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.

May 15, 2019 - Version 542
► New ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 announced on April 2019
► Update ThinkStation P920/P720/P520 specifications, add Quadro RTX 8000, DDR4-2933, Xeon Scalable Gen 2

March 13, 2019 - Version 539
► Add Intel vPro information on ThinkStation P330 Tower/P330 SFF/P520c/P520/P720/P920

February 20, 2019 - Version 538
► New ThinkStation P330 Tower models announced on February 2019
► Update ThinkStation P920/P720/P520/P520c specifications, add Quadro RTX4000/5000/6000

August 22, 2018 - Version 529
► New ThinkStation P330 Tower/SFF/Tiny models announced on August 2018
► Update ThinkStation P920/P720 specifications, update flex bay and graphics adapter section

August 1, 2018 - Version 528
► New product ThinkStation P330 Tower/SFF/Tiny announced on July 2018
► Update ThinkStation P920/P720/P520/P520c, add Refresh 2.0 information
► Remove all MTM PNs from PDF version

June 20, 2018 - Version 526
► New ThinkStation P320 Tower models announced on June 2018
► Update ThinkStation P720 and P920 models, remove EOL models for US
► Update Windows 10 Pro 64 for Workstations for some ThinkStation P720/P920 models

May 30, 2018 - Version 525
► Added ThinkStation P720/P920 EMEA May 2018 models

April 18, 2018 - Version 523
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/P920 models announced on April 2018

March 28, 2018 - Version 522
► New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/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

### Components Specification

<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>One Intel &quot;Kabylake&quot; or &quot;Skylake&quot; processor as listed: &quot;Kaby Lake&quot;</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1220 v6</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1225 v6</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1225 v6</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1230 v6</td>
</tr>
<tr>
<td></td>
<td>Core i7-7700</td>
</tr>
<tr>
<td></td>
<td>Core i7-7600</td>
</tr>
<tr>
<td></td>
<td>Core i7-7500</td>
</tr>
<tr>
<td></td>
<td>Core i7-7400</td>
</tr>
<tr>
<td></td>
<td>Core i3-7300</td>
</tr>
<tr>
<td></td>
<td>Core i3-7100</td>
</tr>
<tr>
<td></td>
<td><em>Skylake</em></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. UDIFM. &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 630 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></td>
<td>Adapter</td>
</tr>
<tr>
<td></td>
<td>NVS 310</td>
</tr>
<tr>
<td></td>
<td>NVS 315</td>
</tr>
<tr>
<td></td>
<td>NVS 510</td>
</tr>
<tr>
<td></td>
<td>Quadro P400</td>
</tr>
<tr>
<td></td>
<td>Quadro P600</td>
</tr>
<tr>
<td></td>
<td>Quadro P1000</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)</td>
</tr>
<tr>
<td></td>
<td>512GB Opal/512GB Opal/1TB Opal/2TB Opal</td>
</tr>
<tr>
<td></td>
<td>M.2 NVMe SSD, via PCIe adapter</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>10TB (2 x 4TB 3.5&quot; HHDs + 1 x 2TB 2.5&quot; SSD) plus two 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>
<tr>
<td>Power supply</td>
<td>210 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualification</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>1</td>
<td>5.25&quot;, supports one of the following: HH optical/flex module/5mm optical-3.5&quot; HDD bay/3.5&quot; HDD bay/Front Access Storage Enclosure</td>
</tr>
<tr>
<td>2</td>
<td>Optional 9-in-1 single slot reader</td>
</tr>
<tr>
<td>3</td>
<td>Standard 3.5&quot; HDD bay</td>
</tr>
<tr>
<td>4</td>
<td>Optional 2.5&quot; HDD bay (under Bay 3)</td>
</tr>
</tbody>
</table>

4 - Ports:
3.0 / 2.0 / 1.1 (near CPU) / 1.1 (near graphics) / 1.1 (near CPU)

5 - Slots:
Slot 1: Low Profile, PCIe 3.0 x16 (near CPU)
Slot 2: Low Profile, PCIe 3.0 x1
Slot 3: Low Profile, PCIe 3.0 x16 (x4 elec)
Slot 4: Low Profile, PCIe 3.0 x1

© Copyright Lenovo 2017. All rights reserved.
<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>
</tbody>
</table>

**Processor**

- Core i3-12100: 4C/3.3GHz/8MB/80W/DDR4-2400
- Core i5-12400: 4C/3.5GHz/8MB/65W/DDR4-2400
- Core i5-12500: 4C/3.6GHz/8MB/65W/DDR4-2400
- Core i5-12500K: 4C/3.3GHz/8MB/91W/DDR4-2400
- Core i7-12700: 4C/3.5GHz/8MB/80W/DDR4-2400
- Core i7-12700K: 4C/3.6GHz/8MB/91W/DDR4-2400
- Core i7-12700F: 4C/3.3GHz/8MB/65W/DDR4-2400
- Core i7-12700KF: 4C/3.6GHz/8MB/91W/DDR4-2400

**Memory**

- 4 DIMM slots, 2-channel (integrated memory controller in processor)
- Memory type/capacity: 2-channel (integrated memory controller in processor)
- Memory DIMM slots: 4 DIMM slots, 2-channel (integrated memory controller in processor)
- Memory type/capacity: 48GB UDIMM. "Skylake" processor supports up to DDR4-2400. Core i7 and i5 processors cannot support ECC.
- Processors: Core i7-12700, Core i7-12700K, Core i7-12700F, Core i7-12700KF, Core i5-12400, Core i5-12500, Core i5-12500K, Core i5-12600, Core i5-12600K, Core i3-12100, Core i3-12300, Core i3-12300F, Core i3-12300KF, Core i3-12400, Core i3-12400F, Core i3-12400KF, Core i3-12500, Core i3-12500F, Core i3-12500KF, Core i3-12600, Core i3-12600F, Core i3-12600KF, Core i3-12700, Core i3-12700F, Core i3-12700KF
- Processor: Intel HD Graphics P530 in Xeon E3-12x5 v5 processors, or Intel HD P630 in Xeon E3-12x5 v6 processors, or Intel HD 630 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.

**Discrete graphics**

- Two PCI Express 3.0 x16 slots for graphics adapters.
- Up to two Quadro P1000 on 250 watts models.
- Or up to two Quadro P2000, or up to one Quadro P4000 on 400 watts models.
- Supports the following NVIDIA graphics adapters:

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Power</th>
<th>Memory</th>
<th>Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS 310</td>
<td>2DP</td>
<td>1GB</td>
<td>48</td>
</tr>
<tr>
<td>NVS 315</td>
<td>2DP</td>
<td>1GB</td>
<td>48</td>
</tr>
<tr>
<td>NVS 510</td>
<td>2DP</td>
<td>2GB</td>
<td>192</td>
</tr>
<tr>
<td>NVS 810</td>
<td>2DP</td>
<td>4GB</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P400</td>
<td>2DP</td>
<td>4GB</td>
<td>256</td>
</tr>
<tr>
<td>Quadro P600</td>
<td>2DP</td>
<td>4GB</td>
<td>384</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>2DP</td>
<td>4GB</td>
<td>640</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>2DP</td>
<td>4GB</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>2DP</td>
<td>8GB</td>
<td>1792</td>
</tr>
</tbody>
</table>

**Onboard drive controller**

- Five onboard SATA 6.0Gb/s connectors for optical and disk drives plus one SATA connector for optional eSATA. RAID 0, 1, 10 support

**Drive Bays**

- Two external 5.25" bays, two internal 3.5" bays (see right).
- Up to one 9mm optical plus 4 x 3.5" disk drive bays plus two M.2 NVMe SSD

**Supporting drive disks**

- 3.5" SATA HDD (7.2K Gbps)
- 3.5" SATA SSD (6GBs)
- M.2 NVMe SSD, via PCIe adapter
- 3.5" SATA SSD, via PCIe adapter
- M.2 NVMe SSD, via PCIe adapter
- M.2 NVMe SSD, via PCIe adapter

**Max internal storage**

- 16TB (4 x 4TB 3.5" HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD

**Media reader**

- 9-in-1 card reader. Optional 29-in-1 card reader on selected models
## Components Specification

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Type</td>
<td>MT 30C7 for Transactional model and MT 30C8 for Relationship model. For configuration of all 30C7 EMEA and US models, please visit: <a href="http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF">http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF</a></td>
</tr>
<tr>
<td>Form factor</td>
<td>8.4L mini-tower</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 13.23 lb (6.0kg)</td>
</tr>
<tr>
<td>Processor</td>
<td>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, DDR4-2666 memory speed. Or up to one Intel Pentium G5400 via Special Bids, 58W, 2 cores at 3.7GHz, 4GB cache, DDR4-2400 memory speed.</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed.</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>Up to 64GB with 4x 16GB, both ECC and non-ECC</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>Three PCIe 3.0 slots as following:</td>
</tr>
<tr>
<td></td>
<td>Slot 1 PCIe 3.0 x16, low profile, links to CPU</td>
</tr>
<tr>
<td></td>
<td>Slot 2 PCIe 3.0 x1, low profile, links to PCH</td>
</tr>
<tr>
<td></td>
<td>Slot 3 PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH</td>
</tr>
<tr>
<td>Graphics - Processor graphics</td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 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三 display connectors (2x DP, 1x HDMI. HDMI is optional) on rear</td>
</tr>
<tr>
<td>Graphics - Discrete graphics card</td>
<td>Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:</td>
</tr>
<tr>
<td></td>
<td>Adapter</td>
</tr>
<tr>
<td></td>
<td>Quadro P400</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/RAID controller in chipset, 6Gbps SATA, RAID 0/1. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD</td>
</tr>
<tr>
<td>Internal storage bay</td>
<td>Up to 3 bays with two disk bays and one slim optical bay:</td>
</tr>
<tr>
<td></td>
<td>Bay 1 Primary 3.5” SATA bay</td>
</tr>
<tr>
<td></td>
<td>Bay 2 2.5” SATA bay</td>
</tr>
<tr>
<td></td>
<td>Bay 3 9mm Slim ODD bay</td>
</tr>
<tr>
<td>Disks</td>
<td>3.5” HDD supports up to 4TB each, 6Gbps SATA, 7.2K. 2.5” SSD supports up to 1TB each, 6Gbps SATA</td>
</tr>
<tr>
<td>M.2 slot for SSD</td>
<td>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 be mixed with memory.</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Ophal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint</td>
</tr>
<tr>
<td>M.2 slot for Wi-Fi and Bluetooth</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>
</tbody>
</table>

### 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. 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 9x5/24B. 1 or 3-year limited onsite service with 9x5/5B/BD in EMEA or other GEOs

### 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 Gen 1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. 1x Audio line-out. Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor

### 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)\(\text{Max qty}\)

### Altitude
Operating: -15.2 m (-50 ft) to 10,668 m (35,000 ft) Storage: -15.2 m (-50 ft) to 10,668 m (35,000 ft)

### Humidity
Operating: 30%~90%, non-condensing Storage (with package): 20%~90%, non-condensing Storage (without 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

Lenovo, March 2019
**Components** | **Specification**
---|---
Form factor & Dimensions | 8.4L mini-tower, 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 | Supports one of the following processors:
- Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666
- Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666
- Core i3-800 4C/4T/3.7GHz/8MB/62W/DDR4-2400
- Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
Note: Next gen Xeon processors and more 9th Core processors will be supported on June 2019
Chips | 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 | 64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC
Memory Protection | ECC on models with UDIMM ECC memory
Expansion slots | Three PCIe 3.0 slots as following:
- Slot 1 PCIe 3.0 x16, low profile, links to CPU
- Slot 2 PCIe 3.0 x1, low profile, links to PCH
- Slot 3 PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH
Processor graphics | Integrated 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)
Discrete graphics card | Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:
- Quadro P400: 256 2GB GDDR5 30W 3x miniDP 2
- Quadro P620: 512 2GB GDR5 40W 4x miniDP 2
- Quadro P1000: 640 4GB GDR5 47W 4x miniDP 2
Storage Controller | Onboard Intel RST SATA RAID
- Type: SATA 6Gb/s
- Disk Interface: HDD or SSD
- RAID: 0/1
- Onboard Intel RST PCIe RAID
- Type: PCIe NVMe
- Disk Interface: M.2 PCIe SSD
- RAID: 0/1
Storage Support | Disk Type: SATA HDD
- 3.5" SATA HDD: 7.2K RPM, 9TB/10TB
- 2.5" SATA SSD: 7.2K RPM, 256GB/512GB/1TB
Optane Memory: 32GB
M.2 PCIe SSD: 256GB/512GB/1TB
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
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 padlock
## ThinkStation P330 Tiny Platform Specifications

