to 5x M.2 SSD + 4x 3.5" HDD/4x 2.5" SSD/4x 2.5" HDD
- All HDD: 24TB using 4x 3.5" HDD
- All SSD: 18TB using 4x 2.5" SATA SSD and 5x M.2 SSD

### Power Supply

- One fixed 500W, auto-sensing, 92%, 80 PLUS Platinum qualified

### Media reader

- SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module

### Network interfaces

- Integrated gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available

### W/LAN + Bluetooth

- Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

### Security features

- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock
- Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed

### Processor Support

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon W-2245</td>
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<td>3.8GHz</td>
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<td>24</td>
<td>3.8GHz</td>
<td>8.25MB</td>
<td>130W</td>
<td>DDH-2433</td>
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<tr>
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<td>105W</td>
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<td>3.7GHz</td>
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### Processor sockets

<table>
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<th>Processor sockets</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x FCLGA2066</td>
<td>Intel C422 Chipset</td>
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</table>

### Expansion slots

- Slot 1 (CPU) PCIe 3.0 x16, full height, full length, 75W
- Slot 2 (CPU) PCIe 3.0 x8, full height, full length, 25W, open ended
- Slot 3 (CPU) PCIe 3.0 x16, full height, full length, 75W
- Slot 4 (PCH) PCIe 3.0 x4, full height, half length, 25W, open ended

### Discrete Graphics Offering

- NVS 810: 4GB DDR3, 68W
- Quadro P400: 2GB GDDR5, 30W
- Quadro P600: 2GB GDDR5, 45W
- Quadro P1000: 4GB GDDR5, 50W
- Quadro P2000: 5GB GDDR5, 75W
- Quadro P4000: 8GB GDDR5, 120W
- Quadro P5000: 16GB GDDR5, 180W
- Quadro RTX 4000: 8GB GDDR6, 160W, x4DP, 1xVirtualLink

### Storage Controller

<table>
<thead>
<tr>
<th>Storage Controller Type</th>
<th>Interface</th>
<th>RAID</th>
<th>Cache</th>
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<tbody>
<tr>
<td>Onboard Intel RSTe Std</td>
<td>SATA 6Gb/s</td>
<td>0/1/0/5</td>
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<tr>
<td>9440-8i PCIe</td>
<td>SATA 6Gb/s</td>
<td>0/1/0/5</td>
<td>-</td>
</tr>
<tr>
<td>NVMe Basic</td>
<td>PCIe NVMe</td>
<td>0/1/0</td>
<td>-</td>
</tr>
<tr>
<td>NVMe for Intel SSD</td>
<td>PCIe NVMe</td>
<td>0/1/0/5</td>
<td>-</td>
</tr>
</tbody>
</table>

### Environmental Specifications

- Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C)
- Temperature - storage (no pack-age): 14 °F to 140 °F (-10 °C to 60 °C)
- Temperature - storage (with pack-age): -40 °F to 140 °F (-40 °C to 60 °C)
- Humidity - operating: 10%–80%, non-condensing
- Humidity - storage (with package): 10%–90%, non-condensing

### Environmental Certifications

RoHS-compliant. GREENGUARD EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 30BX0008US and 30BX0009US

### ISV certifications

Please visit www.thinkworkstations.com/svy-certifications/

Lenovo, December 2019
ThinkStation P720 Platform Specifications

Product Specifications Reference (PSREF)

Processor Offering

<table>
<thead>
<tr>
<th>Processor Offering</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
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<tbody>
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<td>3.00GHz</td>
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<td>150W</td>
<td>DDR4-2666</td>
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<td>28</td>
<td>3.20GHz</td>
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<td>180W</td>
<td>DDR4-2666</td>
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</tbody>
</table>

Chipset

Intel C621 Chipset

Memory Sockets

12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor

Memory Capacity

768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)

Memory Protection ECC

ECC

Expansion slots

Slot 1 (CPU1) PCIe 3.0 x16, full height, full length, 75W
Slot 2 (CPU1) PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 3 (CPU1) PCIe 3.0 x8, full height, full length, 25W, open ended
Slot 4 (CPU1) PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 5 (CPU1) PCIe, full height, full length, 25W
Slot 6 (PCH) PCIe 3.0 x4, full height, half length, 25W, open ended

Discrete Graphics Offering

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>SLI / NVLink</th>
<th>Max Qty</th>
</tr>
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<tbody>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB</td>
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<td>Quadro RTX 5000</td>
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<td>HBM2</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Storage Support

- SSD: 32TB using 10x 2.5" SSD, 9x M.2 SSD, and 2x PCIe AIC SSD
- HDD: 32TB using 6x 3.5" HDD, 10x 2.5" SSD, and 2x PCIe AIC SSD
- RAID: 0/1/5/10/5/6

Storage Bays

- 4 disk bays (2 bays standard, 2 bays optional)
- Supports one of the following configurations:
  - 4x M.2 SSD with 2x Front Removable Drive Enclosures
  - 4x M.2 SSD with 2x Front Removable Drive Enclosures

Max Storage

Supports up to M.2 SSD + 6x 3.5" SATA SSD/10x 2.5" SSD/10x 2.5" SSD + 4x PCIe AIC SSD

Lenovo, September 2019
## ThinkStation P720 Platform Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td><strong>Power supply</strong></td>
<td>Supports one of the following:</td>
</tr>
<tr>
<td></td>
<td>• One fixed 690W, autotuning, 92%, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td></td>
<td>• One fixed 900W, autotuning, 92%, 80 PLUS Platinum qualified</td>
</tr>
<tr>
<td><strong>Media reader</strong></td>
<td>SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module</td>
</tr>
<tr>
<td><strong>Network interfaces</strong></td>
<td>Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available</td>
</tr>
<tr>
<td><strong>WLAN + Bluetooth</strong></td>
<td>Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps</td>
</tr>
<tr>
<td><strong>Security features</strong></td>
<td>Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting, Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock</td>
</tr>
<tr>
<td><strong>Intel vPro</strong></td>
<td>Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed</td>
</tr>
<tr>
<td><strong>Intel AMT</strong></td>
<td>Intel Active Management Technology 11</td>
</tr>
<tr>
<td><strong>Diagnostic</strong></td>
<td>Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-video transfer with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module</td>
</tr>
<tr>
<td><strong>Base warranty</strong></td>
<td>1 or 3-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td><strong>HD Audio</strong></td>
<td>Realtek ALC662 codec</td>
</tr>
<tr>
<td><strong>Front ports</strong></td>
<td>4x USB 3.1 Gen 1 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)</td>
</tr>
<tr>
<td><strong>Rear ports</strong></td>
<td>2x USB 2.0, 4x USB 3.1 Gen 1, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2</td>
</tr>
<tr>
<td><strong>Optional ports</strong></td>
<td>Supports the following optional ports:</td>
</tr>
<tr>
<td></td>
<td>Front:</td>
</tr>
<tr>
<td></td>
<td>• 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out</td>
</tr>
<tr>
<td></td>
<td>• 1x eSATA on flex module</td>
</tr>
<tr>
<td></td>
<td>• 1x USB Type-C on flex module, USB 3.1 gen 1</td>
</tr>
<tr>
<td></td>
<td>Rear:</td>
</tr>
<tr>
<td></td>
<td>• 1x COM port</td>
</tr>
<tr>
<td></td>
<td>• 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W internal</td>
</tr>
<tr>
<td></td>
<td>• 1x internal USB 3.1 Gen 1 port</td>
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<tr>
<td><strong>Environmental</strong></td>
<td><strong>specification</strong></td>
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<tr>
<td></td>
<td><strong>temperature - operating</strong> 50 °F to 95 °F (10 °C to 35 °C)</td>
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<tr>
<td></td>
<td><strong>temperature - storage (no package)</strong> 14 °F to 140 °F (-10 °C to 60 °C)</td>
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<td></td>
<td><strong>temperature - storage (with package)</strong> -40 °F to 140 °F (-40 °C to 60 °C)</td>
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<td></td>
<td><strong>Altitude - operating</strong> (Unpressurized) 0-10000ft (0-3048m)</td>
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<td></td>
<td><strong>Humidity - operating</strong> 10%-80%, non-condensing</td>
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<td></td>
<td><strong>Humidity - storage (package)</strong> 10%-90%, non-condensing</td>
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<tr>
<td><strong>Environmental</strong></td>
<td><strong>Certifications</strong></td>
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<td></td>
<td>RoHS-compliant, GREENGUARD, EPEAT Silver rating, ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US</td>
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<tr>
<td><strong>SV certifications</strong></td>
<td>Please visit <a href="http://www.thinkworkstations.com/sv-certifications/">www.thinkworkstations.com/sv-certifications/</a></td>
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</table>

**Note:**
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
## ThinkStation P920 Platform Specifications

### Processor Offering

<table>
<thead>
<tr>
<th>Processor</th>
<th># of Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Cache</th>
<th>TDP</th>
<th>Memory Types</th>
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<td>Xeon Silver 4114T</td>
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<tr>
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<td>2.2 GHz</td>
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<tr>
<td>Xeon Silver 4112</td>
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<td>8</td>
<td>2.6 GHz</td>
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<td>85W</td>
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<td>Xeon Silver 4110</td>
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<td>16</td>
<td>2.1 GHz</td>
<td>11MB</td>
<td>70W</td>
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<tr>
<td>Xeon Silver 4109T</td>
<td>8</td>
<td>16</td>
<td>2.0 GHz</td>
<td>11MB</td>
<td>70W</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>Xeon Silver 4108</td>
<td>8</td>
<td>16</td>
<td>1.8 GHz</td>
<td>11MB</td>
<td>85W</td>
<td>DDR4-2933</td>
</tr>
</tbody>
</table>

### Memory Types

- **Memory Sockets**: 16 DIMM sockets with 12 channels, 8 DIMM sockets with 6 channels per processor
- **Memory Protection**: ECC
- **Memory Types**: DDR4-2666 RDIMM, DDR4-2666 LRDIMM, or DDR4-2933 RDIMM
- **Memory Capacity**: 1TB DDR4-2666 LRDIMM or DDR4-2933 RDIMM or 512GB DDR4-2666 RDIMM

### Expansion Slots

- **Slot 1 (CPU1)**: PCIe 3.0 x16, full height, full length, 75W, double-width
- **Slot 2 (CPU1)**: PCIe 3.0 x4, full height, full length, 25W, open ended
- **Slot 3 (CPU1)**: PCIe 3.0 x16, full height, full length, 75W, double-width
- **Slot 4 (CPU1)**: PCIe 3.0 x4, full height, full length, 25W, open ended
- **Slot 5 (PCH)**: PCIe 3.0 x4, full height, half length, 25W, open ended
- **Slot 6 (CPU2)**: PCIe 3.0 x16, full height, half length, 75W
- **Slot 7 (CPU2)**: PCIe 3.0 x16, full height, full length, 75W, double-width
- **Slot 8 (CPU2)**: PCIe 3.0 x16, full height, full length, 75W

### Storage Support

- **HDD**: 3.5" SATA HDD, 2.5" SATA SSD/HDD
- **SSD**: 3.5" SATA SSD, 2.5" SATA SSD
- **Storage Controller**: Onboard Intel RSTe, Std SATA 6Gb/s, Opt PCIe NVMe 0/1/10/5
- **Graphics**: NVMe Basic, Premium, SuperCap

### Chipset

- **Chipset**: Intel C621 Chipset
- **Memory**: 12 DIMM sockets with 12 channels, 8 DIMM sockets with 6 channels per processor
- **Memory Protection**: ECC

### Storage Bays

- **Bay Type**: M.2 slot
- **Maximum Drives Qty**: 9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)

### Flex Bay

- **Disk drives with 4 bays (2 bays standard, 2 bays optional). Supports the following configurations:**
  - 4x 3.5" or 2.5" disks.
  - 3x half-height optical drives
  - 4x 5.25" 9.0mm optical drives
  - 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA SSD/HDD
  - 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure

### Lenovo, September 2019
# ThinkStation P920 Platform Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max Storage</strong></td>
<td>Supports up to 9x M.2 SSD + 6x 3.5&quot; HDD/10x 2.5&quot; SSD/10x 2.5&quot; HDD + 2x PCIe AIC SSD. All HDD: 36TB using 6x 3.5&quot; HDD. All SSD: 38.96TB using 10x 2.5&quot; SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD.</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>One fixed 1400 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified. Countries with input voltage under 115V, output power limited to 1125 watts.</td>
</tr>
<tr>
<td><strong>Media reader</strong></td>
<td>SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module.</td>
</tr>
<tr>
<td><strong>Network interfaces</strong></td>
<td>Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available.</td>
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<td><strong>WLAN + Bluetooth</strong></td>
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<td>2x USB 2.0, 4x USB 3.1 Gen 1, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2.</td>
</tr>
<tr>
<td><strong>Optional ports</strong></td>
<td>Supports the following optional ports: Front: • 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out • 1x eSATA on flex module • 1x USB Type-C on flex module, USB 3.1 gen 1 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 port.</td>
</tr>
<tr>
<td><strong>Environmental specification</strong></td>
<td>Temperature - operating: 50°F to 95°F (10°C to 35°C) Temperature - storage (no package): 14°F to 140°F (-10°C to 60°C) Temperature - storage (with package): -40°F to 140°F (-40°C to 60°C) Altitude - operating: 0-10000ft (0-3048m) Humidity - operating: 10%-80%, non-condensing Humidity - storage (with package): 10%-90%, non-condensing</td>
</tr>
<tr>
<td><strong>Environmental Certifications</strong></td>
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</tr>
<tr>
<td><strong>ISV certifications</strong></td>
<td>Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a>.</td>
</tr>
</tbody>
</table>

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2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer (houyf@lenovo.com)
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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:
- **Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.
- **Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business.


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Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.
<table>
<thead>
<tr>
<th>Model</th>
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<td>ThinkVision T27q-20</td>
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<td>ThinkVision T32p-20</td>
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<td>ThinkVision X1</td>
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**Legal Information**

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Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

January, 2020 - Version 554

Additions in this update

► New product(s)
  ThinkVision P27q-20
  ThinkVision T27q-20
  ThinkVision T27h-20
  ThinkVision T32h-20
  ThinkVision S28u-10

► New model(s)
  None

► Others
  None

Withdrawals in this update

► Withdrawn product(s)
  None
PORTABLE USB-C MONITOR CRAFTED FOR IMPROVED PRODUCTIVITY

The ThinkVision M14 is an ultraslim and ultralight mobile monitor. Its 14-inch screen helps you extend your workspace comfortably and seamlessly with your laptop or notebook. This monitor is designed to support any work scenario while saving you from carrying heavy monitor and cables. Whether you are working from a desk or a conference room, the ThinkVision M14 can either extend or duplicate your notebook display with one plug. The USB Type-C ports on either side of the monitor provide power delivery and video delivery simultaneously from a single port. Two innovative USB Type-C ports on either side of the monitor that powers the mobile monitor by an adapter and charges your devices at the same time. The ambidextrous design of this monitor enhances user comfort. The think of Posture Technology helps users keep the right posture while working on the ThinkVision M14. The ergonomic height adjustable stand enables you to position the monitor in the way that suits your style. Compare content of -5° ~ 90°, you can position your monitor working hours easy.

ACHIEVE TARGETS ON THE GO

The ThinkVision M14 is an ultraslim and ultralight mobile monitor. Its 14-inch screen helps you extend your workspace comfortably and seamlessly with your laptop or notebook. This monitor is designed to support any work scenario while saving you from carrying heavy monitor and cables. Whether you are working from a desk or a conference room, the ThinkVision M14 can either extend or duplicate your notebook display with one plug. The USB Type-C ports on either side of the monitor provide power delivery and video delivery simultaneously from a single port. Two innovative USB Type-C ports on either side of the monitor that powers the mobile monitor by an adapter and charges your devices at the same time. The ambidextrous design of this monitor enhances user comfort. The think of Posture Technology helps users keep the right posture while working on the ThinkVision M14. The ergonomic height adjustable stand enables you to position the monitor in the way that suits your style. Compare content of -5° ~ 90°, you can position your monitor working hours easy.

EXPERIENCED ADVANCED CONNECTIVITY

The ThinkVision M14 boosts productivity with its ACHIEVE TARGETS ON THE GO

The ThinkVision M14 is an ultraslim and ultralight mobile monitor. Its 14-inch screen helps you extend your workspace comfortably and seamlessly with your laptop or notebook. This monitor is designed to support any work scenario while saving you from carrying heavy monitor and cables. Whether you are working from a desk or a conference room, the ThinkVision M14 can either extend or duplicate your notebook display with one plug. The USB Type-C ports on either side of the monitor provide power delivery and video delivery simultaneously from a single port. Two innovative USB Type-C ports on either side of the monitor that powers the mobile monitor by an adapter and charges your devices at the same time. The ambidextrous design of this monitor enhances user comfort. The think of Posture Technology helps users keep the right posture while working on the ThinkVision M14. The ergonomic height adjustable stand enables you to position the monitor in the way that suits your style. Compare content of -5° ~ 90°, you can position your monitor working hours easy.

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# Lenovo ThinkVision E1922s Wide

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>E1922s Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case color</strong></td>
<td><strong>Type-model</strong></td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td><strong>Viewable image size</strong></td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td><strong>Native resolution</strong></td>
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<tr>
<td><strong>Aspect ratio</strong></td>
<td><strong>Pixel pitch (mm)</strong></td>
</tr>
<tr>
<td><strong>Dot/Pixel per Inch</strong></td>
<td><strong>Brightness</strong></td>
</tr>
<tr>
<td><strong>Contrast ratio</strong></td>
<td><strong>Pixel response time</strong></td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td><strong>Viewing angle at 10:1 CR</strong></td>
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<tr>
<td><strong>Stand</strong></td>
<td><strong>Bezel width</strong></td>
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<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td><strong>Weight</strong></td>
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<tr>
<td><strong>Power supply</strong></td>
<td><strong>Limited warranty</strong></td>
</tr>
<tr>
<td><strong>Available date</strong></td>
<td><strong>Features</strong></td>
</tr>
</tbody>
</table>

**Widescreen 18.5-inch monitor**
- Supports HD 1366x768 resolution
- Supports VESA mount (100mm)
- Mercury free panel and arsenic free glass
- Kensington lock slot ready for enhanced security
- Support Lenovo Tiny PC via VESA mount
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified

**ThinkVision E1922s Wide Monitor**

- **VESA compliant**
- **Power management**
- **Ergonomics**
- **Emission standards**
- **Environmental**

**VGA**: 640x480, 640x480, 720x400  
**SVGA**: 800x600, 832x624  
**XGA**: 1024x768, 1152x864  
**SXGA**: 1280x1024  
**WXGA**: 1366x768

**Presets / user settings**
- Standard presets: 15  
- User settings: 16

**Viewing adjustments**
- **Tilt**: 20° backward, -5° forward
- Rotating screen: None

**Control features**
- Direct access (control buttons on front) for automatic image setup and adjustment for brightness

**Multiple input**
- VGA 15-pin D-shell, analog, blue

**Mounting features**
- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
- Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord

---

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
## Lenovo ThinkVision E2054 Wide

**Name**
E2054 Wide Flat Panel Monitor

**Case color**
Raven black

**Type-model**
60DFAAR1US / 60DFAAT1EU

**Panel**
TFT-LCD, In-Plane Switching (IPS), LED backlight

**Viewable image size**
19.5" (494mm) diagonal

**Max view area (W x H)**
16.48" x 10.33" / 418.6mm x 262.4mm

**Native resolution**
1440x900

**Aspect ratio**
16:10

**Pixel pitch (mm)**
0.097mm x 0.292mm

**Brightness**
250 nits or cd/m² (typical)

**Contrast ratio**
250 nits or cd/m² (typical)

**Pixel response time**
7ms (typical)

**Color gamut**
72%

**Viewing angle at 10:1 CR**
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**
Tilt adjustable stand

**Bezel width**
Top: 0.71" (18.0mm)
Bottom: 0.70" (17.9mm)
Sides: 1.02" (26.0mm)

**Dimensions (HxWxD)**
14.65" H x 17.95" W x 7.41" D:
372.0mm H x 456.0mm W x 188.3mm D

**Power supply**
16 watts typical, 20 watts maximum,
<0.5 watts standby/suspend, universal,
integrated (no external brick-like power supply)

**Weight**
6.17 lb; 2.8 kg

**Limited warranty**
3 year (includes backlight)

**Available date**
November 2015

**VESA-compliant**
VESA DPMS-compliant

**Power management**
ENERGY STAR® 6.0

**Ergonomics**
ISO 9241-307

**Emission standards**
FCC Class B

**Environmental**
TCO (TCO Displays 6.0), WEEE, RoHS,
EPEAT™ Silver rating

**Preset resolutions**
VGA: 640x480, 720x400
SVGA: 800x600
XGA: 1024x768
SXGA: 1280x768, 1280x1024
WXGA: 1366x768
WXGA+: 1440x900

**Presets / user settings**
Standard presets: 18
user settings: 10

**Viewing adjustments**
Tilt: 22° backward, -5° forward

**Rotating screen**
None

**On screen display**
Direct access (control buttons on front) for automatic image setup and adjustment for brightness

**Control features**
On screen display with digital user controls (8 languages)

**Multiple input**
None

**Monitor connectors**
VGA 15-pin D-shell, analog, blue

detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

**Mounting features**
Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord

---

### Limited Warranty


### Accessories

<table>
<thead>
<tr>
<th>Kensington MicroSaver Cable Lock</th>
<th>73P2582</th>
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</thead>
<tbody>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
</tbody>
</table>

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

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**Features**

- Widescreen 19.5-inch monitor
- Supports HD 1440x900 resolution
- Supports VESA mount (100mm)
- Mercury free panel and arsenic free glass
- Kensington lock slot ready for enhanced security
- Support Lenovo Tiny PC via VESA mount
- Microsoft Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

---

**ThinkVision E2054 Wide Monitor**

Lenovo

November 2015
Lenovo ThinkVision LT1913p Square

**Features**

- 19-inch Square IPS LED backlit panel
- Supports 1280x1024 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Mercury and arsenic free glass
- Low Halogen
- Recycled content in plastic material
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

---

**Specifications**

**Name**
Lenovo ThinkVision LT1913p Square Flat Panel Monitor

**Case color**
Black

**Type-model**
60FBHAR1US / 60FBHAT1EU

**Panel**
TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size**
19.0” (480.0mm) diagonal

**Max view area (W x H)**
14.76” x 11.80” (374.7mm x 299.8mm)

**Optimum resolution**
1280x1024

**Max pixel rate**
205MHz (VGA), 165MHz (DVI)

**Aspect ratio**
5:4

**Pixel pitch (mm)**
0.0976 (H) x 0.2928 (V) mm

**Brightness**
250 nits or cd/m² (typical)

**Contrast ratio**
1000:1 (typical)

**Pixel response time**
7ms (typical)

**Color gamut**
72%

**Viewing angle at 10:1 CR**
178° horizontal, 178° vertical

**Stand**
Tilt, swivel, pivot, and height adjustable stand

**Bezel width**
Sides: 0.68” (17.4mm); top: 0.68” (17.4mm); bottom: 0.68” (17.4mm)

**Dimensions (HxWxD)**
14.63” H x 16.18” W x 10.40” D; 371.5mm H x 411.0mm W x 264.2mm D

**Power supply**
24 watts typical, 27 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**
10.69 lb; 4.85kg

**Limited warranty**
3 year (includes backlight)

**Available date**
April 2015

**VESA-compliant**
VESA DDC2B/CI, EDID 1.3

**Power management**
ENERGY STAR® 7.0

**Ergonomics**
ISO 9241-307

**Emission standards**
FCC Class B

**Environmental**
TCO Displays 7.0, TCO Certified Edge 1.1, WEEE, RoHS, EPEAT™ Silver rating, ULE Gold

**Preset resolutions**

| VGA: 640x350, 640x480, 720x400 |
| SVG: 800x600, 823x624 |
| XGA: 1024x768, 1152x864, 1152x900 |
| SXGA: 1280x1024 |

**Presets / user settings**
Standard presets: 20; user settings: 20

**Viewing adjustments**
Tilt: 30° back, -5° forward; lift: 4.3” (110mm); swivel: +/- 45°

**Rotating screen**
Screen pivots 90 degrees from landscape to portrait

**On screen display**
On screen display with digital user controls (8 languages)

**Control features**
Direct access (buttons on front) for automatic image setup, input switch, and brightness

**Multiple input**
Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**
(1) VGA 15-pin D-shell, analog, blue
(2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant

**Signal cables**
(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
(2) detachable, DVI-D at each end, digital, 1.8 meter

**Mounting features**
Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
Monitor, attached stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

---

**Limited Warranty**

**Accessories**

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Security Cable Lock 57Y4303
- Lenovo Easy Reach Monitor Stand 59Y9258

See details at [www.lenovo.com/support/monitoraccessories](www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](www.lenovo.com/thinkvision)

Lenovo
April 2015
Lenovo ThinkVision T1714

Features

- 17-inch Square LCD monitor
- Supports SXGA 1280x1024 resolution
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- Mercury Arsenic free glass
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 certified
- Microsoft Windows 8.1 certified
- Microsoft Windows 10 certified

Specifications:

- **Name**: T1714 Square Flat Panel Monitor
- **Case color**: Black
- **Type-model**: 60FDHAR1US / 60FDHAT1EU
- **Panel**: TFT-LCD, twisted nematic (TN), White LED backlight
- **Viewable image size**: 17.0" (432mm) diagonal
- **Max view area (W x H)**: 13.3" x 10.6" (337.9mm x 270.3mm)
- **Optimum resolution**: 1280x1024
- **Aspect ratio**: 5:4
- **Pixel pitch (mm)**: 0.264mm
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 5ms (typical)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical
- **Stand**: Tilt stand
- **Bezel width**: Sides: 0.69" (17.5mm)
- **Dimensions**: 14.72" H x 14.74" W x 7.87" D
- **Power supply**: 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 5.75 lb; 2.61kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: September 2015
- **VESA-compliant**: VESA DDC2B/CI
- **Power management**: ENERGY STAR® 7.0
- **Ergonomics**: ISO 9241-307
- **Emission standards**: FCC Class B
- **Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT Silver rating
- **Preset resolutions**: VGA: 640x350, 640x480, 720x400
  - SVGA: 800x600
  - XGA: 1024x768, 1152x864,
  - SXGA: 1280x800, 1280x1024
- **Presets / user settings**: Standard presets: 17;
  - user settings: 17
- **Viewing adjustments**: Tilt: 22° back, -5° forward
- **Rotating screen**: None
- **On screen display**: On screen display with digital user controls (8 languages)
- **Control features**: Direct access (buttons on front) for automatic image setup and brightness
- **Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors**: (1) VGA 15-pin D-shell, analog, blue
  - (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant
- **Signal cables**: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
  - (2) detachable, DVI-D at each end, digital, 1.8 meter
- **Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)
- **Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

Accessories

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Easy Reach Monitor Stand 55Y9258

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision T1714p**

### Specifications

<table>
<thead>
<tr>
<th>Name</th>
<th>T1714p Square Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>60FELAR1US / 60FELAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>17.0&quot; (432mm) diagonal</td>
</tr>
<tr>
<td>Optimum resolution</td>
<td>1280x1024</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>5:4</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.264mm</td>
</tr>
<tr>
<td>Brightness</td>
<td>96 dpi</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>5ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>View angle at 10:1 CR</td>
<td>170° (+/- 85°) horizontal, 160° (+/- 80°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.69&quot; (17.5mm)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.63&quot; H x 14.74&quot; W x 9.61&quot; D</td>
</tr>
<tr>
<td>(HxWxD, including stand)</td>
<td>447.9mm H x 374.5mm W x 244.2mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>14.0 watts typical, 18.0 watts maximum, &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>8.71 lb; 3.95kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>September 2015</td>
</tr>
</tbody>
</table>

**Features**

- 17-inch Square LCD monitor
- Supports SXGA 1280x1024 resolution
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- Mercury Arsenic free glass
- Supports Lenovo Tiny PC and 3rd party thin client via optional Lenovo bracket
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 certified
- Microsoft Windows 8.1 certified
- Microsoft Windows 10 certified

### Preset resolutions

VGA: 640x350, 640x480, 720x400
SVGA: 800x600
XGA: 1024x768, 1152x864, 1280x800
SXGA: 1280x1024

### Presets / user settings

- Standard presets: 22;
- User settings: 22

### Viewing adjustments

- Tilt: 22° back, -5° forward; lift: 4.3" (110mm)

### Rotating screen

None

### On screen display

- On screen display with digital user controls (8 languages)
- Direct access (buttons on front) for automatic image setup and brightness
- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

### Monitor connectors

1. VGA 15-pin D-shell, analog, blue
2. Digital Visual Interface (DVI-D), digital, white, HDCP-compliant
3. DisplayPort, digital, black, HDCP-compliant

### Signal cables

1. detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
2. detachable, DVI-D at each end, digital, 1.8 meter

### Mounting features

Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

### Security

- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group

- Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord

### Accessories

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Easy Reach Monitor Stand 55Y9258

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
# Lenovo™ ThinkVision® T2054p Monitor

## SPECIFICATIONS

### DISPLAY

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<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Panel Size</td>
<td>19.45&quot;</td>
</tr>
<tr>
<td>Panel Type</td>
<td>IPS</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Viewable Area (Diagonal) (mm)</td>
<td>19.45&quot;</td>
</tr>
<tr>
<td>Screen Dimensions (W x H) (mm)</td>
<td>262.35 x 418.61</td>
</tr>
<tr>
<td>Resolution</td>
<td>1440 x 900</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:10</td>
</tr>
<tr>
<td>Viewing Angle (H/V at CR 10:1)</td>
<td>178° / 178°</td>
</tr>
<tr>
<td>Maximum Brightness (Typical)</td>
<td>250 cd/m²</td>
</tr>
<tr>
<td>Contrast Ratio (Typical)</td>
<td>1000:1</td>
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<tr>
<td>Pixel Pitch (W x H) (mm)</td>
<td>0.0969 x 0.2915</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch (DP / PPI)</td>
<td>87.3</td>
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<tr>
<td>Color Gamut (CIE 1931)</td>
<td>72%</td>
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<tr>
<td>Number of Colors</td>
<td>16.7 M</td>
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<tr>
<td>Response Time</td>
<td>7 ms</td>
</tr>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### SIGNAL INPUT

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>VGA, HDMI®, DisplayPort™</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>VGA</td>
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<tr>
<td>Video Cable Length</td>
<td>1.8 m</td>
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<tr>
<td>USB Hub</td>
<td>No</td>
</tr>
<tr>
<td>USB Cable Supplied</td>
<td>No</td>
</tr>
</tbody>
</table>

### POWER CONSUMPTION

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>14.5 W</td>
</tr>
<tr>
<td>Max. without USB Hub</td>
<td>21 W</td>
</tr>
<tr>
<td>Max. with USB Hub</td>
<td>N/A</td>
</tr>
<tr>
<td>Sleep-Mode</td>
<td>0.3 W</td>
</tr>
<tr>
<td>Off-Mode</td>
<td>0.3 W</td>
</tr>
<tr>
<td>Heat Dissipation</td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>49.45 Btu/h</td>
</tr>
<tr>
<td>Max.</td>
<td>71.61 Btu/h</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Internal</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>90 – 264 VAC, 1.5 A</td>
</tr>
<tr>
<td>Voltage Dynamic Frequency</td>
<td>47 – 63 Hz</td>
</tr>
</tbody>
</table>

### DIMENSIONS (W X D X H)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed (mm)</td>
<td>509 x 176 x 368</td>
</tr>
<tr>
<td>Size (inches)</td>
<td>20.04&quot; x 6.93&quot; x 14.49&quot;</td>
</tr>
<tr>
<td>Size Unpacked with Stand (mm)</td>
<td>454.2 x 242.6 x 345.9 - 455.9</td>
</tr>
<tr>
<td>Size (inches)</td>
<td>17.88&quot; x 9.55&quot; x 13.62&quot; - 17.95&quot;</td>
</tr>
<tr>
<td>Size Unpacked without Stand (Head Only) (mm)</td>
<td>454.2 x 53 x 297.9</td>
</tr>
<tr>
<td>Size (inches)</td>
<td>17.88&quot; x 2.09&quot; x 11.73&quot;</td>
</tr>
<tr>
<td>Distance from Table to Panel (mm / inches)</td>
<td>65.8 / 2.59&quot;</td>
</tr>
<tr>
<td>Stand Base Footprint Area (mm / inches)</td>
<td>328.2 / 12.92&quot;</td>
</tr>
<tr>
<td>Weight Packed</td>
<td>Diameter 240 / 9.45&quot;</td>
</tr>
<tr>
<td>Weight Unpacked</td>
<td></td>
</tr>
<tr>
<td>Weight Monitor Head</td>
<td></td>
</tr>
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</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (Front / Back)</td>
<td>-5° - 22°</td>
</tr>
<tr>
<td>Swivel Angle (Left / Right)</td>
<td>-45° - 45°</td>
</tr>
<tr>
<td>Lift (mm)</td>
<td>110</td>
</tr>
<tr>
<td>Pivot</td>
<td>No</td>
</tr>
<tr>
<td>VESA® Mount (mm)</td>
<td>100 x 100</td>
</tr>
<tr>
<td>Kensington® Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Ambient Light Sensor</td>
<td>No</td>
</tr>
<tr>
<td>Control Buttons</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width (Side) (mm / inches)</td>
<td>17 / 0.67&quot;</td>
</tr>
<tr>
<td>Bezel Width (Top / Bottom) (mm / inches)</td>
<td>17 / 0.67&quot;</td>
</tr>
</tbody>
</table>

### SIGNAL INTERFACE / PERFORMANCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Frequency</td>
<td>30 kHz – 81 kHz</td>
</tr>
<tr>
<td>Vertical Frequency</td>
<td>50 Hz – 75 Hz</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>1440 x 900</td>
</tr>
<tr>
<td>Maximum Pixel Clock Speed / Bandwidth</td>
<td>VGA : 150 MHz</td>
</tr>
<tr>
<td>HDMI® : 150 MHz</td>
<td></td>
</tr>
<tr>
<td>DisplayPort® : 150 MHz</td>
<td></td>
</tr>
<tr>
<td>Default Color Temperature</td>
<td>7200K</td>
</tr>
<tr>
<td>Preset Display Modes</td>
<td>22</td>
</tr>
<tr>
<td>User-defined Display Modes</td>
<td>16</td>
</tr>
<tr>
<td>OSD Buttons</td>
<td>5</td>
</tr>
<tr>
<td>OSD Languages</td>
<td>8</td>
</tr>
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</table>

### COMPLIANCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPEAT™</td>
<td>Silver</td>
</tr>
<tr>
<td>ENERGY STAR® Rating</td>
<td>6.0</td>
</tr>
<tr>
<td>ULE</td>
<td>Gold</td>
</tr>
<tr>
<td>TCO®</td>
<td>6.0</td>
</tr>
<tr>
<td>TCO’ Edge</td>
<td>2.0</td>
</tr>
<tr>
<td>TUV</td>
<td>Yes</td>
</tr>
<tr>
<td>REACH (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 7, Windows 8, Windows 8.1, Windows 10</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 1</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 °C – 45 °C</td>
</tr>
<tr>
<td>Non-operating</td>
<td>-20 °C – 60 °C (non-condensing)</td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>10% - 80%</td>
</tr>
<tr>
<td>Non-operating</td>
<td>5% - 95% (non-condensing)</td>
</tr>
<tr>
<td>Altitude</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>8,000 ft</td>
</tr>
<tr>
<td>Non-operating</td>
<td>40,000 ft</td>
</tr>
<tr>
<td>Arsenic-free Glass</td>
<td>Yes</td>
</tr>
<tr>
<td>PVC Free</td>
<td>Yes</td>
</tr>
<tr>
<td>Mercury Free</td>
<td>Yes</td>
</tr>
<tr>
<td>PCC % of Plastic Resins</td>
<td>85%</td>
</tr>
<tr>
<td>Low Halogen</td>
<td>No</td>
</tr>
</tbody>
</table>

### WARRANTY AND AVAILABILITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>3 Years</td>
</tr>
<tr>
<td>Geography Availability</td>
<td>World Wide</td>
</tr>
<tr>
<td>ThinkVision® Logo</td>
<td>Yes</td>
</tr>
<tr>
<td>Global Model</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Lenovo ThinkVision E21**

**Name**: E21 Wide Flat Panel Monitor

**Bezel color**: Black

**Type-model**: 61B9JAR1US / 61B9JAT1EU

**Panel**: TFT-LCD, twisted nematic (TN), White LED backlight

**Viewable image size**: 20.7" (525.78mm) diagonal

**Max view area (W x H)**: 18.03" x 10.14" (457.92mm x 257.58mm)

**Native resolution**: 1920x1080

**Aspect ratio**: 16:9

**Pixel pitch (mm)**: 0.2385 x 0.2385 mm

**Dot/Pixel per Inch (dpi)**: 106 dpi

**Brightness**: 250 nits or cd/m2 (typical)

**Contrast ratio**: 1000:1 (typical)

**Pixel response time**: 5ms (typical)

**Color gamut**: 72%

**Viewing angle at 10:1 CR**:
- Horizontal: 170° (+/- 85°)
- Vertical: 160° (+/- 80°)

**Stand**: Tilt adjustable stand

**Bezel width**:
- Sides: 0.6" (15.3mm)
- Top: 0.6" (15.3mm)
- Bottom: 0.6" (15.3mm)

**Dimensions (HxWxD)**:
- 14.6" H x 19.31" W x 8.07" D; 370.9mm H x 490.5mm W x 204.9mm D

**Power supply**: 18 watts typical, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**: 5.82 lb; 2.64 kg

**Limited warranty**: 2 year (includes backlight)

**Available date**: August 2017

**VESA-compliant**: VESA DDC2B/C1

**Power management**: ENERGY STAR® qualified

**Ergonomics**: ISO 9241-307

**Emission standards**: FCC Class B

**Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating

**Preset resolutions**:
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA+: 1440x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

**Presets display modes**: Standard presets: 22

**Viewing adjustments**: Tilt: 22° back, -5° forward

**Rotating screen**: None

**On screen display**: On screen display with digital user controls (8 languages)

**Control features**: Direct access (buttons on front) for power, menu, input source select and brightness

**USB hub**: None

**Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)

**Monitor connectors**:
- (1) VGA 15-pin D-shell, analog, blue
- (2) DisplayPort (1.2), digital, black, HDCP-compliant

**Signal cables**: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter

**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

**Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**: Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter black power cord

---

**Limited Warranty**


**Accessories**

Kensington MicroSaver Cable Lock 73P2582

Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

---

**Features**

- Widescreen 20.7-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- EPEAT Gold certified
- Low Blue Light certification
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified
## Lenovo ThinkVision E24

**Features**

- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny VESA mount
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- MS Windows 7 certified
- MS Windows 10 certified

### E24 Wide Flat Panel Monitor

**Bezel color**

<table>
<thead>
<tr>
<th>Name</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type-model</td>
<td>61B7JA6US / 61B7JA6EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>23.8&quot; (604.7mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.75&quot; x 11.67&quot; (527.04mm x 296.46mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2745 x 0.2745 mm</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m^2 (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>6ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.51&quot; (13mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.9&quot; H x 21.81&quot; W x 8.07&quot; D; 403.88mm H x 554mm W x 204.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>18 watts typical, 23 watts maximum, &lt;0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>8.2 lb; 3.7 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>August 2017</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td>Emission standards</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Environmental</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600, 832x624</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900, 1600x900</td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Standard presets: 24; user settings: 20</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>None</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
</tr>
<tr>
<td></td>
<td>(2) DisplayPort, digital, black, <a href="https://en.wikipedia.org/wiki/High_Bandwidth_Digital_Copyright_Protection">HDCP-compliant</a></td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td></td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
</tbody>
</table>

### ThinkVision E24 Wide Monitor

#### Accessories

- Kensington MicroSaver Cable Lock: 73P2582
- Kensington Twin Head Cable Lock: 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

Lenovo
August 2017
Lenovo ThinkVision P24h

**Product Specifications Reference (PSREF)**

### Features
- Widescreen 23.8-inch monitor
- Supports 2560x1440 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

### Preset Resolutions
- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1680x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440

### Presets Display Modes
- HDMI: 22; DP: 14

### Viewing Adjustments
- Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand

### On Screen Display
- Screen pivots 90 degrees from landscape to portrait

### Control Features
- Direct access (buttons on front) for power, menu, input source select and brightness

### USB Hub
- USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

### Multimedia
- Audio-out, optional sound bar supported

### Camera
- None

### Multiple Input
- Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out

### Monitor Connectors
- (1) 2*HDMI (1.4), digital, HDCP-compliant
- (2) DisplayPort (1.2), digital, HDCP-compliant
- (3) DisplayPort-out, digital
- (4) USB 3.1 Type-C

### Signal Cables
- (1) USB 3.1 Type-C cable, 1.8 meter

### Mounting Features
- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship Group
- Monitor with stand, Safety and Warranty Information, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord

### Limited Warranty

### Accessories
- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

- See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

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**ThinkVision P24h Wide Monitor**

**Name**
- P24h Wide Flat Panel Monitor

**Bezel color**
- Black

**Type-model**
- 61AEGAR3US / 61AEGAT3EU

**Panel**
- TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size**
- 23.8" (604.7mm) diagonal

**Max view area (W x H)**
- 20.74" x 11.67" (526.9mm x 296.4mm)

**Native resolution**
- 2560x1440

**Aspect ratio**
- 16:9

**Pixel pitch (mm)**
- 0.2058x 0.2058 mm

**Dot/Pixel per Inch**
- 124 dpi

**Brightness**
- 300 nits or cd/m² (typical)

**Contrast ratio**
- 1000:1 (typical)

**Pixel response time**
- 4ms (extreme) / 6ms (typical)

**Color gamut**
- 99% sRGB

**Viewing angle at 10:1 CR**
- 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**
- Tilt, swivel, pivot, and height adjustable stand

**Sides**
- 0.08" (2.0mm)

**Dimensions (HxWxD)**
- 14.74" H x 21.26" W x 10.3" D; 373.4mm H x 540.2mm W x 261.75mm D

**Power supply**
- 24 watts typical, 120 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**
- 12.54 lb; 5.69 kg

**Limited warranty**
- 3 year (includes backlight)

**Available date**
- April 2017

**VESA-compliant**
- VESA DDC2B/CI

**Power management**
- ENERGY STAR® qualified

**Ergonomics**
- ISO 9241-307

**Emission standards**
- FCC Class B

**Environmental**
- TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating

**Presets display modes**
- HDMI: 22; DP: 14

**Viewing adjustments**
- Tilt: 30° back, -5° forward; lift: 4.3° (110mm); swivel: +/-45°; detachable stand

**Rotating screen**
- Screen pivots 90 degrees from landscape to portrait

**Control features**
- On screen display with digital user controls (8 languages)

**USB hub**
- USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

**Multimedia**
- Audio-out, optional sound bar supported

**Camera**
- None

**Multiple input**
- Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out

**Monitor connectors**
- (1) 2*HDMI (1.4), digital, HDCP-compliant
- (2) DisplayPort (1.2), digital, HDCP-compliant
- (3) DisplayPort-out, digital
- (4) USB 3.1 Type-C

**Signal cables**
- (1) USB 3.1 Type-C cable, 1.8 meter

**Mounting features**
- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

**Security**
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
- Monitor with stand, Safety and Warranty Information, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord

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**Lenovo**

**ThinkVision**

**July 2017**
**Lenovo ThinkVision P24q**

**Name**

P24q Wide Flat Panel Monitor

**Case color**

Black

**Type-model**

61A5GAR3US / 61A5GAT3EU

**Panel**

TFT-LCD, IPS (In-Plane Switching), White LED backlight

**Viewable image size**

23.8" (604.5mm) diagonal

**Max view area (W x H)**

20.74" x 11.67" (526.85mm x 296.35mm)

**Optimum resolution**

2560x1440

**Max pixel rate**

300MHz

**Aspect ratio**

16:9

**Pixel pitch (mm)**

0.2058 x 0.2058mm

**Dot/Pixel per Inch**

123 dpi

**Brightness**

300 nits or cd/m² (typical)

**Contrast ratio**

1000:1 (typical)

**Pixel response time**

4ms

**Color gamut**

99% sRGB

**Viewing angle at 10:1 CR**

178° horizontal, 178° vertical

**Stand**

Tilt, swivel, pivot, and height adjustable stand

**Bezel width**

14.7” H x 21.26” W x 10.3” D

**Dimensions**

(HxWxD, including stand) 373.4mm H x 540.2mm W x 261.75mm D

**Power supply**

24 watts typical, 67 watts maximum (with USB), <0.5 watts sleep/off, <0.5 watts switch off integrated (no external brick-like power supply)

**Weight**

12.35 lb; 5.6kg (including stand)

**Limited warranty**

3 year

**Available date**

January 2017

**VESA-compliant**

VESA DDC2B/CI

**Power management**

ENERGY STAR® 7.0

**Ergonomics**

ISO 9241-307

**Emission standards**

FCC Class B

**Environmental**

TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold

**Preset resolutions**

- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440

**Presets / user settings**

Standard presets: 20; user settings: 24

**Viewing adjustments**

Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45°

**Rotating screen**

Screen pivots 90 degrees from landscape to portrait

**On screen display**

On screen display with digital user controls (8 languages)

**Control features**

Direct access for menu, source switch, and brightness

**USB hub**

USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports

**Multimedia**

Audio-out, optional sound bar supported

**Camera**

None

**Multiple input**

Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out

**Monitor connectors**

1) 2*HDMI (1.4), digital, HDCP-compliant
2) DisplayPort (1.2), digital, HDCP-compliant
3) Mini DisplayPort, digital, HDCP-compliant

**Signal cables**

1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter

**Mounting features**

Wall or desk mounting using theExtend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**

Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**

Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock
- Lenovo Security Cable Lock

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

Lenovo

July 2017
ThinkVision P24q-20

DISPLAY
- Panel Size: 23.8-inch
- Screen Dimensions: 526.85 mm x 296.35 mm
- Panel Type: 3-side NearEdgeless In-Plane Switching
- Backlight: WLED
- Aspect Ratio: 16:9
- Resolution: 2560 x 1440
- Pixel Pitch: 0.2058 x 0.2058 mm
- Dot/Pixel Per Inch (DPI/PPI): 123
- Viewing Angle (H x V @ CR 10:1): 178° / 178°
- Response Time: 4ms (extreme mode)
- 6ms (normal mode)
- Refresh Rate: 60 Hz
- Brightness (typical): 300 cd/m²
- Contrast Ratio (typical): 1000:1
- Dynamic Contrast Ratio (typical): 3M:1
- Color Gamut: 99% sRGB, 99% BT.709, 84 % DCI-P3
- Color Support (typical): 16.7 Million
- Anti-glare: Yes

CONNECTIVITY
- Pivot: -90° / 90°
- VESA Mount Capability: Yes (100 X 100 mm)
- Kensington Lock Slot: Yes
- Cable Management: Yes
- Bezel Color: Raven Black
- Bezel Width (side): 2.0 mm
- Bezel Width (top/bottom): 2.0 / 21.4 mm

POWER
- Power Consumption (typical/max): 20W / 61W
- Power Consumption Sleep/Off Mode: ≤ 0.5W
- Power Consumption Switch-off Mode: ≤ 0.3W
- ENERGY STAR Power Consumption (Pon/E1 Efficiency Class):
  16.04W / 51.61kWh
- Power Supply: Internal
- Voltage Required: AC 100 to 240 V (47-63 Hz)

MECHANICAL
- Tilt Angle (front/back): -5° / 35°
- Swivel Angle (left/right): +45° / -45°
- Lift (Max range): 150 mm

WEIGHT
- Weight (monitor head only) (kg/lbs.): 3.85 kg / 8.49 lbs.
- Full Container Load (40' STD / 20' STD): 1595 / 645 units

WHAT’S IN THE BOX
- Monitor with Stand
- Factory Calibration Report
- Quick Setup Guide
- Power Cable (1.8 M)
- DVI Cable (1.8 M)
- USB Type-A to Type-B Cable (1.8 M)
- 150 mm

CERTIFICATION
- ENERGY STAR Rating: 8.0
- RoHS (EU 2002/95/EC): Yes
- TCO: 8.0
- TCO Edge: 2.0
- EPEAT: Silver
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 1
- TÜV Rheinland Eye Comfort: Yes

Dimensions:
- Size Unpacked w/o Stand: 8.07 x 22.4 x 21.3 inches
- Size Unpacked w/ Stand: 8.07 x 16.5 x 21.3 inches
- Size Packed: 620 x 149 x 423 mm / 24.4 x 5.9 x 16.7 inches

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

Specifications may vary depending upon region.
ThinkVision® S22e-19

DISPLAY
Panel Size
21.5 inch
Screen Dimensions (H x V) (mm)
476.06 (H) × 267.79 (V)
Panel Type
VA
Backlight
WLED
Aspect Ratio
16:9
Resolution
1920 x 1080
Pixel Pitch (H x V) (mm)
0.2480 x 0.2480
Viewing Angle (H x V)
178°/178°
Response Time (gray to gray)
4 ms (extreme mode)
6 ms (normal mode)
Contrast Ratio (typical)
3000:1
Dynamic Contrast Ratio (typical)
3M:1
Color Gamut NTSC (CIE 1931)
72%
Color Support (typical)
16.7M

CONNECTIVITY
Video Input Signals
VGA + HDMI1.4
Video Cable Length
1.8 m
Audio Out
Yes (3.5 mm)

MULTI-MEDIA
Optional Soundbar Support
Yes

DIMENSIONS
Size Packed (D x H x W) (mm/inch)
120 x 350 x 582 mm / 4.7 x 13.7 x 22.9 inch
Size Unpacked w/stand (D x H x W) (mm/inch)
(Lowest Position)
200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch
Size Unpacked w/stand (D x H x W) (mm/inch)
(Highest Position)
200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch
Size Unpacked w/o stand (D x H x W) (mm/inch)
(Head Only)
41.5 x 296.8 x 489.3 mm / 1.63 x 11.68 x 19.26 inch
Weight Packed (kg/lbs.)
4.07kg / 8.97 lbs.
Weight Unpacked (kg/lbs.)
2.75kg / 6.06 lbs.
Weight (Monitor Head Only) (kg/lbs.)
2.46kg / 5.42 lbs.

SPECIAL FEATURES
Anti-Glare
Yes
Thin Client Support (Tiny)
Yes (by VESA mount PN:4XF0N03161)

MECHANICAL
Tilt Angle (front / back)
-5°/22°
VESAT Mount
Yes (100 mm)
Kensington™ Lock Slot
Yes
Cable Management
Yes
Bezel Color
Raven Black
Bezel Width (side)
2.0 mm
Bezel Width (top / bottom)
2.0 mm / 21.2 mm

WHAT’S IN THE BOX
Monitor with stand
1 x HDMI Cable
1 x Power Cable
Quick setup guide

CERTIFICATIONS
ENERGY STAR Rating
7.0
CCC
Yes
TCO
TCO 7.0/TCO Edge 2.0
EPEAT™
Gold
RoHS
Yes
Windows Certification
Windows 7, Windows 10
China Energy Efficiency Standard
Tier 2
Ambient Operating Temperature
0°C to 40°C
Low Blue Light
Yes

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Specifications may vary depending upon region.
ThinkVision® S24e-10
Specifications may vary depending upon region.
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**DISPLAY**

- **Panel Size:** 23.8-inch
- **Screen Dimensions (H x V):** 527.04 x 296.46 mm
- **Panel Type:** 3-side NearEdgeless, VA
- **Backlight:** WLED
- **Aspect Ratio:** 16:9
- **Resolution:** 1920 x 1080
- **Pixel Pitch (H x V):** 0.2745 x 0.2745 mm
- **Dot/Pixel Per Inch (DPI/PPI):** 92
- **Viewing Angle (H x V @ CR 10:1):** 178°/178°
- **Response Time (gray to gray):** 4 ms (Extreme Mode), 6 ms (Normal Mode)
- **Refresh Rate:** 60 Hz
- **Brightness (typical):** 250 cd/m²
- **Contrast Ratio (typical):** 3000:1
- **Dynamic Contrast Ratio (typical):** 3M:1
- **Color Gamut NTSC (CIE 1931):** 72% NTSC
- **Color Support:** 16.7 Million

**CONNECTION**

- **Video Signal:**
  - 1 x VGA
  - 1 x HDMI 1.4
- **Video Cable Length:** 1.8 m
- **Audio Signal:** 1 x Audio Out (3.5 mm)

**MULTI-MEDIA**

- **Optional Speakers Support:** Yes

**SPECIAL FEATURES**

- **Sync Technology:** FreeSync™
- **Thin Client Support (Tiny):** Yes (by VESA mount PN:4XF0N03161)

**POWER**

- **Power Consumption (Typ./Max):**
  - 24W / 31W
- **Power Consumption Sleep/Off Mode:** < 0.3W
- **Power Consumption Switch-Off Mode:** < 0.3W
- **Power Supply:** Internal
- **Voltage Required:** AC 100 to 240 V (47/63 Hz)

**MECHANICAL**

- **Tilt Angle (front/back):** -5° / 22°

<table>
<thead>
<tr>
<th>Anti-glare</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONNECTION</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Video Signal</strong></td>
<td></td>
</tr>
<tr>
<td>1 x VGA</td>
<td></td>
</tr>
<tr>
<td>1 x HDMI 1.4</td>
<td></td>
</tr>
<tr>
<td><strong>Video Cable Length:</strong></td>
<td>1.8 m</td>
</tr>
<tr>
<td><strong>Audio Signal:</strong></td>
<td>1 x Audio Out (3.5 mm)</td>
</tr>
<tr>
<td><strong>MULTI-MEDIA</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Optional Speakers Support:</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>SPECIAL FEATURES</strong></td>
<td>FreeSync™</td>
</tr>
<tr>
<td><strong>Sync Technology</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Thin Client Support (Tiny):</strong></td>
<td>Yes (by VESA mount PN:4XF0N03161)</td>
</tr>
<tr>
<td><strong>POWER</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Power Consumption (Typ./Max):</strong></td>
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</tr>
<tr>
<td><strong>Power Consumption Sleep/Off Mode:</strong></td>
<td>&lt; 0.3W</td>
</tr>
<tr>
<td><strong>Power Consumption Switch-Off Mode:</strong></td>
<td>&lt; 0.3W</td>
</tr>
<tr>
<td><strong>Power Supply:</strong></td>
<td>Internal</td>
</tr>
<tr>
<td><strong>Voltage Required:</strong></td>
<td>AC 100 to 240 V (47/63 Hz)</td>
</tr>
</tbody>
</table>

**DIMENSION**

- **Size Packed (D x H x W):**
  - (mm/inch): 122 x 405 x 639 mm / 4.80 x 15.94 x 25.16 inches
- **Size Unpacked w/stand (D x H x W):**
  - (Lowest Position): 200.0 x 402.7 x 539.5 mm / 7.87 x 15.85 x 21.24 inches
  - (Highest Position): 200.0 x 402.7 x 539.5 mm / 7.87 x 15.85 x 21.24 inches
- **Size Unpacked w/o stand (D x H x W):**
  - (Head Only): 41.5 x 325.7 x 539.5 mm / 1.63 x 12.82 x 21.24 inches
- **Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm):** 99.0 mm
- **Max. Distance from Table to Panel (highest pixel at top of screen, mm):** 399.9 mm

**VESA Mount**

- **Yes (100 mm)**

**Kensington™ Lock Slot**

- **Yes**

**Bezel Color**

- **Raven Black**

**Bezel Width (Side):**

- **2.0 mm**

**Bezel Width (top / bottom):**

- **2.0 mm / 22 mm**

**Anti-glare**

- **Yes**

**CONNECTIVITY**

- **Video Signal:**
  - 1 x VGA
  - 1 x HDMI 1.4
- **Video Cable Length:** 1.8 m
- **Audio Signal:** 1 x Audio Out (3.5 mm)

**MULTI-MEDIA**

- **Optional Speakers Support:** Yes

**SPECIAL FEATURES**

- **Sync Technology:** FreeSync™
- **Thin Client Support (Tiny):** Yes (by VESA mount PN:4XF0N03161)

**POWER**

- **Power Consumption (Typ./Max):** 24W / 31W
- **Power Consumption Sleep/Off Mode:** < 0.3W
- **Power Consumption Switch-Off Mode:** < 0.3W
- **Power Supply:** Internal
- **Voltage Required:** AC 100 to 240 V (47/63 Hz)

**MECHANICAL**

- **Tilt Angle (front/back):** -5° / 22°

**VESA Mount**

- **Yes (100 mm)**

**Kensington™ Lock Slot**

- **Yes**

**Bezel Color**

- **Raven Black**

**Bezel Width (Side):**

- **2.0 mm**

**Bezel Width (top / bottom):**

- **2.0 mm / 22 mm**

**DIMENSION**

- **Size Packed (D x H x W):**
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- **Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm):** 99.0 mm
- **Max. Distance from Table to Panel (highest pixel at top of screen, mm):** 399.9 mm

**Weight Packed (kg/lbs.):** 4.84kg / 10.67 lbs.

**Weight Unpacked (kg/lbs.):** 3.36kg / 7.41 lbs.

**Weight (Monitor Head Only) (kg/lbs.):** 3.07kg / 6.77 lbs.

**Full Container Load (40' STD / 20' STD):** 1660 / 800 Units

**WHAT'S IN THE BOX**

- Monitor with stand
- 1 x HDMI Cable
- 1 x Power Cable (1.8m)
- Quick setup guide

**CERTIFICATIONS**

- **ENERGY STAR Rating:** 7.1
- **CCC:** Yes
- **EPEAT™ Silver:**
- **ULE Gold:**
- **RoHS (EU 2002/95/EC):** Yes (2011/65/EU)
- **Windows Certification:** Windows 7, Windows 10
- **China Energy Efficiency Standard:** Tier 2
- **Low Blue Light:** Yes

**Specifications may vary depending upon region.**
## ThinkVision S24q-10

### DISPLAY

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>23.8-inch</td>
</tr>
<tr>
<td>Screen Dimensions</td>
<td>526.85 mm x 296.35 mm</td>
</tr>
<tr>
<td>Panel Type</td>
<td>3-side NearEdgeless</td>
</tr>
<tr>
<td></td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Resolution</td>
<td>2560 x 1440</td>
</tr>
<tr>
<td>Pixel Pitch</td>
<td>0.2058 x 0.2058 mm</td>
</tr>
<tr>
<td>Dot/ Pixel Per Inch (DPI/PPI)</td>
<td>124</td>
</tr>
<tr>
<td>Viewing Angle (H x V @ CR 10:1)</td>
<td>178° / 178°</td>
</tr>
<tr>
<td>Response Time</td>
<td>4 ms (extreme mode)</td>
</tr>
<tr>
<td>Refresh Rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Brightness (typical)</td>
<td>240 cd/m²</td>
</tr>
<tr>
<td>Brightness (peak)</td>
<td>300 cd/m²</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
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<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
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<tr>
<td>Color Gamut</td>
<td>&gt; 99% sRGB</td>
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### CONNECTIVITY

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<tr>
<th>Signal</th>
<th>Video Signal</th>
<th>Audio Signal</th>
</tr>
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<tbody>
<tr>
<td>1 x HDMI 1.4</td>
<td>1 x DP 1.2</td>
<td>1 x Audio Out (3.5 mm)</td>
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### SPECIAL FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tbody>
<tr>
<td>Color Support (typical)</td>
<td>16.7 Million</td>
</tr>
<tr>
<td>Anti-glare</td>
<td>Yes</td>
</tr>
<tr>
<td>SIZE (mm)</td>
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<tr>
<td>DIMENSION</td>
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<td>3M:1</td>
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<tr>
<td>Color Gamut</td>
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### POWER

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<th>Specification</th>
<th>Value</th>
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<tbody>
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<td>Power Consumption (typical/max)</td>
<td>20W / 31W</td>
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<td>Power Consumption Sleep/Off Mode</td>
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<tr>
<td>Power Consumption Switch-off Mode</td>
<td>&lt; 0.3W</td>
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<tr>
<td>Power Supply</td>
<td>Internal</td>
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<tr>
<td>Energystar Power Consumption (P_on/E_Tec)</td>
<td>16.76 W / 52.75 kWh</td>
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<tr>
<td>Voltage Required</td>
<td>AC 100 to 240 V (47/63 Hz)</td>
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</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Tilt Angle (front/back)</td>
<td>-5° / 22°</td>
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<tr>
<td>VESA Mount Capability</td>
<td>Yes (100 x 100 mm)</td>
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### TECHNICAL

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Kensington™ Lock Slot</td>
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</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width (side)</td>
<td>2 mm</td>
</tr>
<tr>
<td>Bezel Width (top/bottom)</td>
<td>2 / 21.4 mm</td>
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<tr>
<td>Tilt Angle (front/back)</td>
<td>-5° / 22°</td>
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<tr>
<td>Voltage Required</td>
<td>AC 100 to 240 V (47/63 Hz)</td>
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<tr>
<td>Energystar Power Consumption (P_on/E_Tec)</td>
<td>16.76 W / 52.75 kWh</td>
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<tr>
<td>Max. Distance from Table to Panel</td>
<td>98.4 mm</td>
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<tr>
<td>Min. Distance from Table to Panel</td>
<td>399.9 mm</td>
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<tr>
<td>Weight Packed (kg/lb)</td>
<td>5.10 kg / 11.24 lbs.</td>
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<tr>
<td>Weight Unpacked (kg/lb)</td>
<td>3.50 kg / 7.72 lbs.</td>
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<tr>
<td>Energy Star® Rating</td>
<td>8.0</td>
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<tr>
<td>CCC</td>
<td>Yes</td>
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<tr>
<td>TCO</td>
<td>8.0</td>
</tr>
<tr>
<td>TCO Edge</td>
<td>2.0</td>
</tr>
<tr>
<td>EPEAT™</td>
<td>Silver</td>
</tr>
<tr>
<td>RoHS (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 7, Windows 10</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 1</td>
</tr>
<tr>
<td>Energy Star® Rating</td>
<td>8.0</td>
</tr>
<tr>
<td>CCC</td>
<td>Yes</td>
</tr>
<tr>
<td>TCO</td>
<td>8.0</td>
</tr>
<tr>
<td>TCO Edge</td>
<td>2.0</td>
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<tr>
<td>EPEAT™</td>
<td>Silver</td>
</tr>
<tr>
<td>RoHS (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
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</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 1</td>
</tr>
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<td>Energy Star® Rating</td>
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<tr>
<td>CCC</td>
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<tr>
<td>TCO</td>
<td>8.0</td>
</tr>
<tr>
<td>TCO Edge</td>
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<td>EPEAT™</td>
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</tr>
<tr>
<td>RoHS (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
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</tr>
<tr>
<td>China Energy Efficiency Standard</td>
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</tr>
<tr>
<td>Energy Star® Rating</td>
<td>8.0</td>
</tr>
<tr>
<td>CCC</td>
<td>Yes</td>
</tr>
<tr>
<td>TCO</td>
<td>8.0</td>
</tr>
<tr>
<td>TCO Edge</td>
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</tr>
<tr>
<td>EPEAT™</td>
<td>Silver</td>
</tr>
<tr>
<td>RoHS (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 7, Windows 10</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 1</td>
</tr>
</tbody>
</table>

### WHAT’S IN THE BOX

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor with stand</td>
<td>1660 / 800 units</td>
</tr>
<tr>
<td>1 x HDMI cable (1.8 m)</td>
<td></td>
</tr>
<tr>
<td>1 x Power cable (1.8 m)</td>
<td></td>
</tr>
<tr>
<td>Quick setup guide</td>
<td></td>
</tr>
</tbody>
</table>

### CERTIFICATION

- ENERGY STAR® Rating: 8.0
- CCC: Yes
- TCO: 8.0
- TCO Edge: 2.0
- EPEAT™: Silver
- RoHS (EU 2002/95/EC): Yes
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 1

### TÜV Eye Comfort

- Yes

### Weight (monitor head only) (kg/lb)

- 3.21 kg / 7.08 lbs.

### Full Container Load (40' STD / 20' STD)

- 1660 / 800 units

### Dimensions

- Weight Unpacked (kg/lb):
  - 5.10 kg / 11.24 lbs.
  - 3.21 kg / 7.08 lbs.
- Size Packed (D x H x W, mm/inch):
  - 122 x 405 x 639 mm / 4.80 x 15.94 x 24.16 inches
  - 200 x 402.7 x 539.8 mm / 7.87 x 16.58 x 21.25 inches
  - 200 x 425.7 x 539.8 mm / 7.87 x 16.72 x 21.25 inches
  - 200 x 425.7 x 539.8 mm / 7.87 x 16.72 x 21.25 inches
- Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm):
  - 98.4 mm
- Max. Distance from Table to Panel (highest pixel at top of screen, mm):
  - 399.9 mm
- Weight Packed (kg/lb):
  - 5.10 kg / 11.24 lbs.
- Weight Unpacked (kg/lb):
  - 3.50 kg / 7.72 lbs.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
<table>
<thead>
<tr>
<th>Name</th>
<th>T2224d Wide Flat Panel Monitor</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
<td>Widescreen 21.5-inch monitor</td>
</tr>
<tr>
<td>Type-model</td>
<td>60EBJAR1US / 60EBJAT1EU</td>
<td>Supports 1920x1080 resolution</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, Vertical Alignment panel (VA),</td>
<td>Supports optional soundbar</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>White LED backlight</td>
<td>Supports ThinkCentre Tiny via VESA back mount</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>21.5&quot; (546mm) diagonal</td>
<td>Includes dual input connection for attachment to two</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
<td>systems concurrently (analog and digital)</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
<td>EPEAT Silver certified</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.248 x 0.248 mm</td>
<td>Microsoft Windows 7 certified</td>
</tr>
<tr>
<td>Dot/Pixel per Inch</td>
<td>102 dpi</td>
<td>Microsoft Windows 10 certified</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
<td></td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>3000:1 (typical)</td>
<td></td>
</tr>
<tr>
<td>Pixel response time</td>
<td>7ms (typical); 4ms (extreme mode)</td>
<td></td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
<td></td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt stand</td>
<td></td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.69&quot; (17.6mm)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.02&quot; H x 20.19&quot; W x 8.06&quot; D:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>381.4mm H x 512.9mm W x 204.9mm D</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>20 watts typical, 25 watts maximum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;0.5 watts standby/suspend, universal,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>integrated (no external brick-like power supply)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>6.48 lb; 2.94 kg</td>
<td></td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
<td></td>
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<tr>
<td>Available date</td>
<td>July 2016</td>
<td></td>
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<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/CI</td>
<td></td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® qualified</td>
<td></td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
<td></td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® SILVER rating</td>
<td></td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x400</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600, 832x624</td>
<td></td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768, 1152x864</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WXGA: 1280x768, 1280x800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080</td>
<td></td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 22; user settings: 22</td>
<td></td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 22° back, -5° forward</td>
<td></td>
</tr>
<tr>
<td>Rotating screen</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
<td></td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for automatic image setup, dual input and brightness</td>
<td></td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Multiple input</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
<td></td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) DisplayPort, digital, black, HDCP-compliant</td>
<td></td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
<td></td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
<td></td>
</tr>
<tr>
<td>Ship group</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</td>
<td></td>
</tr>
</tbody>
</table>

