ThinkStation P520 Platform Specifications

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-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
Memory Capacity	256GB with 8 x 32GB 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 / NV-link	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		1
Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink		1
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: • 2x half-height optical drives • 2x 5.25" 9.0mm optical drives • 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 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA • 2x M.2 SSD with 2x Front Removable Drive Enclosures
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: • One fixed 690W, 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 3.1 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: • 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 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 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)
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 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. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer