

# ThinkStation P520 Platform Specifications - I of II

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 Support	Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
	Xeon W-2295	18	36	3.0GHz	24.75MB	165W	DDR4-2933
	Xeon W-2275	14	28	3.3GHz	19.25MB	165W	DDR4-2933
	Xeon W-2265	12	24	3.5GHz	19.25MB	165W	DDR4-2933
	Xeon W-2255	10	20	3.7GHz	19.25MB	165W	DDR4-2933
	Xeon W-2245	8	16	3.9GHz	16.5MB	155W	DDR4-2933
	Xeon W-2235	6	12	3.8GHz	8.25MB	130W	DDR4-2933
	Xeon W-2225	4	8	4.1GHz	8.25MB	105W	DDR4-2933
	Xeon W-2223	4	8	3.6GHz	8.25MB	120W	DDR4-2666
	Xeon W-2195	18	36	2.3GHz	24.75MB	140W	DDR4-2666
	Xeon W-2175	14	28	2.5GHz	19MB	140W	DDR4-2666
	Xeon W-2155	10	20	3.3GHz	13.75MB	140W	DDR4-2666
	Xeon W-2145	8	16	3.7GHz	11MB	140W	DDR4-2666
	Xeon W-2135	6	12	3.7GHz	8.25MB	140W	DDR4-2666
	Xeon W-2133	6	12	3.6GHz	8.25MB	140W	DDR4-2666
	Xeon W-2125	4	8	4.0GHz	8.25MB	120W	DDR4-2666
	Xeon W-2123	4	8	3.6GHz	8.25MB	120W	DDR4-2666
Xeon W-2104	4	4	3.2GHz	8.25MB	120W	DDR4-2400	
Xeon W-2102	4	4	2.9GHz	8.25MB	120W	DDR4-2400	
Processor Sockets	1x FCLGA2066						
Chipset	Intel C422 Chipset						
Memory Sockets	8 DIMM sockets with 4 channels						
Memory Types	DDR4-2666 RDIMM or DDR4-2933 RDIMM						
Memory Capacity	512GB with 8 x 64GB DDR4-2933 RDIMMs						
Memory Protection	ECC						
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					
Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVLink	Max Qty	
	NVS 810	4GB DDR3	68W	8xmini DP		2	
	Quadro P400	2GB GDDR5	30W	3xminiDP		2	
	Quadro P600	2GB GDDR5	45W	4xminiDP		2	
	Quadro P620	2GB GDDR5	40W	4xminiDP		2	
	Quadro P1000	4GB GDDR5	50W	4xminiDP		2	
	Quadro P2000	5GB GDDR5	75W	4xDP		2	
	Quadro P4000	8GB GDDR5	120W	4xDP		2	
	Quadro P5000	16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	2	
	Quadro P6000	24GB GDDR5X	250W	DVI-D DL+4xDP		1	
	Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		2	
	Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink	NVLink	2	
	Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2	
	Quadro RTX 8000	48GB GDDR6	295W	4xDP, 1xVirtualLink		1	
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVLink	2		
Quadro GV100	32GB HBM2	250W	4xDP		1		
Storage Controller	Storage Controller	Type	Interface	RAID	Cache		
	Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5			
	9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5			
	9460-16i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5/6	4GB DDR4, SuperCap		
	NVMe Basic	Opt	PCIe NVMe	0/1/10			
	NVMe Premium	Opt	PCIe NVMe	0/1/10/5			
NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5				

Storage Support	Disk Type	Interface	RPM	Offering	Max Qty
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	6
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	6
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9
	PCIe AIC SSD	PCIe NVMe		480GB	2 (1 when quad M.2 adapter used)
Storage Bays	Bay Type	Maximum Drives Qty			
	M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)			
	Flex Bay	2 flex bays. Supports the following: <ul style="list-style-type: none"> <li>• 2x half-height optical drives</li> <li>• 2x 5.25" 9.0mm optical drives</li> <li>• 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD</li> <li>• 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure</li> </ul> 1x flex module for the following options: <ul style="list-style-type: none"> <li>• Tray 1: 9.0mm optical</li> <li>• Tray 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt, or 4-digit diagnostic display</li> <li>• Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA</li> <li>• 2x M.2 SSD with 2x Front Removable Drive Enclosures</li> </ul>			
	Disk bay	Up to 4x 3.5" or 2.5" disks with 4 disk bays (2 bays standard, 2 bays optional)			
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				
Power supply	Supports one of the following: <ul style="list-style-type: none"> <li>• One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified</li> <li>• One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified</li> <li>• One fixed 1000W, autosensing, 92%, 80 PLUS Platinum qualified</li> </ul>				
Media reader	USB 2.0 9-in-1 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module				
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters 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. 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				
Diagnostic	Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diag-nostics for Android and iOS. Optional front 4-digit diagnostic display on flex module				
Base warranty	1 or 3-year limited onsite service with 9x5/NBD				
HD Audio	Realtek ALC662 codec				
Front ports	4x USB 3.1 Gen 1 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)				
Rear ports	2x USB 2.0, 4x USB 3.1 Gen 1, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2				
Optional ports	Front: <ul style="list-style-type: none"> <li>• 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out</li> <li>• 1x eSATA on flex module</li> <li>• 1x USB Type-C on flex module, USB 3.1 Gen 1</li> </ul> Rear: <ul style="list-style-type: none"> <li>• 1x COM port</li> <li>• 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W</li> </ul> Internal: <ul style="list-style-type: none"> <li>• 1x internal USB 3.1 Gen 1 port</li> </ul>				

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Product Specifications Reference (PSREF)

Environmental specification	Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
	Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)
	Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)
	Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)
	Humidity - operating	10%~80%, non-condensing
	Humidity - storage (with package)	10%~90%, non-condensing
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 30BE0008US and 30BE0009US	
ISV certifications	Please visit <a href="http://www.thinkworkstations.com/isv-certifications/">www.thinkworkstations.com/isv-certifications/</a>	

**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](#)