### Components Specification

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Type</td>
<td>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></td>
</tr>
<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>Supported TIO monitors</td>
<td>Tiny-in-One 23 (MT: 10DQ), Tiny-in-One 22 (MT: 10LK), Tiny-in-One 24 (MT: 10LL), Tiny-in-One22 Gen3 (MT: 10R1), Tiny-in-One22 Gen3 Touch (MT: 10R0), Tiny-in-One24 Gen3 (MT: 10QY), Tiny-in-One24 Gen3 Touch (MT: 10QX)</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- ECC</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 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter</td>
</tr>
<tr>
<td>Graphics - Processor graphics</td>
<td>Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display.</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>Adapter</td>
<td></td>
</tr>
<tr>
<td>Quadro P620</td>
<td>512</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</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 optional 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>M.2 slot for 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. Using USB adapter</td>
</tr>
<tr>
<td>Network interfaces</td>
<td>One onboard GbE port via integrated gigabit ethernet Intel i219LM, supportsWake-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>
<tr>
<td>Components</td>
<td>Specification</td>
</tr>
<tr>
<td>Intel vPro Technology</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>1x USB 3.1 Gen 1 Type A (charging). 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack</td>
</tr>
<tr>
<td>Rear standard ports</td>
<td>Up to two optional rear ports via punch out cable. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM</td>
</tr>
<tr>
<td>Optional rear 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</td>
</tr>
<tr>
<td>Optional rear ports - via PCIe adapter</td>
<td>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>

Lenovo, July 2018
<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Type</td>
<td>MT 30C5 for Transactional model and MT 30C6 for Relationship model.</td>
</tr>
<tr>
<td>Form factor</td>
<td>18L Tower</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 376 mm (14.8 in), Width: 165 mm (6.5 in), Depth: 328 mm (12.9 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 23.4 lb (10.6kg)</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 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 G4400 via Special Bids, 64W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMM sockets. DDR4-2666. UDIMM, ECC and non-ECC are supported, but memory types cannot be intermixed</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>Up to 64GB with 4x 16GB, both ECC and non-ECC</td>
</tr>
<tr>
<td>Memory protection</td>
<td>ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM</td>
</tr>
<tr>
<td>Expansion slots</td>
<td>Three PCIe 3.0 slots as follows:</td>
</tr>
<tr>
<td></td>
<td>Slot 1 PCIe 3.0 x16, full height, half length, links to CPU</td>
</tr>
<tr>
<td></td>
<td>Slot 2 PCIe 3.0 x1, full height, full length, links to PCH</td>
</tr>
<tr>
<td></td>
<td>Slot 3 PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH</td>
</tr>
<tr>
<td>Graphics -</td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD</td>
</tr>
<tr>
<td>Processor graphics</td>
<td>Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G4400, Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI, HDMI is optional) on rear</td>
</tr>
<tr>
<td>Storage controllers</td>
<td>Integrated Intel SATA AHCI/RAID controller in chipset, 6GBps SATA, RAID 0/1/10/5, Four onboard SATA ports for max 4 SATA HDD/SSD/ODD</td>
</tr>
<tr>
<td>Bay 1</td>
<td>Primary disk bay, 3.5” or 2.5”</td>
</tr>
<tr>
<td>Bay 2</td>
<td>2.5” SATA bay, cannot be available when 2nd Quadro P2000 is used</td>
</tr>
<tr>
<td>Bay 3</td>
<td>Secondary disk bay, 3.5” or 2.5”</td>
</tr>
<tr>
<td>Bay 4</td>
<td>5.25” Flex bay, supports one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Flex module for optional front eSATA/Thunderbolt/IEEE1394</td>
</tr>
<tr>
<td></td>
<td>• 3rd disk bay, 3.5” or 2.5”, removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode</td>
</tr>
<tr>
<td></td>
<td>• 3rd disk bay, 3.5” or 2.5”, via 5.25” to 3.5” HDD Kit</td>
</tr>
<tr>
<td></td>
<td>• M.2 drive, via Front removable M.2 enclosure, also occupies slot 1 or 3</td>
</tr>
<tr>
<td>Bay 5</td>
<td>9mm Slim ODD bay</td>
</tr>
<tr>
<td>Disks</td>
<td>3.5” HDD supports up to 4TB each, 6GBps SATA, 7.2K 2.5” SSD supports up to 1TB each, 6GBps SATA</td>
</tr>
<tr>
<td>M.2 slot for SSD</td>
<td>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 on 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 be supported on Pentium G5400 models</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB PCIe 3.0 x4, NVMe, 3D Xpoint</td>
</tr>
<tr>
<td>M.2 slot for Wi-Fi and Bluetooth</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></td>
<td>Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock</td>
</tr>
<tr>
<td>Intel vPro</td>
<td>Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed</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>2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 2x DP. 1x Audio line-out</td>
</tr>
<tr>
<td>Optional front ports (on flex module)</td>
<td>2x Thunderbolt (USB Type-C), one of two ports supports video-out, 1x eSATA, 1x IEEE1394</td>
</tr>
<tr>
<td>Optional rear ports</td>
<td>2x USB 3.1 Type-C, 1x COM, PS/2, 1x Parallel, 1x Thunderbolt, 1x IEEE1394. 1x HDMI. Notes: HDDs need 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)</td>
</tr>
<tr>
<td></td>
<td>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>Altitude</td>
<td>Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)</td>
</tr>
<tr>
<td>Humidity</td>
<td>Operating: 30%–90%, non-condensing Storage (with package): 20%–90%, non-condensing</td>
</tr>
<tr>
<td>Environmental</td>
<td>RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified.</td>
</tr>
<tr>
<td>certification</td>
<td>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</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>

