## Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ThinkPad L380</td>
</tr>
<tr>
<td>2</td>
<td>ThinkPad L380 Platform Specifications</td>
</tr>
<tr>
<td>3</td>
<td>ThinkPad L390</td>
</tr>
<tr>
<td>4</td>
<td>ThinkPad L390 Platform Specifications</td>
</tr>
<tr>
<td>5</td>
<td>ThinkPad L470</td>
</tr>
<tr>
<td>6</td>
<td>ThinkPad L470 Platform Specifications</td>
</tr>
<tr>
<td>7</td>
<td>ThinkPad L480</td>
</tr>
<tr>
<td>8</td>
<td>ThinkPad L480 Platform Specifications</td>
</tr>
<tr>
<td>9</td>
<td>ThinkPad L490</td>
</tr>
<tr>
<td>10</td>
<td>ThinkPad L490 Platform Specifications</td>
</tr>
<tr>
<td>11</td>
<td>ThinkPad L570</td>
</tr>
<tr>
<td>12</td>
<td>ThinkPad L570 Platform Specifications</td>
</tr>
<tr>
<td>13</td>
<td>ThinkPad L580</td>
</tr>
<tr>
<td>14</td>
<td>ThinkPad L580 Platform Specifications</td>
</tr>
<tr>
<td>15</td>
<td>ThinkPad L590</td>
</tr>
<tr>
<td>16</td>
<td>ThinkPad L590 Platform Specifications</td>
</tr>
<tr>
<td>17</td>
<td>ThinkPad P1</td>
</tr>
<tr>
<td>18</td>
<td>ThinkPad P1 Platform Specifications</td>
</tr>
<tr>
<td>19</td>
<td>ThinkPad P51</td>
</tr>
<tr>
<td>20</td>
<td>ThinkPad P51 Platform Specifications</td>
</tr>
<tr>
<td>21</td>
<td>ThinkPad P52</td>
</tr>
<tr>
<td>22</td>
<td>ThinkPad P52 Platform Specifications</td>
</tr>
<tr>
<td>23</td>
<td>ThinkPad P52s</td>
</tr>
<tr>
<td>24</td>
<td>ThinkPad P52s Platform Specifications</td>
</tr>
<tr>
<td>25</td>
<td>ThinkPad P72</td>
</tr>
<tr>
<td>26</td>
<td>ThinkPad P72 Platform Specifications</td>
</tr>
<tr>
<td>27</td>
<td>ThinkPad T470</td>
</tr>
<tr>
<td>28</td>
<td>ThinkPad T470 Platform Specifications</td>
</tr>
<tr>
<td>29</td>
<td>ThinkPad T470s</td>
</tr>
<tr>
<td>30</td>
<td>ThinkPad T470s Platform Specifications</td>
</tr>
<tr>
<td>31</td>
<td>ThinkPad T480</td>
</tr>
<tr>
<td>32</td>
<td>ThinkPad T480 Platform Specifications</td>
</tr>
<tr>
<td>33</td>
<td>ThinkPad T480s</td>
</tr>
</tbody>
</table>

---

## 11e Series
- ThinkPad 11e (5th Gen) Platform Specifications

## A Series
- ThinkPad A275 Platform Specifications
- ThinkPad A285 Platform Specifications
- ThinkPad A475 Platform Specifications
- ThinkPad A485 Platform Specifications

## E Series
- ThinkPad E480 Platform Specifications
- ThinkPad E485 Platform Specifications
- ThinkPad E490 Platform Specifications
- ThinkPad E490s Platform Specifications
- ThinkPad E495 Platform Specifications
- ThinkPad E580 Platform Specifications
- ThinkPad E585 Platform Specifications
- ThinkPad E590 Platform Specifications
- ThinkPad E595 Platform Specifications

## L Series
- ThinkPad T480s Platform Specifications
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.

June 26, 2019 - Version 544

Additions in this update

► New product(s)
  ThinkPad P53s announced June 2019
  ThinkPad X1 Carbon (7th Gen) announced June 2019

► Others
  ThinkPad 11e (5th Gen) - 45W or 65W USB Type-C AC adapter added

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</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<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>
<td></td>
</tr>
<tr>
<td>i5-7Y54</td>
<td>2</td>
<td>4</td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
<td></td>
</tr>
<tr>
<td>Celeron N4100</td>
<td>2</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
<td></td>
</tr>
<tr>
<td>Pentium Silver N5000</td>
<td>4</td>
<td>8</td>
<td>1.1 GHz</td>
<td>2.7 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 605</td>
<td></td>
</tr>
</tbody>
</table>

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

## Display

- **Some:** 11.6” (295mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio
- **Some:** 11.6” (295mm) HD (1366x768), anti-glare, LED backlight, IPS, multi-touch, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, Capacitive-type multi-touch, supports 10-finger gesture (HD IPS only)

## Multi-touch

- Capacitive-type multi-touch, supports 10-finger gesture (HD IPS only)

## Storage

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

## Optane™ memory

- None

## Ethernet

- Realtek RTL8111GUS Gigabit Network Connection

## WLAN + Bluetooth™

- 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 (US only)

## WWAN

- None
ThinkPad A275 Platform Specifications

Product Specifications Reference (PSREF)

**Processor AMD PRO A-Series APUs**

<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>PRO A10-8730B</td>
<td>4</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.3 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R6 Graphics</td>
</tr>
<tr>
<td>PRO A12-8830B</td>
<td>4</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.4 GHz</td>
<td>2.7 GHz</td>
<td>DDR4-1866</td>
<td>AMD Radeon R7 Graphics</td>
</tr>
</tbody>
</table>

* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B

**Graphics**
- AMD Radeon R5 or R7 Graphics in processor only;
- supports external digital monitor via HDMI or USB Type-C;
- supports three independent displays;
- Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset**
- AMD SoC (System on Chip) platform
- Memory: 16GB max / 1686MHz DDR4, one DDR4 SO-DIMM socket

**Display**
- Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 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, US only)

**Storage**
- System has one HDD slot or one M.2 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 2, 16Gb/s

**Memory**
- None

**Ethernet**
- Realtek® RTL8111EPV Gigabit Ethernet connection

**WLAN**
- Bluetooth™
- Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT 4.1, M.2 card
- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN (optional)**
- Wireless WAN upgradable
- Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
- For non-WWAN model, it means the model is NOT WWAN upgradable

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

**Dimensions**
- WxDxH: 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm

**Weight**
- Models: No + 3-cell, 3-cell + 3-cell, 3 + 6-cell
- Weight: 2.79 lb / 1.27 kg; 2.98 lb / 1.36 kg; 3.33 lb / 1.52 kg

**Case color**
- Black

**Case material**
- Glass-Fiber Reinforced Plastic

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

**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)

**Monitor cable**
- (opt): 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

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

**Audio support**
- HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack

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

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

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

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

**Internal battery**
- Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh)

**External battery**
- Li-ion 3-cell (23Wh) or 6-cell (48Wh)

**Max battery life (MobileMark® 2014)**
- Models: No + 3-cell, 3-cell + 3-cell, 3-cell + 6-cell, 48Wh
- Max battery life: 5.05 hr; 10.1 hr; 15.6 hr

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

**Warranty**
- 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

**Environmental**
- MIL-STD-810G military testing

Note: The specifications above may not be available in all regions.
## ThinkPad A285 Platform Specifications

### Processor AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

<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>Ryzen 3 PRO 2300U</td>
<td>4</td>
<td>4</td>
<td>2.0 GHz</td>
<td>3.4 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2500U</td>
<td>8</td>
<td>8</td>
<td>2.0 GHz</td>
<td>3.6 GHz</td>
<td></td>
<td>Radeon Vega 8 Graphics</td>
<td></td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700U</td>
<td>8</td>
<td>8</td>
<td>2.2 GHz</td>
<td>3.8 GHz</td>
<td></td>
<td>Radeon Vega 10 Graphics</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics
- AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports four independent displays;
- Max resolution: 5120x2880 (USB Type-C); 4096x2160@60Hz (HDMI)

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

### Display
- On-cell touch, supports 10-finger gesture (FHD only)
- 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS
- 8GB or 16GB / 2400MHz DDR4, soldered to systemboard, no sockets

### Multi-touch (opt)
- Supports four independent displays;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports four independent displays;
- Supports external digital monitor via HDMI or USB Type-C;

### 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
- Gigabit Ethernet connection
- Via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card

### Bluetooth™
- Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)
- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7380 (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, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card

### Dimensions
- WxDxH (HD & FHD multi-touch):
  - 12.11" x 8.26" x 0.70"; 307.7mm x 209.8mm x 17.8mm
- WxDxH (FHD non-touch):
  - 12.11" x 8.26" x 0.69"; 307.7mm x 209.8mm x 17.4mm

### Weight
- FHD non-touch model: 2.48 lb / 1.13 kg
- HD non-touch model: 2.78 lb / 1.26 kg
- FHD multi-touch model: 2.79 lb / 1.27 kg

### Case color
- Black

### Case material
- Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model)
- Bottom: Magnesium/Aluminum

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

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

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

### Battery
- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- With 65W USB Type-C AC adapter

### Max battery life
- MobileMark 2014: 10.55 hr
  - *Battery life varies significantly with settings, usage, & other factors

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

### Preload
- 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
## ThinkPad A475 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>PRO A10-8730B</td>
<td>4</td>
<td>4</td>
<td>2.4 GHz</td>
<td>3.3 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R5 Graphics</td>
</tr>
<tr>
<td>PRO A12-8830B</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.4 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R7 Graphics</td>
</tr>
<tr>
<td>PRO A10-9700B</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.4 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R7 Graphics</td>
</tr>
<tr>
<td>PRO A12-9800B</td>
<td>2.7</td>
<td>3</td>
<td>3.6 GHz</td>
<td>4.2 GHz</td>
<td>2MB</td>
<td>DDR4-1866</td>
<td>AMD Radeon™ R7 Graphics</td>
</tr>
</tbody>
</table>

* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B

### Graphics

- AMD Radeon R5 or R7 Graphics in processor only;
- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays;
- Maximum resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- AMD SoC (on System on Chip) platform
- Memory: 32GB max / 1866MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

- **Touch**: Optional
- On-cell touch, supports 10-finger gesture (FHD only, US only)
- Systems have one HDD slot or one M.2 2280 slot exclusively for storage
- SSD / SATA 6.Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some SSD / SATA 6.Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- Some M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s
- NVIDIA GeForce MX150 / MX250 / MX350 / MX550
- 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
- 250 nits, 16:9 aspect ratio, 350:1 contrast ratio, 170° viewing angle
- 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio

### Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Some: SSD / SATA 6.Gb/s, 2.5" wide, 7mm high, Active Protection System™
- Some SSD / SATA 6.Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

### Optical

- Drive: DVD±RW (±R/RW) / DVD-RAM (±R) / Blu-ray (±R/RAM) / DVD-RAM (±R)
- 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 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector
- Monitor cable: * Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Camera (optional): HD720p resolution, fixed focus
- Audio support: HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack
- Keyboard: 6-row, spill-resistant, multimedia Fn keys, optional LED backlight
- Security: Power-on password, hard disk password, supervisor password, security keyhole
- Fingerprint reader: Optional: Touch style match on chip fingerprint reader on the keyboard bezel
- NFC: None
- Preload: Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64
- Windows 10 Home 64
- Windows 10 Pro 64
- Lenovo Solution Center
- Lenovo PowerEdge
- ThinkVantage Product Recovery
- ThinkVantage System Update
- Adobe® Reader®
- Microsoft Office preloaded; purchase a product key to activate
- McAfee® LiveSafe® (30-day trial)
- 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® Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

### Processor Specifications Reference (PSREF)

- April 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>Ryzen 3 PRO 2300U</td>
<td>4</td>
<td>8</td>
<td>2.0 GHz</td>
<td>3.4 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2500U</td>
<td>6</td>
<td>8</td>
<td>2.0 GHz</td>
<td>3.6 GHz</td>
<td></td>
<td>Radeon Vega 8 Graphics</td>
<td></td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700U</td>
<td>8</td>
<td>8</td>
<td>2.2 GHz</td>
<td>3.8 GHz</td>
<td></td>
<td>Radeon Vega 10 Graphics</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)

### Chipset

AMD SoC (System on Chip) platform

### Memory

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

* Installed DIMMs are actually 2666MHz but run at 2400MHz due to AMD limitation

### Display

- 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
- 14.0" (355mm) FHD (H920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 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
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2,
- Some: 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

### Optical

None

### Ethernet

Realtek® RTL8111GUL Gigabit Ethernet connection

### WLAN

Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

### Bluetooth™

Bluetooth 4.1 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

* 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

Weight: 3.49 lb / 1.58 kg

### Case color

Black

### Case material

Display cover: Magnesium Hybrid or PPS;

Bottom: Glass-Fiber Reinforced Plastic

### Note

The specifications above may not be available in all regions.
ThinkPad E480 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>i3-7100U</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>i3-7130U</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>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>i5-7200U</td>
<td>2</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>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>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>i5-8550U</td>
<td>4</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>i7-8550U</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

Chipset

Intel SoC (System on Chip) platform, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz

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, 400:1 contrast ratio

Multi-touch

None

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, PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek® 88111GUS

WLAN + Bluetooth™

One of the following, configurable by model:
- Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card
- * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS

WWAN

None

SIM card

None

Dimensions

Aluminum (WxDxH): 12.96" x 9.13" x 0.78": 329mm x 242mm x 19.9mm
PC/ABS (WxDxH): 12.96" x 9.53" x 0.83": 329mm x 242mm x 21.9mm

Weight

Starting at 3.67 lb / 1.75kg

Case color

Black or silver

Case material

Display cover: Aluminum or PC/ABS plastic;
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

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Synaptics® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

Keyboard

UltraNav™ 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 (opt)

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

Fingerprint reader (opt)

Touch style fingerprint reader on the palm rest

NFC

None

Battery

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

Max battery life

MobileMark® 2014: 13.15 hr

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

AC adapter

45W or 65W USB Type-C AC adapter

Preload (optional)

Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

1-year depot repair 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 E485 Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td><strong># of Cores</strong></td>
</tr>
<tr>
<td>Ryzen 3 2200U</td>
<td>2</td>
</tr>
<tr>
<td>Ryzen 5 2500U</td>
<td>4</td>
</tr>
<tr>
<td>Ryzen 7 2700U</td>
<td>4</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: 1920x1080 (HDMI)@60Hz

**Chipset**
- AMD 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, 400:1 contrast ratio
- **Multitouch**: None

**Storage**
- Up to 2 drives (one M.2 SSD and one HDD)
- **Some**: HDD / SATA 6.0Gb/s, 2.5” wide, removable, upgradable, Active Protection System™
- **Some**: M.2 SSD / PCIe NVMe
- **Optical**: None

**Ethernet**
- Gigabit Ethernet Connection, Realtek RTL8111GUS

**WLAN + Bluetooth™**
- One of the following, configurable by model:
  - Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
  - Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
  - Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

**WWAN**
- None

**SIM card**
- None

**Dimensions**
- **Aluminum (WxDxH):** 12.96” x 9.53” x 0.78”
- **PC/ABS (WxDxH):** 12.96” x 9.53” x 0.86”
- **Weight:** Starting at 3.87 lb / 1.75kg

**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

**Camera**
- HD720p camera, fixed focus

**Audio support**
- HD Audio, Synaptic® CX11852 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

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

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

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

**Preload (optional)**
- Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**
- 1-year depot repair service

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

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

Lenovo
June 2019
### ThinkPad E490 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>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>
</tr>
<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></td>
<td></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></td>
<td></td>
</tr>
</tbody>
</table>

#### Graphics

- Intel UHD Graphics 620 in processor only or AMD Radeon RX 550X Graphics, 2GB DDR5 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

#### Display

- Size / Resolution: 14.0” FHD (1920x1080) Anti-glare IPS 250 nits 16:9 600:1 170° Non-touch
- Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

#### Multi-touch

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

#### Storage

- Up to two drives (one M.2 SSD and one HDD)
  - M.2 2280 SSD / Sata 6.0Gb/s
  - M.2 2280 SSD / PCie NVMe, PCie 3.0 x 2
- Optional: Intel Optane memory, PCie NVMe, PCie 3.0 x 2

#### Optical

- None

#### Ethernet

- Gigabit Ethernet Connection, Realtek RTL8111GUS

#### 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

#### Weight

- Starting at 3.87 lb / 1.75 kg

#### Case color

- Black or silver

#### Case material

- Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic

#### Media reader

- None

#### 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

#### Monitor cable

- None

#### 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, optional LED backlight

#### 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

#### System Mgt

- None

#### Fingerprint reader

- Optional: Touch style fingerprint reader on the palm rest

#### Battery

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

#### Max battery life

- MobileMark 2014: 13 hr

#### AC adapter

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

#### Preload

- Windows 10 Home 64 or Windows 10 Pro 64

#### Limited warranty

- 1-year depot repair service

#### Mil-Spec test

- MIL-STD-810G military testing

#### Environment

- EPEAT Bronze; ENERGY STAR® 7.0; 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>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.5 GHz</td>
<td>8MB</td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 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@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform

### Memory

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

### Display

- 14.0” FHD (1920x1080) Anti-glare TN 220 nits 16:9 400:1 90° Non-touch
- 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

### Optane™ memory

- 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

- None

### Battery

- Integrated Li-ion 42Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

### Preload (optional)

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- 1-year depot repair service

### Note:

The specifications above may not be available in all regions.
<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>8</td>
<td>16</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 display; 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 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>14.0&quot; 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>14.0&quot; 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

**Optical**
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™

**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 / 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

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

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

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

**Preload (optional)**
Windows® 10 Home 64 or Windows 10 Pro 64

**WWAN**
None

**SIM card**
None

**Audio support**
HD Audio, Synaptic CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

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

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

**Fingerprint reader**
None

**TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad**
None

**Virtualization**
No

**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

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

**Multi-touch**
None

**Smart card reader**
None

**Media reader**
MicroSD card reader

**Monitor cable**
None

**Bundled Accy**
None

**Acoustic emission**
None

**Weight**
Starting at 3.87 lb / 1.75 kg

**Dimensions**
Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm

**Case color**
Black

**Case material**
Aluminum or PC/ABS plastic;
Bottom: PC/ABS plastic

**Environmental**
EPEAT Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.
ThinkPad E580 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>i3-7020U</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>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>i5-7260U</td>
<td>4</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<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 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 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>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</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>
</tbody>
</table>

* i3-7130U is NOT available in US and EMEA

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 590 Graphics, 2GB DDR3 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display;
- Max resolution: 1920x1080 (HDMI)@60Hz
- Supports external display via HDMI or USB Type-C
- Supports up to two drives (one M.2 SSD and one HDD)

Chipset

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

Memory

- 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
- Max resolution: 1920x1080 (HDMI)@60Hz
- Supports external digital monitor via HDMI or USB Type-C
- Some: 220 nits, 16:9 aspect ratio, 400:1 contrast ratio

Multi-touch

- None

Storage

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

Optane™ memory

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

Optical

- None

Ethernet

- Gigabit Ethernet Connection, Realtek R8111GUS

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

Lenovo
June 2019
ThinkPad E585 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 5 3500U</td>
<td>6</td>
<td>12</td>
<td>3.5 GHz</td>
<td>4.1 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon RX Vega 8 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td>8</td>
<td>16</td>
<td>2.7 GHz</td>
<td>4.3 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 only; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI)@60Hz

**Chipset**

AMD SoC (System on Chip) platform

**Memory**

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

**Display**

Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio (NOT available in EMEA)

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

**Multi-touch**

None

**Storage**

Up to 2 drives (one M.2 SSD and one HDD)

Some: HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™

Some: M.2 SSD / PCIe NVMe

None

**Optical**

None

**Ethernet**

Gigabit Ethernet Connection, Realtek RTL8111GJUS

**WLAN + Bluetooth™**

One of the following, configurable by model:
- Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

**WWAN**

SIM card

None

**Battery**

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

**Max battery life**

MobileMark® 2014: 8.63 hr

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

**AC adapter**

45W or 65W USB Type-C AC adapter

**Preload (optional)**

Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

1-year depot repair service

**Mil-Spec test**

None

**Environment**

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

**Dimensions**

WxDxH: 14.53" x 9.92" x 0.79"; 369mm x 252mm x 19.95mm

**Weight**

Starting at 4.7 lb / 2.1kg

**Camera**

HD720p camera, fixed focus

**Audio support**

HD Audio, Synaptic® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack

**Keyboard**

UltraNav™ 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 / Discrete TPM 2.0, TCG Certified

**Fingerprint reader**

None

**NFC**

None

**Battery**

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

**Max battery life**

MobileMark® 2014: 8.63 hr

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

**AC adapter**

45W or 65W USB Type-C AC adapter

**Preload (optional)**

Windows® 10 Home 64 or Windows 10 Pro 64

**Limited warranty**

1-year depot repair service

**Mil-Spec test**

None

**Environment**

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

Note: The specifications above may not be available in all regions.
## ThinkPad E590 Platform Specifications

**Product Specifications Reference (PSREF)**

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

**Graphics**

Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics; 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display.

Max resolution: 4096x2160@24Hz (HDMI); 4096x2304@60Hz (USB Type-C).

### Chipset

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

### Memory

- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation
- 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 2280 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

### Storage

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

### Optane™ memory

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

### 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&quot; HD (1366x768)</td>
<td>Anti-glare</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&quot; FHD (1920x1080)</td>
<td>Anti-glare</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

### 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
- System Mgt: None
- Finger Print reader: Optional: Touch style fingerprint reader on the palm rest
- NFC: None
- Battery: Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- Max battery life: 11 hr
- MobileMark® 2014: 11 hr
- *Battery life varies significantly with settings, usage, & other factors
- AC adapter: 45W or 65W USB Type-C AC adapter
- Preload (optional): Windows® 10 Home 64 or Windows 10 Pro 64
- Limited warranty: 1-year depot repair service

### WWAN

- SIM card: None

### 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

### Smart card reader

None

### Media reader

- MicroSD card reader
- 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

None

### Bundled Accy

None

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- Max battery life: 11 hr
- *Battery life varies significantly with settings, usage, & other factors
- AC adapter: 45W or 65W USB Type-C AC adapter
- Preload (optional): Windows® 10 Home 64 or Windows 10 Pro 64
- Limited warranty: 1-year depot repair service

### Mil-Spec test

MIL-STD-810G military testing

### Environment

EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

**Dimensions**

- WxDxH: 14.53" x 9.94" x 0.78"; 369mm x 252.5mm x 19.9mm
- Starting at 4.68 lb / 2.12 kg

**Weight**

**Case color**

Black or silver

**Case material**

- Top: PC/ABS plastic
- Bottom: Aluminum;

**Lenovo June 2019**

---

**Note:** The specifications above may not be available in all regions.
### 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 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>
<td></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>
<td></td>
</tr>
<tr>
<td>Ryzen 7 3700U</td>
<td></td>
<td></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>
<td></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

### Display

<table>
<thead>
<tr>
<th>Size / Resolution</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</td>
<td>TN</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1 90° Non-touch</td>
</tr>
<tr>
<td>15.6” FHD (1920x1080)</td>
<td>Anti-glare</td>
<td>IPS</td>
<td>250 nits</td>
<td>16:9</td>
<td>600:1 170° Non-touch</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

### Optical

- 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

- None

### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- Max battery life: MobileMark® 2014: 10.3 hr
- AC adapter: 45W or 65W USB Type-C AC adapter

### Preload (optional)

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- 1-year depot repair service

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

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron® Processor, 7th Generation Intel® Core™ 3 / 5 Processor or Intel® Core™ i3 / i5 Processor or</th>
<th>Processor Specifications Reference (PSREF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>Cel 3965U</td>
<td>3-965U</td>
<td>2</td>
</tr>
<tr>
<td>i3-7130U</td>
<td>3-7130U</td>
<td>4</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>3-7200U</td>
<td>4</td>
</tr>
</tbody>
</table>

8th Generation Intel Core i5 / i7 Processor

<table>
<thead>
<tr>
<th>Number</th>
<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>3-8130U</td>
<td>2</td>
<td>4</td>
<td>2.2 GHz</td>
<td>3.4 GHz</td>
<td>4MB</td>
<td>Intel UHD Graphics 620</td>
<td></td>
</tr>
<tr>
<td>i5-8250U</td>
<td>3-8250U</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>3-8350U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8550U</td>
<td>3-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 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)

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

### Display
- Some: 13.3" (338mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle, on-cell touch
- Some: 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, on-cell touch

### Multi-touch (opt)
- on-cell touch, supports 10-finger gesture

### 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)

### Optane™ Memory
- None

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

### WAN + 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
- None

### WWAN
- None

### Dimensions
- WxDxH: 12.67" x 8.83" x 0.74"; 321.89mm x 224.22mm x 18.8mm

### Weight
- Starting at 3.22 lb / 1.46 kg

### Case color
- Black or Silver

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

### Smart card reader
- None

### Media reader
- MicroSD card 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, microSD card reader, security keyhole

### Monitor cable (optional)
- 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

### Bundled Accy
- Optional: ThinkPad Ethernet Extension Cable
- * Battery life varies significantly with settings, usage, & other factors
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Camera
- HD720p camera, fixed focus
- HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby Audio™ / dual array microphone, headphone / microphone combo jack

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

### Security
- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- FingerPrint reader
- Optional: Touch style 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 USB Type-C AC adapter
- * Battery life varies significantly with settings, usage, & other factors

### Max battery life
- MobileMark 2014: 16.1 hr

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

### Preload
- 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

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

**Note:** The specifications above may not be available in all regions.
## ThinkPad L390 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>i3-8145U</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>
</tr>
<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>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>
</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 (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

**Table: Display Specifications**

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Surface Type</th>
<th>Brightness</th>
<th>Aspect Ratio</th>
<th>Contrast Ratio</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3&quot; HD</td>
<td>(1366x768)</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>90°</td>
</tr>
<tr>
<td>13.3&quot; FHD</td>
<td>(1920x1080)</td>
<td>Anti-glare</td>
<td>250 nits</td>
<td>16:9</td>
<td>700:1 (non-touch) 800:1 (multi-touch)</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Multi-touch (optional)**

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

### 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

### Optane™ memory

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

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 3.22 lb / 1.46 kg

### Case color

Black or Silver

### Case material

Display cover: Aluminum

### Weight

Bottom: FRP

### Limited warranty

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

### Camera

HD720p camera, fixed focus

### Audio support

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

### Security

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

### Security chip

Discrete TPM 2.0, TCG Certified

### System Mgt

None

### Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

### NFC (optional)

Near Field Communication

### Battery

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

### Max battery life

MobileMark 2014: 14.61 hr

### AC adapter

45W or 65W USB Type-C AC adapter

### Preload

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™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

**Note:** The specifications above may not be available in all regions.
### ThinkPad L470 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>i3-6006U</td>
<td>2</td>
<td>4</td>
<td>2.0 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i3-6100U</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 520</td>
</tr>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>4</td>
<td>2.3 GHz, 2.8 GHz</td>
<td>-</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>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
</tbody>
</table>

Intel Celeron Processor or 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>
<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>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>i3-7100U</td>
<td>2</td>
<td>4</td>
<td>2.4 GHz, 3.1 GHz</td>
<td>3.5 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, 3.5 GHz</td>
<td>4MB</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz, 3.5 GHz</td>
<td>4MB</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7-7500U</td>
<td>2</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 610 or 620 in processor only, or Intel HD Graphics 620 in processor and AMD Radeon R5 M430, 2GB memory; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)

### 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: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 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

### 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 or 9.5mm 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 / SATA 6.0Gb/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)

### WLAN

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

### Bluetooth

- One of the following, configurable by model:
  - * Realtek®
  - * Intel

### WWAN (optional)

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

### Dimensions

<table>
<thead>
<tr>
<th>Weight</th>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-cell</td>
<td>6-cell</td>
</tr>
<tr>
<td></td>
<td>Integrated model</td>
<td>4.13 lb / 1.87 kg</td>
</tr>
<tr>
<td></td>
<td>Discrete model</td>
<td>4.16 lb / 1.89 kg</td>
</tr>
</tbody>
</table>

### Camera (optional)

- HD720p resolution, fixed focus

### Audio support

- HD Audio, Realtek ALC268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack

### Security

- Security chip
  - vPro (optional)
  - Fingerprint reader
- TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Optional: Swipe style fingerprint reader on the keyboard bezel

### Optical Drive

- None

### Battery

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

### Preload

- Windows® 7 Professional 64 preinstalled
- Some: Windows 10 Home 64
- Some: Windows 10 Pro 64
- Lenovo Solution Center
- Lenovo PowerEngage
- ThinkVantage System Recovery
- ThinkVantage System Update
- Adobe® Reader®
- Microsoft® Office preloaded
- purchase a product key to activate
- LiveSafe® (30-day trial)

### 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

### Environment

- MIL-STD-810G military testing
- EPEAT® Gold (US only)
- ENERGY STAR® 6.1
- RoHS-compliant

---

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

<table>
<thead>
<tr>
<th>Processor 7th Generation Intel® Core™ i3 / i5 Processor or Processor 8th Generation Intel Core i3 / i5 / i7 Processor</th>
<th>WWAN (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number &amp; Number of Cores</td>
<td>Base Frequency</td>
</tr>
<tr>
<td>3-7130U 2 4</td>
<td>2.7 GHz</td>
</tr>
<tr>
<td>5-7200U 2 4</td>
<td>2.5 GHz</td>
</tr>
<tr>
<td>5-7300U 2 4</td>
<td>2.5 GHz</td>
</tr>
</tbody>
</table>

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

### Graphics Specifications

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD 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 Specifications

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

### Display Specifications

- On-cell touch, supports 10-finger gesture (FHD only)
- Some: 14.0” (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
- Some: 14.0” (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

### Multi-touch (opt) Specifications

- 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 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 Specifications

- None

### Ethernet Specifications

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

### WLAN + Bluetooth™ (optional) Specifications

- 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 BT4.2 but is limited to BT4.1 by Windows OS

### Other Specifications

- Max battery life: MobileMark® 2014: 12.2 hr
- AC adapter: 45W or 65W USB Type-C AC adapter
- 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

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

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

Lenovo April 2019
### ThinkPad L490 Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>Cel 4305U</td>
<td>2</td>
</tr>
<tr>
<td>3-8145U</td>
<td>4</td>
</tr>
<tr>
<td>5-8265U</td>
<td>4</td>
</tr>
<tr>
<td>5-8365U</td>
<td>4</td>
</tr>
<tr>
<td>7-8565U</td>
<td>4</td>
</tr>
<tr>
<td>7-8665U</td>
<td>4</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
- 64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
  - *Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation*

### 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
  - 16:9
  - 700:1
  - 45%
  - 170°

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

### Storage
- **HDD / SATA 6Gb/s, 2.5" wide, 7mm high**, Active Protection System™
- **SSD / SATA 6Gb/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 (opt)
- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- None

### Optical
- Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
- Ethernet: 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
  - Intel Wireless-AX 2260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Intel Wireless-AX 2260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - *For non-WWAN model, it means the model is NOT WWAN upgradeable*

### SIM card
- None

**Note:** The specifications above may not be available in all regions.
ThinkPad L570 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>i3-6006U</td>
<td>2</td>
<td>4</td>
<td>2.0 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i3-6100U</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 520</td>
</tr>
<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>
<td>3.1 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</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 520</td>
</tr>
</tbody>
</table>

Intel Celeron Processor or 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>
<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>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>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 610</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>
<td>Intel HD Graphics 610</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 610</td>
</tr>
<tr>
<td>i7-7500U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
<tr>
<td>i7-7600U</td>
<td>2</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 610</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 520, 610, or 620 in processor only; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)

### Chipset

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

### Display

- Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio
- Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio, 160° viewing angle

### Multi-touch

- None

### 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. xxxxx 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

### Optical (optional)

- DVD-ROM or DVD burner, 9mm high, fixed, not removable, tray-in

### 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:
  - Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card (US only)
  - 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 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:
  - Wireless WAN upgradable
  - 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 (optional)

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

### Monitor Cable

- Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Optional: Lenovo Mini-DisplayPort to DisplayPort Monitor Cable (MiniDP to DP)

### Camera (optional)

- HD720p resolution, fixed focus
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Optional: Swipe style fingerprint reader on the palm rest

### Audio support

- HD Audio, Realtek® ALC3245 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Diskette Drive (optional)
- Discrete TPM 2.0, TCG Certified

### Battery

- Li-ion 6-cell (48Wh)
- Max battery life: MobileMark® 2014: 14.8 hr
- * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W slim tip AC adapter

### Preload

- Windows 7 Professional 64 preinstalled
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Lenovo Solution Center
- Lenovo PowerEngage
- ThinkVantage Product Recovery
- ThinkVantage System Update
- Adobe® Reader
- Microsoft® Office preloaded; purchase a product key to activate
- McAfee® LiveSafe™ (30-day trial)

### Limited warranty

- 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.

Lenovo September 2018
## ThinkPad L580 Platform Specifications

### Processor

<table>
<thead>
<tr>
<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>
<th>Processors</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>
<td>i3</td>
</tr>
<tr>
<td>i3-7130U</td>
<td>4</td>
<td>4</td>
<td>2.7 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
<td>i5</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>8</td>
<td>2.45 GHz</td>
<td>3.1 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
<td>i5</td>
</tr>
<tr>
<td>i7-7500U</td>
<td>4</td>
<td>8</td>
<td>2.6 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
<td>i7</td>
</tr>
</tbody>
</table>

* i3-7130U 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: 4096x2160@60Hz (USB Type-C): 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 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, 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. xxxSSD 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

### 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 BT4.2 but is limited to BT4.1 by Windows OS

### Battery

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

### Preload

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

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

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

April 2019
## ThinkPad L590 Platform Specifications

### Product Specifications Reference (PSREF)

#### Processor

<table>
<thead>
<tr>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>Cel 4305U</td>
<td>2</td>
<td>2</td>
<td>2.2 GHz</td>
<td>2MB DDR4-2133</td>
<td>4MB</td>
<td>2MB DDR4-2400</td>
<td>Intel UHD Graphics 610</td>
</tr>
<tr>
<td>3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>6MB</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>4.1 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-8665U</td>
<td>4</td>
<td>8</td>
<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
- Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation

#### Display

| Size     | Resolution Type | Surface | Brightness | Aspect Ratio | Contrast Ratio | Color Gamut | Viewing Angle | Multi-touch
|----------|-----------------|---------|------------|--------------|----------------|--------------|---------------|-----------
| 15.6" HD | (1366x768)      | TN      | Anti-glare | 220 nits     | 16:9           | 400:1        | 45%           | 90°       |
| 15.6" FHD| (1920x1080)     | IPS     | Anti-glare | 250 nits     | 16:9           | 700:1        | 45%           | 170°      |

#### 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

- 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 + Bluetooth™ (optional)

- One of the following, configurable by model:
  - Realtek® RTL8829BE, 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 Wireless-AX 22360, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

#### WWAN (optional)

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

- None

#### Smart card reader

- Optional: Smart card reader

#### Media reader

- MicroSD card reader

#### Ports

- Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1, one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 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

- None

#### 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

#### Keyboard

- UltraNav™: 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
- Security chip: Intel vPro Technology
- Fingerprint reader: Optional: Touch style fingerprint reader on the palm rest
- NFC (optional): Near Field Communication

#### Battery

- Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- MobileMark® 2014: 12 hr
- Battery life varies significantly with settings, usage, & other factors

#### AC adapter

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

#### Preload

- 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

#### Mil-Spec test

- None

#### Environment

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

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

Lenovo
June 2019
### ThinkPad P1 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>i5-8400H</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>7-8750H</td>
<td>6</td>
<td>12</td>
<td>2.2 GHz</td>
<td>4.1 GHz</td>
<td>9MB</td>
<td>DDR4-2666</td>
<td>Intel UHD Graphics P630</td>
</tr>
<tr>
<td>7-8850H</td>
<td>6</td>
<td>12</td>
<td>2.6 GHz</td>
<td>4.3 GHz</td>
<td>9MB</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® P1000 or P2000 Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™.
- Supports four independent displays:
  - Max resolution: 5120x2880 (Thunderbolt); 4096x2160 @ 60Hz (HDMI)

#### Chipset

- Mobile Intel CM246 Chipset
- 44GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

#### Display

- **Some**: 15.6” (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
- **Some**: 15.6” (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)

#### Multi-touch (opt)

- Capacitive-type multi-touch, supports 10-finger gesture (4K only)
- Supports pen accessory, please see the accessory compatibility for details

#### Storage

- Up to 2 drives (two M.2 SSD)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- RAID 0/1 support
- Optional: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

#### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable
- Two USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole

#### 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:

#### Audio support

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus
- HD Audio, Realtek® ALC3286 codec / stereo speakers, 2X2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

#### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology

#### Security chip

- vPro (optional)

#### Audio

- Stereo speakers, 2W x 2, Dolby Atmos®

#### Pen

- Optional: Digital Pen (gestural stylus)
- Optional: Pensafe Basic System

#### Fingerprint reader

- Touch style match on fingerprint reader on the keyboard bezel

#### Color calibration

- None

#### Bluetooth

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

#### HDMI

- HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, four independent displays

#### AC adapter

- Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- Discrete mode: 7.36 hr; Hybrid mode: 13.87 hr
- 135W slim tip AC adapter

#### Preload

- 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

#### Environment

- EPEAT® Gold, ENERGY STAR® 6.1; RoHS-compliant

---

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

---

Lenovo

June 2019
## ThinkPad P51 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>
<th>Processor</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>i7-6820HQ</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>
<td></td>
<td></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 P530</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-7700HQ</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>
<td></td>
<td></td>
</tr>
<tr>
<td>E3-1535M v6</td>
<td>4</td>
<td>8</td>
<td>3.0 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel HD Graphics P630</td>
<td></td>
<td></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

### Memory

- 64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets
- * System clocks down for processors with lower memory controller

### Display

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

### Multi-touch (opt) Pen (optional)

- ThinkPad Pen Pro, active pen for multi-touch display

### Storage

- Up to 3 drives (two M.2 SSD and one HDD)

### 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

- 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 (opt)

- One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE-A, 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

### Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>WxHxD:</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-cell</td>
<td>14.86&quot; x 9.93&quot; x 0.96-1.16&quot;</td>
<td>3.77 4mm x 252.3mm x 24.5-29.4mm</td>
</tr>
<tr>
<td>6-cell</td>
<td>14.86&quot; x 9.93&quot; x 1.02-1.21&quot;</td>
<td>3.77 4mm x 252.3mm x 25.8-30.7mm</td>
</tr>
</tbody>
</table>

### Case color

- Black

### Case material

- Glass-Fiber Reinforced Plastic
- Magnesium/Aluminum

### Camera (optional)

- HD720p resolution, fixed focus

### Audio support

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

### Security

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

### Security chip

- vPro Technology

### Finger print reader

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

### Color calibration

- Optional: Pantone color calibrator by X-Rite color calibration sensor in palm rest

### Battery

- Lithium Polymer 4-cell (66Wh) or 6-cell (90Wh)

### UltraNav™

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

### Keyboard

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

### AC adapter

- 170W slim tip AC adapter

### Preload

- 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
  - 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® 6.1; RoHS-compliant

---

Note: The specifications above may not be available in all regions.
ThinkPad P52 Platform Specifications

Product Specifications Reference (PSREF)

Processor 8th Generation Intel® Core™ i7 / i9 Processor or Intel Xeon® E 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>7-8750H</td>
<td></td>
<td>6</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>7-8850H</td>
<td></td>
<td>6</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>9-8950HK</td>
<td></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>
<tr>
<td>E-2176M</td>
<td></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>

Graphics
- Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P1000 (4GB memory), P2000 (4GB memory), or P3200 (6GB memory, VR ready);
- 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
- 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
- * 128GB non-ECC memory for special bid only

Display
- Some: 15.6” (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 160° viewing angle
- Some: 15.6” (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch
- Capacitive-type multi-touch, supports 10-finger gesture (4K only)

Multi-touch (opt)
Supports pen accessory, please see the accessory compatibility for details

Storage
- Up to 3 drives (two M.2 SSD and one HDD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32GB/s
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 32GB/s

Optane™ memory
- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- RAIDX (optional) RAIDX 0/1 support
- Optical

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)
- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7380 (Fibocom L890-QL), M.2 card

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

Dimensions
- WxDxH: 14.86” x 9.93” x 0.96-1.16”; 377.4mm x 252.3mm x 25.8-30.7mm
- Weight: 14.86” x 9.93” x 1.02-1.21”; 377.4mm x 252.3mm x 25.8-30.7mm
- Max battery life: Discrete mode: 6.1 hr; Hybrid mode: 8.9 hr
- Battery life varies significantly with settings, usage, & other factors

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

Audio support
- HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / 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 multi-touch touchpad

Security chip
- 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 90Wh battery
- Discrete mode: 6.1 hr; Hybrid mode: 8.9 hr

AC adapter
- 170W slim tip AC adapter

Preload
- 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:
  - 3-year/1yr depot repair service
  - 3-year battery depot repair service
  - 3-year 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.

Lenovo
May 2019
# 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>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-8550U</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>4</td>
<td>8</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>
<tr>
<td>7-8650U</td>
<td>4</td>
<td>8</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 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

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Optional: Intel Optane memory
- Optical: Intel Ethernet Connection I219-V (Jacksonville)
- WLAN + Bluetooth™: Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- WWAN (optional): Nano-SIM card slot, optional Verizon LTE (US) SIM card

## Storage

- System has one HDD slot or one M.2 2280 slot exclusively for storage
- Optional: Intel Optane memory

## Audio

- HD Audio, Realtek ALC3287 codec / Premium / UltraNav™ 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight
- Security chip: Intel vPro Technology

## Security

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

## Camera (optional)

- Camera: HD720p with ThinkShutter camera privacy, fixed focus
- Security chip: Intel vPro Technology

## 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 (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, safety keyhole
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

## Monitor cable (optional)

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

## Battery

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

## Power-on password, hard disk password, supervisor password, security keyhole, anti-spoofing technology

- Battery: Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery
- WWAN (optional): One of the following, configurable by model:
  - Wireless WAN upgradable
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7360 (Fibocom L850-GL), 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 upgradable

## SIM card (optional)

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

---

---
### ThinkPad P72 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>7-8750H</td>
<td>6</td>
<td>12</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>7-8850H</td>
<td>6</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>E-2178M</td>
<td>6</td>
<td>12</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>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>
</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
- 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" (439mm) 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" (439mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe CG, 170° viewing angle

#### Multi-touch Pen

- None

#### Storage

- Up to 3 drives (two M.2 SSD and one HDD)
- Some: M.2 SSD / 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
- 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

- None

#### SIM card

- None

#### Processor Specifications Reference (PSREF)

- Note: The specifications above may not be available in all regions. Lenovo
- May 2019

#### Note

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

#### 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**

- 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 / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

**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 chip**

- Intel vPro Technology
- Discrete TPM 2.0, TCG Certified

**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: 18 hr
- *Battery life varies significantly with settings, usage, & other factors

**AC adapter**

- 230W slim tip AC adapter

**Preload**

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

**Environment**

- Lenovo
- May 2019
### 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>i5-6200U</td>
<td>2</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>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>2.5 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-6600U</td>
<td>2</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>
</tbody>
</table>

### 7th Generation Intel Core i3 / i5 / i7 Processor or

<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>i3-7100U</td>
<td>2</td>
<td>2.4 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>2.7 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-7500U</td>
<td>2</td>
<td>2.9 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

Intel HD Graphics 520 or 620 in processor only, or Intel HD Graphics 620 in processor and NVIDIA GeForce® 940MX, 2GB 2.5GHz 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

#### 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, IPS, 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)

### WLAN

One of the following, configurable by model (WiGig can coexist with WWAN):

• Realtek® RTL882B2E, 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 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 / 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):

• Wireless WAN upgradeable

• 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

### Dimensions

<table>
<thead>
<tr>
<th>Weight</th>
<th>Models</th>
<th>3-cell or 3 + 3-cell</th>
<th>6-cell or 3 + 6-cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.49 lb / 1.58 kg</td>
<td>6.1; RoHS-compliant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.92 lb / 1.78 kg</td>
<td>3-cell or 3 + 3-cell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.35 lb / 1.85 kg</td>
<td>6-cell or 3 + 6-cell</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Case color

Black

### Case material

Display cover: Magnesium Hybrid or PPS; 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

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 (opt)

ThinkPad WiGig dock

Optional: Lenovo USB-C to VGA Adapter

### Camera (optional)

720p: HD720p resolution, fixed focus

### Audio support

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

### Keyboard

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

### Security

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

### Security chip

Discrete TPM 2.0, TCG Certified

### Intel vPro Technology

Intel vPro Technology

### NFC (optional)

Optional: Touch style match on chip fingerprint reader on the keyboard bezel

### Warranty

3-year/1-yr battery depot repair service

### Base

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

### AC adapter

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

## Environment

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

Lenovo
April 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>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>i7-6600U</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 520</td>
</tr>
</tbody>
</table>

or 7th 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>i7-7200U</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>i7-7300U</td>
<td>2</td>
<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>
</tr>
<tr>
<td>i7-7600U</td>
<td>2</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</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: 4096x2304 @ 60Hz (USB Type-C); 4096x2160 @ 24Hz (HDMI)

### Chipset & Memory

- Intel SoC (System on Chip) platform
- 20GB or 24GB max / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to system board, one DDR4 SO-DIMM socket

### Display

- **Some:**
  - 14.0” (355mm) FHD (1920x1080), anti-glare, LED backlight, Ips, 250 nits, 16:9 aspect ratio, 70:1 contrast ratio, 160° viewing angle
  - **Some:** 14.0” (355mm) WQHD (2560x1440), anti-glare, LED backlight, Ips, 300 nits, 16:9 aspect ratio, 70:1 contrast ratio, 160° viewing angle

- On-cell touch, supports 10-finger gesture, 250 nits (FHD only)

### Multi-touch (opt)

### 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

### 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

### WWAN (optional)

- One of the following, configurable by model (mutually exclusive with WiGig):
  - Wireless WAN upgradeable
  - Integrated Mobile Broadband 4G LTE-A
  - 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

### Dimensions

- WxDxH: 13.03” x 8.93” x 0.67-0.74”; 331mm x 226.8mm x 16.9-18.8mm

### Weight

- Starting at 2.9 lb (1.32kg)

### 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

### WiGig dock (opt)

- ThinkPad WiGig dock, mutually exclusive with WWAN

### Monitor cable (optional)

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

### Camera (optional)

- HD720p resolution, fixed focus

### Audio support

- (models without camera are NOT available in EMEA)
  - HD Audio, Realtek® ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack

### Keyboard

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

### Security

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

### Security chip

- Intel vPro Technology

### Finger print reader

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

### Internal battery

- Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated Battery (MobileMark® 2014): up to 10.5 h

### Max battery life

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

### AC adapter

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

### Preload

- Windows® 7 Professional 64 preinstalled

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

Lenovo
April 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>7th Generation Intel® Core™ i5 Processor</th>
<th>8th Generation Intel Core i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Number</td>
<td># of Cores</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>4</td>
<td>8</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 (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 Memory**
- Intel SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

**Display**
- Resolution: 1920x1080, 16:9 aspect ratio, 400:1 contrast ratio, 170° viewing angle
- 170° viewing angle
- 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 14.0" WQHD (2560x1440), anti-glare, LED backlight, IPS
- 220 nits, 16:9 aspect ratio, 400:1 contrast ratio, 170° viewing angle
- One of the following, configurable by model: 
  - HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxx SSD)
- Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 256GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2
- Some: 512GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 1TB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 2TB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 4TB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

**Optane™ memory**
- 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

**Ethernet**
- Non-Pro 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 (mutually exclusive with Intel Optane memory):
  - 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 upgradable

**Audio support**
- HD Audio, Realtek® ALC297 CODEC

**Smart card reader**
- Optional: Smart card reader
- 4-in-1 reader (MMC, SD, SDHC, SDXC)

**Media reader**
- 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)

**Optical memory**
- None
- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

**Storage**
- Some: 1TB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4
- Some: 2TB M.2 SSD / PCIe NVMe, PCIe 3.0 x 4

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

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

**Security**
- Touch fingerprint reader on the keyboard bezel, anti-spoofing technology
- Optional: Touch style match on chip fingerprint reader on the keyboard bezel

**NFC**
- Near Field Communication

**Battery**
- Optional integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

**Max battery life** (MobileMark® 2014)
- Integrated model: 7.2 hr
- Discrete model: 6.6 hr

**Fingerprint reader**
- Optional: Touch style match on chip fingerprint reader on the keyboard bezel

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

**Preload**
- 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

**Power**
- Power-on password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology

**Integrated Magnesium**
- 3.49 lb / 1.60 kg
- 3.92 lb / 1.78 kg

**Integrated PPS**
- 3.63 lb / 1.65 kg
- 4.08 lb / 1.85 kg

**Discrete Magnesium**
- 3.53 lb / 1.60 kg
- 3.97 lb / 1.80 kg

**Discrete PPS**
- 3.68 lb / 1.67 kg
- 4.12 lb / 1.87 kg

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

Lenovo
May 2019
### ThinkPad T480s 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>5-7200U</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>5-7300U</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>5-8250U</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>5-8350U</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>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8650U</td>
<td>4</td>
<td>8</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 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

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, 170° viewing angle, supports ThinkPad Privacy Guard on some models

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 (opt)

On-cell touch supports 10-finger gesture, 250 nits (FHD only)

#### 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

#### Optane™ Memory

None

#### 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™ 7262 (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 (opt)

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

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

### Lenovo

April 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>i5-8265U</td>
<td>4</td>
<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>6</td>
<td>6</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 630</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>8</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 630</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>8</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 630</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

| 4GB max | 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket |

*Installed memory is actually 2933MHz 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>Contrast Ratio</th>
<th>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits</td>
<td>16.9</td>
<td>400:1</td>
<td>45%</td>
<td>90°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>IPS 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; WQHD (2560x1440)</td>
<td>IPS Glossy</td>
<td>500 nits</td>
<td>16.9</td>
<td>1500:1</td>
<td>100% Adobe Color</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

### Multi-touch (optional)

- 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

### Optane™ memory

- Optional: Intel Optane memory, PCIE NVMe, PCIe 3.0 x 2
- None

### Ethernet

- Non-vPro model: Intel Ethernet Connection 219V-V (Jacksonville)
- vPro model: Intel Ethernet Connection 219V-LM (Jacksonville)

### WWAN (optional)

- One of the following, configurable by model:
  * Wireless WAN upgradeable
  * Integrated Mobile Broadband 4G LTE, Fibocom L830-E8B, 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, MIM0 4x4, 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
# ThinkPad T490s Platform Specifications

## Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>L2 Cache</th>
<th>L3 Cache</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>1.6 GHz</td>
<td>3.9 GHz</td>
<td>6MB</td>
<td>8MB</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.1 GHz</td>
<td>6MB</td>
<td>8MB</td>
<td>DDR4-2400</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>8</td>
<td>1.6 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>8MB</td>
<td></td>
</tr>
<tr>
<td>i7-8566U</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 GHz</td>
<td>8MB</td>
<td>8MB</td>
<td></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

- SoC (System on Chip) platform

## Memory

8GB, 16GB or 32GB / 2400MHz DDR4 / 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)</td>
<td>IPS 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; FHD (1920x1080) Low Power</td>
<td>IPS Anti-glare</td>
<td>400 nits (multi-touch)</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot; ThinkPad Privacy Guard</td>
<td>IPS Anti-glare</td>
<td>400 nits (multi-touch)</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot; WQHD (2560x1440) Dolby Vision™ HDR</td>
<td>IPS Glossy</td>
<td>500 nits (multi-touch)</td>
<td>16:9</td>
<td>1500:1</td>
<td>100% Adobe</td>
<td>170°</td>
<td></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

## Optane™ Memory

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

## 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™

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

## WWAN (optional)

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

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

## Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>WxDxH (black with FHD / Privacy Guard)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.95&quot; x 8.90&quot; x 0.66&quot;; 329.0mm x 226.15mm x 16.7mm</td>
</tr>
</tbody>
</table>

## Weight

<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.96 lb / 1.35 kg</td>
</tr>
</tbody>
</table>

## Case color

- Black or Silver

## Case material

- Display cover: CFRP Hybrid (black) or Aluminum (silver)

## Media reader

- 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), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

## Monitor control (optional)

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

## 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

## Audio support

- HD Audio, Realtek ALC3287 codec / Dolby Audio Premium / dual array far-field microphone, headphone / microphone combo jack

## Security

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

## Security chip System Mgmt (optional)

- Intel vPro Technology

## Fingerprint reader

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

## Preload

- 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

## Environment

- EPEAT® Bronze; ENERGY STAR® 7.0; RoHS-compliant

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

Lenovo

May 2019
### Processor Specifications

<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 Controller</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 Pro 3300U</td>
<td>4</td>
<td>4</td>
<td></td>
<td>2.1 GHz</td>
<td>3.5 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<tr>
<td>Ryzen 5 Pro 3500U</td>
<td>4</td>
<td>8</td>
<td></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 Pro 3700U</td>
<td>4</td>
<td>8</td>
<td></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 Graphics</td>
</tr>
</tbody>
</table>

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

### Chipset

- AMD SoC (System on Chip) platform
- 32GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to system board, 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>Color Gamut</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0&quot; HD (1366x768)</td>
<td>TN Anti-glare</td>
<td>220 nits</td>
<td>16:9</td>
<td>400:1</td>
<td>45%</td>
<td>90°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>250 nits (non-touch)</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
<td>170°</td>
<td></td>
</tr>
<tr>
<td>14.0&quot; FHD (1920x1080)</td>
<td>IPS Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

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

### Storage

- 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

- 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 integrated
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-G, M.2 card
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

### SIM card (opt)

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

### Chipset

- RTL8111 Gigabit Ethernet connection
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### Camera

- One of the following, configurable by model:
  - 10 Home 64 or Windows 10 Pro 64

### Audio

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

### Security chip

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

### Max battery life

- MobileMark 2014: 13.4 hr
- Battery life varies significantly with settings, usage, & other factors

### AC adapter

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

### Preload

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

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

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

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

Note: The specifications above may not be available in all regions.
## 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>3MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 8 Graphics</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>3MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 10 Graphics</td>
</tr>
</tbody>
</table>

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

### Graphics

AMD Radeon 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

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

* Installed memory is actually 2666MHz but run at 2400MHz due to AMD 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>FHD (1920x1080)</td>
<td>IPS Anti-giare</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 (1920x1080) Low Power</td>
<td>IPS Anti-giare</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 (1920x1080) ThinkPad Privacy Guard</td>
<td>IPS Anti-giare</td>
<td>400 nits</td>
<td>16.9</td>
<td>1000:1</td>
<td>72%</td>
<td>170°</td>
<td></td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

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

### Storage

M.2 2280 SSD / PCIe NVMe, PCIe 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 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
- 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>WxDxH (FHD / Privacy Guard):</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.95&quot; x 8.90&quot; x 0.66&quot;</td>
<td>329.0mm x 226.15mm x 16.7mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WxDxH (Low Power):</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.94&quot; x 8.89&quot; x 0.63&quot;</td>
<td>328.8mm x 225.8mm x 16.1mm</td>
</tr>
</tbody>
</table>

### Weight

<table>
<thead>
<tr>
<th>Case color</th>
<th>Case material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Display cover: CFPR Hybrid</td>
<td>2.92 lb / 1.33 kg</td>
</tr>
<tr>
<td></td>
<td>Bottom: Magnesium/Aluminum</td>
<td>2.76 lb / 1.25 kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.89 lb / 1.31 kg</td>
</tr>
</tbody>
</table>

### Smart card reader

Optional: Smart card reader

### Media reader

MicroSD card reader

### Ports

One of the following, configurable by model:
- 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, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

### Monitor cable (optional)

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

### Bundled Accy

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

### Audio support

HD Audio, Realtek ALC3287 codec / HDMI to VGA:
- Lenovo HDMI to VGA Monitor Adapter

### Keyboard

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

### Security

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

### Security chip

Discrete TPM 2.0, TCG Certified

### System Mgt

DASH Management

### Fingerprint reader

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

### Battery

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

### Max battery life

MobileMark 2014: 16.4 hr

### AC adapter

54W or 65W USB Type-C AC adapter

### Preload

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

### MIL-Spec test

MIL-STD-810G military testing

### Environment

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

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

Lenovo

June 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>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>2.5 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>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>7-8650U</td>
<td>4</td>
<td>8</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 only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 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, 1000:1 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: SSD / 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

#### 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)

### 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

### SIM card (opt)

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

### Battery

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

### AC adapter

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

### Preload

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/1yr battery depot repair service
- 3-year/1yr battery 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.
ThinkPad T590 Platform Specifications

Product Specifications Reference (PSREF)

Processor 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>i5-8265U</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 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

Memory 48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to system board, one DDR4 SO-DIMM socket

Display

<table>
<thead>
<tr>
<th>Size</th>
<th>Resolution</th>
<th>Type</th>
<th>Brightness</th>
<th>Aspect</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>250 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>45%</td>
</tr>
<tr>
<td>15.6&quot; UHD</td>
<td>(3840x2160)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>500 nits</td>
<td>16:9</td>
<td>1200:1</td>
<td>100%</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

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

Bluetooth™ 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, Fibocom L830-EB, M.2 card (EMEA only)
- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

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

Smart card reader Optional: Smart card reader

Media reader 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 (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole

Monitor cable (optional) USB-C to VGA: Lenovo USB-C to VGA Adapter (NOT available in EMEA)

Bundle Accy None

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

Audio support

- 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

Security

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

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

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

Battery

- Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- 45W or 65W USB Type-C AC adapter

AC adapter

- MobileMark® 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)
- 45W or 65W USB Type-C AC adapter

Preload 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™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

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

Lenovo June 2019
## ThinkPad X1 Carbon (5th 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>i5-6200U</td>
<td>4</td>
<td>2</td>
<td>2.3 GHz</td>
<td>2.8 GHz</td>
<td>3MB</td>
<td>LPDDR3-1866</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>LPDDR3-1866</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i7-6500U</td>
<td>4</td>
<td>2</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</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>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

or 7th 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>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-7500U</td>
<td>4</td>
<td>2</td>
<td>2.7 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-7600U</td>
<td>2</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</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: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 8GB or 16GB / 1866MHz LPDDR3 / soldered to systemboard, no sockets

### Display

#### Some:
- 14.0” (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 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, 170° viewing angle

### Multi-touch

- None

### Optical

- None

### Ethernet

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

### 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
  - Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card
  - 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

- Integrated Mobile Broadband 4G LTE-A, Qualcomm Snapdragon™ X7 LTE-A

### SIM card (opt)

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

### Dimensions

- Height: 12.74” x 8.55” x 0.63”
- Width: 12.74” x 8.55” x 0.63”
- Weight: 323.5mm x 217.1mm x 15.95mm
- Weight: 323.5mm x 217.1mm x 15.95mm

### Color

- Black or Silver (silver is NOT available in EMEA)

### Case material

- Display cover: CFPR/GRFPR hybrid
- Bottom: magnesium alloy hybrid

### Security

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

### Battery

- Integrated Li-Polymer 3-cell (57Wh) RapidCharge battery
- MobileMark® 2014: 15.5 hr
- Battery life varies significantly with settings, usage, & other factors

### Preload

- Windows® 7 Professional 64 preinstalled
- Some: Windows 10 Home 64
- Some: Windows 10 Pro 64

### Warranty

- 3-year/1-yr battery limited onsite service
- Lenovo Companion
- Lenovo Solution Center
- McAfee LiveSafe™ (30-day trial)
- Microsoft Office preloaded
- Product key to activate
- Lenovo PowerEngage
- Lenovo Setting
- Lenovo Support
- Lenovo Trendfirst
- Lenovo Warranty

### Environment

- MIL-STD-810G military testing
- EPEAT® Gold (US only)
- ENERGY STAR® 6.1
- RoHS-compliant
## ThinkPad X1 Carbon (6th 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>i5-7300U</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>i5-7250U</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>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>6MB</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 systemboard, no sockets

### 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) WQHD (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

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

### 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 M.2, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optane™ memory
- None

### Optical
- None

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

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

### 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

### Case material
- magnesium alloy / PPS hybrid

### Weight
- Starting at 2.49 lb / 1.13 kg

### Case color
- Black or Silver (silver case is NOT available in EMEA)

### Display cover
- CFFP/GFFP hybrid

### Media reader
- None

### Ports
- MicroSD card reader, supports UHS-II
- 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
  - Depending on many factors, actual data transfer speed may be lower than theoretical speed

### 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® ALC3286 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby® Atmos™ via headphones

### Security
- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Fingerprint reader
- Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

### Battery
- One of the following, configurable by model:
  - Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
  - MobileMark® 2014: 19.3 hr
  - Battery life varies significantly with settings, usage, & other factors

### Max battery life
- 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

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

### Preload
- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty
- MIL-STD-810G military testing
- EPEAT® Gold (US only) / ENERGY STAR® 6.1; RoHS-compliant

---

Lenovo
April 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>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></td>
<td></td>
</tr>
<tr>
<td>i5-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td></td>
<td></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></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

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

### Chipset

- 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>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; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>700:1</td>
<td>72%</td>
</tr>
<tr>
<td>14.0&quot; FHD</td>
<td>(1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
</tr>
<tr>
<td>14.0&quot; UHD</td>
<td>(2560x1440)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
</tr>
<tr>
<td>14.0&quot; UHD</td>
<td>(3840x2160)</td>
<td>IPS</td>
<td>Glossy</td>
<td>500 nits</td>
<td>16:9</td>
<td>1400:1</td>
<td>90%</td>
</tr>
</tbody>
</table>

### Multi-touch (opt)

- Capacitive-type multi-touch, supports 10-finger gesture (FHD only), anti-reflection (AR), anti-smudge 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
  - Intel Optane SSD, M.2 2280, PCIe NVMe 3.0 x 2
- Optane Memory
  - Intel Optane Memory H10
- 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

- 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:
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card
- **Note:** 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

### Media reader

- None

### Security chip

- Intel vPro Technology
- Discrete TPM 2.0, TCG Certified

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Touch screen fingerprint reader, match on chip fingerprint reader on the palm rest

### Battery

- Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- **Note:** Battery life varies significantly with settings, usage, & other factors

### AC adapter

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

### Preload

- 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™ Bronze; ENERGY STAR® 7.1; RoHS-compliant

### Lenovo

*June 2019*
### ThinkPad X1 Extreme Platform Specifications

**Product Specifications Reference (PSREF)**

<table>
<thead>
<tr>
<th>Processor 8th Generation Intel® Core™ i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Intel UHD Graphics 630</td>
</tr>
</tbody>
</table>

| Graphics | Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1050 Ti Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt®; supports four independent displays; Max resolution: 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI) |

| Chipset Memory | Mobile Intel CM246 Chipset 64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets |

| Display | Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle; Some: 15.6" (396mm) HDR 4K (3840x2160) with Dolby Vision™, anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR) |

| Multi-touch (opt) Pen | Capacitive-type multi-touch, supports 10-finger gesture (4K only) |

| Storage | Up to 2 drives (two M.2 SSD); M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) |

| Optane™ memory / (optional) Optical | None / (optional) Optical |

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

| 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 |

| 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 3.76 lb (1.7 kg); Multi-touch model: starting at 4.06 lb (1.8 kg) |

| Case color | Black |

| Case material | Display cover: CFFRP/GFRP hybrid; Bottom: Aluminum alloy |

### Additional Specifications

<table>
<thead>
<tr>
<th>Smart card reader</th>
<th>Optional: Smart card reader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media reader</td>
<td>SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card</td>
</tr>
<tr>
<td>Ports</td>
<td>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 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole</td>
</tr>
<tr>
<td>Monitor cable (optional)</td>
<td>USB-C to DP: Lenovo USB-C to DisplayPort Adapter</td>
</tr>
<tr>
<td>Bundled Accy (optional)</td>
<td>ThinkPad Ethernet Extension Cable</td>
</tr>
<tr>
<td>Camera (optional)</td>
<td>One of the following, configurable by model: HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus</td>
</tr>
<tr>
<td>Audio support</td>
<td>HD Audio, Realtek ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone</td>
</tr>
<tr>
<td>Keyboard</td>
<td>6-row, spill-resistant, multimedia Fn keys, LED backlight</td>
</tr>
<tr>
<td>UltraNav™</td>
<td>TrackPoint® pointing device and buttonless glass surface multi-touch touchpad</td>
</tr>
<tr>
<td>Security</td>
<td>Power-on password, hard disk password, supervisor password, security keyhole</td>
</tr>
<tr>
<td>Security chip vPro (optional)</td>
<td>Intel vPro Technology</td>
</tr>
<tr>
<td>Fingerprint reader</td>
<td>Touch style match on chip fingerprint reader on the keyboard bezel</td>
</tr>
<tr>
<td>Color calibration</td>
<td>None</td>
</tr>
<tr>
<td>NFC</td>
<td>None</td>
</tr>
<tr>
<td>Battery</td>
<td>Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)</td>
</tr>
<tr>
<td>Max battery life (MobileMark 2014)</td>
<td>AC adapter</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>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</td>
</tr>
<tr>
<td>Preload</td>
<td>Windows® 10 Home 64 or Windows 10 Pro 64</td>
</tr>
<tr>
<td>Mil-Spec test</td>
<td>MIL-STD-810G military testing</td>
</tr>
<tr>
<td>Environment</td>
<td>EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant</td>
</tr>
</tbody>
</table>

Note: The specifications above may not be available in all regions.
### 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>i3-6006U</td>
<td>2</td>
<td>2.0 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i3-6100U</td>
<td>2</td>
<td>2.3 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i5-6200U</td>
<td>2</td>
<td>2.3 GHz</td>
<td>3.8 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 520</td>
</tr>
<tr>
<td>i3-6300U</td>
<td>2</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>7-6500U</td>
<td>4</td>
<td>2.6 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7-6600U</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>
</tbody>
</table>

or 7th Generation Intel Core i3 / i5 / i7 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>i3-7100U</td>
<td>2</td>
<td>2.4 GHz</td>
<td>-</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7300U</td>
<td>2</td>
<td>2.8 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>7-7500U</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.5 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i7-7600U</td>
<td>4</td>
<td>2.8 GHz</td>
<td>3.9 GHz</td>
<td>4MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel HD Graphics 520 or 620 in processor;
- Displays:
  - Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- Supports three independent displays
- Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

### Display

- 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16.9 aspect ratio, 500:1 contrast ratio
- Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS, 300 nits, 16.9 aspect ratio, 500:1 contrast ratio, 700:1 contrast ratio, 170° viewing angle
- Some: 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 (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:
  - SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
  - SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xXxGB SSD)
  - M.2 SSD / PCIE NVMe, PCie 3.0 x 2, 16Gb/s
  - 128GB M.2 SSD / SATA 6.0Gb/s, in WAN 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)

### 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 8.01ad + Wi-Fi 2x2 802.11ac + BT4.1 (US only)

### Bluetooth

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter
- * Intel 8265ac / 18265ac card supports 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 upgradeable
  - Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)
  - Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU) (EMEA only)

### SIM card (optional)

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

### Product Specifications Reference (PSREF)

**Lenovo**

April 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>Graphics Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-7130U</td>
<td>2</td>
<td>4</td>
<td>2.7 GHz</td>
<td>3.7 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
</tr>
<tr>
<td>i5-7200U</td>
<td>4</td>
<td>8</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2400</td>
<td>Intel UHD 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>

Chipset Memory

- Intel SoC (System on Chip) platform
- 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

- 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)

Optane™ memory

- 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™

- 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

SIM card (opt)

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

Battery

- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- with 65W USB Type-C AC adapter

Max battery life

- MobileMark® 2014: 16.6 hr
- * Battery life varies significantly with settings, usage, & other factors

AC adapter

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

Preload

- 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.

April 2019
## ThinkPad X390 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>i3-8154U</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>
</tr>
<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>i7-8655U</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: 4096 x 2304 @ 60Hz (Thunderbolt); 4096 x 2160 @ 24Hz (HDMI)

**Chipset Memory**

- Intel SoC (System on Chip) platform
- 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- *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>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</td>
<td>(1366 x 768)</td>
<td>TN</td>
<td>250 nits</td>
<td>16:9</td>
<td>500:1</td>
<td>45%</td>
<td>90°</td>
</tr>
<tr>
<td>13.3&quot; FHD</td>
<td>(1920 x 1080)</td>
<td>IPS</td>
<td>300 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>13.3&quot; FHD (opt)</td>
<td>(1920 x 1080)</td>
<td>Anti-glare</td>
<td>400 nits</td>
<td>16:9</td>
<td>1000:1</td>
<td>72%</td>
<td>178°</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

**Optane™ memory**

- Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 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 (optional)**

- One of the following, configurable by model:
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

**Bluetooth™**

- Bluetooth 5.0 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
- *For non-WWAN model, it means the model is NOT WWAN upgradable*

**Weight**

<table>
<thead>
<tr>
<th>Model</th>
<th>FHD Non-touch</th>
<th>HD / FHD Multi-touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPS</td>
<td>312.0mm x 217.2mm x 16.9mm</td>
<td>12.28&quot; x 8.55&quot; x 0.67&quot;</td>
</tr>
</tbody>
</table>

**Battery**

- Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- *Battery life varies significantly with settings, usage, & other factors*

**AC adapter**

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

**Preload**

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

**Mil-Spec test**

- MIL-STD-810G military testing

**Environment**

- EPEAT® Bronze; ENERGY STAR® 7.0; RoHS-compliant

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

---

**Lenovo June 2019**
ThinkPad X395 Platform Specifications

Product Specifications Reference (PSREF)

Processor AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

<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 Pro 3300U</td>
<td>4</td>
<td>4</td>
<td>2.1 GHz</td>
<td>3.5 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</td>
<td>Radeon Vega 6 Graphics</td>
</tr>
<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 Graphics</td>
</tr>
<tr>
<td>Ryzen 7 Pro 3700U</td>
<td>4</td>
<td>8</td>
<td>2.1 GHz</td>
<td>4.0 GHz</td>
<td>2MB L2 / 4MB L3</td>
<td>DDR4-2400</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 three independent displays; Max resolution: 4096x2304@60Hz (USB-C): 4096x2160@24Hz (HDMI)

Chipset Memory AMD SoC (System on Chip) platform

<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>13.3&quot;</td>
<td>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>
</tr>
<tr>
<td>13.3&quot;</td>
<td>FHD (1920x1080)</td>
<td>IPS</td>
<td>Anti-glare</td>
<td>300 nits</td>
<td>16:9</td>
<td>800:1 (non-touch)</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>13.3&quot;</td>
<td>FHD (1920x1080)</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>
</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

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) Bluetooth™ Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

WWAN (optional) One of the following, configurable by model:
- Wireless WAN upgradeable
- 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) Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions WxHxD: 12.28" x 8.55" x 0.67": 311.9mm x 217.2mm x 16.9mm
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/GE; 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) Lenovo HDMI to VGA Monitor Adapter
Bundled Accy 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

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 Power-on password, hard disk password, supervisor password, security keyhole
Security chip Discrete TPM 2.0, TCG Certified
System Mgt DASH Management
Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest
NFC None

Battery Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Max battery life MobileMark® 2014: 14.5 hr
* Battery life varies significantly with settings, usage, & other factors
AC adapter 45W or 65W USB Type-C AC adapter
Preload 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

Mil-Spec test MIL-STD-810G military testing
Environment EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant

Lenovo
June 2019

Note: The specifications above may not be available in all regions.
This publication was developed for products and services offered in the North America, E.M.E.A and Asia & Pacific countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkBook, ThinkCentre, ThinkStation, ThinkVision and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Inside, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

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.

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.
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1</td>
</tr>
<tr>
<td>Contents</td>
<td>2</td>
</tr>
<tr>
<td>Summary Of Change</td>
<td>3</td>
</tr>
<tr>
<td>ThinkPad Tablets</td>
<td>4</td>
</tr>
<tr>
<td>ThinkPad X1 Tablet (3rd Gen)</td>
<td>4</td>
</tr>
<tr>
<td>ThinkPad X1 Tablet (3rd Gen) Platform Specifications</td>
<td>5</td>
</tr>
<tr>
<td>ThinkPad Yoga</td>
<td>6</td>
</tr>
<tr>
<td>ThinkPad L380 Yoga</td>
<td>6</td>
</tr>
<tr>
<td>ThinkPad L380 Yoga Platform Specifications</td>
<td>7</td>
</tr>
<tr>
<td>ThinkPad L390 Yoga</td>
<td>8</td>
</tr>
<tr>
<td>ThinkPad L390 Yoga Platform Specifications</td>
<td>9</td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (3rd Gen)</td>
<td>10</td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (3rd Gen) Platform Specifications</td>
<td>11</td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (4th Gen)</td>
<td>12</td>
</tr>
<tr>
<td>ThinkPad X1 Yoga (4th Gen) Platform Specifications</td>
<td>13</td>
</tr>
<tr>
<td>ThinkPad X380 Yoga</td>
<td>14</td>
</tr>
<tr>
<td>ThinkPad X380 Yoga Platform Specifications</td>
<td>15</td>
</tr>
<tr>
<td>ThinkPad X390 Yoga</td>
<td>16</td>
</tr>
<tr>
<td>ThinkPad X390 Yoga Platform Specifications</td>
<td>17</td>
</tr>
<tr>
<td>ThinkPad Yoga 11e (5th Gen)</td>
<td>18</td>
</tr>
<tr>
<td>ThinkPad Yoga 11e (5th Gen) Platform Specifications</td>
<td>19</td>
</tr>
<tr>
<td>Legal Information</td>
<td>20</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.

June 26, 2019 - Version 544

Additions in this update

► New product(s)
  ThinkPad X1 Yoga (4th Gen)

► New model(s)
  None

► Others
  None

Changes in this update

► 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>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></td>
<td></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></td>
<td></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></td>
<td></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

<table>
<thead>
<tr>
<th>Port</th>
<th>Capacity</th>
<th>Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>8GB</td>
<td>or 16GB</td>
<td>LPDDR3 2133</td>
</tr>
</tbody>
</table>

### Display

- Capacitive touch panel.
- Anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing).
- 13.0” (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS.
- Corning® Gorilla® Glass, WideView (160° viewing).

### Multi-touch Pen

- Optional: Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro) for multi-touch display.

### Kickstand

- Opening angle up to 170 degrees.

### Storage

- M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)

### Optical Storage extension

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

### Bluetooth™

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter.

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455).

### SIM card (opt)

- Nano-SIM card slot, in the combo slot with microSD card reader.

### Dimensions

- Tablet only: 11.97” x 8.9” x 0.35”
- 304.1mm x 226mm x 8.9mm

### Weight

- Tablet only: starting at 1.96 lb (0.93kg)
- 304.1mm x 226mm x 14.4mm

### Case color

- Black

### Case material

- Magnesium/Aluminum

### Ports

- Two USB 3.1 Type-C Gen 1 / Thunderbolt 3 / Power Delivery 3.0.
- One Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack.
- Combo slot of nano-SIM card (WWAN models) and microSD card reader.

### SIM card reader

- None.

### Security

- Security chip.
- Security chip vPro (optional).
- Security chip vPro (optional).
- Security chip vPro (optional).
- Security chip vPro (optional).

### Audio support

- Adpater.
- Monitor cable.

### Monitor cable

- Video adapter.
- Video adapter.

### Battery

- Integrated Li-Ion 42Wh battery.
- MobileMark® 2014: 9.5 hr
- * Battery life varies significantly with settings, usage, & other factors

### AC adapter

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

### Light sensor

- Ambient Light Sensor.

### Gyroscope

- 3D accelerometer.

### GPS

- GPS function is integrated into WWAN module.

### Preload

- Some: Windows 10 Pro 64.
- Some: Windows 10 Home 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, GREENGUARD, Low Halogen, RoHS.

---

Lenovo
March 2019
## ThinkPad L380 Yoga 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>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

### 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: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Display

Some: 13.3" (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle

Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

Yoga hinge, 360 degree

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 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)

### Optane Memory

None

### Ethernet

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

### 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

### Chipset

Intel SoC (System on Chip) platform

### Camera

720p:

HD720p resolution, low light sensitive, fixed focus

IR & 720p:

IR camera and HD720p camera, fixed focus

Audio support

World facing: Rear camera, 5MP resolution, auto focus

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

### Keyboard

UltraNav™ 6-row, multimedia Fn keys, optional LED backlight

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

### Security

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

Discrete TPM 2.0, TCG Certified

Intel vPro Technology

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

### Battery

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

### Preload

Windows® 10 Home 64 or Windows 10 Pro 64

### 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

### Environment

EPEAT® Gold, ENERGY STAR® 6.1; RoHS-compliant
### ThinkPad L390 Yoga 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>i3-8145U</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>
</tr>
<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>
</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 (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**

- 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle

**Multi-touch**

- Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

**Hinge**

- Yoga hinge, 360 degree Multi-mode

**Pen (optional)**

- 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
  - 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 (e.g. xxxGB SSD M.2 PCIe NVMe)

**Optane™ Memory**

- 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

**Camera**

- 720p: HD720p resolution, low light sensitive, fixed focus
- IR & 720p: IR camera and HD720p camera, fixed focus (black model only)
- World facing: 5MP resolution, auto focus

**Audio support**

- HD Audio, Realtek ALC3287 codec, Dolby Audio®

**Keyboard**

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

**Security chip**

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

**Fingerprint reader**

- Optional: Touch style fingerprint reader on the palm rest

**NFC (optional)**

- Near Field Communication

**Battery**

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

**Max battery life**

- MobileMark® 2014: 12.17 hr
- Battery life varies significantly with settings, usage, & other factors

**AC adapter**

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

**Preload**

- 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

**MII-Spec test**

- MIL-STD-810G military testing

**Environment**

- ENERGY STAR® 7.0; RoHS-compliant

---

**Dimensions**

- WxDxH: 12.67” x 8.82” 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**

- Display cover: Magnesium / Aluminum

**Bottom**

- GFRP

**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

- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to VGA + Power Adapter: Lenovo USB-C to VGA plus Power Adapter
- USB-C to HDMI: Lenovo USB-C to HDMI Adapter
- USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter
- USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
- USB-C to USB-A: Lenovo USB-C to USB-A Adapter
- USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M

---

**Lenovo**

March 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>8th Generation Intel® Core™ i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td></td>
</tr>
<tr>
<td># of Cores</td>
<td></td>
</tr>
<tr>
<td># of Threads</td>
<td></td>
</tr>
<tr>
<td>Base Frequency</td>
<td>Max Turbo Frequency</td>
</tr>
<tr>
<td>8-8250U</td>
<td>4</td>
</tr>
<tr>
<td>8-8350U</td>
<td>4</td>
</tr>
<tr>
<td>7-8550U</td>
<td>4</td>
</tr>
<tr>
<td>7-8650U</td>
<td>4</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: 5120x2880 @ 60Hz (USB Type-C); 4096x2160 @ 30Hz (HDMI)

**Chipset**
- Intel SoC (System on Chip) platform
- soldered to systemboard, no sockets

**Display**
- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10%
- **Multi-touch**
- **Convert-mode**
- **Pen (optional)**
- **Hinge**
- **Optical**
- **Ethernet**

**WLAN**
- 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

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

**Dimensions**
- **Weight**
- **Case color**
- **Case material**

**Smart card reader**
- None

**Media reader**
- MicroSD card reader, supports UHS-II

**Ports**
- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt
- 3, HDMI 1.4, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

**WiGig dock**
- None

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

**Camera (optional)**
- One of the following, configurable by model:
  - 720p:
    - HD720p camera with ThinkShutter camera privacy, fixed focus
  - 1080p:
    - IR & 1080p: IR camera and HD720p camera, fixed focus

**Audio support**
- HD Audio, Realtek ALC3286 codec, Dolby Audio™ Premium / stereo speakers, 1W x 2 / dual array microphone, headphone / microphone combo jack

**Keyboard**
- 6-row wave keyboard (rise & fall), spill-resistant, multimedia Fn keys, LED backlight
  - **UltraNav™**
    - TrackPoint® pointing device and 3+2 buttons multi-touch clickpad

**Security**
- Power-on password, hard disk password, supervisor password, security keyhole
- **Security chip vPro (optional)**
- **Security**
  - Discrete TPM 2.0 TCG Certified

**Battery**
- Integrated Li-Ion 54Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
  - with 65W USB Type-C AC adapter
  - * Battery life varies significantly with settings, usage, & other factors

**Max battery life**
- MobileMark® 2014: 15.4 hr
  - 1-year depot repair service

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

**Light sensor**
- Ambient Light Sensor

**G-sensor**
- 3D accelerometer

**Gyroscope**
- 3D gyrometer

**GPS**
- GPS function is integrated into WWAN module
  - **Function**
    - GPS function is integrated into WWAN module
  - **Training**
    - GPS function is integrated into WWAN module

**Preload**
- 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

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

**Environment**
- EPEAT™ Gold; ENERGY STAR®; RoHS-compliant

Lenovo
March 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>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>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>8-6655U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.8 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 HDMI or USB Type-C / Thunderbolt
- Supports three independent displays

**Max resolution**: 5120x2880@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)

**Chipset**

- 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>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) Low Power</td>
<td>IPS</td>
<td>Glossy</td>
<td>380 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>Glossy</td>
<td>380 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>280 nits</td>
<td>16:9</td>
<td>800:1</td>
<td>72%</td>
<td>170°</td>
</tr>
<tr>
<td>14.0&quot;</td>
<td>UHD (3840x2160) Dolby Vision™ HDR400</td>
<td>IPS</td>
<td>Glossy</td>
<td>470 nits</td>
<td>16:9</td>
<td>1400:1</td>
<td>90%</td>
<td>170°</td>
</tr>
</tbody>
</table>

**Multi-touch**

- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture
- Yoga hinge, 360 degree
- Laptop, tent, stand, and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

**Optane™ Memory**

Inte Optane Memory H10

**Optical**

None

**Ethernet**

Native Intel Ethernet Connection I1219-LM (vPro) or I1219-V (Non-vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

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

**WWAN (optional)**

- Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
- Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card

**SIM card (opt)**

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

**Dimensions**

- **WxDxH**: 12.71" x 8.58" x 0.61"; 323mm x 218mm x 15.5mm
- **Starting at**: 2.99 lb (1.36kg)

**Case color**

Iron Gray

**Case material**

Display cover: Aluminum; 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

**Optional**: Lenovo HDMI to VGA Monitor Adapter

**Bundled Accy**: ThinkPad Ethernet Extension Adapter Gen 2

**Camera (optional)**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek® ALC1012L codec, Stereo speakers, 2W x 2, 0.8W x 2, Dolby® Audio® Atmos / Quad array far-field microphone, headphone / microphone combo jack

**Audio support**

- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek® ALC1012L codec, Stereo speakers, 2W x 2, 0.8W x 2, Dolby® Audio® Atmos / Quad array far-field microphone, headphone / microphone combo jack

**Keyboard**

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

**UltraNav™**

Pointing device and buttonless Glass surface multi-touch touchpad

**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 palm rest
- Optional: Near Field Communication

**Battery**

Integrated Li-Ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

**Max battery life**

- MobileMark® 2014: 18.1 hrs
- *Battery life varies significantly with settings, usage, & other factors

**AC adapter**

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

**G-sensor**

3D accelerometer

**GPS**

3D gyrometer

**GPS function is integrated into WWAN module**

**Preload**

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

**Limited warranty**

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

**Mil-Spec test**

MIL-STD-810G military testing

**Environment**

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

Lenovo
June 2019
## ThinkPad X380 Yoga 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>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>i5-8560U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></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></td>
<td></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)
- System clocks down for processors with lower memory controller

### Chipset

- Intel SoC (System on Chip) platform 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- System locks 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
- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

### Hinge

- Yoga hinge, 360 degree
- Supports 360-degree Convert-mode (tablet, tent, stand, yoga and laptop)
- Yoga hinge, 360 degree, supports 10-finger gesture
- Yoga hinge, 360 degree, supports 10-finger gesture

### Storage

- Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxG SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)

### Optical Optane Memory

- None

### Ethernet

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

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE, Intel XMM™ 7622 (Fibocom L830-EB), M.2 card (EMEA only)

### SIM card (opt)

- Nano-SIM card slot

### 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

- Ports: One microSD card slot (microSD, microSDHC, microSDXC), UHS-I
- Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector, one USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models), headphone / microphone combo jack
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### WiGig dock

- None

### Monitor cable

- Optional: 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
- Audio support: HD Audio, Conexant CX11771 codec / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack
- Keyboard: 6-row, spill-resistant, multimedia Fn keys, LED backlight
- TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip: Discrete TPM 2.0 TCG Certified
- Intel vPro Technology
- Optional: Touch style match on chip fingerprint reader on the palm rest
- Near Field Communication (mutually exclusive with smart card reader)

### Battery

- Li-Ion 51Wh battery
- Max battery life: MobileMark® 2014: 13.6 hr
- AC adapter: 45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter
- Ambient Light Sensor
- 3D accelerometer and 3D magnetometer
- 3D compass
- 3D gyrometer

### Limited warranty

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

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Gold, ENERGY STAR®; RoHS-compliant

---

**Lenovo**

March 2019
## ThinkPad X390 Yoga 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>i5-8265U</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>i5-8565U</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>
</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@24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- Supports Mobile Broadband (WWAN)
- Optional: Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
- Optional: Intel vPro Technology

### Display

- 13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge) supports 10-finger gesture
- AR (anti-reflection), AS (anti-smudge) supports 10-finger gesture

### Storage

- • 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

### Memory

- Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation
- 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets

### Optane™

- Optional: Intel Optane memory or Intel Optane Memory H10

### Ethernet

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

### WLAN

- 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™

- Bluetooth 5.0 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

### Security

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

### Audio

- HD Audio, Realtek® ALC3287 codec / stereo speakers, 2x2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Power

- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- MobileMark® 2014: 14.5 hrs

### Preload

- Windows® 10 Home 64 or Windows 10 Pro 64

### Dimensions

- 12.22" x 8.62" x 0.63"; 310.4mm x 219mm x 15.95mm

### Weight

- Starting at 2.85 lb (1.29kg)

### Case Material

- Carbon-Fiber Hybrid

### Case color

- Black or silver

Lenovo
April 2019
### 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 Controller</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>m3-7Y30</td>
<td>2</td>
<td></td>
<td>1.0 GHz</td>
<td>2.6 GHz</td>
<td>4MB</td>
<td>LPDDR3-1866</td>
<td>Intel HD Graphics 615</td>
</tr>
<tr>
<td>i5-7Y54</td>
<td>4</td>
<td></td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cel N4100</td>
<td>4</td>
<td></td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 600</td>
</tr>
<tr>
<td>Pen N5000</td>
<td>4</td>
<td></td>
<td>1.1 GHz</td>
<td>2.7 GHz</td>
<td>4MB</td>
<td></td>
<td>Intel UHD Graphics 605</td>
</tr>
</tbody>
</table>

- **Processor**: 7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor
- **Chipset**: Intel SoC (System on Chip) platform
- **Memory**: 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets
- **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)
- **Dimensions**: WxDxH: 11.81" x 8.27" x 0.89"; 300mm x 210mm x 22.5mm from 3.4 lb (1.54kg)
- **Weight**: from 3.4 lb (1.54kg)
- **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, HDMI1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole
- **Control buttons**: Power button, volume control button
- **Camera**: One of the following, configurable by model:
  - 720p: HD720p resolution, low light sensitive, fixed focus
  - World facing: Rear camera, SMP resolution, auto focus
  - HD Audio, Realtek® ALC3287 codec Dolby Audio / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack
- **Audio support**: Keyboard 6-row, multimedia Fn keys
- **Keyboard UltraNav™**: Two buttons click pad below keyboard, multi-touch
- **Security chip**: Power-on password, hard disk password, supervisor password, security keyhole
- **Power-on password, hard disk password, supervisor password, security keyhole**: Discrete TPM 2.0, TCG Certified
- **Fingerprint reader**: None
- **Battery**: Integrated Li-Ion 42Wh battery
- **Max battery life**: MobileMark® 2014: 12 hr
- **WLAN**: 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
  - Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter
- **WWAN**: None

Lenovo
March 2019
This publication was developed for products and services offered in the North America, E.M.E.A and Asia & Pacific countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkBook, ThinkCentre, ThinkStation, ThinkVision and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

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.

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.

# Contents

1. ThinkCentre M715 Tiny (2nd Gen) .................................................. 35
2. ThinkCentre M715 Tiny (2nd Gen) Platform Specifications ................. 36
4. ThinkCentre M715 Tiny Thin Client ................................................... 37
5. ThinkCentre M715 Tiny Thin Client Platform Specifications ............... 38
5. ThinkCentre M715 Tiny Thin Client (2nd Gen) ................................... 39
6. ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications .... 40
7. ThinkCentre M720 SFF ..................................................................... 41
8. ThinkCentre M720 SFF Platform Specifications ................................. 42
9. ThinkCentre M720 Tiny .................................................................... 43
10. ThinkCentre M720 Tiny Platform Specifications ............................... 44
11. ThinkCentre M720 Tower ................................................................. 45
12. ThinkCentre M720 Tower Platform Specifications ............................ 46
13. ThinkCentre M725 SFF .................................................................... 47
14. ThinkCentre M910 SFF ................................................................... 49
15. ThinkCentre M910 SFF Platform Specifications ............................... 50
16. ThinkCentre M910 Tiny ................................................................... 51
17. ThinkCentre M910 Tiny Platform Specifications ............................... 52
18. ThinkCentre M910 Tower ................................................................. 53
19. ThinkCentre M910 Tower Platform Specifications ............................ 54
20. ThinkCentre M910x Tiny .................................................................. 55
21. ThinkCentre M910x Tiny Platform Specifications ............................ 56
22. ThinkCentre M920 SFF ................................................................... 57
23. ThinkCentre M920 SFF Platform Specifications ............................... 58
24. ThinkCentre M920 Tiny ................................................................... 59
25. ThinkCentre M920 Tiny Platform Specifications ............................... 60
26. ThinkCentre M920 Tower ................................................................. 61
27. ThinkCentre M920 Tower Platform Specifications ............................ 62
28. ThinkCentre M920x Tiny .................................................................. 63
29. ThinkCentre M920x Tiny Platform Specifications ............................ 64
30. Smart Office .................................................................................... 65
31. ThinkSmart Hub 500 ...................................................................... 65
32. ThinkSmart Hub 500 Platform Specifications ................................. 66
33. Tiny-In-One .................................................................................... 67
34. ThinkCentre Tiny-In-One 22 ............................................................. 67

---

- Cover
- Contents
- Summary Of Change
- M Series AIO
  - ThinkCentre M810z AIO
    - ThinkCentre M810z AIO Platform Specifications
  - ThinkCentre M820z AIO
    - ThinkCentre M820z AIO Platform Specifications
  - ThinkCentre M910z AIO
    - ThinkCentre M910z AIO Platform Specifications
- M Series Desktop
  - ThinkCentre M600 Tiny
    - ThinkCentre M600 Tiny Platform Specifications
  - ThinkCentre M600 Tiny Thin Client
    - ThinkCentre M600 Tiny Thin Client Platform Specifications
  - ThinkCentre M625 Tiny
    - ThinkCentre M625 Tiny Platform Specifications
  - ThinkCentre M625 Tiny Thin Client
    - ThinkCentre M625 Tiny Thin Client Platform Specifications
  - ThinkCentre M630e Tiny
    - ThinkCentre M630e Tiny Platform Specifications
  - ThinkCentre M710 SFF
    - ThinkCentre M710 SFF Platform Specifications
  - ThinkCentre M710 Tiny
    - ThinkCentre M710 Tiny Platform Specifications
  - ThinkCentre M710 Tower
    - ThinkCentre M710 Tower Platform Specifications
  - ThinkCentre M710e SFF
    - ThinkCentre M710e SFF Platform Specifications
  - ThinkCentre M715 SFF
    - ThinkCentre M715 SFF Platform Specifications
  - ThinkCentre M715 Tiny
    - ThinkCentre M715 Tiny Platform Specifications
- ThinkCentre M715 Tiny Thin Client
  - ThinkCentre M715 Tiny Thin Client Platform Specifications
- ThinkCentre M715 Thin Client
  - ThinkCentre M715 Thin Client Platform Specifications
<table>
<thead>
<tr>
<th>Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ThinkCentre Tiny-In-One 22 Platform Specifications</td>
<td>68</td>
</tr>
<tr>
<td><strong>ThinkCentre Tiny-In-One 22 Gen3</strong></td>
<td>69</td>
</tr>
<tr>
<td>ThinkCentre Tiny-In-One 22 Gen3 Platform Specifications</td>
<td>70</td>
</tr>
<tr>
<td><strong>ThinkCentre Tiny-In-One 24</strong></td>
<td>71</td>
</tr>
<tr>
<td>ThinkCentre Tiny-In-One 24 Platform Specifications</td>
<td>72</td>
</tr>
<tr>
<td><strong>ThinkCentre Tiny-In-One 24 Gen3</strong></td>
<td>73</td>
</tr>
<tr>
<td>ThinkCentre Tiny-In-One 24 Gen3 Platform Specifications</td>
<td>74</td>
</tr>
<tr>
<td><strong>ThinkCentre Tiny-In-One 27</strong></td>
<td>75</td>
</tr>
<tr>
<td>ThinkCentre Tiny-In-One 27 Platform Specifications</td>
<td>76</td>
</tr>
<tr>
<td><strong>Legal Information</strong></td>
<td>77</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.

June 2019 - Version 544

Additions in this update

► New product(s)
  None

► New model(s)
  None

► Others
  Update ThinkCentre M920x Tiny with 9 Gen processors
  Update ThinkCentre M920 Tiny with 9 Gen processors
  Update ThinkCentre M920 Tower with 9 Gen processors
  Update ThinkCentre M920 SFF with 9 Gen processors
  Update ThinkCentre M720 Tiny with 9 Gen processors
  Update ThinkCentre M720 Tower with 9 Gen processors
  Update ThinkCentre M720 SFF with 9 Gen processors
  Update ThinkCentre M920z AIO with 9 Gen processors
  Update ThinkCentre M820z AIO with 9 Gen processors

Withdrawals in this update

► Withdrawn product(s)
  None

► Withdrawn model(s)
  None
# ThinkCentre M810z 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>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>DDR4-2400</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 4</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2400</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>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 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 / 6</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 / 8</td>
<td>4.3G / 4.8G</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>3.5G / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

**Memory**

- 32GB max, DDR4-2400, 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"
- 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), SATA 1.5Gb/s, Drive, slim (9.5mm)
- Optional 9-in-1 media card reader

**Graphics**

- Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™
- Max resolution: 4096x2304 (DP) @60Hz, 1920x1080 (Panel) @60Hz

**Display**

- 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color, MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16.9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode

**Multi-touch Camera**

- Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch
- Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off

**Controls**

- Physical buttons for Microphone mute, brightness up/down, and power on/off

**Chipset**

- Intel B250 Chipset

**Rear ports**

- Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort, optional serial (9-pin), two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm)
- M.2 card slot
  - * Depending on many factors, actual data transfer speed may be lower than theoretical speed
  - Two M.2 Card slots (one for WLAN, one for SSD/Optane)

**Audio support**

- High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio® certified

**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
- Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**Bluetooth**

- Gigabit ethernet, Realtek RTL8111G, Wake on LAN™

**Manageability**

- None

**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 attachment of optional Kensington® MicroSaver® cable)
- Kensington lock also locks chassis
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock keyboard and mouse
- Power-on, admin, hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disabling
- 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**

- Business black color
- Tiltless stand
- Support VESA mount (100mm)

**Mechanical**

- Dimensions (WxDxH): 21.1 X 1.8 X 14.3 (inch); (Touch) 14.6 / 6.6
- Max weight (lb / kg): 535 X 45 X 363 (mm)
- Adjustments:
  - N/A
  - With Basic Monitor stand:
    - 21.1 X 9.8 X 17.0 (inch); (Non-touch) 12.8 / 5.8
    - Tilt: 45° back, -5° forward
  - With UltraFlex II stand:
    - 21.1X 10.0 X 19.3 (inch); (Touch) 20.3 / 9.2
    - (Non-touch) 18.3 / 8.3
    - Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°

**Power supply**

- 150 watts, autosensing, 85% PSU

**Limited warranty**

- Some: 1-year or 3-year, depot repair 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
  - 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 Windows 10
  - Lenovo Companion
    - Only for Window 7
  - Lenovo Solution Center
  - Lenovo ThinkVantage Tools
  - ThinkVantage System Update
  - Create Recovery Media
  - Adobe® Reader®
  - Cyberlink PowerDVD Create (Dvd±rw)

**Environment**

- EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ErP Lot 3; GREENGUARD® certified; 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://www.lenovocomquickpick.com](http://www.lenovocomquickpick.com)
**ThinkCentre M820z Platform Specifications**

**Processor**
- Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 series

**Memory**
- 32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable

**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 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

**Graphics**
- Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™

**Display**
- 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color, Borderless design, MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode

**Multi-touch**
- Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology

**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 Gen1, one optional card reader, one headphone / microphone combo jack (3.5mm)

**Side ports**
- Some: 4.0G

**Special features**
- Security slot (in rear for attachment of Kensington® MicroSaver® cable; Boot sequence control
- Security chip
- Bluetooth™
- Ethernet

**WLAN**
- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

**Power supply**
- 150 watts, autosensing, 90% PSU

**Limited warranty**
- Some: 1-year or 3-year, depot repair 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 preload; purchase a product key to activate
- Cyberlink PowerDVD (only for models with DVD / DVD+RW)
- Cyberlink Power2GO (only for models with DVDs+RW)
- LinkedIn

**Environment**
- ENERGY STAR® 7.0*, EPEAT Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified
- LIMITED VERSION

**Accessories**
- For compatible accessories, please go to http://smartfind.lenovo.com
### ThinkCentre M910z Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 6</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 6</td>
</tr>
<tr>
<td>Core i7-7600</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable</th>
</tr>
</thead>
<tbody>
<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>Some: Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel HD Graphics 530/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort®</td>
</tr>
<tr>
<td>Display</td>
<td>23.8&quot; (604.5mm) Full HD 1080p (1920x1080) TFT color, WVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)</td>
</tr>
<tr>
<td>Multi-touch Camera</td>
<td>Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch, Physical switch on/off</td>
</tr>
<tr>
<td>Controls</td>
<td>Optional 1080p camera, fixed microphone, LED indicator, Physical buttons on/off</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® Q270 Chipset</td>
</tr>
</tbody>
</table>

#### Power supply
- 150 watts, autosensing, 85% PSU

#### Limited warranty
- Some: 1-year or 3-year, limited onsite 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
  - 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 Windows 10
  - Lenovo Companion
  - Only for Windows 7
  - Lenovo Solution Center
  - Lenovo ThinkVantage Tools
  - ThinkVantage System Update
  - Create Recovery Media
  - Adobe® Reader®
  - Cyberlink PowerDVD Create (DVD±RW)

#### Environment
- EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ULE Gold; EER Lot 3; GREENGUARD® certified; RoHS-compliant

#### Accessories
For compatible accessories, please go to [http://www.lenovoquicksupport.com](http://www.lenovoquicksupport.com)

---

*See footnotes for more detailed information © Lenovo (M910z-Spec) February 2017*
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>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5420</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G6620</td>
<td>2 / 4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>8 / 8</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9300</td>
<td>6 / 6</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i9-9900</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>

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, supports up to two HDs (2nd HDD occupies Odd day), RAID0/1 support (RAID preset only available via special bid model)
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 512GB / 1TB / 2TB
- 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), M.2
- Some: DVD-ROM SATA 6.0Gb/s, 2.5"
- Some: DVD-RW SATA 1.35GB/s, Drive, slim (9.0mm)
- Some: DVD Burner (DVD+RW), SATA 1.5GB/s, Drive, slim (9.0mm)
- Some: Optical M.2 card slot
- Optional 3-in-1 media card reader

Graphics

- Intel HD Graphics 610/630 in processor, uses memory, DirectC™ 12, external monitor support via DisplayPort™
- Max resolution: 4096x2304 (DP) @60Hz, 1920x1080 (Panel) @60Hz
- 2560x1440 (60Hz), Full HD 1080p (1920x1080), TFF color, Built-in color design, WVA panel, wide viewing angle (+/-89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)

Multi-touch Camera

- Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology
- Some: 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-direction (horizontal 0° to 180°, vertical -25° to 25°)
- Some: RGBIR camera, 1080p, with dual microphone, physical switch on/off, supports multi-direction (horizontal 0° to 180°, vertical -25° to 25°)
- Windows Hello support, only available via special bid models

Controls

- Physical buttons on side for microphone mute and power on/off

Chipset

- Intel Q370 Chipset

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)

Side ports*

- One USB 3.1 Type-C Gen1, one optional card reader, one headphone / microphone combo jack (3.5mm)

M.2 card slot

- Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Two M.2 Card slots (one for WLAN, one for SSD/Optane)

Audio support

- High Definition Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby Audio™ Premium

WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (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 4/5.0 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 12.0 (Intel AMT 12.0);
- Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

- Security features:
  - Security slot (in rear for attachment of optional Kensington® MicroSaver® cable: Boot sequence control
  - Intel Internal Lock allows lock chassis
  - Smart USB protection, allows keyboard/ mouse only, blocks all storage devices
  - Optional Chassis intrusion switch

Security features

- **Power-on, admin, hard disk password
- **Kensington lock also locks chassis
- **Individual USB port disablement
- **Boot without keyboard and mouse
- **Optional Chassis intrusion switch

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), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mouse

- Business black color
- **Touchless back cover, stand, disk, memory removal
- **Support VESA mount (100mm)

Mechanical

- Dimensions (WxDxH): 21.3 x 18.1 x 13.7 (inch) / 542 x 46 x 349 (mm)
- Max weight (lb / kg): 14.0 / 6.34
- Adjustments: N/A

Power supply

- 150 watts, autosensing, 90% PSU

Limited warranty

- Some: 1-year or 3-year, depot repair service / service upgrades available
- Some: 1-year or 3-year, limited onsite service / service upgrades available

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)
- Microsoft Office preloaded; purchase a product key to activate
- TCO AIO Computer certified, GREENGUARD Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIo Computer certified, GREENGUARD® certified, TUV Eye comfort certified, TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), 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, Fungus

Accessories

- For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.
## ThinkCentre M600 Tiny Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/MAX)</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron N3050</td>
<td>2 / 2</td>
<td>1.6 / 2.16 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD</td>
</tr>
<tr>
<td>Celeron N3060</td>
<td>2 / 2</td>
<td>1.6 / 2.48 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD 400</td>
</tr>
<tr>
<td>Pentium N3700</td>
<td>4 / 4</td>
<td>1.6 / 2.74 GHz</td>
<td>2MB</td>
<td>DDR3L-1600</td>
<td>Intel HD</td>
</tr>
</tbody>
</table>

### Chipset

- Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip platform.
- Intel HD Graphics in processor, uses main memory, DirectX 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display.

### Graphics

- Maximum resolution: 3840x2160(DP) @30Hz; 1920x1200(optional VGA) @60Hz; 1920x1080(DP to VGA dongle) @60Hz; 1920x1080(DP to DVI dongle) @60Hz; 3840x2160(DP to HDMI dongle) @30Hz
- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle.

### Memory

- 8GB max / DDR3L Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM

### Storage

- Some: hard disk, 5400 or 7200 rpm, SATA 6.0Gb/s, 2.5" Wide
- Some: 500GB (5400 rpm) Solid State Hybrid Drive (SSHD) / with 8GB MLC NAND flash memory, SATA 6.0Gb/s, 2.5" wide
- Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Wide
- Some: external ODD box with DVD-ROM, 9.5mm high, via USB
- Some: external ODD box with DVD+RW, 9.5mm high, via USB
- Some: external ODD box (for TIO) with DVD-ROM, 9.5mm high, via USB
- SATA 6.0Gb/s controller, one connectors on planar board

### Optical

- Some: Two USB 2.0, two USB 3.0 (optional external optical box or I/O box occupies one or two specific USB on some models), rubber (RTJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone
- Some: Optional external I/O box, extends two USB 2.0, two USB 3.0, and one serial on rear, two USB 2.0 on front, via USB (occupy two specific USB 3.0 of M600Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Audio support

- High Definition (HD) Audio, Realtek ALC223 / internal speaker (1 watt)

### Network

- 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 QCA9377 (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, 2x2, M.2 Card
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8260, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

### Security features

- Trusted Platform Module, TCG 1.2-compliant
- Security slot (in rear for optional Kensington® MicroSaver® cable)
- Hard disk password
- Administrator password
- Padlock loop
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Manageability

- None

### Environment

- ENERGY STAR® 6.0®, EPEAT® Gold rating® (*not for non-OS models); GREENGUARD®; RoHS-compliant; Cisco EnergyWise compatible; EHP Lot 3

### Mechanical

- Tiny (1L), black color, metal case

### 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)

### Accessories

- For compatible accessories, please go to TC-AQP sheet

---

*See footnotes for more detailed information*
### ThinkCentre M600 Tiny Thin Client Platform Specifications

**ThinkCentre M600 Tiny Thin Client Platform Specifications**

#### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (Base/Max)</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Celeron® Processor N3000 Series</td>
<td>2 / 2</td>
<td>1.04 / 2.08 GHz</td>
<td>2MB DRR3L-1600</td>
<td>Intel HD</td>
<td></td>
</tr>
<tr>
<td>Intel® Pentium® Processor N3000 Series</td>
<td>2 / 2</td>
<td>1.04 / 2.24 GHz</td>
<td>2MB DRR3L-1600</td>
<td>Intel HD 400</td>
<td></td>
</tr>
</tbody>
</table>

#### Chipset

Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution.

#### Graphics

Intel HD Graphics in processor, uses main memory, DirectX® 11.1, two DisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display; Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 840x2160(DP to HDMI dongle)@30Hz.

#### Monitor cable

Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle.

#### Memory

8GB max / DDR3 Low Voltage, DRR3L-1600, non-parity, one 204-pin SO-DIMM socket.

#### Storage

16GB, 32GB, or 128GB M.2 Solid State Drive (SSD), SATA interface.

#### Optical Onboard SATA Media reader

None

SATA 6.0Gbs controller, one connectors on planar.

#### Front ports

Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

#### Rear ports

Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models.

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

#### I/O box

For Lenovo service upgrade options, please go to S-TC sheet

### Audio support

High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)

### WLAN

**Some:** 11ac wireless, M.2 Card, Realtek RTLB821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1

**Some:** 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1

**Some:** 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 2x2

**Some:** 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 (only for 1L models)

**Some:** Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

### Bluetooth™

One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®

### Ethernet™

Modern

### Manageability

None

### 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
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Chassis intrusion switch

### Accessory

- Enhanced Optical USB Mouse, black, Lenovo logo
- Ultraslim Plus Wireless Mouse (2.4GHz via USB receiver), black
- Ultrathin Plus Wireless Keyboard (2.4GHz via USB receiver), black

### Preload

LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

### Environment

- ENERGY STAR® 6.0*, EPEAT™ Gold rating* (*not for non-OS models); GREENGUARD*: RoHS-compliant; Cisco EnergyWise compatible; EiP Lot 3

### Limited warranty

- 3-year, limited onsite service / service upgrades available

### Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### Dimensions (WxDxH)

- M600 Tiny only (1L) 7.05” X 7.20” X 1.36” 2.9 lb (1.3 kg)
- M600 Tiny only (2L) 7.05” X 7.20” X 1.35” 2.9 lb (1.9 kg)

### Optional VESA mount Floor Stand

- Optional VESA mount bracket kit, supports VESA 75mm and 100mm
- Optional system floor stand for vertical orientation

### Mechanical

- *Tiny (1L or 2L), black color, metal case

### Keyboard

- Some: PS/2 Keyboard (PS/2 connector), Lenovo logo (for 2L models)
- Some: Preferred Pro USB Keyboard (USB connector), Lenovo logo
- Some: Ultrathin Plus Wireless Keyboard (2.4GHz via USB receiver), black
- Some: PS/2 Optical Wheel Mouse, black, Lenovo logo (for 2L models)
- Some: Enhanced Optical USB Mouse, black, Lenovo logo
- Some: Ultrathin Plus Wireless Mouse (2.4GHz via USB receiver), black

### Mouse

- Some: Enhanced Optical USB Mouse, black, Lenovo logo
- Some: Ultrathin Plus Wireless Mouse (2.4GHz via USB receiver), black

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

Lenovo, November 2017
## ThinkCentre M625 Tiny Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD A9 series APU</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td></td>
</tr>
<tr>
<td>Cores</td>
<td></td>
</tr>
<tr>
<td>Frequency Base/Max</td>
<td></td>
</tr>
<tr>
<td>L2 Cache</td>
<td></td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td></td>
</tr>
<tr>
<td>Integrated Graphics</td>
<td>Radeon R5 Series</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>8GB max, DDR4-2666, one 260-pin SO-DIMM socket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td></td>
</tr>
<tr>
<td>Preload</td>
<td></td>
</tr>
<tr>
<td>Energy Star</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disk</th>
<th>Some: SATA 6.0Gb/s, 2.5&quot; Wide, 5400 rpm or 7200 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface</td>
<td></td>
</tr>
<tr>
<td>Some: 256GB M.2 Solid State Drive (SSD) / PCIe NVMe interface</td>
<td></td>
</tr>
<tr>
<td>Optional</td>
<td>None</td>
</tr>
<tr>
<td>Onboard SATA</td>
<td>one SATA 6.0Gb/s connector on planar</td>
</tr>
<tr>
<td>Reader</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics</th>
<th>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</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor</td>
<td>Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chipset</th>
<th>AMD SoC platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front ports</td>
<td>Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>Rear ports*</td>
<td>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)</td>
</tr>
<tr>
<td>I/O box</td>
<td>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</td>
</tr>
<tr>
<td>Audio support</td>
<td>High Definition (HD) Audio, Realtek ALC233-VB2-CG/ internal speaker (1.5 watt)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WLAN†</th>
<th>Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluetooth™</td>
<td>Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2</td>
</tr>
<tr>
<td>Ethernet Modem</td>
<td>Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter</td>
</tr>
<tr>
<td></td>
<td>* Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Security features</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security chip</td>
<td>Discrete TPM 2.0, TCG Certified</td>
</tr>
<tr>
<td></td>
<td>• Security slot (in rear for optional Kensington® MicroSaver® cable)</td>
</tr>
<tr>
<td></td>
<td>• Smart USB protection, allows keyboard/mouse only, blocks all storage devices</td>
</tr>
<tr>
<td></td>
<td>• Power-on password</td>
</tr>
<tr>
<td>Manageability</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• Administrator password</td>
</tr>
<tr>
<td></td>
<td>• Hard disk password</td>
</tr>
<tr>
<td></td>
<td>• Boot sequence control</td>
</tr>
<tr>
<td></td>
<td>• Boot without keyboard and mouse</td>
</tr>
<tr>
<td></td>
<td>• Individual USB port disablement</td>
</tr>
<tr>
<td></td>
<td>• Chassis intrusion switch</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Tiny (1L), black color; metal case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>Toolless chassis open (for models with optional toolless chassis screw)</td>
</tr>
<tr>
<td>Preload</td>
<td>Toolless HDD, SSD, memory, Wi-Fi removal</td>
</tr>
<tr>
<td>VESA mount</td>
<td>Optional VESA mount bracket kit, supports VESA 75mm and 100mm</td>
</tr>
<tr>
<td>Floor Stand</td>
<td>Optional system floor stand for vertical orientation</td>
</tr>
</tbody>
</table>

| Power supply       | 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) |

<table>
<thead>
<tr>
<th>Limited warranty²</th>
<th>Some: 1-year, depot service / service upgrades available</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Some: 1-year, limited onsite service / service upgrades available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preload</th>
<th>Preloaded operating system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Some: Windows 10 Pro 64-bit</td>
</tr>
<tr>
<td></td>
<td>Some: Windows 7 Professional 64</td>
</tr>
<tr>
<td></td>
<td>preinstalled through downgrade</td>
</tr>
<tr>
<td></td>
<td>rights in Windows 10 Pro 64-bit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preloaded applications (only some listed)</th>
<th>Windows 10 only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenovo Vantage</td>
<td></td>
</tr>
<tr>
<td>LinkedIn</td>
<td></td>
</tr>
<tr>
<td>Microsoft Office preloaded; purchase a product key to activate</td>
<td>Windows 7 only</td>
</tr>
<tr>
<td>Lenovo Solution Center</td>
<td></td>
</tr>
<tr>
<td>Lenovo System Update</td>
<td></td>
</tr>
<tr>
<td>Factory Recovery</td>
<td></td>
</tr>
<tr>
<td>User Guide Viewer</td>
<td></td>
</tr>
<tr>
<td>Microsoft Office preloaded; purchase a product key to activate</td>
<td>Lenovo Vantage</td>
</tr>
<tr>
<td>Adobe® Reader®</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment</th>
<th>ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Accessory</th>
<th>For compatible accessories, please go to <a href="http://smartfind.lenovo.com">http://smartfind.lenovo.com</a></th>
</tr>
</thead>
</table>

Lenovo, May 2018
## ThinkCentre M625 Tiny Thin Client Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>AMD E2 series APU</th>
<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></td>
<td>E2-9000e</td>
<td>2</td>
<td>1.5 / 2.0 GHz</td>
<td>1 MB</td>
<td>DDR4-1866</td>
<td>Radeon R2 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

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

**I/O box**

- 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
- 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
- Some: Bluetooth 4.2® wireless, Win 10 RS3 and Win 10 earlier version only support Bluetooth 4.1

**Ethernet**

- Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®

**Manageability**

- None

**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

**Keyboard**

- Some: Full size USB Keyboard (USB connector), black, Lenovo logo

**Mouse**

- Some: USB Optical Wheel Mouse, black, Lenovo logo

**Mechanical**

- Tiny (1L), fan-less design, black color, metal case
- Tool less chassis open (for models with optional tool less chassis screw)
- Tool less SSD, memory, Wi-Fi removal

**Memory**

- 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

**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**

- Some: 1-year, depot service / service upgrades available
- Some: 1-year, limited onsite service / service upgrades available

**Preload**

- Windows Embedded Standard 7 V2 (WES 7 V2)
- Windows 10 IoT Enterprise
- LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

**Operating environment**

- ENERGY STAR® 6.1*, EPEAT™ Gold 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)

---

Lenovo, May 2018
### ThinkCentre M630e Tiny 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>Pentium Gold 5405U</td>
<td>2 / 4</td>
<td>2.3G</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>
<tr>
<td>Core i5-8285U</td>
<td>4 / 6</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, DDR4-2666*, one 260-pin SO-DIMM sockets, non-ECC
  - * 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 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 6.0Gb/s connector

- Optional DP to VGA dongle or DP to HDMI 1.4 dongle

**Onboard SATA**

- Some: 2 / 4
- Some: DDR4-2133
- Some: DDR4-2400

**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

**Monitor cable**

- Optional 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** (Std.)

- Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI

**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

**Audio support**

- Realtek ALC233VB / internal speaker (1.5 watt)

**WLAN**

- Some: Gigabit ethernet, Realtek RTL8111HN-CG

**Keyboard, Mouse**

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Calliope Mouse (USB connector), black

**Mechanical**

- Tiny (1L), black color; metal case
- Optional dust filter
- One 2.5" bay for HDD/SSD, two M.2 slots (one for WLAN, one for M.2 SSD)

**VESA mount**

- None
- Optional system floor stand for vertical orientation

**Power supply**

- Some: 65 watts adapter, autosensing, 88% PSU

**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® 10 Home 64-bit

**Preloaded applications (only some listed)**

- Lenovo Vantage
- Microsoft Office preloaded; purchase a product key to activate
- LinkedIn
- Lenovo Calliope® Mouse (USB connector), black
- Lenovo Calliope® Keyboard (USB connector), black

**Environmental**

- ENERGY STAR® 7.0, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH

**MIL-SPEC test**

- Coming soon

**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, Mar 2019
**ThinkCentre M710 SFF 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>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>DDR4-2400</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2/4</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2300</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 i5-6560</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>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>4/8</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**

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 (with 7th gen Core processor), M.2

Some: DVD Burner (DVDs+RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA 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;

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);

additional DisplayPort on optional graphics on some models

**Rear audio ports**

Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)

None

* 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 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™ Ethernet Modem**

Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter

Gigabit ethernet, Realtek RTL8111GN, Wake on LAN*

None

**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)
- Padlock loop
- Smart USB protection, allows keyboard/mouse only, blocks all storage devices
- Optional cable lock to physically lock both keyboard and mouse

**Power supply**

Some: 180 watts, autosourcing, 85% PSU

Some: 210 watts, autosourcing, 92% PSU (only available via special bid)

**Preloaded operating system**

Some: Windows 7 Professional 32/64 (not available with 7th Gen Intel processor)

Some: Windows 10 Home 64-bit

**Preloaded applications (only some listed)**

- Microsoft Office preloaded;
- purchase a product key to activate
- Only for Window 10

**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

Lenovo, June 2017
### ThinkCentre M710 Tiny Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Core i3-6100T, 2.30 GHz; Core i5-6500T, 3.20 GHz; Core i7-6700T, 4.00 GHz; Core i3-7100T, 3.90 GHz; Core i5-7400T, 4.00 GHz; Core i7-7400T, 4.20 GHz; Core i5-7500T, 3.60 GHz; Core i7-7600T, 3.80 GHz; Core i7-77700T, 3.90 GHz</td>
</tr>
<tr>
<td>Cores / Threads</td>
<td>2 / 2; 2 / 4; 2 / 4; 2 / 4; 2 / 4; 4 / 4; 4 / 4; 4 / 4; 4 / 4</td>
</tr>
<tr>
<td>Frequency Base/Max (GHz)</td>
<td>2.30 GHz / 3.20 GHz; 3.20 GHz / 4.00 GHz; 4.00 GHz / 4.20 GHz; 3.90 GHz / 3.90 GHz; 4.00 GHz / 4.00 GHz; 3.60 GHz / 3.80 GHz; 3.80 GHz / 3.80 GHz; 3.90 GHz / 3.90 GHz; 3.90 GHz / 3.90 GHz</td>
</tr>
<tr>
<td>Cache</td>
<td>3 MB; 3 MB; 3 MB; 3 MB; 8 MB; 8 MB; 8 MB; 8 MB; 8 MB</td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td>DDR4-2133; DDR4-2133; 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 590; HD 530; HD 530; HD 630; HD 630; HD 680; HD 680</td>
</tr>
<tr>
<td>Memory</td>
<td>32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, 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; Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5&quot;; Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s</td>
</tr>
<tr>
<td>Optical</td>
<td>Some: Intel Optane™ Memory (models with 7th Gen Core processor, M.2)</td>
</tr>
<tr>
<td>Onboard SATA</td>
<td>One onboard SATA 6.0Gb/s connector</td>
</tr>
<tr>
<td>Media reader</td>
<td>None</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel HD Graphics 550/555/560/660 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: 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz</td>
</tr>
<tr>
<td>Monitor cable</td>
<td>Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® B250 Chipset</td>
</tr>
<tr>
<td>Front ports*</td>
<td>Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)</td>
</tr>
<tr>
<td>Rear ports*</td>
<td>Four USB 3.1 Gen1 (optional external optical box or external I/O box) or 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)</td>
</tr>
<tr>
<td>I/O box*</td>
<td>Optional external 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)</td>
</tr>
<tr>
<td>Audio support</td>
<td>High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)</td>
</tr>
<tr>
<td>WLAN*</td>
<td>Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1</td>
</tr>
<tr>
<td>Bluetooth™</td>
<td>Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN*</td>
</tr>
<tr>
<td>Manageability</td>
<td>None</td>
</tr>
<tr>
<td>Security chip</td>
<td>TPM (Trusted Platform Module) 2.0*, TCG Certified</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
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- 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

### Mechanical
- Tiny (1L), black color; metal case
- Toolless chassis open
- Toolless HDD, SSD, memory removal
- Optional toolless chassis screw
- Optional dust filter

### 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

### Optical
- 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 6.0Gb/s connector

### Memory (models with 7th gen Core processor)
- Some: Intel Optane™ Memory (models with 7th Gen Core processor, M.2)

### 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)

### Rear ports*
- Four USB 3.1 Gen1 (optional external optical box or external I/O box) or 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)

### I/O box*
- Optional external 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)
  * 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* with Boot without keyboard and mouse

### Manageability Security chip
- TPM (Trusted Platform Module) 2.0*, TCG Certified
- * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS

### Power supply
- 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

### 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 Windows 10
  * Lenovo Companion
  * Only for Windows 7
  * Lenovo Solution Center
  * Lenovo ThinkVantage Tools
  * Create Recovery Media
  * Adobe® Reader
  * Breaklink PowerDVD Create
  * (DVDxRW)

### 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.lenovouquickpick.com

See footnotes for more detailed information © Lenovo (M710 Tiny-Spec) February 2017
### 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>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 / 2</td>
<td>3.5G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 610</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 2</td>
<td>3.6G</td>
<td>3 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 2</td>
<td>3.7G</td>
<td>3 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i3-6500</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>4.0G / 4.4G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 2</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

- 64GB max, UDIMM, DDR4-2400*, four 288-pin DMM 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 gen Core processor), M.2
- Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: Three onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

#### Optical

- 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: AMD Radeon™ R7 370, DirectX 11, 2GB, PCIe 3.0 x8 adapter, one VGA, one HDMI, 75 watts, occupies two slots:
    - Max resolution: 4096x2160 (HDMI) @ 240Hz, 2048x1536 (VGA) @ 85Hz

#### Monitor

- 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*: Additional VGA, DisplayPort, or HDMI on optional graphics on some models
  - 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: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter
  - None

#### 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: Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor
  - Processor Cores... Specifications Reference (PSREF)
  - Note: The specifications above may not be available in all regions. Lenovo, June 2017

#### Mechanical

- Tower (15L), black color, metal case
  - (WxDxH) 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
  - Bay 1: Slim external ODD bay
  - Bay 2: 3.5" 1 high, internal, HDD/SSD
  - Bay 3: 3.5" 1 high, internal, HDD/SSD
  - Slot 1: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x16
  - Slot 2: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1
  - Slot 3: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1
  - Slot 4: no slot, no 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 slot (x4 card), optional rear 2x USB2.0 / parallel occupies one expansion slot

#### Power supply

- Some: 180 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
  - 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

#### Environment

- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TVU low noise verified (on some models)

#### Accessories

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)
# ThinkCentre M710e SFF Platform Specifications

## Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Intel® Celeron™, Intel Pentium™, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base/Max(GHz)</td>
<td>Cache</td>
</tr>
<tr>
<td>Celeron G3900</td>
<td>2 / 2</td>
</tr>
<tr>
<td>Celeron G3930</td>
<td>2 / 2</td>
</tr>
<tr>
<td>Pentium G4400</td>
<td>2 / 2</td>
</tr>
<tr>
<td>Pentium G4560</td>
<td>2 / 2</td>
</tr>
<tr>
<td>Pentium G4600</td>
<td>2 / 2</td>
</tr>
<tr>
<td>Core i3-6100</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Core i5-6400</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i7-6700</td>
<td>4 / 8</td>
</tr>
<tr>
<td>Core i3-7100</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Core i3-7300</td>
<td>2 / 4</td>
</tr>
<tr>
<td>Core i5-7400</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i7-7500</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i5-7600</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>4 / 8</td>
</tr>
</tbody>
</table>

## Memory

- 32GB max. UDIMM, DDR4-2400
- two 288-pin DIMM sockets, non-ECC, dual-channel capable
- System channel locks 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 SSD 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 (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

## Optical

- Two onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

## Graphics

- Intel HD Graphics 510/530/610/630 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: 4096x2160 (DP) @ 60Hz; 1920x1200 (VGA) @ 60Hz
  - NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x 8 adapter, two DisplayPort, 35 watts;
  - Max resolution: 3840x2160 (DisplayPort) @ 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, microphone (3.5mm), one headphone / microphone combo jack (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, one DisplayPort, optional external USB to PS/2 ports cable (for PS/2 keyboard / mouse);
- Optional DisplayPort on optional graphics on some models

## Rear audio ports

- Line-out jack (3.5mm)

## IEEE 1394

- None

## Audio support

- High Definition (HD) Audio, Realtek ALC233 / internal speaker (1.5 watt)

## WLAN

- None

## Bluetooth

- None

## Ethernet

- Gigabit ethernet, Realtek RTL8111HNI, Wake on LAN

## Modem

- None

## Manageability

- None

## Security chip

- TPM (Trusted Platform Module) 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
- 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 disenablement
- Optional chassis intrusion switch

## Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

## Mouse

- SFF (7.4L), black color, metal case
- (WxDxH) 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

## Mechanical

- 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 3.0 x 16
- Slot 2: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x 16
- M.2 card slots: one for SSD
- Optional rear 2x USB2.0 / parallel occupies one expansion slot
- Optional system floor stand for vertical orientation

## Floor Stand

- Optional rear 2x USB2.0 / parallel occupies one expansion slot
- Optional system floor stand for vertical orientation

## Packaging

- (WxDxH) 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

## Preloaded applications (only some listed)

- Microsoft Office preloaded;
- Cyberlink PowerDVD (DVD, DVD±RW)
- Cyberlink PowerDVD Create (DVD±RW)
- Only for Window 10
- Windows Companion
- Only for Window 7
- Lenovo Solution Center
- Lenovo System Update
- Create Recovery Media
- Adobe® Reader®

## Environment

- ENERGY STAR® 6.1, EPEAT™ Gold 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>
</tr>
</thead>
<tbody>
<tr>
<td>Ryzen 3 PRO 1200</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 3 PRO 1300</td>
<td>4 / 4</td>
<td>3.5 / 3.7</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 PRO 1500</td>
<td>4 / 8</td>
<td>3.5 / 3.7</td>
<td>2MB</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 1700</td>
<td>8 / 16</td>
<td>3.0 / 3.7</td>
<td>4MB</td>
<td>None</td>
</tr>
<tr>
<td>PRO-A8570</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO-A10-8770</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO-A12-8870</td>
<td>4 / 4</td>
<td>3.7 / 4.2</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO-A6-9500</td>
<td>2 / 2</td>
<td>3.5 / 3.8</td>
<td>1MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO-A8-9600</td>
<td>4 / 4</td>
<td>3.1 / 3.4</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO-A10-9700</td>
<td>4 / 4</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<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 (DVD+RW), SATA 1.5Gb/s Drive, slim (9.0mm)
- 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 x8 adapter, two DisplayPort; Max resolution: 3840x2160 (DisplayPort) @ 60Hz;
- 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 DisplayPort on optional graphics on some models
- Rear audio ports: 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 watt )
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

**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
- Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
- Gigabit ethernet, Realtek RTL8111E/PV, Wake on LAN

**Bluetooh wireless**

- None

**Environment**

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant

**Floor Stand**

- Optional system floor stand for vertical orientation

**Power supply**

- Some: 180 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 Windows 10
- * Lenovo Companion
- * Only for Windows 7
- * Lenovo Solution Center
- * Lenovo ThinkVantage Tools
- * Create Recovery Media
- * Lenovo Reader™
- * Cyberlink PowerDVD Create (DVD+RW)

**Accessories**

- For compatible accessories, please go to [http://www.lenovousaquickpick.com](http://www.lenovousaquickpick.com)

---

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

Lenovo, July 2017
## Product Specifications Reference (PSREF)

### ThinkCentre M715 Tiny Platform Specifications

#### Processor

<table>
<thead>
<tr>
<th>APU</th>
<th>Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO A6-9500E</td>
<td>2</td>
<td>3.0 / 3.4 GHz</td>
<td>1 MB</td>
<td>DDR4-2400</td>
<td>Radeon R5 Series</td>
</tr>
<tr>
<td>PRO A10-9700E</td>
<td>4</td>
<td>3.0 / 3.5 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A12-9800E</td>
<td>4</td>
<td>3.1 / 3.8 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A6-8570E</td>
<td>2</td>
<td>3.0 / 3.4 GHz</td>
<td>1 MB</td>
<td>DDR4-2400</td>
<td>Radeon R5 Series</td>
</tr>
<tr>
<td>PRO A10-8770E</td>
<td>4</td>
<td>2.8 / 3.5 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td>PRO A12-8870E</td>
<td>4</td>
<td>2.9 / 3.8 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

#### Memory

- 32GB max, DDR4 2400, two 26-pin SO-DIMM sockets, dual-channel capable
- *16GB single SO-DIMM memory is only available via special bid models

#### Disk

Some: SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm

Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"

Some: M.2 Solid State Drive (SSD) / SATA interface or PCIe NVMe interface

Some: DVD-ROM, 9.0mm high, via USB external ODD box

Some: DVD±RW, 9.0mm high, via USB external ODD box

One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

None

#### Optical

Some: 11ac wireless, Realtek RT8821AE (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1

Some: 11ac wireless, Realtek RT8822BE (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2

Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter

Gigabit Ethernet, Realtek RTL8111EPV, Wake on LAN

#### Chipset

- AMD A6, A10, or A12 series APUs
- AMD Radeon Graphics in processor, uses main memory, DirectX 12, 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)
- Maximum resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz
- Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

#### Front ports

- Two USB 3.0 (one is Always On and fast charge)
- One microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)

#### Rear ports

- One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, HDMI, or serial on some models), one headphone (stereo, 3.5mm), one serial, and two PS/2, via USB port (occupy one specific USB 2.0 of M715q Tiny)
- *Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### Audio support

- High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)

#### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8822AE (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (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

- Gigabit Ethernet, Realtek RTL8111EPV, Wake on LAN

#### Manageability

- Security chip
- 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
- 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
- M715 Tiny 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
  - With VESA mount & ODD box:
    - 7.42" W X 7.30" D X 2.48" H
    - 188.4mm W X 185.38mm D X 63mm H
    - 4.12 lb (1.87 kg), weight may vary by configuration
  - With VESA mount & I/O box:
    - 7.42" W X 7.30" D X 2.62" H
    - 188.4mm W X 185.38mm D X 66.6mm H
    - 3.53 lb (1.6 kg), weight may vary by configuration

#### 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)
- 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)

#### Preload

- **Preloaded operating system**
  - Windows 10 Pro 64-bit
  - Windows 10 Home 64-bit
  - Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit

- **Preloaded applications (only some listed)**
  - Windows 10 only
    - Lenovo Companion
    - Microsoft Office preloaded; purchase a product key to activate Windows 7 only
    - Lenovo Solution Center
    - ThinkVantage System Update
    - Create Recovery Media
    - Lenovo ThinkVantage Tools
    - CyberlinkPowerDVD Create(DVD±RW)
    - Microsoft Office preloaded; purchase a product key to activate Adobe Reader

#### 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

- ENERGY STAR® 6.1®, EPEAT™ Gold rating* (*Not for non-OS models); ErP Lot 3; GREENGUARD®; RoHS-compliant

#### Accessories

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

---

Lenovo, October 2017
<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Athlon, A6, A10, A12, or Ryzen processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>AMD Athlon, A6, A10, A12, or Ryzen processor</td>
</tr>
<tr>
<td>Frequency</td>
<td>AMD Athlon, A6, A10, A12, or Ryzen processor</td>
</tr>
<tr>
<td>Cache</td>
<td>AMD Athlon, A6, A10, A12, or Ryzen processor</td>
</tr>
<tr>
<td>Graphics</td>
<td>AMD Athlon, A6, A10, A12, or Ryzen processor</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: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s

### Optical
- Some: DVD-ROM, 9.0mm high, via USB external ODD box
- Some: DVD±RW, 9.0mm high, via USB external ODD box

### Onboard SATA
- One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

### Graphics
- AMD Radeon Graphics in processor, uses main memory, Direct3D 12, two DisplayPort**, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent display (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* (Std.)
- Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (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**, 3rd DP**, HDMI**, or serial on some models)

### Audio support
- High Definition (HD) Audio, Realtek ALC233-VD2 / 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* wireless, integrated in Wi-Fi + BT combo adapter

### 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
- Administrator password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disabling
- Chassis intrusion switch

### Mechanical
- Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Optional dust filter

### Keyboard
- Some: Lenovo Calliope Keyboard (USB connector), black

### Mouse
- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

### Preload
- Preloaded operating system
- Some: Windows 10 Home 64-bit
- Some: Windows 10 Pro 64-bit
- Preloaded applications (only some listed)
- Windows 10 only
- 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
- Windows 7 only
- Lenovo Solution Center
- ThinkVantage System Update
- Create Recovery Media
- Microsoft Office preloaded; purchase a product key to activate
- Adobe® Reader

### Environment
- ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*Not for non-OS 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
<table>
<thead>
<tr>
<th>Processor</th>
<th>APU</th>
<th>Cores</th>
<th>Frequency Base/Max</th>
<th>L2 Cache</th>
<th>Memory Types</th>
<th>Integrated Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMD A6, A10, or A12 series APUs</td>
<td>PRO A6-8570E</td>
<td>2</td>
<td>3.0 / 3.4 GHz</td>
<td>1 MB</td>
<td>DDR4-2400</td>
<td>Radeon R5 Series</td>
</tr>
<tr>
<td></td>
<td>PRO A10-8770E</td>
<td>4</td>
<td>2.8 / 3.5 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
<tr>
<td></td>
<td>PRO A12-8870E*</td>
<td>4</td>
<td>2.9 / 3.8 GHz</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>Radeon R7 Series</td>
</tr>
</tbody>
</table>

*PRO A12-8870E (support Windows 10 IOT only) is only available via special bid models

| Memory | 4GB max, DDR4 2400, two 260-pin SO-DIMM sockets |

| Disk | Some: 256GB Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
| --- | --- |
| *256GB SATA (support Windows 10 IOT only) is only available via special bid models
| Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
| Some: 128MB M.2 Solid State Drive (SSD) / PCIe NVMe interface
| None |

| Optical Onboard SATA Media reader | One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

| 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 (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles):
| --- | --- |
| Max resolution: 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz
| Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle |

| Chipset | AMD B300 Chipset |

<table>
<thead>
<tr>
<th>Front ports*</th>
<th>Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear ports*</td>
<td>One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, HDMI, or serial on some models), one headphone</td>
</tr>
</tbody>
</table>

| I/O box | None |

| Audio support | High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt) |

<table>
<thead>
<tr>
<th>WLAN™</th>
<th>Some: 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1</th>
</tr>
</thead>
</table>

| Bluetooth™ Ethernet Modem | Some: Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigabit ethernet, Realtek RTL8111E PV, Wake on LAN®</td>
<td></td>
</tr>
</tbody>
</table>

| Manageability Security chip 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

| Keyboard Mouse | Some: Fullsize USB Keyboard (USB connector), Lenovo logo
| --- | --- |

| Mechanical | Tiny (1L), black color; metal case

| VESA mount | Optional VESA mount bracket kit, supports VESA 75mm and 100mm

| Power supply | 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) |

| Limited warranty* | Some: 1-year or 3-year, depot service / service upgrades available
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Some: 1-year or 3-year, limited onsite service / service upgrades available</td>
<td></td>
</tr>
</tbody>
</table>

| 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 Gold rating* (*not for non-OS models); ErP Lot 3, GREENGUARD®; RoHS-compliant |

| Accessories | For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com) |

Lenovo, October 2017
## ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications

<table>
<thead>
<tr>
<th>Processor</th>
<th>AMD Athlon, A6, A10, or Ryzen processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td>Athlon PRO 200GE / PRO A6-8570E / PRO A10-8770E / Ryzen 3 PRO 2200GE</td>
</tr>
<tr>
<td>Cores / Threads</td>
<td>2 / 4 / 4 / 4</td>
</tr>
<tr>
<td>Frequency Base/Max</td>
<td>3.2 / 3.4 GHz / 2.8 / 3.5 GHz / 3.2 / 3.6 GHz</td>
</tr>
<tr>
<td>L2 Cache</td>
<td>1MB / 1MB / 2MB</td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td>DDR4-2933 / DDR4-2400 / DDR4-2400</td>
</tr>
<tr>
<td>Integrated Graphics</td>
<td>Radeon Vega 3 / Radeon R5 / Radeon R7</td>
</tr>
</tbody>
</table>

| Memory | 8GB max, DDR4 2666*, two 26-pin SO-DIMM sockets, dual-channel capable |
| Disk | Some: 32GB M.2 Solid State Drive (SSD) / SATA interface |
| Optical Onboard SATA | None |
| Graphics | AMD Radeon Graphics, uses main memory, DirectX® 12, 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 DVI 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 |

### Mechanical
- Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Optional dust filter

### Keyboard
- Some: Lenovo Calliope Keyboard (USB connector), black
- Lenovo Traditional Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Mouse
- Lenovo Calliope Mouse (USB connector), black

### 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
- Windows Embedded Standard 7 V2 (WES 7 V2)
- Windows 10 IoT Enterprise
- LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

### Environment
- ENERGY STAR® 6.1*, EPEAT Gold rating* (*not for non-OS models); ENE 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 M720 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>Celeron G4900</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 2</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2 / 2</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 2</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>4 / 4</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9300</td>
<td>6 / 6</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9320</td>
<td>6 / 6</td>
<td>3.7G / 4.4G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i9-9900</td>
<td>8 / 16</td>
<td>3.1G / 5.0G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
<td>UHD 663</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" or 3.5"
- 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

### Optical

- 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)

### Onboard SATA Media reader

- Three onboard SATA 6.0Gb/s connectors
- Optional 7-in-1 media reader

### Graphics

- Intel UHD Graphics 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 x16 adapter, two DisplayPort, 35 watts;
- Max resolution: 3840x2160 (DisplayPort) @ 60Hz;
- 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 B360 Chipset

### Front ports

- (Std) 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microSD (3.5mm), 1x headphone / microphone combo jack (3.5mm)
- Optional: 1x media reader

### Rear ports

- (Std) 4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)
- Optional: 2x USB 3.1 Gen1 via PCI2 x1, 2x USB 3.1 Type-C Gen2 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), additional RJ-45 and video ports available on optional graphics or ethernet card

### Audio support

- High Definition (HD) Audio, Realtek ALC232VB / internal speaker (2 watt)

### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1

### Bluetooth

- Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

### Ethernet (Opt.)

- Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®
- Some: Intel Ethernet Server Adapter I350-T4®, gigabit ethernet, 4x RJ-45, PCIe x4
- Some: Bitland BN8E8®, gigabit ethernet, PCIe x1 (only available via special bid)

### Manageability

- None
- 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
  - Smart USB protection, allows keyboard/ mouse only, blocks all storage devices

### Mechanical

- FFF (8.4L), black color; metal case
- WX(DWxH): 3.64" x 11.44" x 13.52", 92.5mm X 290.5mm X 343.5mm
- Approx. 13.24 lb (6.0 kg), weight may vary by configuration
- Toolless cover, disk, optical, and extension card removal
- 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/Opante)

### Floor Stand

- Optional system floor stand for vertical orientation

### Power supply

- Some: 180 watts, autosensing, 85% 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

### 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 / DVS/RW)
- Cyberlink Power2GO (only for models with DVD / DVS/RW)
- Lenovo Calliope Wireless Mouse (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

### Environment

- ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant

### Accessories

For compatible accessories, please go to http://smartfind.lenovo.com

Note: The specifications above may not be available in all regions.
ThinkCentre M720 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>Celeron G4900T</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400T</td>
<td>2 / 4</td>
<td>3.1G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G6400T</td>
<td>4 / 4</td>
<td>3.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Core i3-8100T</td>
<td>4 / 4</td>
<td>3.1G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300T</td>
<td>4 / 4</td>
<td>3.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400T</td>
<td>6 / 6</td>
<td>1.7G / 3.3G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-8500T</td>
<td>6 / 6</td>
<td>2.1G / 3.5G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-8600T</td>
<td>6 / 6</td>
<td>2.3G / 3.7G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i7-8700T</td>
<td>6 / 12</td>
<td>2.4G / 4.0G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i3-9100T</td>
<td>4 / 4</td>
<td>3.1G / 3.7G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i3-9300T</td>
<td>4 / 4</td>
<td>3.2G / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9400T</td>
<td>6 / 6</td>
<td>1.8G / 3.4G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9600T</td>
<td>6 / 6</td>
<td>2.3G / 3.9G</td>
<td>9 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i5-9720T</td>
<td>6 / 8</td>
<td>2.0G / 4.3G</td>
<td>12 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</td>
</tr>
<tr>
<td>Core i9-9900T</td>
<td>8 / 16</td>
<td>2.1G / 4.4G</td>
<td>16 MB</td>
<td>DDR4-2400</td>
<td>UHD 660</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 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" (M.2)
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: 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

Optical

Onboard SATA

One onboard SATA 6.0Gb/s 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

Monitor cable

Intel B360 Chipset

Front ports (Std) one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

Rear ports (Opt.)

