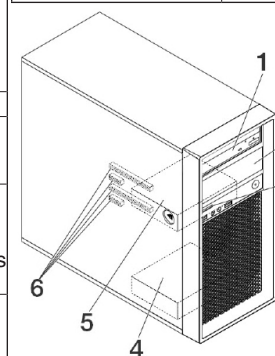


ThinkStation P320 Tower Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																		
Chipset	Intel C236 Chipset																																																		
Intel AMT	Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models																																																		
Processor	One Intel "Kaby Lake" or "Skylake" processor as listed: "Kaby Lake"																																																		
	<table><tr><td>Xeon E3-1280 v6</td><td>4C/3.9GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1275 v6</td><td>4C/3.8GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1270 v6</td><td>4C/3.8GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1245 v6</td><td>4C/3.7GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1240 v6</td><td>4C/3.7GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1230 v6</td><td>4C/3.5GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Xeon E3-1225 v6</td><td>4C/3.3GHz/8MB/73W/DDR4-2400</td></tr><tr><td>Xeon E3-1220 v6</td><td>4C/3GHz/8MB/72W/DDR4-2400</td></tr><tr><td>Core i7-7700K</td><td>4C/4.2GHz/8MB/91W/DDR4-2400</td></tr><tr><td>Core i7-7700</td><td>4C/3.6GHz/8MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7600</td><td>4C/3.5GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7500</td><td>4C/3.4GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i5-7400</td><td>4C/3GHz/6MB/65W/DDR4-2400</td></tr><tr><td>Core i3-7300</td><td>2C/4GHz/4MB/51W/DDR4-2400</td></tr><tr><td>Core i3-7100</td><td>2C/3.9GHz/3MB/51W/DDR4-2400</td></tr></table>	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400	Xeon E3-1275 v6	4C/3.8GHz/8MB/73W/DDR4-2400	Xeon E3-1270 v6	4C/3.8GHz/8MB/72W/DDR4-2400	Xeon E3-1245 v6	4C/3.7GHz/8MB/73W/DDR4-2400	Xeon E3-1240 v6	4C/3.7GHz/8MB/72W/DDR4-2400	Xeon E3-1230 v6	4C/3.5GHz/8MB/72W/DDR4-2400	Xeon E3-1225 v6	4C/3.3GHz/8MB/73W/DDR4-2400	Xeon E3-1220 v6	4C/3GHz/8MB/72W/DDR4-2400	Core i7-7700K	4C/4.2GHz/8MB/91W/DDR4-2400	Core i7-7700	4C/3.6GHz/8MB/65W/DDR4-2400	Core i5-7600	4C/3.5GHz/6MB/65W/DDR4-2400	Core i5-7500	4C/3.4GHz/6MB/65W/DDR4-2400	Core i5-7400	4C/3GHz/6MB/65W/DDR4-2400	Core i3-7300	2C/4GHz/4MB/51W/DDR4-2400	Core i3-7100	2C/3.9GHz/3MB/51W/DDR4-2400																				
	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400																																																	
	Xeon E3-1275 v6	4C/3.8GHz/8MB/73W/DDR4-2400																																																	
	Xeon E3-1270 v6	4C/3.8GHz/8MB/72W/DDR4-2400																																																	
	Xeon E3-1245 v6	4C/3.7GHz/8MB/73W/DDR4-2400																																																	
	Xeon E3-1240 v6	4C/3.7GHz/8MB/72W/DDR4-2400																																																	
	Xeon E3-1230 v6	4C/3.5GHz/8MB/72W/DDR4-2400																																																	
	Xeon E3-1225 v6	4C/3.3GHz/8MB/73W/DDR4-2400																																																	
	Xeon E3-1220 v6	4C/3GHz/8MB/72W/DDR4-2400																																																	
	Core i7-7700K	4C/4.2GHz/8MB/91W/DDR4-2400																																																	
	Core i7-7700	4C/3.6GHz/8MB/65W/DDR4-2400																																																	
	Core i5-7600	4C/3.5GHz/6MB/65W/DDR4-2400																																																	
	Core i5-7500	4C/3.4GHz/6MB/65W/DDR4-2400																																																	