Notes:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed. 2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>18L Tower</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>Maximum configuration: 28.22 lb (12.8kg)</td>
</tr>
</tbody>
</table>

**Processor**
- Supports one of the following processors:
  - Intel Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400
  - Intel Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2400
  - Intel Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666
  - Intel Core i7-9600K 6C/6T/3.7GHz/9MB/125W/DDR4-2666
  - Intel Xeon E-2186G 6C/12T/3.8GHz/12MB/95W/DDR4-2666
  - Intel Xeon E-2186G 6C/12T/3.8GHz/12MB/95W/DDR4-2666

**Memory Sockets**
- 4 DimMm sockets with 2 channels

**Memory Types**
- 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC

**Memory Capacity**
- 4x with 4x16GB, both UDIMM ECC or UDIMM non-ECC

**Memory Protection**
- ECC on models with UDIMM ECC memory

**Expansion slots**
- 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

**Processor graphics**
- Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, 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)

**Discrete Graphics Offering**
- Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3).

**Storage Controller**
- Onboard Intel RST SATA RAID
- Onboard Intel RST PCIe RAID

**Disk Types**
- SATA 6Gb/s
- HDD or SSD
- M.2 PCIe SSD

**Power Supply**
- Supports the following via cable:
  - 1x COM, 1x Parallel, 2x PS/2, 1x DP or 1x HDMI. 2x USB 2.0
  - Supports the following via PCIe adapter:
  - 4x COM, 2x USB 3.1 Type-C, 2x USB 3.0. 1x Thunderbolt. Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor

**Environmental**
- RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 certification

**Power supply**
- Supports one 250W or 400W power supply, 100V - 240V, 92% PSU.
- 400W PSU supports one 6+2-pin aux power connector.

**ISV certifications**
- Please visit www.thinkworkstations.com/isv-certifications/
## ThinkStation P520 Platform Specifications

### Form factor
- 33L Tower

### Dimensions
- 165mm/6.5" x 460mm/18.1" D x 440mm/17.3" H

### 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 Capacity
- 256GB with 8 x 32GB RDIMMs

### Memory Sockets
- 8 DIMM sockets with 4 channels

### Chipset
- 8 x 32GB RDIMMs with 4 channels

### Processor Family
- 1x FCLGA2066

### Processor
- Maximum configuration: 52.91 lb (24kg)

### Dimensions
- 165mm/6.5" W x 460mm/18.1" D x 440mm/17.3" H (with feet)

### Form factor
- 33L Tower

### Storage Controller
- Onboard Intel RSTe
- Intel RSTe Std SATA 6Gb/s 0/1/10/5
- Intel RSTe Opt SAS 12Gb/s, SATA 6Gb/s 0/1/10/5

