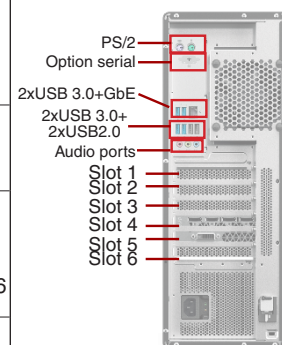


# ThinkStation P520 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																				
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 2.3GHz, up to 4.0GHz with 4 cores. Memory speed up to DDR4-2666																																																																																				
Chipset	Intel C422 Chipset																																																																																				
Memory	8 DIMM sockets with 4 channels. RDIMMs. DDR4-2666																																																																																				
Memory capacity	Up to 256GB with 8 x 32GB RDIMMs																																																																																				
Memory protection	ECC																																																																																				
Graphics	Two PCIe 3.0 x16 slots (see Expansion slots section). Up to two NVIDIA Quadro P6000 (900W PSU is needed). Supports the following graphics adapters:																																																																																				
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connector</th> <th>SLI</th> </tr> </thead> <tbody> <tr> <td>NVS 310</td> <td>48</td> <td>1GB</td> <td>19.5W</td> <td>2xDP</td> <td></td> </tr> <tr> <td>NVS 315</td> <td>48</td> <td>1GB</td> <td>19.3W</td> <td>2xDVI-I SL/2xDP</td> <td></td> </tr> <tr> <td>NVS 510</td> <td>192</td> <td>2GB</td> <td>33.4W</td> <td>4xmini DP</td> <td></td> </tr> <tr> <td>NVS 810</td> <td>1024</td> <td>4GB</td> <td>68W</td> <td>8xmini DP</td> <td></td> </tr> <tr> <td>Quadro P400</td> <td>256</td> <td>2GB</td> <td>30W</td> <td>3xminiDP</td> <td></td> </tr> <tr> <td>Quadro P600</td> <td>384</td> <td>2GB</td> <td>45W</td> <td>4xminiDP</td> <td></td> </tr> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> <td></td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB</td> <td>50W</td> <td>4xminiDP</td> <td></td> </tr> <tr> <td>Quadro P2000</td> <td>1024</td> <td>5GB</td> <td>75W</td> <td>4xDP</td> <td></td> </tr> <tr> <td>Quadro P4000</td> <td>1792</td> <td>8GB</td> <td>120W</td> <td>4xDP</td> <td></td> </tr> <tr> <td>Quadro P5000</td> <td>2560</td> <td>16GB</td> <td>180W</td> <td>DVI-D DL+4xDP</td> <td>SLI</td> </tr> <tr> <td>Quadro P6000</td> <td>3840</td> <td>24GB</td> <td>250W</td> <td>DVI-D DL+4xDP</td> <td></td> </tr> <tr> <td>Quadro GV100</td> <td>5120</td> <td>32GB HBM2</td> <td>250W</td> <td>4xDP</td> <td></td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connector	SLI	NVS 310	48	1GB	19.5W	2xDP		NVS 315	48	1GB	19.3W	2xDVI-I SL/2xDP		NVS 510	192	2GB	33.4W	4xmini DP		NVS 810	1024	4GB	68W	8xmini DP		Quadro P400	256	2GB	30W	3xminiDP		Quadro P600	384	2GB	45W	4xminiDP		Quadro P620	512	2GB GDDR5	40W	4x miniDP		Quadro P1000	640	4GB	50W	4xminiDP		Quadro P2000	1024	5GB	75W	4xDP		Quadro P4000	1792	8GB	120W	4xDP		Quadro P5000	2560	16GB	180W	DVI-D DL+4xDP	SLI	Quadro P6000	3840	24GB	250W	DVI-D DL+4xDP		Quadro GV100	5120	32GB HBM2	250W	4xDP	
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Storage controllers	Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1/10/5. Integrated Intel PCIe host in processor for M.2 PCIe NVMe drives, optional RAID 0/1/10 with Intel NVMe RAID upgrade basic, optional RAID 0/1/10/5 with Intel NVMe RAID upgrade premium.																																																																																				
	Optional Broadcom 9440-8i, PCIe adapter, 12Gbps, SATA/SAS, RAID 0/1/10/5. Or optional Broadcom 9460-16i with 4GB DDR4 memory and SuperCap, PCIe adapter, 12Gbps, SATA/SAS, RAID 0/1/10/5/6																																																																																				
5.25" flex bay	Two 5.25" flex bays, supports the following options: <ul style="list-style-type: none"> <li>Up to two half-height optical drives.</li> <li>Up to two 5.25" slim ODD cages.</li> <li>Up to two 5.25" slim ODD and HDD cages.</li> <li>Up to one Front Access Storage Enclosure.</li> <li>Up to one flex module for one or more of the following options: 9.0mm optical/15-in-1 USB 3.0 reader/front eSATA/front Thunderbolt/front USB 3.0 Type-C/4-digit diagnostic display</li> </ul> <p>Note:  1. Only one can be supported from 15-in-1 reader, Thunderbolt, and 4-digit display  2. Up to two ports are supported from 1394, eSATA, and USB Type-C</p>																																																																																				
Disk drive bays	Up to four internal 3.5" drive bays. Two standard, two optional. Each bay supports one 3.5" or 2.5" disk. Up to two 2.5" or 3.5" SATA/SAS disk drives on 5.25" flex bays via 5.25" Front Access Storage Enclosure supports SATA or 5.25" slim ODD and HDD cage																																																																																				
M.2 slots	Up to 9 x M.2 PCIe NVMe SSD: <ul style="list-style-type: none"> <li>Two onboard M.2 slots.</li> <li>Up to one full height, full length PCIe 3.0 x16 adapter, supports four M.2 slots.</li> <li>Up to three PCIe 3.0 x4 adapters, each adapter supports one M.2 slot</li> </ul> Supports RAID 0/1 on onboard M.2 disks and RAID 0/1/10/5 on quad M.2 PCIe x16 adapter, optional NVMe RAID upgrade is needed																																																																																				
Internal storage	HDD 7.2K 3.5" SATA6Gbps 1TB/2TB/4TB/6TB																																																																																				
	HDD 7.2K 2.5" SATA6Gbps 500GB FIPS																																																																																				
	SSD 2.5" SATA6Gbps 256GB Opal/512GB/512GB Opal/1TB Opal/2TB Opal																																																																																				
	M.2 PCIe NVMe, PCIe 3.0 x4 256GB Opal/512GB Opal/1TB Opal/2TB Opal																																																																																				
Media reader	9-in-1 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																																																																																				
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																																																																																				