	Core i5-7400	4C/3GHz/6MB/65W/DDR4-2400																																																	
	Core i3-7300	2C/4GHz/4MB/51W/DDR4-2400																																																	
	Core i3-7100	2C/3.9GHz/3MB/51W/DDR4-2400																																																	
	"Skylake"																																																		
	<table><tr><td>Xeon E3-1245 v5</td><td>4C/3.5GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1240 v5</td><td>4C/3.5GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1230 v5</td><td>4C/3.4GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1225 v5</td><td>4C/3.3GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Xeon E3-1220 v5</td><td>4C/3GHz/8MB/80W/DDR4-2133</td></tr><tr><td>Core i7-6700</td><td>4C/3.4GHz/8MB/65W/DDR4-2133</td></tr><tr><td>Core i5-6500</td><td>4C/3.2GHz/6MB/65W/DDR4-2133</td></tr><tr><td>Core i5-6400</td><td>4C/2.7GHz/6MB/65W/DDR4-2133</td></tr><tr><td>Core i3-6100</td><td>2C/3.7GHz/3MB/51W/DDR4-2133</td></tr></table>	Xeon E3-1245 v5	4C/3.5GHz/8MB/80W/DDR4-2133	Xeon E3-1240 v5	4C/3.5GHz/8MB/80W/DDR4-2133	Xeon E3-1230 v5	4C/3.4GHz/8MB/80W/DDR4-2133	Xeon E3-1225 v5	4C/3.3GHz/8MB/80W/DDR4-2133	Xeon E3-1220 v5	4C/3GHz/8MB/80W/DDR4-2133	Core i7-6700	4C/3.4GHz/8MB/65W/DDR4-2133	Core i5-6500	4C/3.2GHz/6MB/65W/DDR4-2133	Core i5-6400	4C/2.7GHz/6MB/65W/DDR4-2133	Core i3-6100	2C/3.7GHz/3MB/51W/DDR4-2133																																
	Xeon E3-1245 v5	4C/3.5GHz/8MB/80W/DDR4-2133																																																	
	Xeon E3-1240 v5	4C/3.5GHz/8MB/80W/DDR4-2133																																																	
	Xeon E3-1230 v5	4C/3.4GHz/8MB/80W/DDR4-2133																																																	
	Xeon E3-1225 v5	4C/3.3GHz/8MB/80W/DDR4-2133																																																	
	Xeon E3-1220 v5	4C/3GHz/8MB/80W/DDR4-2133																																																	
	Core i7-6700	4C/3.4GHz/8MB/65W/DDR4-2133																																																	
	Core i5-6500	4C/3.2GHz/6MB/65W/DDR4-2133																																																	
	Core i5-6400	4C/2.7GHz/6MB/65W/DDR4-2133																																																	
Core i3-6100	2C/3.7GHz/3MB/51W/DDR4-2133																																																		
Memory DIMM slots	4 DIMM slots, 2-channel (integrated memory controller in processor)																																																		
Memory type/capacity	Up to 64GB ECC/non-ECC (4 x 16GB), DDR4-2400. UDIMM. "Skylake" processor supports up to DDR4-2133. Core i7 and i5 processors cannot support ECC.																																																		
Intel HD Graphics in processor	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.																																																		
Discrete graphics	Two PCI Express 3.0 x16 slots for graphics adapters. Up to two Quadro P1000 on 250 watts models. Or up to two Quadro P2000, or up to one Quadro P4000 on 400 watts models. Supports the following NVIDIA graphics adapters:																																																		
