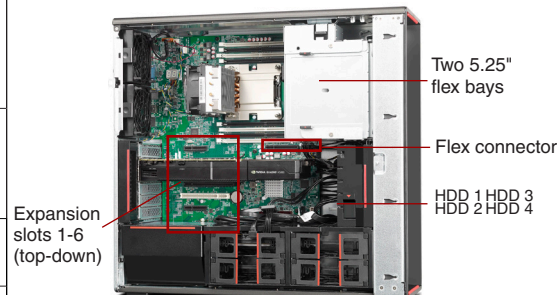


ThinkStation P510 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																												
Chipset	Intel C612 Platform Controller Hub (PCH)																																																																																																												
System mgmt	Intel Active Management Technology 9																																																																																																												
Processor	Up to one 145W Intel Xeon E5-2600 v4 or E5-1600 v4 family processors. 22 cores up to 2.2GHz, 16 cores up to 2.6GHz, 14 cores up to 2.6GHz, 12 cores up to 2.2GHz, 10 cores up to 2.4GHz, 8 cores up to 3.4GHz, 6 cores up to 3.6GHz, 4 cores up to 3.7GHz Or up to one Intel Xeon E5-2600 v3 or E5-1600 v3 processors (not available in EMEA).																																																																																																												
Coprocessor	None																																																																																																												
Memory DIMM slots	8 DIMM sockets, 4-channel capable. RDIMM, ECC, DDR4, 2400MHz																																																																																																												
Memory capacity	256GB																																																																																																												
Graphics, GPU computing	Two PCIe 3.0 x16 slots for graphics and GPU computing adapters. Up to two NVIDIA Quadro M5000 SLI																																																																																																												
Supporting Graphics and GPU computing	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>SLI</th> <th>Connector***</th> </tr> </thead> <tbody> <tr> <td>NVS 310</td> <td>48</td> <td>1GB</td> <td>19.5W</td> <td></td> <td>2xDP</td> </tr> <tr> <td>NVS 315</td> <td>48</td> <td>1GB</td> <td>19.5W</td> <td></td> <td>2xDVI-I SL/2xDP</td> </tr> <tr> <td>NVS 510</td> <td>192</td> <td>2GB</td> <td>35W</td> <td></td> <td>4xmini DP</td> </tr> <tr> <td>NVS 810</td> <td>1024</td> <td>4GB</td> <td>68W</td> <td></td> <td>8xmini DP</td> </tr> <tr> <td>Quadro K420</td> <td>192</td> <td>2GB</td> <td>41W</td> <td></td> <td>DVI-I DL+DP</td> </tr> <tr> <td>Quadro K620</td> <td>384</td> <td>2GB</td> <td>45W</td> <td></td> <td>DVI-I DL+DP</td> </tr> <tr> <td>Quadro K1200</td> <td>512</td> <td>4GB</td> <td>45W</td> <td></td> <td>4xmini DP</td> </tr> <tr> <td>Quadro K2200</td> <td>640</td> <td>4GB</td> <td>68W</td> <td></td> <td>DVI-I DL+2xDP</td> </tr> <tr> <td>Quadro K4200</td> <td>1344</td> <td>4GB</td> <td>108W</td> <td></td> <td>DVI-I DL+2xDP</td> </tr> <tr> <td>Quadro K5200</td> <td>2304</td> <td>8GB</td> <td>150W</td> <td>SLI</td> <td>DVI-I DL+DVI-D DL+2xDP</td> </tr> <tr> <td>Quadro M2000</td> <td>768</td> <td>4GB</td> <td>75W</td> <td></td> <td>4xDP</td> </tr> <tr> <td>Quadro M4000</td> <td>1664</td> <td>8GB</td> <td>120W</td> <td></td> <td>4xDP</td> </tr> <tr> <td>Quadro M5000</td> <td>2048</td> <td>8GB</td> <td>150W</td> <td>SLI</td> <td>DVI-I DL+4xDP</td> </tr> <tr> <td>Quadro M6000</td> <td>3072</td> <td>24GB</td> <td>250W</td> <td></td> <td>DVI-I DL+4xDP</td> </tr> <tr> <td>Quadro P5000</td> <td>2560</td> <td>16GB</td> <td>180W</td> <td></td> <td>DVI-D DL+4xDP</td> </tr> <tr> <td>Quadro P6000</td> <td>3840</td> <td>24GB</td> <td>250W</td> <td></td> <td>DVI-D DL+4xDP</td> </tr> <tr> <td>Tesla K40</td> <td>2880</td> <td>12GB</td> <td>235W</td> <td></td> <td></td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	SLI	Connector***	NVS 310	48	1GB	19.5W		2xDP	NVS 315	48	1GB	19.5W		2xDVI-I SL/2xDP	NVS 510	192	2GB	35W		4xmini DP	NVS 810	1024	4GB	68W		8xmini DP	Quadro K420	192	2GB	41W		DVI-I DL+DP	Quadro K620	384	2GB	45W		DVI-I DL+DP	Quadro K1200	512	4GB	45W		4xmini DP	Quadro K2200	640	4GB	68W		DVI-I DL+2xDP	Quadro K4200	1344	4GB	108W		DVI-I DL+2xDP	Quadro K5200	2304	8GB	150W	SLI	DVI-I DL+DVI-D DL+2xDP	Quadro M2000	768	4GB	75W		4xDP	Quadro M4000	1664	8GB	120W		4xDP	Quadro M5000	2048	8GB	150W	SLI	DVI-I DL+4xDP	Quadro M6000	3072	24GB	250W		DVI-I DL+4xDP	Quadro P5000	2560	16GB	180W		DVI-D DL+4xDP	Quadro P6000	3840	24GB	250W		DVI-D DL+4xDP	Tesla K40	2880	12GB	235W		
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RAID controller	Supports one of the following: RAID 0, 1, 5, 10 with onboard SATA controller in chipset, SATA 6Gb/s. RAID 0, 1, 5, 10 with optional LSI RAID flex adapter, 12Gb/s SAS and SATA. RAID 0, 1, 5, 6, 10 with optional LSI 9364-8i PCIe adapter, 1GB memory, 12Gb/s SAS and SATA																																																																																																												
Drive Bays	Two external 5.25" flex bays for flex module, optical drives, or optional disk drives. Four 3.5" internal bays. Each 3.5" bay can support dual drives on selected models (see right).																																																																																																												
Flex bay	Two 5.25" flex bays for optical drives, Front Access Storage Enclosure drives, Flex Bay Storage Enclosure drives, or flex module. • Up to two half-height optical drives or up to one 9.5mm optical drive, DVD-ROM, DVD±RW, or Blu-Ray burner • Up to one Front Access Storage Enclosure for one 3.5" or 2.5" SATA drive. • Up to two Flex Bay Storage Enclosure for two 3.5" or 2.5" SATA drives.																																																																																																												
Supporting storage	3.5" HDD, 7.2K SATA6Gbs	500GB/1TB/2TB/3TB/4TB/6TB/1TB hybrid/2TB hybrid																																																																																																											
	2.5" HDD, 15K SAS12Gbs	300GB/600GB																																																																																																											
	2.5" SSD, SAS12Gbs	200GB/400GB/800GB																																																																																																											
	2.5" SAS HDD, 10K 12Gbs	300GB																																																																																																											
	2.5" SSD, SATA6Gbs	180GB/240GB/256GB/480GB with OPAL, 256GB/512GB/1TB without OPAL																																																																																																											
	PCIe SSD, U.2	400GB																																																																																																											
PCIe SSD, M.2	256 GB/512GB/1TB																																																																																																												
PCIe SSD adapter	400GB (up to 3 per system)																																																																																																												
Flex connector	One flex connector, supports one of the following: • Up to one LSI RAID flex adapter for SATA/SAS RAID • Up to one Multi-I/O flex adapters for one 2.5" PCIe SSD • Up to one M.2 flex adapters for one M.2 PCIe SSD																																																																																																												
Network interfaces	Integrated one Gigabit Ethernet (Intel i218LM), supports Wake-on-LAN. Optional discrete Ethernet is available																																																																																																												
HD Audio	Realtek ALC662 codec																																																																																																												
TPM	TCG 1.2-compliant																																																																																																												
Power supply	One fixed 490 watts, autosensing, 90%, 80 PLUS Gold qualified. Or one fixed 650 watts, autosensing, 92%, 80 PLUS Platinum qualified																																																																																																												

