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Product Specifications Reference

Version 544, June 2019

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Lenovo ThinkPad Laptops

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Version 544, June 2019

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

June 26, 2019 - Version 544

Additions in this update

▶ **New product(s)**

ThinkPad P53s announced June 2019

ThinkPad X1 Carbon (7th Gen) announced June 2019

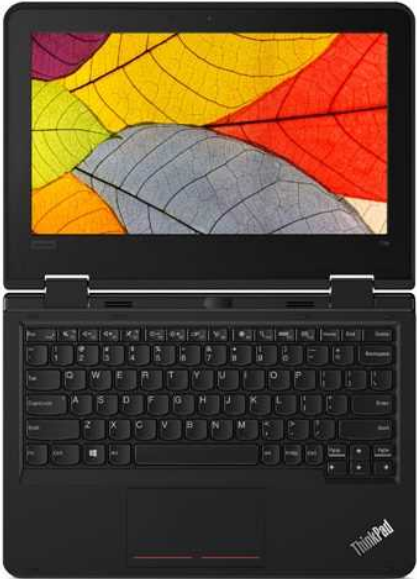
▶ **Others**

ThinkPad 11e (5th Gen) - 45W or 65W USB Type-C AC adapter added

Withdrawals in this update

▶ **Withdrawn product(s)**

None



ThinkPad 11e (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor							Dimensions	<i>WxDxH:</i> 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm																																	
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Burst Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>m3-7Y30</td> <td rowspan="2">2</td> <td rowspan="2">4</td> <td>1.0 GHz</td> <td>2.6 GHz</td> <td>4MB</td> <td rowspan="2">LPDDR3-1866</td> <td rowspan="2">Intel HD Graphics 615</td> </tr> <tr> <td>i5-7Y54</td> <td>1.2 GHz</td> <td>3.2 GHz</td> <td>4MB</td> </tr> <tr> <td>Celeron N4100</td> <td rowspan="2">4</td> <td rowspan="2">4</td> <td>1.1 GHz</td> <td>2.4 GHz</td> <td>4MB</td> <td rowspan="2">DDR4-2400</td> <td>Intel UHD Graphics 600</td> </tr> <tr> <td>Pentium Silver N5000</td> <td>1.1 GHz</td> <td>2.7 GHz</td> <td>4MB</td> <td>Intel UHD Graphics 605</td> </tr> </tbody> </table>							Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics	m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615	i5-7Y54	1.2 GHz	3.2 GHz	4MB	Celeron N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600	Pentium Silver N5000	1.1 GHz	2.7 GHz	4MB	Intel UHD Graphics 605	Weight	Starting at 2.99 lb (1.36 kg)
	Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics																																		
	m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615																																		
	i5-7Y54			1.2 GHz	3.2 GHz	4MB																																				
Celeron N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600																																			
Pentium Silver N5000			1.1 GHz	2.7 GHz	4MB		Intel UHD Graphics 605																																			
							Case color	Black																																		
							Case material	<i>Display cover:</i> PC/ABS+GF; <i>Bottom:</i> PC/ABS plastic																																		
							Media reader	MicroSD card reader																																		
							Ports	Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																																		
							Camera	HD720p camera, fixed focus																																		
							Audio support	HD Audio, Realtek® ALC3287 codec, stereo speakers, 2W x 2, Dolby® Audio™, monaural digital microphone, combo audio/microphone jack																																		
Graphics	Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Keyboard	6-row, spill-resistant, multimedia Fn keys																																	
Chipset	Intel SoC (System on Chip) platform							Touchpad	Buttonless Mylar surface touchpad below keyboard, multi-touch																																	
Memory	4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets							Security	Power-on password, supervisor password, security keyhole																																	
Display	<i>Some:</i> 11.6" (295mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio							Security chip	Discrete TPM 2.0, TCG Certified																																	
	<i>Some:</i> 11.6" (295mm) HD (1366x768), anti-glare, LED backlight, IPS, multi-touch, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							vPro	None																																	
Multi-touch	Capacitive-type multi-touch, supports 10-finger gesture (HD IPS only)							Fingerprint reader	None																																	
Storage	eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							NFC	None																																	
	Optane™ memory	None							Battery	Integrated Li-ion 42Wh battery																																
Optical	None							Max battery life	<i>MobileMark® 2014:</i> 13.9 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>																																	
Ethernet	Realtek RTL8111GUS Gigabit Network Connection							AC adapter	45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter																																	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card (US only)							Preload	Windows® 10 Home 64 or Windows 10 Pro 64																																	
WWAN	None							Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service																																	
							Mil-Spec test	MIL-STD-810G military testing																																		
							Environment	EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant																																		

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June 2019



ThinkPad A275 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD PRO A-Series APUs								Smart card reader Media reader Ports Monitor cable (optional) Camera (optional) Audio support	Optional: Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45) <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter								
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics										
	PRO A10-8730B	4	4	2.4 GHz	3.3 GHz	2MB	DDR4-1866	AMD Radeon™ R5 Graphics										
	PRO A12-8830B			2.5 GHz	3.4 GHz			AMD Radeon R7 Graphics										
	PRO A10-9700B			2.5 GHz	3.4 GHz													
PRO A12-9800B	2.7 GHz			3.6 GHz														
<i>* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B</i>																		
Graphics	AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad								
Chipset Memory	AMD SoC (System on Chip) platform 16Gb max / 1866MHz DDR4, one DDR4 SO-DIMM socket								Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole <i>dTPM 1.2:</i> discrete TPM 1.2, TCG Certified <i>dTPM 2.0:</i> discrete TPM 2.0, TCG Certified								
Display	<i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								Fingerprint reader NFC	Optional: Touch style match on chip fingerprint reader on the palm rest None								
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only, US only)								Internal battery External battery Max battery life (MobileMark® 2014)	Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh) Li-ion 3-cell (23Wh) or 6-cell (48Wh)								
Storage	<i>System has one HDD slot or one M.2 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s								<table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3-cell + 6-cell 48Wh</th> </tr> </thead> <tbody> <tr> <td>Max battery life</td> <td>5.05 hr</td> <td>10.1 hr</td> <td>15.6 hr</td> </tr> </tbody> </table>		Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh	Max battery life	5.05 hr	10.1 hr	15.6 hr
Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh															
Max battery life	5.05 hr	10.1 hr	15.6 hr															
Optical	None								AC adapter 45W slim tip AC adapter or 45W USB Type-C AC adapter									
Ethernet	Realtek® RTL8111EPV Gigabit Ethernet connection								Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 <ul style="list-style-type: none"> Lenovo Solution Center Lenovo PowerEngage ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) <i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64 <ul style="list-style-type: none"> Lenovo Companion Lenovo Setting Microsoft Office preloaded; purchase a product key to activate 									
WLAN Bluetooth™	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter																	
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>																	
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) SIM card								Limited warranty <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 									
Dimensions Weight	<i>WxDxH:</i> 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm								Mil-Spec test MIL-STD-810G military testing									
Case color Case material	Black Glass-Fiber Reinforced Plastic								Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant									

Note: The specifications above may not be available in all regions.

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April 2019



ThinkPad A285 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics	Smart card reader Media reader Ports	Optional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>Ryzen 3 PRO 2300U</td> <td rowspan="3">4</td> <td>4</td> <td>2.0 GHz</td> <td>3.4 GHz</td> <td rowspan="3">2MB L2 / 4MB L3</td> <td rowspan="3">DDR4-2400</td> <td>Radeon Vega 6 Graphics</td> </tr> <tr> <td>Ryzen 5 PRO 2500U</td> <td>8</td> <td>2.0 GHz</td> <td>3.6 GHz</td> <td>Radeon Vega 8 Graphics</td> </tr> <tr> <td>Ryzen 7 PRO 2700U</td> <td>8</td> <td>2.2 GHz</td> <td>3.8 GHz</td> <td>Radeon Vega 10 Graphics</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics	Ryzen 5 PRO 2500U	8	2.0 GHz	3.6 GHz	Radeon Vega 8 Graphics	Ryzen 7 PRO 2700U	8	2.2 GHz	3.8 GHz	Radeon Vega 10 Graphics	Monitor cable (optional) Bundled Accy	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics																						
Ryzen 5 PRO 2500U		8	2.0 GHz	3.6 GHz			Radeon Vega 8 Graphics																						
Ryzen 7 PRO 2700U		8	2.2 GHz	3.8 GHz			Radeon Vega 10 Graphics																						
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)	Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																										
Chipset	AMD SoC (System on Chip) platform	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																										
Memory	8GB or 16GB / 2400MHz DDR4, soldered to systemboard, no sockets	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight																										
Display	Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																										
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)	Security	Power-on password, hard disk password, supervisor password, security keyhole																										
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s	Security chip	Discrete TPM 2.0, TCG Certified																										
Optical	None	System Mgt	DASH Management																										
Ethernet	Gigabit Ethernet connection via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2	Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest																										
WLAN	Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card	NFC	None																										
Bluetooth™	Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter	Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																										
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>	Max battery life	MobileMark® 2014: 10.55 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>																										
SIM card (opt)	Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card	AC adapter	45W or 65W USB Type-C AC adapter																										
Dimensions	WxDxH (HD & FHD multi-touch): 12.11" x 8.26" x 0.69"; 307.7mm x 209.8mm x 17.4mm WxDxH (FHD non-touch): 12.11" x 8.26" x 0.70"; 307.7mm x 209.8mm x 17.8mm	Preload	Windows® 10 Home 64 or Windows 10 Pro 64																										
Weight	FHD non-touch model: 2.49 lb / 1.13 kg; HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg	Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																										
Case color	Black	Mil-Spec test	MIL-STD-810G military testing																										
Case material	Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model); Bottom: Magnesium/Aluminum	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																										

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad A475 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD PRO A-Series APUs								Smart card reader Media reader Ports Monitor cable Camera (optional) Audio support	Optional: Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed Optional: Lenovo USB-C to VGA Adapter HD720p resolution, fixed focus HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack										
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics												
	PRO A10-8730B	4	4	2.4 GHz	3.3 GHz	2MB	DDR4-1866	AMD Radeon™ R5 Graphics												
	PRO A12-8830B			2.5 GHz	3.4 GHz			AMD Radeon R7 Graphics												
	PRO A10-9700B			2.5 GHz	3.4 GHz															
PRO A12-9800B	2.7 GHz			3.6 GHz																
* Windows 7 is only supported by PRO A10-8730B and PRO A12-8830B																				
Graphics	AMD Radeon R5 or R7 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad										
Chipset Memory	AMD SoC (System on Chip) platform 32GB max / 1866MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets								Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole dTPM 1.2: discrete TPM 1.2, TCG Certified dTPM 2.0: discrete TPM 2.0, TCG Certified										
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								Fingerprint reader NFC	Optional: Touch style match on chip fingerprint reader on the keyboard bezel None										
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only, US only)								Internal battery External battery Max battery life (MobileMark® 2014)	Optional: Integrated Li-Polymer 3-cell (24Wh) Li-Polymer 3-cell (24Wh) or Li-ion 6-cell (48Wh) <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell</th> <th>3 + 3-cell</th> <th>6-cell 48Wh</th> <th>3 + 6-cell 48Wh</th> </tr> </thead> <tbody> <tr> <td>Max battery life</td> <td>5.13 hr</td> <td>10.26 hr</td> <td>10.26 hr</td> <td>15.4 hr</td> </tr> </tbody> </table> * Battery life varies significantly with settings, usage, & other factors	Models	3-cell	3 + 3-cell	6-cell 48Wh	3 + 6-cell 48Wh	Max battery life	5.13 hr	10.26 hr	10.26 hr	15.4 hr
Models	3-cell	3 + 3-cell	6-cell 48Wh	3 + 6-cell 48Wh																
Max battery life	5.13 hr	10.26 hr	10.26 hr	15.4 hr																
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s								AC adapter	45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter										
Optical	None								Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial) Some: Windows 10 Home 64 Some: Windows 10 Pro 64 • Lenovo Companion • Lenovo Setting • Microsoft Office preloaded; purchase a product key to activate										
Ethernet	Realtek® RTL8111EPV Gigabit Ethernet connection																			
WLAN Bluetooth™	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter																			
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) * For non-WWAN model, it means the model is NOT WWAN upgradable																			
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) SIM card																			
Dimensions Weight	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell or 3 + 3-cell</th> <th>6-cell or 3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td>Magnesium</td> <td>3.49 lb / 1.58 kg</td> <td>3.92 lb / 1.78 kg</td> </tr> <tr> <td>PPS</td> <td>3.63 lb / 1.65 kg</td> <td>4.35 lb / 1.85 kg</td> </tr> </tbody> </table>								Models	3-cell or 3 + 3-cell	6-cell or 3 + 6-cell	Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg	PPS	3.63 lb / 1.65 kg	4.35 lb / 1.85 kg	Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
Models	3-cell or 3 + 3-cell	6-cell or 3 + 6-cell																		
Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg																		
PPS	3.63 lb / 1.65 kg	4.35 lb / 1.85 kg																		
Case color Case material	Black Display cover: Magnesium Hybrid or PPS (Magnesium Hybrid for US only); Bottom: Glass-Fiber Reinforced Plastic								Mil-Spec test	MIL-STD-810G military testing										
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant										

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad A485 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics							Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>						
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types			Processor Graphics					
	Ryzen 3 PRO 2300U	4	4	2.0 GHz	3.4 GHz	2MB L2 / 4MB L3	DDR4-2400			Radeon Vega 6 Graphics					
	Ryzen 5 PRO 2500U		8	2.0 GHz	3.6 GHz					Radeon Vega 8 Graphics					
Ryzen 7 PRO 2700U	8		2.2 GHz	3.8 GHz	Radeon Vega 10 Graphics										
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)							Monitor cable(<i>opt</i>)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter						
Chipset	AMD SoC (System on Chip) platform							Bundled Accy	None						
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to AMD limitation</i>														
Display	<i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							Camera (<i>optional</i>)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus 						
Multi-touch (<i>opt</i>)	On-cell touch, supports 10-finger gesture (FHD only)							Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack						
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4 <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN <i>* Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation</i>							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight						
Optical	None							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad						
Ethernet	Realtek® RTL8111GUL Gigabit Ethernet connection							Security	Power-on password, hard disk password, supervisor password, security keyhole						
WLAN	Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card							Security chip	Discrete TPM 2.0, TCG Certified						
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter							System Mgt	DASH Management						
WWAN (<i>optional</i>)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>							Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the keyboard bezel						
SIM card (<i>opt</i>)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							NFC	None						
Dimensions	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm							Battery	Integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery						
Weight	Models		24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh				Max battery life (MobileMark® 2014)	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh	
	Magnesium		3.49 lb / 1.58 kg	3.92 lb / 1.78 kg					Max battery life	5.37 hr	10.76 hr	16.4 hr	10.76 hr	16.4 hr	22.15 hr
	PPS		3.63 lb / 1.65 kg	4.08 lb / 1.85 kg					<i>* Battery life varies significantly with settings, usage, & other factors</i>						
Case color	Black							AC adapter	45W or 65W USB Type-C AC adapter						
Case material	Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic							Preload	Windows® 10 Home 64 or Windows 10 Pro 64						
								Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 						
								Mil-Spec test	MIL-STD-810G military testing						
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant						

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad E480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor (i3-7130U is NOT available in US and EMEA) or	Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7020U</td> <td rowspan="3">2</td> <td rowspan="3">4</td> <td>2.3 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="3">DDR4-2133</td> <td rowspan="3">Intel HD Graphics 620</td> </tr> <tr> <td>i3-7130U</td> <td>2.7 GHz</td> <td>-</td> <td>3MB</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7020U	2	4	2.3 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i3-7130U	2.7 GHz	-	3MB	i5-7200U	2.5 GHz	3.1 GHz	3MB	Weight Case color Case material	Starting at 3.87 lb / 1.75kg Black or silver Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic		
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
i3-7020U	2	4	2.3 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620																						
i3-7130U			2.7 GHz	-	3MB																								
i5-7200U			2.5 GHz	3.1 GHz	3MB																								
	8th Generation Intel Core i3 / i5 / i7 Processor	Smart card reader	None																										
	<table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-8130U</td> <td>2</td> <td>4</td> <td>2.2 GHz</td> <td>3.4 GHz</td> <td>4MB</td> <td rowspan="3">DDR4-2400</td> <td rowspan="3">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8250U</td> <td rowspan="2">4</td> <td rowspan="2">8</td> <td>1.6 GHz</td> <td>3.4 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8550U</td> <td>1.8 GHz</td> <td>4.0 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	i7-8550U	1.8 GHz	4.0 GHz	8MB	Media reader Ports	MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																						
i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620																						
i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB																								
i7-8550U			1.8 GHz	4.0 GHz	8MB																								
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon RX 550 Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz	Camera	HD720p camera, fixed focus																										
Chipset	Intel SoC (System on Chip) platform	Audio support	HD Audio, Synaptic® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack																										
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight																										
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																										
Multi-touch	None	Security	Power-on password, hard disk password, supervisor password, security keyhole																										
Storage	Up to 2 drives (one M.2 SSD and one HDD) Some: HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ Some: M.2 SSD / PCIe NVMe	Security chip (opt)	Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified																										
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2	vPro	None																										
Optical	None	Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest																										
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS	NFC	None																										
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card • Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card * Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter																										
WWAN	None	Max battery life	MobileMark® 2014: 13.51 hr * Battery life varies significantly with settings, usage, & other factors																										
SIM card	None	AC adapter	45W or 65W USB Type-C AC adapter																										
		Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64																										
		Limited warranty	1-year depot repair service																										
		Mil-Spec test	MIL-STD-810G military testing																										
		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																										

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E485 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics							Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.86"; 329mm x 242mm x 21.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller		Processor Graphics
	Ryzen 3 2200U	2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3	DDR4-2400		Radeon Vega 3 Graphics
	Ryzen 5 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3			Radeon Vega 8 Graphics
Ryzen 7 2700U	2.2 GHz			3.8 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics			
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz							Weight Case color Case material	
Chipset	AMD SoC (System on Chip) platform							Smart card reader	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Media reader	
Display	<i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio							Ports	
Multi-touch	None							Camera	
Storage	<i>Up to 2 drives (one M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe							Audio support	
Optical	None							Keyboard	
Ethernet	Gigabit Ethernet Connection, Realtek RTL8111GUS							UltraNav™	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card 							Security	
WWAN	None							Security chip	
SIM card	None							Fingerprint reader	
								NFC	
								Battery	
								Max battery life	
								AC adapter	
								Preload (optional)	
								Limited warranty	
								Mil-Spec test	
								Environment	

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			
i7-8565U	1.8 GHz			4.6 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Weight Case color Case material Smart card reader Media reader Ports
	None								
Chipset	Intel SoC (System on Chip) platform								Monitor cable Bundled Accy
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								
Display	Size / Resolution		Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Camera Audio support
	14.0" HD (1366x768)		Anti-glare	TN	220 nits	16:9	400:1	90°	
	14.0" FHD (1920x1080)		Anti-glare	IPS	250 nits	16:9	600:1	170°	
Multi-touch	None								Keyboard UltraNav™
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 2 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2								
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security Security chip
Optical	None								
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								System Mgt Fingerprint reader NFC
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								
WWAN	None								Battery
SIM card	None								
									Max battery life AC adapter
									Preload (optional) Windows® 10 Home 64 or Windows 10 Pro 64
									Limited warranty Mil-Spec test
									Environment

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E490s Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions	WxDxH: 12.96" x 9.13" x 0.70"; 329mm x 232mm x 17.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.68 lb / 1.67 kg	
	i5-8265U i7-8565U	4	8	1.6 GHz 1.8 GHz	3.9 GHz 4.5 GHz	6MB 8MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or silver	
								Case material	Aluminum		
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 540X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Smart card reader	None	
									Media reader	MicroSD card reader	
Chipset	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
									Memory		
Display	Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Camera	HD720p camera, fixed focus	
	14.0" FHD (1920x1080)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	Audio support	HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack	
	14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Multi-touch	None								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Storage	One of the following, configurable by model: • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2								Security	Power-on password, hard disk password, supervisor password, security keyhole	
									Security chip	<i>Integrated model:</i> discrete TPM 2.0, TCG Certified <i>Discrete model:</i> firmware TPM 2.0 integrated in chipset	
Optane™ memory	None								System Mgt	None	
Optical	None								Fingerprint reader	Touch style fingerprint reader on the palm rest	
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								NFC	None	
									Battery	Integrated Li-ion 42Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Max battery life	<i>MobileMark® 2014:</i> 11.5 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
									AC adapter	45W or 65W USB Type-C AC adapter	
WWAN	None								Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64	
SIM card	None								Limited warranty	1-year depot repair service	
									Mil-Spec test	MIL-STD-810G military testing	
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E495 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics								Dimensions <i>Aluminum (WxDxH):</i> 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm <i>PC/ABS (WxDxH):</i> 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm																							
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics		Weight Starting at 3.87 lb / 1.75 kg Case color Black Case material <i>Display cover:</i> Aluminum or PC/ABS plastic; <i>Bottom:</i> PC/ABS plastic																						
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics																								
	Ryzen 5 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics																								
Ryzen 7 3700U	2.3 GHz			4.0 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics																										
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)								Smart card reader None Media reader MicroSD card reader Ports One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> Monitor cable None Bundled Accy None Camera HD720p camera, fixed focus Audio support HD Audio, Synaptic® CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack																							
Chipset	AMD SoC (System on Chip) platform																															
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>																															
Display	<table border="1"> <thead> <tr> <th>Size / Resolution</th> <th>Surface</th> <th>Type</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Viewing Angle</th> <th>Multi-touch</th> </tr> </thead> <tbody> <tr> <td>14.0" HD (1366x768)</td> <td>Anti-glare</td> <td>TN</td> <td>220 nits</td> <td>16:9</td> <td>400:1</td> <td>90°</td> <td>Non-touch</td> </tr> <tr> <td>14.0" FHD (1920x1080)</td> <td>Anti-glare</td> <td>IPS</td> <td>250 nits</td> <td>16:9</td> <td>600:1</td> <td>170°</td> <td>Non-touch</td> </tr> </tbody> </table>									Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	14.0" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°
Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch																									
14.0" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch																									
14.0" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch																									
Multi-touch	None								Keyboard 6-row, spill-resistant, multimedia Fn keys UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified Fingerprint reader None NFC None Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter Max battery life <i>MobileMark® 2014:</i> 11 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> AC adapter 45W or 65W USB Type-C AC adapter Preload (optional) Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty 1-year depot repair service Mil-Spec test None Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant																							
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4																															
Optical	None																															
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS																															
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card																															
WWAN	None																															
SIM card	None																															

Note: The specifications above may not be available in all regions.