	<table><tr><th>Adapter</th><th>Cores</th><th>Memory</th><th>Power</th><th>Connector</th></tr><tr><td>NVS 310</td><td>48</td><td>1GB</td><td>19.5W</td><td>2xDP</td></tr><tr><td>NVS 315</td><td>48</td><td>1GB</td><td>19.5W</td><td>2xDVI-I SL/2xDP</td></tr><tr><td>NVS 510</td><td>192</td><td>2GB</td><td>33.4W</td><td>4xmini DP</td></tr><tr><td>NVS 810</td><td>1024</td><td>4GB</td><td>68W</td><td>8xmini DP</td></tr><tr><td>Quadro P400</td><td>256</td><td>2GB</td><td>30W</td><td>3xminiDP</td></tr><tr><td>Quadro P600</td><td>384</td><td>2GB</td><td>40W</td><td>4xminiDP</td></tr><tr><td>Quadro P1000</td><td>640</td><td>4GB</td><td>47W</td><td>4xminiDP</td></tr><tr><td>Quadro P2000</td><td>1024</td><td>5GB</td><td>75W</td><td>4xDP</td></tr><tr><td>Quadro P4000</td><td>1792</td><td>8GB</td><td>105W</td><td>4xDP</td></tr></table>	Adapter	Cores	Memory	Power	Connector	NVS 310	48	1GB	19.5W	2xDP	NVS 315	48	1GB	19.5W	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	40W	4xminiDP	Quadro P1000	640	4GB	47W	4xminiDP	Quadro P2000	1024	5GB	75W	4xDP	Quadro P4000	1792	8GB	105W	4xDP
	Adapter	Cores	Memory	Power	Connector																																														
	NVS 310	48	1GB	19.5W	2xDP																																														
	NVS 315	48	1GB	19.5W	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	40W	4xminiDP																																														
	Quadro P1000	640	4GB	47W	4xminiDP																																														
Quadro P2000	1024	5GB	75W	4xDP																																															
Quadro P4000	1792	8GB	105W	4xDP																																															
Onboard drive controller	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																																																		
Drive Bays	Two external 5.25" bays, two internal 3.5" bays (see right). Up to one 9mm optical plus 4 x 3.5" disk drive bays plus two M.2 NVMe SSD																																																		
Supporting disk drives	3.5" SATA HDD (7.2K 6Gbs)																																																		
	2.5" SATA SSD (6Gbs)																																																		
	M.2 NVMe SSD, via PCIe adapter																																																		
Max internal storage	16TB (4 x 4TB 3.5" HDDs) plus 2TB (2 x 1TB) M.2 NVMe SSD																																																		
Media reader	9-in-1 card reader. Optional 29-in-1 card reader on selected models																																																		

Components	Specification
Power supply	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. US models use 400 watts PSU
Onboard Ethernet	One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN
HD Audio	Realtek ALC662 codec
TPM	Standard, TCG 2.0-compliant
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 6.89"W x 16.77"D x 14.8"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/



Drive Bays and PCIe Slots

Bay 1 and Bay 2	5.25", support one of the following: HH optical/flex module/9mm optical+3.5" HDD bay/ 3.5" HDD bay/Front Access Storage Enclosure (FASE) <i>Note:</i> 1. Flex module supports one or more of the following: 9mm optical/29-in-1 reader/front IEEE 1394/front eSATA. 2. Up to one flex module/FASE per system.
Bay 3	Optional 9-in-1 single slot reader
Bay 4	Standard 3.5" HDD bay
Bay 5	Standard 3.5" HDD bay
6 -Slots	Four PCIe slots (top-down): Slot 1: Half length, full height, PCIe 3.0 x16 (near CPU) Slot 2: Half length, full height, PCIe 3.0 x1 Slot 3: Half length, full height, PCIe 3.0 x16 (x4 elec) Slot 4: Half length, full height, PCIe 3.0 x1 <i>Note:</i> 1. Both discrete graphics adapter and M.2 NVMe SSD should be installed on slot 1 or slot 3, the maximum quantity of discrete graphics adapter and M.2 NVMe SSD is 2. 2. When two discrete graphics adapters are used, no other PCIe card can be used.