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 PNs 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/P700/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 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

### Product Specifications Reference (PSREF)

**Components**

<table>
<thead>
<tr>
<th>Component</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;Kaby Lake&quot; or &quot;Skylake&quot; processor as listed: &quot;Kaby Lake&quot;</td>
</tr>
<tr>
<td></td>
<td>Xeon E3-1280 v6: Kc3G/H2/MB/80W/DD/R4-2400</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>Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. &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></td>
<td>Adapter</td>
</tr>
<tr>
<td>NVS 310</td>
<td>48</td>
</tr>
<tr>
<td>NVS 315</td>
<td>48</td>
</tr>
<tr>
<td>NVS 510</td>
<td>192</td>
</tr>
<tr>
<td>Quadro P600</td>
<td>384</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</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, 5+RAID 0, 1, 5+0, 6, 6+0, 10, 5+0, 6+0, 6+0+0, 10+0, 5+0+0, 6+0+0+0 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/6Gb)</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; HDDs + 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 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>
<tr>
<td>Drive Bays and PCIe Slots</td>
<td></td>
</tr>
<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/5.25&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>

**Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front ports</td>
<td>Two USB 3.0, microphone (3.5mm), headphone (3.5mm)</td>
</tr>
<tr>
<td>Rear ports</td>
<td>1 VGA and 2 DisplayPort (for Intel HD Graphics models only), two USB 2.0, four USB 3.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Risen black color; metal case</td>
</tr>
<tr>
<td></td>
<td>4.02&quot;W x 15.53&quot;D x 13.31&quot;H</td>
</tr>
<tr>
<td></td>
<td>102mm W x 394.5mm D x 338mm H</td>
</tr>
<tr>
<td></td>
<td>17.2 lb (7.9kg) max configuration</td>
</tr>
<tr>
<td></td>
<td>12.9-liter</td>
</tr>
<tr>
<td>Environmental certifications</td>
<td>GREENGUARD certified/RoHS-compliant/EPEAT Gold rating/ENERGY STAR 6.1 qualified</td>
</tr>
<tr>
<td>Limited warranty</td>
<td>1 or 3-year limited onsite service with 9x5/NBD. Some parts are Customer Replaceable Units.</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>

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### ThinkStation P320 Tower 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>One or more of the following: Xeon E3-1220 v6, Xeon E3-1230 v5, Xeon E3-1230 v6, Xeon E3-1240 v5, Xeon E3-1245 v5, Xeon E3-1250 v5, Xeon E3-1255 v5, Xeon E3-1270 v5, Xeon E3-1275 v5, or Intel Core i3-7100, i3-7300, i5-7400, i5-7600, i5-7640, i5-7650, i5-7690, i7-6700, i7-6800, i7-6850, i7-6900, i7-7700, or Core i3-6100, i3-6300, i5-6400, i5-6500, i5-6600, i5-6640, i5-6650, i5-6670, i5-7100, i5-7200, i5-7300, i5-7400, i5-7600, i5-7640, i5-7650, or Intel Standard Manageability on other models</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 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>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. Supports the following NVIDIA graphics adapters:</td>
</tr>
<tr>
<td>Adapter</td>
<td>Cores</td>
</tr>
<tr>
<td>NVS 310</td>
<td>48</td>
</tr>
<tr>
<td>NVS 315</td>
<td>48</td>
</tr>
<tr>
<td>NVS 510</td>
<td>192</td>
</tr>
<tr>
<td>NVS 810</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P400</td>
<td>256</td>
</tr>
<tr>
<td>Quadro P600</td>
<td>384</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td></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 drives</td>
<td>3.5&quot; SATA HDD (7.2K Gbps) 2TB/4TB/8TB hybrid 2TB hybrid</td>
</tr>
<tr>
<td>Max internal storage</td>
<td>16TB (4 x 4TB 3.5&quot; HDs) 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**
- 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.

**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 ethernet (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/)
## 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
**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** | Up to 64GB with 4x 16GB, both ECC and non-ECC. Core i7 and i5 processors cannot support ECC UDIMM
**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** | Three PCIe 3.0 slots as follows:
- **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
**Graphics - Processor graphics** | 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 three display connectors (2x DP, 1x HDMI, HDMI is optional) on rear
**Graphics - Discrete graphics card** | Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:
- **Adapter**: Quadro P400, 256 2GB GDDR5, 30W, 3x miniDP
- **Adapter**: Quadro P620, 512 2GB GDDR5, 40W, 4x miniDP
- **Adapter**: Quadro P1000, 640 4GB GDDR5, 47W, 4x miniDP
**Storage controllers** | Integrated Intel SATA AHCI/RAID controller in chipset, 6GBps SATA, RAID 0/1. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD
**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 on-board 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, SD 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

### 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. 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 GEOs
**HD Audio** | Intel HD Audio interface with Realtek ALC223 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 Thunderbolt. 1x IEEE1394. 1x HDMI. 1x Audio line-out
**Optional rear ports** | 2x USB 3.1 Type-C. 1x COM. 1x PS/2. 1x Parallel. 1x HDMI. 1x Audio line-out
**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)
**Altitude** | Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 688 m (35 000 ft)
**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.workstationstations.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
ThinkStation P330 SFF Gen 2 (3D1 and 3D2) Platform Specifications

**Components**

- **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)

**Chipset**

- Intel C246 Chipset

**Memory**

- **Memory Sockets**: 4 DIMM sockets with 2 channels
- **Memory Types**: 8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC

**Processor**

- **Weight**: Maximum configuration: 13.23 lb (6.0kg)
- **Dimensions**: Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)
- **Form factor**: 8.4L mini-tower
- **Weight**: Maximum configuration: 13.23 lb (6.0kg)
- **Dimensions**: Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)
- **Form factor**: 8.4L mini-tower

**Expansion slots**

- **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**

- **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 multiple-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)

**Discrete graphics card**

- **Adapter**: Two PCIe x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:
  - Quadro P400: 256 2GB GDDR5 30W 4x miniDP 2
  - Quadro P620: 512 2GB GDDR5 40W 4x miniDP 2
  - Quadro P1000: 1024 4GB GDDR5 75W 4x miniDP 2

**Storage Controller**

- **Storage Controller Type**: SATA 6Gb/s
- **RAID**: 0/1
- **Onboard Intel RST SATA RAID**: Std
- **Onboard Intel RST PCIe RAID**: Std
- **Onboard Intel RST PCIe NVMe**: M.2 PCIe SSD

**Storage Support**

- **Disk Type**: SATA 6Gb/s 7.2K 1TB/2TB/4TB
- **RPM**: 5400
- **Offering Max Qty**: 2
- **Options Memory**: M.2 PCIe SSD 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**: Slim 8mm ODD bay
- **Bay M2**: M.2 SSD (1 on board, 2 via PCIe to M.2 adapter)

Lenovo, June 2019
ThinkStation P330 Tiny Platform Specifications

### Components

#### Machine Type
MT 30CF for Transactional model and MT 30CE for Relationship model. For configuration of all 30CF EMEA and US models, please visit: [http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny](http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny).

#### Form factor
1L. Optional VESA mount bracket kit, supports VESA 75mm and 100mm. Optional floor stand for vertical orientation. Optional tool-less chassis open. Optional dust filter.

#### Dimensions
Height: 179 mm (7.0 in). Width: 36.5 mm (1.437 in). Depth: 182.9 mm (7.2 in).

#### Weight
Maximum configuration: 3.08 lb (1.4kg).

#### Supported TIO monitors

#### Processor
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 6MB cache, DDR4-2400 memory speed.

#### Chipset
Intel Q370 Chipset.

#### Memory
2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECC.

#### Expansion slots
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.

#### Graphics
65W or 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter.

#### Graphics - Processor graphics
Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display.

#### Graphics - Discrete graphics card
One of the following discrete graphics cards on 35W processor models:

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Cores</th>
<th>Memory</th>
<th>Power</th>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadro P620</td>
<td>512</td>
<td>2GB GDDR5</td>
<td>40W</td>
<td>4x miniDP</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</td>
<td>4GB GDDR5</td>
<td>47W</td>
<td>4x miniDP</td>
</tr>
</tbody>
</table>