Lenovo
June 2019





ThinkPad E585 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics							Dimensions	<i>WxDxH:</i> 14.53" x 9.92" x 0.79"; 369mm x 252mm x 19.95mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight	Starting at 4.7 lb / 2.1kg
	Ryzen 3 2200U	2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics	Case color	Black
	Ryzen 5 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics	Case material	<i>Display cover:</i> Aluminum; <i>Bottom:</i> PC/ABS plastic
Ryzen 7 2700U	2.2 GHz			3.8 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics		Smart card reader	None	
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor only; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 1920x1080 (HDMI) @60Hz							Media reader	MicroSD card reader	
Chipset	AMD SoC (System on Chip) platform							Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Camera	HD720p camera, fixed focus	
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio (NOT available in EMEA) <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio							Audio support	HD Audio, Synaptic® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Multi-touch	None							Keyboard	6-row, spill-resistant, multimedia Fn keys	
Storage	<i>Up to 2 drives (one M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, removable, upgradable, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Optical	None							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Ethernet	Gigabit Ethernet Connection, Realtek RTL8111GUS							Security chip	Discrete TPM 2.0, TCG Certified	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> • Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card • Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card							Fingerprint reader	None	
WWAN	None							NFC	None	
SIM card	None							Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
								Max battery life	<i>MobileMark® 2014:</i> 8.63 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
								AC adapter	45W or 65W USB Type-C AC adapter	
								Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	1-year depot repair service	
								Mil-Spec test	None	
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Dimensions	<i>WxDxH:</i> 14.53" x 9.94" x 0.78"; 369mm x 252.5mm x 19.9mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 4.68 lb / 2.12 kg	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or silver	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Case material	<i>Display cover:</i> Aluminum; <i>Bottom:</i> PC/ABS plastic	
i7-8565U	1.8 GHz			4.6 GHz	8MB	Smart card reader			None		
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon RX 550X Graphics, 2GB DDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Media reader	MicroSD card reader	
Chipset	Intel SoC (System on Chip) platform								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>								Monitor cable	None	
Display	Size / Resolution		Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Bundled Accy	None
	15.6" HD (1366x768)		Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	Camera	HD720p camera, fixed focus
	15.6" FHD (1920x1080)		Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	Audio support	HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Multi-touch	None								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight	
Storage	<i>Up to two drives (one M.2 SSD and one HDD)</i>								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 2 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 								Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Security chip	<i>Integrated model:</i> discrete TPM 2.0, TCG Certified <i>Discrete model:</i> firmware TPM 2.0 integrated in chipset	
Optical	None								System Mgt	None	
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								Fingerprint reader	<i>Optional:</i> Touch style fingerprint reader on the palm rest	
WLAN + Bluetooth™	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card 								NFC	None	
WWAN	None								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
SIM card	None								Max battery life	<i>MobileMark® 2014:</i> 11 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
									AC adapter	45W or 65W USB Type-C AC adapter	
									Preload (<i>optional</i>)	Windows® 10 Home 64 or Windows 10 Pro 64	
									Limited warranty	1-year depot repair service	
									Mil-Spec test	MIL-STD-810G military testing	
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad E595 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics								Dimensions	<i>WxDxH:</i> 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.9mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight	Starting at 4.7 lb / 2.1kg
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3	DDR4-2400	Radeon Vega 3 Graphics	Case color	Black
	Ryzen 5 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics	Case material	<i>Display cover:</i> Aluminum; <i>Bottom:</i> PC/ABS plastic
Ryzen 7 3700U	2.3 GHz			4.0 GHz	2MB L2 / 4MB L3	Radeon RX Vega 10 Graphics		Smart card reader	None	
Graphics	AMD Radeon Vega 3, Vega 8, or RX Vega 10 Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)								Media reader	MicroSD card reader
Chipset	AMD SoC (System on Chip) platform								Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>								Monitor cable	None
Display	Size / Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch	Bundled Accy	None
	15.6" HD (1366x768)	Anti-glare	TN	220 nits	16:9	400:1	90°	Non-touch	Camera	HD720p camera, fixed focus
	15.6" FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	600:1	170°	Non-touch	Audio support	HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Multi-touch	None								Keyboard	6-row, spill-resistant, multimedia Fn keys
Storage	Up to two drives (one M.2 SSD and one HDD) • HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Optical	None								Security	Power-on password, hard disk password, supervisor password, security keyhole
Ethernet	Gigabit Ethernet Connection, Realtek R8111GUS								Security chip	Discrete TPM 2.0, TCG Certified
WLAN + Bluetooth™	One of the following, configurable by model: • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Fingerprint reader	None
WWAN	None								NFC	None
SIM card	None								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
									Max battery life	<i>MobileMark® 2014:</i> 10.3 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
									AC adapter	45W or 65W USB Type-C AC adapter
									Preload (optional)	Windows® 10 Home 64 or Windows 10 Pro 64
									Limited warranty	1-year depot repair service
									Mil-Spec test	None
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad L380 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or							Dimensions	<i>WxDxH:</i> 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.22 lb / 1.46 kg	
	Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610	Case color	Black or Silver	
	i3-7130U		4	2.7 GHz	-	3MB		Intel HD Graphics 620	Case material	<i>Display cover:</i> Aluminum <i>Bottom:</i> GFRP	
i5-7200U			2.5 GHz	3.1 GHz	3MB			Smart card reader	None		
8th Generation Intel Core i5 / i7 Processor									Media reader	MicroSD card reader	
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole		
i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed		
i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB				HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter		
i5-8350U			1.7 GHz	3.6 GHz	6MB				USB-C to VGA: Lenovo USB-C to VGA Adapter		
i7-8550U			1.8 GHz	4.0 GHz	8MB				USB-C to DP: Lenovo USB-C to DisplayPort Adapter		
									Bundled Accy	Optional: ThinkPad Ethernet Extension Cable	
Graphics	Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Camera	HD720p camera, fixed focus		
Chipset	Intel SoC (System on Chip) platform							Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack		
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight		
Display	<i>Some:</i> 13.3" (338mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 500:1 contrast ratio							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch		
	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							Security	Power-on password, hard disk password, supervisor password, security keyhole		
	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, on-cell touch							Security chip	Discrete TPM 2.0, TCG Certified		
Multi-touch (opt)	on-cell touch, supports 10-finger gesture							vPro (optional)	Intel vPro Technology		
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)							Fingerprint reader	Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology		
Optane™ memory	None							NFC (optional)	Near Field Communication		
Optical	None							Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter		
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable							Max battery life	MobileMark® 2014: 16.1 hr * Battery life varies significantly with settings, usage, & other factors		
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							AC adapter	45W or 65W USB Type-C AC adapter		
WWAN	None							Preload	Windows® 10 Home 64 or Windows 10 Pro 64		
SIM card	None							Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service		
							Mil-Spec test	MIL-STD-810G military testing			
							Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant			

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L390 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Smart card reader	None
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB				
	i5-8365U			1.6 GHz	4.1 GHz	6MB				
	i7-8565U			1.8 GHz	4.6 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Monitor cable (optional)	<ul style="list-style-type: none"> USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to VGA + Power Adapter: Lenovo USB-C to VGA plus Power Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter USB-C to RJ45: Lenovo USB-C to Ethernet Adapter USB-C to USB-A: Lenovo USB-C to USB-A Adapter USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M
Chipset	Intel SoC (System on Chip) platform								Bundled Accessories (optional)	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation								Camera	HD720p camera, fixed focus
Display	Size	Resolution	Surface	Type	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
	13.3"	HD (1366x768)	Anti-glare	TN	250 nits	16:9	500:1	90°	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight
	13.3"	FHD (1920x1080)	Anti-glare	IPS	250 nits	16:9	700:1 (non-touch) 800:1 (multi-touch)	170°	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Security	Power-on password, hard disk password, supervisor password, security keyhole
Storage	One of the following, configurable by model: <ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 								Security chip	Discrete TPM 2.0, TCG Certified
Optane™ memory	None								System Mgt	None
Optical	None								Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter								NFC (optional)	Near Field Communication
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Max battery life	MobileMark® 2014: 14.61 hr * Battery life varies significantly with settings, usage, & other factors
WWAN	None								AC adapter	45W or 65W USB Type-C AC adapter
SIM card	None								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Dimensions	WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm								Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Weight	Starting at 3.22 lb / 1.46 kg								Mil-Spec test	MIL-STD-810G military testing
Case color	Black or Silver								Environment	EPPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant
Case material	Display cover: Aluminum Bottom: GFRP									

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad L470 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i3 / i5 / i7 Processor or								WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520	
	i3-6100U			2.3 GHz	-	3MB			
	i5-6200U			2.3 GHz	2.8 GHz	3MB			
	i5-6300U			2.4 GHz	3.0 GHz	3MB			
	Intel Celeron® Processor or 7th Generation Intel Core i3 / i5 / i7 Processor								
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	Cel 3965U	2	4	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610	
	i3-7100U			2.4 GHz	-	3MB		Intel HD Graphics 620	
	i5-7200U			2.5 GHz	3.1 GHz	3MB			
	i5-7300U			2.6 GHz	3.5 GHz	3MB			
	i7-7500U			2.7 GHz	3.5 GHz	4MB			
	i7-7600U			2.8 GHz	3.9 GHz	4MB			
	* i7 processor is NOT available in EMEA								
Graphics	Intel HD Graphics 610 or 620 in processor only, or Intel HD Graphics 620 in processor and AMD Radeon™ R5 M430, 2GB memory; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)								
Chipset	Intel SoC (System on Chip) platform								
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller								
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								
Multi-touch	None								
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s Some: 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN								
Optical	None								
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)								
WLAN	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter * Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS								
Bluetooth™									
Camera (optional)	HD720p resolution, fixed focus								
Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack								
Keyboard	6-row, spill-resistant, multimedia Fn keys								
UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad								
Security	Power-on password, hard disk password, supervisor password, security keyhole								
Security chip	Discrete TPM 2.0, TCG Certified								
vPro (optional)	Intel vPro Technology								
Fingerprint reader	Optional: Swipe style fingerprint reader on the keyboard bezel								
NFC	None								
Battery	Li-ion 3-cell (24Wh) or 6-cell (48Wh or 72Wh)								
Max battery life ¹⁰ (MobileMark® 2014)	Models	3-cell	6-cell 48Wh	6-cell 72Wh					
	Integrated model	7.24 hr	14.48 hr	21.72 hr					
	Discrete model	4.34 hr	8.68 hr	13.02 hr					
	* Battery life varies significantly with settings, usage, & other factors								
AC adapter	45W or 65W slim tip AC adapter								
Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64				Some: Windows 10 Home 64 Some: Windows 10 Pro 64				
	<ul style="list-style-type: none"> Lenovo Solution Center Lenovo PowerEngage ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) 				<ul style="list-style-type: none"> Lenovo Companion Lenovo Setting Microsoft Office preloaded; purchase a product key to activate 				
Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 								
Mil-Spec test	MIL-STD-810G military testing								
Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant								

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



ThinkPad L480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor or								WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i> Nano-SIM card slot, optional Verizon LTE (US) SIM card	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i3-7130U	2	4	2.7 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620		
	i5-7200U			2.5 GHz	3.1 GHz	3MB				
	i5-7300U			2.6 GHz	3.5 GHz	3MB				
	8th Generation Intel Core i3 / i5 / i7 Processor									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620		
	i5-8250U			1.6 GHz	3.4 GHz	6MB				
	i5-8350U			4	8	1.7 GHz			3.6 GHz	6MB
	i7-8550U					1.8 GHz			4.0 GHz	8MB
	<i>* i3-7130U is NOT available in US and EMEA</i>									
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)									
Chipset	Intel SoC (System on Chip) platform									
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>									
Display	<i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle									
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN									
Optane™ memory	None									
Optical	None									
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)									
WLAN + Bluetooth™ (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>									
	Dimensions	WxDxH: 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm								
	Weight	Starting at 3.71 lb / 1.68 kg								
	Case color	Black								
	Case material	PC/ABS plastic								
	Smart card reader	<i>Optional:</i> Smart card reader								
	Media reader	MicroSD card reader								
	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>								
	Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter								
	Camera (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> HD720p camera, fixed focus IR camera and HD720p camera, fixed focus 								
	Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack								
	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight								
	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad								
	Security	Power-on password, hard disk password, supervisor password, security keyhole								
	Security chip	Discrete TPM 2.0, TCG Certified								
	vPro (optional)	Intel vPro Technology								
	Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology								
	NFC (optional)	Near Field Communication								
	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter								
	Max battery life	<i>MobileMark® 2014:</i> 12.2 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>								
	AC adapter	45W or 65W USB Type-C AC adapter								
	Preload	Windows® 10 Home 64 or Windows 10 Pro 64								
	Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service 								
	Mil-Spec test	MIL-STD-810G military testing								
	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant								

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



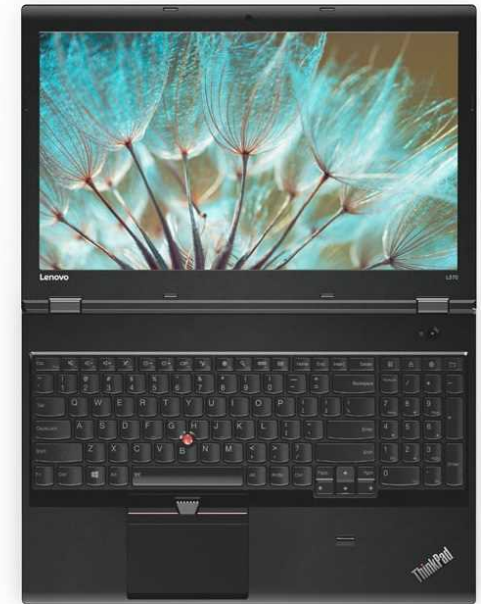
ThinkPad L490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor									Dimensions	<i>WxDxH:</i> 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.72 lb / 1.69 kg	
	Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics 610	Case color	Black	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case material	PC/ABS plastic	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Smart card reader	<i>Optional:</i> Smart card reader	
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB			Media reader	MicroSD card reader	
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Ports			Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole		
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB				* Depending on many factors, actual data transfer speed may be lower than theoretical speed		
Graphics	Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)									Monitor cable (<i>optional</i>)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter
Chipset	Intel SoC (System on Chip) platform									Camera (<i>optional</i>)	One of the following, configurable by model:
Memory	64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation									Audio support	• HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°		
Multi-touch (<i>opt</i>)	On-cell touch, supports 10-finger gesture (FHD only)										
Storage	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation										
	Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									
Optical	None										
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)										
WLAN + Bluetooth™ (<i>optional</i>)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA) Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 										
	WWAN (<i>optional</i>)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									
SIM card	None										
										Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
										Max battery life	MobileMark® 2014: 12 hr * Battery life varies significantly with settings, usage, & other factors
										AC adapter	45W or 65W USB Type-C AC adapter
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64
										Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service
										Mil-Spec test	None
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad L570 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i3 / i5 / i7 Processor or							WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	
	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520
	i3-6100U			2.3 GHz	-	3MB		
	i5-6200U			2.3 GHz	2.8 GHz	3MB		
	i5-6300U			2.4 GHz	3.0 GHz	3MB		
	i7-6500U			2.5 GHz	3.1 GHz	4MB		
	i7-6600U			2.6 GHz	3.4 GHz	4MB		
	Intel Celeron® Processor or 7th Generation Intel Core i3 / i5 / i7 Processor							Dimensions <i>WxDxH:</i> 14.84" x 10.04" x 1.08-1.21"; 377mm x 255mm x 27.6-30.85mm Weight Starting at 5.25 lb / 2.38 kg Case color Black Case material PC/ABS plastic
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	Cel 3965U	2	4	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
	i3-7100U			2.4 GHz	-	3MB		
	i5-7200U			2.5 GHz	3.1 GHz	3MB		
	i5-7300U			2.6 GHz	3.5 GHz	3MB		
	i7-7500U			2.7 GHz	3.5 GHz	4MB		
	i7-7600U			2.8 GHz	3.9 GHz	4MB		
	* i7 processor is NOT available in EMEA							ExpressCard (opt) One slot (ExpressCard/34) Smart card reader <i>Optional:</i> Smart card reader Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Ports Four USB 3.1 Gen 1 (USB 3.0, one Always On), VGA, Mini DisplayPort, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed Monitor cable <i>Optional:</i> Lenovo Mini-DisplayPort to DisplayPort Monitor Cable (MiniDP to DP)
Graphics	Intel HD Graphics 520, 610, or 620 in processor only; supports external analog monitor via VGA and digital monitor via Mini DisplayPort; supports three independent displays; Max resolution: 3840x2160@60Hz (DP via mDP cable); 1920x1200@60Hz (VGA)							Camera (optional) HD720p resolution, fixed focus Audio support HD Audio, Realtek® ALC3245 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack
Chipset Memory	Intel SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Keyboard 6-row, spill-resistant, multimedia Fn keys, numeric keypad UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Display	Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio, 160° viewing angle							Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified vPro (optional) Intel vPro Technology Fingerprint reader <i>Optional:</i> Swipe style fingerprint reader on the palm rest NFC None
Multi-touch	None							Battery Li-ion 6-cell (48Wh) Max battery life <i>MobileMark® 2014:</i> 14.8 hr * Battery life varies significantly with settings, usage, & other factors
Storage	Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s Some: 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							AC adapter 45W slim tip AC adapter
Optical (optional)	DVD-ROM or DVD burner, 9mm high, fixed, not removable, tray-in							Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 Some: Windows 10 Home 64 Some: Windows 10 Pro 64 <ul style="list-style-type: none"> Lenovo Companion Lenovo Setting Microsoft Office preloaded; purchase a product key to activate
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)							Limited warranty <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
WLAN	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card 							Mil-Spec test MIL-STD-810G military testing
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter * Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS							Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



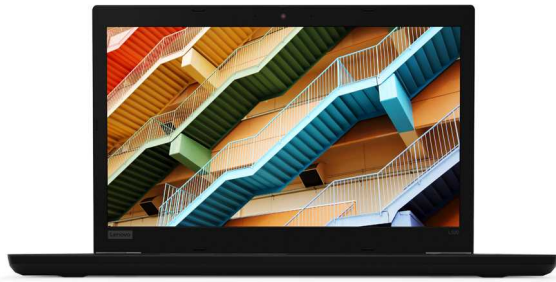
ThinkPad L580 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or							WWAN (optional) <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i> SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	
	Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
	i3-7130U		2.7 GHz	-	3MB	Intel HD Graphics 620		
	i5-7200U	4	4	2.5 GHz	3.1 GHz	3MB		
	i5-7300U		2.6 GHz	3.5 GHz	3MB			
	8th Generation Intel Core i3 / i5 / i7 Processor							
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB		
	i5-8350U			1.7 GHz	3.6 GHz	6MB		
	i7-8550U			1.8 GHz	4.0 GHz	8MB		
	<i>* i3-7130U is NOT available in US and EMEA</i>							
Graphics	Intel HD Graphics 610, 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
Chipset	Intel SoC (System on Chip) platform							Camera (optional) HD720p camera, fixed focus
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Audio support HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack
Display	<i>Some:</i> 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							Keyboard 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None							Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified vPro (optional) Intel vPro Technology Fingerprint reader <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							NFC (optional) Near Field Communication
Optane™ memory	None							Battery Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Optical	None							Max battery life <i>MobileMark® 2014:</i> 12 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							AC adapter 45W or 65W USB Type-C AC adapter
WLAN + Bluetooth™ (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card (US only) Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>							Preload Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty <i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
								Mil-Spec test MIL-STD-810G military testing
								Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad L590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor									Dimensions	<i>WxDxH:</i> 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		Weight	Starting at 4.48 lb / 2.0 kg	
	Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics 610		Case color	Black	
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620		Case material	PC/ABS plastic	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB				Smart card reader	<i>Optional:</i> Smart card reader	
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB				Media reader	MicroSD card reader	
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Ports				Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole		
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed				
Graphics	Intel UHD Graphics 610 or 620 in processor only or Intel UHD Graphics 620 in processor and AMD Radeon 535, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)									Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
Chipset	Intel SoC (System on Chip) platform									Camera (optional)	One of the following, configurable by model:	
Memory	64GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * Installed memory is actually 2666MHz but run at 2133MHz or 2400MHz due to Intel limitation									Audio support	HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Keyboard UltraNav™ 6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad		
	15.6"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°			
Multi-touch	None									Security	Power-on password, hard disk password, supervisor password, security keyhole	
Storage	<ul style="list-style-type: none"> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 * Installed M.2 2280 SSD is PCIe 3x4 but run at PCIe 3x2 due to M.2 SSD adapter limitation									Security chip	Discrete TPM 2.0, TCG Certified	
										System Mgt (opt)	Intel vPro Technology	
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest	
Optical	None									NFC (optional)	Near Field Communication	
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)									Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
WLAN + Bluetooth™ (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card (NOT available in EMEA) Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 									Max battery life	MobileMark® 2014: 12 hr * Battery life varies significantly with settings, usage, & other factors	
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									AC adapter	45W or 65W USB Type-C AC adapter	
SIM card	None									Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
Note: The specifications above may not be available in all regions.										Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 	
										Mil-Spec test	None	
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant	