**Limited Warranty**


**Accessories**

Kensington MicroSaver Cable Lock 73P2582
Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>T2254 Wide Flat Panel Monitor</td>
</tr>
<tr>
<td><strong>Bezel color</strong></td>
<td>Raven black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>60F6HAR1EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>22.0&quot; (559mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>18.70&quot; x 11.70&quot; (473.8mm x 296.1mm)</td>
</tr>
<tr>
<td><strong>Native resolution</strong></td>
<td>1680x1050</td>
</tr>
<tr>
<td><strong>Aspect ratio</strong></td>
<td>16:10</td>
</tr>
<tr>
<td><strong>Pixel pitch (mm)</strong></td>
<td>0.282 x 0.282 mm</td>
</tr>
<tr>
<td><strong>Brightness</strong></td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td><strong>Contrast ratio</strong></td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td><strong>Pixel response time</strong></td>
<td>5ms (typical)</td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td>72%</td>
</tr>
<tr>
<td><strong>Viewing angle at 10:1 CR</strong></td>
<td>170° (+/- 85°) horizontal, 160° (+/- 80°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt and height adjustable stand</td>
</tr>
<tr>
<td><strong>Bezel width</strong></td>
<td>Sides: 0.67&quot; (17mm)</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>14.97&quot; H x 20.05&quot; W x 9.61&quot; D; 380.2mm H x 509.3mm W x 244.2mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>16 watts typical, 22 watts maximum, &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>10.38 lb; 4.71 kg</td>
</tr>
<tr>
<td><strong>Limited warranty</strong></td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td><strong>Available date</strong></td>
<td>March 2015</td>
</tr>
<tr>
<td><strong>VESA-compliant</strong></td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Gold rating</td>
</tr>
<tr>
<td><strong>Preset resolutions</strong></td>
<td>VGA: 640x350, 640x480, 720x400, SXGA: 1280x1024, WXGA: 1280x768, WXGA+: 1440x900, WSXGA+: 1600x900, 1680x1050</td>
</tr>
<tr>
<td><strong>Presets / user settings</strong></td>
<td>Standard presets: 26; user settings: 20</td>
</tr>
<tr>
<td><strong>Viewing adjustments</strong></td>
<td>Tilt: 30° back, -5° forward; lift: 4.3° (110mm)</td>
</tr>
<tr>
<td><strong>Rotating screen</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>On screen display</strong></td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td><strong>Control features</strong></td>
<td>Direct access (buttons on front) for automatic image setup, dual input and brightness</td>
</tr>
<tr>
<td><strong>USB hub</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Multiple input</strong></td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td><strong>Monitor connectors</strong></td>
<td>(1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HPCD-compliant</td>
</tr>
<tr>
<td><strong>Signal cables</strong></td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter</td>
</tr>
<tr>
<td><strong>Mounting features</strong></td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td><strong>Ship group</strong></td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>Kensington MicroSaver Cable Lock 73P2582; Kensington Twin Head Cable Lock 45K1620</td>
</tr>
<tr>
<td><strong>See all monitors at</strong></td>
<td><a href="http://www.lenovo.com/thinkvision">www.lenovo.com/thinkvision</a></td>
</tr>
</tbody>
</table>

---

**Features**

- Widescreen 22.0-inch monitor
- Supports 1680x1050 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently (analogue and digital)
- EPEAT Gold certified
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

---

**ThinkVision T2254 Wide Monitor**

© Lenovo

(T2254) November 2016
**T2254p Wide Flat Panel Monitor**

- **Name**: T2254p Wide Flat Panel Monitor
- **Bezel color**: Raven black
- **Type-model**: 61BAMAR2US / 60E1MAR2US / 60CCMAR2US / 60CCMAT2EU / 61BAMAT2EU
- **Panel**: TFT-LCD, twisted nematic (TN), White LED backlight
- **Viewable image size**: 22.0” (559mm) diagonal
- **Max view area (W x H)**: 18.70” x 11.70” (473.8mm x 296.1mm)
- **Native resolution**: 1680x1050
- **Aspect ratio**: 16:10
- **Pixel pitch (mm)**: 0.282 x 0.282 mm
- **Brightness**: 250 nits or cd/m² (typical)
- **Pixel response time**: 5ms (typical)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical
- **Stand**: Tilt, swivel, pivot, and height adjustable stand
- **Dimensions (HxWxD)**: 14.63” H x 20.01” W x 9.55” D; 371.7mm H x 509.3mm W x 242.7mm D
- **Power supply**: 20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 10.14 lb; 4.60 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: March 2015
- **VESA-compliant**: VESA DDC2B/CI
- **Power management**: ENERGY STAR® qualified
- **Emission standards**: FCC Class B
- **Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating
- **Preset resolutions**: VGA: 640x350, 640x480, 720x400; SVGA: 800x600; XGA: 1024x768, 1152x864; SXGA: 1280x1024; WXGA: 1280x768, 1280x800, 1366x768; WXGA+: 1440x900; WSXGA+: 1600x900, 1680x1050
- **Presets / user settings**: Standard presets: 28; user settings: 20
- **Viewing adjustments**: Tilt: 30° back, -5° forward; lift: 4.3” (110mm); swivel: +/-45°; detachable stand
- **Rotating screen**: Screen pivots 90 degrees from landscape to portrait
- **On screen display**: On screen display with digital user controls (8 languages)
- **Control features**: Direct access (buttons on front) for automatic image setup, dual input and brightness
- **USB hub**: None
- **Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors**: (1) VGA 15-pin D-shell, analog, blue; (2) HDMI (1.4), digital, HDCP-compliant; (3) DisplayPort, digital, black, HDCP-compliant
- **Signal cables**: (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter; (2) detachable, DisplayPort at each end, digital, 1.8 meter
- **Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- **Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group**: Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord

**Features**
- Widescreen 22.0-inch monitor
- Supports 1680x1050 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Microsoft Windows® 7 certified
- Microsoft Windows 8 / Windows 8.1 certified
- Microsoft Windows 10 certified

**Accessories**
- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
## SPECIFICATIONS

### DISPLAY
- **Panel Size**: 21.5" Wide
- **Panel Type**: IPS
- **Backlight**: WLED
- **Resolution (H x V)**: 1920 x 1080
- **Aspect Ratio**: 16:9
- **Anti-Glare**: Yes
- **Borderless Screen**: Yes
- **Screen Dimensions (W x H)**:
  - (mm): 476.064 x 267.786
  - (inches): 18.74" x 10.54"
- **Maximum Brightness (Typical)**: 250 cd/m²
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3M:1
- **Pixel Pitch (mm)**: 0.248 x 0.248
- **Color Gamut NTSC (CIE 1931)**: 72%
- **Color Support (Typical)**: 16.7 Million
- **Response Time**: 4/6/14 ms

### DIMENSIONS (W x D x H)
- **Size Packed**:
  - (mm): 577 x 378 x 191
  - (inches): 22.7" x 14.9" x 7.5"
- **Size Unpacked with Stand**:
  - (mm): 489.7 x 251.9 x 357.6
  - (inches): 19.28" x 9.92" x 14.08"
- **Size Monitor Head Only**:
  - (mm): 489.7 x 43.5 x 297
  - (inches): 19.28" x 1.71" x 11.69"
- **Stand Base Footprint Area**:
  - (mm): 240 x 240
  - (inches): 9.45" x 9.45"
- **Weight**:
  - Packed: Starting at 16.36 lbs (7.42 kg)
  - Unpacked: Starting at 10.85 lbs (4.92 kg)
  - Monitor Head Only: Starting at 6.94 lbs (3.15 kg)

### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI™ 1.4 + DisplayPort™ 1.2
- **Video Cables Supplied (Length)**: 1.8 m
- **Audio**: Audio-Out
- **OSD Languages**: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

### POWER CONSUMPTION
- **Typical**: 20 W
- **Maximum**: 55 W
- **Sleep-Mode**: <0.5 W
- **Switch Off-Mode**: <0.5 W
- **Power Supply**: Internal
- **Power Voltage**: 100 VAC – 240 VAC

### MECHANICAL
- **Tilt Angle (Front / Back)**: -5° / 30°
- **Swivel Angle (Left / Right)**: +/-45°
- **Lift (mm / inches)**: 110 / 4.33"
- **Pivot**: -90° / 90°
- **Cable Management**: Yes
- **Kensington® Lock**: Yes
- **VESA® Mounting**: Yes (100 mm)
- **Bezel Color**: Raven Black
- **Bezel Width**:
  - Top (mm / inches): 2 / 0.08"
  - Bottom (mm / inches): 2.14 / 0.84"
  - Sides (mm / inches): 2 / 0.08"

### COMPLIANCE
- **Arsenic-Free Glass**: Yes
- **PVC-Free**: Yes; Without Cable
- **Mercury-Free**: Yes
- **EPEAT™**: Silver
- **ENERGY STAR® Rating**: 7.0
- **TCO®**: 7.0
- **TCO Edge**: 2.0
- **RoHS (EU 2002/95/EC)**: Yes
- **China Energy Efficiency Standard**: Tier 2
- **Windows Certification**: Windows 7 / Windows 10
**Display**

- **Panel Size**: 21.5"
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Resolution**: 1920 x 1080
- **Aspect Ratio**: 16:9
- **Anti-Glare**: Yes
- **Screen Dimensions (W x H) (mm)**: 476.06 x 267.79
- **Maximum Brightness (Typical)**: 250 cd/m²
- **Viewing Angle (H/V at CR 10:1)**: 178°/178°
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3M1
- **Pixel Pitch (W x H) (mm)**: 0.25 x 0.25
- **Dot/Pixel Per Inch (DP/PPI)**: 102
- **Color Gamut (CIE 1931)**: 72% sRGB
- **Response Time (Extreme/Typical/Off)**: 4/6/14 ms (G-to-G)

**Audio-Out**

- **Audio-Out**: Yes (3.5 mm)

**Power Supply**

- **Power Supply**: Internal

**Power Voltage**

- **Power Voltage**: 90 VAC ~ 264 VAC
- **Voltage Dynamic Frequency**: 47 Hz ~ 63 Hz

**Signal Interface**

- **Video Input Signals**: HDMI™ 1.4 + DisplayPort™ 1.2 + VGA
- **Video Cables Supplied**: HDMI™ (ROW) + DisplayPort™ + VGA + USB 3.0
- **Video Cable Length**: 1.8 m
- **USB Hub**: Yes
- **USB Cable Supplied**: Yes
- **USB-Cable Supplied**: Yes (3.5 mm)

**Mechanical**

- **Tilt Angle (Front/Back)**: -5° / 30°
- **Swivel Angle (Left/Right)**: +/-45°
- **Lift (mm)**: Yes (110)
- **Pivot**: Yes (+/-90°)
- **VESA® Mount (mm)**: Yes (100 x 100)
- **Kensington® Lock Slot**: Yes
- **Cable Management**: Yes
- **Bezel Color**: Raven Black
- **Bezel Width**
  - Top (mm / inches): 2 / 0.08"
  - Bottom (mm / inches): 21.4 / 0.84"
  - Sides (mm / inches): 2 / 0.08"

**Environmental**

- **Temperature**
  - Operating: 0°C ~ 40°C
  - Non-Operating: -20°C ~ 60°C
- **Humidity**
  - Operating: 10% ~ 80%
  - Non-Operating: 5% ~ 95%
- **Altitude**
  - Operating: 0 m ~ 8000 m
  - Non-Operating: 0 ft ~ 40,000 ft
- **Arsenic-Free Glass**: Yes
- **PVC-Free**: Yes
- **Mercury-Free**: Yes
- **PCC % of Plastic Resins**: >85%

**Dimensions (W x D x H)**

- **Size Packed**: 554 x 365 x 187 (mm) / 21.81" x 14.37" x 7.36" (inches)
- **Size Unpacked with Stand**:
  - Lowest Position: 489.7 x 251.9 x 375.8 (mm) / 19.28" x 9.92" x 14.79" (inches)
  - Highest Position: 489.7 x 251.9 x 485.8 (mm) / 19.28" x 9.92" x 19.13" (inches)
- **Distance from Table to Panel**
  - Lowest Pixel at Bottom of Screen: 82.1" / 3.23"
  - Highest Pixel at Top of Screen: 192.1 / 7.56"
- **Stand Base Footprint Area**: 232 x 203.6 / 9.13" x 8.02"
- **Weight**
  - Packed: Starting at 14.46 lbs (6.56 kg)
  - Unpacked: Starting at 10.16 lbs (4.61 kg)
  - Monitor Head Only: Starting at 6.48 lbs (2.94 kg)

**Compliance**

- **EPEAT**: Silver
- **ENERGY STAR® Rating**: 7.0
- **TCO Display 7.0 / TCO Edge 2.0**: Gold
- **RoHS (EU 2002/95/EC)**: Windows 7 / Windows 10
- **Windows Certification**: Windows 7 / Windows 10
- **Energy Efficiency Standard**: Grade 2
- **TÜV Eye Comfort**: Yes

**Warranty and Availability**

- **Warranty**:
  - ROW: 3 Years
  - PRC: 18 Months
- **Geography Availability**: WW

---

1. Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rates as defined by the respective USB specifications on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>T2324d Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bezel color</strong></td>
<td>Black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>60F3JR2US / 60F3JAT2EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>23.0&quot; (584mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>20.07&quot; x 11.29&quot; (509.8mm x 286.7mm)</td>
</tr>
<tr>
<td><strong>Native resolution</strong></td>
<td>1920x1080</td>
</tr>
<tr>
<td><strong>Aspect ratio</strong></td>
<td>16:9</td>
</tr>
<tr>
<td><strong>Pixel pitch (mm)</strong></td>
<td>0.2655 x 0.2655 mm</td>
</tr>
<tr>
<td><strong>Brightness</strong></td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td><strong>Contrast ratio</strong></td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td><strong>Pixel response time</strong></td>
<td>5ms (typical)</td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td>72%</td>
</tr>
<tr>
<td><strong>Viewing angle at 10:1 CR</strong></td>
<td>170° (+/- 85°) horizontal, 160° (+/- 80°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt stand</td>
</tr>
<tr>
<td><strong>Bezel width</strong></td>
<td>Sides: 0.68&quot; (17.3mm)</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>400.3mm H x 545.8mm W x 204.9mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>20 watts typical, 27 watts maximum</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>7.06 lb; 3.20 kg</td>
</tr>
<tr>
<td><strong>Limited warranty</strong></td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td><strong>Available date</strong></td>
<td>June 2016</td>
</tr>
<tr>
<td><strong>VESA-compliant</strong></td>
<td>VESA DDC2B/Ci</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td><strong>Emmission standards</strong></td>
<td>FCC Class B</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</td>
</tr>
<tr>
<td><strong>Preset resolutions</strong></td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td><strong>Presets / user settings</strong></td>
<td>Standard presets: 26; user settings: 16</td>
</tr>
</tbody>
</table>

**Features**
- Widescreen 23.0-inch monitor
- Supports 1920x1080 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny via VESA back mount
- Includes dual input connection for attachment to two systems concurrently (analog and digital)
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Monitor connectors**
- (1) VGA 15-pin D-shell, analog, blue
- (2) DisplayPort, digital, black, HDCP-compliant

**Signal cables**
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DisplayPort at each end, digital, 1.8 meter

**Mounting features**
- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
- Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord
ThinkVision T23d Photography Product Specifications Reference (PSREF)

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# Product Specifications Reference (PSREF)

<table>
<thead>
<tr>
<th>Name</th>
<th>T23d-10 Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61C3MAR6US / 61C3MAT6EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>22.5&quot; (571.5mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>19.5&quot; x 12.4&quot; (496.2mm x 313.9mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1200</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:10</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.25 x 0.25 mm</td>
</tr>
<tr>
<td>Dot/Pixel per inch</td>
<td>100.6 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
</tr>
<tr>
<td>Pixel response time</td>
<td>6ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.09&quot; (2.3mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>19.37&quot; H x 19.73&quot; W x 9.9&quot; D; 491.9mm H x 501.2mm W x 251.9mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>15 watts typical, 18 watts maximum, &lt;0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>10.67 lb; 4.85 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>June 2018</td>
</tr>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/Ci</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td>Emission standards</td>
<td>FCC Class B</td>
</tr>
<tr>
<td>Environmental</td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Silver rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400, SVGA: 800x600, XGA: 1024x768, SXGA: 1280x1024, WXGA: 1366x768, WXGA+: 1440x900, WUXGA+: 1680x1050, Full HD: 1920x1080, WUXGA: 1920x1200</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Standard presets: 27; user settings: 20</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 30° back, -5° forward; lift: 4.3&quot; (110mm); swivel: +/-45°; detachable stand</td>
</tr>
<tr>
<td>Rotating screen</td>
<td>Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td>On screen display</td>
<td>On screen display with digital user controls (8 languages)</td>
</tr>
<tr>
<td>Control features</td>
<td>Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td>USB hub</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td>Security</td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td>Ship group</td>
<td>Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</td>
</tr>
</tbody>
</table>

## Features
- Widescreen 22.5-inch monitor
- Supports 1920x1200 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

## Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories]

See all monitors at [www.lenovo.com/thinkvision]

Note: The specifications above may not be available in all regions.

Lenovo
July 2018
**Lenovo ThinkVision T23i Wide Flat Panel Monitor**

- **Name:** T23i Wide Flat Panel Monitor
- **Bezel color:** Black
- **Type-model:** 61ABMAR1US / 61ABMAT1EU
- **Panel:** TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size:** 23” (584.2mm) diagonal
- **Max view area (W x H):** 20.36” x 11.92” (517.2mm x 302.8mm)
- **Native resolution:** 1920x1080
- **Aspect ratio:** 16:9
- **Pixel pitch (mm):** 0.2652 x 0.2652 mm
- **Dot/Pixel per Inch:** 95.8 dpi
- **Brightness:** 250 nits or cd/m² (typical)
- **Contrast ratio:** 1000:1 (typical)
- **Pixel response time:** 6ms (typical)
- **Color gamut:** 72%
- **Viewing angle at 10:1 CR:** 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand:** Tilt, swivel, pivot, and height adjustable stand
- **Bezel width:** Sides: 0.08” (2.0mm)
- **Dimensions (HxWxD):** 13.3” H x 20.56” W x 10.4” D; 337.7mm H x 522.2mm W x 264.2mm D
- **Power supply:** 16 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight:** 10.85 lb; 4.92 kg
- **Limited warranty:** 3 year (includes backlight)
- **Available date:** April 2017
- **VESA-compliant:** VESA DDC2B/CI
- **Power management:** ENERGY STAR® qualified
- **Ergonomics:** ISO 9241-307
- **Emission standards:** FCC Class B
- **Environmental:** TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ SILVER rating
- **Preset resolutions:**
  - VGA: 640x480, 720x400
  - SVGA: 800x600
  - XGA: 1024x768, 1152x864
  - SXGA: 1280x1024
  - WXGA+: 1440x900
  - WUXGA+: 1680x1050
  - Full HD: 1920x1080
- **Preset display modes:** HDMI: 18; DP: 18
- **Viewing adjustments:**
  - **Tilt:** 30° back, -5° forward; **lift:** 4.3” (110mm); **swivel:** +/-45°; detachable stand
  - **Screen pivot:** 90 degrees from landscape to portrait
- **On screen display:**
  - On screen display with digital user controls (8 languages)
- **Control features:**
  - Direct access (buttons on front) for power, menu, input source select and brightness and automatic image setup
- **USB hub:**
  - USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)
- **Multiple input:**
  - Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors:**
  - (1) VGA 15-pin D-shell, analog, blue
  - (2) HDMI (1.4), digital, HDCP-compliant
  - (3) DisplayPort, digital, black, HDCP-compliant
- **Signal cables:**
  - (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
  - (2) detachable, DisplayPort at each end, digital, 1.8 meter
  - (3) detachable, HDMI at each end, digital, 1.8 meter (NA)
- **Mounting features:**
  - Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- **Security:**
  - Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group:**
  - Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter HDMI signal cable (NA), 1.8 meter USB signal cable, 1.8 meter black power cord

### Features
- Widescreen 23-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Silver certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

### Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
### Lenovo ThinkVision T2454p Wide

**Name**: T2454p Wide Flat Panel Monitor  
**Bezel color**: Raven black  
**Type-model**: 60F9MAR1US / 60F9MAT1EU  
**Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight  
**Viewable image size**: 24.0" (609.6mm) diagonal  
**Max view area (W x H)**: 20.41" x 12.76" (518.4mm x 324.0mm)  
**Native resolution**: 1920x1200  
**Aspect ratio**: 16:10  
**Pixel pitch (mm)**: 0.270 x 0.270 mm  
**Dot/Pixel per Inch**: 94 dpi  
**Brightness**: 300 nits or cd/m² (typical)  
**Contrast ratio**: 1000:1 (typical)  
**Pixel response time**: 7ms (typical)  
**Color gamut**: 77.4%  
**Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical  
**Stand**: Tilt, swivel, pivot, and height adjustable stand  
**Bezel width**: Sides: 0.74" (18.8mm)  
**Dimensions (HxWxD)**: 15.85" H x 21.94" W x 10.39" D; 402.5mm H x 557.4mm W x 264.2mm D  
**Power supply**: 24 watts typical, 27 watts maximum (without USB 3.0 hub), 54 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)  
**Weight**: 13.60 lb; 6.15 kg  
**Limited warranty**: 3 year (includes backlight)  
**Available date**: March 2015  
**VESA-compliant**: VESA DDC2B/CI  
**Power management**: ENERGY STAR® qualified  
**Ergonomics**: ISO 9241-307  
**Emission standards**: FCC Class B  
**Environmental**: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Gold rating  
**Preset resolutions**:  
- VGA: 640x350, 640x480, 720x400  
- SVGA: 800x600  
- XGA: 1024x768  
- SXGA: 1280x1024  
- WXGA: 1280x720, 1280x768, 1280x800  
- WXGA+: 1440x900  
- WSXGA+: 1680x1050, 1600x1200  
**Full HD**: 1920x1080, 1920x1200  
**Presets / user settings**: Standard presets: 21; user settings: 20  
**Viewing adjustments**: Tilt: 30° back, -5° forward; Lift: 4.3" (110mm); Swivel: +/-45°; detachable stand  
**Rotating screen**: Screen pivots 90 degrees from landscape to portrait  
**On screen display**: On screen display with digital user controls (8 languages)  
**Control features**: Direct access (buttons on front) for automatic image setup, dual input and brightness  
**USB hub**: USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)  
**Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)  
**Monitor connectors**:  
- (1) VGA 15-pin D-shell, analog, blue  
- (2) HDMI (1.4), digital, HDCP-compliant  
- (3) DisplayPort, digital, black, HDCP-compliant  
**Signal cables**:  
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter  
- (2) detachable, DisplayPort at each end, digital, 1.8 meter  
**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount  
**Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)  
**Ship group**: Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DisplayPort cable, 1.8 meter USB signal cable, 1.8 meter black power cord

### Features
- Widescreen 24.0-inch monitor  
- Supports 1920x1200 resolution  
- Supports ThinkCentre Tiny Clamp Bracket  
- Supports optional soundbar  
- Includes dual input connection for attachment to two systems concurrently (analog and digital)  
- EPEAT Gold certified  
- Microsoft® Windows® 7 certified  
- Microsoft Windows 8 / Windows 8.1 certified  
- Microsoft Windows 10 certified