#### Storage controllers
Integrated Intel SATA AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5" HDD.

#### Internal storage bay
Up to one 2.5" HDD.

#### Disks
2.5" HDD supports up to 1TB, 6Gbps SATA, 7.2K or 5.4K.

#### M.2 slot for SSD
Two onboard M.2 slots for M.2 SSD, one for M.2 2280 SSD, one for M.2 2220 or 2242 SSD.

#### M.2 SSD
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.

#### Optane memory
Up to one 16GB Optane memory per system. Optane memory must work with a 2.5" HDD.

#### M.2 slot for Wi-Fi and Bluetooth
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.

#### Wi-Fi antenna
Optional Tiny 2.4GHz/5GHz SMA antenna kit.

#### Optical
Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW. VESA mount is required.

#### Media reader
None. Using USB adapter.

#### Network interfaces
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.

#### Security features

#### Power supply
Supports one 135W power adapter, 100V - 240V, 88% PSU.

#### General specifications
- **Temperature**: Operating: 50°F to 95°F (10°C to 35°C), Non operating (with package): -40°F to 140°F (-40°C to 60°C).
- **Humidity**: Operating: 20% to 80%, non-condensing, Storage (with package): 20% to 90%, non-condensing.
- **Environmental certification**: RoHS-compliant, GREENGUARD, EPEAT Gold rating and ENERGY STAR 7 qualified.
- **Power supply**: Supports one 135W power adapter, 100V - 240V, 88% PSU.
- **SV certifications**: Please visit [www.thinkworkstations.com/sv-certifications](http://www.thinkworkstations.com/sv-certifications).

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**Intel vPro Technology**
- 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.

**Systems management**
- Intel Active Management Technology 12 on vPro 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 GEOs.

**HD Audio**
- Intel HD Audio interface with Realtek ALC233 Codec.

**Front standard ports**
- 1x USB 3.1 Gen 1 Type A (charging). 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack.

**Rear standard ports**
- 2x USB 3.1 Gen 2 Type A, 2x USB 3.1 Gen 1 Type-A, 1x RJ-45. 1x DP.

**Optional rear ports - via punch out cable**
- Up to two optional rear ports via punch out cable. Port 1 supports one of the following: 1x USB 3.1 Gen 1 Type-C, also supports DP function. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM.

**Optional rear ports - via PCIe adapter**
- Supports one of the following: 4x miniDP with Quadro P620 or P1000, 35W processor models only. 2x USB 3.1 Gen 1. 4x RJ-45 GbE with Intel I350-T4. 4x COM. Note: Punch out cable and PCIe adapter are mutually exclusive.

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**Lenovo, July 2018**
### ThinkStation P330 Tower Platform Specifications

<table>
<thead>
<tr>
<th>Components</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Type</td>
<td>MT 30C5 for Transactional model and MT 30C6 for Relationship model. For configuration of all 30C5 EMEA and US models, please visit: <a href="http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower">http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower</a></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 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 G5400 via Special Bids, 54W, 2 cores at 3.7GHz, 5MB cache, DDR4-2400 memory speed.</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td>Memory</td>
<td>4 DIMMs. 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>Slot 1</td>
<td>PCIe 3.0 x16, full height, half length, links to CPU</td>
</tr>
<tr>
<td>Slot 2</td>
<td>PCIe 3.0 x16, full height, full length, links to PCH</td>
</tr>
<tr>
<td>Slot 3</td>
<td>PCIe 3.0 x16 (negotiable link width x4), full height, half length, 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 three 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 card (Slot 1 and 3). Supports the following graphics adapters:</td>
</tr>
<tr>
<td>Adapter</td>
<td>Cores</td>
</tr>
<tr>
<td>NVS 810</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>256</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>512</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>640</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>1024</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>1792</td>
</tr>
<tr>
<td>GeForce GTX 1060</td>
<td>1280</td>
</tr>
<tr>
<td>GeForce GTX 1070</td>
<td>1920</td>
</tr>
<tr>
<td>GeForce GTX 1080</td>
<td>2560</td>
</tr>
<tr>
<td>Radeon Pro WX 3100</td>
<td>512</td>
</tr>
<tr>
<td>Radeon Pro WX 4100</td>
<td>1024</td>
</tr>
</tbody>
</table>

Notes: 1. Quadro P4000, 2x Quadro P2000, GeForce GTX1080/1070/1060 needs 400W PSU. 2. GeForce GTX 1060/1050/1080 are dual-slot width. 3. GeForce GTX 1070/1060/1080 and Radeon Pro WX 3100/4100 are SBO.

### Storage controllers

Integrated Intel SATA AHCI/RAID controller in chipset. 6Gbps SATA, RAID 0/1/5. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD.