Lenovo
June 2019



ThinkPad P1 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® E Processor								Smart card reader	<i>Optional</i> : Smart card reader
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	ExpressCard	None
	i5-8400H	4	8	2.5 GHz	4.2 GHz	8MB	DDR4-2666	Intel UHD Graphics 630	Media reader	SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB			Ports	Two USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole
	i7-8850H			2.6 GHz	4.3 GHz	9MB		Intel UHD Graphics P630		
	E-2176M			2.7 GHz	4.4 GHz	12MB			* Power Delivery only supports power-out for charging peripherals * Depending on many factors, actual data transfer speed may be lower than theoretical speed	
Graphics	Intel UHD Graphics 630 or P630 in processor and NVIDIA® Quadro® P1000 or P2000 Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
Chipset	Mobile Intel CM246 Chipset								Bundled Accy	<i>Optional</i> : ThinkPad Ethernet Extension Cable
Memory	64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets								Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Multi-touch (opt)	Capacitive-type multi-touch, supports 10-finger gesture (4K only)								Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight
Pen	Supports pen accessory, please see the accessory compatibility for details								UltraNav™	TrackPoint® pointing device and buttonless glass surface multi-touch touchpad
Storage	<i>Up to 2 drives (two M.2 SSD)</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s								Security	Power-on password, hard disk password, supervisor password, security keyhole
Optane™ memory	None								Security chip	Discrete TPM 2.0, TCG Certified
RAID (optional)	RAID 0/1 support								vPro (optional)	Intel vPro Technology
Optical	None								Fingerprint reader	Touch style match on chip fingerprint reader on the keyboard bezel
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								Color calibration	None
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								NFC	None
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Battery	Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
WWAN	None								Max battery life	<i>Discrete mode:</i> 7.36 hr; <i>Hybrid mode:</i> 13.87 hr
SIM card	None								(MobileMark 2014)	* Battery life varies significantly with settings, usage, & other factors
Dimensions	<i>WxDxH (non-touch):</i> 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm <i>WxDxH (multi-touch):</i> 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm								AC adapter	135W slim tip AC adapter
Weight	<i>Non-touch model:</i> starting at 3.76 lb (1.7 kg); <i>Multi-touch model:</i> starting at 4.06 lb (1.8 kg)								Preload	<i>One of the following, configurable by model:</i> • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations
Case color	Black								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
Case material	<i>Display cover:</i> CFRP/GFRP hybrid; <i>Bottom:</i> Aluminum alloy								Mil-Spec test	MIL-STD-810G military testing
									Environment	EPPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad P51 Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th or 7th Generation Intel® Core™ i7 Processor or Intel Xeon® Processor E3 v5 or v6 Family							Dimensions	<i>WxDxH:</i> 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm <i>WxDxH(Touch):</i> 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm												
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	<table border="1"> <tr> <td><i>Models</i></td> <td><i>4-cell</i></td> <td><i>6-cell</i></td> </tr> <tr> <td><i>Non-touch</i></td> <td>5.6 lb / 2.55kg</td> <td>5.9 lb / 2.67kg</td> </tr> <tr> <td><i>Multi-touch</i></td> <td>6.2 lb / 2.82kg</td> <td>6.4 lb / 2.90kg</td> </tr> </table>			<i>Models</i>	<i>4-cell</i>	<i>6-cell</i>	<i>Non-touch</i>	5.6 lb / 2.55kg	5.9 lb / 2.67kg	<i>Multi-touch</i>	6.2 lb / 2.82kg	6.4 lb / 2.90kg
	<i>Models</i>	<i>4-cell</i>	<i>6-cell</i>																		
	<i>Non-touch</i>	5.6 lb / 2.55kg	5.9 lb / 2.67kg																		
	<i>Multi-touch</i>	6.2 lb / 2.82kg	6.4 lb / 2.90kg																		
	i7-6820HQ	4	8	2.7 GHz	3.6 GHz	8MB	DDR4-2133	Intel HD Graphics 530	Case color	Black											
	E3-1505M v5			2.8 GHz	3.7 GHz			Intel HD Graphics P530		Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic; <i>Bottom:</i> Magnesium/Aluminum										
	i7-7700HQ			2.8 GHz	3.8 GHz	6MB	DDR4-2400	Intel HD Graphics 630	Smart card reader		Optional: Smart card reader										
i7-7820HQ	2.9 GHz			3.9 GHz	Intel HD Graphics P630			ExpressCard		One slot (ExpressCard/34)											
E3-1505M v6	3.0 GHz			4.0 GHz	8MB	DDR4-2400	Intel HD Graphics P630		Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card											
E3-1535M v6	3.1 GHz			4.2 GHz			Intel HD Graphics P630	Ports		Four USB 3.1 Gen 1 (USB 3.0, one Always On), USB Type-C / Thunderbolt 3, Mini DisplayPort 1.2a, HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>											
Graphics	Intel HD Graphics 530, 630, P530, or P630 in processor and NVIDIA Quadro® M1200 or M2200, 4GB memory; supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 3840x2160@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)								Camera (optional)	HD720p resolution, fixed focus											
Chipset	Mobile Intel CM238 Chipset							Audio support	HD Audio, Realtek® ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack												
Memory	64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight												
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle <i>Some:</i> 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle							UltraNav™	3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad												
Multi-touch (opt)	Capacitive-type multi-touch, supports 10-finger gesture, 220 nits (FHD only)							Security	Power-on password, hard disk password, supervisor password, security keyhole												
Pen (optional)	ThinkPad Pen Pro, active pen for multi-touch display							Security chip	Discrete TPM 2.0, TCG Certified												
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s							vPro (optional)	Intel vPro Technology												
RAID (optional)	RAID 0/1 support							Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest												
Optical	None							Color calibration	Optional: Pantone® color calibrator by X-Rite® color calibration sensor in palm rest												
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							NFC	None												
WLAN	<i>One of the following, configurable by model:</i> • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card							Battery	Lithium Polymer 4-cell (66Wh) or 6-cell (90Wh)												
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>							Max battery life ¹⁰	<table border="1"> <tr> <td><i>Model</i></td> <td><i>4-cell</i></td> <td><i>6-cell</i></td> </tr> <tr> <td><i>Discrete Graphics</i></td> <td>4.5 hr</td> <td>6.1 hr</td> </tr> <tr> <td><i>Hybrid Graphics</i></td> <td>6.5 hr</td> <td>8.9 hr</td> </tr> </table>			<i>Model</i>	<i>4-cell</i>	<i>6-cell</i>	<i>Discrete Graphics</i>	4.5 hr	6.1 hr	<i>Hybrid Graphics</i>	6.5 hr	8.9 hr	
<i>Model</i>	<i>4-cell</i>	<i>6-cell</i>																			
<i>Discrete Graphics</i>	4.5 hr	6.1 hr																			
<i>Hybrid Graphics</i>	6.5 hr	8.9 hr																			
WWAN (optional)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card							(MobileMark® 2014)	<i>* Battery life varies significantly with settings, usage, & other factors</i>												
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card							AC adapter	170W slim tip AC adapter												
								Preload	<i>One of the following, configurable by model:</i> • Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations												
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service												
								Mil-Spec test	MIL-STD-810G military testing												
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant												

Note: The specifications above may not be available in all regions.

Lenovo
September 2018



ThinkPad P52 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i7 / i9 Processor or Intel Xeon® E Processor								Dimensions	<i>WxDxH:</i> 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm <i>WxDxH(Touch):</i> 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm <i>Non-touch model:</i> starting at 5.4 lb (2.45kg); <i>Multi-touch model:</i> starting at 6.4 lb (2.9kg)
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Black <i>Display cover:</i> PPS; <i>Bottom:</i> Magnesium/Aluminum
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630	Case color Case material	<i>Optional:</i> Smart card reader ExpressCard None
	i7-8850H			2.6 GHz	4.3 GHz	9MB				
	i9-8950HK			2.9 GHz	4.8 GHz	12MB		Intel UHD Graphics P630		
E-2176M	2.7 GHz			4.4 GHz	12MB					
Graphics	Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P1000 (4GB memory), P2000 (4GB memory), or P3200 (6GB memory, VR ready); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Media reader Ports	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card Three USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole <i>* Power Delivery only supports power-out for charging peripherals</i> <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Chipset Memory	Mobile Intel CM246 Chipset 128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation</i> <i>* 128GB non-ECC memory for special bid only</i>								Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 160° viewing angle <i>Some:</i> 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
Multi-touch (opt) Pen	Capacitive-type multi-touch, supports 10-finger gesture (4K only) Supports pen accessory, please see the accessory compatibility for details								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight 3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s								Security Security chip vPro (optional) Fingerprint reader Color calibration NFC (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Touch style match on chip fingerprint reader on the palm rest None Near Field Communication
Optane™ memory RAID (optional) Optical	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 RAID 0/1 support None								Battery Max battery life (MobileMark® 2014) AC adapter	Li-ion 90Wh battery <i>Discrete mode:</i> 6.1 hr; <i>Hybrid mode:</i> 8.9 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> 170W slim tip AC adapter
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								Preload	<i>One of the following, configurable by model:</i> • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations
WLAN Bluetooth™	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
WWAN (optional) SIM card (opt)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card Nano-SIM card slot, optional Verizon LTE (US) SIM card								Mil-Spec test	MIL-STD-810G military testing
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

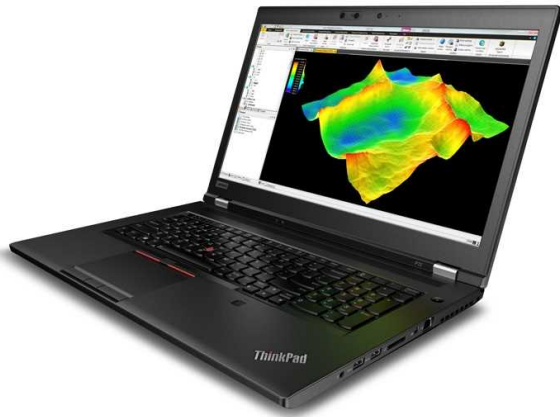
Lenovo
May 2019



ThinkPad P52s Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Dimensions	<i>WxDxH:</i> 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm																	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	starting at 4.39 lb / 1.99 kg																	
	i5-8350U	4	8	1.7 GHz	3.6 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black																	
	i7-8550U			1.8 GHz	4.0 GHz	8MB			Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic (PPS); <i>Bottom:</i> Glass-Fiber Reinforced Plastic																	
i7-8650U	1.9 GHz			4.2 GHz	8MB																						
Graphics	Intel UHD Graphics 620 in processor and NVIDIA Quadro® P500, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader	<i>Optional:</i> Smart card reader																	
Chipset	Intel SoC (System on Chip) platform								Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)																	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>								Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																	
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle								Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter																	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																	
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN								Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																	
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2								Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight																	
Optical	None								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																	
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)								Security	Power-on password, hard disk password, supervisor password, security keyhole																	
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								Security chip	Discrete TPM 2.0, TCG Certified																	
WWAN (optional)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								vPro (optional)	Intel vPro Technology																	
									Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest anti-spoofing technology																	
									NFC (optional)	Near Field Communication																	
									Battery	Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery																	
									Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>48Wh</th> <th>72Wh</th> <th>32Wh + 24Wh</th> <th>32Wh + 48Wh</th> <th>32Wh + 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life</i></td> <td>12.2 hr</td> <td>18.5 hr</td> <td>13.5 hr</td> <td>20.1 hr</td> <td>26.3 hr</td> </tr> </tbody> </table>						Models	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh	<i>Max battery life</i>	12.2 hr	18.5 hr	13.5 hr	20.1 hr	26.3 hr
Models	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh																						
<i>Max battery life</i>	12.2 hr	18.5 hr	13.5 hr	20.1 hr	26.3 hr																						
									AC adapter	65W USB Type-C AC adapter																	
									Preload	Windows® 10 Home 64 or Windows 10 Pro 64																	
									Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																	
									Mil-Spec test	MIL-STD-810G military testing																	
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																	



ThinkPad P72 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i7 Processor or Intel Xeon® E Processor							Dimensions	<i>WxDxH:</i> 16.38" x 11.06" x 0.96-1.16"; 416mm x 281mm x 24.5-29.4mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 7.5 lb (3.4kg)
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630	Case color	Black
	i7-8850H			2.6 GHz	4.3 GHz	9MB		Intel UHD Graphics P630	Case material	<i>Display cover:</i> GFRP + PPS; <i>Bottom:</i> Magnesium/Aluminum
	E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630	Smart card reader	<i>Optional:</i> Smart card reader
E-2186M	2.9 GHz			4.8 GHz	12MB	ExpressCard		None		
Graphics	Intel UHD Graphics 630 or P630 in processor and NVIDIA Quadro® P600 (4GB memory), P2000 (4GB memory), P3200 (6GB memory), P4200 (8GB memory), or P5200 (16GB memory); supports external digital monitor via HDMI, Mini DisplayPort, or Thunderbolt™; supports four independent displays; Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable); 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)							Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card	
Chipset	Mobile Intel CM246 Chipset							Ports	Four USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole <i>* Power Delivery only supports power-out for charging peripherals</i> <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
Memory	128GB non-ECC or 64GB ECC max / 2400MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets <i>* Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation</i>							Monitor cable	<i>Optional:</i> Lenovo Mini-DisplayPort to DisplayPort Monitor Cable	
Display	<i>Some:</i> 17.3" (439mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle <i>Some:</i> 17.3" (439mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe CG, 170° viewing angle							Camera (<i>optional</i>)	IR camera and HD720p camera, fixed focus	
Multi-touch Pen	None Supports pen accessory, please see the accessory compatibility for details							Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone	
Storage	<i>Up to 3 drives (two M.2 SSD and one HDD)</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s							Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight	
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							UltraNav™	3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad	
RAID (<i>optional</i>)	RAID 0/1 support							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optical	None							Security chip	Discrete TPM 2.0, TCG Certified	
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							vPro (<i>optional</i>)	Intel vPro Technology	
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card							Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest	
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter							Color calibration	None	
WWAN	None							NFC (<i>optional</i>)	Near Field Communication	
SIM card	None							Battery	Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)	
								Max battery life	<i>MobileMark® 2014:</i> 18 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
								AC adapter	230W slim tip AC adapter	
								Preload	<i>One of the following, configurable by model:</i> • Windows® 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations	
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
								Mil-Spec test	MIL-STD-810G military testing	
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T470 Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor</p> <p>6th Generation Intel® Core™ i5 / i7 Processor or</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i5-6200U</td> <td rowspan="4">2</td> <td rowspan="4">4</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>3MB</td> <td rowspan="4">DDR4-2133</td> <td rowspan="4">Intel HD Graphics 520</td> </tr> <tr> <td>i5-6300U</td> <td>2.4 GHz</td> <td>3.0 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-6500U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-6600U</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>4MB</td> </tr> </tbody> </table> <p>7th Generation Intel Core i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7100U</td> <td rowspan="5">2</td> <td rowspan="5">4</td> <td>2.4 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="5">DDR4-2133</td> <td rowspan="5">Intel HD Graphics 620</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-7300U</td> <td>2.6 GHz</td> <td>3.5 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-7500U</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-7600U</td> <td>2.8 GHz</td> <td>3.9 GHz</td> <td>4MB</td> </tr> </tbody> </table> <p><i>* i7-6500U is NOT available in EMEA</i></p>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	DDR4-2133	Intel HD Graphics 520	i5-6300U	2.4 GHz	3.0 GHz	3MB	i7-6500U	2.5 GHz	3.1 GHz	4MB	i7-6600U	2.6 GHz	3.4 GHz	4MB	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7100U	2	4	2.4 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i5-7200U	2.5 GHz	3.1 GHz	3MB	i5-7300U	2.6 GHz	3.5 GHz	3MB	i7-7500U	2.7 GHz	3.5 GHz	4MB	i7-7600U	2.8 GHz	3.9 GHz	4MB	<p>Dimensions <i>WxDxH:</i> 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm</p> <p>Weight</p> <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell or 3 + 3-cell</th> <th>6-cell or 3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td>Magnesium</td> <td>3.49 lb / 1.58 kg</td> <td>3.92 lb / 1.78 kg</td> </tr> <tr> <td>PPS</td> <td>3.63 lb / 1.65 kg</td> <td>4.35 lb / 1.85 kg</td> </tr> </tbody> </table> <p>Case color Case material <i>Display cover:</i> Magnesium Hybrid or PPS; <i>Bottom:</i> Glass-Fiber Reinforced Plastic</p> <p>Smart card reader <i>Optional:</i> Smart card reader</p> <p>Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I</p> <p>Ports Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p> <p>WiGig dock (opt) ThinkPad WiGig dock</p> <p>Monitor cable <i>Optional:</i> Lenovo USB-C to VGA Adapter</p> <p>Camera (optional) <i>720p:</i> HD720p resolution, fixed focus <i>IR & 720p:</i> IR camera and HD720p camera (mutually exclusive with WiGig)</p> <p>Audio support HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack</p>	Models	3-cell or 3 + 3-cell	6-cell or 3 + 6-cell	Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg	PPS	3.63 lb / 1.65 kg	4.35 lb / 1.85 kg
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<p>Graphics</p> <p>Intel HD Graphics 520 or 620 in processor only, or Intel HD Graphics 620 in processor and NVIDIA GeForce® 940MX, 2GB 2.5GHz GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</p>	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad</p> <p>Security Power-on password, hard disk password, supervisor password, security keyhole</p> <p>Security chip Discrete TPM 2.0, TCG Certified</p> <p>vPro (optional) Intel vPro Technology</p> <p>Fingerprint reader <i>Optional:</i> Touch style match on chip fingerprint reader on the keyboard bezel</p> <p>NFC (optional) Near Field Communication</p>																																																																					
<p>Chipset Intel SoC (System on Chip) platform</p> <p>Memory 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i></p>	<p>Internal battery <i>Optional:</i> Integrated Li-Polymer 3-cell (24Wh)</p> <p>External battery Li-Polymer 3-cell (24Wh) or Li-ion 6-cell (48Wh or 72Wh)</p> <p>Max battery life (MobileMark® 2014)</p> <table border="1"> <thead> <tr> <th>Models</th> <th>3-cell</th> <th>3 + 3-cell</th> <th>6-cell 48Wh</th> <th>6-cell 72Wh</th> <th>3 + 6-cell 48Wh</th> <th>3 + 6-cell 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Integrated</i></td> <td>6.9 hr</td> <td>13.9 hr</td> <td>13.9 hr</td> <td>20.9 hr</td> <td>20.9 hr</td> <td>27.1 hr</td> </tr> <tr> <td><i>Discrete</i></td> <td>6.9 hr</td> <td>13.9 hr</td> <td>14.3 hr</td> <td>21.6 hr</td> <td>21.2 hr</td> <td>28.6 hr</td> </tr> </tbody> </table> <p><i>* Battery life varies significantly with settings, usage, & other factors</i></p>	Models	3-cell	3 + 3-cell	6-cell 48Wh	6-cell 72Wh	3 + 6-cell 48Wh	3 + 6-cell 72Wh	<i>Integrated</i>	6.9 hr	13.9 hr	13.9 hr	20.9 hr	20.9 hr	27.1 hr	<i>Discrete</i>	6.9 hr	13.9 hr	14.3 hr	21.6 hr	21.2 hr	28.6 hr																																																
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<p>Display</p> <p><i>Some:</i> 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio</p> <p><i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 or 500:1 contrast ratio</p> <p><i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle</p> <p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD IPS panel with PPS cover only)</p> <p>Storage <i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig</p>	<p>AC adapter 45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter</p> <p>Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 <i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64</p> <ul style="list-style-type: none"> • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial) <p>Limited warranty <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 																																																																					
<p>Optical None</p>	<p>Mil-Spec test MIL-STD-810G military testing</p>																																																																					
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<p>WLAN <i>One of the following, configurable by model (WiGig can coexist with WWAN):</i></p> <ul style="list-style-type: none"> • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card 	<p>Bluetooth™ Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i></p>																																																																					
<p>WWAN (optional) <i>One of the following, configurable by model (WWAN can coexist with WiGig):</i></p> <ul style="list-style-type: none"> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) 	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																					
<p>SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card</p>																																																																						



ThinkPad T470s Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i5 / i7 Processor								Dimensions Weight Case color Case material	<i>WxDxH:</i> 13.03" x 8.93" x 0.67-0.74"; 331mm x 226.8mm x 16.9-18.8mm Starting at 2.9 lb (1.32kg) Black or Silver <i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	DDR4-2133	Intel HD Graphics 520		
	i5-6300U			2.4 GHz	3.0 GHz	3MB				
i7-6600U	2.6 GHz			3.4 GHz	4MB					
Processor	or 7th Generation Intel Core i5 / i7 Processor								Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620		
	i5-7300U			2.6 GHz	3.5 GHz	3MB				
i7-7500U	2.7 GHz			3.5 GHz	4MB					
i7-7600U	2.8 GHz			3.9 GHz	4MB					
Graphics	Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								WiGig dock (opt) Monitor cable (optional)	ThinkPad WiGig dock, mutually exclusive with WWAN HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
Chipset	Intel SoC (System on Chip) platform								Camera (optional)	HD720p resolution, fixed focus (models without camera are NOT available in EMEA)
Memory	20GB or 24GB max ⁷ / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i>								Audio support	HD Audio, Realtek® ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack
Display	Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch (opt)	On-cell touch, supports 10-finger gesture, 250 nits (FHD only)								Security Security chip vPro (optional) Fingerprint reader NFC (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest Near Field Communication
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Internal battery Max battery life	Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated <i>MobileMark® 2014:</i> up to 10.5 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
Optical	None								AC adapter	45W slim tip AC adapter, 45W or 65W USB Type-C AC adapter
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)								Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)
WLAN	One of the following, configurable by model (WiGig is mutually exclusive with WWAN): • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>								Mil-Spec test	MIL-STD-810G military testing
WWAN (optional)	One of the following, configurable by model (mutually exclusive with WiGig): • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card • Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
SIM card (opt)										



ThinkPad T480 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm						
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Models	24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh			
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Integrated Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg				
	i5-7300U			2.6 GHz	3.5 GHz	3MB			Integrated PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg				
	or 8th Generation Intel Core i3 / i5 / i7 Processor							Case color Case material	Black Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic						
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Smart card reader	Optional: Smart card reader				
	i3-8130U	4	8	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)					
	i5-8250U			1.6 GHz	3.4 GHz	6MB			Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole					
	i5-8350U			1.7 GHz	3.6 GHz	6MB			Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter					
	i7-8550U			1.8 GHz	4.0 GHz	8MB			Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus					
	i7-8650U			1.9 GHz	4.2 GHz	8MB			Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack					
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete graphics is available only on i7 models in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad						
Chipset	Intel SoC (System on Chip) platform							Security	Power-on password, hard disk password, supervisor password, security keyhole						
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller							Security chip	Discrete TPM 2.0, TCG Certified						
Display	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle							vPro (optional)	Intel vPro Technology						
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology						
Storage	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4 Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, in WWAN slot as 2nd Storage, mutually exclusive with WWAN * Installed M.2 SSD is PCIe 3.0 x 4 but run at PCIe 3.0 x 2 due to M.2 SSD adapter limitation							NFC (optional)	Near Field Communication						
Optane™ memory	Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							Battery	Optional integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery						
Optical	None							Max battery life (MobileMark® 2014)	Models	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)							AC adapter	45W or 65W USB Type-C AC adapter						
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							Preload	Windows® 10 Home 64 or Windows 10 Pro 64						
WWAN (optional)	One of the following, configurable by model (mutually exclusive with Intel Optane memory): • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable							Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service						
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							Mil-Spec test	MIL-STD-810G military testing						
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant						

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T480s Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight Case color Case material	<i>WxDxH:</i> 13.03" x 8.93" x 0.73"; 331mm x 226.8mm x 18.45mm Starting at 2.9 lb (1.32kg) Black or Silver <i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	
	i5-7300U			2.6 GHz	3.5 GHz	3MB			
	or 8th Generation Intel Core i5 / i7 Processor							Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			
	i7-8550U			1.8 GHz	4.0 GHz	8MB			
	i7-8650U			1.9 GHz	4.2 GHz	8MB			
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable <i>(optional)</i>	USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter
Chipset Memory	Intel SoC (System on Chip) platform 20GB or 24GB max / 2400MHz DDR4, dual-channel capable, 4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i>							Camera	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus
Display	<i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle, supports ThinkPad Privacy Guard on some models <i>Some:</i> 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle							Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
Multi-touch <i>(opt)</i>	On-cell touch, supports 10-finger gesture, 250 nits (FHD only)							Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s							Security Security chip vPro <i>(optional)</i> Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
Optane™ memory Optical	None None							NFC <i>(optional)</i>	Near Field Communication
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>							Max battery life	<i>MobileMark® 2014:</i> 15.6 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
WWAN <i>(optional)</i>	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card							AC adapter	45W or 65W USB Type-C AC adapter
SIM card <i>(opt)</i>	Nano-SIM card slot, optional Verizon LTE (US) SIM card							Operating system	Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
								Mil-Spec test	MIL-STD-810G military testing
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad T490 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor									Dimensions WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight		Models	FHD
Graphics	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Case color Black	Case material Display cover: PPS / 50% GF; Bottom: PA / 50% GF	Smart card reader Optional: Smart card reader	Media reader MicroSD card reader
	i5-8365U			1.6 GHz	4.1 GHz	6MB						
	i7-8565U			1.8 GHz	4.6 GHz	8MB						
	i7-8665U			1.9 GHz	4.8 GHz	8MB						
Chipset	Intel SoC (System on Chip) platform									Ports Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed		
Memory	48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation											
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter		
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°			
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°			
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°			
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°			
	14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°			
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Bundled Accy None		
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 											
Optane™ memory	Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									Camera (optional) One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus		
Optical	None											
Ethernet	Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)									Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack		
WLAN (optional)	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0											
Bluetooth™ (opt)	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad		
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card • Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable											
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Security Power-on password, hard disk password, supervisor password, security keyhole		
										Security chip Discrete TPM 2.0, TCG Certified		
										System Mgt (opt) Intel vPro Technology		
										Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest		
										NFC (optional) Near Field Communication		
										Battery Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)		
										Max battery life MobileMark® 2014: 16.11 hr * Battery life varies significantly with settings, usage, & other factors		
										AC adapter 45W or 65W USB Type-C AC adapter		
										Preload Windows® 10 Home 64 or Windows 10 Pro 64		
										Limited warranty One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service		
										Mil-Spec test MIL-STD-810G military testing		
										Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant		

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T490s Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor 8th Generation Intel® Core™ i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i5-8265U</td> <td rowspan="4">4</td> <td rowspan="4">8</td> <td>1.6 GHz</td> <td>3.9 GHz</td> <td>6MB</td> <td rowspan="4">DDR4-2400</td> <td rowspan="4">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8365U</td> <td>1.6 GHz</td> <td>4.1 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8565U</td> <td>1.8 GHz</td> <td>4.6 GHz</td> <td>8MB</td> </tr> <tr> <td>i7-8665U</td> <td>1.9 GHz</td> <td>4.8 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	i5-8365U	1.6 GHz	4.1 GHz	6MB	i7-8565U	1.8 GHz	4.6 GHz	8MB	i7-8665U	1.9 GHz	4.8 GHz	8MB	<p>Dimensions <i>WxDxH (black with FHD / Privacy Guard):</i> 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm <i>WxDxH (black with FHD Low Power / WQHD):</i> 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm <i>WxDxH (silver):</i> 12.96" x 8.92" x 0.68"; 329.15mm x 226.45mm x 17.2mm</p> <p>Weight</p> <table border="1"> <thead> <tr> <th>Models</th> <th>Black with FHD</th> <th>Black with FHD Low Power / WQHD / Privacy Guard</th> <th>Silver</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>2.98 lb / 1.35 kg</td> <td>2.81 lb / 1.27 kg</td> <td>3.29 lb / 1.49 kg</td> </tr> </tbody> </table>	Models	Black with FHD	Black with FHD Low Power / WQHD / Privacy Guard	Silver	Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg									
Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics																																							
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620																																							
i5-8365U			1.6 GHz	4.1 GHz	6MB																																									
i7-8565U			1.8 GHz	4.6 GHz	8MB																																									
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Models	Black with FHD	Black with FHD Low Power / WQHD / Privacy Guard	Silver																																											
Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg																																											
<p>Graphics Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)</p>	<p>Case color Black or Silver Case material <i>Display cover:</i> CFRP Hybrid (black) or Aluminum (silver); <i>Bottom:</i> Magnesium</p>																																													
<p>Chipset Intel SoC (System on Chip) platform Memory 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i></p>	<p>Smart card reader <i>Optional:</i> Smart card reader Media reader MicroSD card reader Ports Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p>																																													
<p>Display</p> <table border="1"> <thead> <tr> <th>Size</th> <th>Resolution</th> <th>Type</th> <th>Surface</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Color Gamut</th> <th>Viewing Angle</th> </tr> </thead> <tbody> <tr> <td>14.0"</td> <td>FHD (1920x1080)</td> <td>IPS</td> <td>Anti-glare</td> <td>250 nits (non-touch) 300 nits (multi-touch)</td> <td>16:9</td> <td>700:1</td> <td>45%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>FHD (1920x1080) Low Power</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>800:1</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>FHD (1920x1080) ThinkPad Privacy Guard</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>1000:1</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>14.0"</td> <td>WQHD (2560x1440) Dolby Vision™ HDR</td> <td>IPS</td> <td>Glossy</td> <td>500 nits</td> <td>16:9</td> <td>1500:1</td> <td>100% Adobe</td> <td>170°</td> </tr> </tbody> </table>	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°	<p>Monitor cable (optional) <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2</p> <p>Bundled Accy <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2</p> <p>Camera <i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus</p> <p>Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack</p>
Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle																																						
14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°																																						
14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°																																						
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°																																						
14.0"	WQHD (2560x1440) Dolby Vision™ HDR	IPS	Glossy	500 nits	16:9	1500:1	100% Adobe	170°																																						
<p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)</p>																																														
<p>Storage</p> <ul style="list-style-type: none"> • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad</p>																																													
<p>Optane™ memory <i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 Optical None</p>	<p>Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified</p>																																													
<p>Ethernet Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2</p>	<p>System Mgt (opt) Intel vPro Technology Fingerprint reader <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest NFC (optional) Near Field Communication</p>																																													
<p>WLAN + Bluetooth™ (optional) <i>One of the following, configurable by model:</i> • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 • Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0</p>	<p>Battery Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) Max battery life <i>MobileMark® 2014:</i> 20 hr <i>* Battery life varies significantly with settings, usage, & other factors</i></p>																																													
<p>WWAN (optional) <i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i></p>	<p>AC adapter 45W or 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64</p>																																													
<p>SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card</p>	<p>Limited warranty <i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service</p> <p>Mil-Spec test MIL-STD-810G military testing Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant</p>																																													

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad T495 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics									Dimensions Weight	<i>WxDxH:</i> 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics			Models	HD	FHD	FHD Low Power
	Ryzen 3 Pro 3300U	4	4	2.1 GHz	3.5 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics			Weight	3.46 lb / 1.57 kg	3.46 lb / 1.57 kg	3.39 lb / 1.54 kg
	Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics			Case color	Black		
Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3	Radeon Vega 10 Graphics		Case material	<i>Display cover:</i> PPS / 50% GF; <i>Bottom:</i> PA / 50% GF					
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports four independent displays; Max resolution: 5120x2880@60Hz (USB-C); 4096x2160@60Hz (HDMI)									Smart card reader	Optional: Smart card reader			
Chipset	AMD SoC (System on Chip) platform									Media reader	MicroSD card reader			
Memory	32GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>									Ports	One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>			
Display	AMD SoC (System on Chip) platform									Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter			
	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Bundled Accy	None			
	14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°	Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus			
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack			
14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight				
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad			
Storage	• M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2									Security	Power-on password, hard disk password, supervisor password, security keyhole			
Optical	None									Security chip	Discrete TPM 2.0, TCG Certified			
Ethernet	Realtek® RTL8111 Gigabit Ethernet connection									System Mgt	DASH Management			
WLAN	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest			
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									NFC	None			
WWAN (optional)	<i>One of the following, configurable by model:</i> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>									Battery	Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)			
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Max battery life	<i>MobileMark® 2014:</i> 13.4 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>			
										AC adapter	45W or 65W USB Type-C AC adapter			
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64			
										Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service			
										Mil-Spec test	MIL-STD-810G military testing			
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant			

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad T495s Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics									Dimensions	<i>WxDxH (FHD / Privacy Guard):</i> 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics			<i>WxDxH (Low Power):</i> 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm			
Graphics	Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics		Weight	Models	FHD	FHD Low Power	FHD Privacy Guard
	Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3		Radeon Vega 10 Graphics			Weight	2.92 lb / 1.33 kg	2.76 lb / 1.25 kg	2.89 lb / 1.31 kg
Chipset	AMD SoC (System on Chip) platform									Case color	Black			
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation</i>									Case material	<i>Display cover:</i> CFRP Hybrid; <i>Bottom:</i> Magnesium/Aluminum			
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Smart card reader	Optional: Smart card reader			
	14.0"	FHD (1920x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Media reader	MicroSD card reader			
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	Ports	One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>			
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2			
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Camera	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus			
Storage	M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4									Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack			
Optical	None									Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight			
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2									UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad			
WLAN (optional)	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									Security	Power-on password, hard disk password, supervisor password, security keyhole			
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									Security chip	Discrete TPM 2.0, TCG Certified			
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>									System Mgt	DASH Management			
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest			
										NFC	None			
										Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)			
										Max battery life	MobileMark® 2014: 16.4 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>			
										AC adapter	45W or 65W USB Type-C AC adapter			
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64			
										Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service			
										Mil-Spec test	MIL-STD-810G military testing			
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant			

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad T580 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor							Dimensions Weight	<i>WxDxH:</i> 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm <i>Integrated model:</i> starting at 4.29 lb / 1.95 kg; <i>Discrete model:</i> starting at 4.39 lb / 1.99 kg																			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types		Processor Graphics	Case color	Black																	
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Case material	<i>Display cover:</i> Glass-Fiber Reinforced Plastic (PPS); <i>Bottom:</i> Glass-Fiber Reinforced Plastic																		
	i5-7300U			2.6 GHz	3.5 GHz	3MB																						
	or 8th Generation Intel Core i5 / i7 Processor							Smart card reader	<i>Optional:</i> Smart card reader																			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)																		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>																		
	i5-8350U			1.7 GHz	3.6 GHz	6MB																						
	i7-8550U			1.8 GHz	4.0 GHz	8MB																						
	i7-8650U			1.9 GHz	4.2 GHz	8MB																						
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only or Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX150, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter																			
Chipset	Intel SoC (System on Chip) platform							Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus																			
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets <i>* System clocks down for processors with lower memory controller</i>							Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack																			
Display	<i>Some:</i> 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle <i>Some:</i> 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle							Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad																			
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)							Security	Power-on password, hard disk password, supervisor password, security keyhole																			
Storage	<i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN							Security chip	Discrete TPM 2.0, TCG Certified																			
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2							vPro (optional)	Intel vPro Technology																			
Optical	None							Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology																			
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)							NFC (optional)	Near Field Communication																			
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>							Battery	Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery																			
WWAN (optional)	<i>One of the following, configurable by model:</i> • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>							Max battery life (MobileMark® 2014)	<table border="1"> <thead> <tr> <th>Models</th> <th>24Wh</th> <th>48Wh</th> <th>72Wh</th> <th>32Wh + 24Wh</th> <th>32Wh + 48Wh</th> <th>32Wh + 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life</i></td> <td>5.8 hr</td> <td>12.5 hr</td> <td>18.1 hr</td> <td>13.8 hr</td> <td>20.3 hr</td> <td>26.1 hr</td> </tr> </tbody> </table>						Models	24Wh	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh	<i>Max battery life</i>	5.8 hr	12.5 hr	18.1 hr	13.8 hr	20.3 hr	26.1 hr
Models	24Wh	48Wh	72Wh	32Wh + 24Wh	32Wh + 48Wh	32Wh + 72Wh																						
<i>Max battery life</i>	5.8 hr	12.5 hr	18.1 hr	13.8 hr	20.3 hr	26.1 hr																						
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card							AC adapter	45W or 65W USB Type-C AC adapter																			
								Preload	Windows® 10 Home 64 or Windows 10 Pro 64																			
								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service																			
								Mil-Spec test	MIL-STD-810G military testing																			
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant																			

Note: The specifications above may not be available in all regions.

Lenovo
May 2019



ThinkPad T590 Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor									Dimensions	<i>WxDxH:</i> 14.40" x 9.76" x 0.75"; 365.8mm x 248mm x 19.1mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	<i>FHD model:</i> 3.87 lb / 1.75 kg; <i>UHD model:</i> 3.86 lb / 1.75 kg	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black	
	i5-8365U			1.6 GHz	4.1 GHz	6MB			Case material	<i>Display cover:</i> PPS / 50% GF;	
	i7-8565U			1.8 GHz	4.6 GHz	8MB			<i>Bottom:</i> PA / 50% GF		
i7-8665U	1.9 GHz			4.8 GHz	8MB						
Graphics	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)									Smart card reader	<i>Optional:</i> Smart card reader
Chipset	Intel SoC (System on Chip) platform									Media reader	MicroSD card reader
Memory	48GB max / 2400MHz DDR4, dual-channel capable, 8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i>									Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Monitor cable (optional)	<i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter (NOT available in EMEA) <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter (NOT available in EMEA)
	15.6"	FHD (1920x1080)	IPS	Anti-glare	250 nits	16:9	700:1	45%	170°	Bundled Accy	None
	15.6"	UHD (3840x2160) Dolby Vision™ HDR	IPS	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°	Camera (optional)	<i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 									Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight
Optane™ memory	<i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2									UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Optical	None									Security	Power-on password, hard disk password, supervisor password, security keyhole
Ethernet	<i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)									Security chip	Discrete TPM 2.0, TCG Certified
WLAN (optional)	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									System Mgt (opt)	Intel vPro Technology
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									Fingerprint reader	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>									NFC (optional)	Near Field Communication
SIM card	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
										Max battery life	<i>MobileMark® 2014:</i> 14.98 hr (9.5 hr for UHD model with discrete graphics) <i>* Battery life varies significantly with settings, usage, & other factors</i>
										AC adapter	45W or 65W USB Type-C AC adapter
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64
										Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
										Mil-Spec test	MIL-STD-810G military testing
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad X1 Carbon (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	6th Generation Intel® Core™ i5 / i7 Processor (EMEA has only i5-6300U and i7-6600U)								Smart card reader	None									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader Ports	MicroSD card reader, supports UHS-II microSD card Two USB 3.1 Gen 1 (USB 3.0, one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>									
	i5-6200U	2	4	2.3 GHz	2.8 GHz	3MB	LPDDR3-1866	Intel HD Graphics 520	WiGig dock (opt)	ThinkPad WiGig dock									
	i5-6300U			2.4 GHz	3.0 GHz	3MB			Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter									
	i7-6500U			2.5 GHz	3.1 GHz	4MB			Bundled Accy	Optional: ThinkPad Ethernet Extension Cable									
	i7-6600U			2.6 GHz	3.4 GHz	4MB			Camera (optional)	720p: HD720p resolution, fixed focus IR & 720p: IR camera and HD720p camera									
	or 7th Generation Intel Core i5 / i7 Processor								Audio support	HD Audio, Conexant® CX11871 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight									
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	LPDDR3-1866	Intel HD Graphics 620	UltraNav™	TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad									
	i5-7300U			2.6 GHz	3.5 GHz	3MB			Security	Power-on password, hard disk password, supervisor password, security keyhole									
	i7-7500U			2.7 GHz	3.5 GHz	4MB			Security chip vPro (optional)	Discrete TPM 2.0, TCG Certified									
	i7-7600U			2.8 GHz	3.9 GHz	4MB			Fingerprint reader	Intel vPro Technology									
Graphics	Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)								Fingerprint reader NFC (optional)	Touch style match on chip fingerprint reader on the palm rest Near Field Communication									
Chipset	Intel SoC (System on Chip) platform								Battery	Integrated Li-Polymer 3-cell (57Wh) RapidCharge battery									
Memory	8GB or 16GB / 1866MHz LPDDR3 / soldered to systemboard, no sockets								Max battery life	MobileMark® 2014: 15.5 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>									
Display	<i>Some:</i> 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle <i>Some:</i> 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								AC adapter	45W or 65W USB Type-C AC adapter									
Multi-touch	None								RapidCharge	<table border="1"> <tr> <td>AC adapter</td> <td>45W USB-C</td> <td>65W USB-C</td> </tr> <tr> <td>Charge to 80%</td> <td>Not support</td> <td>1.0 hr</td> </tr> <tr> <td>Charge to 100%</td> <td>Not support</td> <td>2.5 hr</td> </tr> </table>	AC adapter	45W USB-C	65W USB-C	Charge to 80%	Not support	1.0 hr	Charge to 100%	Not support	2.5 hr
AC adapter	45W USB-C	65W USB-C																	
Charge to 80%	Not support	1.0 hr																	
Charge to 100%	Not support	2.5 hr																	
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Preload	Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)									
Optical	None								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service									
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								Mil-Spec test	MIL-STD-810G military testing									
WLAN	<i>One of the following, configurable by model (WiGig can coexist with WWAN):</i> • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1, M.2 card								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant									
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i>																		
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)																		
SIM card (opt)	Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card																		
Dimensions	<i>WxDxH:</i> 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm																		
Weight	Starting at 2.49 lb / 1.13 kg																		
Case color	Black or Silver (silver is NOT available in EMEA)																		
Case material	<i>Display cover:</i> CFRP/GFRP hybrid; <i>Bottom:</i> magnesium alloy hybrid																		



ThinkPad X1 Carbon (6th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i5 Processor								Dimensions Weight Case color Case material	<i>WxDxH:</i> 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm Starting at 2.49 lb / 1.13 kg Black or Silver (silver case is NOT available in EMEA) <i>Display cover:</i> CFRP/GFRP hybrid; <i>Bottom:</i> magnesium alloy / PPS hybrid
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-7300U	2	4	2.6 GHz	3.5 GHz	3MB	LPDDR3-1866	Intel HD Graphics 620		
	or 8th Generation Intel Core i5 / i7 Processor									
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620		
	i5-8350U			1.7 GHz	3.6 GHz	6MB				
	i7-8550U			1.8 GHz	4.0 GHz	8MB				
	i7-8650U			1.9 GHz	4.2 GHz	8MB				
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader Media reader Ports Monitor cable (optional) Bundled Accy	None MicroSD card reader, supports UHS-II Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
Chipset Memory	Intel SoC (System on Chip) platform 8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets <i>* System clocks down for processors with lower memory controller</i>								Camera (optional) Audio support	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby® Atmos™ via headphones
Display	One of the following, configurable by model: • 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle • 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle • 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision™, glossy, LED backlight, IPS, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle								Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)								Security Security chip vPro (optional) Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								NFC (optional)	Near Field Communication
Optane™ memory Optical	None None								Battery Max battery life AC adapter	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 19.3 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> 45W or 65W USB Type-C AC adapter
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Mil-Spec test	MIL-STD-810G military testing
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant



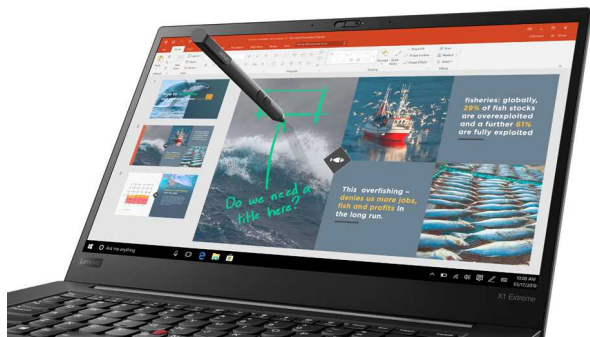
ThinkPad X1 Carbon (7th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor									Dimensions <i>WxDxH:</i> 12.74" x 8.55" x 0.59"; 323.5mm x 217.1mm x 14.9mm Weight Starting at 2.4 lb / 1.09 kg Case color Black paint or black weave Case material <i>Display cover:</i> Carbon Fiber; <i>Bottom:</i> magnesium alloy
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620		
	i5-8365U			1.6 GHz	4.1 GHz	6MB				
	i7-8565U			1.8 GHz	4.6 GHz	8MB				
i7-8665U	1.9 GHz			4.8 GHz	8MB					
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C / Thunderbolt; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)									Smart card reader None Media reader None Ports Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> Monitor cable <i>Optional:</i> Lenovo HDMI to VGA Monitor Adapter Bundled Accy <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2 Camera <i>(optional)</i> <i>One of the following, configurable by model:</i> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus Audio support HD Audio, Realtek® ALC3286 codec / Dolby® Atmos™ speaker system, 2W x 2, 0.8 x 2 / 4 array far-field microphones, headphone / microphone combo jack Keyboard 6-row, spill-resistant, multimedia Fn keys, LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified vPro <i>(optional)</i> Intel vPro Technology Fingerprint reader Touch style match on chip fingerprint reader on the palm rest NFC <i>(optional)</i> Near Field Communication Battery Integrated Li-ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter Max battery life <i>MobileMark® 2014:</i> 18.3 hr <i>* Battery life varies significantly with settings, usage, & other factors</i> AC adapter 45W or 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty <i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service Mil-Spec test MIL-STD-810G military testing Environment EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant
Chipset	Intel SoC (System on Chip) platform									
Memory	8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets									
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	
	14.0"	FHD (1920x1080) Multi-touch	IPS	Anti-glare	300 nits	16:9	700:1	72%	170°	
	14.0"	FHD (1920x1080) Low Power	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	
	14.0"	WQHD (2560x1440)	IPS	Anti-glare	300 nits	16:9	700:1	72%	170°	
	14.0"	UHD (3840x2160) Dolby Vision™ HDR400	IPS	Glossy	500 nits	16:9	1400:1	90%	170°	
Multi-touch <i>(opt)</i>	Capacitive-type multi-touch, supports 10-finger gesture (FHD only), anti-reflection (AR), anti-smudge coating									
Storage	<i>One of the following, configurable by model:</i> • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe 3.0 x 4 • Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 • Intel Optane SSD, M.2 2280, PCIe NVMe 3.0 x 2									
Optane memory	Intel Optane Memory H10									
Optical	None									
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2									
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									
WWAN <i>(optional)</i>	<i>One of the following, configurable by model:</i> • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card • Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>									
SIM card <i>(opt)</i>	Nano-SIM card slot, optional Verizon LTE (US) SIM card									

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



ThinkPad X1 Extreme Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Smart card reader	Optional: Smart card reader	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card	
	i5-8300H	4	8	2.3 GHz	4.0 GHz	8MB	DDR4-2666	Intel UHD Graphics 630	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole	
	i5-8400H			2.5 GHz	4.2 GHz						
	i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB					* Depending on many factors, actual data transfer speed may be lower than theoretical speed
	i7-8850H			2.6 GHz	4.3 GHz						
Graphics	Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1050 Ti Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5120x2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)								Monitor cable (optional)	Lenovo HDMI to VGA Monitor Adapter	
Chipset	Mobile Intel CM246 Chipset								Bundled Accy	Optional: ThinkPad Ethernet Extension Cable	
Memory	64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets								Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus	
Display	Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle Some: 15.6" (396mm) HDR 4K (3840x2160) with Dolby Vision™, anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)								Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone	
Multi-touch (opt)	Capacitive-type multi-touch, supports 10-finger gesture (4K only)								Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight	
Pen	Supports pen accessory, please see the accessory compatibility for details								UltraNav™	TrackPoint® pointing device and buttonless glass surface multi-touch touchpad	
Storage	Up to 2 drives (two M.2 SSD) • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane™ memory	None								Security chip	Discrete TPM 2.0, TCG Certified	
RAID (optional)	RAID 0/1 support								vPro (optional)	Intel vPro Technology	
Optical	None								Fingerprint reader	Touch style match on chip fingerprint reader on the keyboard bezel	
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable								Color calibration	None	
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card								NFC	None	
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								Battery	Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)	
WWAN	None								Max battery life (MobileMark 2014)	Discrete mode: 9.5 hr; Hybrid mode: 14.9 hr	
SIM card	None								AC adapter	* Battery life varies significantly with settings, usage, & other factors 135W slim tip AC adapter	
Dimensions	WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm WxDxH (multi-ouch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm								Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
Weight	Non-touch model: starting at 3.76 lb (1.7 kg); Multi-touch model: starting at 4.06 lb (1.8 kg)								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
Case color	Black								Mil-Spec test	MIL-STD-810G military testing	
Case material	Display cover: CFRP/GFRP hybrid; Bottom: Aluminum alloy								Environment	EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



ThinkPad X270 Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor 6th Generation Intel® Core™ i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-6006U</td> <td rowspan="6">2</td> <td rowspan="6">4</td> <td>2.0 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="6">DDR4-2133</td> <td rowspan="6">Intel HD Graphics 520</td> </tr> <tr> <td>i3-6100U</td> <td>2.3 GHz</td> <td>-</td> <td>3MB</td> </tr> <tr> <td>i5-6200U</td> <td>2.3 GHz</td> <td>2.8 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-6300U</td> <td>2.4 GHz</td> <td>3.0 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-6500U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-6600U</td> <td>2.6 GHz</td> <td>3.4 GHz</td> <td>4MB</td> </tr> </tbody> </table> <p>or 7th Generation Intel Core i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-7100U</td> <td rowspan="6">2</td> <td rowspan="6">4</td> <td>2.4 GHz</td> <td>-</td> <td>3MB</td> <td rowspan="6">DDR4-2133</td> <td rowspan="6">Intel HD Graphics 620</td> </tr> <tr> <td>i5-7200U</td> <td>2.5 GHz</td> <td>3.1 GHz</td> <td>3MB</td> </tr> <tr> <td>i5-7300U</td> <td>2.6 GHz</td> <td>3.5 GHz</td> <td>3MB</td> </tr> <tr> <td>i7-7500U</td> <td>2.7 GHz</td> <td>3.5 GHz</td> <td>4MB</td> </tr> <tr> <td>i7-7600U</td> <td>2.8 GHz</td> <td>3.9 GHz</td> <td>4MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-6006U	2	4	2.0 GHz	-	3MB	DDR4-2133	Intel HD Graphics 520	i3-6100U	2.3 GHz	-	3MB	i5-6200U	2.3 GHz	2.8 GHz	3MB	i5-6300U	2.4 GHz	3.0 GHz	3MB	i7-6500U	2.5 GHz	3.1 GHz	4MB	i7-6600U	2.6 GHz	3.4 GHz	4MB	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-7100U	2	4	2.4 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	i5-7200U	2.5 GHz	3.1 GHz	3MB	i5-7300U	2.6 GHz	3.5 GHz	3MB	i7-7500U	2.7 GHz	3.5 GHz	4MB	i7-7600U	2.8 GHz	3.9 GHz	4MB	<p>Dimensions <i>WxDxH:</i> 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm</p> <table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3 + 6-cell</th> </tr> </thead> <tbody> <tr> <td><i>Weight</i></td> <td>2.79 lb / 1.27 kg</td> <td>2.98 lb / 1.36 kg</td> <td>3.33 lb / 1.52 kg</td> </tr> </tbody> </table> <p>Case color Black Case material <i>Display cover:</i> Glass-Fiber Reinforced Plastic; <i>Bottom:</i> Glass-Fiber Reinforced Plastic</p> <p>Smart card reader Optional: Smart card reader</p> <p>Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC)</p> <p>Ports Two USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p> <p>WiGig dock (opt) ThinkPad WiGig dock, mutually exclusive with WWAN (US only)</p> <p>Monitor cable (optional) <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter</p> <p>Camera (optional) HD720p resolution, fixed focus</p> <p>Audio support HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack</p>	Models	No + 3-cell	3-cell + 3-cell	3 + 6-cell	<i>Weight</i>	2.79 lb / 1.27 kg	2.98 lb / 1.36 kg	3.33 lb / 1.52 kg
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<p>Graphics Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2160@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)</p>	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight</p> <p>UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad</p>																																																																												
<p>Chipset Intel SoC (System on Chip) platform</p> <p>Memory 16GB max / 2400MHz DDR4, one DDR4 SO-DIMM socket <i>* System clocks down for processors with lower memory controller</i></p>	<p>Security Power-on password, hard disk password, supervisor password, security keyhole</p> <p>Security chip Discrete TPM 2.0, TCG Certified</p> <p>vPro (optional) Intel vPro Technology</p> <p>Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest</p> <p>NFC (optional) Near Field Communication</p>																																																																												
<p>Display <i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio <i>Some:</i> 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle <i>Some:</i> 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle</p>	<p>Internal battery Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh)</p> <p>External battery Li-ion 3-cell (23Wh) or 6-cell (48Wh or 72Wh)</p> <table border="1"> <thead> <tr> <th>Models</th> <th>No + 3-cell</th> <th>3-cell + 3-cell</th> <th>3-cell + 6-cell 48Wh</th> <th>3-cell + 6-cell 72Wh</th> </tr> </thead> <tbody> <tr> <td><i>Max battery life (MobileMark® 2014)</i></td> <td>6.52 hr</td> <td>13.04 hr</td> <td>20.1 hr</td> <td>26.9 hr</td> </tr> </tbody> </table> <p><i>* Battery life varies significantly with settings, usage, & other factors</i></p>	Models	No + 3-cell	3-cell + 3-cell	3-cell + 6-cell 48Wh	3-cell + 6-cell 72Wh	<i>Max battery life (MobileMark® 2014)</i>	6.52 hr	13.04 hr	20.1 hr	26.9 hr																																																																		
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<p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)</p>	<p>AC adapter 45W slim tip AC adapter or 45W USB Type-C AC adapter</p>																																																																												
<p>Storage <i>System has one HDD slot or one M.2 2280 slot exclusively for storage</i> <i>Some:</i> HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ <i>Some:</i> SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s <i>Some:</i> 128GB M.2 SSD / SATA 6.0Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN and WiGig</p>	<p>Preload Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64</p> <p><i>Some:</i> Windows 10 Home 64</p> <ul style="list-style-type: none"> • Lenovo Companion • Lenovo Setting • Microsoft Office preloaded; purchase a product key to activate 																																																																												
<p>Optical None</p>	<ul style="list-style-type: none"> • ThinkVantage Product Recovery • ThinkVantage System Update • Adobe® Reader® • Microsoft® Office preloaded; purchase a product key to activate • McAfee® LiveSafe™ (30-day trial) 																																																																												
<p>Ethernet <i>Non-vPro model:</i> Intel Ethernet Connection I219-V (Jacksonville) <i>vPro model:</i> Intel Ethernet Connection I219-LM (Jacksonville)</p>	<p>Limited warranty <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 																																																																												
<p>WLAN <i>One of the following, configurable by model (WiGig is mutually exclusive with WWAN):</i></p> <ul style="list-style-type: none"> • Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Dual Band Wireless-AC 8260, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1 • Intel Tri-Band Wireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT4.1 (US only) 	<p>Mil-Spec test MIL-STD-810G military testing</p>																																																																												
<p>Bluetooth™ Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter <i>* Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS</i></p>	<p>Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant</p>																																																																												
<p>WWAN (optional) <i>One of the following, configurable by model (mutually exclusive with WiGig):</i></p> <ul style="list-style-type: none"> • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU) (EMEA only) 																																																																													
<p>SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card</p>																																																																													



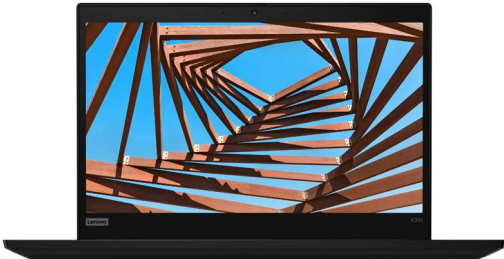
ThinkPad X280 Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ i3 / i5 Processor * i3-7130U is NOT available in US and EMEA; i5-7200U is NOT available in US							Dimensions	WxDxH: 12.11" x 8.26" x 0.69-0.70"; 307.7mm x 209.8mm x 17.4-17.8mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	FHD non-touch model: 2.49 lb / 1.13 kg; HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg
	i3-7130U	2	4	2.7 GHz	-	3MB	DDR4-2133	Intel HD Graphics 620	Case color	Black
	i5-7200U			2.5 GHz	3.1 GHz	3MB			Case material	Display cover: Carbon Fiber (FHD non-touch model) or Glass Fiber (HD & FHD multi-touch model);
	i5-7300U			2.6 GHz	3.5 GHz	3MB			Bottom: Magnesium/Aluminum	
	or 8th Generation Intel Core i3 / i5 / i7 Processor							Smart card reader	Optional: Smart card reader	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader, in the combo slot with nano-SIM card
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole
	i5-8250U			1.6 GHz	3.4 GHz	6MB			* Depending on many factors, actual data transfer speed may be lower than theoretical speed	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter	
	i7-8550U			1.8 GHz	4.0 GHz	8MB			USB-C to VGA: Lenovo USB-C to VGA Adapter	
	i7-8650U			1.9 GHz	4.2 GHz	8MB			USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Monitor cable (optional)	Optional: ThinkPad Ethernet Extension Adapter Gen 2	
Chipset	Intel SoC (System on Chip) platform							Camera (optional)	One of the following, configurable by model:	
Memory	4GB, 8GB, or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * 4GB memory is NOT available in US and EMEA * System clocks down for processors with lower memory controller							Audio support	<ul style="list-style-type: none"> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack	
Display	Some: 12.5" (317.5mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 12.5" (317.5mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only) * FHD non-touch model is NOT available in US							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Optane™ memory	None							Security chip	Discrete TPM 2.0, TCG Certified	
Optical	None							vPro (optional)	Intel vPro Technology	
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2							Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology	
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS							NFC (optional)	Near Field Communication	
WWAN (optional)	One of the following, configurable by model: • Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable							Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
SIM card (opt)	Nano-SIM card slot, in the combo slot with microSD card reader, optional Verizon LTE (US) SIM card							Max battery life	MobileMark® 2014: 16.6 hr * Battery life varies significantly with settings, usage, & other factors	
								AC adapter	45W or 65W USB Type-C AC adapter	
								Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
								Mil-Spec test	MIL-STD-810G military testing	
								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

Note: The specifications above may not be available in all regions.

Lenovo
April 2019



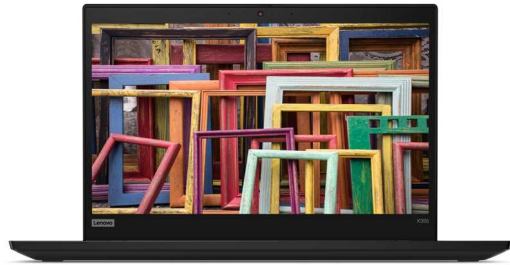
ThinkPad X390 Platform Specifications

Product Specifications Reference (PSREF)

<p>Processor 8th Generation Intel® Core™ i3 / i5 / i7 Processor</p> <table border="1"> <thead> <tr> <th>Processor Number</th> <th># of Cores</th> <th># of Threads</th> <th>Base Frequency</th> <th>Max Turbo Frequency</th> <th>Cache</th> <th>Memory Types</th> <th>Processor Graphics</th> </tr> </thead> <tbody> <tr> <td>i3-8145U</td> <td>2</td> <td>4</td> <td>2.1 GHz</td> <td>3.9 GHz</td> <td>4MB</td> <td rowspan="5">DDR4-2400</td> <td rowspan="5">Intel UHD Graphics 620</td> </tr> <tr> <td>i5-8265U</td> <td rowspan="4">4</td> <td rowspan="4">8</td> <td>1.6 GHz</td> <td>3.9 GHz</td> <td>6MB</td> </tr> <tr> <td>i5-8365U</td> <td>1.6 GHz</td> <td>4.1 GHz</td> <td>6MB</td> </tr> <tr> <td>i7-8565U</td> <td>1.8 GHz</td> <td>4.6 GHz</td> <td>8MB</td> </tr> <tr> <td>i7-8665U</td> <td>1.9 GHz</td> <td>4.8 GHz</td> <td>8MB</td> </tr> </tbody> </table>	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	i5-8365U	1.6 GHz	4.1 GHz	6MB	i7-8565U	1.8 GHz	4.6 GHz	8MB	i7-8665U	1.9 GHz	4.8 GHz	8MB	<p>Dimensions</p> <table border="1"> <thead> <tr> <th>Models</th> <th>FHD Non-touch</th> <th colspan="2">HD / FHD Multi-touch</th> </tr> </thead> <tbody> <tr> <td>Carbon Fiber</td> <td>311.9mm x 217.0mm x 16.5mm 12.28" x 8.54" x 0.65"</td> <td colspan="2">-</td> </tr> <tr> <td>PPS</td> <td>312.0mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"</td> <td colspan="2">312mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"</td> </tr> </tbody> </table> <p>Weight</p> <table border="1"> <thead> <tr> <th>Models</th> <th>FHD Non-touch</th> <th>HD</th> <th>FHD Multi-touch</th> </tr> </thead> <tbody> <tr> <td>Carbon Fiber</td> <td>2.70 lb / 1.22 kg</td> <td>-</td> <td>-</td> </tr> <tr> <td>PPS</td> <td>2.85 lb / 1.29 kg</td> <td>2.93 lb / 1.33 kg</td> <td>2.84 lb / 1.28 kg</td> </tr> </tbody> </table>	Models	FHD Non-touch	HD / FHD Multi-touch		Carbon Fiber	311.9mm x 217.0mm x 16.5mm 12.28" x 8.54" x 0.65"	-		PPS	312.0mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"	312mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"		Models	FHD Non-touch	HD	FHD Multi-touch	Carbon Fiber	2.70 lb / 1.22 kg	-	-	PPS	2.85 lb / 1.29 kg	2.93 lb / 1.33 kg	2.84 lb / 1.28 kg
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<p>Graphics Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)</p>	<p>Case color Black Case material <i>Display cover:</i> Carbon Fiber (FHD non-touch only) or PPS; <i>Bottom:</i> Magnesium/Aluminum</p>																																																										
<p>Chipset Intel SoC (System on Chip) platform Memory 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets <i>* Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation</i></p>	<p>Smart card reader <i>Optional:</i> Smart card reader Media reader MicroSD card reader, in the combo slot with nano-SIM card Ports Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i></p>																																																										
<p>Display</p> <table border="1"> <thead> <tr> <th>Size</th> <th>Resolution</th> <th>Type</th> <th>Surface</th> <th>Brightness</th> <th>Aspect Ratio</th> <th>Contrast Ratio</th> <th>Color Gamut</th> <th>Viewing Angle</th> </tr> </thead> <tbody> <tr> <td>13.3"</td> <td>HD (1366x768)</td> <td>TN</td> <td>Anti-glare</td> <td>250 nits</td> <td>16:9</td> <td>500:1</td> <td>45%</td> <td>90°</td> </tr> <tr> <td>13.3"</td> <td>FHD (1920x1080)</td> <td>IPS</td> <td>Anti-glare</td> <td>300 nits</td> <td>16:9</td> <td>800:1 (non-touch) 700:1 (multi-touch)</td> <td>72%</td> <td>170°</td> </tr> <tr> <td>13.3"</td> <td>FHD (1920x1080) ThinkPad Privacy Guard</td> <td>IPS</td> <td>Anti-glare</td> <td>400 nits</td> <td>16:9</td> <td>1000:1</td> <td>72%</td> <td>178°</td> </tr> </tbody> </table>	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	45%	90°	13.3"	FHD (1920x1080)	IPS	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°	13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°	<p>Monitor cable (optional) <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter <i>USB-C to VGA:</i> Lenovo USB-C to VGA Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter Bundled Accy <i>Optional:</i> ThinkPad Ethernet Extension Adapter Gen 2</p>																						
Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle																																																			
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	45%	90°																																																			
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13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°																																																			
<p>Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only)</p>	<p>Camera (optional) <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus 																																																										
<p>Storage</p> <ul style="list-style-type: none"> • M.2 2280 SSD / SATA 6.0Gb/s • M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 • M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 	<p>Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack</p>																																																										
<p>Optane™ memory <i>Optional:</i> Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2 Optical None</p>	<p>Keyboard 6-row, spill-resistant, multimedia Fn keys, optional LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad</p>																																																										
<p>Ethernet Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2</p>	<p>Security Power-on password, hard disk password, supervisor password, security keyhole Security chip Discrete TPM 2.0, TCG Certified System Mgt (opt) Intel vPro Technology</p>																																																										
<p>WLAN (optional) <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 • Intel Wireless-AX 22260, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 	<p>Fingerprint reader <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest NFC (optional) Near Field Communication</p>																																																										
<p>Bluetooth™ Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter</p>	<p>Battery Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter</p>																																																										
<p>WWAN (optional) <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <p><i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i></p>	<p>Max battery life <i>MobileMark® 2014:</i> 17.6 hr <i>* Battery life varies significantly with settings, usage, & other factors</i></p> <p>AC adapter 45W or 65W USB Type-C AC adapter</p>																																																										
<p>Preload Windows® 10 Home 64 or Windows 10 Pro 64</p>	<p>Limited warranty <i>One of the following, configurable by model:</i></p> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service 																																																										
<p>Mil-Spec test MIL-STD-810G military testing</p>	<p>Environment EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant</p>																																																										

Note: The specifications above may not be available in all regions.