2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI

Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen1 with DP function; Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x 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: 11a/b/g/n/ac wireless, M.2 Card, Intel Dual Band Wireless-Ac3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1
Some: 11a/b/g/n/ac wireless, M.2 Card, Intel Dual Band Wireless-Ac8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2

Bluetooth

Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

Manageability

Security chip

None

Discrete TPM 2.0, TCG Certified

Security features

• 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
• Smart USB protection, allows keyboard/ mouse only, blocks all storage devices

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 Fingerprint Mouse (USB connector), Windows Hello support, black
Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

Mouse

Tiny (11L), black color; metal case
• Touchless chassis open (need optional touchless chassis screw)
• Touchless HDD, SSD, memory removal
• Optional dust filter

Mechanical

Tiny 1.66 kg, 9.0mm (depth), 2.91 lb (1.32 kg), approx. by config

Dimensions (WxDxH)

With VESA mount & ODD box

7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm

3.66 lb (1.66 kg), approx. by config

With VESA mount & ODD box

7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm

Power supply

Some: 65 watts AC/DC adapter, autosensing, 88% PSU
Some: 90 watts AC/DC adapter, autosensing, 88% PSU
Some: 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)
• Lenovo Traditional Keyboard (USB connector), black
• Lenovo Traditional Keyboard (USB connector), black

Environment

ENERGY STAR® 7.0, EPEAT® Gold rating (North America), ErP Lot 3, TCO, TÜV ultra low noise verified (coming soon, on some models), RoHS-compliant

MIL-STD test

MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, fungus, Solar Radiation)

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 M720 Tower Platform Specifications**

**Product Specifications Reference (PSREF)**

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

**Lenovo, June 2019**

### 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 Celeron®</td>
<td>2 / 2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2 / 4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2 / 4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.6G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-8400</td>
<td>6 / 6</td>
<td>2.8G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4 / 4</td>
<td>3.6G / 4.2G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9300</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9320</td>
<td>4 / 4</td>
<td>3.7G / 4.4G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-9700</td>
<td>8 / 8</td>
<td>3.0G / 4.7G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</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 663</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

<table>
<thead>
<tr>
<th>Storage</th>
<th>Some:</th>
<th>Hard Drive / SATA 6.0Gb/s, 2.5&quot; or 3.5&quot;, 5400 rpm or 7200 rpm</th>
<th>Some:</th>
<th>Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5&quot;</th>
<th>Some:</th>
<th>M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s</th>
<th>Some:</th>
<th>128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some:</td>
<td>Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</td>
<td>Some:</td>
<td>DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)</td>
<td>Some:</td>
<td>DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Optical

| Optical | Some: | Intel UHD Graphics 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; | Some: | NVIDIA GeForce® GT 730, DirectX 12, G8B, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; | Max resolution: | 4096x2304 (DP) @ 60Hz; 2048x1536 (VGA) @ 50Hz |
|---------|-------|---------------------------------------------------------------|-------|-----------------------------------------------|-------|-----------------------------------------------|-------|-----------------------------------------------|
| Some: | Intel UHD Graphics 620, two DisplayPort, 35 watts; | Max resolution: | 3840x2160 (DisplayPort) @ 60Hz; | Optional: | DP to DVI-D dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle |

### Monitor Cable

Optional pre loaded operating system

**Preloaded operating system**

- Microsoft Office preloaded;
- purchase a product key to activate

**Preloaded applications (only some listed)**

- Lenovo Vantage
- Microsoft Office preloaded;
- product key to activate

**ThinkCentre M720 Tower Platform Specifications**

<table>
<thead>
<tr>
<th>Chipset</th>
<th>Intel B360 Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front ports* (Std.)</td>
<td>2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone jack (3.5mm)</td>
</tr>
<tr>
<td>Front ports* (Opt.)</td>
<td>Optional: 1x media reader</td>
</tr>
<tr>
<td>Rear ports* (Std.)</td>
<td>4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)</td>
</tr>
<tr>
<td>Rear ports* (Opt.)</td>
<td>Optional: 2x USB 3.1 Gen1 via PCIe x1**, 2x USB 3.1 Type-C Gen2 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), additional RJ-45 and video ports available on optional graphics or ethernet card</td>
</tr>
</tbody>
</table>

** Choose either 2x USB 3.1 Gen1 or 2x USB 3.1 Type-C Gen2 |

** Audio support | High Definition (HD) Audio, Realtek ALC232VB2 / internal speaker (2 watt) |
ThinkCentre M725 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor: AMD A6 / A8 / A10 / A12 and Ryzen 3 / 5 / 7 series processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</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>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>DDR4-2400</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>DDR4-2400</td>
<td>Radeon R7</td>
</tr>
<tr>
<td>Ryzen 3 2300X</td>
<td>4 / 4</td>
<td>3.5 / 4.0</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 2500X</td>
<td>4 / 8</td>
<td>3.6 / 4.0</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 5 2200G</td>
<td>4 / 8</td>
<td>3.5 / 3.8</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>Radeon Vega X</td>
</tr>
<tr>
<td>Ryzen 5 2400G</td>
<td>4 / 8</td>
<td>3.6 / 3.8</td>
<td>2MB</td>
<td>DDR4-2933</td>
<td>Radeon RX Vega 11</td>
</tr>
<tr>
<td>Ryzen 5 PRO 2600</td>
<td>6 / 12</td>
<td>3.4 / 3.9</td>
<td>3MB</td>
<td>DDR4-2933</td>
<td>None</td>
</tr>
<tr>
<td>Ryzen 7 PRO 2700X</td>
<td>8 / 16</td>
<td>3.2 / 4.1</td>
<td>4MB</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

Storage: Some: Hard Drive / SATA 6.0Gbps/s, 1.5TB or 2.5TB, 5400 rpm or 7200 rpm

Optical: Some: DVD-ROM SATA 1.5Gbps Drive, 9.0mm

Onboard SATA: Three onboard SATA 6.0Gbps connectors, RAID 0/1 support (RAID preset only when used in conjunction with onboard RAID controller)

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 VGA and DP ports are only available on the models with integrated graphics), supports 3 independent displays, works along with AMD graphics to support more displays;

Max resolution: 4096x2160 (DP)@60Hz; 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 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, 2x2

Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (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

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 RTL8111EPV, Wake on LAN®

Manageability: Security chip

Security features: DASH 10/1.1

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
- 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

Mechanical: SFF (8.4L), black color: metallic case

- (WxDxH) 3.6" x 11.4" x 13.5"
- 92.5mm X 290.5mm X 343.5mm

Optical: Approx. 13.2 lb (6.0 kg), weight may vary by configuration

- Toolless cover, disk, optical removal
- Optional dust filter

Onboard SATA: Three onboard SATA 6.0Gbps connectors, RAID 0/1 support (RAID preset only available via special bid model)

Storage: Some: Hard Drive / SATA 6.0Gbps/s, 1.5TB or 2.5TB, 5400 rpm or 7200 rpm

Power supply: Some: 180 watts, autosesuming, 85% PSU

- 210 watts, autosesuming, 85% PSU

- 260 watts, autosesuming, 92% (optional available via special bid)

Floor Stand: Optional system floor stand for vertical orientation

Preloaded operating system: Some: Windows 10 Pro 64-bit

- Windows 10 Home 64-bit

Preloaded applications: Some: Lenovo Vantage

- Microsoft Office preloaded

- 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* (*not for non-OS models); EEp Lot 3; RoHS-compliant

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 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>8 / 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 / 5.3G</td>
<td>4 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 i7-7700</td>
<td>8 / 8</td>
<td>3.4G / 3.8G</td>
<td>8 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 530</td>
</tr>
<tr>
<td>Core i7-7700</td>
<td>8 / 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: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
- Some: Intel Optane™ Memory (with 7th gen Core processor), M.2

#### Optical

- Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)
- Some: DVD Burner (DVD+R), SATA 1.5Gb/s Drive, slim (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 HD Graphics 510/530/600/630 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;
- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

#### Chipset

- Intel H270 Chipset

#### Front ports

- Four USB 3.1 Gen 1, optional two USB 3.1 Type-C Gen 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 second serial (9-pin), optical 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)

#### Rear audio ports

- IEEE 1394*: None
- * 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 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
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 3x3
- Some: Intel 8265, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2
- Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1
- Some: Intel 8265, 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 adapter Modem
- Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN*
- None

#### Bluetooth

- None

#### Ethernet Modem

- None

#### 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

- 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

#### 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

#### Keyboard

- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Traditional Keyboard (USB connector), black

#### Mouse

- Some: Lenovo Calliope Mouse (USB connector), black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz wireless receiver), black

#### Mechanical

- * SFF (8.4L), black color, metal case
- (WinOvX)™ 3.6” X 11.4” X 13.5”; 92.5mm X 290.5mm X 343.5mm
- 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), PCIe 3.0 x16*;
- Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1;
- Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 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)

#### Floor Stand

- Optional system front 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)

#### 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 in 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

#### Environment

- ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), EAP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)
- Microsoft Office preloaded;
- purchase a product key to activate
- Only for Window 7
- Lenovo Companion
- Only for Window 7
- Lenovo Solution Center
- Lenovo ThinkVantage Tools
- Create Recovery Media
- Adobe® Reader
- Cyberlink PowerDVD Create (DVD+RW)

#### Accessories

- For compatible accessories, please go to http://www.lenovoquickpick.com

* Limited availability in special bid models

---

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

Lenovo, August 2017
## ThinkCentre M910 Tiny 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 i5-6500T</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>2.8G / 3.6G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-7500T</td>
<td>4 / 4</td>
<td>2.7G / 3.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7600T</td>
<td>4 / 8</td>
<td>2.8G / 3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700T</td>
<td>4 / 8</td>
<td>2.9G / 3.8G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

* System automatically clocks down for the processors with lower memory controllers.

### Memory

- 32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable

### Security chip

- TPM (Trusted Platform Module) 2.0*, TCG Certified
- Downgrade to TPM1.2 for the models with Win10 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
- Toolless chassis open
- Toolless HDD, SSD, memory removal
- Optional toolless chassis screw
- Optional dust filter

### Storage

- Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS
- 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

### Graphics

- Intel HD Graphics, 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: 4096x2304 (DP) @ 60Hz; 4096x2304 (Type-C) @ 60Hz; 4096x2160 (HDMI) @ 24Hz; 1920x1200 (VGA) @ 60Hz

### Audio support

- High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)

### Monitor cable

- Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

### Optical

- Some: DVD Burner (DVD±RW), slim (9.9mm), via USB external ODD box
- One onboard SATA 6.0Gb/s connector

### Chipset

- Intel® Q270 chipset

### Front ports\*\*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two USB 3.1 Gen1</td>
<td>(one is Always On and fast charge), one microphone (3.5mm), one headphone/microphone jack (3.5mm)</td>
</tr>
</tbody>
</table>

### Rear ports\*\*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four USB 3.1 Gen1</td>
<td>(optional external optical box or external I/O box occupies one or two of 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)</td>
</tr>
</tbody>
</table>

### I/O box\*\*

- Optional external 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)
  * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### 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)

### Mechanical

- Optical system floor stand for vertical orientation

### Dimensions (WxDxH)

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>M910 Tiny only</td>
<td>7.05&quot; X 7.20&quot; X 1.36&quot;</td>
</tr>
<tr>
<td>M910 TINY</td>
<td>179mm X 182.9mm X 34.5mm</td>
</tr>
</tbody>
</table>

### Mechanical

- 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)

### Power supply

- Over limited warranty:
  - 1-year or 3-year, depot service / service upgrades available
  - 3-year or 7-year, limited onsite service / service upgrades available

### Preload

- Windows 7 Professional 32/64 preinstalled, four shapes ready in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor)
- Windows 10 Pro 64-bit
- Windows 10 Home 64-bit

### 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.lenovoupick.com](http://www.lenovoupick.com)

### Footnotes

- See footnotes for more detailed information

© Lenovo (M910 Tiny-Spec) February 2017
**ThinkCentre M910 Tower Platform Specifications**

**Processor**
- Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor

**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 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+M Style 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: DVD Burner (DVD+RW), SATA 1.5Gb/s, 5.25" or slim (9.0mm)
- Some: HDD 530

**Graphics**
- Intel HD Graphics 510/530/510/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;
- Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x 8 adapter, two DisplayPort, 35 watts;
- Some: NVIDIA GeForce® GTX 1080 (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;
- Some: NVIDIA GeForce® GTX 1080 (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;
- Some: AMD Radeon™ R7 360, DirectX 11, 2GB, PCIe 3.0 x 8 adapter, one VGA, one HDMI, 75 watts, occupies two slots;
- Some: AMD Radeon™ R7 360, DirectX 11, 2GB, PCIe 3.0 x 8 adapter, one VGA, one HDMI, 75 watts, occupies two slots;
- Some: NVIDIA GeForce GT 730, DirectX 12, 2GB, PCIe 2.0 x 8 adapter, two DisplayPort, 35 watts;
- Some: NVIDIA GeForce GTX 1080 (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;
- Some: Intel HD Graphics 510/530/510/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;

**Chipsset**
- Intel Q270 Chipset

**Keyboard**
- Some: Lenovo Calliope Keyboard (USB connector), black
- Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Some: Lenovo Calliope Wireless Mouse USB connector, black
- Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

**Mouse**
- Some: Lenovo Calliope Mouse, black
- Some: Lenovo Calliope Mouse Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)
- Some: Lenovo Calliope Mouse Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)

**Power supply**
- Some: 180 watts, auto-sensing, 85% PSU
- Some: 250 watts, auto-sensing, 85% PSU
- Some: 400 watts, auto-sensing, 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 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)**
- Windows® 7 Professional 32/64 preloaded through downgrade (not available with 7th Gen Intel processor)
- Microsoft Office preloaded;
- purchase a product key to activate
- Only for Windows 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, TUV low noise verified (on some models)

**Accessories**
- For compatible accessories, please go to http://www.lenovouquickpick.com

**Intel® Cache**
- 4 / 4
- 3.5G / 4.1G
- 6 MB

**Memory Support**
- 6 MB
- 4 / 4

**Core i7-7700**
- 4 / 8
- 3.6G / 4.2G
- 8 GB DDR4-2400
- 4 / 8
- 3.4G / 3.6G
- 8 GB DDR4-2400
- 4 / 8
- 3.5G / 3.6G
- 8 GB DDR4-2400
- 4 / 8
- 3.6G / 4.2G
- 8 GB DDR4-2400
### Processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Frequency (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 / 6</td>
<td>2.70 / 3.3G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-7600T</td>
<td>4 / 8</td>
<td>2.80 / 3.7G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i5-6500</td>
<td>4 / 4</td>
<td>2.90 / 3.8G</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>3.40 / 4.0G</td>
<td>8 MB</td>
<td>DDR4-2133</td>
<td>HD 530</td>
</tr>
<tr>
<td>Core i5-7500</td>
<td>4 / 4</td>
<td>3.40 / 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>3.50 / 4.1G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
<tr>
<td>Core i7-7700T</td>
<td>4 / 8</td>
<td>3.60 / 4.2G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>HD 630</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, APS
- **Some:** Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" (* 2.5" HDD/SSD and RX 460 graphics are mutually exclusive)

### Optical

- **Some:** DVD-ROM, slim (9.0mm), via USB external ODD box
- **Some:** DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box

### 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;
- **Some:** M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model)
- **Some:** Intel Optane™ Memory (models with 7th gen Core processor), M.2
- **Some:** AMD Radeon™ RX 460, DirectX 12, 4GB, PCIe 3.0 x 8 adapter (low profile), four mini DisplayPort, 35 watts (TDP), up to 4 independent displays, works along with one DisplayPort and up to 6 independent displays;
- **Some:** Intel Optane™ Memory (models with 7th gen Core processor), M.2

### Mechanical

- **VESA mount stand:** Optional VESA mount bracket kit, supports VESA 75mm and 100mm
- **VESA mount floor stand:** Optional VESA mount kit, up to 2 mini DisplayPort, 184.4mm X 185.38mm X 63mm
- **Power supply:** 350 watts AC/DC adapter, autoselection, 88% PSU

### Management

- **Intel Active Management Technology 11.0 (Intel AMT 11.0);** Intel vPro technology on some models (require choosing a vPro-support Win-Fi adapter to enable vPro function through wireless connection)
- **TPM (Trusted Platform Module) 2.0,** TCG certified
- **Some:** Downgrade to TPM 1.2 for the models with Win10 DG Win7 32 OS

### Audio

- **Intel Q270 Chipset**

### Chipset

- **Intel Q270 Chipset**

### Monitor cable

- Optional DP to VGA, DP to DVI-D, DP to dual DP, mini DP to DP, or DP to HDMI 1.4

### Audio support

- **High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)**

### WLAN

<table>
<thead>
<tr>
<th>Some:</th>
<th>11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A7 (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some:</td>
<td>11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</td>
</tr>
<tr>
<td>Some:</td>
<td>11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</td>
</tr>
<tr>
<td>Some:</td>
<td>11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3825, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</td>
</tr>
<tr>
<td>Some:</td>
<td>11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</td>
</tr>
<tr>
<td>Some:</td>
<td>Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter</td>
</tr>
</tbody>
</table>

### Environment

- **ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)**

### MIL-STD test


### Accessories

- For compatible accessories, please go to [http://www.lenovquickpick.com](http://www.lenovquickpick.com)
## ThinkCentre M920 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>Celeron G4900</td>
<td>2/2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2/2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2/2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2/2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400</td>
<td>2/4</td>
<td>3.7G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>2/4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>2/4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5640</td>
<td>2/4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
</tbody>
</table>

### Audio Support

<table>
<thead>
<tr>
<th>Audio Support</th>
<th>High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)</th>
</tr>
</thead>
</table>

### 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 
* 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), M.2 

### Optical

* Some: DVD-ROM, SATA 1.5Gb/s Drive, slim (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: 1-in-1 media reader

### Graphics

Intel UHD Graphics 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

### 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

### Power Supply

180 watts, autosensing, 85% PSU

### Floor Stand

Optional system floor stand for vertical orientation

### 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. 13.23 lb (6 kg), weight may vary by configuration
- Toolless cover, disk, optical, extension card removal
- Optional dust filter
- Bay 1: Slim external ODD bay
- Bay 2: 3.5" 1x high, internal, HDD/SSD
- Bay 3: 2.5", internal, HDD/SSD (optional bay)
- Slot 1: low-profile (length < 150mm, height < 86mm), PCIe 3.0 x16
- Slot 2: low-profile (length < 150mm, height < 86mm), PCIe 3.0 x1
- Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 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)

### 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

- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

### Limited Warranty

Lenovo Calliope Keyboard (PS/2 connector), black (only available via special bid)

### Environment

ENERGY STAR® 6.1, EPEAT® Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant

### Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

### 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 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>Processor</td>
<td>Intel® Core™ i3-8100T</td>
</tr>
<tr>
<td>Cores / Threads</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Frequency Base(Max/GHz)</td>
<td>3.1G / 3.7G</td>
</tr>
<tr>
<td>Cache</td>
<td>8 MB</td>
</tr>
<tr>
<td>Memory Support (Up to)</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>Integrated Graphics</td>
<td>UHD 610</td>
</tr>
</tbody>
</table>

#### Memory

- 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, 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 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s
- * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gbs
- Some: Intel® Optane™ Memory (not support Celeron / Pentium Processor), M.2
- Some: HDD/SSD, (via USB external ODD box)

#### Optical

- Some: One onboard SATA 6.0Gb/s connector
- One onboard SATA 6.0Gb/s 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
- One onboard SATA 6.0Gb/s connector

#### Monitor cable

- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle

#### Chipset

- Intel Q370 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 PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

#### Audio support

- Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)

#### WLAN

- Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (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

#### Bluetooth

- Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter
- Some: Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN

#### Ethernet

- Some: Ethernet Network Adapter DQ4500, 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

- Security features:
  - Security slot (in rear for optional Kensington® MicroSaver® cable)
  - Chassis intrusion switch
  - Power-on password
  - Administrator password
  - Hard disk password

#### Mechanical

- Tiny (1L), black color; metal case
- Toolless chassis open (need optional toolless chassis screw)
- Toolless SSD, SSD removal
- Optional dual M.2 SSD, one PCIe 3.0 x 8 slot (low-profile), two M.2 slots (one for WAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive

#### Power supply

- Power supply:
  - Some: 65 watts AC/DC adapter, autosensing, 88% PSU
  - Some: 90 watts AC/DC adapter, autosensing, 88% PSU
  - Some: 135 watts AC/DC adapter, autosensing, 88% PSU

#### Limited warranty

- 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

- Preloaded applications (only some listed):
  - Lenovo Vantage
  - Microsoft Office preloaded
  - Cyberlink Power2GO (only for models with DVD±RW)

#### Environment


#### 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, June 2019
ThinkCentre M920 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>Celeron G4900</td>
<td>2/2</td>
<td>3.1G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2/2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G4600</td>
<td>2/4</td>
<td>3.9G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G4620</td>
<td>2/4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</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

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 NVMe PCIe (not support Celeron / Pentium Processor), M.2 SATA

Optical

Optional DVD-ROM or DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (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, main memory, DirectX 12, one VGA, two DisplayPort®, supports 3 independent displays, works along with discrete graphics to support more displays:

Some: NVIDIA GeForce GT 730, DirectX 12, 2GB, PCIe x 16 adapter, two DisplayPort, 35 watts;
Some: NVIDIA GeForce GTX 1060 (special only), DirectX 12, 6GB, PCIe 3.0 x16 adapter, 1x DVI-D, 1x HDMI, 3x DP, 120 watts, occupies two slots;

Monitor Cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with integrated graphic displays), 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 (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports (Opt.) Optional: 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.) Optional: 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special only bid), 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

Audio support

High Definition (HD) Audio, Realtek ALC233/2VB / internal speaker (2 watt )

WLAN

Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822CE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2
Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2

Some: Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN

Intel Ethernet Server Adapter i350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Billant BNR88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)

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

● Security slot (in rear for optional Kensington® MicroSaver® cable)
● Power-on password
● Padlock loop
● Optional cable lock to physically lock both keyboard and mouse
● Optional chassis intrusion switch
● Optional onboard administrator password
● Individual USB port disablement
● Smart USB protection, allows keyboard/mouse only, blocks all storage devices

Keyboard

Some: Lenovo Calliope 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 (PS/2 connector), black (only available via special bid)
Some: Lenovo Calliope Mouse (PS/2 connector), black (only available via special bid)

Optional Lenovo FingerPrint Mouse (USB connector), black
Optional Lenovo Calliope Mouse (USB connector), black
Optional Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Optional Lenovo Calliope Mouse (PS/2 connector), black (only available via special bid)

Mechanical

● Tower (18L), black color, metal case
● (WxDxH) 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

Lenovo, June 2019

Preload

Some: Windows 10 Pro 64-bit
Some: Windows 10 Home 64-bit

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)
### ThinkCentre M920x Tiny Platform Specifications

#### Processor
- **Intel Celeron**, **Intel Pentium**, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 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>
</tr>
<tr>
<td>Celeron G4920</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4950</td>
<td>2 / 2</td>
<td>3.3G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5406</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5500</td>
<td>4 / 4</td>
<td>3.8G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600</td>
<td>4 / 4</td>
<td>4.0G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8300</td>
<td>4 / 4</td>
<td>3.7G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8400</td>
<td>6 / 6</td>
<td>2.6G / 4.0G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-8500</td>
<td>6 / 6</td>
<td>3.0G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-8600</td>
<td>6 / 6</td>
<td>3.1G / 4.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-8700</td>
<td>6 / 12</td>
<td>3.2G / 4.6G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-9100</td>
<td>4 / 4</td>
<td>3.6G / 4.6G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-9320</td>
<td>4 / 4</td>
<td>3.7G / 4.3G</td>
<td>8 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i5-9400</td>
<td>6 / 6</td>
<td>2.9G / 4.1G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9500</td>
<td>6 / 6</td>
<td>3.0G / 4.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9600</td>
<td>6 / 6</td>
<td>3.1G / 4.6G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Celeron G4900T</td>
<td>2 / 2</td>
<td>2.9G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Celeron G4930T</td>
<td>2 / 2</td>
<td>3.2G</td>
<td>2 MB</td>
<td>DDR4-2400</td>
<td>UHD 610</td>
</tr>
<tr>
<td>Pentium Gold G5400T</td>
<td>4 / 4</td>
<td>3.1G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5500T</td>
<td>4 / 4</td>
<td>3.2G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Pentium Gold G5600T</td>
<td>4 / 4</td>
<td>3.3G</td>
<td>4 MB</td>
<td>DDR4-2400</td>
<td>UHD 630</td>
</tr>
<tr>
<td>Core i3-8100T</td>
<td>4 / 4</td>
<td>3.1G</td>
<td>6 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-8300T</td>
<td>4 / 4</td>
<td>3.2G</td>
<td>6 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8400T</td>
<td>6 / 6</td>
<td>1.7G / 3.3G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8500T</td>
<td>6 / 6</td>
<td>2.1G / 3.5G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-8600T</td>
<td>6 / 6</td>
<td>2.3G / 3.7G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-8700T</td>
<td>6 / 12</td>
<td>2.4G / 4.0G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i3-9100T</td>
<td>4 / 4</td>
<td>3.1G / 3.7G</td>
<td>8 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9400T</td>
<td>6 / 6</td>
<td>1.8G / 3.4G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9500T</td>
<td>6 / 6</td>
<td>2.2G / 3.7G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i5-9600T</td>
<td>6 / 6</td>
<td>2.3G / 3.9G</td>
<td>9 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-9700T</td>
<td>8 / 8</td>
<td>2.0G / 4.3G</td>
<td>12 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
<tr>
<td>Core i7-9900T</td>
<td>8 / 16</td>
<td>2.1G / 4.4G</td>
<td>16 MB</td>
<td>DDR4-2666</td>
<td>UHD 663</td>
</tr>
</tbody>
</table>

#### Memory
- 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, 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 SSD (support up to two M.2 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), 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
- Some: One onboard SATA 6.0Gb/s 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: 5120x2880@60Hz (up to 2 Mini DisplayPort); 4096x2160@60Hz (up to 4 Mini DisplayPort)
- Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with integrated graphics), or DP to HDMI 1.4 dongle, Mini DP to DP

#### Monitor cable
- 4x Mini DisplayPort, up to 4 independent displays, works along with onboard DP and HDMI to support up to 6 independent displays; Max resolution: 5120x2880@60Hz (up to 2 Mini DisplayPort); 4096x2160@60Hz (up to 4 Mini DisplayPort)

#### Chipset
- Intel Q370 Chipset

#### Optical
- 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
- Some: One onboard SATA 6.0Gb/s connector

#### Onboard SATA
- 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; 2560x1536 (VGA) @60Hz
- Some: AMD Radeon™ RX 560, DirectX 12, 4GB GDDR5, PCIe 3.0 x8 adapter,
- Lenovo, June 2019
# ThinkSmart Hub 500 Platform Specifications

<table>
<thead>
<tr>
<th>Positioning</th>
<th>Purpose-built Skype Room Systems device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>7th Gen Intel Core™ i5 Processor with vPro</td>
</tr>
</tbody>
</table>

<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 i5-7500T</td>
<td>4 / 4</td>
<td>2.7G / 3.3G</td>
<td>6 MB</td>
<td>DDR4-2400</td>
<td>HD 630</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>4GBx2, DDR4-2400, two 260-pin SO-DIMM sockets, dual-channel capable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32GB/s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Intel HD Graphics 630 in processor, uses main memory, DirectX®️ 12 11.6&quot; (294.64mm) Full HD 1080p (1920x1080) TFT color, wide viewing angle (+/- 85°), LED backlight, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, anti-glare, smudge resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>Supports 10-point touch, OGS</td>
</tr>
<tr>
<td>Multi-touch</td>
<td>IR Presence/Motion sensor, automatically dim / brighten display (Detection angle: +/- 45% (from display); detection distance: 3 meters at minimum)</td>
</tr>
<tr>
<td>Sensor</td>
<td>360 degree LED ring on hinge neck, indicates Skype status for all users in the room; power LED on power button</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chipset</th>
<th>Intel Q270 Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ports*</td>
<td>Four USB 3.1 Gen1 (Type A), two HDMI-out, one HDMI-in (1920x1080 @ 60Hz at maximum), one ethernet (RJ-45), one headphone / microphone combo jack (3.5mm), one power connector</td>
</tr>
<tr>
<td>M.2 card slot</td>
<td>Two M.2 Card slots (one for WLAN, one for SSD)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Audio support</th>
<th>Dual 4W speakers, 2 omnidirectional microphones for 360 degree audio capture</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLAN™️</td>
<td>11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2 Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter</td>
</tr>
<tr>
<td>Bluetooth™️</td>
<td>* Hardware supports Bluetooth 4.2, but Win10 RS3 only supports Bluetooth 4.1</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN™️</td>
</tr>
</tbody>
</table>

| Manageability | Intel Active Management Technology 11.0 (Intel AMT 11.0), Intel vPro technology |

| Security chip | TPM (Trusted Platform Module) 2.0, TCG Certified |
| Security features | • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) |
|                 | • Power-on, admin, hard disk password reset, BIOS secure boot |
|                 | • Boot sequence control |
|                 | • Boot without keyboard and mouse |
|                 | • USB port disablement |

| Keyboard | None |
| Mouse    | None |

| Mechanical | Business black color |
|           | (WxDxH) 7.60" X 10.98" X 7.02"; 193.25mm X 278.9mm X 178.45mm |
|           | Approx. 5.51 lb (2.5 kg) |
|           | Secure Cable Management Door, secures physical ports and prevents cables being accidentally disconnected |
|           | 360 degree rotatable Display |

| Power supply | 90 watts adapter, autosensing, 88% efficiency |

| Limited warranty | 3-year, limited onsite service / service upgrades available |

| Preload | Preloaded operating system Windows®️ 10 IoT Enterprise CBB X64 (RS3) |
|         | Preloaded applications Microsoft Skype Room Systems App |

| Certification | Skype for Business Group Certified |

| Environment   | ErP Lot 26, GREENGUARD™ certified, RoHS, WEEE |

| Accessories   | For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com) |

See footnotes for more detailed information © Lenovo

(Hub500-Spec) March 2018
ThinkCentre Tiny-in-One (TIO) 22

**Model**
10LKPAR6++ / 10LKPAT6++

**Form factor**
Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 22, clean cabling and effortless setup

**Compatible Tiny:**
- M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox
- Tiny-in-One Power On
- Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 22

**Panel**
- ThinkCentre Tiny-in-One 22 Compatible list
  - M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny, M83 Tiny, M53 Tiny, M73 Tiny, Chromebox

**Ergonomics**
- VESA-compliant
- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI (100mm mount)

**Adjustable stand**
- Tilt: 35° back, -5° forward; lift: 4.3” (110mm); swivel: +/-45°
- Power supply: 90 watts AC/DC adapter, 88% PSU, universal
- Power consumption: 15.57 watts typical, 35 watts maximum, <0.5 watts standby / suspend

**Limited warranty**
- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

**Mounting features**
- VESA DDC2B/Ci, VESA DPMS-compliant

**Ergonomics**
- ISO 9241-307
- Emission standards: FCC Class B

**Environmental**
- TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR 7.0
- EPEAT Gold rating, ULE Gold, TUV, VOC

**System requirements**
- Windows 7, Windows 8/8.1, and Windows 10 certified

**Shipping group**
- TIO 22 (Monitor), detachable stand, AC/DC power adapter, power cord, user’s guide and driver CD, quick start and safety poster

**Accessories**
- For compatible accessories, please go to http://www.lenovoquickpick.com

<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>
<th>1152x864 @ 75Hz</th>
<th>1280x800 @ 60Hz</th>
<th>1280x1024 @ 60Hz, 72Hz, 75Hz</th>
<th>1366x768 @ 60Hz</th>
<th>1440x900 @ 60Hz, 75Hz</th>
<th>1600x1200 @ 60Hz, 72Hz, 75Hz</th>
<th>1680x1050 @ 60Hz</th>
<th>1920x1080 @ 60Hz</th>
</tr>
</thead>
</table>

**Preset / user settings**
- Presets: 25, user settings: 25

**On screen display**
- On screen display with digital user controls (8 languages)

**Control features**
- Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power 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 Tiny support, see compatible list)

**Front ports**
- Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm)
  - The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port

**Side ports**
- Side ports offered by installed Tiny (optional)

**Rear ports**
- One DisplayPort 1.2 port, one USB upstream port, one power connector
- Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0 / USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)

**Internal Speaker**
- 1.5 watt x1

**Security**
- Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 22 together, more security features offered by Tiny installed (optional)

**Mechanical**
- Dimensions: TIO 22 without stand 19.25 x 2.65 x 12.47, TIO 22 with stand 19.25 x 9.90 x 14.02 - 18.35
- Weight (approximately): 11.27 lb / 5.11 kg (with stand)
ThinkCentre Tiny-in-One (TIO) 22 Gen3

Model
Non-touch model: 10R1PAR1++/10R1PAT1++;
Touch model: 10R0PAR1++/10R0PAT1++

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:
M910 / M710 / M900 / M700 / M600 / M715 / M93p / M83 / M73 / M53 / Chromebox Tiny
Non-TIO models can’t be turned on by pressing power button of TIO

Panel
TFT-LCD, In-Plane Switching technology**, White LED backlight
Viewable image size: 21.5" (546.1mm) diagonal
Max view area (W x H): 18.74" x 10.54" / 476.1mm x 267.8mm
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): 0.24795mm
Dot/Pixel per inch: 102.4 dpi
Brightness: 250 nits or cd/m² (typical)
Contrast ratio: 1000:1 (typical)
Pixel response time: 14ms (default), over drive to 8ms
Color gamut: 72%
Anti-reflective: Anti-glare
Viewing angle at 10:1 CR: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

Preset resolutions:
640x480 @ 60Hz
720x400 @ 70Hz
800x600 @ 60Hz
1024x768 @ 60Hz, 70Hz, 75Hz
1152x864 @ 75Hz
1280x1024 @ 60Hz, 70Hz, 75Hz
1366x768 @ 60Hz
1440x900 @ 60Hz, 75Hz
1600x1200 @ 60Hz, 70Hz, 75Hz
1680x1050 @ 60Hz
1920x1080 @ 60Hz

Presets / user settings:
Presets: 25; user settings: 25

On screen display
Control features:
On screen display with digital user controls (8 languages)
Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / 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 Tiny support, see compatible list)
One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port)
Notes: The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port

Side ports (TIO)
Side ports offered by installed Tiny (optional)
Side ports (Tiny)
One DisplayPort in port, one USB upstream port, one power connector
Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen 1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)
Camera
720p camera with dual microphone for VOIP, 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
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
11.77 lb / 5.34 kg

Mounting features:
Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

Adjustable stand:
Tilt: ±15° back, -5° forward;
swivel: +/-45°;
Pivot: clockwise 0° to 90°

Power supply:
90 watts AC/DC adapter, 88% PSU, universal
Power consumption:
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

VESA-compliant:
VESA DDC2B/Ci, VESA DPMS-compliant
Ergonomics:
ISO 9241-307, TUV Eye Comfort certified
Emission standards:
FCC Class B
Environmental:
TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Gold rating, ULE Gold, TUV, VOC
Windows certifications:
Windows 7 and Windows 10 certified

Ship group:
TIO (Monitor), detachable stand, AC/DC power adapter, power cord, user’s guide and driver CD, quick start and safety poster

Accessories:
For compatible accessories, please go to http://www.lenovoquickpick.com

ThinkCentre Tiny-in-One 22 Gen3 Compatible list

<table>
<thead>
<tr>
<th>Model</th>
<th>Turn on TIO and Tiny together via Alt + P on USB KB</th>
<th>Turn on TIO and Tiny together via TIO Power Button</th>
</tr>
</thead>
<tbody>
<tr>
<td>M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny</td>
<td>All models</td>
<td>All models</td>
</tr>
<tr>
<td>M93p Tiny, M73 Tiny</td>
<td>All models</td>
<td>Not support</td>
</tr>
<tr>
<td>Chromebox</td>
<td>All models</td>
<td>All models</td>
</tr>
</tbody>
</table>

Lenovo, July 2017
ThinkCentre Tiny-in-One (TIO) 24

Product Specifications Reference (PSREF)

**Model**: 10LLPAR6++ / 10LLPAT6++

**Form factor**: Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 24, clean cabling and effortless setup

**Compatible Tiny**: M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox

* Non-TIO models can't be turned on by pressing power button of TIO 24

**Panel**

- Viewable image size: 23.8" (604.7mm) diagonal
- Max view area (W x H): 21.06" x 12.32" / 535.0mm x 313.0mm
- Bezel Width: Top / Side: 2mm, Bottom: 16.3mm
- 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: 1000:1 (typical)
- Pixel response time: 7ms
- Color gamut: 72%
- Anti-reflective: Anti-glare
- Viewing angle at 10:1 CR: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Preset resolutions**

- 640x350 @ 70Hz
- 640x480 @ 60Hz, 66Hz, 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

**Preset / user settings**

- Presets: 25, user settings: 25

**On screen display**

- On screen display with digital user controls (8 languages)

**Control features**

- Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button
- Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)

**Front ports**

- Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm)
- The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port

**Side ports**

- Side ports offered by installed Tiny (optional)

**Rear ports**

- One DisplayPort 1.2 port, one USB upstream port, one power connector
- Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0/USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)

**Internal Speaker**

- 1.5 watt x1

**Security**

- Security keyhole for attachment of optional cable lock (Kensington lock compatible), locks optional Tiny with TIO 24 together, more security features offered by Tiny installed (optional)

**Mechanical**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>TIO 24 without stand</th>
<th>TIO 24 with stand</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H (inch)</td>
<td>21.24 x 2.7 x 13.64</td>
<td>21.24 x 9.90 x 15.16 - 19.46</td>
</tr>
<tr>
<td>W x D x H (mm)</td>
<td>539.6 x 68.2 x 346.45</td>
<td>539.6 x 251.4 x 385.08 - 495.08</td>
</tr>
</tbody>
</table>

**Weight**

- (approximately) 12.25 lb / 5.57 kg (with stand)

**Mounting features**

- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPM** (100mm mount)

**Adjustable stand**

- Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°

**Power supply**

- 90 watts AC/DC adapter, 88% PSU, universal

**Power consumption**

- 16.7 watts typical, 35 watts maximum, <0.5 watts standby / suspend

**Limited warranty**

- 3-years, Customer Carry-In or Mail-In via Rapid Replacement Service

**VESA-compliant**

- VESA DDC2B/CI, VESA DPMS-compliant

**Ergonomics**

- ISO 9241-307

**Emission standards**

- FCC Class B

**Environmental**

- TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0
- EPEAT™ Gold rating, ULE Gold, TUV, VOC

**Windows certifications**

- Windows 7, Windows 8/8.1, and Windows 10 certified

**Ship group**

- TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster

**Accessories**

- For compatible accessories, please go to [http://www.lenovoquickpick.com](http://www.lenovoquickpick.com)

---

**ThinkCentre Tiny-in-One 24 Compatible list**

<table>
<thead>
<tr>
<th>Model</th>
<th>M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny, M83 Tiny, M53 Tiny</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromebox</td>
<td>TIO Power Button</td>
</tr>
<tr>
<td>Turn on TIO and Tiny together via Alt + P on USB KB</td>
<td>All models</td>
</tr>
<tr>
<td>Turn on TIO and Tiny together via TIO Power Button</td>
<td>All models</td>
</tr>
</tbody>
</table>

---

See footnotes for more detailed information
ThinkCentre Tiny-in-One (TIO) 24 Gen3

**Model**
- Non-touch model: 10QYPAR1++/10QYPAT1++;
- Touch model: 10QXPAR1++/10QXPAT1++

**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: M910 / M710 / M900 / M700 / M600 / M715 / M93p / M83 / M73* / M53 / Chromebox Tiny
- *Non-TIO models can’t be turned on by pressing power button of TIO

**Panel**
- TFT-LCD, In-Plane Switching technology**, White LED backlight
- Viewable image size: 23.8" (604.7mm) diagonal
- Max view area (W x H): 21.06" x 12.32" / 535.0mm x 313.0mm
- 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: 1000:1 (typical)
- Pixel response time: 14ms (default), over drive to 4ms, 6ms
- Color gamut: 72%
- Anti-reflective: Anti-glare
- Viewing angle at 10:1 CR178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

### 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

**Preset resolutions**
- Presets: 25; user settings: 25

**On screen display**
- On screen display with digital user controls (8 languages)
- Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / 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 Tiny support, see compatible list)
- Side ports (TIO)
  - USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port)
  - Notes: The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port

**Side ports (Tiny)**
- Side ports offered by installed Tiny (optional)
- Rear ports
  - One DisplayPort in port, one USB upstream port, one power connector
  - Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)
- Camera
  - 1080p camera with digital microphone for VOIP, 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**
- Dimensions
  - TIO without stand: 21.25 x 2.85 x 14.47
  - TIO with stand: 21.25 x 11.11 x 15.72 - 20.06
  - W x D x H (mm): 539.8 x 72.5 x 367.6
  - Weight (Approx.): 7.96 lb / 3.61 kg

**Mounting features**
- Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

**Adjustable stand**
- Tilt: 30° back, -5° forward;
- Swivel: +/-45°;
- Pivot: clockwise 0° to 90°

**Power supply**
- 90 watts AC/DC adapter, 88% PSU, universal

**Power consumption**
- 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

**Emission standards**
- FCC Class B
- TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0.
- EPEAT™ Gold rating, ULE Gold, TUV, VOC

**Windows certifications**
- Windows 7 and Windows 10 certified

**Certifications**
- ENERGY STAR
- EPEAT® Gold, TCO 6.0, TCO Edge 2.0, WEEE, RoHS, TUV, VOC

**FCC Class B**
- VESA DDC2B/Ci, VESA DPMS-compliant

**Ergonomics**
- ISO 9241-307, TUV Eye Comfort certified
- VESA DDC2B/CI, VESA DPMS-compliant

**Environmental**
- TCO Edge 2.0, WEEE, ENERGY STAR® 7.0.
- TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0.
- EPEAT™ Gold rating, ULE Gold, TUV, VOC

**VESA-compliant**
- VESA DDC2B/Ci, VESA DPMS-compliant

**EPEAT**
- EPEAT® Gold, TCO 6.0, TCO Edge 2.0, WEEE, RoHS, TUV, VOC

**Windows certifications**
- Windows 7 and Windows 10 certified

**Ship group**
- TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user’s guide and driver CD, quick start and safety poster

**Accessories**
- For compatible accessories, please go to http://www.lenovoquickpick.com

**ThinkCentre Tiny-in-One 24 Gen3 Compatible list**

<table>
<thead>
<tr>
<th>Model</th>
<th>Turn on TIO and Tiny together via Alt + P on USB KB</th>
<th>Turn on TIO and Tiny together via TIO Power Button</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-TIO models</td>
<td>All models</td>
<td>All models</td>
</tr>
<tr>
<td>Chromebox TIO models</td>
<td>All models</td>
<td>All models</td>
</tr>
<tr>
<td>Non-TIO models</td>
<td>All models</td>
<td>All models</td>
</tr>
<tr>
<td>TIO models</td>
<td>All models</td>
<td>All models</td>
</tr>
</tbody>
</table>

**Lenovo, July 2017**
ThinkCentre Tiny-in-One (TIO) 27

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, and 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

Internal Speaker
Yes (25%)

Camera
Yes (25%)

3-in-1 Cable
Undetachable 3-in-1 cable, connecting to the power connector, one USB, and one DisplayPort of the installed Tiny (optional)

Rear ports
Two USB 3.1 Gen1 (downgrade to USB 2.0 when installing M73 or M53 or M93/p Tiny), one DisplayPort(in), one 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)
One DisplayPort(in) port, one HDMI(in) port, one USB (Type-B) upstream port, one power connector

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 (W x D x H / mm / inch)</th>
<th>TIO without stand</th>
<th>TIO with stand</th>
</tr>
</thead>
<tbody>
<tr>
<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>
<td>7.95 kg / 17.53 lb</td>
</tr>
</tbody>
</table>

Power supply
170 watts adapter, 88% PSU, universal

Power consumption
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)

Weight (Approx.)
4.91 kg / 10.82 lb

Mounting features
Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPPMPM* (100mm mount)

Adjustable stand
Tilt: 35° back, -5° forward; swivel: +/-45°; Pivot: clockwise -5° to 90°

Environmental

<table>
<thead>
<tr>
<th>Emission standards</th>
<th>Ergonomics</th>
<th>Service (EMEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC Class B</td>
<td>ISO 9241-307, TUV Eye Comfort certified</td>
<td>Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)</td>
</tr>
<tr>
<td>TCO 6.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Bronze rating, ULE Gold, TUV, VOC</td>
<td>VESA DDC/CI, VESA DPMS-compliant</td>
<td>Windows 7 and Windows 10 certified</td>
</tr>
</tbody>
</table>

Windows certifications
Windows 7 and Windows 10 certified

Ergonomics

<table>
<thead>
<tr>
<th>Mounting features</th>
<th>Adjustable stand</th>
<th>Ergonomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPPMPM* (100mm mount)</td>
<td>Tilt: 35° back, -5° forward; swivel: +/-45°; Pivot: clockwise -5° to 90°</td>
<td>ISO 9241-307, TUV Eye Comfort certified</td>
</tr>
</tbody>
</table>

Service (EMEA)
Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)

Mounting features
Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPPMPM* (100mm mount)

Adjustable stand
Tilt: 35° back, -5° forward; swivel: +/-45°; Pivot: clockwise -5° to 90°

Environmental

<table>
<thead>
<tr>
<th>Emission standards</th>
<th>Ergonomics</th>
<th>Service (EMEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC Class B</td>
<td>ISO 9241-307, TUV Eye Comfort certified</td>
<td>Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)</td>
</tr>
<tr>
<td>TCO 6.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Bronze rating, ULE Gold, TUV, VOC</td>
<td>VESA DDC/CI, VESA DPMS-compliant</td>
<td>Windows 7 and Windows 10 certified</td>
</tr>
</tbody>
</table>

Service (EMEA)
Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)

Accessories
For compatible accessories, please go to http://smartfind.lenovo.com

Form factor
Compatible Tiny: Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup

ThinkCentre Tiny-in-One 27 Compatible Matrix

<table>
<thead>
<tr>
<th>Model</th>
<th>P320 / P330 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M600 / M715 / M83 / M53 Tiny</th>
</tr>
</thead>
<tbody>
<tr>
<td>M93/p Tiny, Chromebox</td>
<td>Turn on TIO and Tiny together via Alt + P on USB KB</td>
</tr>
<tr>
<td>Tiny together via TIO Power Button</td>
<td>All models</td>
</tr>
</tbody>
</table>
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

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.