<table>
<thead>
<tr>
<th>Storage controller</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1/5. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD</td>
<td>Integrated Intel SATA AHCI/RAID controller in chipset. 6Gbps SATA, RAID 0/1/5. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD.</td>
</tr>
</tbody>
</table>

### Internal storage bay

Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" SSD.

<table>
<thead>
<tr>
<th>Bay</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay 1</td>
<td>Primary disk bay, 3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 2</td>
<td>2.5&quot; SATA bay, cannot be available when 2nd Quadro P2000 is used</td>
</tr>
<tr>
<td>Bay 3</td>
<td>Secondary disk bay, 3.5&quot; or 2.5&quot;</td>
</tr>
<tr>
<td>Bay 4</td>
<td>5.25&quot; 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&quot; or 2.5&quot;, removable, via Front Access Storage Enclosure,</td>
</tr>
<tr>
<td></td>
<td>using SATA 4 connector as eSATA mode</td>
</tr>
<tr>
<td></td>
<td>• 3rd disk bay, 3.5&quot; or 2.5&quot;, via 5.25&quot; to 3.5&quot; HDD Kit</td>
</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>
</tbody>
</table>

### Disks

3.5" HDD supports up to 4TB each, 6Gbps SATA, 2.5" SSD supports up to 1TB each, 6Gbps SATA.

### Components | Specification
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<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 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 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>
<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. 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 GEs.</td>
</tr>
<tr>
<td>HD Audio</td>
<td>Intel HD Audio interface with Realtek ALC232 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 3.1 Gen 1 Type A, 2x USB 2.0 Type-A, 1x RJ-45, 1x COM, 2x DP, 1x Audio line-out. Notes: DP needs Core. Pentium, or -G suffix Xeon processor.</td>
</tr>
<tr>
<td>Optional front ports</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.</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 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.</td>
</tr>
<tr>
<td>ISV certifications</td>
<td>Please visit <a href="http://www.thinkworkstations.com/isv-certifications">www.thinkworkstations.com/isv-certifications</a>.</td>
</tr>
</tbody>
</table>

Lenovo, July 2018
### Components Specification

<table>
<thead>
<tr>
<th>Component</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

<table>
<thead>
<tr>
<th>Processor</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Sockets</td>
<td>4 DIMM sockets with 2 channels</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel C246 Chipset</td>
</tr>
<tr>
<td>Memory Types</td>
<td>8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC</td>
</tr>
<tr>
<td>Memory Capacity</td>
<td>464B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC</td>
</tr>
<tr>
<td>Memory Protection</td>
<td>ECC on models with UDIMM ECC memory</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, 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 width x4), full height, half length, links to PCH</td>
</tr>
<tr>
<td>Processor graphics</td>
<td>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, i3, or Pentium processors. Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional).</td>
</tr>
<tr>
<td>Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:</td>
<td></td>
</tr>
<tr>
<td>Graphics</td>
<td>Memory</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Quadro P400</td>
<td>2GB GDDR5</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>2GB GDDR5</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>5GB GDDR5</td>
</tr>
<tr>
<td>Quadro P2200</td>
<td>5GB GDDR5</td>
</tr>
<tr>
<td>Quadro P5000</td>
<td>16GB GDDR5X</td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
</tr>
</tbody>
</table>

**Note:** 2x Quadro P2000, Quadro P5000, or Quadro RTX 4000 needs 400W PSU

### Storage Controller

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>Disk Type</th>
<th>RAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RST SATA RAID</td>
<td>Std SATA 6Gb/s</td>
<td>HDD or SSD</td>
<td>0/1:10/5</td>
<td></td>
</tr>
<tr>
<td>Onboard Intel PCIe RAID 1 Std</td>
<td>PCIe NVMe</td>
<td>M.2 PCIe SSD</td>
<td>0/1</td>
<td></td>
</tr>
<tr>
<td>Optional Memory PCIe NVMe</td>
<td>32GB used with HDD/SSD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Support</td>
<td>Disk Type</td>
<td>Interface</td>
<td>RPM</td>
<td>Offering</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>3.5&quot; SATA HDD</td>
<td>2.5&quot; SADT HDD</td>
<td>SATA 6Gb/s</td>
<td>7.2K</td>
<td>500GB FIPS</td>
</tr>
<tr>
<td>2.5&quot; SATA SSD</td>
<td>SATA 6Gb/s</td>
<td>256GB/512GB/1TB</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" HDD/SSD:**