### Accessories
- Kensington MicroSaver Cable Lock  
- Kensington Twin Head Cable Lock  

See all monitors at www.lenovo.com/thinkvision

---

**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock 73P2582  
- Kensington Twin Head Cable Lock 45K1620

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

Lenovo  
November 2016
### SPECIFICATIONS

#### DISPLAY
- **Panel Size**: 24"
- **Panel Type**: In-Plane Switching
- **Resolution**: 1920 x 1200
- **Backlight**: WLED
- **Aspect Ratio**: 16:10
- **Pixel Pitch (W x H) (mm)**: 0.27 x 0.27
- **Dot/Pixel Per Inch (DPPI)**: 94 PPI
- **Anti-Glare**: Yes
- **Screen Dimensions (W x H) (mm)**: 518.4 x 324
- **Screen Dimensions (W x H) (inches)**: 20.41" x 12.75"
- **Maximum Brightness (Typical)**: 300 cd/m²
- **Viewing Angle (H/V at CR 10:1)**: 178°/178°
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3M1
- **Color Gamut (CIE 1931)**: 99% sRGB
- **Display Colors (Typical)**: 16.7 Million
- **Response Time**: 4 ms
- **Tilt Angle (Front / Back)**: -5°/ +30°
- **Swivel Angle (Left / Right)**: ±45°
- **Lift (mm)**: 110
- **Pivot**: ±90°
- **Cable Management**: Yes
- **Kensington® Lock**: Yes
- **Bezel Color**: Business Black
- **Bezel Width**: Top (mm / inches): 2 / 0.08" Bottom (mm / inches): 22.7 / 0.89" Sides (mm / inches): 2 / 0.08"

#### SIGNAL INPUT
- **Video Input Signals**: VGA + DisplayPort™ + HDMI™
- **Video Cables Supplied**: Yes (3.5 mm)
- **Video Cable Length**: 1.8 m
- **USB Hub**: USB 3.0¹
- **USB Cable Supplied**: Yes
- **Audio-Out**: Yes (3.5 mm)

#### SIGNAL INTERFACE / PERFORMANCE
- **Horizontal Frequency**: 30 kHz - 83 KHz
- **Vertical Frequency**: 50 Hz - 75 Hz
- **Native Resolution**: 1920 x 1200
- **Maximum Pixel Clock Speed/Bandwidth**:
  - **VGA**: 205 MHz
  - **HDMI™**: 165 MHz
  - **DisplayPort™**: 165 MHz
- **Default Color Temperature**: 6500 K
- **Preset Display Modes**: 20
- **OSD Buttons**: 5
- **OSD Languages**: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

#### DIMENSIONS (W x D x H)
- **Size Packed**: (mm) 160 x 655 x 422
- **Size Packed (inches)**: 6.3" x 25.79" x 16.61"
- **Size Unpacked with Stand**: (mm) 533.2 x 260.4 x 497.4
- **Size Unpacked with Stand (inches)**: 20.99" x 10.25" x 19.58"
- **Size Monitor Head Only**: (mm) 533.2 x 42.3 x 355.1
- **Size Monitor Head Only (inches)**: 20.99" x 1.67" x 13.98"
- **Distance from Table to Panel**:
  - **Lowest Pixel at Bottom of Screen**: (mm / inches) 56 / 2.2"
  - **Highest Pixel at Top of Screen**: (mm / inches) 490 / 19.29"
- **Stand Base Footprint Area (mm / inches)**: 250 x 250 9.84" x 9.84"
- **Weight**:
  - **Packaged**: Starting at 19.18 lbs (8.7 kg)
  - **Unpackaged**: Starting at 12.41 lbs (5.63 kg)
  - **Monitor Head Only**: Starting at 8.77 lbs (3.98 kg)

#### ENVIRONMENTAL
- **Temperature**: Operating 0°C - 40°C Non-Operating -20°C - 60°C
- **Humidity**: Operating 10% - 80% Non-Operating 5% - 95%
- **Altitude**: Operating 0 m - 5000 m Non-Operating 0 ft - 40,000 ft
- **Arsenic-Free Glass**: Yes
- **PVC-Free**: Yes
- **Mercury-Free**: Yes
- **PCC % of Plastic Resins**: >85%

#### MECHANICAL
- **Tilt Angle (Front / Back)**: -5°/ +30°
- **Swivel Angle (Left / Right)**: ±45°
- **Lift (mm)**: 110
- **Pivot**: ±90°
- **Cable Management**: Yes
- **Kensington® Lock**: Yes
- **Bezel Color**: Business Black
- **Bezel Width**: Top (mm / inches): 2 / 0.08" Bottom (mm / inches): 22.7 / 0.89" Sides (mm / inches): 2 / 0.08"

#### COMPLIANCE
- **EPEAT™**: Silver
- **ENERGY STAR® Rating**: 7.0
- **ULE**: Gold
- **TCO**: TCO Display 7.0 / TCO Edge 2.0
- **RoHS (EU 2002/95/EC)**: Yes
- **China Energy Efficiency Standard**: Tier 2
- **Windows Certification**: Windows 7 / Windows 10

#### WARRANTY AND AVAILABILITY
- **Warranty**: 3 Years
- **Geography Availability**: WW

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* Specifications subject to change without notice.

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* NA only.

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* Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.*

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### SPECIFICATIONS

#### DISPLAY
- Panel Size: 23.8” Wide
- Panel Type: In-Plane Switching
- Backlight: WLED
- Resolution (H x V): 1920 x 1080
- Aspect Ratio: 16:9
- Anti-Glare: Yes
- Screen Dimensions (W x H) (mm): 527.04 x 296.46
- (inches): 20.75” x 11.67”
- Maximum Brightness (Typical): 250 cd/m²
- Viewing Angle (H/V at CR 10:1): 178° / 178°
- Contrast Ratio (Typical): 1000:1
- Dynamic Contrast Ratio: 3M:1
- Pixel Pitch (mm): 0.2745 x 0.2745
- Color Gamut (CIE 1931): 72% NTSC
- Color Support (Typical): 16.7 Million
- Response Time (gray to gray): 4 ms (Extreme mode) / 6 ms (Normal mode)
- OSD Controls: 5
- Buttons: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

#### CONNECTIVITY
- Video Input Signals: VGA + HDMI™ 1.4 + DisplayPort™ 1.2
- Video Cables Supplied (Length): 1 x USB 3.0 (Upstream)
- USB Hub: 4 x USB 3.0 (Downstream, Incl. 1 BC)
- Audio Out: Yes (3.5 mm)

#### MECHANICAL
- Tilt Angle (Front / Back): -5° / 30°
- Swivel Angle (Left / Right): +/- 45°
- Lift Range (mm): 110
- Pivot: +/- 90°
- Cable Management: Yes
- Kensington® Lock: Yes
- VESA® Mount (mm x mm): Yes (100 x 100)
- Bezel Color: Raven Black
- Bezel Width: 2 / 0.08”
- Top (mm / inches): 2 / 0.08”
- Sides (mm / inches):

#### DIMENSIONS (W x D x H)
- Size Packed (mm): 422 x 622 x 190
- (inches): 16.61” x 24.48” x 7.48”
- Size Unpacked with Stand Lowest Position (mm): 540.2 x 261.75 x 373.4
- (inches): 21.26” x 10.3” x 14.7”
- Highest Position (mm): 540.2 x 261.75 x 483.4
- (inches): 21.26” x 10.3” x 19”
- Size Unpacked without Stand (Monitor Head Only) (mm): 540.2 x 46.45 x 325.98
- (inches): 21.26” x 1.82” x 12.83”
- Stand Base Footprint Area (mm): 250 x 250
- (inches): 9.84” x 9.84”
- Weight: Starting at 13.3 lbs (6.05 kg)
- Packaged: Starting at 16.39 lbs (7.45 kg)
- Unpacked: Starting at 7.26 lbs (3.3 kg)
- Full Container Load: 1140 / 540 Units

#### POWER CONSUMPTION
- Typical: 16.5 W
- Maximum: 55 W
- Sleep-Mode: <0.5 W
- Switch-Off-Mode: <0.3 W
- Power Supply: Internal
- Power Voltage: 90 VAC – 264 VAC

#### WHAT’S IN THE BOX
- Monitor with Stand
- 1 x Power Cable
- 1 x VGA Cable
- 1 x DisplayPort™ - DisplayPort™ Cable
- 1 x HDMI™ Cable (NA Only)
- Quick Setup Guide
- TüV Eye Comfort Certification
- Windows Certification
- China Energy Efficiency Standard
- ENERGY STAR® Rating
- TCO Edge
- EPEAT™
- CERTIFICATIONS

### NOTES

- Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.

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**SPECIFICATIONS**

**DISPLAY**
- Panel Size: 23.8" Wide
- Panel Type: In-Plane-Switching
- Backlight: WLED
- Resolution: FHD (1920 x 1080)
- Aspect Ratio: 16:9
- Anti-Glare: Yes
- Near Edgeless Screen: Yes
- Screen Dimensions (W x H) (mm): 527.04 x 296.46
  (inches): 20.75" x 11.67"
- Brightness: 250 nits
- Viewing Angle (H/V at CR 10:1): 178°/178°
- Contrast Ratio (Typical): 1000:1
- Dynamic Contrast Ratio: 3M1
- Speakers: 2 x 2W
- Pixel Pitch (mm): 0.2745 x 0.2745
- Color Gamut (CIE 1931): 72% NTSC
- Color Depth: 8 bit
- Color Support (Typical): 16.7 Million
- Response Time (GTG): 4 ms / 6 ms
- OSD Controls: 5 English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian
- Buttons
- Languages

**CONNECTIVITY**
- Video Input Signals: VGA + HDMI™ + DisplayPort™
- Video Cables Supplied: VGA, DisplayPort™, USB, Flower, HDMI™ (for NA only)
- USB Hub: USB 3.0² (4 x down, 1 x BC)
- Audio Out: Yes (3.5 mm)
- Power: Internal
- Soundbar Support*: Yes

**MECHANICAL**
- Tilt Angle (Front / Back): “-5° / 30°”
- Swivel Angle (Left / Right): “+/-45°”
- Lift Range (mm): 110
- Pivot: “+/-90°”
- Stand: LTPS
- Cable Management: Yes
- Kensington® Lock: Yes
- VESA® Mount (mm x mm): Yes (100 x 100)
- Bezel Color: Raven Black
- Bezel Width: 2 / 0.08”
- Top (mm / inches): 2 / 0.08”
- Sides (mm / inches): 2 / 0.08”

**DIMENSIONS (W x D)**
- Size Packed: 422 x 622 x 190
  (inches): 16.61" x 24.48" x 7.48"
- Size Unpacked with Stand: 540.2 x 261.75 x 373.4
  (inches): 21.26" x 10.3" x 14.77"
- Lowest Position (mm): 540.2 x 261.75 x 483.4
  (inches): 21.26" x 10.3" x 19"
- Stand Base Footprint Area (mm): 250 x 250
  (inches): 9.84" x 9.84"
- Weight: Starting at 16.39 lbs (7.45 kg)
- Unpacked Monitor Head Only: Starting at 11.33 lbs (5.15 kg)
- Monitor Head Only: Starting at 7.26 lbs (3.3 kg)
- Full Container Load: 1140 / 540 Units

**POWER CONSUMPTION**
- Typical: 16.5 W
- Maximum: 59 W
- Sleep-Mode: <0.5 W
- Switch Off-Mode: <0.3 W
- Power Supply: Internal
- Power Voltage: 90 VAC – 264 VAC
- ENERGY STAR® (Pon): 13.67 W
- ENERGY STAR® (ETEC): 43.51 kWh

**WHAT’S IN THE BOX**
- Monitor with Stand
- 1 x Power Cable
- 1 x VGA Cable
- 1 x DisplayPort™ - DisplayPort™ Cable
- 1 x HDMI™ Cable (NA Only)
- Quick Setup Guide

**CERTIFICATIONS**
- EPEAT™
- ENERGY STAR® Rating
- TCO
- TCO Edge
- ULE
- RoHS (EU 2002/95/EC)
- China Energy Efficiency Standard
- Windows Certification
- TGV Eye Comfort Certification
- TINY Support

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*Optional.

1 Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.
**Lenovo ThinkVision T24m**

### Features
- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Supports ThinkCentre Tiny Clamp Bracket
- Supports optional soundbar
- EPEAT Gold certified
- Microsoft Windows 7 certified
- Microsoft Windows 10 certified

<table>
<thead>
<tr>
<th>Name</th>
<th>T24m Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61B8R3US / 61B8R3EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>23.8&quot; (604.7mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.75&quot; x 11.67&quot; (527.04mm x 296.46mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>1920x1080</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
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<tr>
<td>Pixel pitch (mm)</td>
<td>0.2745 x 0.2745 mm</td>
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<tr>
<td>Dot/Pixel per Inch</td>
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<tr>
<td>Brightness</td>
<td>250 nits or cd/m² (typical)</td>
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<td>Contrast ratio</td>
<td>1000:1 (typical)</td>
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<tr>
<td>Pixel response time</td>
<td>6ms (typical)</td>
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<tr>
<td>Color gamut</td>
<td>99% sRGB</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
</tbody>
</table>

### Stand
- Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand

### Preset resolutions
- VGA: 640x480
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200

### Viewing adjustments
- On screen display: On screen display with digital user controls (8 languages)
- Control features: Direct access (buttons on front) for power, menu, input source select and brightness
- USB hub: USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)
- Multimedia: Audio-out, optional sound bar supported
- Multiple input: Support HDMI, DisplayPort, USB 3.1 Type-C
- Monitor connectors: (1) HDMI (1.4), digital, HDCP-compliant
  - (2) DisplayPort (1.2), digital, HDCP-compliant
  - (3) USB 3.1 Type-C
- Signal cables: (1) 1.8 meter USB C to USB Type-C cable
- Mounting features: Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount
- Security: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Ship group
- Monitor with stand, Safety and Warranty Information, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter black power cord

### Limited Warranty

### Accessories
- Kensington MicroSaver Cable Lock
  - 73P2582
- Kensington Twin Head Cable Lock
  - 45K1620

See details at [www.lenovo.com/support/monitoraccessories](www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](www.lenovo.com/thinkvision)
**SPECIFICATIONS**

### DISPLAY
- **Panel Size**: 23.8"
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Resolution**: 1920 x 1080
- **Aspect Ratio**: 16:9
- **Anti-Glare**: Yes
- **Screen Dimensions (W x H) (mm)**: 527.04 x 296.46
- **Maximum Brightness (Typical)**: 250 cd/m²
- **Viewing Angle (H/V at CR 10:1)**: 178°/178°
- **Contrast Ratio (Typical)**: 1000:1
- **Dynamic Contrast Ratio**: 3M1
- **Pixel Pitch (W x H) (mm)**: 0.25 x 0.25
- **Dot/Pixel Per Inch (DP/PI)**: 102
- **Color Gamut (CIE 1931)**: 72% sRGB
- **Response Time (Extreme/Typical/Off)**: 4/6/14 ms (G-to-G)

### POWER CONSUMPTION
- **Typical**: 20 W
- **Maximum**: 45 W
- **Sleep-Mode**: <0.5 W
- **Switch Off-Mode**: <0.3 W
- **Power Supply**: Internal
- **Power Voltage**: 90 VAC – 264 VAC
- **Voltage Dynamic Frequency**: 47 Hz – 63 Hz

### SIGNAL INPUT
- **Video Input Signals**: HDMI™ 1.4 + DisplayPort™ 1.2 + VGA
- **Video Cables Supplied**: HDMI™ (ROW) + DisplayPort™ + VGA + USB 3.0
- **Video Cable Length**: 1.8 m
- **USB Hub**: Yes
- **USB Cable Supplied**: Yes
- **Audio-Out**: Yes (3.5 mm)

### SIGNAL INTERFACE / PERFORMANCE
- **Horizontal Frequency**: 30 kHz – 81 kHz
- **Vertical Frequency**: 50 Hz – 75 Hz
- **Native Resolution**: 1920 x 1080
- **Maximum Pixel Clock Speed/ Bandwidth**: VGA : 205 MHz
- **DisplayPort™**: 165 MHz
- **Default Color Temperature**: 6500K
- **Preset/User Modes**: 27/21
- **OSD Buttons**: 5 + 2 Buttons
- **OSD Languages**: English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

### MECHANICAL
- **Tilt Angle (Front / Back)**: -5° / 30°
- **Swivel Angle (Left / Right)**: +/-45°
- **Lift (mm)**: Yes (110)
- **Pivot**: +/-90°
- **VESA® Mount (mm)**: Yes (100 x 100)
- **Kensington® Lock Slot**: Yes
- **Cable Management**: Yes
- **Bezel Color**: Raven Black
- **Bezel Width**: Top (mm / inches) 2 / 0.08", Bottom (mm / inches) 22 / 0.87", Sides (mm / inches) 2 / 0.08"

### ENVIRONMENTAL
- **Temperature**: Operating 0°C – 40°C
- **Humidity**: Operating 10% – 80%
- **Altitude**: Operating 0 m – 8000 m
- **Arsenic-Free Glass**: Yes
- **PVC-Free**: Yes
- **Mercury-Free**: Yes
- **PCC % of Plastic Resins**: >85%

### DIMENSIONS (W x D x H)
- **Size Packed**: 608 x 395 x 187 (inches)
- **Size Unpacked with Stand**: 23.94" x 15.55" x 7.36"
- **Lowest Position**: (Monitor Head Only) 540.2 x 261.9 x 390.5 (inches)
- **Highest Position**: (Monitor Head Only) 21.28" x 10.32" x 19.72"
- **Distance from Table to Panel**: (Monitor Head Only) 540.2 x 43.8 x 343.7 (inches)
- **Weight**: Packed Starting at 15.78 lbs (716 kg)
- **Stand Base Footprint Area**: 242.5 x 212.8 / 9.55" x 8.38"
- **Monitor Head Only**: Starting at 7.3 lbs (3.31 kg)

### COMPLIANCE
- **EPEAT™**: Silver
- **ENERGY STAR® Rating**: 7.0
- **ULE**: Gold
- **TCO®**: TCO Display 70 / TCO Edge 2.0
- **RoHS (EU 2002/95/EC)**: Windows Certification
- **Windows Certification**: Windows 7 / Windows 10
- **China Energy Efficiency Standard**: Grade 2
- **TÜV Eye Comfort**: Yes

### WARRANTY AND AVAILABILITY
- **Warranty**: ROW 3 Years
- **PRC**: 18 Months
- **Geography Availability**: WW

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1. Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.
### Lenovo ThinkVision X24 Pro Wide

#### Features

- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Silver certified
- Intel RealSense 3D camera
- Stereo speakers 3 watts x 2
- One cable docking through USB 3.1 Type C with power delivery
- Windows Hello certified
- Microsoft Windows 10 certified

#### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
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<td>Name</td>
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<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>60E4ECR1US / 60E4ECT1US / 60E4ECT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, AH-IPS (In-Plane Switching), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>23.8” (604.5mm) diagonal</td>
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<td>20.75” x 11.67” (527.0mm x 296.5mm)</td>
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### Accessories

- Kensington MicroSaver Cable Lock (73P2582)
- Kensington Twin Head Cable Lock (45K1620)

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

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Lenovo
July 2017
# Lenovo ThinkVision X24-20

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>X24-20 Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bezel color</strong></td>
<td>Raven black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>61BDGAR3US / 61BDGAT3EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, IPS (In-Plane Switching), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>23.8&quot; (604.5mm) diagonal</td>
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<tr>
<td><strong>Aspect ratio</strong></td>
<td>16:9</td>
</tr>
<tr>
<td><strong>Pixel pitch (mm)</strong></td>
<td>0.2745 x 0.2745 mm</td>
</tr>
<tr>
<td><strong>Dot/ Pixel per Inch</strong></td>
<td>92 dpi</td>
</tr>
<tr>
<td><strong>Brightness</strong></td>
<td>250 nits or cd/m² (typical)</td>
</tr>
<tr>
<td><strong>Pixel response time</strong></td>
<td>6ms (typical)</td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td>72% (NTSC)</td>
</tr>
<tr>
<td><strong>Viewing angle at 10:1 CR</strong></td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt stand</td>
</tr>
<tr>
<td><strong>Bezel width</strong></td>
<td>Sides: 0.04&quot; (1.1mm)</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>12.85&quot; H x 21.16&quot; W x 8.66&quot; D; 326.4mm H x 537.4mm W x 220mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>20 watts typical, 25 watts maximum, &lt;0.5 watts standby/suspend, universal, external power supply</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>7.3 lb; 3.3 kg</td>
</tr>
<tr>
<td><strong>Limited warranty</strong></td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td><strong>Available date</strong></td>
<td>December 2017</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td><strong>Emission standards</strong></td>
<td>FCC Class B</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Silver rating</td>
</tr>
<tr>
<td><strong>Preset resolutions</strong></td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td><strong>SVGA:</strong></td>
<td>800x600</td>
</tr>
<tr>
<td><strong>XGA:</strong></td>
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<tr>
<td><strong>SXGA:</strong></td>
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<td>1366x768</td>
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<td><strong>WXGA+:</strong></td>
<td>1440x900, 1600x900</td>
</tr>
<tr>
<td><strong>WSXGA+:</strong></td>
<td>1680x1050</td>
</tr>
<tr>
<td><strong>Full HD:</strong></td>
<td>1920x1080</td>
</tr>
</tbody>
</table>

## Features
- Widescreen 23.8-inch monitor
- Supports 1920x1080 resolution
- Includes dual input connection for attachment to two systems concurrently
- EPEAT Silver certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

## Accessories
- Kensington MicroSaver Cable Lock
- Kensington Twin Head Cable Lock

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)
Lenovo ThinkVision P27h

**Product Specifications Reference (PSREF)**

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**Name**: P27h Wide Flat Panel Monitor

**Case color**: Black

**Type-model**: 61AFGAR1US / 61AFGAT1EU

**Panel**: TFT-LCD, IPS (In-Plane Switching), White LED backlight

**Viewable image size**: 27" (685.8mm) diagonal

**Max view area (W x H)**: 23.49" x 13.21" (596.7mm x 335.7mm)

**Optimum resolution**: 2560x1440

**Max pixel rate**: 300MHz

**Aspect ratio**: 16:9

**Pixel pitch (mm)**: 0.2331 x 0.2331mm

**Dot/Pixel per Inch**: 109 dpi

**Brightness**: 350 nits or cd/m² (typical)

**Contrast ratio**: 1000:1 (typical)

**Pixel response time**: 4ms (extreme) / 6ms (typical)

**Color gamut**: 99% sRGB

**Viewing angle at 10:1 CR**: 178° horizontal, 178° vertical

**Stand**: Tilt, swivel, pivot, and height adjustable stand

**Bezel width**: Sides: 0.08" (2mm) Dimension: 20.21" H x 24.08" W x 10.62" D;

**Dimensions (HxWxD, including stand)**: 513mm H x 611.6mm W x 269.8mm D

**Power supply**: 38 watts typical, 140 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off integrated (no external brick-like power supply)

**Weight**: 15.43 lb; 7.0kg (including stand)

**Limited warranty**: 3 year

**Available date**: April 2017

**VESA-compliant**: VESA DDC2B/Ci

**Power management**: ENERGY STAR® 7.0

**Ergonomics**: ISO 9241-307

**Emission standards**: FCC Class B

**Environmental**: TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold

**Preset resolutions**:
- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1680x900
- WSXGA+: 1860x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440