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.


© Lenovo, 2019. All rights reserved.

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.

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 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 PNIs from PDF version

June 20, 2018 - Version 526
► New ThinkStation P330 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 Tower and SFF 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 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 P320 SFF Platform Specifications

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel C236 Chipset</td>
</tr>
<tr>
<td>Intel AMT</td>
<td>Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>Processor</td>
<td>Core i3-7100 Core i3-7300 Core i5-7400 Core i5-7500 Core i5-7600 Core i7-7700 Xeon E3-1220 v5 Xeon E3-1225 v5 Xeon E3-1230 v5 Xeon E3-1235 v5 Xeon E3-1240 v5 Xeon E3-1245 v5 Xeon E3-1250 v5 Xeon E3-1255 v5 Xeon E3-1270 v5 Xeon E3-1275 v5 Xeon E3-1280 v5 Xeon E3-1285 v5</td>
</tr>
<tr>
<td>Memory DIMM slots</td>
<td>4 DIMM slots, 2-channel (integrated memory controller in processor)</td>
</tr>
<tr>
<td>Memory type/capacity</td>
<td>Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. &quot;Skylake&quot; processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC</td>
</tr>
<tr>
<td>Intel HD Graphics in processor</td>
<td>Integrated Intel HD P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 530 in Core i7, i5, or i3 6000 processors, or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.</td>
</tr>
<tr>
<td>Discrete graphics</td>
<td>Two PCI Express 3.0 x16 slots for graphics adapters. Up to two NVIDIA Quadro P1000. Supports the following NVIDIA graphic adapters:</td>
</tr>
<tr>
<td>Onboard drive controller</td>
<td>Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5, 6 support. RAID 5 needs three 2.5&quot; SSD drives.</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>One external 5.25&quot; bay, one internal 3.5&quot; bay (see right). Up to one 9mm optical + 2 x 3.5&quot; disk drive bays + 1 x 2.5&quot; disk drive bay + two M.2 NVMe SSD</td>
</tr>
<tr>
<td>Supporting disk drives</td>
<td>3.5&quot; SATA HDD (7,2K 6Gbps) 1TB/2TB/4TB/8TB hybrid 2TB hybrid 1TB/1.5TB/2TB/4TB hybrid</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>10TB (2 x 4TB 3.5&quot; HDDs + 1 x 2TB 2.5&quot; SSD) plus two 1TB M.2 NVMe SSD</td>
</tr>
<tr>
<td>Power supply</td>
<td>210 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified</td>
</tr>
<tr>
<td>Onboard Ethernet</td>
<td>One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN</td>
</tr>
<tr>
<td>HD Audio</td>
<td>Realtek ALC662 codec</td>
</tr>
<tr>
<td>TPM</td>
<td>Standard, TCG 2.0-compliant</td>
</tr>
</tbody>
</table>

## Drive Bays and PCIe Slots

<table>
<thead>
<tr>
<th>Bay</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay 1</td>
<td>5.25&quot;, supports one of the following: HH optical/flex module/9mm optical+3.5&quot; HDD bay/3.5&quot; HDD bay/Front Access Storage Enclosure</td>
</tr>
<tr>
<td>Bay 2</td>
<td>Optional 9-in-1 single slot reader</td>
</tr>
<tr>
<td>Bay 3</td>
<td>Standard 3.5&quot; HDD bay</td>
</tr>
<tr>
<td>Bay 4</td>
<td>Optional 2.5&quot; HDD bay (under Bay 3)</td>
</tr>
</tbody>
</table>

### ISV certifications

Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/) for more information on ISV certifications.
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel C236 Chipset</td>
</tr>
<tr>
<td>Intel AMT</td>
<td>Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>Processor</td>
<td>Core i3-7300 4C/3.7GHz/8MB/76W/DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i5-7400 4C/3.8GHz/8MB/76W/DDR4-2400</td>
</tr>
<tr>
<td></td>
<td>Core i7-7700 4C/3.7GHz/8MB/73W/DDR4-2400</td>
</tr>
<tr>
<td>Memory DIMM slots</td>
<td>4 DIMM slots, 2-channel (integrated memory controller in processor)</td>
</tr>
<tr>
<td>Memory type/capacity</td>
<td>Integrated Intel HD P590 in Xeon E3-12x5 v5 processors, or Intel HD P690 in Xeon E3-12x5 v6 processors, or Intel HD P590 in Core i7, i5, or i3 6000 processors, or Intel HD 630 in Core i7, i5, or i3 7000 processors. Works along with discrete graphics to support multi-display, enables three display connectors (2 DP, 1 VGA) on rear.</td>
</tr>
<tr>
<td>Intel HD Graphics in processor</td>
<td>Two PCI Express 3.0 x16 slots for graphics adapters. Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400</td>
</tr>
<tr>
<td>Discrete graphics</td>
<td>Two PCI Express 3.0 x16 slots for graphics adapters. Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400</td>
</tr>
<tr>
<td>Onboard drive controller</td>
<td>Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 5, 10 support</td>
</tr>
<tr>
<td>Drive Bays</td>
<td>Two external 5.25&quot; bays, two internal 3.5&quot; bays (see right). Up to one 9mm optical plus 4 x 3.5&quot; disk drive bays plus two M.2 NVMe SSD</td>
</tr>
<tr>
<td>Supporting disk drives</td>
<td>3.5&quot; SATA HDD (7.2K Gbps) 8TB/2TB/4TB/1TB hybrid/2TB hybrid</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>16TB (4 x 4TB 3.5&quot; HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD</td>
</tr>
<tr>
<td>Media reader</td>
<td>9-in-1 card reader. Optional 29-in-1 card reader on selected models</td>
</tr>
</tbody>
</table>

### Power
- **Power supply**: One 250 watts with variable speed fan, autosensing. Climate Savers Computing Bronze, 80 PLUS Bronze qualified. Or one 400 watts with variable speed fan, autosensing. Climate Savers Computing Platinum, 80 PLUS Platinum qualified.
- **Onboard Ethernet**: One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN
- **HD Audio**: Realtek ALC662 codec
- **TPM**: Standard, TCG 2.0-compliant
- **Front ports**: Two USB 3.0, microphone (3.5mm), headphone (3.5mm)
- **Rear ports**: 1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one onboard RJ-45, three analog audio ports (line-in, line-out, mic-in)
- **Mechanical**
  - Raven black color; metal case
  - 6.99"W x 16.77"D x 14.81"H
  - 175mm W x 426mm D x 376mm H
  - 28.66 lb (13kg) max configuration
  - 25-liter
- **Environmental certifications**: GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified
- **Limited warranty**: 1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.
- **ISV certifications**: Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

### Drive Bays and PCIe Slots
- **Bay 1 and 2**: 4 PCI slots (top-down):
  - Slot 1: Half length, full height, PCIe 3.0 x16 (near CPU)
  - Slot 2: Half length, full height, PCIe 3.0 x1
- **Bay 3**: Optional 9-in-1 single slot reader
- **Bay 4**: Standard 3.5" HDD bay
- **Bay 5**: Standard 3.5" HDD bay
- **6-Slots**: Four PCI slots (top-down):
  - Slot 1: Half length, full height, PCIe 3.0 x16 (near CPU)
  - Slot 2: Half length, full height, PCIe 3.0 x1
  - Slot 3: Half length, full height, PCIe 3.0 x16 (x4 elec)
  - Slot 4: Half length, full height, PCIe 3.0 x1

### Note:
1. Both discrete graphics adapter and M.2 NVMe SSD should be installed on slot 1 or slot 3, the maximum quantity of discrete graphics adapter and M.2 NVMe SSD is 2.
2. When two discrete graphics adapters are used, no other PCIe card can be used.

Copyright Lenovo 2017. All rights reserved.
ThinkStation P330 SFF Platform Specifications

### Components | Specification
--- | ---
**Machine Type** | MT 30C7 for Transactional model and MT 30C8 for Relationship model. For configuration of all 30C7 EMEA and US models, please visit: [http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF](http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF)
**Form factor** | 8.4L mini-tower
**Dimensions** | Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)
**Weight** | Maximum configuration: 13.23 lb (6.0kg)
**Processor** | Up to one Intel Xeon E-2100 family processor, up to 80W, up to 6 cores at 3.7GHz, up to 3.8GHz with 4 cores, up to 12MB cache, DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 65W, up to 6 cores at 3.2GHz, up to 3.7GHz with 4 cores, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium G5400 via Special Bids, 58W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed
**Chipset** | Intel C246 Chipset
**Memory** | 4 DIMM sockets. DDR4-2666. UDIMM. Core i7 and i5 processors cannot support ECC UDIMM. Memory capacity: Up to 64GB with 4x 16GB, both ECC and non-ECC. Chipset: Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1. Components Specification: Intel vPro supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
**Chipset** | Intel AMT
**Base warranty** | US models comes with 3-year limited onsite service with 9x5/NBD 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
**HD Audio** | Intel HD Audio interface with Realtek ALC233 Codec
**Internal storage bay** | Up to 3 bays with two disk bays and one slim optical bay: Bay 1 Primary 3.5” SATA bay Bay 2 2.5” SATA bay Bay 3 9mm Slim ODD bay
**Disks** | 3.5” HDD supports up to 4TB each, 6Gbps SATA, 7,2k. 2.5” SSD supports up to 1TB each, 6Gbps SATA
**M.2 slot for SSD** | Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH. When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models
**M.2 SSD** | M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint
**M.2 slot for Wi-Fi and Bluetooth** | One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps
**M.2 slot for SSD** | M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint

### Components | Specification
--- | ---
**Media reader** | Optional SD card reader on most models
**Network interfaces** | One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
**Security features** | Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
**Intel vPro** | Supports Intel vPro on Xeon models
**Intel AMT** | Intel AMT on other models
**Base warranty** | US models comes with 3-year limited onsite service with 9x5/NBD
**HD Audio** | Intel HD Audio interface with Realtek ALC233 Codec
**Front ports** | 2x USB 3.1 Gen 1 Type A, 2x USB 3.1 Gen 2 Type A, 1x USB 3.1 Gen 1 Type-C, 1x Mic-in, 1x Combo jack
**Rear ports** | 2x USB 3.1 Gen 1 Type A, 2x USB 2.0 Type-A. 1x RJ-45, 1x COM. 2x DP. Notes: DP needs Core, Pentium, or -G suffix Xeon processor
**Optional rear ports** | 2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI, 1x Audio line-out
**Rear ports** | Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor
**Rear ports** | Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-60 °C to 60 °C)
**Humidity** | Operating: 30%~90%, non-condensing Storage (with package): 20%~90%, non-condensing
**Environmental certification** | RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
**Power supply** | Supports one 210W or 260W power supply. 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified
**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. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer
**ThinkStation P330 SFF Gen 2 (30D1 and 30D2) Platform Specifications**

### Components Specification

#### Processor
- Supports one of the following processor:
  - Xeon E-2278G 8C/16T/3.4GHz/16MB/80W/DDR4-2666 (260W PSU needed)
  - Xeon E-2276G 6C/12T/3.8GHz/12MB/80W/DDR4-2666
  - Xeon E-2274G 4C/8T/3.6GHz/8MB/65W/DDR4-2666
  - Xeon E-2246G 6C/12T/3.6GHz/12MB/80W/DDR4-2666
  - Xeon E-2244G 4C/8T/3.8GHz/8MB/71W/DDR4-2666
  - Xeon E-2236 6C/12T/3.4GHz/12MB/80W/DDR4-2666
  - Xeon E-2234 4C/8T/3.6GHz/8MB/71W/DDR4-2666
  - Xeon E-2226G 6C/6T/3.4GHz/12MB/80W/DDR4-2666
  - Xeon E-2224G 4C/4T/3.5GHz/8MB/71W/DDR4-2666
  - Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666
  - Core i9-9900 8C/16T/3.1GHz/16MB/65W/DDR4-2666
  - Core i7-9700 8C/8T/3.0GHz/12MB/65W/DDR4-2666
  - Core i7-8700 8C/8T/3.2GHz/12MB/65W/DDR4-2666
  - Core i5-9600 6C/6T/3.1GHz/9MB/65W/DDR4-2666
  - Core i5-9500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
  - Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666
  - Core i5-8500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
  - Core i3-9300 4C/4T/3.7GHz/8MB/62W/DDR4-2666
  - Core i3-9100 4C/4T/3.6GHz/6MB/62W/DDR4-2666
  - Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2666
  - Core i3-8100 4C/4T/3.6GHz/6MB/62W/DDR4-2666
  - Pentium Gold G5620 2C/4T/4.0GHz/4MB/54W/DDR4-2400
  - Xeon E-2226G 6C/6T/3.4GHz/12MB/65W/DDR4-2666
  - Xeon E-2224G 4C/4T/3.5GHz/8MB/71W/DDR4-2666
  - Xeon E-2214G 4C/8T/3.8GHz/8MB/71W/DDR4-2666

#### Chipset
- Intel C246 Chipset

#### 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, both UDIMM ECC or UDIMM non-ECC

#### Memory Protection
- ECC on models with UDIMM ECC memory
- Three PCIe 3.0 slots as following:
  - Slot 1 PCIe x16, low profile, links to CPU
  - Slot 2 PCIe x1, low profile, links to PCH
  - Slot 3 PCIe x16 (negotiable link width x4), low profile, links to PCH

#### 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)

#### Rear ports
- To two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3).
- Supports the following graphics adapters:
  - Quadro P4000: 256 2GB GDRRs 30W 3x miniDP 2
  - Quadro P6200: 512 2GB GDRRs 40W 4x miniDP 2
  - Quadro P1000: 640 4096 GDRRs 47W 4x miniDP 2

#### Storage Controller
- Onboard Intel RST SATA RAID
- Onboard Intel RST PCIe RAID

#### Storage Support
- Disk Type Interface RPM Offering Max Qty
  - 3.5" SATA HDD SATA 6Gb/s 7.2K 1TB/2TB/4TB 1
  - 2.5" SATA HDD SATA 6Gb/s 7.2K 500GB FIPS 2
  - 2.5" SATA SSD SATA 6Gb/s 256GB/512GB/1TB 1
  - Optane Memory PCIe NVMe 32GB 1, used with HDD/SSD
  - M.2 PCIe SSD PCIe NVMe 256GB/512GB/1TB 3

#### Storage bay
- Up to 3 bays with two disk bays and one slim optical bay:
  - Bay 1 Primary 3.5" SATA bay
  - Bay 2 2.5" SATA bay (Optional)
  - Bay 3 9mm Slim ODD bay
  - M.2 8x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)

#### Components Specification

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 slot for Wi-Fi</td>
<td>One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps</td>
</tr>
<tr>
<td>Media reader</td>
<td>Optional SD card reader on most models</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe Ethernet adapters are available</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant.</td>
</tr>
<tr>
<td>Intel vPro</td>
<td>Supports Intel vPro on Xeon models.</td>
</tr>
<tr>
<td>Intel AMT</td>
<td>Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>Base warranty</td>
<td>US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs</td>
</tr>
<tr>
<td>HD Audio</td>
<td>Intel HD Audio interface with Realtek ALC233 Codec</td>
</tr>
<tr>
<td>Front ports</td>
<td>2x USB 3.1 Gen 1 Type A, 2x USB 3.1 Gen 2 Type A, 1x USB 3.1 Gen 1 Type-C, 1x Mic-in, 1x Combo jack</td>
</tr>
<tr>
<td>Rear ports</td>
<td>Optional rear ports: Supports the following via cable:</td>
</tr>
<tr>
<td></td>
<td>1x COM, 1x Parallel, 2x PS/2, 1x DP or 1x HDMI, 2x USB 2.0</td>
</tr>
<tr>
<td></td>
<td>Supports the following via PCIe adapter:</td>
</tr>
<tr>
<td></td>
<td>4x COM, 2x USB 3.1 Type-C, 2x USB 3.0, 1x Thunderbolt.</td>
</tr>
<tr>
<td></td>
<td>Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: 30%–90%, non-condensing. Storage (with package): 20%–90%, non-condensing</td>
</tr>
<tr>
<td>Environmental</td>
<td>RoHS-compliant. GREENGUARD Gold rating and ENERGY STAR 7 qualified.</td>
</tr>
<tr>
<td>certification</td>
<td>Supports one 210W or 260W power supply.</td>
</tr>
<tr>
<td>Power supply</td>
<td>210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified</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.

Lenovo, June 2019
ThinkStation P330 Tiny Platform Specifications

### Components Specifications

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>MT 30CF for Transactional model and MT 30CE for Relationship model. For configuration of all 30CF EMEA and US models, please visit: <a href="http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny">http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>1L. Optional VESA mount bracket kit, supports VESA 75mm and 100mm. Optional floor stand for vertical orientation. Optional tool-less chassis open. Optional dust filter</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 179 mm (7.0 in). Width: 36.5 mm (1.437 in). Depth: 182.9 mm (7.2 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 3.08 lb (1.4kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to one Intel Core family processor, i7, i5, or i3. Core i7 supports 65W or 35W, 6 cores, up to 3.2GHz, 12MB cache, DDR4-2666 memory speed. Core i5 supports 65W or 35W, 6 cores, up to 3.1GHz, 9MB cache, DDR4-2666 memory speed. Core i3 supports 65W, 62W, or 35W, 4 cores, up to 3.7GHz, 6MB or 8MB cache, DDR4-2400 memory speed.</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel Q370 Chipset</td>
</tr>
<tr>
<td>Memory</td>
<td>2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECX</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>One PCIe slot via specific riser card: PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card; PCIe 3.0 x4 and low profile for 350-T4 adapter and quad COM ports adapter</td>
</tr>
<tr>
<td>Graphics</td>
<td>65W or 82W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter</td>
</tr>
<tr>
<td>Graphics - Discrete graphics card</td>
<td>One of the following discrete graphics cards on 35W processor models:</td>
</tr>
<tr>
<td></td>
<td>Adapter</td>
</tr>
<tr>
<td></td>
<td>Quadro P620</td>
</tr>
<tr>
<td></td>
<td>Quadro P1000</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Integrated Intel SATA AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5” HDD</td>
</tr>
<tr>
<td>Internal storage bay</td>
<td>Up to one 2.5” HDD</td>
</tr>
<tr>
<td>Disks</td>
<td>2.5” HDD supports up to 1TB, 6Gbps SATA, 7,2K or 5,4K</td>
</tr>
<tr>
<td>M.2 slot for SSD</td>
<td>Two onboard M.2 slots for M.2 SSD, one for M.2 2280 SSD, one for M.2 2280 or 2242 SSD</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>M.2 2280 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, optional Opal. M.2 2242 SSD supports up to 128GB, PCIe 3.0 x2. NVMe</td>
</tr>
<tr>
<td>Optane memory</td>
<td>Up to one 16GB Optane memory per system. Optane memory must work with a 2.5” HDD</td>
</tr>
<tr>
<td>M.2 slot for Wi-Fi and Bluetooth</td>
<td>One dedicated M.2 2230 slot for optimal Wi-Fi card, supports one of the following: Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps. Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps. Note: Wi-Fi card, or specific functions of Wi-Fi card may not be supported in some countries</td>
</tr>
<tr>
<td>Wi-Fi antenna</td>
<td>Optional Tiny 2.4GHz/5GHz SMA antenna kit</td>
</tr>
<tr>
<td>Optical</td>
<td>Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW. VESA mount is required</td>
</tr>
<tr>
<td>Media reader</td>
<td>None. Not using USB adapter</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional Intel i350-T4 for 4x GbE ports, using PCIe slot</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Chassis intrusion switch. Optional Kensington lock</td>
</tr>
</tbody>
</table>

### Components Specifications

<table>
<thead>
<tr>
<th>ISV certifications</th>
<th>Lenovo, July 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supports vPro on models with the following processors: Core i7-8700T, Core i7-8700, Core i5-8600T, Core i5-8600, Core i5-8500T, Core i5-8500. vPro also requires Wireless-AC 9560 if Wi-Fi is needed</td>
</tr>
<tr>
<td>Systems management</td>
<td>Intel Active Management Technology 12 on vPro models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>Base warranty</td>
<td>US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs</td>
</tr>
<tr>
<td>HD Audio</td>
<td>Intel HD Audio interface with Realtek ALC233 Codec</td>
</tr>
<tr>
<td>Front standard ports</td>
<td>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.</td>
</tr>
<tr>
<td>Rear standard ports via punch out cable</td>
<td>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</td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating: 60 °F to 95 °F (10 °C to 35 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)</td>
</tr>
<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: 20%~80%, non-condensing Storage (with package): 20%~90%, non-condensing</td>
</tr>
<tr>
<td>MIL-SPEC</td>
<td>Certified</td>
</tr>
<tr>
<td>Environmental certification</td>
<td>RoHS-compliant. GREENGUARD, EPEAT Gold rating and ENERGY STAR 7 qualified</td>
</tr>
<tr>
<td>Power supply</td>
<td>Supports one 135W power adapter, 100V - 240V, 88% PSU</td>
</tr>
<tr>
<td>SV certifications</td>
<td>Please visit <a href="http://www.thinkworkstations.com/sv-certifications/">www.thinkworkstations.com/sv-certifications/</a></td>
</tr>
</tbody>
</table>
Machine Type
MT 30CS for Transactional model and MT 30C6 for Relationship model. For configuration of all 30CS EMEA and US models, please visit:
http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower

Form factor
18L Tower

Dimensions
Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)

Weight
Maximum configuration: 23.4 lb (10.6kg)

Processor
Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 125MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 95W, up to 6 cores at 3.7GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium Gold G4500 via Special Bids, 54W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed

Chipset
Intel C246 Chipset

Memory
4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed

Memory capacity
Up to 64GB with 4x 16GB, both ECC and non-ECC

Memory protection
ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM

Expansion slots
Slotted 3.0 x16, full height, full length, links to CPU

Graphics - Processor graphics
Integrated Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 640 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400.

- Works along with discrete graphics to support multi-display, enables three display adapters (2x DP, 1x HDMI. HDMI is optional) on rear

- Rear ports
HD Audio - Intel HD Audio interface with Realtek ALC233 Codec

- Optional rear ports
Type-C. 1x Mic-in. 1x Combo jack

- Network interfaces
Wake-on-LAN. Optional PCIe ethernet adapters are available

- Security features
Power-on and admin password. Trusted Platform Module. TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and padlock

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 comes with 3-year limited onsite service with 9x5/NBD, 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEs

HD Audio
Intel HD Audio interface with Realtek ALC233 Codec

Front ports
2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type C. 1x Mic-in. 1x Combo jack

Rear ports
2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out

Optional front ports (on flex module)
1x eSATA. 1x IEEE1394

Optional rear ports
2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI

Power supply
Certified 250W or 400W power supply, 100V - 240V, 92% PSU qualified

Environmental certifications
RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified

Power supply
Supports one 250W or 400W power supply, 100V - 240V. 92% PSU. Climate Savers Computing Platinum and 60 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector

ISV certifications
Please visit 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. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

Lenovo, July 2018
ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - I of II

Components Specification

Form factor 18L Tower

Dimensions Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)

Weight Maximum configuration: 28.22 lb (12.8kg)

Memory Protection ECC on models with UDIMM ECC memory

Memory Capacity 64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC

Memory Types 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC

Chipset Intel C246 Chipset

Memory Sockets 4 DIMM sockets with 2 channels

Processor

- Supports one of the following processors:
  - Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
  - Core i3-9100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
  - Core i3-9300 4C/4T/3.7GHz/8MB/62W/DDR4-2400
  - Core i5-8500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
  - Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666
  - Core i5-9500 6C/6T/3.0GHz/9MB/65W/DDR4-2666
  - Core i5-9600K 6C/6T/3.7GHz/9MB/95W/DDR4-2666
  - Core i7-8700 6C/12T/3.2GHz/12MB/65W/DDR4-2666
  - Core i7-9700 6C/12T/3.6GHz/12MB/65W/DDR4-2666
  - Core i7-9700K 8C/8T/3.6GHz/12MB/95W/DDR4-2666
  - Core i9-9900 8C/16T/3.1GHz/16MB/65W/DDR4-2666
  - Core i9-9900K 8C/16T/3.6GHz/16MB/95W/DDR4-2666

- Discrete Graphics Offering

  - Supports the following GPUs:
    - Quadro P2200 5GB GDDR6 75W 4x DP
    - Quadro P2000 5GB GDDR5 75W 4x DP
    - Quadro P1000 4GB GDDR5 50W 4x miniDP
    - Quadro P4000 16GB GDDR5X 180W DVI-D DL + 4x DP
    - Quadro RTX 4000 8GB GDDR6 160W 3x DP, 1x VirtualLink

Note: 2x Quadro P2000, Quadro P5000, or Quadro RTX 4000 needs 400W PSU

Storage Controller Specification

- Onboard Intel RST SATA RAID Std SATA 6Gb/s HDD or SSD 0/0/10/5
- Onboard Intel RST PCIe RAID Std PCIe NVMe M.2 PCIe SSD 0/0/1

- Storage Support

  - Disk Type: SATA SSD
  - Interface: SATA 6Gb/s
  - Offering: 1TB 1/2TB 1TB
  - Capacity: 7.2K

  - Optane Memory: PCIe NVMe 32GB used with HDD/SSD

- Storage Bays

  - Bay 1 Primary disk bay, 3.5" or 2.5"
  - Bay 2 2.5" SATA bay, cannot be used when 2nd Quadro P2000 is used
  - Bay 3 Secondary disk bay, 3.5" or 2.5"
  - Bay 4 5.25" Flex bay, supports one of the following:
    - Flex module for optional front eSATA/Thunderbolt
    - 3rd disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode
    - 3rd disk bay, 3.5" or 2.5", via 5.25" to 3.5" HD Kit
  - Bay 5 9mm Slim ODD bay

Media reader Optional SD card reader on most models

Network One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available

WLAN + Bluetooth One dedicated onboard M.2 slot for optional Intel Wireless-Ac 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps

Security features Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant.

Intel vPro Supports Intel vPro on Xeon models.

Intel AMT Intel Active Management Technology 12 on Xeon models. Intel Standard Manageability on other models

Base warranty US models comes with 3-year limited onsite service with 9x5/NBD.

HD Audio Intel HD Audio interface with Realtek ALC233 Codec

Notes: DP needs Core. Pentium, or -G suffix Xeon processor

Optional rear ports

- Supports the following via cable:
  - 1x eSATA. 1x IEEE1394
  - 2x Thunderbolt (USB Type-C). one of two ports supports video-out. 1x eSATA, 1x IEEE1394

- Supports the following via PCIe adapter:
  - 4x COM. 1x Parallel. 2x PS/2. 1x DP or 1x HDMI. 2x USB 2.0
  - 1x eSATA. 1x IEEE1394

- Supports the following via PCIe adapter:
  - 2x USB 3.1 Type-C. 2x USB 3.0. 1x Thunderbolt.

Temperature Operating: 41 °F to 104 °F (10 °C to 35 °C)

Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C)

Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
<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).</td>
</tr>
<tr>
<td></td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>Storage (with package): 20%–90%, non-condensing</td>
</tr>
<tr>
<td>Environmental</td>
<td>RoHS-compliant, GREENGUARD, EPEAT Gold rating and ENERGY STAR 7 qualified</td>
</tr>
<tr>
<td>certification</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>Supports one 250W or 400W power supply, 100V - 240V, 92% PSU.</td>
</tr>
<tr>
<td></td>
<td>Climate Savers Computing Platinum and 80 PLUS Platinum qualified.</td>
</tr>
<tr>
<td></td>
<td>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](mailto:ThinkStationPSREFdeveloper)
**ThinkStation P520 Platform Specifications**

**Product Specifications Reference (PSREF)**

**Form factor**
33L Tower

**Dimensions**
165mm/6.5" W x 460mm/18.1" D x 440mm/17.3" H (with feet)

**Weight**
Maximum configuration: 52.91 lb (24kg)

**Processor Family**
- Up to one 140W Intel Xeon W family processor:
  - Up to 18 cores at 2.3 GHz
  - Up to 4.0 GHz with 4 cores
  - Up to 24.75 MB cache
  - Up to DDR4-2666 memory speed

**Processor Sockets**
1x FCLGA2066

**Chipset**
Intel C422 Chipset

**Memory Sockets**
8 DIMM sockets with 4 channels

**Memory Capacity**
256GB with 8 x 32GB RDIMMs

**Memory Types**
DDR4-2666 RDIMM

**Memory Protection ECC**
- Memory Protection ECC

**Expansion slots**

<table>
<thead>
<tr>
<th>Slot</th>
<th>Name</th>
<th>Type</th>
<th>Power</th>
<th>Memory</th>
<th>Connector</th>
<th>SLI / NVLink</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1</td>
<td>CPU</td>
<td>PCIe 3.0 x8</td>
<td>75W</td>
<td>Quadro P5000</td>
<td>180W</td>
<td>DVI-D DL</td>
<td>2</td>
</tr>
<tr>
<td>Slot 2</td>
<td>CPU</td>
<td>PCIe 3.0 x16</td>
<td>75W</td>
<td>Quadro P6000</td>
<td>240W</td>
<td>DVI-D DL</td>
<td>2</td>
</tr>
<tr>
<td>Slot 3</td>
<td>(PCH)</td>
<td>PCIe 3.0 x4</td>
<td>25W</td>
<td>Quadro P6000</td>
<td>160W</td>
<td>1xVirtualLink</td>
<td>2</td>
</tr>
<tr>
<td>Slot 4</td>
<td>(CPU)</td>
<td>PCIe 3.0 x16</td>
<td>75W</td>
<td>Quadro P6000</td>
<td>240W</td>
<td>DVI-D DL</td>
<td>2</td>
</tr>
<tr>
<td>Slot 5</td>
<td></td>
<td>PCI</td>
<td></td>
<td>GPU</td>
<td>125W</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Slot 6</td>
<td>PCH</td>
<td>PCIe 3.0 x4</td>
<td>25W</td>
<td>Quadro P6000</td>
<td>160W</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**Discrete Graphics Offering**

- Up to DDR4-2666 memory speed
- Up to 4.0 GHz with 4 cores
- Up to 18 cores at 2.3 GHz

**Storage Bays**

- **Max Storage**
  - Supports up to 9x M.2 SSD + 6x 3.5" HDD/6x 2.5" SATA drives/4x 2.5" SAS HDD + 1x PCIe AIC SSD.
  - All HDD: 36TB 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 900W, autoselecting, 92%, 80 PLUS Platinum qualified
    - One fixed 900W, autoselecting, 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**
  - Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe interfaces ethernet or wireless adapters are available

- **WLAN**
  - Optional Intel Wireless-AC 8265, 2x2, 2x2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

**Security features**
- Power-on and admin password. Trusted Platform Module, TPM 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock

**Intel vPro**
- Intel vPro technology supported. vPro requires Wireless-Ac 8265 if Wi-Fi is needed

**Intel AMT**
- Intel Active Management Technology 11

**Diag stroic**
- Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-transfer module with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module

**Base warranty**
- 1 or 3-year limited onsite service with 9x5/NBD

**HD Audio**
- Realtek ALC662 codec

**Front ports**
- 4x 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, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2

- **Environment specification**
  - 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 (Unpressurized): -50F to 10,000F (-15.2m to 3048m)
  - Humidity - operating: 10%–80%, non-condensing
  - Humidity - storage (with package): 10%–90%, non-condensing

**Environmental Certification**
- RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BE0008US and 30BE0009US

**SV certifications**
- Please visit https://www.thinkworkstations.com/sv-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

Lenovo, May 2019
### ThinkStation P520c Platform Specifications

#### Processor Family
- **Up to one 140W Intel Xeon W family processor:**
  - Up to 18 cores at 2.3 GHz
  - Up to 4.0 GHz with 4 cores
  - Up to 24.75 MB cache
  - Up to DDR4-2666 memory speed

#### Processor Sockets
- 1x FCLGA2066

#### Chipset
- Intel C422 Chipset

#### Memory Sockets
- 4 DIMM sockets with 4 channels

#### Operating System
- Maximum configuration: 31.97 lb (14.5kg)

#### Dimensions
- 175mm/6.89" W x 426mm/16.77" D x 376mm/14.8" H (with feet)

#### Form factor
- 25L Tower

#### Storage Support
- **Up to 24.75 MB cache**
- **Up to 4.0 GHz with 4 cores**
- **Up to 18 cores at 2.3 GHz**

#### 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, half height, full length, 25W, open ended

#### Storage Controller
- Onboard Intel RSTe Std
- NVMe Basic
- NVMe for Intel SSD

#### Environmental specifications
- **Temperature - operating:** 50 °F to 95 °F (10 °C to 35 °C)
- **Humidity - operating:** 10%~80%, non-condensing
- **Altitude - operating:** -50ft-10000ft (-15.2m-3048m)

#### Software
- **Intel Active Management Technology 11**
- **Intel vPro technology supported.**
- **vPro requires Wireless-AC 8265 if Wi-Fi is needed**

#### Hardware
- **SD USB 2.0 card reader on most models.**
- **Optional UHS-II 15-in-1 USB 3.0 reader on model 30BX0008US and 30BX0009US**

#### Certification
- **ISV certifications**
- Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

---

### Table: 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>
</thead>
<tbody>
<tr>
<td>NVS 810</td>
<td>4GB DDR3</td>
<td>68W</td>
<td>8xmini DP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro P400</td>
<td>2GB GDDR5</td>
<td>30W</td>
<td>3xminiDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P500</td>
<td>2GB GDDR5</td>
<td>45W</td>
<td>4xminiDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P620</td>
<td>2GB GDDR5</td>
<td>40W</td>
<td>4xminiDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4xminiDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>5GB GDDR5</td>
<td>75W</td>
<td>4xDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>8GB GDDR5</td>
<td>120W</td>
<td>4xDP</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro P5000</td>
<td>16GB GDDR5X</td>
<td>180W</td>
<td>DVI-D DL+4xDP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
<td>160W</td>
<td>3xDP, 1x VirtualLink</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

---

### Table: Storage Support

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Offering</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5&quot; SATA HDD</td>
<td>Sata 6Gb/s</td>
<td>1.2K</td>
<td>1T/2/4/8/16T</td>
<td>4</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>Sata 6Gb/s</td>
<td>1.2K</td>
<td>500GB/500GB/800GB</td>
<td>4</td>
</tr>
<tr>
<td>M.2 PCIe SSD</td>
<td>PCIe NVMe</td>
<td>300GB/512GB/1TB/2TB/4TB</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

---

### Table: Bay Type

<table>
<thead>
<tr>
<th>Bay Type</th>
<th>Maximum Drives Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 slot</td>
<td>6x M.2 SSD (2 onboard, 3 via PCIe to M.2 adapter)</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.
**ThinkStation P720 Platform Specifications**  
*Product Specifications Reference (PSREF)*

### Processor Family
- **Discrete Graphics**
  - **Expansion slots**
    - Slot 1 (CPU2): 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: PCI, full height, full length, 25W
    - Slot 6 (PCH): PCIe 3.0 x4, full height, full length, 25W, open ended

### Memory Capacity
- **Memory Types**
  - DDR4-2666 RDIMM
- **Memory Protection**
  - ECC
- **Memory Capacity**
  - 768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)
- **Memory Sockets**
  - 12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor

### Discrete Graphics Offering
- **Graphics**
  - NVS 810: 4GB DDR3, 68W, 8xminiDP
  - Quadro P4000: 8GB GDDR5, 240W, 4xDP
  - Quadro P6000: 16GB GDDR5X, 288W, 4xDP
  - Quadro P5000: 16GB GDDR5X, 180W, DVI-D/4xDP

### Storage Bays
- **Max Storage**
  - Supports up to 10x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD
  - All HDD: 36TB using 6x 3.5" HDD
  - All SSD: 38.9TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD

### Power Supply
- **Power supply**
  - One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified

### Network Interfaces
- **Network interfaces**
  - Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available

### Security features
- **Security features**
  - Power-on and admin password, Trusted Platform Module, TCG 2.0 compliant, switch to chassis intrusion switch. Optional panel lock, Kensington lock, and pad lock

### Storage Support
- **Disk Type**
  - 3.5" SATA HDD: 60GB/s, 7.2K RPM
  - 2.5" SATA SSD: 60GB/s, 7.2K RPM
  - 2.5" SAS HDD: 12GB/s, 10K RPM
  - 2.5" SATA SSD: 60GB/s, 1.1TB/2TB/4TB/6TB
  - 2.5" PCIe SSD: 500GB/500GB FIPS T
  - M.2 PCIe SSD: 256GB/512GB/1TB/2TB
  - PCIe AIC SSD: 480GB

### Environmental specification
- **Environmental certifications**
  - RoHS-compliant, GREENGUARD, EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US

---

**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 advise on ThinkStation PSREF, please contact ThinkStation PSREF developer

Lenovo, May 2019
# ThinkStation P920 Platform Specifications

**Form factor**
5L Tower

**Dimensions**
200mm/7.87" W x 620mm/24.4" D x 446mm/17.56" H (with feet)

**Weight**
Maximum configuration: 71.3 lb (32.3kg)

**Processor Family**
- Up to 205 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum:
  - Up to 28 cores at 2.5 GHz
  - Up to 3.6 GHz with 4 cores
  - Up to 38.5 MB cache
- Up to DDR4-2933 memory speed

**Processor Cores**
2x FCLGA3647

**Chipset**
Intel C621 Chipset

**Memory Protection**
ECC

**Memory Capacity**
- 1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)
- DDR4-2666 RDIMM, DDR4-2666 LRDIMM, or DDR4-2933 RDIMM
- 16 DIMM sockets with 12 channels. 8 DIMM sockets with 6 channels per processor

**Chipset**
Intel C621 Chipset

**Operating System**
Windows 10 Pro, Windows 8.1 Pro, Windows 7 Pro, SUSE Linux, Red Hat Enterprise Linux, CentOS, Debian GNU/Linux, Ubuntu Linux

**CPU Cores**
- 115 (DDR4-2666 RDIMM 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, 25W, open ended
- Slot 4 (CPU1) PCIe 3.0 x4, full height, full length, 25W, open ended
- Slot 5 (CPU1) PCIe 3.0 x4, full height, half length, 25W, open ended
- Slot 6 (CPU1) PCIe 3.0 x4, full height, full length, 75W, double-width
- Slot 7 (CPU2) PCIe 3.0 x16, full height, full length, 75W
- Slot 8 (CPU2) PCIe 3.0 x16, full height, full length, 75W

**Graphics**
- NVS 810 4GB DDR3 68W 8xmini DP 2
- Quadro P4000 2GB GDDR5 30W 4xminiDP 4
- Quadro P6000 2GB GDDR5 45W 4xminiDP 4
- Quadro P10000 4GB GDDR5 50W 4xminiDP 4
- Quadro P2000 5GB GDDR5 75W 4xDP 4
- Quadro P4000 8GB GDDR5 120W 4xDP 4
- Quadro P5000 16GB GDDR5X 180W DVI-D DL+4xDP SLI 3
- Quadro P6000 24GB GDDR5X 250W DVI-D DL+4xDP SLI 3
- Quadro RTX 4000 8GB GDDR6 160W 3xDP, 1xVirtualLink 3
- Quadro RTX 5000 16GB GDDR6 256W 4xDP, 1xVirtualLink NVLink 3
- Quadro RTX 6000 24GB GDDR6 256W 4xDP, 1xVirtualLink NVLink 2
- Quadro RTX 8000 48GB GDDR6 295W 4xDP, 1xVirtualLink NVLink 2
- Quadro GP 100 16GB HMB2 235W 1xDVI-D DL, 4xDP NVLink 3
- Quadro GV 100 32GB HMB2 250W 4xNPVLink NVLink 3

**Storage Controller Type**
- Onboard Intel RSTe Std SATA 6Gb/s 0/1/5/10
- Vraid 4-6 SATA (9440-8i PCIe Opt SAS 12Gb/s, SATA 6Gb/s 0/1/10/5)
- Lenovo Storage Manager 9440-16i PCIe Opt SAS 12Gb/s, SATA 6Gb/s 0/5/10/5
- Lenovo Storage Manager 9446-1i PCIe Opt SAS 12Gb/s, SATA 6Gb/s 0/5/10/5
- 4GB DDR4, SuperCap
- NVMe Basic Opt PCIe NVMe 0/1/5
- NVMe Premium Opt PCIe NVMe 0/1/5
- NVMe for Intel SSD Opt PCIe NVMe 0/1/10

**Temperature**
- Operating: 50°F to 95°F (10°C to 35°C)
- Storage: -40°F to 140°F (-40°C to 60°C)
- Altitude: Unpressurized: 0-10000 ft (0-3048 m)
- Humidity: Operating: 5% to 95% non-condensing
- Environmental specification:
  - 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: Unpressurized: 0-10000 ft (0-3048 m)
  - Humidity - operating: 10%–80%, non-condensing

**Environmental Certifications**
RoHS-compliant, GREENGUARD Gold rating, ENERGY STAR 6.1 qualified on model 3OSC0000US and 308C0000US

ISV certifications Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

Lenovo, May 2019
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

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.
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1</td>
</tr>
<tr>
<td>Contents</td>
<td>2</td>
</tr>
<tr>
<td>Summary Of Change</td>
<td>3</td>
</tr>
<tr>
<td>Blades</td>
<td>4</td>
</tr>
<tr>
<td>ThinkSystem SN550</td>
<td>5</td>
</tr>
<tr>
<td>ThinkSystem SN850</td>
<td>6</td>
</tr>
<tr>
<td>High-Density</td>
<td>7</td>
</tr>
<tr>
<td>ThinkSystem D2 Enclosure</td>
<td>8</td>
</tr>
<tr>
<td>ThinkSystem SD530</td>
<td>9</td>
</tr>
<tr>
<td>Mission-Critical</td>
<td>10</td>
</tr>
<tr>
<td>ThinkSystem SR850</td>
<td>11</td>
</tr>
<tr>
<td>ThinkSystem SR860</td>
<td>12</td>
</tr>
<tr>
<td>ThinkSystem SR950</td>
<td>13</td>
</tr>
<tr>
<td>Racks</td>
<td>14</td>
</tr>
<tr>
<td>ThinkSystem SR250</td>
<td>15</td>
</tr>
<tr>
<td>ThinkSystem SR530</td>
<td>16</td>
</tr>
<tr>
<td>ThinkSystem SR550</td>
<td>17</td>
</tr>
<tr>
<td>ThinkSystem SR570</td>
<td>18</td>
</tr>
<tr>
<td>ThinkSystem SR590</td>
<td>19</td>
</tr>
<tr>
<td>ThinkSystem SR630</td>
<td>20</td>
</tr>
<tr>
<td>ThinkSystem SR650</td>
<td>21</td>
</tr>
<tr>
<td>Legal Information</td>
<td>22</td>
</tr>
<tr>
<td>ThinkSystem ST250</td>
<td>23</td>
</tr>
<tr>
<td>ThinkSystem ST50</td>
<td>24</td>
</tr>
<tr>
<td>ThinkSystem ST550</td>
<td>25</td>
</tr>
<tr>
<td>ThinkSystem ST580</td>
<td>26</td>
</tr>
<tr>
<td>ThinkSystem ST630</td>
<td>27</td>
</tr>
<tr>
<td>ThinkSystem ST650</td>
<td>28</td>
</tr>
<tr>
<td>ThinkSystem ST550 Platform Specifications</td>
<td>29</td>
</tr>
<tr>
<td>ThinkSystem ST550 Platform Specifications</td>
<td>30</td>
</tr>
<tr>
<td>Legal Information</td>
<td>31</td>
</tr>
<tr>
<td>ThinkSystem ST50 Platform Specifications</td>
<td>32</td>
</tr>
<tr>
<td>ThinkSystem ST550 Platform Specifications</td>
<td>33</td>
</tr>
<tr>
<td>Legal Information</td>
<td>34</td>
</tr>
<tr>
<td>ThinkSystem ST550 Platform Specifications</td>
<td>35</td>
</tr>
</tbody>
</table>
Summary of Changes