### Storage Support
- One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified

### Power supply
- Supports one of the following:
  - One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified
  - One fixed 900W, autosensing, 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 some models

### Network
- Integrated gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe network interfaces or wireless adapters are available

### Intel vPro
- Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed

### Intel AMT
- Intel Active Management Technology 11

### Diagnostic
- Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-transfer utility supports one of the following:
  - Front: 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out
  - 1x eSATA on flex module
  - 1x USB Type-C on flex module, USB 3.1 gen 1
  - 1x internal USB 3.0 port

### Environmental specifications
- 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)
- Humidity - operating: 10%~90%, non-condensing
- Humidity - storage (no package): 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 30BE000US and 30BE000US

### SV certifications
- Please visit 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

---

### Expansion slots

<table>
<thead>
<tr>
<th>Slot</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (CPU)</td>
<td>PCIe 3.0 x8, full height, full length, 25W, open ended</td>
</tr>
<tr>
<td>2 (CPU)</td>
<td>PCIe 3.0 x16, full height, full length, 75W, double-width</td>
</tr>
<tr>
<td>3 (PCH)</td>
<td>PCIe 3.0 x4, full height, half length, 25W, open ended</td>
</tr>
<tr>
<td>4 (PCH)</td>
<td>PCIe 3.0 x4, full height, full length, 25W, open ended</td>
</tr>
<tr>
<td>5</td>
<td>PCI, full height, full length, 25W</td>
</tr>
<tr>
<td>6 (PCH)</td>
<td>PCIe 3.0 x4, full height, full length, 25W, open ended</td>
</tr>
</tbody>
</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>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>200W</td>
<td>1xVirtualLink</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
<td>160W</td>
<td>3xDP, 1xVirtualLink</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 5000</td>
<td>16GB GDDR6</td>
<td>265W</td>
<td>4xDP, 1xVirtualLink</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 6000</td>
<td>24GB GDDR6X</td>
<td>250W</td>
<td>4xDP, 1xVirtualLink</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro RTX 8000</td>
<td>48GB GDDR6X</td>
<td>400W</td>
<td>1xVirtualLink</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Quadro GP100</td>
<td>16GB HB2M</td>
<td>235W</td>
<td>1xDVI-D / 4xDP</td>
<td>NVLink</td>
<td>2</td>
</tr>
<tr>
<td>Quadro GV100</td>
<td>32GB HB2M</td>
<td>250W</td>
<td>4xDP</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Storage Controller

<table>
<thead>
<tr>
<th>Type</th>
<th>Interface</th>
<th>RAID</th>
<th>Cache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RSTe</td>
<td>Std SATA 6Gb/s</td>
<td>0/1/5/10</td>
<td></td>
</tr>
<tr>
<td>9460-16i PCIe</td>
<td>Opt SAS 12Gb/s, SATA 6Gb/s</td>
<td>0/1/10/5/6 4Gb DDR4, SuperCap</td>
<td></td>
</tr>
</tbody>
</table>

### Disk type

<table>
<thead>
<tr>
<th>Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Max Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 SSD</td>
<td>PCIe to M.2 adapter</td>
<td>7200</td>
<td>2</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>2x M.2 SSD</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Disk Bay
- Up to 4x 2.5" or 3.5" disks with 4 disk bays (2 bays standard, 2 bays optional)
## ThinkStation P520c Platform Specifications

### Form factors
25L Tower

### Dimensions
175mm/6.89" W x 426mm/16.77" D x 376mm/14.8" H (with feet)

### Weight
Maximum configuration: 31.97 lb (14.5kg)

### Processor Family
- Up to one 140W Intel Xeon W family processor:
  - Up to 4 cores at 3.0 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

### Memory Capacity
128GB with 4 x 32GB RDIMMs

### Memory Types
- DDR4-2666 RDIMM

### Chipset
- Intel AMT Intel Active Management Technology 11
- Intel vPro Intel vPro technology supported. vPro requires Wireless-AC 867Mbps if Wi-Fi is needed

### Discrete Graphics
- Quadro P400 8GB GDDR5 120W 4xDP 2
- Quadro P600 8GB GDDR5 120W 4xDP 2
- Quadro P620 2GB GDDR5 40W 4xminiDP 2
- Quadro P1000 4GB GDDR5 40W 4xminiDP 2
- Quadro P2000 5GB GDDR5 75W 4xDP 2
- Quadro P4000 8GB GDDR5 120W 4xDP 2
- Quadro P5000 16GB GDDR5X 180W DVI-D 4xDP 1
- Quadro RTX 4000 8GB GDDR6 160W 3xDP, 1xVirtualLink 1
- Quadro RTX 8000 16GB GDDR6X 320W 4xDP, 1xVirtualLink 1

### Storage Support
- Up to 5x M.2 SSD + 4x 2.5" SATA SSD
- All SSD: 18TB using 4x 2.5" SATA SSD and 5x M.2 SSD
- All HDD: 24TB using 4x 3.5" SATA SSD/HDD

### Storage Controller
- Onboard Intel RSTe Std
- RAID: 0/1/10/5
- Cache: 18GB with 4 x 32GB RDIMMs

### Network
- Integrated one gigabit Ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe Ethernet or wireless adapters are available

### Diagnostic
- ThinkStation Diagnostics for Windows. Optional front 4-diagnostic display on flex module

### Base warranty
- 1 or 3-year limited onsite service with 9x5/NBD

### HD Audio
- Realtek ALC662 codec

### 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

### Optional ports
- Supports the following optional ports:
  - 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out
  - 1x eSATA on flex module
  - 1x USB Type-C on flex module, USB 3.1 gen 2
  - 1x COM port
  - 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W internal
  - 1x internal USB 3.0 port

### 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)

### Environmental Certifications
- RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BX0008US and 30BX0009US

### 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, February 2019
Expansion slots:

- Slot 1 (CPU) PCI 3.0 x16, full height, full length, 75W, double-width
- Slot 2 (CPU) PCI 3.0 x16, full height, full length, 75W, double-width
- Slot 3 (CPU) PCI 3.0 x8, full height, full length, 25W, open ended
- Slot 4 (CPU) PCI 3.0 x16, full height, full length, 75W, double-width
- Slot 5 PCI, full height, full length, 25W
- Slot 6 (PCH) PCI 3.0 x4, full height, half length, 25W, open ended

900W PSU supports two 6+2-pin aux power connectors. 650W PSU supports one 6+2-pin aux power connector.

Note: All expansion cards are optional.
ThinkStation P720 Platform Specifications

Form factor 36L Tower

Dimensions 175mm/6.89" W x 485mm/19.1" D x 446mm/17.6" H (with feet)

Weight Maximum configuration: 52.25 lb (23.7kg)

Processor Family Up to two 150 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum: Up to 24 cores at 2.1 GHz: Up to 3.6 GHz with 4 cores: Up to 33 MB cache: Up to DDR4-2933 memory speed

Processor Sockets 2x FCLGA3647

Chipset Intel C621 Chipset

Memory Protection ECC

Memory Types DDR4-2666 RDIMM

Memory Sockets 12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor

Chipset Intel C621 Chipset

Memory Types DDR4-2666 RDIMM

Memory Capacity 768GB (DDR4-2033 RDIMM) or 384GB (DDR4-2666 RDIMM)

Memory Protection ECC

Storage Bays

Disk bay Supports up to 9x M.2 SSD + 8x 3.5" HDD/10x 2.5" SSD/11x 2.5" HDD + 2x PCIe AIC SSD:

All SSD: 36TB using 6x 3.5" HDD:

All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD

Power supply Supports one of the following:

• One fixed 690W, autotuning, 92%, 80 PLUS Platinum qualified

• One fixed 900W, autotuning, 92%, 90 PLUS Platinum qualified

Media reader SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module

Network interfaces Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both ports. Optional PCIe ethernet are available

WLAN + Bluetooth Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

Security features Power-on and admin password, Trusted Platform Module, TPM 2.0, Chassis intrusion switch. Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock

Internal:

• 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SAS HDD/SSD

• 2x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA HDD/SSD

• 3x 5.25"/2.5" SATA SSD/HD with Front Access Storage Enclosure

Software:

• 1x flex module for the following options:

  - Tray: 1.90mm optical drive:

  - Tray: 2: 15-in-1 USB 3.0 reader or 2x Thunderbolt

  - Port 1 and 2: Front USB 3.0 Type-C or eSATA

  - 2x M.2 SSD with 2x Front Removable Drive Enclosures

Max Storage

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)

Humidity - operating 10%–80%, non-condensing

Humidity - storage (with package) 10%–90%, non-condensing

Environmental certifications RoHS-compliant. GREENGUARD, EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US

Lenovo, May 2019
## ThinkStation P920 Platform Specifications

### Form factor
55L Tower

### Dimensions
200mm/7.87" W × 620mm/24.4" D × 446mm/17.56" H (with feet)

### Weight
Maximum configuration: 71.3 lb (32.3kg)

### Processor Family
- **Up to two 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 sockets
2x FCLGA3647

### Chipset
Intel C621 Chipset

### Memory Protection ECC

### Memory Capacity
- DDR4-2666 RDIMM, DDR4-2666 LRDIMM, or DDR4-2933 RDIMM
- 1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)

### Memory Types
- 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

### Processor Family
- **2x FCLGA3647**
- **Maximum configuration:** 71.3 lb (32.3kg)
- **Form factor:** 55L Tower

### Expansion slots

#### Slot 1 (CPU1)
Pcie 3.0 x16, full height, full length, 75W, double-width

#### Slot 2 (CPU1)
Pcie 3.0 x4, full height, full length, 25W, open ended

#### Slot 3 (CPU1)
Pcie 3.0 x16, full height, full length, 75W, double-width

#### Slot 4 (CPU1)
Pcie 3.0 x4, full height, full length, 25W, open ended

#### Slot 5 (PCH)
Pcie 3.0 x4, full height, half length, 25W, open ended

#### Slot 6 (CPU2)
Pcie 3.0 x16, full height, 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

### Storage Support
- **Storage Bays**
  - **Bay Type**
    - M.2 SSD
  - **Maximum Drives Qty**
    - 2x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)
  - **Max Storage**
    - Supports up to 9x M2 SSD + 6x 3.5" HDD/10x 2.5" SSD/HDD + 2x PCIe AIC SSD
  - All HDD: 36TB using 6x 3.5" HDD
  - All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD

### Power supply
- One fixed 1400 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified.
- Countries with input voltage under 115V, output power limited to 1125 watts

### Media reader
- SD USB 2.0 card reader on most models. Optional UHS-II 15-1 USB 3.0 reader on flex module

### Network interfaces
- Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet are available

### WLAN + Bluetooth
- Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps

### Security features
- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to security keylock, and pad lock
- Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed

### Storage Controller
- **Onboard Intel RSTe**
  - Std: SATA 6Gb/s
  - Opt: SAS 12Gb/s, SATA 6Gb/s
- **9440-8i PCIe**
  - Opt: SAS 12Gb/s, SATA 6Gb/s
- **9440-16i PCIe**
  - Opt: SAS 12Gb/s, SATA 6Gb/s

### Rear ports
- 2x 2.5" SATA SSD/HDD, 4x 2.5" SATA SSD/HDD
- 2x PCIe AIC SSD

### Front ports
- 4x Thunderbolt ports (USB Type-C) on flex module, one of two ports
- 2x USB Type-C or eSATA on flex module
- 2x USB Type-C on flex module, USB 3.1 gen 1
- 1x COM port
- 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2
- 1x internal USB 3.0 port

### Environmental specification
- **Temperature**
  - Operating: 50°F to 95°F (10°C to 35°C)
  - Storage (no package): -4°F to 140°F (-20°C to 60°C)
  - Storage (with package): -4°F to 140°F (-20°C to 60°C)
- **Humidity**
  - Operating: 10%~90%, non-condensing
  - Storage (package): 10%~90%, non-condensing

### Environmental Certifications
- RoHS-compliant, GREENGUARD, EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 38SC000US and 38BC000US

### 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.

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 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.


© Lenovo, 2018. All rights reserved.

Lenovo 1009 Think Place Morrisville, NC 27560 U.S.A.