**Preset display modes**: HDMI: 22; DP: 14

**Viewing adjustments**: Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45°

**Rotating screen**: Screen pivots 90 degrees from landscape to portrait

**On screen display**: On screen display with digital user controls (8 languages)

**Control features**: Direct access (buttons on front) for power, menu, input source select and brightness

**USB hub**: USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

**Multimedia**: Audio-out, optional sound bar supported

**Camera**: None

**Multiple input**: Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out

**Monitor connectors**: (1) 2*HDMI (1.4), digital, HDCP-compliant

**Signal cables**: (1) USB 3.1 Type-C cable, 1.8 meter

**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**: Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord

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**Features**

- 27-inch IPS LED backlit monitor
- Supports 2560x1440 resolution
- 5-Ports USB hub, support USB 3.0
- Supports optional soundbar
- Support ThinkCentre Tiny
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

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**Accessories**

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Security Cable Lock 57Y4303

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

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**Limited Warranty**


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**Lenovo**

July 2017
**ThinkVision P27q Monitor**

- **Features**
  - 27-inch IPS LED backlight monitor
  - Supports 2560x1440 resolution
  - 5-Ports USB hub, support USB 3.0
  - Support ThinkCentre Tiny
  - Supports optional soundbar
  - Microsoft® Windows® 7 certified
  - Microsoft Windows 10 certified

- **Specifications**

**Name**: P27q Wide Flat Panel Monitor

**Case color**: Black

**Type-model**: 61A8GAT1EU

**Panel**: TFT-LCD, IPS (In-Plane Switching), White LED backlight

**Viewable image size**: 27" (685.8mm) diagonal

**Max view area (W x H)**: 23.49" x 13.21" (596.7mm x 335.7mm)

**Optimum resolution**: 2560x1440

**Max pixel rate**: 300MHz

**Aspect ratio**: 16:9

**Pixel pitch (mm)**: 0.2331 x 0.2331mm

**Dot/Pixel per Inch**: 109 dpi

**Brightness**: 350 nits or cd/m² (typical)

**Contrast ratio**: 1000:1 (typical)

**Pixel response time**: 4ms

**Color gamut**: 99% sRGB

**Viewing angle at 10:1 CR**: 178° horizontal, 178° vertical

**Stand**: Tilt, swivel, pivot, and height adjustable stand

**Bezel width**: Sides: 0.08" (2mm)

**Dimensions**: 20.21" H x 24.17" W x 10.62" D;

(Height x Width x Depth), including stand: 513mm H x 614mm W x 269.8mm D

**Power supply**: 38 watts typical,

75 watts maximum (with USB),

<0.5 watts sleep/off;

<0.3 watts switch off

(integrated (no external brick-like power supply)

**Weight**: 15.43 lb; 7.0kg (including stand)

**Limited warranty**: 3 year

**Available date**: January 2017

**VESA-compliant**: VESA DDC2B/CI

**Power management**: ENERGY STAR® 7.0

**Ergonomics**: ISO 9241-307

**Emission standards**: FCC Class B

**Environmental**: TCO Displays 7.0, RoHS, EPEAT™ Silver rating,

ULE Gold

**Preset resolutions**

- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440

**Presets / user settings**: Standard presets: 20; user settings: 24

**Viewing adjustments**

- Tilt: 30° back, -5° forward; lift: 4.33” (110mm); swivel: +/-45°

**Rotating screen**: Screen pivots 90 degrees from landscape to portrait

**On screen display**

- On screen display with digital user controls (8 languages)

**Control features**

- Direct access for menu, source switch, and brightness

**USB hub**: USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports

**Multimedia**: Audio-out, optional sound bar supported

**Camera**: None

**Multiple input connectors**: Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out

- (1) 2*HDMI (1.4), digital, HDCP-compliant
- (2) DisplayPort (1.2), digital, HDCP-compliant
- (3) Mini DisplayPort, digital, HDCP-compliant

**Signal cables**: (1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter

**Mounting features**: Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**: Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord

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**Limited Warranty**


**Accessories**

- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620
- Lenovo Security Cable Lock 57Y4303

See details at [www.lenovo.com/support/monitoraccessories](http://www.lenovo.com/support/monitoraccessories)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
### Lenovo P27q-20

**DISPLAY**
- Panel Size: 27-inch
- Screen Dimensions: 596.74 mm x 335.66 mm
- Panel Type: 4-side NearEdgeless In-Plane Switching
- Backlight: WLED
- Aspect Ratio: 16:9
- Resolution: 2560 x 1440
- Pixel Pitch: 0.2331 x 0.2331 mm
- Dot/ Pixel Per Inch (DPI/PPI): 109
- Viewing Angle (H x V @ CR 10:1): 178° / 178°
- Response Time: 4ms (extreme mode) 6ms (normal mode)
- Refresh Rate: 60 Hz
- Brightness (typical): 350 cd/m²
- Contrast Ratio (typical): 1000:1
- Dynamic Contrast Ratio (typical): 3M1
- Color Gamut: 16.7 Million
- Color Support (typical): 99% sRGB
- Anti-glare: Yes

### CONNECTIVITY
- Video Signal: 1 x HDMI 1.4
- Audio Signal: 1 x Audio Out (3.5 mm)
- USB Hub: Yes
- USB Upstream: 1 x USB3.1 Gen1 (by USB Type-B)
- USB Downstream: 4 x USB3.1 Gen1 (1 BC)

### POWER
- Power Consumption (typical/max): 22W / 57W
- Power Consumption Sleep/Off Mode: < 0.5W
- Power Consumption Switch-off Mode: < 0.3W
- ENERGY STAR Power Consumption (P_/E tot): 18W / 57kWh
- Power Supply: Internal
- Voltage Required: AC 100 to 240 V (50-60 Hz)

### MECHANICAL
- Tilt Angle (front/back): -5° / 35°
- Swivel Angle (left/right): +45° / -45°
- Lift (Max range): 135 mm
- Pivot: -90° / 90°

### VIDEO SIGNAL
- VESA Mount Capability: Yes (100 X 100 mm)
- Kensington Lock Slot: Yes
- Cable Management: Yes
- Bezel Color: Raven Black
- Bezel Width (side): 2.0 mm
- Bezel Width (top/bottom): 2.0 / 2.0 mm

### DIMENSION
- Size Packed (D x H x W, mm/ inch): 182.0 x 463.0 x 722.0 mm / 7.12 x 18.23 x 28.43 inches
- Size Unpacked (D x H x W, mm/ inch): 567.9 mm x 27.17 inches
- Size Unpacked w/o Stand (D x H x W, mm/ inch): 463.5 x 427.0 x 20.0 mm / 18.23 x 16.81 x 0.78 inches

### MEASUREMENT
- Weight (monitor head only) (kg/lbs.): 4.64 kg / 10.23 lbs.
- Full Container Load (40’ STD / 20’ STD): 792 / 352 units

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x Power cable (1.8 m)
- 1 x DP cable (1.8 m)
- 1 x USB Type-B to Type-A cable (1.8 m)

### CERTIFICATION
- ENERGY STAR Rating: 8.0
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 1
- TÜV Rheinland Eye Comfort: Yes

### SPECIFICATIONS
- Dimensions: 8W / 57kWh
- Voltage: 100 to 240 V (50-60 Hz)
- USB Connectors: 4 x USB3.1 Gen1 (1 BC)
- Audio Out: 1 x Audio Out (3.5 mm)
- Power Supply: Internal
- Power Consumption: 22W / 57W
- Power Specifications: < 0.5W
- Tilt Angle: -5° / 35°
- Swivel Angle: +45° / -45°
- Lift: 135 mm
- Pivot: -90° / 90°
- Power: 22W / 57W
- Power Supply: Internal
- Voltage: AC 100 to 240 V (50-60 Hz)
- Dimensions: 567.9 mm x 27.17 inches
- Weight: 4.64 kg / 10.23 lbs.
- Full Container Load: 792 / 352 units
- WHAT’S IN THE BOX:
  - Monitor with stand
  - 1 x Power cable (1.8 m)
  - 1 x DP cable (1.8 m)
  - 1 x USB Type-B to Type-A cable (1.8 m)
- CERTIFICATION:
  - ENERGY STAR Rating: 8.0
  - Windows Certification: Windows 7, Windows 10
  - China Energy Efficiency Standard: Tier 1
  - TÜV Rheinland Eye Comfort: Yes

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Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
Lenovo ThinkVision P27u

Product Specifications Reference (PSREF)

Features
- 27-inch IPS LED backlit monitor
- Supports 3840x2160 resolution
- 5-Ports USB hub, support USB 3.0
- Support ThinkCentre Tiny
- Supports optional soundbar
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

Name: P27u Wide Flat Panel Monitor
Case color: Black
Type-model: 61CBGAR1US / 61CBGAT1EU / 61CBGAR1EU / 61B0GAR1US / 61B0GAT1EU
Panel: TFT-LCD, IPS (In-Plane Switching), White LED backlight
Viewable image size: 27" (684.7mm) diagonal
Max view area (W x H): 23.49" x 13.21" (596.74mm x 335.66mm)
Optimum resolution: 3840x2160
Max pixel rate: 600MHz
Aspect ratio: 16:9
Pixel pitch (mm): 0.1554 x 0.1554mm
Brightness: 350 nits or cd/m² (typical)
Contrast ratio: 1000:1 (typical)
Pixel response time: 6ms (typical)
Color gamut: 1.457 sRGB
Viewing angle at 10:1 CR: 178° horizontal, 178° vertical
Stand: Tilt, swivel, pivot, and height adjustable stand
Bezel width: Sides: 0.08" (2mm)
Dimensions: 20.21" H x 24.08" W x 10.62" D;
(sides: 0.08" (2mm))
Power supply: 50 watts typical, 160 watts maximum (with USB), <0.5 watts sleep/off; <0.3 watts switch off integrated (no external brick-like power supply)
Weight: 15.32 lb; 6.95kg (including stand)
Limited warranty: 3 year
Available date: August 2017

VESA-compliant: VESA DDC2B/C
Power management: ENERGY STAR® 7.0
Ergonomics: ISO 9241-307
Emission standards: FCC Class B
Environmental: TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating, ULE Gold

Preset resolutions:
- VGA: 640x480, 720x400, 720x480, 720x576
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x720, 1280x800, 1280x1024
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- QHD: 2560x1440
- UHD: 3840x2160

Presets / user settings:
- Standard presets: 27;
- user settings: 20

Viewing adjustments:
- Tilt: 30° back, -5° forward; lift: 4.33° (110mm); swivel: +/-45°

Rotating screen:
- Screen pivots 90 degrees from landscape to portrait

On screen display:
- On screen display with digital user controls (8 languages)

Direct access (buttons on front) for power, menu, input source select and brightness

Multiple input:
- Support HDMI, DisplayPort, USB 3.1 Type-C

Support (1) 2*HDMI (2.0), digital, HDCP-compliant
(2) DisplayPort (1.2), digital, HDCP-compliant
(3) USB 3.1 Type-C

Signal cables:
- (1) detachable, DisplayPort to DisplayPort, digital, 1.8 meter

Mounting features:
- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

Security:
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

Ship group:
- Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter DP to DP cable, 1.8 meter HDMI to HDMI cable (NA only), 1.8 meter black power cord, 1.8 meter USB Type-C to USB Type-A cable

Limited Warranty

Accessibility
Kensington MicroSaver Cable Lock 73P2582
Kensington Twin Head Cable Lock 45K1620
Lenovo Security Cable Lock 57Y4303

See details at www.lenovo.com/support/monitoraccessories

See all monitors at www.lenovo.com/thinkvision

Lenovo
August 2017
**ThinkVision® P32u-10**

**SPECIFICATIONS**

### DISPLAY
- **Panel Size**: 32 inches
- **Screen Dimensions (H x V)**: 708.48 x 398.52mm
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 3840 x 2160 pixels
- **Pixel Pitch (H x V)**: 0.1845 x 0.1845mm
- **Viewing Angle (H x V)**: 178°/178°
- **Response Time (gray to gray)**: 4ms (extreme mode) 6ms (normal mode)
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut**: 99.5% Adobe RGB, 100% sRGB, 100% BT.709, 98.2% DCI-P3, 79.3% BT.2020
- **Color Support**: 1.07 Billion

### DIMENSIONS
- **Size Packed (D x H x W)**: 844 x 228 x 528mm / 33.23 x 8.98 x 20.79 inches
- **Size Unpacked w/stand (D x H x W) (Lowest Position)**: 350.0 x 497.85 x 726.7mm / 13.78 x 19.6 x 28.61 inches
- **Size Unpacked w/stand (D x H x W) (Highest Position)**: 350.0 x 607.85 x 726.7mm / 13.78 x 23.93 x 28.61 inches
- **Size Unpacked w/o stand (D x H x W) (Head Only)**: 58.95 x 431.5 x 726.7mm / 2.32 x 16.99 x 28.61 inches

### WEIGHT
- **Weight Packed**: 14.30kg/31.32lbs.
- **Weight Unpacked**: 10.97kg/24.18lbs.
- **Weight (Monitor Head Only)**: 6.97kg/15.37lbs.

### SPECIAL FEATURES
- **Factory Calibration**: Yes
- **Anti-Glare**: Yes
- **PIP/PBP**: Yes
- **KVM switch**: Yes
- **Software**: Yes (ThinkColor)

### MECHANICAL
- **Tilt Angle (front/back)**: -5°/22°
- **Swivel Angle (left/right)**: -45°/+45°
- **Lift (Max range)**: 110mm
- **Pivot**: -90°/+90°
- **VESAt Mount Capability**: Yes (100 x 100mm)

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x Power cable
- 1 x DP-DP cable
- 1 x HDMI cable
- 1 x USB 3.0 cable
- 1 x Thunderbolt™ 3 cable (20Gbps)
- 1 x CD (ThinkColor)
- Factory calibration report
- Quick setup guide

### CERTIFICATIONS
- **ENERGY STAR® Rating**: 7.1
- **EPEAT™**: Silver
- **CCC**: Yes
- **RoHS**: Yes
- **ULE**: Gold
- **TCO**: 7.0
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 2
- **TÜV Eye Comfort**: Yes
## Display

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>43.4 inches</td>
</tr>
<tr>
<td>Screen Dimensions (H x V)</td>
<td>1052.3 x 328.8mm</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>32:10</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 1200</td>
</tr>
<tr>
<td>Panel Type</td>
<td>VA Near-Edgeless, anti-glare</td>
</tr>
<tr>
<td>Curvature</td>
<td>1800R</td>
</tr>
</tbody>
</table>

## Dimensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed (D x H x W)</td>
<td>1279 x 560 x 376mm*</td>
</tr>
<tr>
<td>Size Unpacked w/stand (D x H x W)</td>
<td>1372 x 366.1 x 1058.3mm</td>
</tr>
</tbody>
</table>

## Connectivity

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>2 x HDMI 2.0, 1 x DP1.4, 1 x USB Type-C Gen1, 1 x USB Type-C Gen2</td>
</tr>
<tr>
<td>Audio Out</td>
<td>Yes (3.5mm)</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes</td>
</tr>
<tr>
<td>USB Upstream</td>
<td>2 x USB 3.1 (1 x USB Type-C Gen1, 4 x USB 3.1 Gen1 (1 BC))</td>
</tr>
</tbody>
</table>

## Special Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
<tr>
<td>PIP/PBP</td>
<td>Yes</td>
</tr>
<tr>
<td>Software</td>
<td>Yes (ThinkColor)</td>
</tr>
<tr>
<td>Speaker</td>
<td>Supports optional Harman Kardon certified speaker</td>
</tr>
</tbody>
</table>

## Mechanical

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift (Max. range)</td>
<td>Yes (180mm)</td>
</tr>
<tr>
<td>VESA Mount Capability</td>
<td>Yes (100 x 100mm)</td>
</tr>
</tbody>
</table>

## Specifications

- **Power Consumption**: Typical/Max: 70W/250W
- **Switch-Off Mode**: <0.5W
- **Sleep/Off Mode**: <0.5W
- **Typical/Max**: 70W/250W
- **Power**: Internal

## Certifications

- ENERGY STAR® Rating: 71
- Epp: Yes
- RoHS: Yes
- TCO: 6.0
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- Ambient Operating Temperature: 0°C to 45°C
- TÜV Eye Comfort: Yes

## WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power cable
- 1 x HDMI cable
- 1 x DP cable
- 1 x USB Type-C Gen2 cable
- 1 x USB Type-C to Type-A cable
- Quick setup guide

## Dimensions

- Monitor size: 5.40 x 14.21 x 41.67 inches (D x H x W) (Head Only)
- Monitor size (Lowest Position): 10.62 x 14.21 x 41.67 inches
- Monitor size (Highest Position): 10.62 x 18.15 x 41.67 inches
- Monitor size (Lowest Position): 10.62 x 461.1 x 1058.3mm
- Monitor size (Highest Position): 10.62 x 591.1 x 1058.3mm

## WHAT’S IN THE BOX

- Quick setup guide
- 1 x USB Type-C to Type-A cable
- 1 x USB Type-C Gen2 cable
- 1 x DP cable
- 1 x Power cable
- 1 x VESA Mount Capability

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*with FreeSync support graphic cards.

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*with FreeSync support graphic cards.

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*with FreeSync support graphic cards.

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## ThinkVision® S27i-10

### DISPLAY
- **Panel Size**: 27 inch
- **Screen Dimensions (H x V) (mm)**: 597.89 (H) x 336.31 (V)
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 1920 x 1080
- **Pixel Pitch (H x V) (mm)**: 0.3110 x 0.3110
- **Viewing angle (H x V)**: 178°/ 178°
- **Response Time (gray to gray)**: 4 ms (extreme mode) / 6 ms (normal mode)
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut NTSC (CIE 1931)**: 72%
- **Color Support**: 16.7M

### CONNECTIVITY
- **Video Input Signals**: VGA + HDMI 1.4
- **Video Cable Length**: 1.8 m
- **Audio Out**: Yes (3.5 mm)

### MULTI-MEDIA
- **Optional Soundbar Support**: Yes

### DIMENSIONS
- **Size Packed (D x H x W) (mm/inch)**: 132 x 455 x 715 mm / 5.20 x 17.91 x 28.15 inch
- **Size Unpacked w/stand (D x H x W) (mm/inch)**: 220.0 x 443.5 x 611.9 mm / 8.66 x 17.46 x 24.10 inch (Lowest Position)
- **Size Unpacked w/stand (D x H x W) (mm/inch)**: 220.0 x 443.5 x 611.9 mm / 8.66 x 17.46 x 24.10 inch (Highest Position)
- **Size Unpacked w/o stand (D x H x W) (mm/inch)**: 46.2 x 366.5 x 611.9 mm / 1.82 x 14.43 x 24.10 inch (Head Only)
- **Weight Packed (kg/lbs.)**: 6.80kg / 14.99 lbs.
- **Weight Unpacked (kg/lbs.)**: 4.76kg / 10.49 lbs.
- **Weight (Monitor Head Only) (kg/lbs.)**: 4.22kg / 9.30 lbs.

### SPECIAL FEATURES
- **Anti-Glare**: Yes
- **Thin Client Support (Tiny)**: Yes
  - (by VESA mount PN:4XF0N03161)

### MECHANICAL
- **Tilt Angle (front/back)**: -5° / 22°
- **VESA Mount**: Yes (100 mm)
- **Kensington™ Lock Slot**: Yes
- **Bezel Color**: Raven Black
- **Bezel Width (Side)**: 2.0 mm
- **Bezel Width (top / bottom)**: 2.0 mm / 21.68 mm

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x HDMI Cable
- 1 x VGA Cable (AP, EMEA only)
- 1 x Power Cable
- Quick setup guide

### CERTIFICATIONS
- **ENERGY STAR® Rating**: 7.0
- **TCO**: 7.0
- **EPEAT™**: Silver
- **ULE**: Gold
- **RoHS**: Yes

Windows Certification
- Windows 7, Windows 10

China Energy Efficiency Standard
- Tier 2

Ambient Operating Temperature
- 0°C to 40°C

TÜV Eye Confort Certification
- Yes

Specifications may vary depending upon region.

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ThinkVision S27q-10

DISPLAY
Panel Size
27-inch
Screen Dimensions
596.74 mm x 335.66 mm
Panel Type
3-side NearEdgeless
In-Plane Switching
Backlight
WLED
Aspect Ratio
16:9
Resolution
2560 x 1440
Pixel Pitch
0.2331 x 0.2331 mm
Dot/ Pixel Per Inch (DPI/ PPI)
109
Viewing Angle (H x V @ CR 10:1)
178° / 178°
Response Time
4ms (extreme mode)
Refresh Rate
60 Hz
Brightness (typical)
280 cd/m²
Brightness (peak)
350 cd/m²
Contrast Ratio (typical)
1000:1
Dynamic Contrast Ratio (typical)
3M:1
Color Gamut
> 99% sRG

CONNECTIVITY
Video Signal
1 x HDMI 1.4
1 x DP 1.2
Audio Signal
1 x Audio Port (3.5 mm)

SPECIAL FEATURES
Tiny Support
Yes

POWER
Power Consumption (typical/max)
35W / 45W
Power Consumption Sleep/Off Mode
< 0.5W
Power Consumption Switch-off Mode
< 0.3W
Power Supply
Internal
Energystar Power Consumption (Pon/E_TEC)
19 W / 59.6 kWh
Voltage Required
AC 100 to 240 VAC (50/60 Hz)

MECHANICAL
Tilt Angle (front/back)
-5° / 22°
VESA Mount Capability
Yes (100 x 100 mm)

Kensington™ Lock Slot
Yes
Cable Management
Yes
Bezel Color
Raven Black
Bezel Width (side)
2 mm
Bezel Width (top/bottom)
2 / 22 mm

DIMENSION
Size Packed (D x H x W, mm/inch)
132 x 455 x 715 mm / 5.20 x 17.91 x 28.15 inches
Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
220 x 444.6 x 613.6 mm / 8.66 x 17.50 x 24.15 inches
Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
220 x 444.6 x 613.6 mm / 8.66 x 17.50 x 24.15 inches
Size Unpacked w/o Stand (D x H x W, mm/inch) (head only)
42 x 367.6 x 613.6 mm / 1.65 x 14.47 x 24.15 inches
Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
99 mm
Max. Distance from Table to Panel (highest pixel at top of screen, mm)
442.2 mm
Weight Packed (kg/lb)
6.36 kg / 14.02 lbs.

WHAT’S IN THE BOX
Monitor with stand
1 x Audio Port (3.5 mm)
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATION
ENERGY STAR® Rating
8.0
CCC
Yes
TCO
8.0
EPEAT™
Silver
RoHS (EU 2002/95/EC)
Yes
Windows Certification
Window 7, Window 10
China Energy Efficiency Standard
Tier 1
TÜV Eye Comfort
Yes

Weight (monitor head only) (kg/lb)
4.10 kg / 9.04 lbs.
Full Container Load (40' STD / 20' STD)
1088 / 544 units

WHAT’S IN THE BOX
1 x Quick setup guide
1 x 1 x HDMI cable (1.8 m)
1 x Power cable (1.8 m)
1 x Monitor with stand

CONNECTIVITY
1 x Audio Port (3.5 mm)
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Monitor with stand
Quick setup guide

SPECIFICATIONS
Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications. - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

Specifications may vary depending upon region.