This section describes the changes made in this version of ThinkSystem PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

April 3, 2019 - Version 540
► Add 2nd Xeon Scalable processor, add DDR4-2933 memory, add Intel Optane DC Persistent Memory

September 12, 2018 - Version 530
► Add ThinkSystem SR670

May 9, 2018 - Version 524
► Withdraw ThinkSystem SR650/SR630/SR550/SR530/SR850/ST550 LFOs to April 2018
► Update ThinkSystem SR650/SR630/SR590/SR530 LA LFOs to April 2018

April 18, 2018 - Version 523
► Update ThinkSystem SR650/630/550/530 LFOs to April 2018

November 29, 2017 - Version 516
► Add new ThinkSystem SR860/SR590/SR570
► Add 128GB 3DS RDIMM, 480GB M.2 SSD, VMware ESXi 6.5U1, Red Hat Enterprise Linux 7.4 supports on compatible ThinkSystem servers

November 8, 2017 - Version 515
► Add ThinkSystem SN850/SN550/SD530 and ThinkSystem D2 Enclosure

July 12, 2017 - Version 509
### ThinkSystem SN550 Platform Specifications

#### Components Specification

<table>
<thead>
<tr>
<th>Form factor</th>
<th>Standard-width Flex System compute node</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 51 mm (2.0 in). Width: 215 mm (8.5 in). Depth: 493 mm (19.4 in)</td>
</tr>
<tr>
<td>Chassis support</td>
<td>Flex System Enterprise Chassis with CMM2</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 15.6 lb (7.1 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C624 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, and 3DS RDIMMs are supported, but memory types cannot be intermixed. 3DS RDIMM is planned to be available later</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>Up to 768GB with 24 x 32GB RDIMMs and two processors. Or up to 1.5TB with 24 x 64GB LRDIMMs and two processors. Or up to 3TB with 24 x 128GB 3DS RDIMMs and two -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket</td>
</tr>
<tr>
<td>Memory protection</td>
<td>Supports the following RAID/HBA adapters:</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Supports the following RAID/HBA adapters:</td>
</tr>
<tr>
<td>Disk drive bays</td>
<td>Two 2.5&quot; hot-swap disk bays. Depending on server configuration and installed backplanes, the two bays can supports SATA, SATA/SAS, or SATA/NI-MeM disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring</td>
</tr>
<tr>
<td>Internal storage</td>
<td>Supports two 2.5&quot; hot-swap disk bays. Depending on server configuration and installed backplanes, the two bays can support SATA, SATA/SAS, or SATA/NI-MeM disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>Optional 4x 10GbE LOM with fabric connector. The fabric connector is supported to routes the four 10GbE ports to Flex system chassis midplane. Optional adaptors are supported, up to 2 adapters, up to 40GbE</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only</td>
</tr>
<tr>
<td>Operating systems supported</td>
<td>Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5</td>
</tr>
<tr>
<td>Systems management</td>
<td>UEFI, Lenovo XClarity Controller with Pilot XE401 baseboard management controller (BMC), Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator and Lenovo XClarity Energy Manager</td>
</tr>
<tr>
<td>GPU support</td>
<td>None</td>
</tr>
<tr>
<td>Base warranty</td>
<td>MT 7X16: 3-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td>Power supply</td>
<td>Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies</td>
</tr>
<tr>
<td>Video</td>
<td>Integrated Matrox G200 in XClarity Controller</td>
</tr>
<tr>
<td>Front ports</td>
<td>One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional)</td>
</tr>
<tr>
<td>Environmental specification</td>
<td>Supports ASHRAE A3.</td>
</tr>
<tr>
<td>Temperature - operating</td>
<td>A3: 3°C to 40°C (38°F to 104°F)</td>
</tr>
<tr>
<td>Temperature - non operating (no package)</td>
<td>A2: 10°C to 35°C (50°F to 95°F)</td>
</tr>
<tr>
<td>Temperature - non operating (with package)</td>
<td>A1: -40°C to 60°C (-40°F to 140°F)</td>
</tr>
<tr>
<td>Humidity - operating, non-condensing</td>
<td>A3: 8% ~ 85% A2: 8% ~ 80%</td>
</tr>
<tr>
<td>Humidity - storage (package), non-condensing</td>
<td>5% ~ 95%</td>
</tr>
</tbody>
</table>

#### Expansion slots

Supports two PCIe 3.0 x16 I/O expansion connectors for attaching I/O adapter cards, each connector uses high-density, 216-pin PCIe connection. Please see I/O adapters below:

- **Lenovo SATA HDD/SSD Backplane for SN550**
- **Lenovo NVMe/SATA Backplane for SN550**
- **Lenovo HAID H330-4i 2 Drive Adapter Kit for SN550**
- **Lenovo HAID H330-4i 2 Drive Adapter Kit for SN550**
- **Lenovo XClarity Energy Manager**
- **SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5**
- **Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64**

#### System unique options

- **7M27A03915** Lenovo SATA HDD/SSD Backplane for SN550
- **7M27A03916** Lenovo NVMe/SATA Backplane for SN550
- **7M27A03917** Lenovo HAID H330-4i 2 Drive Adapter Kit for SN550
- **7M27A03918** Lenovo HAID H330-4i 2 Drive Adapter Kit for SN550
- **7X77A01301** Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM
- **7X77A01302** Lenovo 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM
- **7X77A01303** Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
- **7X77A01304** Lenovo 32GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
- **7X77A01305** Lenovo 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM
- **00AG540** Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter
- **00AG550** Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter
- **01CV780** Flex System CN4054S 2-port 10Gb Virtual Fabric Adapter Advanced
- **01CV790** Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced
- **7Z7A00502** Lenovo Mellanox ConnectX-3 Mezz 40Gb 2-Port Ethernet Adapter
- **7Z7A00520** Lenovo Mellanox ConnectX-4 Lx Mezz 25Gb 2-Port Ethernet Adapter
- **7Z7A00521** Lenovo Mellanox ConnectX-4 Lx Mezz 25Gb 2-Port InfiniBand Adapter
- **7Z7A00522** Lenovo Mellanox ConnectX-4 Lx Mezz 25Gb 2-Port InfiniBand Adapter
- **7Z7A00508** Lenovo Mellanox ConnectX-3 Mezz FDR 2-Port InfiniBand Adapter
- **7Y37A01092** Lenovo M.2 Enablement Kit
- **7Y37A01093** Lenovo M.2 with Mirroring Enablement Kit
- **00AG540** Lenovo M.2 32GB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5410** Lenovo M.2 128GB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5420** Lenovo M.2 256GB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5430** Lenovo M.2 512GB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5440** Lenovo M.2 1TB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5450** Lenovo M.2 2TB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5460** Lenovo M.2 4TB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5470** Lenovo M.2 8TB SATA 6Gbps Non-Hot-Swap SSD
- **00AG5480** Lenovo M.2 16TB SATA 6Gbps Non-Hot-Swap SSD

---

**Lenovo, July 2017**
Lenovo 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM

Yes

Lenovo QLogic QML2692 Mezz 16Gb 2-Port Fibre Channel Adapter

Flash backup

Yes

Lenovo Emulex LPm16002B-L Mezz 16Gb 2-Port Fibre Channel Adapter

None

6Gbps SATA

1TB/2TB

Lenovo RAID 930-4i-2GB 4 Drive Adapter Kit for SN850

Height: 55 mm (2.2 in). Width: 435 mm (17.1 in). Depth: 493 mm (19.4 in)

Lenovo M.2 32GB SATA 6Gbps Non-Hot-Swap SSD

Cache

SATA/SAS

None

None

Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM

Integrated Matrox G200 in XClarity Controller

Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter

Lenovo SATA HDD/SSD kit for SN850

-40°C to 60°C (-40°F to 140°F)

800GB/960GB/1.6TB/1.92TB/3.84TB

缓存

SATA/SAS

12Gbps SAS

300GB/600GB/900GB

None

None

Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM

MT 7X15: 3-year limited onsite service with 9x5/NBD

Cache

Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.

Integrated Matrox G200 in XClarity Controller

Front ports

One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional).

Environmental specifications

- Temperature - operating: A3: 5°C to 40°C [41°F to 104°F] A2: 10°C to 35°C [50°F to 95°F]
- Temperature - non-operating (no package): 0°C to 55°C [32°F to 131°F]
- Temperature - non-operating (with package): -40°C to 70°C [-40°F to 158°F]
- Humidity - operating, non-condensing: 20% to 80% RH
- Humidity - storage (with package), non-condensing: 5% to 95% RH

Supports ASHRAE A3.

System unique options

- Lenovo SATA HDD/SSD kit for SN850
- Lenovo NVMe/SATA Enablement Kit for SN850
- Lenovo RAID 930-4i-2GB 4 Drive Adapter Kit for SN850
- Lenovo M.2 SSD (under optional RAID adapter)
- Optional TCM, China only

Optional RAID controller

I/O adapters 1 - 4 (top-down)

Lenovo, July 2017
## ThinkSystem D2 Enclosure Platform Specifications

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>2U rack</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 87 mm (3.5 in). Width: 488 mm (19.3 in). Depth: 892 mm (35.1 in)</td>
</tr>
</tbody>
</table>
| Server support | Per enclosure: up to 4 servers per chassis  
Per 42U rack: up to 84 servers in 21 enclosures |
| Weight     | Maximum configuration with four fully configured nodes: 121.2 lb (55 kg) |
| Network interfaces | Optional 8x 10 GbE ports Ethernet I/O Module (EIOM), SFP+ or RJ-45, two ports per server from chipset |
| Security features | Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only |
| Systems management | The hot-swappable System Management Module (SMM) is the management device for the enclosure. Provides integrated systems management functions and controls the power and cooling features of the enclosure. Provides remote browser and CLI-based user interfaces for remote access via the dedicated Gigabit Ethernet port. Remote access is to both the management functions of the enclosure as well as the XClarity Controller (XCC) in each server. SMM provides four LEDs: system error, identification, status, and system power. Each power supply has AC, DC and error LEDs |
| Base warranty | MT 7X20: 3-year limited onsite service with 9x5/NBD |
| Power supply | Up to two redundant hot-swap 1100W/1600W/2000W 80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 200V - 240V, 1100W is 100V - 240V |
| Cooling    | Five hot-swap system fans, accessible via removable panel in the top cover of the enclosure |

### Expansion slots for PCIe 3.0 x8 models

- PCIe slot 4-A
- PCIe slot 2-A
- PCIe slot 2-B

### Expansion slots for PCIe 3.0 x16 models

- PCIe slot 4-B
- Ethernet filler
- PCIe slot 3-B
- PCIe slot 3-A
- PCIe slot 1-A
- PCIe slot 1-B
## ThinkSystem SD530 Platform Specifications

### Components Specification

<table>
<thead>
<tr>
<th>Form factor</th>
<th>Half-wide, 1U compute node</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 41 mm (1.7 in), Width: 222 mm (8.8 in), Depth: 562 mm (22.2 in)</td>
</tr>
<tr>
<td>Chassis support</td>
<td>ThinkSystem D2 Enclosure, 2U, Up to 4 ThinkSystem SD530 servers per enclosure</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 16.6 lb (7.5 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C624 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 12 or 16 DIMM sockets depending on the processor selected. Each processor supports up to 6 or 8 DIMM sockets. DDR4-2666. RDIMMs and LRDIMMs are supported, but memory types cannot be intermixed.</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>16 DIMMs models: RDIMMs: Up to 512GB with 16x 32GB RDIMMs and two processors RDIMMs: Up to 1TB with 16x 64GB RDIMMs and two processors 12 DIMMs models: RDIMMs: Up to 384GB with 12x 32GB RDIMMs and two processors RDIMMs: Up to 768GB with 12x 64GB RDIMMs and two processors</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC, Chipkill protection (for x4-based memory DIMMs), memory mirroring, and memory sparing</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Supports the following RAID adapters: Onboard Intel RSTe 6Gbps SATA SATA 0/1/10/5 None None None None 638-B 12Gbps SAS S3A/SAS 0/1/10/5 Yes None None None</td>
</tr>
<tr>
<td>Disk drive bays</td>
<td>Up to four 2.5&quot; hot-swap disk bays, or up to six 2.5&quot; hot-swap disk bays, or up to six 2.5&quot; hot-swap disk bays with two AnyBay. SAS support requires 530-8i. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring</td>
</tr>
<tr>
<td>Internal storage</td>
<td>2.5&quot; NVMe SSD 800GB/960GB/1.8TB/1.92TB 2.5&quot; HDD, SATA6Gbps, 7.2K 1TB/2TB 2.5&quot; HDD, SATA6Gbps, 7.2K 2TB 2.5&quot; HDD, SATA6Gbps, 7.2K, SED 1TB/2TB 2.5&quot; HDD, SATA6Gbps, 15K 800GB/960GB/900GB 2.5&quot; HDD, SATA6Gbps, 10K 800GB/960GB/900GB/1.2TB/1.8TB/2.4TB 2.5&quot; HDD, SATA6Gbps, 10K, SED 2.4TB 2.5&quot; SSD, SATA6Gbps 340GB/480GB/960GB/1.92TB/3.84TB 2.5&quot; SSD, SATA6Gbps 400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB M.2 SATA SSD 256/512/128GB</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>Two 10 GbE ports, SFP+ or RJ-45, routed through the Ethernet I/O Module at the rear of the D2 Enclosure. Networking ports are based on Intel Ethernet Connection X722 in chipset</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password, Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only</td>
</tr>
<tr>
<td>Operating systems supported</td>
<td>Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x86, SUSE Linux Enterprise Server 11 and 12 x64, VMware ESXi 6.0 and 6.5</td>
</tr>
<tr>
<td>Systems management</td>
<td>Operator panel with system error LED and 1D and power controls. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions. System Management Module (SMM) in the D2 Enclosure provides additional system management functions</td>
</tr>
<tr>
<td>GPU support</td>
<td>None</td>
</tr>
<tr>
<td>Base warranty</td>
<td>MT 7X21: 3-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td>Power supply</td>
<td>Supplied by D2 Enclosure</td>
</tr>
<tr>
<td>Video</td>
<td>Integrated Matrox G200 in XClarity Controller</td>
</tr>
<tr>
<td>Front ports</td>
<td>Optional KVM breakout module for one USB 3.0 and one console breakout cable port for local KVM and serial ports. KVM breakout module will occupy one disk bay on 6x 2.5&quot; disk bay model</td>
</tr>
</tbody>
</table>

### Environmental specification

- **Temperature - operating**: A4: 5°C to 40°C (41°F to 104°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
- **Temperature - non operating (no package)**: 11°C to 60°C (14°F to 140°F)
- **Humidity - operating, non-condensing**: 8% - 99%
- **Humidity - storage with packages, non-condensing**: 8% - 99%

Models should meet the following requirements to support A3 and A4:
- NVMe drives not installed
- M.2 drives not installed

### Expansion slots
Supports one PCIe x16 low-profile slot, or two PCIe x8 low-profile slots. Slots are housed in I/O shuttle in rear of the D2 Enclosure

### Backplane and memory DIMM sockets supports by processor

<table>
<thead>
<tr>
<th>Processor</th>
<th>Maxium DIMM Sockets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xeon Bronze 3104</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Bronze 3106</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6138T</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6138</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6130</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6134</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6136</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6138</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6140</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6142</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6148</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6150</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6152</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6156</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6160</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Gold 6164</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Platinum 8170</td>
<td>2x2</td>
</tr>
<tr>
<td>Xeon Platinum 8176</td>
<td>2x2</td>
</tr>
</tbody>
</table>

---

Lenovo, July 2017
## Components Specifications

### System specifications

- **Form factor**: 2U rack
- **Dimensions**: Height: 88.5 mm (3.4 in), Width: 482 mm (19.0 in) with rack latches, Depth: 763.7 mm (30.1 in) without security bezel
- **Weight**: Maximum configuration: 59.52 lb (27 kg)
- **Processor**: Supports up to four 20SW Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10G/Ts UPI (Ultra Path Interconnect)
- **Chipset**: Intel X824 Platform Controller Hub
- **Memory offering**: Up to 48 DIMM sockets. 24 DIMM sockets on system main board, 24 DIMM sockets on optional processor and memory expansion tray. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:
  - Memory Type
    - Speed
    - Offering
    - Intel Optane DC Persistent Memory DDR4-2666 2GBG/256GB/512GB/1TB
    - RDIMM DDR4-2933 8GB/16GB/32GB/64GB/128GB
    - Performance+ RDIMM DDR4-2933 8GB/16GB/32GB/64GB/128GB
    - 3DS RDIMM DDR4-2933 8GB/16GB/32GB/64GB/128GB
    - Performance+ 3DS RDIMM DDR4-2933 4GB/8GB/16GB/32GB
- **Memory capacity**: • 61B with 48x 128GB 3DS RDIMM and four M or L SKU processors
  • 12TB with 24x 512GB DC Persistent Memory (memory mode) and four L SKU processors
  • 15TB with 24x 512GB DC Persistent Memory (memory mode) + 24x 128GB 3DS RDIMM and four L SKU processors
- **Memory protection**: ECC, memory mirroring, and memory sparing
- **Video**: Integrated Matrox G200 in XClarity Controller
- **Cooling**: Six hot-swap fans, N + 1 redundancy
- **Front ports**: One XClarity Controller USB connector, one USB 2.0 or USB 3.0 (model dependent), one optional VGA adapter
- **Rear ports**: One VGA, two USB 3.0, one serial, one XClarity Controller network connector
- **Environmental specification**
  - Temperature - operating: 4°C to 40°C (39°F to 104°F)
  - Temperature - non operating (with package): 0°C to 60°C (32°F to 140°F)
  - Temperature - non operating (no package): 0°C to 60°C (32°F to 140°F)
  - Humidity - operating, non-condensing: 8%~90%
  - Humidity - storage (with package), non-condensing: 8%~90%
  - Models should meet the following requirements to support A3 and A4:
    + NVMe drives not installed
    + PCIe flash adapter not installed
    + M.2 SSD not installed
- **Disk drive bays**: Supports 9 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring
- **Internal storage**
  - SATA/SAS SSDs: 2.5" HD, SAS12Gbps, 1TB, 2TB, 3TB, 4TB, 6TB, 8TB, 10TB, 15TB, 18TB, 20TB, 24TB
  - SATA/SAS SSDs: 2.5" SSD, 480GB, 960GB, 1.92TB, 3.84TB, 7.68TB, 15.36TB
  - SATA/SAS SSDs: 2.5" SSD, 960GB
  - NVMe SSD, PCIe 3.0 x4, HHHL adapter, 1.6TB, 3.2TB, 6.4TB
  - M.2 SATA SSD for boot: 2GB/16GB 48GB
- **Optical**: No internal optical bay. Optional USB DVD±RW optical drive
- **Network interfaces**: One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GBe. Wake-on-LAN and NC-SI are available on one port of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.
- **Security features**: Power-on and admin password, Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel
- **Operating systems supported**: Microsoft Windows Server 2018/2012 R2, Red Hat Enterprise Linux 7/3.6.9, SUSE Linux Enterprise Server 12 SP2/11 SP4, VMware vSphere (ESXi) 6.5/6.0 U3
- **Systems management**: XClarity Controller Advanced, optional upgrades to Enterprise is available, XClarity Enterprise, XClarity Administrator, Lenovo Capacity Planner, Light Path Diagnostics with optional LCD panel pull-out panel
- **CPU support**: None
- **Base warranty**: MT 7X18: 1-year limited onsite service with 9x5/NBD
  MT 7X19: 3-year limited onsite service with 9x5/NBD
- **Power supply**: Up to two redundant hot-swap 750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. 1600W Platinum are 200V - 240V, others are 200V - 240V

---

**Lenovo, April 2019**
Components

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>4U rack</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 175 mm (6.9 in). Width: 482 mm (19.0 in) with rack latches. Depth: 765.88 mm (30.15 in) without security bezel</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 87.74 lb (39.8 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Supports up to four 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor connection and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10G/T/s UPI (Ultra Path Interconnect) per processor</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C624 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 48 DIMMs. 24 DIMMs on system main board, 24 DIMMs on optional processor connection and memory expansion tray. Each processor supports up to 12 DIMMs sockets with 6 channels. Supports following:</td>
</tr>
<tr>
<td></td>
<td>Memory type Speed Offering</td>
</tr>
<tr>
<td></td>
<td>Intel Optane UC Persistent Memory DDR4-2933 4GB</td>
</tr>
<tr>
<td></td>
<td>RDIMM DDR4-2933 32GB/64GB/128GB/256GB/512GB</td>
</tr>
<tr>
<td></td>
<td>32GB/64GB/128GB/256GB/512GB/1TB/2TB</td>
</tr>
<tr>
<td></td>
<td>Intel C624 Platform Controller Hub DDR4-2933 4GB</td>
</tr>
<tr>
<td></td>
<td>DDR4-2933 32GB/64GB/128GB/256GB/512GB</td>
</tr>
<tr>
<td></td>
<td>32GB/64GB/128GB/256GB/512GB/1TB/2TB</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>6TB with 48x 128GB 3DS RDIMM and four M.2 or L. SKU processors</td>
</tr>
<tr>
<td></td>
<td>12TB with 24x 512GB DC Persistent Memory (memory mode) and four L. SKU processors</td>
</tr>
<tr>
<td></td>
<td>15TB with 24x 512GB DC Persistent Memory (memory mode) + 24x 128GB 3DS RDIMM and four L. SKU processors</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC, memory mirroring, and memory sparing</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Supports the following RAID/HBA adapters:</td>
</tr>
<tr>
<td></td>
<td>Feature</td>
</tr>
<tr>
<td></td>
<td>32-bit</td>
</tr>
<tr>
<td></td>
<td>256-bit</td>
</tr>
<tr>
<td></td>
<td>512-bit</td>
</tr>
<tr>
<td></td>
<td>1024-bit</td>
</tr>
<tr>
<td></td>
<td>32-bit</td>
</tr>
<tr>
<td></td>
<td>256-bit</td>
</tr>
<tr>
<td></td>
<td>512-bit</td>
</tr>
<tr>
<td></td>
<td>1024-bit</td>
</tr>
<tr>
<td></td>
<td>32-bit</td>
</tr>
<tr>
<td></td>
<td>256-bit</td>
</tr>
<tr>
<td></td>
<td>512-bit</td>
</tr>
<tr>
<td></td>
<td>1024-bit</td>
</tr>
<tr>
<td>Disk drive bays</td>
<td>Supports 8 front 2.5&quot; SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5&quot; SATA/SAS HS bays with maximum 8 AnyBay</td>
</tr>
<tr>
<td></td>
<td>Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring</td>
</tr>
<tr>
<td>Internal storage</td>
<td>2.5&quot; HDD, SATA6Gbps, 7.2K 2TB/4TB</td>
</tr>
<tr>
<td></td>
<td>2.5&quot; SSD, SAS12Gbps, 7.2K 2TB/4TB</td>
</tr>
<tr>
<td></td>
<td>3.5&quot; NVMe SSD, AnyBay 200GB/300GB/400GB/500GB/600GB/800GB/1.2TB/1.6TB/2TB</td>
</tr>
<tr>
<td>Optical</td>
<td>No internal optical bay. Optional USB DVD+RW optical drive</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GBE. Wake-on-LAN and NC-SI are available on one port of LOM. Optional M2L or PCIe adapters are supported. M2L adapter requires riser card with M2L slot.</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, protection up to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel</td>
</tr>
<tr>
<td>Operating systems</td>
<td>Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/ 6.9, SUSE Linux Enterprise Server 12 SP3/11 SP4, VMware ESXi 6.5 U1/6.0 U3</td>
</tr>
<tr>
<td>Systems management</td>
<td>XClarity Controller Advanced, optional upgrades to Enterprise is available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Light Path Diagnostics with optional LCD diagnostic pull-out panel</td>
</tr>
<tr>
<td>GPU support</td>
<td>One NVIDIA Tesla M60 GPU accelerator, 3000 W each</td>
</tr>
<tr>
<td>Base warranty</td>
<td>MT 76R: 3-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td></td>
<td>MT 770: 1-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td>Power supply</td>
<td>Up to two redundant hot-swap 750W/1100W/1600W/2000W/80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 20V - 240V, others are 100V - 240V</td>
</tr>
<tr>
<td>Video</td>
<td>Integrated Matrox G200 in XClarity Controller</td>
</tr>
</tbody>
</table>

## Expansion slots

- **Slot 1-2 (riser card 2)**: One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length
- **Slot 3 (onboard)**: PCIe 3.0 x8, for riser card 2 or used as a low profile slot if riser card 2 not used
- **Slot 4 (onboard)**: PCIe 3.0 x8, low profile
- **Slot 5-7 (riser card 1)**: Supports one of the following for riser card:
  - Option 1: PCIe 3.0 x8/8/8x (slot 5-7), full height, full length
  - Option 2: PCIe 3.0 x8/8/8x/8ML (slot 5-7), full height, full length
- **Slot 8 (onboard)**: M2 slot for M.2 enablement kit, internal
- **Slot 9 (onboard)**: LOM slot, low profile
- **Slot 10-12 (onboard)**: PCIe 3.0 x8, low profile
- **Slot 13 (onboard)**: PCIe 3.0 x16, for riser card 3 or used as a low profile slot if riser card 3 not used
- **Slot 14-15 (riser card 3)**: One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length, 4 CPU required

## System unique options for ThinkSystem SR850

- **P627A03953**: ThinkSystem SR850/SR860 Processor and Memory Expansion Tray
- **P627A03996**: ThinkSystem SR850/SR860 2.5" AnyBay 8-Bay BP Kit
- **P627A03998**: ThinkSystem SR850/SR860 2.5" SATA/SAS 8-Bay BP Kit
- **P627A03950**: ThinkSystem SR860 2x PCIe FH Riser 1
- **P627A03951**: ThinkSystem SR860 2x PCIe M2 FH Riser 1
- **P627A03995**: ThinkSystem SR860 2x PCIe FH Riser 1
- **P627A0184**: ThinkSystem SR860 2x PCIe FH Riser 2 (Slot 1 & 2)
- **P627A0186**: ThinkSystem SR860 1x PCIe FH Riser 2 (Slot 1 & 2)
- **P627A0185**: ThinkSystem SR860 2x PCIe FH Riser 3 (Slot 14 & 15)
- **P627A0187**: ThinkSystem SR860 1x PCIe FH Riser 3 (Slot 14 & 15)
- **D8K6555**: NVIDIA Tesla M60 GPU, PCIe (Passive)
**Components**

**Form factor**
- 4U rack

**Dimensions**
- Height: 175.8 mm (6.9 in).
- Width: 483 mm (19.0 in).
- Depth: 853 mm (33.6 in).

**Weight**
- Maximum configuration: 129.4 lb (58.7 kg).

**Processor**
- Supports up to four Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum.
- Or up to eight Intel Xeon Scalable family processors, Platinum only:
- Processors and memory boards are located on system boards installed in compute trays: 2 processors per system board, 2 system boards per compute tray, up to 2 compute tray per system.
- Up to 28 cores at 2.70GHz, up to 3.80GHz with 4 cores.
- Up to three UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each.

**Chipset**
- Intel C624 Platform Controller Hub

**Memory offering**
- Up to 96 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels.
- Supports following:

  **Memory Type** | **Speed** | **Offering**
  ----------------|-----------|----------------
  Intel Optane DC Persistent Memory | DDR4-2666 | 128GB/256GB/512GB
  RDIMM | DDR4-2933 | 16GB/32GB/64GB/128GB
  LRDIMM | DDR4-2933 | 16GB/32GB/64GB/128GB
  3DS RDIMM | DDR4-2933 | 16GB/32GB/64GB/128GB
  Performance+ RDIMM | DDR4-2933 | 16GB/32GB/64GB/128GB
  Performance+ 3DS RDIMM | DDR4-2933 | 128GB/256GB/512GB
  RDIMM | DDR4-2933 | 64GB/128GB
  LRDIMM | DDR4-2933 | 64GB/128GB
  3DS RDIMM | DDR4-2933 | 64GB/128GB

**Memory capacity**
- 24TB with 96x 256GB 3DS RDIMM and eight L SKU processors
- 24TB with 48x 512GB DC Persistent Memory (memory mode) and eight L SKU processors
- 36TB with 48x 512GB DC Persistent Memory (memory mode) and eight L SKU processors

**Memory protection**
- ECC, memory mirroring, and memory rank sparing.

**Storage controllers**
- Up to two dedicated internal RAID slots for most RAID/HBA adapters. Supports the following RAID/HBA adapters:

  **Feature** | **Interface** | **Drive type** | **RAID levels** | **JBOD** | **Cache** | **Cache protection** | **FastPath** | **Max qty**
  -----------------|--------------|----------------|-----------------|---------|----------|---------------------|-------------|----------------
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2
  330-Bl 12Gbps SAS SATA/SAS | 0/1/10/5/6/60 | Yes | None | None | Yes | 2

**Disk drive bays**
- Up to 12 disk bays with maximum 6 AnyBay, or up to 24 disk bays with maximum 12 AnyBay.
- Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring.

**Internal storage**
- 2.5" NVMe SSD, AnyBay
  - 512GB: 900GB/960GB/1.8TB/3.84TB/7.68TB

**Network interfaces**
- One dedicated management port. One LOM slot for customized LOM with up to four F-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. One standard ML2 slot, one optional ML2 slot via optional riser card.

**Security features**
- Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM, China only

**Operating systems supported**
- Microsoft Windows Server 2016/2012 R2, Red Hat Enterprise Linux 7.3/6.9, SUSE Linux Enterprise Server 12 SP2/11 SP4, VMware vSphere (ESXi) 6.5/6.0/5.5

**Systems management**
- XClarity Controller Enterprise. XClarity Administrator. XClarity Energy Manager. XClarity Provisioning Manager. XClarity Essentials. Lenovo Capacity Planner. Light Path Diagnostics with LCD diagnostic pull-out panel

**GPU support**
- None

**Base warranty**
- MT 7X11: 1-year limited onsite service with 9x5NBD
- MT 7X12: 3-year limited onsite service with 9x5NBD
- MT 7X13: 3-year limited onsite service with 9x5NBD, SAP HANA optimized

---

**Environmental**

- **Temperature - operating**
  - A4: 5°C to 45°C (41°F to 113°F)
  - A3: 5°C to 45°C (41°F to 113°F)
  - A2: 10°C to 35°C (50°F to 95°F)

- **Humidity - operating, non-condensing**
  - A4: 8%~90%
  - A3: 8%~85%
  - A2: 20%~80%

- **Processors with TDP more than or equal to 150-watt not installed**

- **Environmental certification**
## ThinkSystem SR250 Platform Specifications

### Components

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>1U rack</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 43 mm (1.7 in), width: 434.4 mm (17.1 in), depth: 497.8 mm (19.6 in). The depth is counted from EIA flange front surface to rear of chassis</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 27.1 lb (12.3 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666.</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>64GB with 4x 16GB UDIMMs</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC</td>
</tr>
</tbody>
</table>

### Storage controllers

<table>
<thead>
<tr>
<th>RAID adapter</th>
<th>Interface</th>
<th>Drive type</th>
<th>RAID levels</th>
<th>JBOD Cache</th>
<th>Cache protection</th>
<th>FastPath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard SATA</td>
<td>6Gb/s SATA</td>
<td>SATA</td>
<td>0/1/5/6</td>
<td>Yes None None None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>720-B</td>
<td>12Gb/s SATA</td>
<td>SAS/SAS</td>
<td>0/1/1/5/6</td>
<td>Yes None None None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12G-8</td>
<td>12Gb/s SAS</td>
<td>SAS/SAS</td>
<td>0/1/1/5/6</td>
<td>Yes None None None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>420-8</td>
<td>12Gb/s SAS</td>
<td>SAS/SAS</td>
<td>0/1/1/5/6</td>
<td>Yes None None None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>630-8</td>
<td>12Gb/s SAS</td>
<td>SAS/SAS</td>
<td>0/1/1/5/6</td>
<td>Yes 4GB Flash backup Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Disk drive bays

<table>
<thead>
<tr>
<th>For 3.5&quot; SS bay</th>
<th>3.5&quot; HDD, SATA6Gbps, 7.2K</th>
<th>T2B/2TB/4TB/8TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 3.5&quot; HS bay (3.5&quot; disks or 2.5&quot; disks with 3.5&quot; tray)</td>
<td>3.5&quot; HDD, SATA6Gbps, 7.2K</td>
<td>T2B T2B/4TB/8TB</td>
</tr>
<tr>
<td>For 2.5&quot; HS bay</td>
<td>2.5&quot; HDD, SATA6Gbps, 10K</td>
<td>400GB/800GB/1600GB</td>
</tr>
</tbody>
</table>

### Disk support

<table>
<thead>
<tr>
<th>For 3.5&quot; SSD</th>
<th>3.5&quot; SSD, SATA6Gbps, 7.2K</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5&quot; SSD, SATA6Gbps, 10K</td>
<td>400GB/800GB/1600GB</td>
</tr>
<tr>
<td>For 2.5&quot; SSD</td>
<td>2.5&quot; HDD, SATA6Gbps, 7.2K</td>
</tr>
</tbody>
</table>

### Optical

| None | Optical bay, using USB optical (External USB DVD-RW, PN: 7XA7A05926) |

### Network interfaces

| Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available |

### Security features

| Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant. Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and padlock. |

### Operating systems supported

| Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7/6.5 U2 |

### Systems management

| XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error |

### GPU support

| Up to one optional GPU, NVIDIA Quadro P620 |

### Base warranty

| MT 7Y51: 3-year limited onsite service with 9x5/NBD MT 7Y52: 1-year limited onsite service with 9x5/NBD |

### Power supply

| Supports one of the following PSU: |
| One fixed power supply, 300W. 80 PLUS Gold certified. |
| Up to two redundant hot-swap power supplies, 450W each. 80 PLUS Platinum certified |
Product Specifications Reference (PSREF)

**ThinkSystem SR530 Platform Specifications**

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form factor</strong></td>
<td>1U rack</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Maximum configuration: 35.27 lb (16 kg)</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 22 cores at 1.9GHz, up to 3.8GHz with four cores. Two processors are connected with twoUPI (Ultra Path Interconnect) links up to 10.4GT/s</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel C622 Platform Controller Hub</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. Supports following:</td>
</tr>
<tr>
<td>Memory Type</td>
<td>Speed</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>RDIMM</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>RDIMM</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td><strong>Memory capacity</strong></td>
<td>768GB with 12x 64GB RDIMM and dual processor</td>
</tr>
<tr>
<td><strong>Memory protection</strong></td>
<td>ECC, memory mirroring, and memory sparing</td>
</tr>
<tr>
<td><strong>RAID adapter</strong></td>
<td>Interface</td>
</tr>
<tr>
<td>SS</td>
<td>SATA</td>
</tr>
<tr>
<td>HS</td>
<td>SATA</td>
</tr>
<tr>
<td>HS</td>
<td>SAS</td>
</tr>
<tr>
<td>HS</td>
<td>SAS</td>
</tr>
<tr>
<td>HS</td>
<td>SAS</td>
</tr>
<tr>
<td>HS</td>
<td>SAS</td>
</tr>
<tr>
<td><strong>Disk drive bays</strong></td>
<td>Support 4 front 3.5&quot; SATA simple-swap bays, or 4 front 3.5&quot; SATA/SAS HS bays, or 8 front 2.5&quot; SATA/SAS HS bays. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring</td>
</tr>
<tr>
<td><strong>Internal storage</strong></td>
<td>For 3.5&quot; bay</td>
</tr>
<tr>
<td>For 3.5&quot; bay</td>
<td>3.5&quot; HDD, SAS12Gbps, 7.2K</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; HDD, SAS12Gbps, 15K</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; SSD, SAS12Gbps</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; HDD, SAS12Gbps, 7.2K</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; HDD, SAS12Gbps, 10K</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; SSD, SAS12Gbps</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; SSD, SAS12Gbps</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>M.2 SSD</td>
</tr>
<tr>
<td><strong>Optical</strong></td>
<td>No internal optical bay. Optional USB DVD±RW optical drive</td>
</tr>
<tr>
<td><strong>Network interfaces</strong></td>
<td>Integrated one dedicated management port plus two GBE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supportsWake-on-LAN and NC-SI (see right)</td>
</tr>
<tr>
<td><strong>Security features</strong></td>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel</td>
</tr>
<tr>
<td><strong>Operating systems supported</strong></td>
<td>Microsoft Windows Server 2016/2012 R2, Red Hat Enterprise Linux 7.4/7.6/8.9, SUSE Linux Enterprise Server 12 SP3/3 SP2/11 SP4, VMware ESXi 6.1U1/8.0.1 US</td>
</tr>
<tr>
<td><strong>Systems management</strong></td>
<td>XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager, XClarity Administrator, Lenovo Capacity Planner. Provisioning Manager. Essentials, Light Path Diagnostics</td>
</tr>
<tr>
<td><strong>GPU support</strong></td>
<td>None</td>
</tr>
</tbody>
</table>

**Base warranty** | MT 7X07: 1-year limited onsite service with 9x5/NBD |
| **Power supply** | Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 720W Titanium qualified AC power supplies. 750W is 200V - 240V, others are 100V - 240V |
| **Video** | Integrated Matrox G200 in XClarity Controller |
| **Cooling** | Four fans (3+1) for single processor model, six fans (5+1) for dual processor model |
| **Front ports** | One XClarity Controller USB, one USB 3.0, one optional VGA |
| **Rear ports** | One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port |
| **Environmental specification** | Supports ASHRAE A4 with limitations. |

**Components**

- **RAID adapter**
  - For 3.5" bay
    - 3.5" HDD, SATA6Gbps, 2.7K
    - 3.5" HDD, SAS12Gbps, 7.2K
  - For 2.5" bay
    - 2.5" HDD, SAS12Gbps, 10K
    - 2.5" SSD, SAS12Gbps
  - For 2.5" bay
    - 2.5" SSD, SAS12Gbps
  - M.2 SSD

**Option**

- **Expansion slots**
  - Slot 1-2 (riser card 1)
    - Supports one of the following for riser card 1:
      - Option 1: PCIe 3.0 x8/x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16
      - Option 2: PCIe 3.0 x8/x8 ML2 (slot 1-2). Low profile
  - Slot 3 (riser card 2)
    - Option 1: PCIe 3.0 x 8, low profile, for single processor model
    - Option 2: PCIe 3.0 x 16, low profile, for dual processor model

**Lenovo, April 2019**
### ThinkSystem SR550 Platform Specifications

**Product Specifications Reference (PSREF)**

**Form factor**
- 2U rack

**Dimensions**
- Height: 86.5 mm (3.4 in).
- Width: 482 mm (19.0 in).
- Depth: 763.7 mm (30.1 in).

**Weight**
- Maximum configuration: 57.32 lb (26 kg).

**Processor**
- Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum.
- Up to 22 cores at 1.90GHz, up to 3.8GHz. Two processors are connected with twoUPI (Ultra Path Interconnect) links up to 10.4GT/s.

**Chipset**
- Intel C622 Platform Controller Hub

**Memory offering**
- Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels.

**Memory Type**
- RDIMM
- LRDIMM

**Memory Speed**
- DDR4-2933

**Memory Capacity**
- 8GB/16GB/32GB/64GB
- 300GB/600GB/1TB/2TB/4TB/6TB/8TB/10TB

**Memory protection**
- ECC, memory mirroring, and memory sparing

**Storage controllers**
- Supports the following RAID/HBA adapters:
  - RAID adapter: Onboard SATA
  - Interface: SATA
  - Drive type: 6Gb/s SATA
  - RAID levels: 0/1/5/S/SATA
  - JBOD: Yes
  - Cache: None
  - Cache protection: -
  - FastPath: -
  - Max qty: -

**Disk drive bays**
- Support 8 front 3.5" SATA simple-swap bays, or 8 front 3.5" SATA/SAS HS bays, or 12 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays, or 16 front 2.5" SATA/SAS HS bays.
- Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring

**Internal storage**
- For 3.5" SS bay
  - 3.5" HDD, SATA600ds, 7.2K
    - 8TB/10TB/11TB/12TB
  - 3.5" HDD, SAS1200ds, 7.2K
    - 12Gbps, 40TB/24TB/12TB/12TB

**Network interfaces**
- Integrated one dedicated management port plus two GBE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GBE. Optional ML2 or Pcie adapters are supported. ML2 adapter requires riser card with ML2 slot.

**Security features**
- Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel

**Operating systems supported**
- XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Lenovo Capacity Planner. Lenovo Virtualization Manager. Lenovo Virtualization Manager. Lenovo Light Path Diagnostics

**GPU support**
- None

---

**Environmental specification**

**Environmental certification**

**Expansion slots**
- Slot 1-3 (riser card 1):
  - Supports one of the following for riser card 1:
    - Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length.
    - Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, half length.

- Slot 4 (onboard)
  - PCIe x8, low profile

- Slot 5 (riser card 2)
  - PCIe 3.0 x16, full height, half length, requires 2nd CPU

- Slot 6 (riser card 2)
  - PCIe 3.0 x8, full height, half length

**System unique options**
- X71A02680
- Lenovo SS50/SR50/SR650 x8d/x8dML2 PCIe FH Riser 1 Kit
- X71A02679
- Lenovo SS50/SR50/SR650 x16d/x16d PCIe FH Riser 2 Kit
- X71A02678
- Lenovo SS50/SR50/SR650 x8d/x8d PCIe FH Riser 1 Kit
- Z71A02578
- Lenovo SS50/SR50/SR650 EIA Latch w/VGA Upgrade Kit
- Z71A02654
- Lenovo SS50/SR50/SR650 2.5" SATA/SAS 8-Bay Backplane Kit
- Z71A02580
- Lenovo 2U Security Bezel
- Z71A02577
- Lenovo COM Port Upgrade Kit

---

**Lenovo, April 2019**
**ThinkSystem SR570 Platform Specifications**

**Product Specifications Reference (PSREF)**

**Components**

- **Form factor:** 1U rack
- **Dimensions:** Height: 43 mm (1.7 in). Width: 482 mm (18.9 in) with rack latches. Depth: 778.3 mm (30.64 in)
- **Weight:** Maximum configuration: 35.27 lb (16 kg)
- **Processor:** Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s each.
- **Chipset:** Intel C622 Platform Controller Hub
- **Memory offering:** Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels.
- **Memory capacity:** 1TB with 16x 64GB RDIMM and dual processor
  - 2TB with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1)
  - 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1)
- **Memory protection:** ECC, memory mirroring, and memory sparing.

**Storage controllers**

- **RAID adapter Interface Drive type RAID levels JBOD Cache Cache protection FastPath Max qty**
  - For SS bays
    - Onboard SATA 6Gb SATA SATA 4/10/50 Yes None None None None Yes 4
    - 320-Bi 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes None None None None Yes 4
    - 730-Bi 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes 1Gb Flash backup Yes 4
  - For HS bays
    - 320-HS 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes None None Flash backup Yes 4
    - 730-HS 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes None None Flash backup Yes 4
    - 320-He 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes None None Flash backup Yes 4
    - 730-He 12Gb SAS SATA/SAS 2/7/10/50/55/60 Yes None None Flash backup Yes 4

**Disk drive bays**

- **For 3.5” SATA simple-swap bays, or 4 front 3.5” SATA/SAS HS bays, or 8 front 2.5” SATA/SAS HS bays, or 10 front 2.5” SATA/SAS HS bays with 4 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring.**

**Internal storage**

- **For 3.5” HS bay**
  - 3.5” HDD, SATA6Gbs, 7.2K 2TB/2TB/4TB/6TB/8TB
  - 3.5” HDD, SAS12Gbs, 7.2K 2TB/2TB/4TB/6TB/8TB
  - 3.5” HDD, SAS12Gbs, 15K 300G/600G/900G/1.8TB
  - 2.5” SSD, SATA6Gbs 300G/600G/900G/1.8TB
  - 2.5” NVMe SSD, AnyBay 860GB/1.92TB/3.84TB

- **For 2.5” bay**
  - 2.5” HDD, SATA6Gbs, 7.2K 2TB/2TB
  - 2.5” HDD, SAS12Gbs, 7.2K 2TB/2TB
  - 2.5” HDD, SAS12Gbs, 15K 300G/600G/900G/1.2TB/1.8TB
  - 2.5” HDD, SAS12Gbs, 10K, SED 300G/600G/900G
  - 2.5” SSD, SAS12Gbs 300G/600G/900G/1.8TB
  - 2.5” SSD, SATA6Gbs 300G/600G/900G/1.8TB
  - 2.5” NVMe SSD, AnyBay 860GB/1.92TB/3.84TB

**Expansion slots**

- **Slot 1-2 (riser card 1)**
  - Option 1: PCIe 3.0 x8/16 (slot 1-2). Low profile for x8, low profile or full height half length for x16
  - Option 2: PCIe 3.0 x8/ML2 (slot 1-2). Low profile

**System unique options**

- **XFH7A05892** ThinkSystem SR530/550 x8/8x8ML2 PCIe LP+LP Riser 1 Kit
- **XFH7A02682** ThinkSystem SR530/550/570 x8/16 PCIe LP Riser 1 Kit
- **XFH7A05893** ThinkSystem SR530/550/570 x8/16 PCIe LP+FH Riser 1 Kit
- **XFH7A05891** ThinkSystem SR530/550/570 x8 PCIe LP Riser 2 Kit
- **XFH7A02685** ThinkSystem SR530/550/570/590 x8/16 PCIe LP Riser 2 Kit
- **Z71A00279** ThinkSystem SR530/550/570 Front VGA Connector Upgrade Kit
- **Z71A02581** ThinkSystem i10 Security Bezel
- **Z71A02580** ThinkSystem i10 COM Port Upgrade Kit
- **XHFH7A08762** ThinkSystem SR570 2.9” SATA/SAS 8-Bay Backplane Kit

Lenovo, April 2019
**Components**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>2U rack</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 86.5 mm (3.4 in), Width: 482 mm (19.0 in) with rack latches, Depth: 763.7 mm (30.1 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 61.7 to 28 kg</td>
</tr>
</tbody>
</table>

**Processor**

- Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum.
- Up to 28 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with twoUPI (Ultra Path Interconnected) links up to 10.4Giga/s each.