Components	Specification		
Systems management	Intel Active Management Technology 11. Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS. Optional front 4-digit diagnostic display on flex module		
Base warranty	1 or 3-year limited onsite service with 9x5/NBD		
HD Audio	Realtek ALC662 codec for rear audio ports, Realtek ALC233 codec for front audio port		
Front ports	Four USB 3.0 (includes one 11W charging), one combo audio/microphone jack (3.5mm)		
Rear ports	Two USB 2.0, four USB 3.0, one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), two PS/2		
Optional ports	Supports the following optional ports: <ul style="list-style-type: none"> <li>Optional COM port</li> <li>Two USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W</li> <li>Two Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out.</li> <li>One eSATA on flex module</li> <li>One internal USB 3.0 port</li> </ul>		
Power supply	One fixed 690W or 900W, autosensing, 92%, 80 PLUS Platinum qualified		
Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)	
	Temperature - non operating (no package)	14 °F to 140 °F (-10 °C to 60 °C)	
	Temperature - non operating (with package)	-40 °F to 140 °F (-40 °C to 60 °C)	
	Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)	
	Humidity - operating	10%-80%, non-condensing	
	Humidity - storage (with package)	10%-90%, non-condensing	
	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 6.1 qualified on following models:		
	Model	30BE0008US	30BE0009US
	Processor	Intel Xeon W-2123	Intel Xeon W-2123
	Memory	2 x 8GB RDIMM DDR4-2666 ECC	2 x 8GB RDIMM DDR4-2666 ECC
Disks	2x1TB HDD 7.2K 3.5" SATA6Gbps	2 x 256GB SSD 2.5" SATA6Gbps Opal	
Graphics	NVIDIA Quadro P400 2GB	NVIDIA Quadro P4000 8GB	
Optical	HH DVD±RW	HH DVD±RW	
PSU	690W	690W	
OS	Win10 Pro 64	Win10 Pro 64	
ISV certifications	Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a>		



Note: All expansion cards are optional

## Expansion slots

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