Dependent on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications. - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

Specifications may vary depending upon region.
**ThinkVision S28u-10**

### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>28-inch</td>
</tr>
<tr>
<td>Screen Dimensions</td>
<td>631.928 mm x 359.78 mm</td>
</tr>
<tr>
<td>Panel Type</td>
<td>3-side NearEdgeless, In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Refresh Rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Pixel Pitch (H x V)</td>
<td>0.1617 x 0.1580</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch (DPI/PPI)</td>
<td>157.35</td>
</tr>
<tr>
<td>Viewing Angle (H x V @ CR 10:1)</td>
<td>178° / 178°</td>
</tr>
<tr>
<td>Response Time</td>
<td>4ms (Extreme Mode) / 6ms (Normal Mode)</td>
</tr>
<tr>
<td>Brightness (typical)</td>
<td>300 cd/m²</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
</tr>
<tr>
<td>Color Gamut</td>
<td>99% sRGB, 90% DCI-P3</td>
</tr>
</tbody>
</table>

**CONNECTIVITY**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Support (typical)</td>
<td>1.07 Billion</td>
</tr>
<tr>
<td>Size Unpacked w/o stand (D x H x W) (mm/inch) (Highest position)</td>
<td>229.99 x 450.82 x 636.94 mm / 9.05 x 17.72 x 25.08 inches</td>
</tr>
<tr>
<td>Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)</td>
<td>49.2 x 373.68 x 636.94 mm / 1.94 x 14.71 x 25.08 inches</td>
</tr>
<tr>
<td>Audio Signal</td>
<td>1 x Audio Out (3.5mm)</td>
</tr>
<tr>
<td>Power Consumption Sleep/Off Mode</td>
<td>&lt;0.3W</td>
</tr>
<tr>
<td>Power Consumption Switch Off-Mode</td>
<td>&lt;0.3W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Internal</td>
</tr>
<tr>
<td>Energystar Power Consumption</td>
<td>28W / 87kwh</td>
</tr>
<tr>
<td>VESA Mount Capability</td>
<td>Yes</td>
</tr>
<tr>
<td>Tilt Angle (front/back)</td>
<td>-5° / 22°</td>
</tr>
</tbody>
</table>

**POWER**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption (Typical/Max)</td>
<td>28W / 48W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Internal</td>
</tr>
<tr>
<td>Voltage Required</td>
<td>AC 90 to 264 V (50/60 Hz)</td>
</tr>
</tbody>
</table>

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed (D x H x W) (mm/inch)</td>
<td>127 x 723 x 452 mm / 5 x 28.46 x 17.80 inches</td>
</tr>
<tr>
<td>Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest position)</td>
<td>229.99 x 450.82 x 636.94 mm / 9.05 x 17.72 x 25.08 inches</td>
</tr>
<tr>
<td>Bezel Width (side)</td>
<td>2.0 mm</td>
</tr>
<tr>
<td>Bezel Width (top/bottom)</td>
<td>2.0 / 22.8 mm</td>
</tr>
</tbody>
</table>

### SPECIAL FEATURES

- Anti-glare
- ThinkCentre Tiny Support
- MECHANICAL
  - Kensington™ Lock Slot
  - TUV Rheinland Eye Comfort

### WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power cable (1.8 m)
- 1 x HDMI cable (1.8 m)
- Quick setup guide

### CERTIFICATIONS

- ENERGY STAR® Rating
  - 8.0
- CCC
  - Yes
- TCO
  - 8.0
- TCO Edge
  - 2.0
- EPEAT™ Silver
- RoHS (EU 2002/95/EC)
  - Yes
- Windows Certification
  - Windows 7, Windows 10
- China Energy Efficiency Standard
  - Tier 2
- TÜV Rheinland Eye Comfort
  - Yes

### ENERGY STAR® Rating

- 8.0

### Windows Certification

- Windows 7, Windows 10

### China Energy Efficiency Standard

- Tier 2

### TÜV Rheinland Eye Comfort

- Yes

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
ThinkVision T25d-10

**DISPLAY**
- **Panel Size:** 25.0 inches
- **Screen Dimensions (H x V):** 533.45 x 338.76mm
- **Panel Type:** In-Plane Switching
- **Backlight:** WLED
- **Aspect Ratio:** 16:10
- **Resolution:** 1920 x 1200 pixels
- **Refresh Rate:** 60Hz
- **Pixel Pitch (H x V):** 0.2789 x 0.2823mm
- **Viewing Angle (H x V):** 178°/178°
- **Response Time (gray to gray):** 4ms (extreme mode), 6ms (normal mode)
- **Contrast Ratio (typical):** 1000:1
- **Dynamic Contrast Ratio (typical):** 3M:1
- **Brightness (typical):** 300 cd/m²
- **Color Gamut sRGB (CIE 1931):** 99%

**CONNECTIVITY**
- **Video Input Signals:** HDMI 1.4 + DP 1.2 + VGA
- **Video Cables Supplied:** DP + HDMI*
- **Video Cable Length:** 1.8m
- **USB Hub:** Yes
- **USB Upstream:** 1 x USB 3.1 Gen1
- **USB Downstream:** 4 x USB 3.1 Gen1 (with 1 BC)
- **Audio Out:** Yes (3.5mm)

**POWER**
- **Power Consumption (Typical/Max):** 25W/66W
- **Power Consumption Sleep/Off Mode:** <0.5W
- **Power Consumption Switch Off-Mode:** <0.3W
- **Power Supply:** Internal
- **ENERGY STAR® (Pₘₙ):** 16.54W
- **ENERGY STAR® (Eᵢₚ):** 52.06kWh
- **Voltage Required:** 100-240VAC (50/60Hz)

**DIMENSIONS**
- **Size Packed (D x H x W):** 706 x 450 x 160mm/
  27.79 x 17.72 x 6.30 inches
- **Size Unpacked w/stand (D x H x W)(mm/ inch):**
  260.4 x 399.5 x 548.7mm/
  10.25 x 15.73 x 21.60 inches
- **Size Unpacked w/stand (D x H x W)(mm/ inch):**
  260.4 x 509.5 x 548.7mm/
  10.25 x 20.06 x 21.60 inches
- **Size Unpacked w/o stand (D x H x W)(mm/ inch):**
  43.0 x 369.1 x 548.7mm/
  1.69 x 14.53 x 21.60 inches
- **Weight Packed:** 7.8kg/17.20lbs.
- **Weight Unpacked:** 5.5kg/12.13lbs.
- **Weight (Monitor Head Only):** 3.58kg/7.89lbs.

**SPECIAL FEATURES**
- **Anti-glare:** Yes
- **Optional Soundbar Support:** Yes
- **ThinkCentre Tiny Support:** Yes
- **MECHANICAL**
  - **Tilt Angle (front/back):** -5°/30°
  - **Swivel Angle (left/right):** +/-45°
  - **Lift:** Yes (110mm)
  - **Pivot:** +/-90°
  - **VESA Mount Capability:** Yes (100 x 100mm)
  - **Kensington™ Lock Slot:** Yes
  - **Bezel Width (Side):** 2.0mm
  - **Bezel Width (top/bottom):** 2.0/22.2mm

**WHAT’S IN THE BOX**
- Monitor with stand
- 1 x Power Cable
- 1 x USB 3.1 Gen1 Cable
- 1 x HDMI™ Cable*
- 1 x DP Cable
- Quick Setup Guide

**CERTIFICATIONS**
- ENERGY STAR® Rating 7.1
- EU RoHS
- CCC
- TCO
  - TCO 8.0/TCO Edge 2.0
- Windows Certification
  - Windows 7, Windows 10
- China Energy Efficiency Standard
  - Tier 2
- TÜV Eye Comfort
  - Yes
- ULE
  - Gold

*For NA and LA only

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
## ThinkVision T25m-10

### DISPLAY
- **Panel Size**: 25.0 inches
- **Screen Dimensions (H x V)**: 535.45 x 338.76mm
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:10
- **Resolution**: 1920 x 1200 pixels
- **Pixel Pitch (H x V)**: 0.2789 x 0.2823mm
- **Viewing Angle (H x V)**: 178°/178°
- **Response Time (gray to gray)**: 4ms (extreme mode), 6ms (normal mode)
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Brightness (typical)**: 300 cd/m²
- **Color Gamut sRGB (CIE 1931)**: 99%
- **Color Support**: 16.7M

### CONNECTIVITY
- **Video Input Signals**: HDMI 1.4 + DP 1.2 + USB 3.1 Type-C™ (DP 1.2 Alt Mode)
- **Video Cables Supplied**: USB 3.1 Type-C™
- **Video Cable Length**: 1.8m
- **USB Hub**: Yes
- **USB Upstream**: 1 x USB 3.1 Gen1 (by USB Type-C™)
- **USB Downstream**: 4 x USB 3.1 Gen1 (with 1 BC)
- **Audio Out**: Yes (3.5mm)

### POWER
- **Power Consumption (Typical/Max)**: 30W/150W
- **Power Consumption Sleep/Off Mode (<0.5W)**
- **Power Consumption Switch Off-Mode (<0.3W)**
- **Power Supply**: Internal
- **ENERGY STAR® (P_{te})**: 17.05W

### ENERGY STAR® (E_{te})
- **63.12kWh**
- **Power Voltage**: 100-240VAC (50/60Hz)

### DIMENSIONS
- **Size Packed (D x H x W)**: 706 x 450 x 160mm/
  27.79 x 17.72 x 6.30 inches
- **Size Unpacked w/stand (D x H x W) (mm/ inch)**:
  - **(Lowest position)**: 260.4 x 399.5 x 548.7mm/
  10.25 x 15.73 x 21.60 inches
  - **(Highest position)**: 260.4 x 509.5 x 548.7mm/
  10.25 x 20.06 x 21.60 inches
- **Size Unpacked w/o stand (D x H x W) (mm/ inch)**:
  - **(Head Only)**: 43.0 x 369.1 x 548.7mm/
  1.69 x 14.53 x 21.60 inches
- **Weight Packed**: 7.8kg/17.20lbs.
- **Weight Unpacked**: 5.5kg/12.13lbs.
- **Weight (Monitor Head Only)**: 3.58kg/7.89lbs.

### SPECIAL FEATURES
- **Anti-glare**: Yes

### MECHANICAL
- **Pivot**: +/-90°
- **Swivel Angle (left/right)**: +/-45°
- **Tilt Angle (front/back)**: -5°/30°
- **Lift**: Yes (110mm)
- **VESA Mount Capability**: Yes (100 x 100mm)
- **Kensington™ Lock Slot**: Yes
- **ThinkCentre Tiny Support**: Yes
- **ThinkCentre Tiny**: Yes (3W x 2)
- **Smart Power**: Yes

### WHAT’S IN THE BOX
- Monitor with stand
- 1 x Power Cable
- 1 x USB Type-C™ to Type-C™ cable
- Quick Setup Guide

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**CERTIFICATIONS**
- ENERGY STAR® Rating: 7.1
- EU RoHS: Yes
- CCC: Yes
- TCO: TCO 8.0/TCO Edge 2.0
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- TÜV Eye Comfort: Yes
- ULE: Gold

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*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to other devices. 75W power delivery by USB Type-C can be achieved when downstream USB ports are not connected and OSD brightness setting is <31.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
## ThinkVision T27h-20

### DISPLAY
- **Panel Size**: 27-inch
- **Screen Dimensions**: 596.74 mm x 335.66 mm
- **Panel Type**: 3-side NearEdgeless InPlane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 2560 x 1440
- **Pixel Pitch**: 0.2331 x 0.2331 mm
- **Dot/Pixel Per Inch (DPI/PPi)**: 109
- **Viewing Angle (H x V @ CR 10:1)**: 178° / 178°
- **Response Time**: 4ms (extreme mode), 6ms (normal mode)
- **Refresh Rate**: 60 Hz
- **Brightness (typical)**: 350 cd/m²
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut**: 99% sRGB

### CONNECTIVITY
- **Color Support (typical)**: 16.7 Million
- **USB Type-C Power Delivery (W)**: up to 75W*
- **USB Hub**: Yes
- **USB Upstream**: 1 x USB 3.1 Gen1 (by USB Type-C)
- **USB Downstream**: 4 x USB 3.1 Gen1 (1 BC)
- **Power Supply**: Internal

### MECHANICAL
- **Power Consumption (typical/max)**: 23W / 122W
- **Power Consumption Sleep/Off Mode**: < 0.5W
- **Power Consumption Switch-off Mode**: < 0.3W
- **Energystar Power Consumption (P_{\text{E}_{\text{T}_{\text{EC}}}})**: 18.1W / 57.6kWh
- **Size Unpacked w/ Stand (D x H x W, mm/inch)**: 614 x 429.4 x 208 mm
- **Size Unpacked w/o Stand (D x H x W, mm/inch)**: 614 x 429.4 x 208 mm
- **Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)**: 614 x 369.1 x 46.7 mm
- **Tilt Angle (front/back)**: -5° / 35°
- **Swivel Angle (left/right)**: +45° / -45°
- **Lift (max range)**: 135 mm
- **Pivot**: -90° / 90°
- **Max. Distance from Table to Panel (highest pixel at top of screen, mm)**: 564.4 mm
- **Weight Packed (kg/lbs.)**: 9.75 kg / 21.50 lbs.
- **Weight Unpacked (kg/lbs.)**: 7.6 kg / 16.76 lbs.
- **Weight (monitor head only) (kg/lbs.)**: 5.09 kg / 11.22 lbs.
- **Full Container Load (40' STD / 20' STD)**: 952 / 448 units

### MECHANICAL
- **Tilt Angle (front/back)**: -5° / 35°
- **Swivel Angle (left/right)**: +45° / -45°
- **Lift (max range)**: 135 mm
- **Pivot**: -90° / 90°
- **Max. Distance from Table to Panel (highest pixel at top of screen, mm)**: 564.4 mm

### POWER
- **Bezel Color**: Raven Black
- **Bezel Width (side)**: 2 mm
- **Bezel Width (top/bottom)**: 2 / 23.87 mm

### WHAT'S IN THE BOX
- Monitor with stand
- 1 x Power cable (1.8 m)
- 1 x DP cable (1.8 m) (NA & LA only)
- 1 x USB Type-C to Type-C cable (1.8 m)
- 1 x USB Type-C to Type-A cable (1.8 m) (NA & LA only)
- Quick setup guide

### CERTIFICATION
- **ENERGY STAR Rating**: 8.0
- **CCC**: Yes
- **TCO**: 8.0
- **TCO Edge**: 2.0
- **EPEAT**: Silver
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 1
- **TÜV Rheinland Eye Comfort**: Yes

* Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness settings.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
## DISPLAY

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>27 inch</td>
</tr>
<tr>
<td>Screen Dimensions (H x V) (mm)</td>
<td>597.89 (H) × 336.31 (V)</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Resolution</td>
<td>1920 x 1080</td>
</tr>
<tr>
<td>Pixel Pitch (H x V) (mm)</td>
<td>0.3110 × 0.3110</td>
</tr>
<tr>
<td>Viewing angle (H x V)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Response Time (gray to gray)</td>
<td>4 ms (extreme mode)</td>
</tr>
<tr>
<td></td>
<td>6 ms (normal mode)</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
</tr>
<tr>
<td>Color Gamut NTSC (CIE 1931)</td>
<td>72%</td>
</tr>
<tr>
<td>Color Support</td>
<td>16.7M</td>
</tr>
</tbody>
</table>

## CONNECTIVITY

<table>
<thead>
<tr>
<th>Video Input Signals</th>
<th>VGA + HDMI 1.4 + DP 1.2</th>
</tr>
</thead>
</table>

| USB Hub                   | Yes                                          |
| 1 x USB 3.0 (Upstream)    |                                              |
| 4 x USB 3.0 (Downstream, incl. 1BC) |                                              |

| Cable Length              | 1.8 m                                        |
| Audio Out                 | Yes (3.5 mm)                                 |

| Power Consumption         | 22W (Typical) / 58W (max) at On mode; <0.5W at Sleep mode; <0.3W at Switch off mode |

## SPECIAL FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
<tr>
<td>Thin Client Support (Tiny)</td>
<td>Yes (by Tiny Clamp Bracket Kit+VESA mount PN:4XF0N82412+ PN:4XF0N03161)</td>
</tr>
</tbody>
</table>

## MECHANICAL

| Tilt Angle (front/back)         | -5°/30°                                      |
| Swivel Angle (left/right)       | -45°/+45°                                    |
| Lift (Max range)                | 110 mm                                       |
| Pivot                           | -90°/+90°                                    |
| VESA Mount                      | Yes (100 mm)                                 |
| Kensington™ Lock Slot           | Yes                                          |
| Cable Management                | Yes                                          |
| Bezel Color                     | Raven Black                                  |
| Bezel Width (Side)              | 2.0 mm                                       |

## WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power cable
- 1 x VGA cable
- 1 x DP-DP cable
- 1 x HDMI cable (NA only)
- 1 x USB 3.0 cable
- Quick setup guide

## CERTIFICATIONS

- ENERGY STAR Rating: 7.0
- CCC: Yes
- TCO: 7.0
- EPEAT™: Silver
- ULE: Gold
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- Ambient Operating Temperature: 0°C to 40°C
- Eye Comfort Certification: Yes

Specifications may vary depending upon region.
## ThinkVision T27p-10

### DISPLAY

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>27.0 inches</td>
</tr>
<tr>
<td>Screen Dimensions (H x V)</td>
<td>596.74 x 335.66mm</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 2160 pixels</td>
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<tr>
<td>Pixel Pitch (H x V)</td>
<td>0.1554 x 0.1554mm</td>
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<tr>
<td>Viewing Angle (H x V)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Response Time (gray to gray)</td>
<td>4ms (extreme mode) 6ms (normal mode)</td>
</tr>
<tr>
<td>Refresh Rate</td>
<td>60Hz</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
</tr>
<tr>
<td>Brightness (typical)</td>
<td>350 cd/m²</td>
</tr>
<tr>
<td>Color Gamut sRGB (CIE 1931)</td>
<td>99%</td>
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<tr>
<td>Color Support</td>
<td>1.07 Billion</td>
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### POWER

<table>
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<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Power Consumption (Typical/Max)</td>
<td>50W/140W</td>
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<tr>
<td>Power Consumption Sleep/Off Mode</td>
<td>&lt;0.5W</td>
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<tr>
<td>Power Consumption Switch Off-Mode</td>
<td>&lt;0.3W</td>
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<tr>
<td>Power Supply Internal</td>
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<tr>
<td>ENERGY STAR® (P_{in})</td>
<td>23.40W</td>
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<tr>
<td>ENERGY STAR® (E_{in})</td>
<td>101.94kWh</td>
</tr>
<tr>
<td>Voltage Required</td>
<td>100-240VAC (50/60Hz)</td>
</tr>
</tbody>
</table>

### CONNECTIVITY

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>HDMI 2.0 + DP 1.2 + USB 3.1 Type-C™ (DP 1.2 Alt Mode)</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>USB 3.1 Type-C™ + HDMI</td>
</tr>
<tr>
<td>Video Cable Length</td>
<td>1.8m</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes</td>
</tr>
<tr>
<td>USB Upstream</td>
<td>1 x USB 3.1 Gen1 (by USB Type-C™)</td>
</tr>
<tr>
<td>USB Downstream</td>
<td>4 x USB 3.1 Gen1 (with 1 BC)</td>
</tr>
<tr>
<td>Audio Out</td>
<td>Yes (3.5mm)</td>
</tr>
</tbody>
</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (front/back)</td>
<td>-5°/30°</td>
</tr>
<tr>
<td>Swivel Angle (left/right)</td>
<td>+/-45°</td>
</tr>
<tr>
<td>Lift</td>
<td>Yes (110mm)</td>
</tr>
<tr>
<td>Pivot</td>
<td>+/-90°</td>
</tr>
<tr>
<td>VESA Mount Capability</td>
<td>Yes (100 x 100mm)</td>
</tr>
<tr>
<td>Kensington™ Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Width (Side)</td>
<td>2.0mm</td>
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<tr>
<td>Bezel Width (top/bottom)</td>
<td>2.0/24.5mm</td>
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</table>

### SPECIAL FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Power*</td>
<td>Yes</td>
</tr>
<tr>
<td>Anti-glare</td>
<td>Yes</td>
</tr>
<tr>
<td>ThinkCentre Tiny Support</td>
<td>Yes</td>
</tr>
<tr>
<td>Optional Soundbar Support</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power Cable
- 1 x HDMI Cable
- 1 x USB Type-C™ to Type-C™ cable
- Quick Setup Guide

### CERTIFICATIONS

- ENERGY STAR® Rating: 7.1
- EU RoHS: Yes
- CCC: Yes
- Windows Certification: Windows 7, Windows 10
- China Energy Efficiency Standard: Tier 2
- TÜV Eye Comfort: Yes
- TCO: TCO 8.0/TCO Edge 2.0
- ULE: Gold

*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to each device. 75W power delivery can be achieved when downstream USB ports are not connected and OSD brightness setting is <60%.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
### DISPLAY

- **Panel Size**: 27-inch
- **Screen Dimensions**: 596.74 mm x 335.66 mm
- **Panel Type**: 3-side NearEdgeless In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 2560 x 1440
- **Pixel Pitch**: 0.2331 x 0.2331 mm
- **Dot/Pixel Per Inch (DPI/PPI)**: 109
- **Viewing angle (H x V @ CR 10:1)**: 178° / 178°
- **Response Time**:
  - 4ms (extreme mode)
  - 6ms (normal mode)
- **Refresh Rate**: 60 Hz
- **Brightness (typical)**: 350 cd/m²
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Color Gamut**: 99% sRGB
- **Color Support (typical)**: 16.7 Million
- **Anti-glare**: Yes

### CONNECTIVITY

- **Video Signal**: 1 x HDMI 1.4
- **Audio Signal**: 1 x Audio Out (3.5 mm)
- **USB Hub**: Yes
- **USB Upstream**: 1 x USB 3.1 Gen1 (by USB Type-B)
- **USB Downstream**: 4 x USB 3.1 Gen1 (1 BC)
- **Power Consumption (typical/max)**: 23W / 65W
- **Power Consumption Sleep/Off Mode**: < 0.5W
- **Power Consumption Switch-off Mode**: < 0.3W
- **EnergyStar Power Consumption (Pw/Erms)**: 17.4W / 54.4kWh

### MECHANICAL

- **Tilt Angle (front/back)**: -5° / 35°
- **Swivel Angle (left/right)**: +45° / -45°
- **Lift (max range)**: 135 mm
- **Pivot**: -90° / 90°
- **VESA Mount Capability**: Yes (100 x 100 mm)
- **Kensington Lock Slot**: Yes
- **Bezel Color**: Raven Black
- **Bezel Width (side)**: 2 mm
- **Bezel Width (top/bottom)**: 2 / 23.87 mm

### DIMENSION

- **Size Unpacked w/ Stand (D x H x W, mm/inch)**:
  - (highest position): 614 x 564.4 x 208 mm
  - 24.17 x 22.22 x 8.19 inches
- **Size Unpacked w/o Stand (head only)**:
  - (D x H x W, mm/inch): 614 x 369.1 x 46.7 mm
  - 24.17 x 14.53 x 1.84 inches
- **Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)**: 85.2 mm
- **Max. Distance from Table to Panel (highest pixel at bottom of screen, mm)**: 564.4 mm
- **Weight Packed (kg/lbs.)**: 9.59 kg / 21.14 lbs.
- **Weight Unpacked (kg/lbs.)**: 7.44 kg / 16.4 lbs.
- **Weight (Monitor Head Only) (kg/lbs.)**: 4.93 kg / 10.87 lbs.

### WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power Cable (1.8 m)
- 1 x DP cable (1.8 m)
- 1 x USB Type-B to Type-A cable (1.8 m)
- Quick setup guide

### POWER

- **Internal Power Supply**: 17.4W / 54.4kWh
- **AC 100 to 240 V (50/60 Hz)**

### MECHANICAL

- **Swivel Angle (left/right)**: +45° / -45°
- **Lift (max range)**: 135 mm
- **Pivot**: -90° / 90°
- **VESA Mount Capability**: Yes (100 x 100 mm)

### DIMENSION

- **Size Unpacked w/ Stand (D x H x W, mm/inch)**:
  - (highest position): 614 x 564.4 x 208 mm
  - 24.17 x 22.22 x 8.19 inches
- **Size Unpacked w/o Stand (head only)**:
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### WHAT’S IN THE BOX

- Monitor with stand
- 1 x Power Cable (1.8 m)
- 1 x DP cable (1.8 m)
- 1 x USB Type-B to Type-A cable (1.8 m)
- Quick setup guide

### CERTIFICATION

- **ENERGY STAR Rating**: 8.0
- **CCC**: Yes
- **TCO**: 8.0
- **TCO Edge**: 2.0
- **EPEAT**: Silver
- **RoHS (EU 2002/95/EC)**: Yes
- **Windows Certification**: Windows 7, Windows 10
- **China Energy Efficiency Standard**: Tier 1
- **TÜV Rheinland Eye Comfort**: Yes

### SPECIFICATIONS

- **Color Support (typical)**: 16.7 Million
- **Anti-glare**: Yes
- **Video Signal**: 1 x HDMI 1.4
- **Audio Signal**: 1 x Audio Out (3.5 mm)
- **USB Hub**: Yes
- **USB Upstream**: 1 x USB 3.1 Gen1 (by USB Type-B)
- **USB Downstream**: 4 x USB 3.1 Gen1 (1 BC)
- **Power Consumption (typical/max)**: 23W / 65W
- **Power Consumption Sleep/Off Mode**: < 0.5W
- **Power Consumption Switch-off Mode**: < 0.3W
- **EnergyStar Power Consumption (Pw/Erms)**: 17.4W / 54.4kWh

### DEPENDENCIES

- Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications. 
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Specifications may vary depending upon region.
## ThinkVision T32h-20 Monitor

### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>31.5-inch</td>
</tr>
<tr>
<td>Screen Dimensions</td>
<td>698.11 mm x 392.69 mm</td>
</tr>
<tr>
<td>Panel Type</td>
<td>3-side NearEdgeless In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16.9</td>
</tr>
<tr>
<td>Resolution</td>
<td>2560 x 1440</td>
</tr>
<tr>
<td>Pixel Pitch</td>
<td>0.2727 x 0.2727 mm</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch (DPI/PPi)</td>
<td>94</td>
</tr>
<tr>
<td>Viewing Angle (H x V @ CR 10:1)</td>
<td>178° / 178°</td>
</tr>
<tr>
<td>Response Time</td>
<td>4 ms (extreme mode) / 6 ms (normal mode)</td>
</tr>
<tr>
<td>Refresh Rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Brightness (typical)</td>
<td>350 cd/m²</td>
</tr>
<tr>
<td>Contrast Ratio (typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio (typical)</td>
<td>3M:1</td>
</tr>
<tr>
<td>Color Gamut</td>
<td>99% sRGB</td>
</tr>
</tbody>
</table>

### CONNECTIVITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Signal</td>
<td>1 x USB Type-C Gen1 (DP 1.2 Alt Mode)</td>
</tr>
<tr>
<td>USB Upstream</td>
<td>1 x USB 3.1 Gen1 (by USB Type-C)</td>
</tr>
<tr>
<td>USB Downstream</td>
<td>4 x USB 3.1 Gen1 (1 BC)</td>
</tr>
<tr>
<td>Audio Signal</td>
<td>1 x Audio out (3.5 mm)</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes</td>
</tr>
<tr>
<td>USB Upstream</td>
<td>1 x USB 3.1 Gen1</td>
</tr>
<tr>
<td>USB Downstream</td>
<td>4 x USB 3.1 Gen1 (1 BC)</td>
</tr>
<tr>
<td>Power Consumption (typical/ max)</td>
<td>28W / 138W</td>
</tr>
<tr>
<td>Power Consumption Sleep/ Off Mode</td>
<td>&lt; 0.5W</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width (side)</td>
<td>2.0 mm</td>
</tr>
<tr>
<td>Bezel Width (top/bottom)</td>
<td>2.0 / 24.12 mm</td>
</tr>
</tbody>
</table>

### MECHANICAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (front/back)</td>
<td>-5° / 35°</td>
</tr>
<tr>
<td>Swivel Angle (left/right)</td>
<td>-45° / 45°</td>
</tr>
<tr>
<td>Pivot</td>
<td>-90° / 90°</td>
</tr>
<tr>
<td>VESA Mount Capability</td>
<td>Yes (100 x 100 mm)</td>
</tr>
<tr>
<td>Kensington Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Power Consumption Switch-off Mode</td>
<td>&lt; 0.5W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Internal</td>
</tr>
<tr>
<td>USB Type-C Power Delivery (W)</td>
<td>up to 75 W*</td>
</tr>
<tr>
<td>Size Unpacked w/ Stand (D x H x W, mm/inch)</td>
<td>(highest position) 235.0 x 604.4 x 714.6 mm / 9.25 x 23.79 x 28.13 inches</td>
</tr>
<tr>
<td>Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)</td>
<td>714.6 x 426.0 x 51.0 mm / 28.13 x 16.77 x 2.01 inches</td>
</tr>
<tr>
<td>Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)</td>
<td>69.2 mm</td>
</tr>
<tr>
<td>Max. Distance from Table to Panel (highest pixel at top of screen, mm)</td>
<td>461.8 mm</td>
</tr>
<tr>
<td>Weight Packed (kg/lbs.)</td>
<td>12.96 kg / 28.57 lbs.</td>
</tr>
<tr>
<td>Weight Unpacked (kg/lbs.)</td>
<td>9.85 kg / 21.72 lbs.</td>
</tr>
<tr>
<td>Weight (monitor head only)</td>
<td>(kg/lbs.) 6.78 kg / 14.95 lbs.</td>
</tr>
<tr>
<td>Full Container Load (40' STD / 20' STD)</td>
<td>672 / 320 units</td>
</tr>
</tbody>
</table>

### MEASUREMENTS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Distance from Table to Panel</td>
<td>(highest pixel at top of screen, mm)</td>
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</tr>
<tr>
<td>Weight (monitor head only)</td>
<td>6.78 kg / 14.95 lbs.</td>
</tr>
</tbody>
</table>

### WHAT'S IN THE BOX

- Monitor with stand
- 1 x Power cable (1.8 m)
- 1 x DP cable (1.8 m) (NA & LA only)
- 2 x USB Type-C to Type-A cable (1.8 m) (NA & LA only)
- 1 x USB Type-C to Type-C cable (1.8 m)
- Quick setup guide

### CERTIFICATION

- EPEAT: Silver
- RoHS (EU 2002/95/EC): Yes
- China Energy Efficiency Standard: Tier 1
- TÜV Rheinland Eye Comfort: Yes
- Windows Certification: Windows 7, Windows 10

*Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: ~ 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
### ThinkVision T32p-20

#### DISPLAY
- **Panel Size**: 31.5-inch
- **Screen Dimensions**: 698.11 mm x 392.69 mm
- **Panel Type**: 3-side NearEdgeless In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 3840 x 2160
- **Pixel Pitch**: 0.1816 x 0.1816 mm
- **Dot/Pixel Per Inch (DPI/PPI)**: 140
- **Viewing Angle (H x V @ CR 10:1)**: 178° / 178°
- **Response Time**: 6ms (normal mode)
  4ms (extreme mode)
- **Refresh Rate**: 60 Hz
- **Brightness (typical)**: 350 cd/m²
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1

#### Color Gamut
- 99% sRGB
- 1.07 Billion

#### Anti-glare
- Yes

#### CONNECTIVITY
- **Video Signal**
  - 1 x USB Type-C Gen1 (DP1.2 Alt Mode)**
  - 1 x HDMI 2.0
  - 1 x DP 1.2
- **Audio Signal**
  - 1 x Audio Out (3.5 mm)
- **USB Hub**
  - Yes
- **USB Upstream**
  - 1 x USB3.1 Gen1 (by USB Type-C)
- **USB Downstream**
  - 4 x USB3.1 Gen1 (1 BC)

#### MECHANICAL
- **Power Consumption (typical/max)**
  - 39W / 135W
- **Power Consumption Sleep/Off Mode**
  - < 0.3W
- **Power Consumption Switch-off Mode**
  - < 0.3W

#### ENERGY STAR Power Consumption
- P on / P off: 26.3W / 84.9kWh

#### POWER
- **Power Supply Internal**
- **USB Type-C power delivery (W)**
  - up to 75W*
- **Smart Power**
  - Yes
- **Voltage Required**
  - AC 100 to 240 V (50-60 Hz)
- **Tilt Angle (front/back)**
  - -5° / 35°
- **Swivel Angle (left/right)**
  - +45° / -45°
- **Lift (max range)**
  - 135 mm
- **Pivot**
  - -90° / 90°
- **VESA Mount Capability**
  - Yes (100 x 100 mm)
- **Kensington Lock Slot**
  - Yes
- **Bezel Color**
  - Raven Black
- **Bezel Width (side)**
  - 2.0 mm
- **Bezel Width (top/bottom)**
  - 2.0 / 24.12 mm

#### MECHANICAL
- **Size Packed**
  - (D x H x W, mm/ inch)
  - 190 x 528 x 845 mm
  - 7.48 x 20.79 x 32.27 inches
- **Size Unpacked w/ Stand**
  - (D x H x W, mm/ inch) (lowest position)
  - 235.0 x 469.4 x 714.6 mm
  - 9.25 x 18.48 x 28.13 inches
- **Size Unpacked w/ Stand**
  - (D x H x W, mm/ inch) (highest position)
  - 235.0 x 604.4 x 714.6 mm
  - 9.25 x 23.79 x 28.13 inches
- **Min. Distance from Table to Panel**
  - (lowest pixel at bottom of screen, mm)
  - 69.2 mm
- **Max. Distance from Table to Panel**
  - (highest pixel at top of screen, mm)
  - 461.8 mm

#### WHAT'S IN THE BOX
- Monitor with stand
  - 1 x Power cable (1.8 m)
  - 1 x DP cable (1.8 m)
  - (NA&LA only)
  - 1 x USB Type-C to Type-C cable (1.8 m)
  - 1 x USB Type-C to Type-A cable (1.8 m) (NA&LA only)
  - Quick setup guide

#### SPECIFICATIONS
- **Panel Size**: 31.5-inch
- **Screen Dimensions**: 698.11 mm x 392.69 mm
- **Panel Type**: 3-side NearEdgeless In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 3840 x 2160
- **Pixel Pitch**: 0.1816 x 0.1816 mm
- **Dot/Pixel Per Inch (DPI/PPI)**: 140
- **Viewing Angle (H x V @ CR 10:1)**: 178° / 178°
- **Response Time**: 6ms (normal mode)
  4ms (extreme mode)
- **Refresh Rate**: 60 Hz
- **Brightness (typical)**: 350 cd/m²
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1

*Listed as the maximum capacity of power delivery. The actual capacity of power delivery may vary depending upon devices connected or monitor configuration and may decline with downstream USB ports connected or higher brightness settings.

**When connecting one cable USB Type-C at 4K 60Hz, the USB downstream will be USB2.0 by default due to technical limitations. Users can still use USB 3.0 by selecting in OSD and as a result, the display will be adjusted to 4K 30Hz.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.
Lenovo ThinkVision X1

**Name**
X1 Wide Flat Panel Monitor

**Case color**
Black

**Type-model**
60E2GAR1US / 60E2GAT1US / 60E2GAT1EU

**Panel**
TFT-LCD, IPS (In-Plane Switching), White LED backlight

**Viewable image size**
27" (684.7mm) diagonal

**Max view area (W x H)**
23.49" x 13.21" (596.7mm x 335.7mm)

**Optimum resolution**
3840x2160

**Max pixel rate**
600MHz

**Aspect ratio**
16:9

**Pixel pitch (mm)**
0.16 x 0.16mm

**Brightness**
300 nits or cd/m² (typical)

**Contrast ratio**
1300:1 (typical)

**Pixel response time**
6ms

**Color gamut**
99%

**Viewing angle at 10:1 CR**
178° horizontal, 178° vertical

**Stand**
Tilt stand

**Bezel width**
Sides: 0.088" (2.23mm)

**Dimensions**
24.19" x 19.35" x 10.63" (614.5mm x 491.4mm x 270.0mm)

**Power supply**
40 watts typical, 130 watts maximum (with USB), <0.5 watts sleep/off, <0.5 watts switch off

**Weight**
14.11 lb; 6.40kg (including stand)

**Limited warranty**
3 year

**Available date**
March 2016

**VESA-compliant**
VESA DDC2B/Ci

**Power management**
ENERGY STAR® 7.0

**Ergonomics**
ISO 9241-307

**Emission standards**
FCC Class B

**Environmental**
TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold

**Presets / user settings**
Standard presets: 20; user settings: 20

**Viewing adjustments**
Tilt: 22° back, -5° forward;

**Rotating screen**
None

**On screen display**
On screen display with digital user controls (8 languages)

**Control features**
Direct access (touch buttons on front) for menu, mute, volume up/down, and brightness

**USB hub**
USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports

**Multimedia**
Integrated stereo speakers (3 watts x 2), built-in microphone

**Camera**
Full HD camera with LED light

**Multiple input**
Support HDMI, DisplayPort

**Monitor connectors**
(1) HDMI (1.4), digital, HDCP-compliant
(2) DisplayPort (1.2), digital, HDCP-compliant

**Signal cables**
(1) detachable, HDMI at each end, digital, 1.8 meter
(2) detachable, DisplayPort at each end, digital, 1.8 meter

**Mounting features**
Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Security**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Ship group**
Monitor, detachable stand, Quick start and safety poster, 1.8 meter DisplayPort cable, 1.8 meter HDMI cable, 1.8 meter USB Type-C cable, 1.8 meter USB Type-C to Type-A cable, 1.8 meter black power cord, mini DP to DP adapter, power adapter (135W)

**Limited Warranty**

**Accessories**

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)

See footnotes for important warranty information © Lenovo (X1) March 2016
THE MILESTONE OF X-SERIES, 27” FULL-SCREEN, 4K, THUNDERBOLT™ 3 MONITOR.

Pushing the limit of screen share ratio with innovative technology, the 27” Lenovo™ ThinkVision® X1 (2nd GEN) display brings full-screen and ultra-slim appearance in elegant design. With 4K resolution and >99% sRGB color gamut, you will be assured of excellent watching experience and Thunderbolt™ 3 interface will bring the best user experience. "Motor" camera is first used on monitor, which will move up and down automatically and with it you will own standard VoIP system.

WHY YOU SHOULD BUY THE LENOVO THINKVISION X1 (2nd GEN) MONITOR

**Full-screen appearance**
With world’s slimmest (4.7 mm) 27” 4K TBT monitor you will experience full-screen 4-side Near-Edgeless display with the screen ratio of approximately 93%. The monitor also comes with a metal stand and a base.

**Brilliant performance**
The 4K UHD IPS screen displays 3840 x 2160 resolution at 60 Hz, 99% sRGB color gamut, 10-bit depth, with 1.07 billion color support assures you stunning visuals and superb color experience.

**Convenient user experience**
Total versatility with Thunderbolt™ 3 interface supporting 4K + USB 3.0 & 45W PD + motor-camera with dual-array microphone. A Think RedDot tracking button is integrated in the back cover.

THE LENOVO THINKVISION X1 (2nd GEN) MONITOR IS BEST SUITED FOR

1. The Executives and CXO of company.
2. SOHO and Gold Collars with high income.
3. Trendsetters who pursue an extreme and forefront monitor.
## Display Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>27&quot;</td>
</tr>
<tr>
<td>Panel Type</td>
<td>IPS</td>
</tr>
<tr>
<td>Brightness</td>
<td>VCESD</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 (H) x 2160 (V)</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
<tr>
<td>Screen Dimensions (W x H)</td>
<td>(mm)</td>
</tr>
<tr>
<td>Maximum Brightness (Typical)</td>
<td>996.7 (H) x 335.7 (V)</td>
</tr>
<tr>
<td>Viewing Angle (H/V at CR 10:1)</td>
<td>178°/178°</td>
</tr>
<tr>
<td>Contrast Ratio (Typical)</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio</td>
<td>3M:1</td>
</tr>
<tr>
<td>Pixel Pitch (W x H) (mm)</td>
<td>0.1554 x 0.1554</td>
</tr>
<tr>
<td>Dot/ Pixel Per Inch (DP/PPi)</td>
<td>163</td>
</tr>
<tr>
<td>Color Gamut (CIE 1931)</td>
<td>99% sRGB</td>
</tr>
<tr>
<td>Response Time (Extreme/Typical/Off)</td>
<td>4/6/14 ms (G-to-G)</td>
</tr>
</tbody>
</table>

## Power Consumption

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>65 W</td>
</tr>
<tr>
<td>Maximum</td>
<td>135 W</td>
</tr>
<tr>
<td>Sleep-Mode</td>
<td>0.5 W</td>
</tr>
<tr>
<td>Switch Off-Mode</td>
<td>0.5 W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>External</td>
</tr>
<tr>
<td>Power Voltage</td>
<td>100 VAC - 240 VAC</td>
</tr>
<tr>
<td>Voltage Dynamic Frequency</td>
<td>50 Hz - 60 Hz</td>
</tr>
</tbody>
</table>

## Signal Input

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Signals</td>
<td>DisplayPort™ 1.2 + HDMI™ 2.0 + Thunderbolt™ 3</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>HDMI™ + Thunderbolt™ 3</td>
</tr>
<tr>
<td>Video Cable Length</td>
<td>1.8 m</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes (4 x USB 3.0)</td>
</tr>
<tr>
<td>USB Cable Supplied</td>
<td>N/A</td>
</tr>
<tr>
<td>Audio-Jack</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## Signal Interface / Performance

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Frequency</td>
<td>30 kHz - 136 kHz</td>
</tr>
<tr>
<td>Vertical Frequency</td>
<td>30 Hz - 60 Hz</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Maximum Pixel Clock Speed/ Bandwidth</td>
<td>20 Gbps</td>
</tr>
<tr>
<td>Default Color Temperature</td>
<td>6500K</td>
</tr>
<tr>
<td>Preset Modes</td>
<td>24</td>
</tr>
<tr>
<td>OSD Buttons</td>
<td>2 Buttons + Tracking Point</td>
</tr>
<tr>
<td>OSD Languages</td>
<td>English, French, Italian, German, Spanish, Japanese, Chinese, Russian</td>
</tr>
</tbody>
</table>

## Mechanical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt Angle (Front / Back)</td>
<td>-5° / 30°</td>
</tr>
<tr>
<td>Swivel Angle (Left / Right)</td>
<td>N/A</td>
</tr>
<tr>
<td>Lift (mm)</td>
<td>N/A</td>
</tr>
<tr>
<td>Pivot</td>
<td>N/A</td>
</tr>
<tr>
<td>VESA® Mount (mm)</td>
<td>N/A</td>
</tr>
<tr>
<td>Kensington® Lock Slot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>N/A</td>
</tr>
<tr>
<td>Bezel Width</td>
<td>N/A</td>
</tr>
<tr>
<td>Top (mm / inches)</td>
<td>1.2 / 0.05&quot;</td>
</tr>
<tr>
<td>Bottom (mm / inches)</td>
<td>1.2 / 0.05&quot;</td>
</tr>
</tbody>
</table>

## Environmental Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (Operating)</td>
<td>0°C - 45°C</td>
</tr>
<tr>
<td>Temperature (Non-Operating)</td>
<td>-20°C - 60°C</td>
</tr>
<tr>
<td>Humidity (Operating)</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>Humidity (Non-Operating)</td>
<td>5% – 95%</td>
</tr>
<tr>
<td>Altitude (Operating)</td>
<td>16,000 ft</td>
</tr>
<tr>
<td>Altitude (Non-Operating)</td>
<td>40,000 ft</td>
</tr>
<tr>
<td>Arsenic-Free Glass</td>
<td>Yes</td>
</tr>
<tr>
<td>PVC-Free</td>
<td>Yes (W/O cable)</td>
</tr>
<tr>
<td>Mercury-Free</td>
<td>Yes</td>
</tr>
<tr>
<td>PCC % of Plastic Resins</td>
<td>25%</td>
</tr>
</tbody>
</table>

## Dimensions (W x D x H)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed (mm)</td>
<td>718 x 140 x 470</td>
</tr>
<tr>
<td>Size Unpacked with Stand (mm)</td>
<td>609.74 x 234.81 x 474.76</td>
</tr>
<tr>
<td>Size Unpacked without Stand (Monitor Head Only) (mm)</td>
<td>609.74 x 32.7 x 351.71</td>
</tr>
<tr>
<td>Distance from Table to Panel</td>
<td>134 / 5.276&quot;</td>
</tr>
<tr>
<td>Lowest Pixel at Bottom of Screen (mm / inches)</td>
<td>450 / 17.717&quot;</td>
</tr>
<tr>
<td>Highest Pixel at Top of Screen (mm / inches)</td>
<td>24° x 1.29° x 13.85&quot;</td>
</tr>
</tbody>
</table>

## Compliance

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPEAT®</td>
<td>Silver</td>
</tr>
<tr>
<td>ENERGY STAR® Rating</td>
<td>7.0</td>
</tr>
<tr>
<td>ULE</td>
<td>Silver</td>
</tr>
<tr>
<td>TCO®</td>
<td>7.0</td>
</tr>
<tr>
<td>RoHS</td>
<td>Yes</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 10</td>
</tr>
<tr>
<td>China Energy Label</td>
<td>Grade 2</td>
</tr>
</tbody>
</table>

## Warranty and Availability

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>3 Years</td>
</tr>
<tr>
<td>Geography Availability</td>
<td>WW</td>
</tr>
</tbody>
</table>
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- **Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.
- **Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business. If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

Visit [www.lenovo.com/warranty](http://www.lenovo.com/warranty) for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


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