Lenovo
June 2019



AMD



AMD



AMD



AMD



AMD



AMD

ThinkPad X395 Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics									Dimensions WxDxH: 12.28" x 8.55" x 0.67"; 311.9mm x 217.2mm x 16.9mm	Weight	<table border="1"> <tr> <th>Models</th> <th>HD / FHD multi-touch</th> <th>FHD non-touch</th> <th>FHD Privacy Guard</th> </tr> <tr> <td></td> <td>2.91 lb / 1.32 kg</td> <td>2.82 lb / 1.28 kg</td> <td>3.01 lb / 1.37 kg</td> </tr> </table>				Models	HD / FHD multi-touch	FHD non-touch	FHD Privacy Guard		2.91 lb / 1.32 kg	2.82 lb / 1.28 kg	3.01 lb / 1.37 kg
	Models	HD / FHD multi-touch	FHD non-touch	FHD Privacy Guard																			
		2.91 lb / 1.32 kg	2.82 lb / 1.28 kg	3.01 lb / 1.37 kg																			
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics															
Ryzen 3 Pro 3300U	4	4	2.1 GHz	3.5 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 6 Graphics																
Ryzen 5 Pro 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3		Radeon Vega 8 Graphics																
Ryzen 7 Pro 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3		Radeon Vega 10 Graphics																
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor; supports external digital monitor via USB-C or HDMI; supports three independent displays; Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@24Hz (HDMI)									Case color	Black												
Chipset	AMD SoC (System on Chip) platform									Case material	Display cover: PPS/GF; Bottom: Magnesium/Aluminum												
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation									Smart card reader	Optional: Smart card reader												
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Media reader	MicroSD card reader, in the combo slot with nano-SIM card												
	13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	300:1	45%	90°	Ports	One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2, two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed												
	13.3"	FHD (1920x1080)	IPS	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°	Monitor cable (optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter												
	13.3"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°	Bundled Accy	Optional: ThinkPad Ethernet Extension Adapter Gen 2												
Multi-touch (opt)	On-cell touch, supports 10-finger gesture (FHD only)									Camera (optional)	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus												
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 									Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack												
Optical	None									Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight												
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2									UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad												
WLAN (optional)	Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0									Security	Power-on password, hard disk password, supervisor password, security keyhole												
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter									Security chip	Discrete TPM 2.0, TCG Certified												
WWAN (optional)	One of the following, configurable by model: • Wireless WAN upgradable • Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable									System Mgt	DASH Management												
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card									Fingerprint reader	Optional: Touch style match on chip fingerprint reader on the palm rest												
										NFC	None												
										Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter												
										Max battery life	MobileMark® 2014: 14.5 hr * Battery life varies significantly with settings, usage, & other factors												
										AC adapter	45W or 65W USB Type-C AC adapter												
										Preload	Windows® 10 Home 64 or Windows 10 Pro 64												
										Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service												
										Mil-Spec test	MIL-STD-810G military testing												
										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant												

Note: The specifications above may not be available in all regions.

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June 2019

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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

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Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

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Lenovo **ThinkPad** Tablets
Convertibles

PSREF



Product Specifications Reference

Version 544, June 2019

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

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Additions in this update

▶ **New product(s)**

ThinkPad X1 Yoga (4th Gen)

▶ **New model(s)**

None

▶ **Others**

None

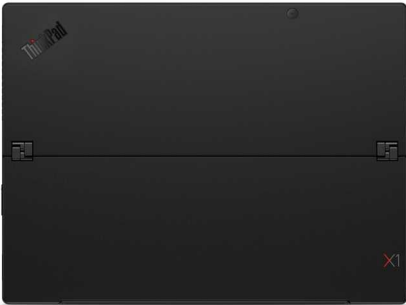
Changes in this update

▶ None

Withdrawals in this update

▶ **Withdrawn product(s)**

None



ThinkPad X1 Tablet (3rd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Control buttons Power button, volume control button, reset switch Dock <i>Optional:</i> Hybrid dock Monitor cable (<i>opt</i>) None Adapter (<i>optional</i>) <i>USB-C to RJ45:</i> Lenovo USB-C to Ethernet Adapter <i>USB-C to VGA:</i> Lenovo USB C to VGA Plus Power Adapter <i>USB-C to HDMI:</i> Lenovo USB-C to HDMI Plus Power Adapter
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			
	i7-8550U			1.8 GHz	4.0 GHz	8MB			
i7-8650U	1.9 GHz			4.2 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor, supports external digital monitor via USB Type-C								
Chipset	Intel SoC (System on Chip) platform								
Memory	8GB, or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets								
Display	13.0" (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS, anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing), 400 nits, 3:2 aspect ratio, 1200:1 contrast ratio								
Multi-touch	Capacitive touch panel, supports ten-finger gesture								
Pen	<i>Optional:</i> Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro) for multi-touch display								
Kick stand	Opening angle up to 170 degrees								
Storage	<i>Some:</i> M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)								
Optical	None								
Storage extension	One microSD card reader, in the combo slot with nano-SIM card, support USH-I, microSDHC, microSDXC								
Ethernet	None								
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								
WWAN (<i>optional</i>)	Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)								
SIM card (<i>opt</i>)	Nano-SIM card slot, in the combo slot with microSD card reader								
Dimensions	<i>Tablet only:</i> 11.97" x 8.9" x 0.35"; 304.1mm x 226mm x 8.9mm <i>Tablet + keyboard:</i> 11.97" x 8.9" x 0.57"; 304.1mm x 226mm x 14.4mm								
Weight	<i>Tablet only:</i> starting at 1.96 lb (0.89kg) <i>Tablet+keyboard:</i> starting at 2.8 lb (1.27kg)								
Case color	Black								
Case material	Magnesium/Aluminum								
Smart card reader	None								
Ports	Two USB 3.1 Type-C Gen 1 / Thunderbolt 3 / Power Delivery 3.0, one Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack, combo slot of nano-SIM card (WWAN models) and microSD card reader <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>								
IR Camera	IR camera, fixed focus (Not available with NFC)								
Audio support	Realtek® ALC3278 codec / stereo speakers, 1W x 2 / two microphones, combo audio/microphone jack								
Pogo keyboard	Magnetic attached thin keyboard, with TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch, backlight								
Keyboard color	Black								
Security	Kensington lock slot								
Security chip	Discrete TPM 2.0 TCG Certified								
vPro (<i>optional</i>)	Intel vPro Technology								
Fingerprint reader	<i>Optional:</i> Touch style Fingerprint reader								
NFC (<i>optional</i>)	Near Field Communication (Not available with the IR camera)								
Battery	Integrated Li-Ion 42Wh battery								
Max battery life	<i>MobileMark® 2014:</i> 9.5 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>								
AC adapter	45W or 65W USB Type-C AC adapter								
Light sensor	Ambient Light Sensor								
G-sensor	3D accelerometer								
Gyroscope	3D gyrometer								
GPS	GPS function is integrated into WWAN module								
Preload	<i>Some:</i> Windows 10 Pro 64 <i>Some:</i> Windows 10 Home 64								
Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service								
Mil-Spec test	MIL-STD-810G military testing								
Environment	EPEAT™ Gold, GREENGUARD, Low Halogen, RoHS								



ThinkPad L380 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor								Dimensions	<i>WxDxH:</i> 12.67" x 8.82" x 0.74"; 322mm x 224.2mm x 18.8mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.44 lb / 1.56 kg
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620	Case color	Black or Silver
	or 8th Generation Intel Core i5 / i7 Processor								Case material	<i>Display cover:</i> Aluminum <i>Bottom:</i> GFRP
Graphics	Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader	None
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader	MicroSD card reader
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1, HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole
	i5-8350U			1.7 GHz	3.6 GHz	6MB			* <i>Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>	
i7-8550U	1.8 GHz			4.0 GHz	8MB	Monitor cable (optional)			HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter	
Chipset	Intel SoC (System on Chip) platform								Camera	<i>720p:</i> HD720p resolution, low light sensitive, fixed focus <i>IR & 720p:</i> IR camera and HD720p camera, fixed focus
Memory	Up to 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller								Audio support	HD Audio, Realtek ALC3287 codec, Dolby® Advance / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack
Display	<i>Some:</i> 13.3" (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle								Keyboard	6-row, multimedia Fn keys, optional LED backlight
Multi-touch (opt)	Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture								UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
Hinge	Yoga hinge, 360 degree								Security	Power-on password, hard disk password, supervisor password, security keyhole
Convert-mode	Laptop, tent, stand, yoga and tablet								Security chip	Discrete TPM 2.0, TCG Certified
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board garage								vPro (optional)	Intel vPro Technology
Storage	<i>One of the following, configurable by model:</i> • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)								Fingerprint reader	<i>Optional:</i> Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology
Optane Memory	None								NFC (optional)	Near Field Communication (mutually exclusive with smart card reader)
Optical	None								Battery	Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable Gen 2								Max battery life	<i>MobileMark® 2014:</i> 12.85 hr * <i>Battery life varies significantly with settings, usage, & other factors</i>
WLAN + Bluetooth™	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * <i>Wireless card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								AC adapter	45W or 65W USB Type-C AC adapter
WWAN	None								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
SIM card	None								Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military testing
									Environment	EPPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant



ThinkPad L390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor							Dimensions	WxDxH: 12.67" x 8.82" x 0.74"; 321.8mm x 224.2mm x 18.8mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight	Starting at 3.44 lbs / 1.56 kg
	i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics 620	Case color	Black or Silver
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB			Case material	Display cover: Magnesium / Aluminum
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB	Bottom: GFRP				
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Smart card reader	None	
Chipset	Intel SoC (System on Chip) platform							Media reader	MicroSD card reader	
Memory	32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets							Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole	
Display	13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle							Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed	
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture							Bundled Accessories (optional)	USB-C to VGA:	Lenovo USB-C to VGA Adapter
Hinge	Yoga hinge, 360 degree								USB-C to VGA + Power Adapter:	Lenovo USB-C to VGA plus Power Adapter
Multi-mode	Notebook, stand, tent, tablet								USB-C to HDMI:	Lenovo USB-C to HDMI Adapter
Pen (optional)	ThinkPad Pen Pro, active pen for multi-touch display, on-board garage							USB-C to HDMI + Power Adapter:	Lenovo USB-C to HDMI plus Power Adapter	
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s • M.2 (2242) SSD / PCIe NVMe, PCIe 3.0 x 2 • M.2 (2280) SSD / PCIe NVMe, PCIe 3.0 x 4							Camera	720p: HD720p resolution, low light sensitive, fixed focus IR & 720p: IR camera and HD720p camera, fixed focus (black model only) World facing: 5MP resolution, auto focus (mutually exclusive with fingerprint reader)	
Optane™ Memory	None							Audio support	HD Audio, Realtek ALC3287 codec, Dolby® Audio™ Premium / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack	
Optical	None							Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight	
Storage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)							UltraNav™	TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch	
Optical	None							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter							Security chip	Discrete TPM 2.0, TCG Certified	
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card							vPro	None	
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter							Fingerprint reader	Optional: Touch style fingerprint reader on the palm rest (mutually exclusive with World facing camera)	
WWAN	None							NFC (optional)	Near Field Communication	
								Battery	Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
								Max battery life	MobileMark® 2014: 12.17 hr * Battery life varies significantly with settings, usage, & other factors	
								AC adapter	45W or 65W USB Type-C AC adapter	
								Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
								Limited warranty	One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service	
								Mil-Spec test	MIL-STD-810G military testing	
								Environment	ENERGY STAR® 7.0; RoHS-compliant	



ThinkPad X1 Yoga (3rd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Smart card reader None Media reader Ports Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i> WiGig dock None Monitor cable (optional) HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620	
	i5-8350U			1.7 GHz	3.6 GHz	6MB			
	i7-8550U			1.8 GHz	4.0 GHz	8MB			
i7-8650U	1.9 GHz			4.2 GHz	8MB				
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								
Chipset	Intel SoC (System on Chip) platform								
Memory	8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets								
Display	<i>Some:</i> 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS <i>Some:</i> 14.0" (355mm) WQHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS <i>Some:</i> 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision™, LED backlight, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle, IPS								
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10%								
Hinge	Yoga hinge, 360 degree								
Convert-mode	Laptop, tent, stand, and tablet								
Pen (optional)	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable								
Storage	<i>Some:</i> M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)								
Optical	None								
Ethernet	Native Intel Ethernet Connection WGI219-LM (vPro) via optional ThinkPad Ethernet Extension Cable								
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card <i>* Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS</i>								
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								
WWAN (optional)	Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card								
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card								
Dimensions	<i>WxDxH:</i> 13.11" x 9.02" x 0.67"; 333mm x 229mm x 17.05mm								
Weight	Starting at 3.08 lb (1.4kg)								
Case color	Black or silver								
Case material	<i>Display cover:</i> Carbon-Fiber and Glass-Fiber hybrid; <i>Bottom:</i> magnesium-PPS hybrid								
Camera (optional)	<i>One of the following, configurable by model:</i> 720p: HD720p camera with ThinkShutter camera privacy, fixed focus IR & 720p: IR camera and HD720p camera, fixed focus <i>* WWAN models and HDR panel models can not support IR camera</i>								
Audio support	HD Audio, Realtek® ALC3286 codec, Dolby® Audio™ Premium / stereo speakers, 1W x 2 / dual array microphone, headphone / microphone combo jack								
Keyboard	6-row wave keyboard (rise & fall), spill-resistant, multimedia Fn keys, LED backlit								
UltraNav™	TrackPoint® pointing device and 3+2 buttons multi-touch clickpad								
Security	Power-on password, hard disk password, supervisor password, security keyhole								
Security chip	Discrete TPM 2.0 TCG Certified								
vPro (optional)	Intel vPro Technology								
Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest								
NFC (optional)	Near Field Communication								
Battery	Integrated Li-Ion 54Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter								
Max battery life	<i>MobileMark® 2014:</i> 15.4 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>								
AC adapter	45W or 65W USB Type-C AC adapter								
Light sensor	Ambient Light Sensor								
G-sensor	3D accelerometer								
Gyroscope	3D gyrometer								
GPS	GPS function is integrated into WWAN module								
Preload	Windows 10 Pro 64								
Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> • 1-year depot repair service • 3-year/1-yr battery depot repair service 								
Mil-Spec test	MIL-STD-810G military testing								
Environment	EPEAT™ Gold; ENERGY STAR®; RoHS-compliant								



ThinkPad X1 Yoga (4th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor										Smart card reader	None		
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics				Media reader	None	
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	LPDDR3-2133	Intel UHD Graphics 620					Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole
	i5-8365U			1.6 GHz	4.1 GHz	6MB								
	i7-8565U			1.8 GHz	4.6 GHz	8MB								
	i7-8665U			1.9 GHz	4.8 GHz	8MB								
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C / Thunderbolt; supports three independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)										Monitor cabl	Optional: Lenovo HDMI to VGA Monitor Adapter		
Chipset	Intel SoC (System on Chip) platform										Bundled Accy	Optional: ThinkPad Ethernet Extension Adapter Gen 2		
Memory	8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets										Camera (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus 		
Display	Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle				Audio support	HD Audio, Realtek® ALC1012L codec, Stereo speakers, 2W x 2, 0.8W x 2, Dolby® Audio™ Atmos / Quad array far-field microphone, headphone / microphone combo jack
	14.0"	FHD (1920x1080) Low Power	IPS	Glossy	380 nits	16:9	800:1	72%	170°				Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight
	14.0"	FHD (1920x1080) ThinkPad Privacy Guard	IPS	Glossy	380 nits	16:9	1000:1	72%	170°				UltraNav™	TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad
	14.0"	WQHD (2560x1440)	IPS	Glossy	280 nits	16:9	800:1	72%	170°				Security	Power-on password, hard disk password, supervisor password, security keyhole
	14.0"	UHD (3840x2160) Dolby Vision™ HDR400	IPS	Glossy	470 nits	16:9	1400:1	90%	170°				Security chip	Discrete TPM 2.0 TCG Certified
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture										System Mgt	Optional: Intel vPro Technology		
Hinge	Yoga hinge, 360 degree										Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest		
Convert-mode	Laptop, tent, stand, and tablet										NFC	Optional: Near Field Communication		
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable										Battery	Integrated Li-Ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter		
Storage	One of the following, configurable by model: <ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 										Max battery life	MobileMark® 2014: 18.1 hrs * Battery life varies significantly with settings, usage, & other factors		
Optane™ Memory	Intel Optane Memory H10										AC adapter	45W or 65W USB Type-C AC adapter		
Optical	None										G-sensor	3D accelerometer		
Ethernet	Native Intel Ethernet Connection I219-LM (vPro) or I219-V (Non-vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2										Gyroscope	3D gyrometer		
WLAN	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card										GPS	GPS function is integrated into WWAN module		
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter										Preload	One of the following, configurable by model: <ul style="list-style-type: none"> Windows® 10 Pro 64 Windows 10 Home 64 		
WWAN (optional)	One of the following, configurable by model: <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card 										Limited warranty	One of the following, configurable by model: <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 		
SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card										Mil-Spec test	MIL-STD-810G military testing		
Dimensions	WxDxH: 12.71" x 8.58" x 0.61"; 323mm x 218mm x 15.5mm										Environment	EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant		
Weight	Starting at 2.99 lb (1.36kg)													
Case color	Iron Gray													
Case material	Display cover: Aluminium; Bottom: Magnesium													



ThinkPad X380 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor								Dimensions Weight Case color Case Material	<i>WxDxH:</i> 12.34" x 8.75" x 0.72"; 313.5mm x 222.2mm x 18.2mm Starting at 3.17 lb (1.43kg) Black or silver Carbon-Fiber Hybrid
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 620		
	i5-8250U	4	8	1.6 GHz	3.4 GHz	6MB				
	i5-8350U			1.7 GHz	3.6 GHz	6MB				
i7-8550U	1.8 GHz			4.0 GHz	8MB					
i7-8650U	1.9 GHz			4.2 GHz	8MB					
Graphics	Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)								Smart card reader Media reader Ports	<i>Optional:</i> Smart card reader (mutually exclusive with NFC) One microSD card slot (microSD, microSDHC, microSDXC), UHS-I Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector, one USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models), headphone / microphone combo jack <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Chipset	Intel SoC (System on Chip) platform								WiGig dock Monitor cable (optional)	None <i>USB-C to VGA:</i> Lenovo USB-C to VGA Plus Power Adapter <i>USB-C to DP:</i> Lenovo USB-C to DisplayPort Adapter <i>HDMI to VGA:</i> Lenovo HDMI to VGA Monitor Adapter
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * System clocks down for processors with lower memory controller								Camera	<i>One of the following, configurable by model:</i> <i>720p:</i> HD720p camera, fixed focus <i>IR & 720p:</i> IR camera and HD720p camera, fixed focus
Display	13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle								Audio support	HD Audio, Conexant® CX11771 codec / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack
Multi-touch	Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture								Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight
Hinge	Yoga hinge, 360 degree								UltraNav™	TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad
Convert-mode	Laptop, tent, stand, yoga and tablet								Security	Power-on password, hard disk password, supervisor password, security keyhole
Pen	ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable								Security chip vPro (optional)	Discrete TPM 2.0 TCG Certified Intel vPro Technology
Storage	<i>Some:</i> M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD) <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)								Fingerprint reader NFC (optional)	<i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest Near Field Communication (mutually exclusive with smart card reader)
Optical	None								Battery	Li-Ion 51Wh battery
Optane Memory	None								Max battery life	<i>MobileMark® 2014:</i> 13.6 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>) via optional ThinkPad Ethernet Extension Cable								AC adapter	45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter
WLAN	Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS								Light sensor	Ambient Light Sensor
Bluetooth™	Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter								G-sensor/ eCompass	3D accelerometer and 3D magnetometer 3D compass
WWAN (optional)	Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)								Gyroscope	3D gyrometer
SIM card (opt)	Nano-SIM card slot								Preload	<i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64
									Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service
									Mil-Spec test	MIL-STD-810G military testing
									Environment	EPEAT™ Gold; ENERGY STAR®; RoHS-compliant