Bay 1 Primary disk bay, 3.5" or 2.5".
Bay 2 2.5" SATA bay, cannot be available 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/IEEE1394
• 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" HDD Kit
Bay 5 9mm Slim ODD bay
M.2 1x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)

### Storage Bays

- 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
- 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. Optional chassis intrusion switch, e-lock, 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/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
- 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
  - Notes: DP needs Core, Pentium, or -G suffix Xeon processor
- Optional front ports (on flex module)
  - 2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394
- Optional rear ports
  - 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
- 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)
### ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - II of II

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<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 6,688 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
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 Types
DDR4-2666 RDIMM

Memory Sockets
8 DIMM sockets with 4 channels

Chipset
Intel C422 Chipset

Memory Protection
ECC

Expansion slots

Storage Bays

Storage Controller

Environmental specification

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

Network
Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe interfaces

Security features
Power-on and admin password. Trusted Platform Module, FIPS 140-2 validated, switch to

Security features

Environmental

Max Storage
Supports up to 9x M.2 SSD + 6x 3.5" HDD/2.5" SATA disks/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

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

Media reader

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
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 Types
DDR4-2666 RDIMM

Memory Sockets
8 DIMM sockets with 4 channels

Chipset
Intel C422 Chipset

Memory Protection
ECC

Expansion slots

Storage Bays

Storage Controller

Environmental specification

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

Network
Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe interfaces

Security features
Power-on and admin password. Trusted Platform Module, FIPS 140-2 validated, switch to

Security features

Environmental

Max Storage
Supports up to 9x M.2 SSD + 6x 3.5" HDD/6x 2.5" SATA disks/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

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

Media reader

Lenovo, May 2019
### ThinkStation P520c Platform Specifications

#### Form factor
- 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 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 Protection
- ECC

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

#### Memory Types
- DDR4-2666 RDIMM

#### Chipset
- Intel C422 Chipset

#### Memory Protection
- ECC

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

#### 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

#### Discrete Graphics Offering

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<thead>
<tr>
<th>Graphics</th>
<th>Memory</th>
<th>Power</th>
<th>Connector</th>
<th>SLI / NVLink</th>
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</thead>
<tbody>
<tr>
<td>NVS 810</td>
<td>4GB DDR3</td>
<td>68W</td>
<td>8x mini DP</td>
<td></td>
<td>1</td>
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<tr>
<td>Quadro P400</td>
<td>2GB GDDR5</td>
<td>30W</td>
<td>3x mini DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P500</td>
<td>2GB GDDR5</td>
<td>45W</td>
<td>4x mini DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P620</td>
<td>2GB GDDR5</td>
<td>40W</td>
<td>4x mini DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P1000</td>
<td>4GB GDDR5</td>
<td>50W</td>
<td>4x mini DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P2000</td>
<td>5GB GDDR5X</td>
<td>75W</td>
<td>4x DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P4000</td>
<td>8GB GDDR5X</td>
<td>120W</td>
<td>4x DP</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Quadro P5000</td>
<td>16GB GDDR5X</td>
<td>180W</td>
<td>DVI-D, DL, 4x DP</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Quadro RTX 4000</td>
<td>8GB GDDR6</td>
<td>160W</td>
<td>3x DP, 1x VirtualLink</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

#### Storage Controller

<table>
<thead>
<tr>
<th>Storage Controller</th>
<th>Type</th>
<th>Interface</th>
<th>RAID</th>
<th>Cache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard Intel RSTe Std</td>
<td>SAS 6Gb/s</td>
<td>SED</td>
<td>0/1/10/5</td>
<td></td>
</tr>
<tr>
<td>NVMe Basic</td>
<td>Opt</td>
<td>PCle NVMe</td>
<td>0/1/10</td>
<td></td>
</tr>
<tr>
<td>NVMe for Intel SSD</td>
<td>Opt</td>
<td>PCle NVMe</td>
<td>0/1/10/5</td>
<td></td>
</tr>
</tbody>
</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” SATA SSD</td>
<td>Sata 6Gb/s</td>
<td>7.2K</td>
<td>1/2B/4TB/8TB</td>
<td>4</td>
</tr>
<tr>
<td>2.5” SATA SSD</td>
<td>Sata 6Gb/s</td>
<td>7.2K</td>
<td>500GB/5000GB / FIPS</td>
<td>4</td>
</tr>
<tr>
<td>M.2 PCIe SSD</td>
<td>PCle NVMe</td>
<td>256GB/512GB/1TB/2TB</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Environmental Specifications