Components	Specification	
Front ports	Four USB 3.0 (one Diagnostic, one Always On), one combo audio/microphone jack (3.5mm)	
Rear ports	Four 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), two PS/2	
Add-on ports	Supports the following optional ports: Two IEEE 1394 (one on rear and one on front flex module) via PCIe adapter, up to one adapter per system. Two rear USB 3.0 per PCIe adapter, up to three adapters per system. One rear Thunderbolt via PCIe adapter. One front eSATA (on flex module), or one rear eSATA via cable (also needs one PCIe slot), up to one eSATA port per system. One internal USB 3.0 port via cable, cannot be intermixed with 29-in-1 reader	
Media reader	9-in-1 USB 2.0 or 29-in-1 USB 3.0 card reader	
Mechanical	<ul style="list-style-type: none"> 36-liter: 175mm/6.89" W x 470mm/18.5" D x 440mm/17.32" H (with feet) Tool-less parts: all except CPU fansink 48.94 lb (22.2kg) max configuration 	
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): 0-10000ft (0-3048m)
	Humidity - operating	10%-80%, non-condensing
	Humidity - storage (with package)	10%-90%, non-condensing
	RoHS-compliant, GREENGUARD on all models. EPEAT Gold rating, ENERGY STAR 6.1 qualified on selected models.	
Base warranty	3-year limited onsite service with 9x5/NBD	



Expansion slots

- Slot 1: PCIe 3.0 x4, Half length, full height
- Slot 2: PCIe 3.0 x16, Full length, full height
- Slot 3: PCIe 2.0 x1, Full length, full height
- Slot 4: PCIe 3.0 x16, Full length, full height
- Slot 5: PCI, Full length, full height
- Slot 6: PCIe 2.0 x4, Half length, full height

Drive Bays

- HDD 1-4: Standard 3.5" HDD bay, up to four 3.5" or 2.5" disk drives.
On selected models, each 3.5" bay can support 2.5" (9mm or less) drive plus 3.5" drive, or two 2.5" (15mm or less) drives.
- Flex bay: Two 5.25" flex bays, for HH optical drives.
Or up to one optional flex module (Flex module supports one or more of the following options: 9.5mm optical/29-in-1 USB 3.0 reader/front IEEE 1394/front eSATA).
Or up to two HDD bays for two drives, 3.5" or 2.5" each, SATA only.

For the list of ISV certifications, please visit www.thinkworkstations.com/isv-certifications
For a list of all supported options, please visit https://download.lenovo.com/pccbbs/options_iso/ocm_december_2016.xlsx sheet