ThinkPad X390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor	8th Generation Intel® Core™ i5 / i7 Processor								Smart card reader Media reader Ports	
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		
	i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB	DDR4-2400	Intel UHD Graphics 620		
	i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB				
	i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB				
i7-8665U	4	8	1.9 GHz	4.8 GHz	8MB					
Graphics	Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI)								Optional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and Display Port), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed USB-C to HDMI: Lenovo USB-C to HDMI Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2	
Chipset	Intel SoC (System on Chip) platform									
Memory	8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation									
Display	13.3" (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge)									
Multi-touch Hinge Convert-mode Pen	supports 10-finger gesture Yoga hinge, 360 degree Laptop, tent, stand and tablet ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable									
Storage	<ul style="list-style-type: none"> M.2 2280 SSD / SATA 6.0Gb/s M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4 M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 								Camera	One of the following, configurable by model: <ul style="list-style-type: none"> HD720p camera, with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, with ThinkShutter camera privacy, fixed focus
Optane™ memory	Optional: Intel Optane memory or Intel Optane Memory H10								Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
Optical	None								Keyboard	6-row, spill-resistant, multimedia Fn keys, LED backlight UltraNav™ TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2								Security	Power-on password, hard disk password, supervisor password, security keyhole
WLAN	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0 Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 								Security chip	Discrete TPM 2.0 TCG Certified
Bluetooth™	Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter								vPro (optional)	Intel vPro Technology
WWAN (optional)	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card <i>* For non-WWAN model, it means the model is NOT WWAN upgradable</i>								Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest
Dimensions	WxDxH: 12.22" x 8.62" x 0.63"; 310.4mm x 219mm x 15.95mm								NFC (optional)	Near Field Communication
Weight	Starting at 2.85 lb (1.29kg)								Battery	Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Case color	Black or silver								Max battery life	MobileMark® 2014: 14.5 hrs * Battery life varies significantly with settings, usage, & other factors
Case Material	Display cover: Carbon-Fiber Hybrid Bottom: Carbon-Fiber Hybrid								AC adapter	45W or 65W USB Type-C AC adapter
									Light sensor	None
									G-sensor	3D accelerometer
									Gyroscope	3D gyrometer
									Preload	Windows® 10 Home 64 or Windows 10 Pro 64
									Limited warranty	<i>One of the following, configurable by model:</i> <ul style="list-style-type: none"> 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military testing
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant



ThinkPad Yoga 11e (5th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor							Dimensions	<i>WxDxH:</i> 11.81" x 8.27" x 0.89"; 300mm x 210mm x 22.5mm	
	Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Controller	Processor Graphics	Weight	from 3.4 lb (1.54kg)
	m3-7Y30	2	4	1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD Graphics 615	Case color	Black
	i5-7Y54			1.2 GHz	3.2 GHz	4MB			Case material	<i>Display cover:</i> PC/ABS+GF; <i>Bottom:</i> PC/ABS plastic
	Cel N4100	4	4	1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600	Media reader	MicroSD card reader
Pen N5000	1.1 GHz			2.7 GHz	4MB	Intel UHD Graphics 605			Ports	Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1, HDMI 1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole <i>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</i>
Graphics	Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor, supports external digital monitor via HDMI or USB Type-C; supports dual independent display; Max resolution: 3840x2160@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)							Control buttons	Power button, volume control button	
Chipset	Intel SoC (System on Chip) platform 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets							Camera	<i>One of the following, configurable by model:</i> <i>720p:</i> HD720p resolution, low light sensitive, fixed focus <i>World facing:</i> Rear camera, 5MP resolution, auto focuss	
Memory	Intel SoC (System on Chip) platform 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets							Audio support	HD Audio, Realtek® ALC3287 codec Dolby Audio / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack	
Display	11.6" (295mm) HD (1366x768), anti-glare, LED backlight, IPS 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle							Keyboard	6-row, multimedia Fn keys	
MultiTouch	Capacitive-type multi-touch, support 10 fingers							UltraNav™	Two buttons click pad below keyboard, multi-touch	
Hinge	Yoga hinge, 360 degree							Security	Power-on password, hard disk password, supervisor password, security keyhole	
Convertible mode	Laptop, tent, stand and tablet							Security chip	Discrete TPM 2.0, TCG Certified	
Pen	<i>Some:</i> Active pen, batteries required, on-board garage							vPro	None	
Storage	eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							Fingerprint reader	None	
Optical	None							Battery	Integrated Li-Ion 42Wh battery	
Ethernet	Realtek RTL8111GUS-CG Gigabit Network Connection							Max battery life	<i>MobileMark® 2014:</i> 12 hr <i>* Battery life varies significantly with settings, usage, & other factors</i>	
WLAN	<i>One of the following, configurable by model:</i> • Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card • Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card							AC adapter	45W or 65W slim tip AC adapter or USB Type-C AC adapter	
Bluetooth™	Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter							Preload	<i>Some:</i> Windows 10 Home 64 <i>Some:</i> Windows 10 Pro 64	
WWAN	None							Limited warranty	<i>One of the following, configurable by model:</i> • 1-year depot repair service • 3-year depot repair service	
								Mil-Spec test	MIL-STD-810G military testing	
								Environment	EPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant	

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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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PSREF



Product Specifications Reference

Version 544, June 2019

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

June 2019 - Version 544

Additions in this update

▶ **New product(s)**

None

▶ **New model(s)**

None

▶ **Others**

Update ThinkCentre M920x Tiny with 9 Gen processors

Update ThinkCentre M920 Tiny with 9 Gen processors

Update ThinkCentre M920 Tower with 9 Gen processors

Update ThinkCentre M920 SFF with 9 Gen processors

Update ThinkCentre M720 Tiny with 9 Gen processors

Update ThinkCentre M720 Tower with 9 Gen processors

Update ThinkCentre M720 SFF with 9 Gen processors

Update ThinkCentre M920z AIO with 9 Gen processors

Update ThinkCentre M820z AIO with 9 Gen processors

Withdrawals in this update

▶ **Withdrawn product(s)**

None

▶ **Withdrawn model(s)**

None



ThinkCentre M810z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock keyboard and mouse Power-on, admin, hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510	
	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610	
	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630	
	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	
	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	
Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630		
Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630		
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.5mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.5mm)						
Optical							
Media reader	Optional 9-in-1 media card reader						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; <i>Max resolution:</i> 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz						
Display	21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color , MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode						
Multi-touch	Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch						
Camera	Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off						
Controls	Physical buttons for Microphone mute, brightness up/down, and power on/off						
Chipset	Intel B250 Chipset						
Rear ports*	Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort, optional serial (9-pin),						
Side ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm)						
M.2 card slot	* Depending on many factors, actual data transfer speed may be lower than theoretical speed Two M.2 Card slots (one for WLAN, one for SSD/Optane)						
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio™ certified						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2						
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter						
Ethernet	Gigabit ethernet, Realtek RTL8111G, Wake on LAN®						
Manageability	None						
Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black						
Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black						
Mechanical	<ul style="list-style-type: none"> Business black color Toolless stand Support VESA mount (100mm) 						
		Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments			
	Without stand:	21.1 X 1.8 X 14.3 (inch); 535 X 45 X 363 (mm)	(Touch) 14.6 / 6.6 (Non-touch) 12.8 / 5.8	N/A			
	With Basic Monitor stand:	21.1 X 9.6 X 17.0 (inch); 535 X 245 X 431 (mm)	(Non-touch) 17.0 / 7.7	Tilt: 45° back, -5° forward			
	With UltraFlex II stand:	21.1X 10.0 X 19.3 (inch); 535 X 253 X 489 (mm)	(Touch) 20.3 / 9.2 (Non-touch) 18.3 / 8.3	Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°			
Power supply	150 watts, autosensing, 85% PSU						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit			Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools ThinkVantage System Update Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 			
Environment	EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ErP Lot 3; GREENGUARD® certified; RoHS-compliant						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

See footnotes for more detailed information



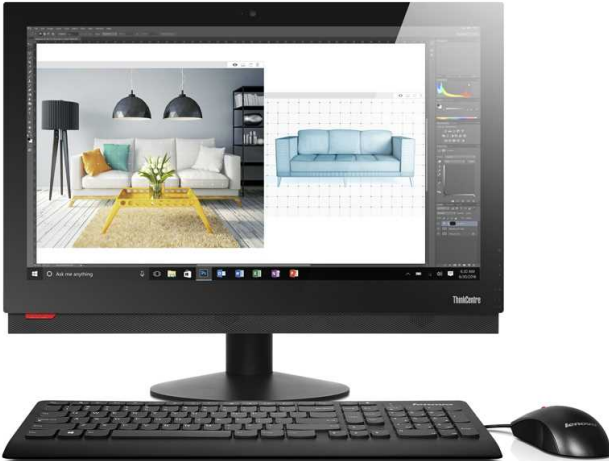
ThinkCentre M820z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 series						WLAN <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 Bluetooth™ Ethernet <i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Realtek RTL8111G, Wake on LAN®																				
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																					
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610																					
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610																					
	Celeron G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610																					
	Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610																					
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610																					
	Pentium Gold G5420	2 / 4	3.8G	4 MB	DDR4-2400	UHD 610																					
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630																					
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630																					
	Pentium Gold G5620	2 / 4	4.0G	4 MB	DDR4-2400	UHD 630																					
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630																					
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630																					
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630																					
	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630																					
	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630																					
	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630																					
	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630																					
	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630																					
	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630																					
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630																						
Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630																						
Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630																						
Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630																						
Memory	32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller																										
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm) Optional 3-in-1 media card reader																										
Optical																											
Media reader																											
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; <i>Max resolution:</i> 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz 21.5" (546.1mm) Full HD 1080p (1920x1080) TFT color , Borderless design, MVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology Optional 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) Physical buttons on side for microphone mute and power on/off																										
Display																											
Multi-touch																											
Camera																											
Controls																											
Chipset	Intel B360 Chipset																										
Rear ports*	Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort, one optional serial (9-pin),																										
Side ports*	one USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Type-C Gen 1, one optional card reader, one headphone / microphone combo jack (3.5mm) * Depending on many factors, actual data transfer speed may be lower than theoretical speed																										
M.2 card slot	Two M.2 Card slots (one for WLAN, one for SSD/Optane)																										
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Audio™ Premium																										
Manageability	None																										
Security chip	Discrete TPM 2.0, TCG Certified																										
Security features	<ul style="list-style-type: none"> Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on, admin, hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional Chassis intrusion switch 																										
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black																										
Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																										
Mechanical	<ul style="list-style-type: none"> Business black color Toolless back cover, stand, memory removal Support VESA mount (100mm) <table border="1"> <thead> <tr> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> <th>Adjustments</th> </tr> </thead> <tbody> <tr> <td colspan="3">Without stand (No camera):</td> </tr> <tr> <td>19.3 X 1.9 X 13.5 (inch) 491 X 49 X 342 (mm)</td> <td>(Touch) 11.6 / 5.25 (Non-touch) 11.1 / 5.05</td> <td>N/A</td> </tr> <tr> <td colspan="3">With Full Function Monitor stand (No camera):</td> </tr> <tr> <td>19.3 X 9.9 X 14.8 to 19.1 (inch) 491 X 252 X 377 to 486 (mm)</td> <td>(Non-touch) 15.8 / 7.18</td> <td>Tilt: 45° back, -5° forward; Lift: 110mm; Swivel: +/-45°</td> </tr> <tr> <td colspan="3">With UltraFlex III stand (No camera):</td> </tr> <tr> <td>19.3 X 9.9 X 16.4 (highest) (inch) 491 X 252 X 416 (highest) (mm)</td> <td>(Touch) 17.3 / 7.85 (Non-touch) 16.9 / 7.65</td> <td>Tilt: 70° back, -5° forward; Lift: 136mm; Swivel: +/-45°</td> </tr> </tbody> </table>						Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments	Without stand (No camera):			19.3 X 1.9 X 13.5 (inch) 491 X 49 X 342 (mm)	(Touch) 11.6 / 5.25 (Non-touch) 11.1 / 5.05	N/A	With Full Function Monitor stand (No camera):			19.3 X 9.9 X 14.8 to 19.1 (inch) 491 X 252 X 377 to 486 (mm)	(Non-touch) 15.8 / 7.18	Tilt: 45° back, -5° forward; Lift: 110mm; Swivel: +/-45°	With UltraFlex III stand (No camera):			19.3 X 9.9 X 16.4 (highest) (inch) 491 X 252 X 416 (highest) (mm)	(Touch) 17.3 / 7.85 (Non-touch) 16.9 / 7.65	Tilt: 70° back, -5° forward; Lift: 136mm; Swivel: +/-45°
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Power supply	150 watts, autosensing, 90% PSU																										
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Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified (for Full Function Monitor Stand only), TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant																										
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus)																										
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																										

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M910z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6th / 7th Gen Intel Core™ i3 / i5 / i7 Processor	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																						
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Core i3-6100</td> <td>2 / 4</td> <td>3.7G</td> <td>3 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i3-7100</td> <td>2 / 4</td> <td>3.9G</td> <td>3 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7400</td> <td>4 / 4</td> <td>3.0G / 3.5G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Security features	<ul style="list-style-type: none"> Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock keyboard and mouse Power-on, admin, hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional Chassis intrusion switch
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Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.5mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.5mm)	Mouse																																																							
Optical	Optional 9-in-1 media card reader	Mechanical	<ul style="list-style-type: none"> Business black color Toolless back cover, stand, disk, memory removal Support VESA mount (100mm) <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> <th>Adjustments</th> </tr> </thead> <tbody> <tr> <td>Without stand:</td> <td>23.0 X 1.8 X 15.4 (inch); 584 X 45 X 390 (mm)</td> <td>(Touch) 17.2 / 7.8 (Non-touch) 15.0 / 6.8</td> <td>N/A</td> </tr> <tr> <td>With Basic Monitor stand:</td> <td>23.0 X 9.6 X 18.0 (inch); 584 X 245 X 458 (mm)</td> <td>(Non-touch) 19.4 / 8.8</td> <td>Tilt: 45° back, -5° forward</td> </tr> <tr> <td>With UltraFlex II stand:</td> <td>23.0X 10.0 X 19.9 (inch); 584 X 253 X 505 (mm)</td> <td>(Touch) 22.7 / 10.3 (Non-touch) 20.7 / 9.4</td> <td>Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments	Without stand:	23.0 X 1.8 X 15.4 (inch); 584 X 45 X 390 (mm)	(Touch) 17.2 / 7.8 (Non-touch) 15.0 / 6.8	N/A	With Basic Monitor stand:	23.0 X 9.6 X 18.0 (inch); 584 X 245 X 458 (mm)	(Non-touch) 19.4 / 8.8	Tilt: 45° back, -5° forward	With UltraFlex II stand:	23.0X 10.0 X 19.9 (inch); 584 X 253 X 505 (mm)	(Touch) 22.7 / 10.3 (Non-touch) 20.7 / 9.4	Tilt: 61° back, -5° forward; Lift: 110mm; Swivel: +/-45°																																						
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Media reader	Optional 9-in-1 media card reader	Power supply	150 watts, autosensing, 85% PSU																																																						
Graphics	Intel HD Graphics 530/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; Max resolution: 4096x2304 (DP)@60Hz, 1920x1080 (Panel)@60Hz	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																						
Display	23.8" (604.5mm) Full HD 1080p (1920x1080) TFT color, WVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools ThinkVantage System Update Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																						
Multi-touch	Optional Projected Capacitive Touch (PCT) technology, supports 10-point touch	Environment	EPEAT™ Gold rating (North America); ENERGY STAR® 6.1; TCO AIO Computer Certified; ULE Gold; ErP Lot 3; GREENGUARD® certified; RoHS-compliant																																																						
Camera	Optional 1080p camera, fixed focus, with dual microphone, LED indicator, physical switch on/off	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)																																																						
Controls	Physical buttons for Microphone mute, monitor mode switch, brightness up/down, and power on/off	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																						
Chipset	Intel Q270 Chipset																																																								
Rear ports*	Four USB 3.1 Gen1, ethernet (RJ-45), DisplayPort in/out combo port, optional serial (9-pin)																																																								
Side ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), optional card reader, one headphone / microphone combo jack (3.5mm), optional USB 3.1 Type-C Gen1																																																								
M.2 card slot	* Depending on many factors, actual data transfer speed may be lower than theoretical speed Two M.2 Card slots (one for WLAN, one for SSD/Optane)																																																								
Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Audio™ certified																																																								
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2																																																								
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter																																																								
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®																																																								
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)																																																								

See footnotes for more detailed information



ThinkCentre M920z Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 series						Audio support	High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Audio™ Premium
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2 <i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®
	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	Bluetooth™ Ethernet	Manageability
	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610		
	Celeron G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610		
	Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610		
	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610		
	Pentium Gold G5420	2 / 4	3.8G	4 MB	DDR4-2400	UHD 610		
	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630		
	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630		
	Pentium Gold G5620	2 / 4	4.0G	4 MB	DDR4-2400	UHD 630		
	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630		
	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630		
	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630		
	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630		
	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630		
	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630		
	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630		
	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630		
	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630		
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630			
Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630			
Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630			
Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630			
Memory	32GB max (16GB SO-DIMM only available via special bid models), DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System clocks down for the processors with lower memory controller						Mechanical	<ul style="list-style-type: none"> Business black color Toolless back cover, stand, disk, memory removal Support VESA mount (100mm)
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, supports up to two HDDs (2nd HDD occupies ODD bay), RAID0/1 support (RAID preset only available via special bid model) <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)							
Optical	Optional 3-in-1 media card reader							
Media reader	Optional 3-in-1 media card reader							
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, external monitor support via DisplayPort™; Max resolution: 4096x2304 (DP) @60Hz, 1920x1080 (Panel)@60Hz							
Display	23.8" (604.5mm) Full HD 1080p (1920x1080) TFT color, Borderless design, WVA panel, wide viewing angle (+/- 89°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, support Low Blue Light Mode, work as standalone monitor via DisplayPort (DP in / out combo)							
Multi-touch	Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology							
Camera	<i>Some:</i> 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) <i>Some:</i> RGBIR camera, 1080p, with dual microphone, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°) Windows Hello support, only available via special bid models							
Controls	Physical buttons on side for microphone mute and power on/off							
Chipset	Intel Q370 Chipset							
Rear ports*	Four USB 3.1 Gen1 (one supports Smart Power On), one ethernet (RJ-45), one DisplayPort in/out combo port, one optional serial (9-pin)							
Side ports*	one USB 3.1 Gen2 (one is Always On and fast charge), one USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one optional card reader, one headphone / microphone combo jack (3.5mm)							
M.2 card slot	Two M.2 Card slots (one for WLAN, one for SSD/Optane) * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
Power supply	150 watts, autosensing, 90% PSU							
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot repair service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available							
Preload	Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 							
Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models), ErP Lot 3, TCO AIO Computer certified, GREENGUARD® certified, TUV Eye comfort certified, TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant							
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus)							
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com							

Note: The specifications above may not be available in all regions.