**Chipset**

- Intel C622 Platform Controller Hub

**Memory Offering**

- Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels.

**Memory Type**

<table>
<thead>
<tr>
<th>Offering</th>
<th>Speed Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDIMM</td>
<td>DDR4-2933</td>
</tr>
<tr>
<td>LRDIMM</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>RDIMM</td>
<td>DDR4-2666</td>
</tr>
<tr>
<td>LRDIMM</td>
<td>DDR4-2666</td>
</tr>
</tbody>
</table>

**Memory Capacity**

- 1T with 16x 64GB RDIMM and dual processor
- 2T with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1)
- 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1)

**Memory Protection**

- ECC, memory mirroring, and memory sparing

**Storage Controllers**

- Supports the following RAID/HBA adapters:
  - RAID: SATA, SAS
  - Interface: Onboard, Slot 1-3 (riser card 1), Slot 4-6 (riser card 2)
  - Drive type: 6G SAS, SATA
  - RAID levels: 0/1/5/10/6/10T
  - JBOD: Yes/No
  - Cache: Yes/No
  - Cache protection: No/Yes
  - FastPath: Yes/No
  - Max bays: 12/24/48

**Disk Drive Bay**

- Supports 3.5", Simple-swap bay up to 8, or 3.5" HS bay up to 12, or 2.5" HS bay up to 12. On 12x 3.5", 8x 2.5", or 16x 2.5" bay models, 4 bays can be upgrade to AnyBay. Optional 2 rear 3.5" HS bays are supported on 12 x 3.5" model, takes place in riser card 1 location.
- Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring

**Internal Storage**

- Supports one of the following:
  - For 3.5" SSD bay: 2.5" HD, SATA6Gbps, 7.2K
  - For 3.5" bay: 2.5" HD, SATA6Gbps, 7.2K
  - For 2.5" bay: 2.5" SSD, SATA6Gbps
  - 2.5" SSD, SATA6Gbps 400GB
  - 2.5" SSD, SATA6Gbps 500GB
  - 2.5" SSD, SATA6Gbps 800GB
  - 2.5" SSD, SATA6Gbps 1TB

**System Unique Options**

- No integrated optical bay. Supports ODD or iWV optical drive

**Network Interfaces**

- Integrated one dedicated management port plus two GBE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GBe. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.

**Security Features**

- Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel

**Operating systems supported**

- Microsoft Windows Server 2012/2012 R2, Red Hat Enterprise Linux 7/x86 64, SUSE Linux Enterprise Server 12 SP2/11 SP4, VMware ESXi 6.5/6.0 U3

**GPU support**

- None

**Base warranty**

- MT 7X98: 1-year limited onsite service with 9x5/NBD
- MT 7X99: 3-year limited onsite service with 9x5/NBD

---

Lenovo, April 2019
# ThinkSystem SR630 Platform Specifications

## Components

<table>
<thead>
<tr>
<th>Form factor</th>
<th>1U rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Height: 43 mm (1.7 in), Width: 482 mm (19.0 in) with rack latches, Depth: 778.3 mm (30.64 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 41.9 kg</td>
</tr>
</tbody>
</table>

## Processor

Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s.

## Memory

InteL C624 Platform Controller Hub

### Memory offering

<table>
<thead>
<tr>
<th>Type</th>
<th>Speed</th>
<th>Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDR4-2666</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>32GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>64GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>96GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>192GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>256GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>320GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>384GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>461GB</td>
<td></td>
</tr>
<tr>
<td>DDR4-2933</td>
<td>512GB</td>
<td></td>
</tr>
</tbody>
</table>

### Memory capacity

- 3TB with 24x 128GB 3DS RDIMM and dual M or L SKU processor
- 6TB with 12x 512GB DC Persistent Memory and dual L SKU processor

### Cache types

- 730-8: 128GB dense cache
- 830-8: 256GB dense cache
- 880-8: 512GB dense cache

## Expansion slots

- Slot 1: 1x M.2 SSD slot
- Slot 2: 1x M.2 SSD slot
- Slot 3: 1x M.2 SSD slot

## Storage controllers

### Internal storage

- Up to 20x 3.5" disk bays (3.5" disks or 2.5" disks with 2.5" HDD SSD, 2.5" SSD, SAS6Gbps, SAS12Gbps, 15K)

### Disk drive bays

<table>
<thead>
<tr>
<th>Drive Type</th>
<th>Drive Speed</th>
<th>Drive Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5&quot; bay</td>
<td>6Gbps SATA</td>
<td>1.2TB/1.8TB</td>
</tr>
<tr>
<td>3.5&quot; bay</td>
<td>6Gbps SAS</td>
<td>1.2TB/1.8TB</td>
</tr>
<tr>
<td>3.5&quot; bay</td>
<td>6Gbps SAS</td>
<td>1.2TB/1.8TB</td>
</tr>
<tr>
<td>2.5&quot; bay</td>
<td>6Gbps SAS</td>
<td>1.2TB/1.8TB</td>
</tr>
<tr>
<td>2.5&quot; bay</td>
<td>6Gbps SAS</td>
<td>1.2TB/1.8TB</td>
</tr>
</tbody>
</table>

## Network interfaces

One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NO-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires card with ML2 slot.

## Security features

Power-on and admin password, Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel.

## Operating systems supported

Microsoft Windows Server 2012 R2, Red Hat Enterprise Linux x 86/32/64, SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4, VMware ESXi 6.5U1/6.5/6.0 U3
### Components

<table>
<thead>
<tr>
<th>Form factor</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2U rack</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>86.5 mm (3.4 in)</td>
</tr>
<tr>
<td>Width</td>
<td>482 mm (19.0 in)</td>
</tr>
<tr>
<td>Depth</td>
<td>763.7 mm (30.1 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processor</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum.</td>
<td>Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnected) links up to 10.4GT/s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chipset</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel C624 Platform Controller Hub</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory type</th>
<th>Memory Speed Offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory type</td>
<td>Speed Offering</td>
</tr>
<tr>
<td>Intel Optane DC Persistent Memory</td>
<td>DDR4-2666 2x128GB/256GB/512GB</td>
</tr>
<tr>
<td>3DS RDIMM</td>
<td>DDR4-2666 8GB/16GB/32GB/64GB</td>
</tr>
<tr>
<td>Performance - 3DS RDIMM</td>
<td>DDR4-2933 2x384GB</td>
</tr>
<tr>
<td>RDIMM</td>
<td>DDR4-2933 2x384GB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory offering</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels.</td>
<td>Supports following:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory protection</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECC, memory mirroring, and memory sparing</td>
<td>One dedicated internal RAID slot for most RAID/HBA adapters.</td>
</tr>
</tbody>
</table>

### Storage controllers

<table>
<thead>
<tr>
<th>Feature</th>
<th>Interface</th>
<th>Drive type</th>
<th>RAID levels</th>
<th>JBOD</th>
<th>Cache protection</th>
<th>FastPath</th>
<th>M8 qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D-8e</td>
<td>12Gbps SAS</td>
<td>SA/DASAS 0/1/10/5/6</td>
<td>Yes</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>3D-10i</td>
<td>12Gbps SAS</td>
<td>SA/DASAS 0/1/10/5/6</td>
<td>Yes</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>3D-16i</td>
<td>12Gbps SAS</td>
<td>SA/DASAS 0/1/10/5/6</td>
<td>Yes</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>3D-24i</td>
<td>12Gbps SAS</td>
<td>SA/DASAS 0/1/10/5/6</td>
<td>Yes</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory capacity</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3TB with 2x128GB 3DS RDIMM and dual M or L SKU processor</td>
<td></td>
</tr>
<tr>
<td>6TB with 12x512GB DC Persistent Memory (memory mode) and dual SKU processor</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory protection</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECC, memory mirroring, and memory sparing</td>
<td></td>
</tr>
</tbody>
</table>

### Disk drive bays

<table>
<thead>
<tr>
<th>Chassis</th>
<th>Maximum Disk Bay Configuration</th>
<th>2x 3.5&quot; Rear Bays Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>12x 3.5&quot;</td>
<td>12x 3.5&quot; HS SATA/SAS</td>
<td>Yes</td>
</tr>
<tr>
<td>8x 3.5&quot;</td>
<td>8x 3.5&quot; HS SATA/SAS</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disk drive bays</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>24x 2.5&quot;</td>
<td>24x 2.5&quot; HS SATA/SAS</td>
</tr>
<tr>
<td>8x 2.5&quot;</td>
<td>8x 2.5&quot; HS SATA/SAS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal storage</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>For 3.5&quot; bay (3.5&quot; disks or 2.5&quot; disks with 3.5&quot; tray)</td>
<td>2.5&quot; HDD, SATA6Gbps</td>
</tr>
<tr>
<td>2.5&quot; SSD, SAS12Gbps</td>
<td>1Kx1000GB/8000GB</td>
</tr>
<tr>
<td>3.5&quot; NVMe SSD, AnyBay</td>
<td>900GB/3.2TB/4.8TB</td>
</tr>
<tr>
<td>For 2.5&quot; bay</td>
<td>2.5&quot; HDD, SATA6Gbps</td>
</tr>
<tr>
<td>2.5&quot; SSD, SAS12Gbps</td>
<td>1Kx1000GB/8000GB</td>
</tr>
<tr>
<td>3.5&quot; NVMe SSD, AnyBay</td>
<td>900GB/3.2TB/4.8TB</td>
</tr>
</tbody>
</table>

### Environmental specification

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-5°C to 60°C (23°F to 140°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% to 80% non-condensing</td>
</tr>
</tbody>
</table>

### Expansion slots

<table>
<thead>
<tr>
<th>Expansion slots</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1-3</td>
<td>Supports one of the following for riser card 1:</td>
</tr>
<tr>
<td>Option 1:</td>
<td>PCIe 3.0 x8/x8/x8 (slot 1-3), Full height, half length</td>
</tr>
<tr>
<td>Option 2:</td>
<td>PCIe 3.0 x16/x8 (slot 1 and 3), Full height, full length for x16</td>
</tr>
</tbody>
</table>

| Slot 4 | Supports one of the following for riser card 2: |
| Option 1: | PCIe 3.0 x8/x8/x8 (slot 1-3), Full height, half length |
| Option 2: | PCIe 3.0 x16/x8 (slot 1 and 3), Full height, full length for x16 |

| Slot 5 | Supports one of the following for riser card 3: |
| Option 1: | PCIe 3.0 x8/x8/x8/x16 (slot 1-4), Full height, full length for x16 |
| Option 2: | Two rear 3.5" disk bays, 12 x 3.5" models only |

### Network interfaces

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>One dedicated management port.</td>
<td>One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GBase-LAN and NC-Si are available. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.</td>
</tr>
</tbody>
</table>

### Security features

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting.</td>
<td></td>
</tr>
</tbody>
</table>

### Systems management

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available.</td>
<td>Management, XClarity Administrator, Lenovo Capacity Planner, Provisioning Manager, Essentials, Light Path Diagnostics.</td>
</tr>
</tbody>
</table>

### Environmental certification

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Specification</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Form factor</strong></td>
<td>Tower or 4U rack with optional rack mount kit</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Height: 430 mm (16.93 in), width: 175 mm (6.89 in), depth: 565.7 mm (22.27 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Maximum configuration: 51.94 lb (23.56 kg)</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel C246 Platform Controller Hub</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>4 DIMM sockets with 2 channels, 2 DIMMs per channel, UDIMM. DDR4-2666.</td>
</tr>
<tr>
<td><strong>Memory capacity</strong></td>
<td>64GB with 4x 16GB UDIMMs</td>
</tr>
<tr>
<td><strong>Memory protection</strong></td>
<td>Supports the following RAID/HBA adapters:</td>
</tr>
<tr>
<td><strong>Storage controllers</strong></td>
<td>Supports four or eight front 3.5&quot; SATA simple-swap bays. Or four or eight front 3.5&quot; SATA/SAS HS bays. Or eight or sixteen front 2.5&quot; SATA/SAS HS bays. Or four or eight 2.5&quot; hybrid SATA/SAS HS bays. Optional one internal M.2 SSD for boot, consumes one onboard SATA port</td>
</tr>
<tr>
<td><strong>Disk drive bays</strong></td>
<td>Supports four or eight front 3.5&quot; SATA simple-swap bays. Or four or eight front 3.5&quot; SATA/SAS HS bays. Or eight or sixteen front 2.5&quot; SATA/SAS HS bays. Or four or eight 2.5&quot; hybrid SATA/SAS HS bays. Optional one internal M.2 SSD for boot, consumes one onboard SATA port</td>
</tr>
<tr>
<td><strong>Disk support</strong></td>
<td>Supports four or eight front 3.5&quot; SATA simple-swap bays. Or four or eight front 3.5&quot; SATA/SAS HS bays. Or eight or sixteen front 2.5&quot; SATA/SAS HS bays. Or four or eight 2.5&quot; hybrid SATA/SAS HS bays. Optional one internal M.2 SSD for boot, consumes one onboard SATA port</td>
</tr>
<tr>
<td><strong>Optical</strong></td>
<td>Two 5.25&quot; bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drives. Up to two optical or one tape drive</td>
</tr>
<tr>
<td><strong>Network interfaces</strong></td>
<td>Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available</td>
</tr>
<tr>
<td><strong>Security features</strong></td>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant. Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and padlock</td>
</tr>
<tr>
<td><strong>Operating systems supported</strong></td>
<td>Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7u5 L2</td>
</tr>
<tr>
<td><strong>Systems management</strong></td>
<td>XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error</td>
</tr>
<tr>
<td><strong>GPU support</strong></td>
<td>Up to one optional GPU, NVIDIA Quadro P620 or Quadro P2000</td>
</tr>
<tr>
<td><strong>Base warranty</strong></td>
<td>MT 7Y45: 3-year limited onsite service with 9x5/NBD</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>Supports one of the following PSU:</td>
</tr>
<tr>
<td></td>
<td>• One fixed power supply, 250W. 80 PLUS Platinum certified.</td>
</tr>
<tr>
<td></td>
<td>• Up to two redundant hot-swap power supplies, 550W each. 80 PLUS Platinum certified</td>
</tr>
</tbody>
</table>
## ThinkSystem ST50 Platform Specifications

### Components

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>Tower or 4U rack with optional rack mount kit</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 375 mm (14.76 in), width: 175 mm (6.89 in), depth: 407 mm (16.0 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 24.7 lb (11.2 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed. Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMMs sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666. Non-ECC UDIMM are supported in China only</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>64GB with 4x 16GB UDIMMs, both ECC and Non-ECC</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Supports the following RAID/HBA adapters: RAID adapter interface Drive type RAID levels JBOD Cache Cache protection FastPath Onboard SATA 6Gbps SATA SATA 0/1/10/5 Yes None None No Bay 0</td>
</tr>
<tr>
<td>Disk drive bays</td>
<td>Up to 4x 3.5&quot;/2.5&quot; Non-hot swap SATA/SAS cabled drive, HDD, SSD, or mixing of HDD and SSD. 4th bay is optional with 5.25&quot; to 3.5&quot; conversion kit and occupies 5.25&quot; bay</td>
</tr>
<tr>
<td>SD card reader</td>
<td>Up to two SD cards with standard SD card module, 32GB or 64GB</td>
</tr>
<tr>
<td>Disk support</td>
<td>8.9''HDD, 9.5Gbps, 7.2K</td>
</tr>
<tr>
<td>Optical</td>
<td>One 5.25'' bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drive, or 4th disk bay plus one slim optical</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available</td>
</tr>
<tr>
<td>Security features</td>
<td>Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only, Optional chassis intrusion switch, Kensington lock, and pad lock</td>
</tr>
<tr>
<td>Operating systems supported</td>
<td>Microsoft Windows Server 2019/2016, Red Hat Enterprise Linux 7.5, VMware vSphere (ESXi) 6.5 U2</td>
</tr>
<tr>
<td>Systems management</td>
<td>Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models</td>
</tr>
<tr>
<td>GPU support</td>
<td>Up to one optional NVIDIA Quadro P620</td>
</tr>
<tr>
<td>Base warranty</td>
<td>MT 7Y48: 3-year limited onsite service with 9x5/NBD MT 7Y49: 1-year limited onsite service with 9x5/NBD</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>Video</td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i3, or Intel UHD Graphics 610 in Pentium and Celeron processors</td>
</tr>
<tr>
<td>Cooling</td>
<td>Two fixed system fans, CPU fan, PSU fan, and optional media bay fan</td>
</tr>
<tr>
<td>Front ports</td>
<td>2x USB 3.1 Gen 1 Type A</td>
</tr>
<tr>
<td>Rear ports</td>
<td>2x USB 3.1 Gen 1 Type A, 2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 1x line-out. 2x DP (DP needs Core, Pentium, Celeron, or -G suffix Xeon processor)</td>
</tr>
<tr>
<td>Environmental specification</td>
<td>Supports ASHRAE A2</td>
</tr>
<tr>
<td>Environmental certification</td>
<td>Energy Star Server 2.1 certified, more environmental information please see: <a href="http://www.lenovo.com/social_responsibility/us/en/environment/">www.lenovo.com/social_responsibility/us/en/environment/</a></td>
</tr>
</tbody>
</table>

### Expansion slots

Supports three PCIe 3.0 slots as following:

- **Slot 1**: PCIe 3.0 x16, full height, full length, links to CPU
- **Slot 2**: PCIe 3.0 x1, full height, full length, links to PCH
- **Slot 3**: PCIe 3.0 x16 (negotiable link width x4), full height, full length, links to PCH

### Partial options for ThinkSystem ST50

- **ThinkSystem ST50 3.5'' SSD Bay Kit**: 4XB7A13554
- **ThinkSystem ST50 3.5'' HDD Bay Kit**: 4XB7A13555
- **ThinkSystem ST50 3.5'' SATA Bay Kit**: 4XB7A13556
- **ThinkSystem ST50 3.5'' SAS Bay Kit**: 4XB7A13557
- **ThinkSystem ST50 3.5'' 8TB 7.2K SATA Bay Kit**: 4XB7A13558
- **ThinkSystem ST50 3.5'' Intel S4510 240GB Entry SATA Bay Kit**: 4XB7A14914
- **ThinkSystem ST50 3.5'' Intel S4510 480GB Entry SATA Bay Kit**: 4XB7A14915
- **ThinkSystem ST50 3.5'' Intel S4510 960GB Entry SATA Bay Kit**: 4XB7A14916
- **ThinkSystem ST50 HH ODD / Tape Cable Kit**: 4Z57A13568
- **ThinkSystem ST50 5.25 To 3.5 HDD Kit with Slim ODD**: 4MT1A12096
- **ThinkSystem ST50 5.25 To 3.5 HDD Kit Without Slim ODD**: 4MT1A12097
- **ThinkSystem ST50 5.25 To 3.5 DVD Drive Kit**: 4MT1A12098
- **ThinkSystem ST50 5.25 To 3.5 DVD Drive Kit With Slim ODD**: 4MT1A12099
- **ThinkSystem ST50 5.25 To 3.5 DVD Drive Kit Without Slim ODD**: 4MT1A12094
- **ThinkSystem ST50 Super Cap Bracket & Cable Kit**: 4MT1A12094
- **ThinkSystem ST50 Dual SD Cards Adapter Kit**: 4MT1A12095
- **ThinkSystem ST50/S250 Rack Mount Kit**: 4MT1A12785
**ThinkSystem ST550 Platform Specifications**

**Base warranty**
- MT 7X09: 1-year limited onsite service with 9x5/NBD
- MT 7X10: 3-year limited onsite service with 9x5/NBD

**Power supply**
- Supports one fixed 450W 80 PLUS Gold qualified AC power supply, non-redundant, no redundant. Or up to two redundant hot-swap 550W/750W/1100W 80 PLUS Gold qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V
- Video: Integrated Matrixix O200 in XClarity Controller
- Cooling: Up to four fans with one for redundant. Two fans for single processor, three fans for dual processor or single processor with 4 x 2.5” HS bay installed. 4th fan is N + 1 redundant or GDP installed

**Front ports**
- One VGA, two USB 3.0, four USB 2.0, two ethernet (H3-45), one XClarity Controller network connector, Optional COM port

**Rear ports**
- One VCA, two USB 3.0, four USB 2.0, two ethernet (H3-45), one XClarity Controller network connector, Optional COM port

**Environmental specification**
- Optional redundant PSU (Fixed PSU is also located here)
- Slot 1 (CPU1): PCIe 3.0 x8, full height, full length
- Slot 2 (CPU1): PCIe 3.0 x16, full height, half length
- Slot 3 (CPU1): PCIe 3.0 x16, full height, full length, double-width
- Slot 4 (CPU2): PCIe 3.0 x16 (x8 elec), full height, full length, double-width
- Slot 5 (CPU2): PCIe 3.0 x16, full height, full length, double-width
- Slot 6 (CPU1): PCIe 3.0 x8 (x4 elec), full height, full length
- Note: All expansion cards and redundant PSU are optional.

**System unique options**

**Components**

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>Tower or 4U rack</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Without feet stand and security door; Height: 425.5 mm (16.8 in); Width: 175.8 mm (6.92 in); Depth: 866.4 mm (26.24 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 31.35 lb (36.9 kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 20 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C621 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. DDR4-2933 or DDR4-2666, RDIMMs</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>Up to 7680GB with 12 x 64 GB DIMMs and two processors</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC, memory mirroring, and memory sparing</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Supports the following RAID/HBA adapters:</td>
</tr>
<tr>
<td>RAID adapter</td>
<td>For SSD/SATA</td>
</tr>
<tr>
<td>Drive type</td>
<td>SATA</td>
</tr>
<tr>
<td>RAID levels</td>
<td>0/1/5/10/60</td>
</tr>
<tr>
<td>JBOD</td>
<td>Yes</td>
</tr>
<tr>
<td>Cache</td>
<td>None</td>
</tr>
<tr>
<td>Cache protection</td>
<td>FastPath</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>2xUSB 2.0</td>
</tr>
<tr>
<td>Note:</td>
<td>730-8i is available in China only. All RAID/HBA adapters should be installed in slot 1 firstly.</td>
</tr>
</tbody>
</table>

**Disk drive bays**
- Supports 4 or 8 front 3.5" SATa simple-swap bays. Or 4 or 8 front 3.5" SATa/SAS HS bays. Or 8 or 16 front 2.5" SATa/SAS HS bays with maximum 4 AnyBay. Optional 4 front 2.5" HS bays are supported on hot-swap models, takes place in two 5.25" bays location. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring
- For 3.5" SS bay
  - 3.5" HDD, SATa6Gbps, 7.2K
  - 2TB/2TB/4TB/6TB/8TB/10TB
- For 3.5" bay (3.5’ diapers or 3.5' diapers with 3.5' tray)
  - 3.5” HDD, SATa6Gbps, 7.2K
  - 2TB/2TB/4TB/6TB/8TB/10TB
- Internal storage
  - 2.5” SATa, SATa6Gbps, 15K
  - 300GB/600GB/900GB/1.2TB/1.8TB/2.4TB
- Optical
  - Two 5.25" bays for optical and tape drive. Supports DVD-ROM or DVD±RW drives, half-height. Supports LTO-6 SAS, LTO-7 SAS, and RDX USB 3.0 tape drives

**Network interfaces**
- Integrated one dedicated management port plus two GBE ports. Optional PCIe adapters are supported. NC-SI and Wake-on-LAN are supported on GBE port 1 (See right)

**Security features**
- Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel. Optional chassis intrusion switch

**Operating systems supported**
- Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.x/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0/5.5

**System unique options**

<table>
<thead>
<tr>
<th>System unique options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT7A03475</td>
<td>ThinkSystem ST550 2.5&quot; SATA/SAS 4-Bay Backplane Kit</td>
</tr>
<tr>
<td>XT7A03476</td>
<td>ThinkSystem ST550 2.5&quot; Anybay 8-Bay Backplane Kit</td>
</tr>
<tr>
<td>T7PA04369</td>
<td>ThinkSystem ST550 2.5&quot; 8-Bay Backplane Kit</td>
</tr>
<tr>
<td>T7PA04370</td>
<td>ThinkSystem ST550 1.3&quot; SATA/SAS 4-Bay Backplane Kit</td>
</tr>
<tr>
<td>XT7A03481</td>
<td>ThinkSystem ST550 3.5&quot; Simple Swap Bracket Plate</td>
</tr>
<tr>
<td>XT7A03484</td>
<td>ThinkSystem ST550 4U Security Bezel</td>
</tr>
<tr>
<td>XT7A03485</td>
<td>ThinkSystem ST550 CMA Kit</td>
</tr>
<tr>
<td>XT7A03488</td>
<td>ThinkSystem ST550 4U Tower to Rack Conversion Kit</td>
</tr>
<tr>
<td>Z17A02577</td>
<td>ThinkSystem ST550 COM Port Upgrade Kit</td>
</tr>
<tr>
<td>XT7A26781</td>
<td>ThinkSystem ST550 Front Mid Fan Module for 4x2.5” SSD conversion</td>
</tr>
<tr>
<td>T7PA04371</td>
<td>ThinkSystem ST550 Rear Fan Module for HDT Fan</td>
</tr>
</tbody>
</table>

Lenovo, April 2019
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographical errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560.

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.

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.
## Contents

| 1  | ThinkVision T23d                      | 35 |
| 2  | ThinkVision T23d Platform Specifications | 36 |
| 4  | ThinkVision T23i                      | 37 |
| 5  | ThinkVision T23i Platform Specifications | 38 |
| 5  | ThinkVision T2454p                    | 39 |
| 6  | ThinkVision T2454p Platform Specifications | 40 |
| 7  | ThinkVision T24d                      | 41 |
| 8  | ThinkVision T24d Platform Specifications | 42 |
| 9  | ThinkVision T24i-10                   | 43 |
| 10 | ThinkVision T24i-10 Platform Specifications | 44 |
| 11 | ThinkVision T24i-19                   | 45 |
| 12 | ThinkVision T24i-19 Platform Specifications | 46 |
| 13 | ThinkVision T24m                      | 47 |
| 14 | ThinkVision T24m Platform Specifications | 48 |
| 15 | ThinkVision T24v                      | 49 |
| 16 | ThinkVision T24v Platform Specifications | 50 |
| 17 | ThinkVision X24 Pro                   | 51 |
| 17 | ThinkVision X24 Pro Platform Specifications | 52 |
| 18 | ThinkVision X24-20                    | 53 |
| 19 | ThinkVision X24-20 Platform Specifications | 54 |
| 20 | Above 25 Inch                        | 55 |
| 21 | ThinkVision P27h                      | 56 |
| 22 | ThinkVision P27h Platform Specifications | 56 |
| 23 | ThinkVision P27u                      | 57 |
| 24 | ThinkVision P27u Platform Specifications | 58 |
| 25 | ThinkVision P32u                      | 59 |
| 26 | ThinkVision P32u Platform Specifications | 60 |
| 27 | ThinkVision P44w-10                   | 61 |
| 28 | ThinkVision P44w-10 Platform Specifications | 62 |
| 29 | ThinkVision T27i                      | 63 |
| 30 | ThinkVision T27i Platform Specifications | 64 |
| 31 | ThinkVision T27p-10                   | 65 |
| 32 | ThinkVision T27p-10 Platform Specifications | 66 |
| 33 | ThinkVision X1                        | 67 |
| 34 | ThinkVision X1 Platform Specifications | 68 |
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThinkVision X1 (2nd Gen)</td>
<td>69</td>
</tr>
<tr>
<td>ThinkVision X1 (2nd Gen) Platform Specifications</td>
<td>70</td>
</tr>
<tr>
<td>Legal Information</td>
<td>72</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.

June, 2019 - Version 543

Additions in this update

► New product(s)
  ThinkVision T27p-10 announced May 2019

► New model(s)
  None

► Others
  None

Withdrawals in this update

► Withdrawn product(s)
  ThinkVision P27 is withdrawn in the book
  ThinkVision T24i is withdrawn in the book
  ThinkVision T2423 is withdrawn in the book
  ThinkVision T2424z is withdrawn in the book
  ThinkVision T2220VA is withdrawn in the book
  ThinkVision T2364t is withdrawn in the book
  ThinkVision T2224z is withdrawn in the book
  ThinkVision Pro2820 is withdrawn in the book
# Lenovo ThinkVision E1922s Wide

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>E1922s Wide Flat Panel Monitor</td>
</tr>
<tr>
<td><strong>Case color</strong></td>
<td>Black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>60G2AR6US / 60G2AAT6EU</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>18.5&quot; (470mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>16.1&quot; x 9.1&quot; / 409.8mm x 230.4mm</td>
</tr>
<tr>
<td><strong>Native resolution</strong></td>
<td>1366x768</td>
</tr>
<tr>
<td><strong>Aspect ratio</strong></td>
<td>16:9</td>
</tr>
<tr>
<td><strong>Pixel pitch (mm)</strong></td>
<td>0.3mm</td>
</tr>
<tr>
<td><strong>Dot/ Pixel per Inch</strong></td>
<td>85 dpi</td>
</tr>
<tr>
<td><strong>Brightness</strong></td>
<td>200 nits or cd/m² (typical)</td>
</tr>
<tr>
<td><strong>Contrast ratio</strong></td>
<td>600:1 (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>180° (+/- 90°) horizontal, 100° (+/- 50°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt adjustable stand</td>
</tr>
<tr>
<td><strong>Bezel width</strong></td>
<td>Sides: 0.73&quot; (18.5mm)</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>13.44&quot; H x 17.65&quot; W x 6.58&quot; D; 341.5mm H x 448.4mm W x 167.2mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>13.7 watts typical, 17 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>6.03 lb; 2.74 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 2014</td>
</tr>
</tbody>
</table>

## Features
- 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

## Accessories
- Kensington MicroSaver Cable Lock 73P2582
- Kensington Twin Head Cable Lock 45K1620

## Limited Warranty

## Ship group
Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord

## Preset resolutions
- VGA: 640x350, 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

## On screen display
- Digital user controls (8 languages)

## Control features
- Direct access (control buttons on front) for automatic image setup and adjustment for brightness

## Multiple input
- None

## Monitor connectors
- VGA 15-pin D-shell, analog, blue

## Signal cables
- 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)

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 Monitor

**E2054 Wide Flat Panel Monitor**

**Type-model**: 60DFAAR1US / 60DFAAT1EU

**Panel**
- TFT-LCD, In-Plane Switching (IPS), LED backlight
- 19.5" (494mm) diagonal
- Viewable image size: 16.48" x 10.33" / 418.6 mm x 262.4 mm

**Native Resolution**
- 1440x900

**Aspect Ratio**
- 16:10

**Pixel pitch (mm)**
- 0.097mm x 0.292mm

**Dot/Pixel per Inch**
- 87 dpi

**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° (+/- 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 x 456.0mm x 188.3mm

**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

**Presets / User Settings**
- Standard presets: 18
- User settings: 10

**Screen Adjustments**
- Tilt: 22° backward, -5° forward

**Multiple Input**
- None

**Monitor Connectors**
- 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)
**Name**
Lenovo ThinkVision LT1913p Square Flat Panel Monitor

**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

**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

**Dot/Pixel per Inch**
225 dots 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™ Gold rating, ULE Gold

**Preset resolutions**
VGA: 640x350, 640x480, 720x400
SVGA: 800x600, 828x624
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 FPM/PMI® (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**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kensington MicroSaver Cable Lock</td>
<td>73P2582</td>
</tr>
<tr>
<td>Kensington Twin Head Cable Lock</td>
<td>45K1620</td>
</tr>
<tr>
<td>Lenovo Security Cable Lock</td>
<td>57Y4303</td>
</tr>
<tr>
<td>Lenovo Easy Reach Monitor Stand</td>
<td>59Y9258</td>
</tr>
</tbody>
</table>

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**

**April 2015**
**Lenovo ThinkVision T1714**

**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

**Panel 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;
(Height x Width, including stand) 373.9mm H x 374.5mm W x 200mm 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® Gold rating

**Preset resolutions**
- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864,
- SXGA: 1280x800, 1280x1024

**Preset settings / 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 images; 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 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

**Limited Warranty**

**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)

---

**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

---

**ThinkVision T1714 Monitor**
### 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

### Lenovo ThinkVision T1714p Monitor

![ThinkVision T1714p Monitor](image)

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>T1714p Square Flat Panel Monitor</td>
</tr>
<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>Max view area (W x H)</td>
<td>13.3&quot; x 10.6&quot; (337.9mm x 270.3mm)</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>250 nits or cd/m² (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>Viewing 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>17.63” H x 14.74” W x 9.61” D;</td>
</tr>
<tr>
<td>Dimensions (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>
<tr>
<td>VESA-compliant</td>
<td>VESA DDC2B/Ci</td>
</tr>
<tr>
<td>Power management</td>
<td>ENERGY STAR® 7.0</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® Gold rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x350, 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768, 1152x864,</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x800, 1280x1024</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 22; user settings: 22</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 22° back, -5° forward; lift: 4.3” (110mm)</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 automatic image setup and brightness</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) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(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</td>
</tr>
<tr>
<td></td>
<td>(2) detachable, DVI-D 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 meeting the VESA FPMPM® (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 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</td>
</tr>
</tbody>
</table>

### 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 Wide Monitor

**Name**
- T2054p Wide Flat Panel Monitor

**Bezel color**
- Raven black

**Type-model**
- 60G1MAR2US / 60G1MAT2EU

**Panel**
- TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size**
- 19.5” (495mm) 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)**
- 0.2915 x 0.2915 mm

**Dot/Pixel per Inch**
- 87 dpi

**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° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**
- Tilt, swivel, and height adjustable stand

**Bezel width**
- Sides: 0.67” (17.0mm)

**Dimensions (HxWxD)**
- 13.62” H x 17.88” W x 9.55” D; 345.9mm H x 454.2mm W x 242.6mm D

**Power supply**
- 14.5 watts typical, 21 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**
- 8.16 lb; 3.70 kg

**Limited warranty**
- 3 year (includes backlight)

**Available date**
- September 2015

**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™ Gold rating

**Presets / user settings**
- Standard presets: 22
- user settings: 16

**Viewing adjustments**
- Tilt: 22° backward, -5° forward; Lift: 4.3” (110mm); Swivel: +/-45°; detachable stand

**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, dual input 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) 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

---

### 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)

---

### Limited Warranty

<table>
<thead>
<tr>
<th>Name</th>
<th>E21 Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61B8JAR1US / 61B8JAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>20.7” (525.78mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>18.03” x 10.14” (457.92mm x 257.58mm)</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>0.2385 x 0.2385 mm</td>
</tr>
<tr>
<td>Dot/ Pixel per Inch</td>
<td>106 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>5ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>72%</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>170° (+/- 85°) horizontal, 160° (+/- 80°) vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.6” (15.3mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>14.6” H x 19.31” W x 8.07” D; 370.9mm H x 490.5mm 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>5.82 lb; 2.64 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>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™ Gold rating</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+: 1440x900</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: 22</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 22° back, -5° forward</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 (1.2), 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</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 black power cord</td>
</tr>
</tbody>
</table>

---

### 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

### 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)

---

Lenovo
August 2017
## ThinkVision E24 Wide Monitor

**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
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Specifications**

<table>
<thead>
<tr>
<th>Name</th>
<th>E24 Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<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” (604.7mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.75” x 11.67” (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/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 adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.51” (13mm), Front: 0.39” (10mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>15.9” H x 21.81” W x 8.07” D; 403.8mm 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>FCC Class B, TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Gold rating</td>
</tr>
</tbody>
</table>

### Preset resolutions

- VGA: 640x350, 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

### Presets display modes

- Standard presets: 24; user settings: 20
- Tilt: 22° back, -5° forward

### 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
- On screen display with digital user controls (8 languages)

### USB hub

- None

### Multiple input

- Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- Direct access (buttons on front) for power, menu, input source select and brightness

### Monitor connectors

- (1) VGA 15-pin D-shell, analog, blue
- (2) DisplayPort, digital, black, **HDCP-compliant**
- (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter
- (2) detachable, DisplayPort at each end, digital, 1.8 meter

### Signal cables

- Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount

### Mounting features

- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### 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

---

**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

<table>
<thead>
<tr>
<th>Name</th>
<th>P24h Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61AEGAR3US / 61AEGAT3EU</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>20.74&quot; x 11.67&quot; (526.9mm x 296.4mm)</td>
</tr>
<tr>
<td>Native resolution</td>
<td>2560x1440</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.2058x0.2058 mm</td>
</tr>
<tr>
<td>Dot/Pixel per Inch</td>
<td>124 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>300 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>4ms (extreme) / 6ms (typical)</td>
</tr>
<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>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>Sides: 0.08&quot; (2.0mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>14.7&quot; H x 21.26&quot; W x 10.3&quot; D; 373.4mm H x 540.2mm W x 261.75mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 watts typical, 120 watts maximum (with USB 3.0 hub), &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>12.54 lb; 5.69 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>April 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>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, <strong>EPEAT</strong> Gold rating</td>
</tr>
</tbody>
</table>

### Preset resolutions
- VGA: 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WXGA+: 1440x900, 1680x900
- WSXGA+: 1800x1050
- 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

### Rotating screen
- 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 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
July 2017
## Lenovo ThinkVision P24q

### Name
P24q Wide Flat Panel Monitor

### Case color
Black

### Type-model
61A5GAR3US / 61A5GAT3EU

<table>
<thead>
<tr>
<th>Panel</th>
<th>Viewable image size</th>
<th>Max view area (W x H)</th>
<th>Optimum resolution</th>
<th>Max pixel rate</th>
<th>Aspect ratio</th>
<th>Pixel pitch (mm)</th>
<th>Dot/Pixel per Inch</th>
<th>Brightness</th>
<th>Contrast ratio</th>
<th>Pixel response time</th>
<th>Color gamut</th>
<th>Viewing angle at 10:1 CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFT-LCD, IPS (In-Plane Switching), White LED backlight</td>
<td>23.8” (604.5mm) diagonal</td>
<td>20.74” x 11.67” (526.85mm x 296.35mm)</td>
<td>2560x1440</td>
<td>300MHz</td>
<td>16:9</td>
<td>0.2058 x 0.2058mm</td>
<td>123 dpi</td>
<td>300 nits or cd/m² (typical)</td>
<td>1000:1 (typical)</td>
<td>4ms</td>
<td>99% sRGB</td>
<td>178° horizontal, 178° vertical</td>
</tr>
</tbody>
</table>

### Stand
Tilt, swivel, pivot, and height adjustable stand

### Bezel width
Sides: 0.08” (2mm)

### Dimensions
(Height x Width x Depth, 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, ENERGY STAR® 7.0, EPEAT Gold 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 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

### 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**

**July 2017**
<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>T2224d 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>61B1JR1US / 61B1JAT1EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>21.5” (546mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>18.74” x 10.54” (476.1mm x 267.8mm)</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>0.248 x 0.248 mm</td>
</tr>
<tr>
<td><strong>Dot/Pixel per Inch</strong></td>
<td>102 dpi</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>7ms (typical); 4ms (extreme mode)</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>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
</tr>
<tr>
<td><strong>Stand</strong></td>
<td>Tilt stand</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>15.02” H x 20.19” W x 8.06” D; 381.4mm H x 512.9mm W x 204.9mm D</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>20 watts typical, 25 watts maximum</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>&lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</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 2017</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>SVGA: 800x600</td>
</tr>
<tr>
<td><strong>Viewing adjustments</strong></td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td><strong>Rotating screen</strong></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td><strong>Control features</strong></td>
<td>WXGA: 1280x768, 1280x800, 1366x768</td>
</tr>
<tr>
<td><strong>USB hub</strong></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td><strong>Multiple input</strong></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td><strong>Monitor connectors</strong></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td><strong>Signal cables</strong></td>
<td>Standard presets: 22; user settings: 22</td>
</tr>
<tr>
<td><strong>Mounting features</strong></td>
<td>Tilt: 22° back, -5° forward</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Ship group</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Limited Warranty</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>Accessories</strong></td>
<td>Dual input, Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td><strong>VESA-compliant</strong></td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>Monitor withstand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td><strong>Emission standards</strong></td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td><strong>Presets</strong></td>
<td>FCC Class B</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>TCO Class B</td>
</tr>
<tr>
<td><strong>Ergonomics</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>SVGA: 800x600</td>
</tr>
<tr>
<td><strong>Viewing adjustments</strong></td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td><strong>Rotating screen</strong></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td><strong>Control features</strong></td>
<td>WXGA: 1280x768, 1280x800, 1366x768</td>
</tr>
<tr>
<td><strong>USB hub</strong></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td><strong>Multiple input</strong></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td><strong>Monitor connectors</strong></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td><strong>Signal cables</strong></td>
<td>Standard presets: 22; user settings: 22</td>
</tr>
<tr>
<td><strong>Mounting features</strong></td>
<td>Tilt: 22° back, -5° forward</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Ship group</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>Limited Warranty</strong></td>
<td>Dual input, Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</td>
</tr>
<tr>
<td><strong>VESA-compliant</strong></td>
<td>Monitor withstand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>VESA DDC2B/CI</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>ENERGY STAR® qualified</td>
</tr>
<tr>
<td><strong>Emission standards</strong></td>
<td>ISO 9241-307</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>FCC Class B</td>
</tr>
<tr>
<td><strong>Presets</strong></td>
<td>TCO 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>SVGA: 800x600</td>
</tr>
<tr>
<td><strong>Viewing adjustments</strong></td>
<td>XGA: 1024x768, 1152x864</td>
</tr>
<tr>
<td><strong>Rotating screen</strong></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td><strong>Control features</strong></td>
<td>WXGA: 1280x768, 1280x800, 1366x768</td>
</tr>
<tr>
<td><strong>USB hub</strong></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td><strong>Multiple input</strong></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td><strong>Monitor connectors</strong></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td><strong>Signal cables</strong></td>
<td>Standard presets: 22; user settings: 22</td>
</tr>
<tr>
<td><strong>Mounting features</strong></td>
<td>Tilt: 22° back, -5° forward</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Ship group</strong></td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
</tr>
</tbody>
</table>

Lenovo
March 2017


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 ThinkVision T2254p Wide

**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

**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)

**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, swivel, pivot, and height adjustable stand

**Bezel width**

Sides: 0.67" (17.1mm)

**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**

ISO 9241-307, FCC Class B, TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating

**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)

(1) VGA 15-pin D-shell, analog, blue

(2) 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

**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 T22i

**Name**: T22i Wide Flat Panel Monitor

**Bezel color**: Black

**Type-model**: 61A9MAR1US / 61A9MAT1EU

**Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size**: 21.5" (546mm) diagonal

**Max view area (W x H)**: 18.74" x 10.54" (476.1mm x 267.8mm)

**Native resolution**: 1920x1080

**Aspect ratio**: 16:9

**Pixel pitch (mm)**: 0.248 x 0.248 mm

**Dot/Pixel per Inch**: 102 dpi

**Brightness**: 250 nits or cd/m² (typical)

**Contrast ratio**: 1000:1 (typical)

**Pixel response time**: 6ms (typical); 4ms (extreme mode)

**Color gamut**: 72%

**Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**: Tilt, swivel, pivot, and height adjustable stand

**Power supply**: 16.5 watts typical, 55 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® Gold rating

**Presets resolution**: VGA: 640x350, 640x480, 720x400

**SVGA**: 800x600

**XGA**: 1024x768, 1152x864

**SXGA**: 1280x1024

**WXGA**: 1280x768, 1366x768

**WXGA+**: 1440x900, 1680x900

**WSXGA+**: 1680x1050

**Full HD**: 1920x1080

**Presets display modes**: HDMI: 17; DP: 17

**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)

**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**

**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 USB signal cable, 1.8 meter black power cord

**Limited Warranty**


**Features**

- Widescreen 21.5-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
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Accessories**

<table>
<thead>
<tr>
<th>Kensington MicroSaver Cable Lock</th>
<th>73P2582</th>
</tr>
</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)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**Lenovo ThinkVision T22v Wide Flat Panel Monitor**

- **Bezel color**: Black
- **Type-model**: 61BBMAR6US / 61BBMAT6EU
- **Panel**: TFT-LCD, In-Plane Switching (IPS), White LED backlight
- **Viewable image size**: 21.5" (546mm) diagonal
- **Max view area (W x H)**: 18.74" x 10.54" (476.1mm x 267.8mm)
- **Native resolution**: 1920x1080
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.248 x 0.248 mm
- **Brightness**: 250 nits or cd/m² (typical)
- **Contrast ratio**: 1000:1 (typical)
- **Pixel response time**: 6ms (typical); 4ms (extreme mode)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand**: Tilt, swivel, pivot, and height adjustable stand
- **Dimensions (HxWxD)**: 19.14" H x 19.28" W x 9.92" D; 485.8mm H x 489.7mm W x 251.9mm D
- **Power supply**: 18 watts typical, 43 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)
- **Weight**: 10.16 lb; 4.61 kg
- **Limited warranty**: 3 year (includes backlight)
- **Available date**: October 2017
- **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
- **Presets**: 24; user modes: 20
- **Viewing adjustments**: Tilt: 30° back, -5° forward; 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)
- **USB hub**: USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0)
- **Multimedia**: Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported
- **Camera**: Integrated FHD camera with IR
- **Multiple input**: Support HDMI, DisplayPort, VGA
- **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 USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)

**Features**
- Widescreen 21.5-inch monitor
- Supports 1920x1080 resolution
- Supports optional soundbar
- Supports ThinkCentre Tiny via VESA back mount
- EPEAT Gold certified
- Microsoft® Windows® 7 certified
- Microsoft Windows 10 certified

**Presets display modes**

- VGA: 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

**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
October 2017
# Lenovo ThinkVision T2324d Wide

<table>
<thead>
<tr>
<th>Name</th>
<th>Bezel color</th>
<th>Type-model</th>
<th>Panel</th>
<th>Viewable image size</th>
<th>Max view area (W x H)</th>
<th>Native resolution</th>
<th>Aspect ratio</th>
<th>Dot/Pixel per Inch</th>
<th>Brightness</th>
<th>Contrast ratio</th>
<th>Pixel response time</th>
<th>Pixel pitch (mm)</th>
<th>Dot/Pixel per Inch</th>
<th>Contrast ratio</th>
<th>Preset resolutions</th>
<th>Presets / user settings</th>
<th>Viewing adjustments</th>
<th>Rotating screen</th>
<th>USB hub</th>
<th>Multiple input</th>
<th>Monitor connectors</th>
<th>Signal cables</th>
<th>Mounting features</th>
<th>Security</th>
<th>Ship group</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2324d Wide Flat Panel Monitor</td>
<td>Black</td>
<td>60F3JR2US / 60F3JAT2EU</td>
<td>TFT-LCD, twisted nematic (TN), White LED backlight</td>
<td>23.0&quot; (584mm) diagonal</td>
<td>20.07&quot; x 11.29&quot; (509.8mm x 286.7mm)</td>
<td>1920x1080</td>
<td>16:9</td>
<td>0.2655 x 0.2655 mm</td>
<td>96 dpi</td>
<td>1000:1</td>
<td>5ms (typical)</td>
<td>0.2655 x 0.2655 mm</td>
<td>96 dpi</td>
<td>1000:1</td>
<td>5ms (typical)</td>
<td>Standard presets: 26; user settings: 16</td>
<td>Tilt: 22° back, -5°</td>
<td>None</td>
<td>On screen display with digital user controls (8 languages)</td>
<td>None</td>
<td>Direct access (buttons on front) for automatic image setup, dual input and brightness</td>
<td>None</td>
<td>Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)</td>
<td>(1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant</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>Limited Warranty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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

## Accessories

<table>
<thead>
<tr>
<th>Kensington MicroSaver Cable Lock</th>
<th>73P2582</th>
</tr>
</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)
## Lenovo ThinkVision T23d-10 Wide Flat Panel Monitor

### 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

### Preset resolutions
- VGA: 640x480, 720x400
- SVGA: 800x600, 1024x768
- SXGA: 1280x1024
- WXGA: 1366x768
- WSXGA+: 1680x1050
- Full HD: 1920x1080
- WUXGA: 1920x1200

### Presets display modes
- Standard presets: 27; user settings: 20

### Viewing adjustments
- Tilt: 30° back, -5° forward; Swivel: +/- 45°; detachable stand
- 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: 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
- Signaling 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, 1.8 meter HDMI signal cable (NA only)

### 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)
**Product Specifications Reference (PSREF)**

**ThinkVision T23i Wide Flat Panel Monitor**

<table>
<thead>
<tr>
<th>Name</th>
<th>Bezel color</th>
<th>Type-model</th>
<th>Panel</th>
<th>Viewable image size</th>
<th>Max view area (W x H)</th>
<th>Native resolution</th>
<th>Aspect ratio</th>
<th>Pixel pitch (mm)</th>
<th>Dot/Pixel per Inch</th>
<th>Pixel response time</th>
<th>Color gamut</th>
<th>Viewing angle at 10:1 CR</th>
<th>Stand</th>
<th>Bezel width</th>
<th>Dimensions (HxWxD)</th>
<th>Power supply</th>
<th>Weight</th>
<th>Limited warranty</th>
<th>Available date</th>
</tr>
</thead>
<tbody>
<tr>
<td>T23i</td>
<td>Black</td>
<td>61ABMAR1US / 61ABMAT1EU</td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
<td>23&quot; (584.2mm) diagonal</td>
<td>20.36&quot; x 11.92&quot; (517.2mm x 302.8mm)</td>
<td>1920x1080</td>
<td>16:9</td>
<td>0.2652 x 0.2652 mm</td>
<td>95.8 dpi</td>
<td>6ms (typical)</td>
<td>72%</td>
<td>178° (+/- 89°) horizontal, 178° (+/- 89°) vertical</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
<td>0.08&quot; (2.0mm)</td>
<td>13.3&quot; H x 20.56&quot; W x 10.4&quot; D; 337.7mm H x 522.2mm W x 264.2mm D</td>
<td>16 watts typical, 45 watts maximum (with USB 3.0 hub), &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
<td>10.65 lb; 4.92 kg</td>
<td>3 year (includes backlight)</td>
<td>April 2017</td>
</tr>
</tbody>
</table>

**Features**

- Widescreen 23-inch monitor
- Supports 1920x1080 resolution
- 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

**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)

---

**Limited Warranty**


---

**Presets display modes**

- HDMI: 18; DP: 18

**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 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

**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 USB signal cable, 1.8 meter black power cord
### Lenovo ThinkVision T2454p Wide Monitor

**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**
940 nits or cd/m² (typical)

**Contrast ratio**
300:1 (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

**TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Gold rating**

**Preset resolutions**
- VGA: 640x480, 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 (HDCP-compliant)
- (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

---

**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)

---

**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
<table>
<thead>
<tr>
<th>Name</th>
<th>T24d Wide Flat Panel Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61B4MAR1US / 61B4MAT1EU</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>24&quot; (609.6mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>20.41&quot; x 12.75&quot; (518.4mm x 324mm)</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>0.27 x 0.27 mm</td>
</tr>
<tr>
<td>Dot/Pixel per Inch</td>
<td>94 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>300 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>7ms (typical)</td>
</tr>
<tr>
<td>Color gamut</td>
<td>99%</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: 0.08&quot; (2.0mm)</td>
</tr>
<tr>
<td>Dimensions (HxWxD)</td>
<td>19.58&quot; H x 20.99&quot; W x 10.25&quot; D; 497.4mm H x 533.2mm W x 260.4mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>22 watts typical, 64 watts maximum (with USB 3.0 hub), &lt;0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td>Weight</td>
<td>12.41 lb; 5.63 kg</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year (includes backlight)</td>
</tr>
<tr>
<td>Available date</td>
<td>June 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>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® Gold rating</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA: 1366x768</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900</td>
</tr>
<tr>
<td></td>
<td>WSXGA+: 1680x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080</td>
</tr>
<tr>
<td></td>
<td>WUXGA: 1920x1200</td>
</tr>
<tr>
<td>Presets display modes</td>
<td>Standard presets: 22; 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>USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)</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) HDMI (1.4), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(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</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>
<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 USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</td>
</tr>
</tbody>
</table>

**Features**
- Widescreen 24-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**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Kensington MicroSaver Cable Lock</th>
<th>73P2582</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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)

See all monitors at [www.lenovo.com/thinkvision](http://www.lenovo.com/thinkvision)
**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 |
| Near Edgeless Screen | 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 | 3M1 |
| 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 |
| Languages |  |

### CONNECTIVITY

| Video Input Signals | VGA + HDMI™ 1.4 + DisplayPort™ 1.2 |
| Video Cables Supplied (Length) | 1 x USB 3.0 (Upstream) 4 x USB 3.0 (Downstream, incl. 1 BC) |
| USB Hub | Yes (3.5 mm) |
| Audio Out |  |

### 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 | Black |
| Bezel Width | 2 / 0.08” |
| Top (mm / inches) | 9.84” x 9.84” |
| Sides (mm / inches) | 21.26” x 1.82” |

### 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 (mm) | 540.2 x 261.75 x 373.4 |
| (inches) | 21.26” x 10.3” x 14.7” |
| Lowest Position (mm) | 540.2 x 261.75 x 483.4 |
| (inches) | 21.26” x 10.3” x 19” |
| Highest Position (mm) | 540.2 x 261.75 x 325.98 |
| (inches) | 21.26” x 10.3” x 12.83” |
| Stand Base Footprint Area (mm) | 250 x 250 |
| (inches) | 9.84” x 9.84” |
| Weight |  |
| Packed | Starting at 16.39 lbs (7.45 kg) |
| Unpacked | Starting at 7.26 lbs (3.3 kg) |
| Monitor Head Only | |
| Full Container Load (40’ STD / 20’ STD) | 1140 / 540 Units |

### 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 | |
| 1 x Power Cable | 1 x VGA Cable |
| 1 x DisplayPort™ - DisplayPort™ Cable | 1 x HDMI™ Cable (NA Only) |
| Quick Setup Guide | |

### 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 |

### CERTIFICATIONS

| EPEAT™ | Gold |
| ENERGY STAR® Rating | 7.1 |
| TCO | 7.0 |
| TCO Edge | 2.0 |
| RoHS (EU 2002/95/EC) | Tier 2 |
| China Energy Efficiency Standard | |
| Windows Certification | Windows 7 / Windows 10 |
| TÜV Eye Comfort Certification | Yes |

---

**NOTES:**

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.

---

**DISCLAIMER:** Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo makes every effort to ensure accuracy of all information but is not liable or responsible for any editorial, photographic or typographic errors. All images are for illustration purposes only. For full Lenovo product, service and warranty specifications visit www.lenovo.com. Lenovo makes no representations or warranties regarding third party products or services.
## SPECIFICATIONS

### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>23.8” Wide</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane-Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Resolution</td>
<td>FHD (1920 x 1080)</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Anti-Glare</td>
<td>Yes</td>
</tr>
<tr>
<td>Near Edgeless Screen</td>
<td>Yes</td>
</tr>
<tr>
<td>Screen Dimensions (W x H) (mm)</td>
<td>527.04 x 296.46</td>
</tr>
<tr>
<td>(inches)</td>
<td>20.75” x 11.67”</td>
</tr>
<tr>
<td>Brightness</td>
<td>250 nits</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>3M1</td>
</tr>
<tr>
<td>Speakers</td>
<td>2 x 2W</td>
</tr>
<tr>
<td>Pixel Pitch (mm)</td>
<td>0.2745 x 0.2745</td>
</tr>
<tr>
<td>Color Gamut (CIE 1931)</td>
<td>72% NTSC</td>
</tr>
<tr>
<td>Color Depth</td>
<td>8 bit</td>
</tr>
<tr>
<td>Color Support (Typical)</td>
<td>16.7 Million</td>
</tr>
<tr>
<td>Response Time (GTG)</td>
<td>4 ms / 6 ms</td>
</tr>
<tr>
<td>Extreme / Normal</td>
<td></td>
</tr>
<tr>
<td>OSD Controls</td>
<td>5</td>
</tr>
<tr>
<td>Buttons</td>
<td>English, French, German,</td>
</tr>
<tr>
<td>Languages</td>
<td>Spanish, Italian, Japanese,</td>
</tr>
<tr>
<td></td>
<td>Simplified Chinese, Russian</td>
</tr>
</tbody>
</table>

### POWER CONSUMPTION

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size Packed (W x D)</td>
<td>422 x 622 x 190</td>
</tr>
<tr>
<td>(mm)</td>
<td>16.61” x 24.48” x 7.48”</td>
</tr>
<tr>
<td>Size Unpacked with Stand</td>
<td>540.2 x 261.75 x 373.4</td>
</tr>
<tr>
<td>Lowest Position (mm)</td>
<td>21.26” x 10.3” x 14.7”</td>
</tr>
<tr>
<td>Highest Position (mm)</td>
<td>540.2 x 261.75 x 483.4</td>
</tr>
<tr>
<td>(inches)</td>
<td>21.26” x 10.3” x 19”</td>
</tr>
<tr>
<td>Size Unpacked without Stand</td>
<td>540.2 x 46.45 x 325.98</td>
</tr>
<tr>
<td>(Monitor Head Only) (mm)</td>
<td>21.26” x 1.82” x 12.83”</td>
</tr>
<tr>
<td>Stand Base Footprint Area (mm)</td>
<td>250 x 250</td>
</tr>
<tr>
<td>(inches)</td>
<td>9.84” x 9.84”</td>
</tr>
<tr>
<td>Weight</td>
<td>Starting at 16.39 lbs (7.45 kg)</td>
</tr>
<tr>
<td>Packaged</td>
<td>Starting at 11.33 lbs (5.15 kg)</td>
</tr>
<tr>
<td>Monitor Head Only</td>
<td>Starting at 7.26 lbs (3.3 kg)</td>
</tr>
<tr>
<td>Full Container Load (40’ STD / 20’ STD)</td>
<td>1140 / 540 Units</td>
</tr>
</tbody>
</table>

### CONNECTIVITY

<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, DisplayPort™, USB, Power, HDMI™ (for NA only)</td>
</tr>
<tr>
<td>USB Hub</td>
<td>USB 3.0 (4 x down, 1 x BC)</td>
</tr>
<tr>
<td>Audio Out</td>
<td>Yes (3.5 mm)</td>
</tr>
<tr>
<td>Power</td>
<td>Internal</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° / 30°”</td>
</tr>
<tr>
<td>Swivel Angle (Left / Right)</td>
<td>+/ -45°</td>
</tr>
<tr>
<td>Lift Range (mm)</td>
<td>110</td>
</tr>
<tr>
<td>Pivot</td>
<td>+/ -90°</td>
</tr>
<tr>
<td>Stand</td>
<td>LTP5</td>
</tr>
<tr>
<td>Cable Management</td>
<td>Yes</td>
</tr>
<tr>
<td>Kensington® Lock</td>
<td>Yes</td>
</tr>
<tr>
<td>VESA® Mount (mm x mm)</td>
<td>Yes (100 X 100)</td>
</tr>
<tr>
<td>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width</td>
<td>9.84” x 9.84”</td>
</tr>
<tr>
<td>Top (mm / inches)</td>
<td>2 / 0.08”</td>
</tr>
<tr>
<td>Sides (mm / inches)</td>
<td>2 / 0.08”</td>
</tr>
</tbody>
</table>

### WHAT’S IN THE BOX

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor with Stand</td>
<td>Monitor with Stand</td>
</tr>
<tr>
<td></td>
<td>1 x Power Cable</td>
</tr>
<tr>
<td></td>
<td>1 x VGA Cable</td>
</tr>
<tr>
<td></td>
<td>1 x DisplayPort™ - DisplayPort™ Cable</td>
</tr>
<tr>
<td></td>
<td>1 x HDMI Cable (NA Only)</td>
</tr>
<tr>
<td></td>
<td>Quick Setup Guide</td>
</tr>
</tbody>
</table>

### CERTIFICATIONS

<table>
<thead>
<tr>
<th>Certification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPEAT™</td>
<td>Gold</td>
</tr>
<tr>
<td>ENERGY STAR® Rating</td>
<td>7.1</td>
</tr>
<tr>
<td>TCO</td>
<td>7.0</td>
</tr>
<tr>
<td>TCO Edge</td>
<td>2.0</td>
</tr>
<tr>
<td>ULE</td>
<td>Yes</td>
</tr>
<tr>
<td>RoHS (EU 2002/95/EC)</td>
<td>Yes</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Tier 2</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>Windows 7 / Windows 10</td>
</tr>
<tr>
<td>TGV Eye Comfort Certification</td>
<td>Yes</td>
</tr>
<tr>
<td>TINY Support</td>
<td>Yes</td>
</tr>
<tr>
<td>Soundbar Support*</td>
<td>Yes</td>
</tr>
<tr>
<td>Package</td>
<td>EPS Cushion</td>
</tr>
</tbody>
</table>

---

*Optional.*
**Lenovo ThinkVision T24m**

### Product Specifications Reference (PSREF)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Black</td>
</tr>
<tr>
<td><strong>Type-model</strong></td>
<td>61B8RA3US / 61B8RA3EU</td>
</tr>
<tr>
<td><strong>Panel</strong></td>
<td>TFT-LCD, In-Plane Switching (IPS), White LED backlight</td>
</tr>
<tr>
<td><strong>Viewable image size</strong></td>
<td>23.8” (604.7mm) diagonal</td>
</tr>
<tr>
<td><strong>Max view area (W x H)</strong></td>
<td>20.75” x 11.67” (527.04mm x 296.46mm)</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>0.2745 x 0.2745 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>6ms (typical)</td>
</tr>
<tr>
<td><strong>Color gamut</strong></td>
<td>99% sRGB</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, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td><strong>Dimensions (HxWxD)</strong></td>
<td>19.03” H x 21.26” W x 10.3” D;</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>17 watts typical, 110 watts maximum (with USB 3.0 hub), &lt;0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>12.34 lb; 5.6 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>August 2017</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>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® Gold rating</td>
</tr>
<tr>
<td><strong>Preset resolutions</strong></td>
<td>VGA: 640x480</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</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><strong>Presets display modes</strong></td>
<td>Full HD: 1920x1080, 1920x1200</td>
</tr>
<tr>
<td><strong>Viewing adjustments</strong></td>
<td>Tilt: 30° back, -5° forward; swivel: ±45°; detachable stand</td>
</tr>
<tr>
<td><strong>Rotating screen</strong></td>
<td>Screen pivots 90 degrees from landscape to portrait</td>
</tr>
<tr>
<td><strong>Control features</strong></td>
<td>Direct access (buttons on front) for power, menu, input source select and brightness</td>
</tr>
<tr>
<td><strong>USB hub</strong></td>
<td>USB 3.0 Hub; 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0)</td>
</tr>
<tr>
<td><strong>Multimedia</strong></td>
<td>Audio-out, optional sound bar supported</td>
</tr>
<tr>
<td><strong>Multiple input</strong></td>
<td>Support HDMI, DisplayPort, USB 3.1 Type-C</td>
</tr>
<tr>
<td><strong>Monitor connectors</strong></td>
<td>(1) HDMI (1.4), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(2) DisplayPort (1.2), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(3) USB 3.1 Type-C</td>
</tr>
<tr>
<td><strong>Signal cables</strong></td>
<td>(1) 1.8 meter USB Type-C to USB Type-C cable</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 USB Type-C to USB Type-C cable, 1.8 meter black power cord</td>
</tr>
</tbody>
</table>

### 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

### 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)

---

**Limited Warranty**

## Lenovo ThinkVision T24v

**Name**

T24v Wide Flat Panel Monitor

**Bezel color**

Black

**Type-model**

61BCM68US / 61BCM6T6EU

**Panel**

TFT-LCD, In-Plane Switching (IPS), White LED backlight

**Viewable image size**

23.8" (604.5mm) diagonal

**Max view area (W x H)**

20.75" x 11.67" (527.04mm x 296.46mm)

**Native resolution**

1920x1080

**Aspect ratio**

16:9

**Pixel pitch (mm)**

0.2745 x 0.2745 mm

**Dot/Pixel per Inch**

92 dpi

**Brightness**

250 nits or cd/m² (typical)

**Contrast ratio**

1000:1 (typical)

**Pixel response time**

6ms (typical); 4ms (extreme mode)

**Color gamut**

72%

**Viewing angle at 10:1 CR**

178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**

Tilt, swivel, pivot, and height adjustable stand

**Dimensions (HxWxD)**

19.72" H x 21.28" W x 10.32" D; 500.5mm H x 540.2mm W x 261.9mm D

**Power supply**

20 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)

**Weight**

11.18 lb; 5.07 kg

**Limited warranty**

3 year (includes backlight)

**Available date**

October 2017

**VESA-compliant**

VESA DDC2B/CI

**Power management**

ENERGY STAR® qualified

**Ergonomics**

ISO 9241-307

**Emission standards**

FCC Class B, TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT® Gold rating

**Presets resolutions**

- VGA: 640x480, 720x400
- SVGA: 800x600, 832x624
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080

**Presets display modes**

Presets: 24; user modes: 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 for power, menu, input source select, volume up / down, speaker mute and microphone mute

**USB hub**

USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0)

**Multimedia**

Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported

**Camera**

Integrated FHD camera with IR

**Multiple input**

Support HDMI, DisplayPort, VGA

**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, HDMI 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 USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)

---

**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)
### X24 Pro Wide Flat Panel Monitor

- **Name**: ThinkVision X24 Pro Wide
- **Type-model**: 60E4ECR1US / 60E4ECT1US / 60E4ECT1EU
- **Panel**: TFT-LCD, AH-IPS (In-Plane Switching), White LED backlight
- **Viewable image size**: 23.8" (604.5mm) diagonal
- **Max view area (W x H)**: 20.75" x 11.67" (527.0mm x 296.5mm)
- **Native resolution**: 1920x1080
- **Aspect ratio**: 16:9
- **Pixel pitch (mm)**: 0.2745 x 0.2745 mm
- **Brightness**: 250 nits or cd/m² (typical)
- **Dot/Pixel per Inch**: 92 dpi
- **Pixel response time**: 7ms (typical)
- **Color gamut**: 72%
- **Viewing angle at 10:1 CR**: 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
- **Stand**: Tilt stand
- **Bezel width**: Sides: 0.09" (2.3mm)
- **Dimensions (HxWxD)**: 17.61" H x 21.30" W x 9.39" D; 447.4mm H x 540.9mm W x 238.4mm D
- **Power supply**: 20 watts typical, 90 watts maximum, <0.5 watts standby/suspend, universal, external power supply
- **Weight**: 9.36 lb; 4.20 kg
- **Limited warranty**: 1 year (includes backlight)
- **Power management**: ENERGY STAR® qualified
- **Ergonomics**: ISO 9241-307
- **Environmental**: FCC Class B, TCO Displays 6.0, WEEE, RoHS, EPEAT® Silver rating
- **Preset resolutions**:
  - VGA: 640x350, 640x480, 720x400
  - SVGA: 800x600
  - XGA: 1024x768
  - SXGA: 1280x1024
  - WXGA: 1366x768
  - WXGA+: 1440x900, 1600x900
  - WSXGA+: 1680x1050
  - Full HD: 1920x1080
- **Presets / user settings**:
  - Standard presets: 16;
  - User settings: 20
- **Viewing adjustments**:
  - Tilt: 22° back, -5° forward
- **Rotating screen**: None
- **On screen display**: On screen display with digital user controls
- **Control features**: Direct access (buttons on side bezel) for dual input and brightness
- **USB hub**: USB Hub: two USB 3.1 Type-C and one micro USB 3.0 ports
- **Multimedia**: Integrated stereo speakers (3 watts x 2), built-in microphone
- **Camera**: RealSense 3D camera SR300
- **Multiple input**: Dual input (two different PCs attach to two different connectors; one PC shows image; select via button)
- **Monitor connectors**:
  - (1) mDP, Mini DisplayPort, digital, **HDCP-compliant**
  - (2) USB Type-C, digital
- **Signal cables**:
  - (1) detachable, mDP to DP, digital, 2.0 meter
  - (2) DP to mDP adapter
  - (3) Micro USB 3.0 cable
- **Mounting features**: None
- **Security**: Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)
- **Ship group**: Monitor with stand, Safety and Warranty Information, ThinkPad 90W Square tip power adaptor, 2.0 meter Mini DisplayPort to DisplayPort signal cable (with DP to mDP adapter), Micro USB 3.0 cable (for using camera)

### 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)

### Limited Warranty

---

- **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
**Name**
X24-20 Flat Panel Monitor

**Bezel color**
Raven black

**Type-model**
61BDGAR3US / 61BDGAT3EU

**Panel**
TFT-LCD, IPS (In-Plane Switching), White LED backlight

**Viewable image size**
23.8" (604.5mm) diagonal

**Max view area (W x H)**
20.75" x 11.67" (527.0mm x 296.5mm)

**Native resolution**
1920x1080

**Aspect ratio**
16:9

**Pixel pitch (mm)**
0.2745 x 0.2745 mm

**Dot/ Pixel Per Inch**
92 dpi

**Brightness**
250 nits or cd/m² (typical)

**Pixel response time**
6ms (typical)

**Color gamut**
72% (NTSC)

**Viewing angle at 10:1 CR**
178° (+/- 89°) horizontal, 178° (+/- 89°) vertical

**Stand**
Tilt stand, Sides: 0.04" (1.1mm)

**Dimensions (HxWxD)**
12.85" H x 21.16" W x 8.66" D; 326.4mm H x 537.4mm W x 220mm D

**Power supply**
20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, external power supply

**Weight**
7.3 lb; 3.3 kg

**Limited warranty**
3 year (includes backlight)

**Available date**
December 2017

**Power management**
ENERGY STAR® qualified

**Ergonomics**
ISO 9241-307

**Environmental**
FCC Class B

**Presets / user settings**
Standard presets: 18; user settings: 0

**Viewing adjustments**
Tilt: 30° back, -5° forward

**On screen display**
Direct access (buttons on side bezel) for power, 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) HDMI (1.4a), digital, HDCP-compliant
(2) DisplayPort, digital, black, HDCP-compliant
(1) detachable, HDMI at each end, digital, 1.8 meter

**Mounting features**
Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

**Signal cables**
None

**Security**
None

**Ship group**
Monitor with stand, Safety and Warranty Information, 1.8 meter HDMI signal cable, 1.8 meter black power cord

---

**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
  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 P27h

### 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

### Specifications
- **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” (885.8mm) 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)
- **Dimensions (HxWxD, including stand)**: 20.21” H x 24.08” W x 10.62” 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
- TCO Displays 7.0, RoHS,
- **EPEAT™ Gold rating**
- ULE Gold

### Environmental
- ISO 9241-307
- FCC Class B
- TCO Displays 7.0, RoHS,
- **EPEAT™ Gold rating**
- ULE Gold

### 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: 4.33” (110mm); swivel: +/-45°

### Rotating screen
- 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

### Security
- Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)

### Mounting features
- Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)

### Signal cables
- (1) USB 3.1 Type-C cable, 1.8 meter

### Monitor connectors
- 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

### Multiple input
- Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out

### Monitor
- Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.1 Type-C 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

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

- 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

## P27u Wide Flat Panel Monitor

### Specifications:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>P27u Wide Flat Panel Monitor</td>
</tr>
<tr>
<td>Case color</td>
<td>Black</td>
</tr>
<tr>
<td>Type-model</td>
<td>61CBGAR1US / 61CBGAT1EU / 61CBGAR1EU / 61B0GAR1US / 61B0GAT1EU</td>
</tr>
<tr>
<td>Panel</td>
<td>TFT-LCD, IPS (In-Plane Switching), White LED backlight</td>
</tr>
<tr>
<td>Viewable image size</td>
<td>27” (684.7mm) diagonal</td>
</tr>
<tr>
<td>Max view area (W x H)</td>
<td>23.49” x 13.21” (596.74mm x 335.66mm)</td>
</tr>
<tr>
<td>Optimum resolution</td>
<td>3840x2160</td>
</tr>
<tr>
<td>Max pixel rate</td>
<td>600MHz</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Pixel pitch (mm)</td>
<td>0.1554 x 0.1554mm</td>
</tr>
<tr>
<td>Dot/Pixel per inch</td>
<td>163 dpi</td>
</tr>
<tr>
<td>Brightness</td>
<td>350 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>1.457 sRGB</td>
</tr>
<tr>
<td>Viewing angle at 10:1 CR</td>
<td>178° horizontal, 178° vertical</td>
</tr>
<tr>
<td>Stand</td>
<td>Tilt, swivel, pivot, and height adjustable stand</td>
</tr>
<tr>
<td>Bezel width</td>
<td>20.21” H x 24.08” W x 10.62” D;</td>
</tr>
<tr>
<td>Dimensions (including stand)</td>
<td>513.3mm H x 611.6mm W x 269.8mm D</td>
</tr>
<tr>
<td>Power supply</td>
<td>50 watts typical, 160 watts maximum with USB, &lt;0.5 watts sleep/off, &lt;0.3 watts switch off</td>
</tr>
<tr>
<td>Weight</td>
<td>15.32 lb; 6.95kg (including stand)</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>3 year</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® 7.0</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™ Gold rating, ULE Gold</td>
</tr>
<tr>
<td>Preset resolutions</td>
<td>VGA: 640x480, 720x400, 720x480, 720x576</td>
</tr>
<tr>
<td></td>
<td>SVGA: 800x600</td>
</tr>
<tr>
<td></td>
<td>XGA: 1024x768</td>
</tr>
<tr>
<td></td>
<td>SXGA: 1280x720, 1280x800, 1280x1024</td>
</tr>
<tr>
<td></td>
<td>WXGA+: 1440x900, 1600x900</td>
</tr>
<tr>
<td></td>
<td>WXSGA+: 1680x1050</td>
</tr>
<tr>
<td></td>
<td>Full HD: 1920x1080, 1920x1200</td>
</tr>
<tr>
<td></td>
<td>QHD: 2560x1440</td>
</tr>
<tr>
<td></td>
<td>UHD: 3840x2160</td>
</tr>
<tr>
<td>Presets / user settings</td>
<td>Standard presets: 27; user settings: 20</td>
</tr>
<tr>
<td>Viewing adjustments</td>
<td>Tilt: 30° back, -5° forward; lift: 4.33” (110mm); swivel: +/-45°</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>USB Hub: one USB 3.1 Type-C port, four USB 3.0 Type-A downstream ports</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Audio-out, optional sound bar supported</td>
</tr>
<tr>
<td>Camera</td>
<td>None</td>
</tr>
<tr>
<td>Multiple input</td>
<td>Support HDMI, DisplayPort, USB 3.1 Type-C</td>
</tr>
<tr>
<td>Monitor connectors</td>
<td>(1) 2*HDMI (2.0), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(2) DisplayPort (1.2), digital, HDCP-compliant</td>
</tr>
<tr>
<td></td>
<td>(3) USB 3.1 Type-C</td>
</tr>
<tr>
<td>Signal cables</td>
<td>(1) detachable, DisplayPort to DisplayPort, digital, 1.8 meter</td>
</tr>
<tr>
<td>Mounting features</td>
<td>Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPMI® (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, 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</td>
</tr>
</tbody>
</table>

## Limited Warranty


## Accessories

| Kensington MicroSaver Cable Lock       | 73P2582                                                                     |
| Kensington Twin Head Cable Lock        | 45X1620                                                                     |
| 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)
## Specifications

### Display

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Size</td>
<td>32&quot;</td>
</tr>
<tr>
<td>Panel Type</td>
<td>In-Plane Switching</td>
</tr>
<tr>
<td>Backlight</td>
<td>WLED</td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
</tr>
<tr>
<td>Area (mm^2)</td>
<td>Yes</td>
</tr>
<tr>
<td>Screen Dimensions (W x H x D)</td>
<td>708.48 (H) x 398.52 (V)</td>
</tr>
<tr>
<td>Maximum Brightness (Typical)</td>
<td>300 cd/m²</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>3M1</td>
</tr>
<tr>
<td>Pixel Pitch (W x H) (mm)</td>
<td>0.1845 (H) x 0.1845 (V)</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch (DP/PPi)</td>
<td>137</td>
</tr>
<tr>
<td>Color Gamut (1931)</td>
<td>99.5% AdobeRGB</td>
</tr>
<tr>
<td>Response Time (Typical)</td>
<td>6 ms</td>
</tr>
</tbody>
</table>

### Power Consumption

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>70 W</td>
</tr>
<tr>
<td>Maximum</td>
<td>200 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>90 VAC – 264 VAC</td>
</tr>
<tr>
<td>Voltage Dynamic Frequency</td>
<td>47 Hz – 63 Hz</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>2 x HDMI™ 2.0 + DisplayPort™, 1 x Thunderbolt™ 3.0-In + Thunderbolt™ 3.0-Out</td>
</tr>
<tr>
<td>Video Cables Supplied</td>
<td>HDMI™, DisplayPort™, Thunderbolt™ 3.0</td>
</tr>
<tr>
<td>Video Cable Length</td>
<td>2 m for Thunderbolt™, 1.8 m for HDMI™ and DisplayPort™</td>
</tr>
<tr>
<td>USB Hub</td>
<td>Yes (4 x Downstream, 1 x BC)</td>
</tr>
<tr>
<td>USB Cable Supplied</td>
<td>Yes (USB Type-A to Type-B)</td>
</tr>
<tr>
<td>Audio-Out</td>
<td>Yes (3.5 mm)</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 – 160 kHz</td>
</tr>
<tr>
<td>Vertical Frequency</td>
<td>23 Hz – 80 Hz</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>3840 x 2160</td>
</tr>
<tr>
<td>Maximum Pixel Clock Speed / Bandwidth</td>
<td>HDMI™: 600 MHz, DisplayPort™: 5.4 Gbps, Thunderbolt™: 10 Gbps</td>
</tr>
<tr>
<td>Preset / User</td>
<td>28 / 20</td>
</tr>
<tr>
<td>OSD Buttons</td>
<td>5 Buttons</td>
</tr>
<tr>
<td>OSD Languages</td>
<td>English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian</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° / 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>(CW / CCW)</td>
<td>90° / 90°</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>Bezel Color</td>
<td>Raven Black</td>
</tr>
<tr>
<td>Bezel Width</td>
<td>2 / 0.08&quot;</td>
</tr>
<tr>
<td>Top (mm / inches)</td>
<td>23.8 / 0.94&quot;</td>
</tr>
<tr>
<td>Bottom (mm / inches)</td>
<td>2 / 0.08&quot;</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 – 40°C</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-20°C – 60°C</td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>8% – 80%</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>5% – 95%</td>
</tr>
<tr>
<td>Altitude</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0 ft – 5000 ft</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>0 ft – 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% with &gt;25 g Plastic Parts</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</td>
<td>844 x 228 x 528</td>
</tr>
<tr>
<td>(mm)</td>
<td>33.23&quot; x 8.98&quot; x 20.79&quot;</td>
</tr>
<tr>
<td>Size Unpacked with Stand</td>
<td></td>
</tr>
<tr>
<td>Lowest Position (mm)</td>
<td>726.7 x 350 x 497.8</td>
</tr>
<tr>
<td>(inches)</td>
<td>28.61&quot; x 13.78&quot; x 19.6&quot;</td>
</tr>
<tr>
<td>Highest Position (mm)</td>
<td>726.7 x 350 x 606.8</td>
</tr>
<tr>
<td>(inches)</td>
<td>28.61&quot; x 13.78&quot; x 23.89&quot;</td>
</tr>
<tr>
<td>Distance from Table to Panel</td>
<td></td>
</tr>
<tr>
<td>Lowest Pixel at Bottom of Screen (mm / inches)</td>
<td>90.9 / 3.58&quot;</td>
</tr>
<tr>
<td>Stand Base Footprint Area (mm / inches)</td>
<td>489.4 / 19.27&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Packed</td>
<td>Starting at 29.32 lbs (13.3 kg)</td>
</tr>
<tr>
<td>Unpacked</td>
<td>Starting at 22.0 lbs (10 kg)</td>
</tr>
<tr>
<td>Monitor Head Only</td>
<td>Starting at 15.2 lbs (6.9 kg)</td>
</tr>
</tbody>
</table>

### Compliance

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY STAR® Rating</td>
<td>7.0</td>
</tr>
<tr>
<td>Windows Certification</td>
<td>TCO 7.0 / TCO Edge 2.0</td>
</tr>
<tr>
<td>China Energy Efficiency Standard</td>
<td>Windows 7 / Windows 10</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>WW</td>
</tr>
</tbody>
</table>
## Specifications

### Display
- **Panel Type:** VA NearEdgeless, 1800R
- **Resolution:** 3840 x 1200
- **Aspect Ratio:** 32:10
- **Pixel Pitch:** 0.227 mm (H) x 0.227 mm (V)
- **Brightness:** 450 nits (peak)
- **Color Gamut:** sRGB: 99.5%, BT.709: 99.5%, DCI-P3: 90%
- **Dynamic Contrast Ratio:** 3000:1
- **Max. Refresh Rate:** 144Hz
- **Response Time:** 4/6ms (extreme/typical)
- **Viewing Angle:** 178°/178°

### Connectors
- **USB Ports:**
  - 4 x USB 3.1 Gen1 (1 x BC)
  - 1 x USB Type-C Gen2
  - 1 x USB 3.1 Type-C Gen1 (DP1.2 Alt Mode)
  - 1 x USB Type-C Gen2 (DP1.4 Alt Mode)
- **Video Inputs:** 2 x HDMI 2.0, 1 x DP1.4
- **Audio Out:** Yes
- **Audio In:** Yes (3.5mm)
- **Audio In (front):** Yes (ThinkColor)
- **USB Hub:** Yes
- **Additional Ports:** 2 x USB 3.1 Type-C

### Mechanical
- **Weight:**
  - Weight Unpacked: 13.45kg/29.65lbs.
  - Weight Packed: 18.05kg/39.80lbs.
- **Dimensions:**
  - Size Unpacked w/stand (D x H x W) (Highest Position): 43.4 inches x 32.4 inches x 10.7 inches
  - Size Packed (D x H x W): 46.2 inches x 36.6 inches x 11.8 inches

### Power Consumption
- **Sleep/Off Mode:** <0.5W
- **Switch-off Mode:** <0.5W
- **Typical/Max:** 70W/250W

### Energy Efficiency
- **ENERGY STAR® Rating:** Yes
- **CERTIFICATIONS:** TCO, ULE, RoHS, CCC, China Energy Efficiency Standard Tier 2, Ambient Operating Temperature 0°C to 45°C, TÜV Eye Comfort

### User Experience
- **Comfort:**
  - 9.35kg/20.61lbs.
  - Tilt Angle (front/back): ±9°
  - Swivel Angle (left/right): 180°
  - Lift (Max. range): 130mm

### Connectivity
- **2 x USB 3.1 (1 x USB Type-C Gen1, 1 x USB Type-C Gen2) with power delivery
-**
- **Harman Kardon certified speaker along with the immersive display offers an integrated audio solution.

### Software
- **Software:** Yes
- **PIP/PBP:** Yes
- **Sleep Mode:** Yes
- **Eco-_mode:** Yes
- **Auto Input:** Yes
- **Automatic Low Input Lag:** Yes
- **Lenovo Account Executive:** Yes
- **Quick Setup Guide:** Yes

### Included Items
- **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 HDMI cable
  - 1 x Power cable

*with FreeSync support graphic cards
ThinkVision® T27i-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

CONNECTION
Video Input Signals
VGA + HDMI 1.4 + DP 1.2
USB Hub
Yes
1 x USB 3.0 (Upstream)
4 x USB 3.0 (Downstream, incl. 18C)
Audio Out
Yes (3.5 mm)
Cable Length
1.8 m

Special Features
Anti-Glare
Yes
Thin Client Support (Tiny)
Yes
(by Tiny Clamp Bracket Kit+VESA mount PN:4XF0N82412+ PN:4XF0N03161)

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 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™
Gold
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
- **Panel Size**: 27.0 inches
- **Screen Dimensions (H x V)**: 596.74 x 335.66mm
- **Panel Type**: In-Plane Switching
- **Backlight**: WLED
- **Aspect Ratio**: 16:9
- **Resolution**: 3840 x 2160 pixels
- **Pixel Pitch (H x V)**: 0.1554 x 0.1554mm
- **Viewing Angle (H x V)**: 178°/178°
- **Response Time (gray to gray)**: 4ms (extreme mode) / 6ms (normal mode)
- **Refresh Rate**: 60Hz
- **Contrast Ratio (typical)**: 1000:1
- **Dynamic Contrast Ratio (typical)**: 3M:1
- **Brightness (typical)**: 350 cd/m²
- **Color Gamut sRGB (CIE 1931)**: 99%
- **Color Support**: 1.07 Billion

### POWER
- **Power Consumption (Typical)**: 50W
- **Power Consumption (Max)**: 140W
- **Power Consumption Sleep/Off Mode**: <0.5W
- **Power Consumption Switch Off-Mode**: <0.3W
- **Power Supply**: Internal
- **ENERGY STAR® (P,on)**: 23.40W
- **ENERGY STAR® (E,on)**: 101.94kWh
- **Voltage Required**: 100-240VAC (50/60Hz)

### CONNECTIVITY
- **Video Input Signals**: HDMI 2.0 + DP 1.2 + USB 3.1 Type-C™ (DP 1.2 Alt Mode)
- **Video Cables Supplied**: USB 3.1 Type-C™ + HDMI
- **Video Cable Length**: 1.8m
- **USB Hub**: Yes
- **USB Upstream**: Yes
- **USB Downstream**: 4 x USB 3.1 Gen1 (with 1 BC)

### SPECIAL FEATURES
- **Smart Power**: Yes
- **Anti-glare**: Yes
- **ThinkCentre Tiny Support**: Yes
- **Optional Soundbar 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)**: 2.0/24.5mm

### WHAT’S IN THE BOX
- 1 x Power Cable
- 1 x HDMI Cable
- 1 x USB Type-C™ to Type-C™ cable

### DIMENSIONS
- **Size Packed (D x H x W)**: 732 x 210 x 45.3mm / 28.82 x 8.27 x 1.73 inches
- **Size Unpacked with stand (D x H x W)**: 269.8 x 403.3 x 611.6mm / 10.62 x 15.88 x 24.08 inches
- **Size Unpacked w/o stand (D x H x W)**: 45.5 x 368.4 x 24.08 inches

### CERTIFICATIONS
- **ENERGY STAR® Rating**: Gold
- **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 <6%.

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.

© 2019 Lenovo. All rights reserved. These products are available while supplies last. Prices shown are subject to change without notice. For any questions concerning price, please contact your Lenovo Account Executive. Lenovo is not responsible for photographic or typographic errors. Warranty: For a copy of applicable warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC 27709, Attn: Dept. ZPYA/B600. Lenovo makes no representation or warranty regarding third-party products or services. Trademarks: Lenovo, the Lenovo logo, Rescue and Recovery, ThinkPad, ThinkCentre, ThinkStation, ThinkVantage, and ThinkVision are trademarks or registered trademarks of Lenovo. Microsoft, Windows, and Vista are registered trademarks of Microsoft Corporation. Intel, the Intel logo, Intel Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product, and service names may be trademarks or service marks of others.

Specifications may vary depending upon region.
## Lenovo ThinkVision X1

### Product Specifications Reference (PSREF)

**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) (HxWxD, including stand)

**Dimensions**
491.4mm H x 614.5mm W x 270.0mm D

**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**
VESADDC2B/C1

**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: 640x350, 640x480, 720x400
- SVGA: 800x600
- XGA: 1024x768, 1152x864
- SXGA: 1280x1024
- WXGA: 1280x720, 1280x768, 1280x800, 1360x768
- WXGA+: 1440x900, 1600x900
- WSXGA+: 1680x1050
- Full HD: 1920x1080, 1920x1200
- UHD: 3840x2160

**Presets / user settings**
Standard presets: 20; user settings: 20

**Viewing adjustments**

- **Tilt**: 22° back, -5° forward;
- **On screen display**:
  - None
  - Direct access (touch buttons on front) for menu, mute, volume up/down, and brightness

**Control features**

- **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**:
  - HDMI, DisplayPort
  - (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

- 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)

---

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 92%. 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.
## SPECIFICATIONS

### DISPLAY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</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>VESA 8SD</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</td>
<td>596.7 (H) x 335.7 (V)</td>
</tr>
<tr>
<td>Maximum Brightness</td>
<td>350 cd/m²</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>178° x 178°</td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>1000:1</td>
</tr>
<tr>
<td>Dynamic Contrast Ratio</td>
<td>3:1</td>
</tr>
<tr>
<td>Pixel Pitch</td>
<td>0.1554 x 0.1554</td>
</tr>
<tr>
<td>Dot/Pixel Per Inch</td>
<td>163</td>
</tr>
<tr>
<td>Color Gamut</td>
<td>CIE (1931) 99% sRGB</td>
</tr>
<tr>
<td>Response Time</td>
<td>4/6/14 ms (G-to-G)</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Operating: 0°C - 45°C Non-Operating: -20°C - 60°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: 8% - 80% Non-Operating: 5% - 95%</td>
</tr>
<tr>
<td>Altitude</td>
<td>Operating: 16,000 ft Non-Operating: 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>

### POWER CONSUMPTION

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</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>Feature</th>
<th>Specification</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>Feature</th>
<th>Specification</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/</td>
<td>20 Gbps</td>
</tr>
<tr>
<td>Bandwidth</td>
<td></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>Feature</th>
<th>Specification</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></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>

### 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>7.0</td>
</tr>
<tr>
<td>ULÉ</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>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warranty</td>
<td>3 Years</td>
</tr>
<tr>
<td>Geography Availability</td>
<td>WW</td>
</tr>
</tbody>
</table>

---

Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo makes every effort to ensure accuracy of all information but is not liable or responsible for any editorial, photographic or typographic errors. All images are for illustration purposes only. For full Lenovo product, service and warranty specifications visit www.lenovo.com. Lenovo makes no representations or warranties regarding third party products or services.
This publication was developed for products and services offered in the United States and E.M.E.A countries. Lenovo may not offer the products, services or features discussed in this document in other countries. Lenovo may withdraw an offering at any time. Information is subject to change without notice. Consult your local representative for information on offerings available in your area.

Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors.

LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

General: Review key information provided by Microsoft that may apply to your system purchase, including details on Windows 10, Windows 8, Windows 7, and potential upgrades/downgrades. Lenovo makes no representation or warranty regarding third-party products or services.

Trademarks: Lenovo, ThinkPad, ThinkCentre, ThinkStation and the Lenovo logo are trademarks of Lenovo. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Other company, product or service names may be trademarks or service marks of others.

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.