- **Temperature**
  - Operating: 50°F to 95°F (10°C to 35°C)
  - Storage (no package): 14°F to 140°F (-10°C to 60°C)
  - Storage (with package): -40°F to 140°F (-40°C to 60°C)

- **Humidity**
  - Operating: 10%~90%, non-condensing
  - Humidity-storage (package): 10%~90%, non-condensing

- **Altitude**
  - Operating (Unpressurized): -15.2m to 3048m

#### Storage Bays

<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>
<tr>
<td>Flex Bay</td>
<td>2 flex bays. Supports the following: 2x half-height optical drives, 2x 5.25”, 9.0mm optical bays, 1x 5.25”, 9.0mm optical drive + 2x 3.5/2.5” SATA SSD/HDD, 1x 3.5/2.5” SATA SSD/HDD with Front Access Storage Enclosure, 1x flex module for the following options: Tray 1: 9.0mm optical tray, Tray 2: 15-in-1 USB 3.0 reader, 2x Thunderbolt, 4x digital diagnostic display (Port 1 and 2: Front USB 3.0 Type-C or eSATA), 2x M.2 SSD with 2x Front Removable Drive Enclosures</td>
</tr>
</tbody>
</table>

#### Front ports
- 2x USB 3.0, microphone (3.5mm), headphone (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

#### 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 1
  - 1x COM port
  - 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W internal
  - 1x internal USB 3.0 port

#### Power supply
- One fixed 500W, 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 interfaces
- Integrated one gigabit Ethernet (Intel I219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available

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

#### Security features
- Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock

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

#### Intel AMT
- Intel Active Management Technology 11

#### DAR
- ThinkStation Diagnostics for Windows. 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

#### 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/](http://www.thinkworkstations.com/isv-certifications/)

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*Note:
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2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.

Lenovo, February 2019
ThinkStation P720 Platform Specifications

Product Specifications Reference (PSREF)

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 Sockets: 12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor
Memory Types: 768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)
Memory Protection: ECC

Offering

Discrete Graphics: Support up to 10x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD

Memory Capacity: 768GB DDR4-2933 RDIMM or 384GB DDR4-2666 RDIMM
Memory Protection: ECC

Memory Sockets: 12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor
Memory Types: DDR4-2666 RDIMM
Memory Capacity: 768GB DDR4-2933 RDIMM or 384GB DDR4-2666 RDIMM
Memory Protection: ECC

Expansion slots

Slot 1 (CPU2) PCIe 3.0 x4, 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 PCIe, full height, full length, 25W
Slot 6 (PCH) PCIe 3.0 x4, full height, full length, 25W, open ended

Discrete Graphics: Support up to 24 cores at 2.1 GHz; Up to 33 MB cache; Up to DDR4-2933 memory speed

Storage Bays

Max Storage: Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD

Power supply: 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 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 1.2 via UEFI setting. Chassis intrusion switch. Optional access panel lock, Kensington lock, and pad lock

Lenovo, May 2019
## ThinkStation P920 Platform Specifications

**Product Specifications Reference (PSREF)**

### Form factor
- 55L 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 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 Capacity
- 1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)

### Memory Sockets
- 16 DIMM sockets with 12 channels. 8 DIMM sockets with 6 channels per processor

### Processor Family
- **Quadro P5000 16GB GDDR5X 180W DVI-D DL+4xDP SLI**
- **Quadro P4000 8GB GDDR5 120W 4xDP**
- **Quadro P2000 5GB GDDR5 75W 4xDP**
- **Quadro P1000 4GB GDDR5 50W 4xDP**
- **Quadro P600 2GB GDDR5 30W 3xminiDP 4**
- **Quadro P400 2GB GDDR5 25W 3xminiDP 5**
- **Quadro RTX 4000 8GB GDR6 160W 3xDP, 1xVirtualLink**
- **Quadro RTX 4000 16GB GDR6 256W 4xDP, 1xVirtualLink**
- **Quadro RTX 6000 24GB GDR6 480W 4xVirtualLink**
- **Quadro RTX 8000 48GB GDR6 960W 4xVirtualLink**
- **Quadro GP 100 16GB HBMB 235W 1xDVI-D, 4xDP**
- **Quadro GV 100 32GB HBMB 250W 4xDP**

### Storage Bays
- **8 disk drives with 4 bays (2 bays standard, 2 bays optional)**
  - ** Supports up to 8x 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: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD**

### Storage Controller
- **NVS 810**
- **4GB DDR3 68W 8xmini DP**
- **Quadro P4000 2GB GDDR5 30W 3xminiDP**
- **Quadro P600 2GB GDDR5 45W 4xminiDP**
- **Quadro P600 2GB GDDR5 40W 4xminiDP**
- **Quadro P1000 4GB GDDR5 50W 4xminiDP**
- **Quadro P2000 5GB GDDR5 75W 4xDP**
- **Quadro P4000 8GB GDDR5 120W 4xDP**
- **Quadro P5000 16GB GDDR5X 180W DVI-D, DLP+4xDP SLI**
- **Quadro P6000 24GB GDDR5X 250W DVI-D, DLP, 4xDP SLI**
- **Quadro RTX 4000 8GB GDDR6 160W 3xDP, 1xVirtualLink**
- **Quadro RTX 5000 16GB GDDR6 256W 4xDP, 1xVirtualLink NVLink**
- **Quadro RTX 6000 24GB GDR6 480W 4xVirtualLink NVLink**
- **Quadro RTX 8000 48GB GDR6 960W 4xVirtualLink NVLink**
- **Quadro GP 100 16GB HBMB 235W 1xDVI-D, 4xDP NVLink**
- **Quadro GV 100 32GB HBMB 250W 4xDP NVLink**

### Storage Bays
- **SATA 6Gb/s 7.2K**
- **1TB/2TB/4TB/6TB**

### Memory Protection
- ECC

### 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 x16, full height, half length, 75W
- **Slot 7 (CPU2)** PCIe 3.0 x16, full height, full length, 75W
- **Slot 8 (CPU2)** PCIe 3.0 x16, full height, full length, 75W

### Discrete Graphics Offering
- **Graphics**
  - NVS 810: 4GB DDR3 68W 8xmini DP
  - Quadro P4000: 2GB GDDR5 30W 3xminiDP
  - Quadro P600: 2GB GDDR5 45W 4xminiDP
  - Quadro P600: 2GB GDDR5 40W 4xminiDP
  - Quadro P1000: 4GB GDDR5 50W 4xminiDP
  - Quadro P2000: 5GB GDDR5 75W 4xDP
  - Quadro P4000: 8GB GDDR5 120W 4xDP
  - Quadro P5000: 16GB GDDR5X 180W DVI-D, DLP+4xDP SLI
  - Quadro P6000: 24GB GDDR5X 250W DVI-D, DLP, 4xDP SLI
  - Quadro RTX 4000: 8GB GDDR6 160W 3xDP, 1xVirtualLink
  - Quadro RTX 5000: 16GB GDDR6 256W 4xDP, 1xVirtualLink NVLink
  - Quadro RTX 6000: 24GB GDR6 480W 4xVirtualLink NVLink
  - Quadro RTX 8000: 48GB GDR6 960W 4xVirtualLink NVLink
  - Quadro GP 100: 16GB HBMB 235W 1xDVI-D, 4xDP NVLink
  - Quadro GV 100: 32GB HBMB 250W 4xDP NVLink

### Storage Controller
- **Onboard Intel RSTe**
  - 8x SAS 6Gb/s, 2x SATA 6Gb/s, 4GB DDR4, 4x mini DP

### Rear ports
- **2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports**
- **line-in, line-out, mic-in**, 2x PS/2

### Environmental
- **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)**
  - 0-10000ft (0-3048m)
- **Altitude - storage**
  - 0-30,480ft (0-9216m)
- **Humidity - operating**
  - 10%–80%, non-condensing
- **Humidity - storage (with package)**
  - 10%–50%, non-condensing

### Environmental certifications
- RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BC0008US and 30BC0009US

### ISV certifications
- Please visit [www.thinkworkstations.com/isv-certifications/]

### Lenovo, May 2019

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2. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer.
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