Lenovo, June 2019

ThinkCentre M600 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor N3000 Series or Intel Pentium® Processor N3000 Series						Keyboard <i>Some:</i> Preferred Pro USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Lenovo USB Fingerprint Keyboard (USB connector) <i>Some:</i> Ultralim Plus Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Enhanced Optical USB Mouse, black, Lenovo logo <i>Some:</i> Ultralim Plus Wireless Mouse (2.4GHz via USB receiver), black												
	Processor	Cores / Threads	Frequency (Base/Max)	Cache	Memory Types	Integrated Graphics													
	Celeron N3050	2 / 2	1.6 / 2.16 GHz	2MB	DDR3L-1600	Intel HD													
	Celeron J3060	2 / 2	1.6 / 2.48 GHz	2MB	DDR3L-1600	Intel HD 400													
	Pentium N3700	4 / 4	1.6 / 2.4 GHz	2MB	DDR3L-1600	Intel HD													
	Pentium J3710	4 / 4	1.6 / 2.64 GHz	2MB	DDR3L-1600	Intel HD 405													
Chipset	Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution						Mechanical <ul style="list-style-type: none"> • Tiny (1L), black color, metal case <table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Max weight (lb / kg)</th> </tr> </thead> <tbody> <tr> <td>M600 Tiny only (1L)</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.9 lb (1.3 kg)</td> </tr> <tr> <td>M600 Tiny (1L) with VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>4.12 lb (1.87 kg)</td> </tr> <tr> <td>M600 Tiny (1L) with VESA mount & I/O box</td> <td>7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm</td> <td>3.53 lb (1.6 kg)</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Max weight (lb / kg)	M600 Tiny only (1L)	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.9 lb (1.3 kg)	M600 Tiny (1L) with VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	4.12 lb (1.87 kg)	M600 Tiny (1L) with VESA mount & I/O box	7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm	3.53 lb (1.6 kg)
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M600 Tiny (1L) with VESA mount & I/O box	7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm	3.53 lb (1.6 kg)																	
Graphics	Intel HD Graphics in processor, uses main memory, DirectX® 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display; Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 3840x2160(DP to HDMI dongle)@30Hz																		
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle																		
Memory	8GB max / DDR3 Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM socket																		
Storage	<i>Some:</i> hard disk, 5400 or 7200 rpm, SATA 6.0Gb/s, 2.5" Wide <i>Some:</i> 500GB (5400 rpm) Solid State Hybrid Drive (SSHD) / with 8GB MLC NAND flash memory, SATA 6.0Gb/s, 2.5" wide <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Wide																		
Optical	<i>Some:</i> external ODD box with DVD-ROM, 9.5mm high, via USB <i>Some:</i> external ODD box with DVD±RW, 9.5mm high, via USB <i>Some:</i> external ODD box (for TIO) with DVD-ROM, 9.5mm high, via USB <i>Some:</i> external ODD box (for TIO) with DVD±RW, 9.5mm high, via USB																		
Onboard SATA Media reader	SATA 6.0Gb/s controller, one connectors on planar None																		
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)																		
Rear ports*	Two USB 2.0, two USB 3.0 (optional external optical box or I/O box occupies one or two specific USB on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone																		
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.0, and one serial on rear, two USB 2.0 on front, via USB (occupy two specific USB 3.0 of M600 Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed																		
Audio support	High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)																		
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8260, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2																		
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter																		
Ethernet	One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®																		
Modem	None																		
Manageability	None																		
Security chip	Trusted Platform Module, TCG 1.2-compliant																		
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 																		
Environment	ENERGY STAR® 6.0*, EPEAT™ Gold rating* (*not for non-OS models); GREENGUARD®; RoHS-compliant; Cisco EnergyWise compatible; ErP Lot 3																		
Accessories	For compatible accessories, please go to TC-AQP sheet																		

See footnotes for more detailed information

Lenovo, November 2017



ThinkCentre M600 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron® Processor N3000 Series or Intel Pentium® Processor N3000 Series						Keyboard <i>Some:</i> PS/2 Keyboard (PS/2 connector), Lenovo logo (for 2L models) <i>Some:</i> Preferred Pro USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Ultralim Plus Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> PS/2 Optical Wheel Mouse, black, Lenovo logo (for 2L models) <i>Some:</i> Enhanced Optical USB Mouse, black, Lenovo logo <i>Some:</i> Ultralim Plus Wireless Mouse (2.4GHz via USB receiver), black
	Processor	Cores / Threads	Frequency (Base/Max)	Cache	Memory Types	Integrated Graphics	
	Celeron N3000	2 / 2	1.04 / 2.08 GHz	2MB	DDR3L-1600	Intel HD	
	Celeron N3010	2 / 2	1.04 / 2.24 GHz	2MB	DDR3L-1600	Intel HD 400	
Chipset	Intel Architecture (IA) SoC that integrates Intel processor core, graphics, memory controller, and I/O interfaces into a single system-on-chip solution						Mechanical • Tiny (1L or 2L), black color, metal case
Graphics	Intel HD Graphics in processor, uses main memory, DirectX® 11.1, twoDisplayPort™, one optional 3rd DP (not support DP to HDMI dongle) or VGA, supports triple independent display; Maximum resolution: 3840x2160(DP)@30Hz; 1920x1200(optional VGA)@60Hz; 1920x1080(DP to VGA dongle)@60Hz; 1920x1080(DP to DVI dongle)@60Hz; 3840x2160(DP to HDMI dongle)@30Hz Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm Floor Stand Optional system floor stand for vertical orientation
Memory	8GB max / DDR3 Low Voltage, DDR3L-1600, non-parity, one 204-pin SO-DIMM socket						
Storage	16GB, 32GB, or 128GB M.2 Solid State Drive (SSD), SATA interface						Power supply 65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Optical	None						
Onboard SATA	SATA 6.0Gb/s controller, one connectors on planar						Limited warranty ³ <i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available <i>Some:</i> 3-year, limited onsite service, OID (Onsite International Delivery) / service upgrades available <i>For Lenovo service upgrade options, please go to S-TC sheet</i>
Media reader	None						
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)						Preload <i>Some:</i> Windows Embedded Standard 7 (WES 7) <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS (Lenovo Terminal Operating System, Linux-based) <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Rear ports*	Two USB 2.0, two USB 3.0, ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, or serial on some models), one headphone; additional four serial (9-pin), one parallel (25-pin), and two PS/2 ports on 2L models * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
I/O box	None						Environment ENERGY STAR® 6.0*, EPEAT™ Gold rating* (*not for non-OS models); GREENGUARD®; RoHS-compliant; Cisco EnergyWise compatible; ErP Lot 3
Audio support	High Definition (HD) Audio, Realtek ALC223 / optional internal speaker (1 watt)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 (only for 1L models)						Accessories For compatible accessories, please go to TC-AQP sheet
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter						
Ethernet	One gigabit ethernet port, Realtek RTL8111GN, Wake on LAN®						
Modem	None						
Manageability	None						
Security chip	Trusted Platform Module, TCG 1.2-compliant						
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 						

Note: The specifications above may not be available in all regions.

Lenovo, November 2017



ThinkCentre M625 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A9 series APU						Keyboard Mouse	Some: Fullsize USB Keyboard (USB connector), black, Lenovo logo Some: USB Optical Wheel Mouse, black, Lenovo logo	
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics		Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (for models with optional toolless chassis screw) • Toolless HDD, SSD, memory, Wi-Fi removal • Optional dust filter M625 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm Floor Stand Optional system floor stand for vertical orientation
Memory	8GB max, DDR4-2666, one 260-pin SO-DIMM socket * System frequency automatically clocks down for the lower capability of memory controller in processor						Disk		Power supply
Optical	None							Onboard SATA	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Media reader	None						Graphics		Limited warranty ³
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays; Max resolution: 3840x2160 (DP)@60Hz; 2048x1280 (VGA)@60Hz; 3840x2160 (USB 2.0 Type-C)@60Hz							Preload	Preloaded operating system Some: Windows® 10 Pro 64-bit Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						Chipset		Preloaded applications (only some listed) - Windows 10 only • Lenovo Vantage • LinkedIn • Microsoft Office preloaded; purchase a product key to activate - Windows 7 only • Lenovo Solution Center • Lenovo System Update • Factory Recovery • User Guide Viewer • Microsoft Office preloaded; purchase a product key to activate • Adobe® Reader®
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)							Rear ports*	
I/O box	None						Audio support		
WLAN ¹³	Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2							Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO
Bluetooth™	Some: Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1						MIL-SPEC test		MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)
Ethernet Modem	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®							Accessories	For compatible accessories, please go to http://smartfind.lenovo.com
Manageability	None						Security chip		
Security features	Discrete TPM 2.0, TCG Certified • Security slot (in rear for optional Kensington® MicroSaver® cable) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch								



ThinkCentre M625 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD E2 series APU						Keyboard Mouse	<i>Some:</i> Fullsize USB Keyboard (USB connector), black, Lenovo logo <i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics		
	E2-9000e	2	1.5 / 2.0 GHz	1 MB	DDR4-1866	Radeon R2 Series		
Memory	8GB max, DDR4-2666, one 260-pin SO-DIMM socket * System frequency automatically clocks down for the lower capability of memory controller in processor						Mechanical	Tiny (1L), fan-less design, black color, metal case • Toolless chassis open (for models with optional toolless chassis screw) • Toolless SSD, memory, Wi-Fi removal M625 Tiny Thin Client only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation
Disk	<i>Some:</i> 32GB M.2 Solid State Drive (SSD) / SATA interface <i>Some:</i> 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface							
Optical	None						VESA mount	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Onboard SATA	one SATA 6.0Gb/s connector on planar						Floor Stand	
Media reader	None						Power supply	Limited warranty ³ <i>Some:</i> 1-year, depot service / service upgrades available <i>Some:</i> 1-year, limited onsite service / service upgrades available
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (VGA or USB 2.0 Type-C with DisplayPort Alternate Mode), supports up to 2 independent displays; <i>Max resolution:</i> 3840x2160 (DP) @60Hz; 2048x1280 (VGA) @60Hz; 3840x2160 (USB 2.0 Type-C) @60Hz							
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						Preload	Preloaded operating system <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Chipset	AMD SoC platform						Environment	
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)
Rear ports*	One USB 3.1 Gen1, three USB 2.0, ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / serial / USB 2.0 Type-C (with DisplayPort Alternate Mode), Port 2 for serial) * Depending on many factors, actual data transfer speed may be lower than theoretical speed						Accessories	
I/O box	None							
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2-CG / internal speaker (1.5 watt)							
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2							
Bluetooth™	<i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1							
Ethernet Modem	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®							
Manageability	None							
Security chip	Discrete TPM 2.0, TCG Certified							
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 							



ThinkCentre M630e Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Pentium®, or 8th Generation Intel Core™ i3 / i5 Processor						Manageability Security chip Security features	None								
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics		Firmware TPM 2.0, integrated in chipset								
	Pentium Gold 5405U	2 / 4	2.3G	2 MB	DDR4-2133	UHD 610		<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Chassis intrusion switch Power-on password Administrator password Hard disk password 								
	Core i3-8145U	2 / 4	2.1G / 3.9G	4 MB	DDR4-2400	UHD 620		<ul style="list-style-type: none"> Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 								
	Core i5-8265U	4 / 8	1.6G / 3.9G	6 MB	DDR4-2400	UHD 620										
Memory	16GB max, DDR4-2666*, one 260-pin SO-DIMM sockets, non-ECC * System automatically clocks down for the processors with lower memory controller						Keyboard Mouse	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black								
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD (2280) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> M.2 SSD (2242) / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s						Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Optional dust filter One 2.5" bay for HDD/SSD, two M.2 slots (one for WLAN, one for M.2 SSD) 								
Onboard SATA	One onboard SATA 6.0Gb/s connector						<table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> </tbody> </table>					Dimensions (WxDxH)	Weight (Approx.)	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config
	Dimensions (WxDxH)	Weight (Approx.)														
Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config														
Graphics	Intel HD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, up to 2 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (HDMI) @24Hz						VESA mount Floor Stand	None Optional system floor stand for vertical orientation								
Monitor cable	Optional DP to VGA dongle or DP to HDMI 1.4 dongle						Power supply	<i>Some:</i> 65 watts adapter, autosensing, 88% PSU								
Chipset	Intel SoC (System on Chip) platform						Limited warranty	<i>Some:</i> 1-year, depot service / service upgrades available <i>Some:</i> 1-year, limited onsite service / service upgrades available								
Front ports* (Std.)	One USB 3.1 Gen1, one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate LinkedIn 								
Rear ports* (Std.)	Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI						Environment	ENERGY STAR® 7.0, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH								
Rear ports* (Opt.)	None * Depending on many factors, actual data transfer speed may be lower than theoretical speed						MIL-SPEC test	Coming soon								
Audio support	Realtek ALC233VB / internal speaker (1.5 watt)						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com								
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2															
Bluetooth	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter															
Ethernet	Gigabit ethernet, Realtek RTL8111HN-CG															
Ethernet (Opt.)	None															

Note: The specifications above may not be available in all regions.

Lenovo, Mar 2019



ThinkCentre M710 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																																								
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Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630																																																																						
Memory	64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller	Mouse																																																																									
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot 																																																																								
Optical	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader	Floor Stand	Optional system floor stand for vertical orientation																																																																								
Onboard SATA Media reader		Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																																								
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort) @60Hz;	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																																								
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																																								
Chipset	Intel B250 Chipset	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																																								
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																																								
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse); additional DisplayPort on optional graphics on some models																																																																										
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																										
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																																										
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2																																																																										
Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter																																																																										
Ethernet	Gigabit ethernet, Realtek RTL8111GN, Wake on LAN®																																																																										
Modem	None																																																																										
Manageability	None																																																																										
Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																																										

Note: The specifications above may not be available in all regions.

Lenovo, June 2017

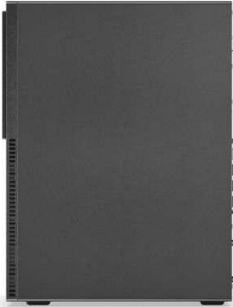


ThinkCentre M710 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Pentium G4400T	2 / 2	2.9G	3 MB	DDR4-2133	HD 510	
	Pentium G4560T	2 / 4	2.9G	3 MB	DDR4-2400	HD 610	
	Pentium G4600T	2 / 4	3.0G	3 MB	DDR4-2400	HD 630	
	Core i3-6100T	2 / 4	3.2G	3 MB	DDR4-2133	HD 530	
	Core i5-6500T	4 / 4	2.5G / 3.1G	6 MB	DDR4-2133	HD 530	
	Core i7-6700T	4 / 8	2.8G / 3.6G	8 MB	DDR4-2133	HD 530	
	Core i3-7100T	2 / 4	3.4G	3 MB	DDR4-2400	HD 630	
	Core i5-7400T	4 / 4	2.4G / 3.0G	6 MB	DDR4-2400	HD 630	
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630	
	Core i5-7600T	4 / 4	2.8G / 3.7G	6 MB	DDR4-2400	HD 630	
Core i7-7700T	4 / 8	2.9G / 3.8G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box						
Optical	None						
Onboard SATA Media reader	One onboard SATA 6.0Gb/s connector						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel B250 Chipset						
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Four USB 3.1 Gen1 (optional external optical box or external I/O box occupies one or two specific USB 3.1 Gen1 on some models), ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)						
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2						
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN® None						
Manageability Security chip	None TPM (Trusted Platform Module) 2.0*, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation						
Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

See footnotes for more detailed information



ThinkCentre M710 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Manageability	None																																																																								
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						Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																									
						Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																									
Memory	64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						Mechanical	<ul style="list-style-type: none"> Tower (15L), black color, metal case (WxDxH) 5.7" X 11.5" X 14.4"; 145mm X 292.7mm X 366mm Approx. 14.3 lb (6.5 kg), weight may vary by configuration Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 3.5", 1" high, internal, HDD/SSD Slot 1: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x16* Slot 2: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1* Slot 3: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel occupies one expansion slot 																																																																								
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																																								
Optical	<i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																																								
Onboard SATA Media reader	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader						Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																																								
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz; <i>Some:</i> AMD Radeon™ R7 350 , DirectX 11, 2GB, PCIe 3.0 x8 adapter, one VGA, one HDMI, 75 watts, occupies two slots; <i>Max resolution:</i> 4096x2160 (HDMI)@24Hz; 2048x1536 (VGA)@85Hz						Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																																								
Monitor Cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																																								
Chipset	Intel B250 Chipset																																																																															
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)																																																																															
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, two PS/2 ports (keyboard/mouse); additional VGA, DisplayPort, or HDMI on optional graphics on some models																																																																															
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																															
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																																															
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2																																																																															
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Realtek RTL8111GN, Wake on LAN® None																																																																															

Note: The specifications above may not be available in all regions.

Lenovo, June 2017



ThinkCentre M710e SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						<p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional smart cable clip to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch <p>Keyboard Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black</p> <p>Mouse Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p>Mechanical</p> <ul style="list-style-type: none"> SFF (7.4L), black color, metal case (WxDxH) 3.9" X 11.9" X 10.8"; 100mm X 303.5mm X 273.5mm Approx. 9.37 lb (4.25 kg), weight may vary by configuration Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, supports 2.5" or 3.5" HDD/SSD (2.5 to 3.5 bracket comes with disk) Slot 1: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x16* Slot 2: low-profile (length < 152mm, height < 64mm), PCIe 3.0 x1* M.2 card slots: one for SSD *Optional rear 2x USB2.0 / parallel occupies one expansion slot <p>Floor Stand Optional system floor stand for vertical orientation</p>
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G3900	2 / 2	2.8G	2 MB	DDR4-2133	HD 510	
	Celeron G3930	2 / 2	2.9G	3 MB	DDR4-2133	HD 610	
	Pentium G4400	2 / 2	3.3G	3 MB	DDR4-2133	HD 510	
	Pentium G4500	2 / 2	3.5G	3 MB	DDR4-2133	HD 530	
	Pentium G4560	2 / 4	3.5G	3 MB	DDR4-2400	HD 610	
	Pentium G4600	2 / 4	3.6G	3 MB	DDR4-2400	HD 630	
	Core i3-6100	2 / 4	3.7G	3 MB	DDR4-2133	HD 530	
	Core i5-6400	4 / 4	2.7G / 3.3G	6 MB	DDR4-2133	HD 530	
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	
	Core i3-7100	2 / 4	3.9G	3 MB	DDR4-2400	HD 630	
	Core i3-7300	2 / 4	4.0G	4 MB	DDR4-2400	HD 630	
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	
	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	
	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, UDIMM, DDR4-2400*, two 288-pin DIMM sockets, non-ECC, dual-channel capable *System automatically clocks down for the processors with lower memory controller						
Storage	Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s						
Optical	Some: DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						
Onboard SATA	Two onboard SATA 6.0Gb/s connectors						
Media reader	Optional 7-in-1 media reader						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, one DisplayPort™, supports 2 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2160 (DP)@60Hz; 1920x1200 (VGA)@60Hz Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort)@60Hz;						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel B250 Chipset						
Front ports*	Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, one DisplayPort, optional external USB to PS/2 ports cable (for PS/2 keyboard / mouse); additional DisplayPort on optional graphics on some models						
Rear audio ports*	Line-out jack (3.5mm)						
IEEE 1394*	None * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC233 / internal speaker (1.5 watt)						
WLAN ¹³	None						
Bluetooth™	None						
Ethernet	Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®						
Modem	None						
Manageability	None						
Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
Packaging	• (WxDxH) 7.7" X 15.4" X 19.7"; 195mm X 390mm X 500mm • Cross weight (approx.) 14.22 lb (6.45 kg)						
Power supply	Some: 180 watts, autosensing, 85% PSU						
Limited warranty ³	Some: 1-year or 3-year, depot service / service upgrades available Some: 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<p>Preloaded operating system</p> <p>Some: Windows® 10 Pro 64-bit Some: Windows 10 Home 64-bit Some: Windows 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit(not available with 7th Gen Intel processor)</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (DVD, DVD±RW) Cyberlink PowerDVD Create (DVD±RW) - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo System Update Create Recovery Media Adobe® Reader® 						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, RoHS-compliant, WEEE						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

Note: The specifications above may not be available in all regions.

Lenovo, January 2018



ThinkCentre M715 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6 / A8 / A10 / A12 series APU and Ryzen 3 / 5 / 7 series processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Power-on password Padlock loop Administrator password Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Hard disk password Optional cable lock to physically lock both keyboard and mouse Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																												
	<table border="1"> <thead> <tr> <th>APU / processor</th> <th>Cores / Threads</th> <th>Frequency (Base/Max)</th> <th>L2 Cache</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Ryzen 3 PRO 1200</td> <td>4 / 4</td> <td>3.1 / 3.4</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 3 PRO 1300</td> <td>4 / 4</td> <td>3.5 / 3.7</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 5 PRO 1500</td> <td>4 / 8</td> <td>3.5 / 3.7</td> <td>2MB</td> <td>None</td> </tr> <tr> <td>Ryzen 7 PRO 1700</td> <td>8 / 16</td> <td>3.0 / 3.7</td> <td>4MB</td> <td>None</td> </tr> <tr> <td>PRO A6-8570</td> <td>2 / 2</td> <td>3.5 / 3.8</td> <td>1MB</td> <td>Radeon R5 Series</td> </tr> <tr> <td>PRO A10-8770</td> <td>4 / 4</td> <td>3.5 / 3.8</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A12-8870</td> <td>4 / 4</td> <td>3.7 / 4.2</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A6-9500</td> <td>2 / 2</td> <td>3.5 / 3.8</td> <td>1MB</td> <td>Radeon R5 Series</td> </tr> <tr> <td>PRO A8-9600</td> <td>4 / 4</td> <td>3.1 / 3.4</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A10-9700</td> <td>4 / 4</td> <td>3.5 / 3.8</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> <tr> <td>PRO A12-9800</td> <td>4 / 4</td> <td>3.8 / 4.2</td> <td>2MB</td> <td>Radeon R7 Series</td> </tr> </tbody> </table>	APU / processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Integrated Graphics	Ryzen 3 PRO 1200	4 / 4	3.1 / 3.4	2MB	None	Ryzen 3 PRO 1300	4 / 4	3.5 / 3.7	2MB	None	Ryzen 5 PRO 1500	4 / 8	3.5 / 3.7	2MB	None	Ryzen 7 PRO 1700	8 / 16	3.0 / 3.7	4MB	None	PRO A6-8570	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series	PRO A10-8770	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series	PRO A12-8870	4 / 4	3.7 / 4.2	2MB	Radeon R7 Series	PRO A6-9500	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series	PRO A8-9600	4 / 4	3.1 / 3.4	2MB	Radeon R7 Series	PRO A10-9700	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series	PRO A12-9800	4 / 4	3.8 / 4.2	2MB	Radeon R7 Series	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
APU / processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Integrated Graphics																																																											
Ryzen 3 PRO 1200	4 / 4	3.1 / 3.4	2MB	None																																																											
Ryzen 3 PRO 1300	4 / 4	3.5 / 3.7	2MB	None																																																											
Ryzen 5 PRO 1500	4 / 8	3.5 / 3.7	2MB	None																																																											
Ryzen 7 PRO 1700	8 / 16	3.0 / 3.7	4MB	None																																																											
PRO A6-8570	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series																																																											
PRO A10-8770	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series																																																											
PRO A12-8870	4 / 4	3.7 / 4.2	2MB	Radeon R7 Series																																																											
PRO A6-9500	2 / 2	3.5 / 3.8	1MB	Radeon R5 Series																																																											
PRO A8-9600	4 / 4	3.1 / 3.4	2MB	Radeon R7 Series																																																											
PRO A10-9700	4 / 4	3.5 / 3.8	2MB	Radeon R7 Series																																																											
PRO A12-9800	4 / 4	3.8 / 4.2	2MB	Radeon R7 Series																																																											
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black																																																												
Memory	64GB max, UDIMM, DDR4-2400, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: two (one for WLAN, one for SSD) * Optional front USB3.1 Type-C x2 module occupies PCIe x16 slot (x4 card), optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot 																																																												
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s	Floor Stand	Optional system floor stand for vertical orientation																																																												
Optical	<i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																												
Onboard SATA Media reader	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader	Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																												
Graphics	AMD Radeon™ Graphics in processor (not for AMD Ryzen processor), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are invalid on the models with AMD Ryzen processor), supports 3 independent displays, works along with AMD discrete graphics to support more displays; <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 1920x1200 (VGA) @60Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort) @60Hz;	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (Only available with Pro A6/A10/A12-8xxx APUs) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate - Only for Window 10 Lenovo Companion - Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink Power2Go Create (DVD±RW) 																																																												
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant																																																												
Chipset	AMD B350 Chipset	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																												
Front ports*	Two USB 3.1 Gen2, two USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)																																																														
Rear ports*	Two USB 3.1 Gen1, two USB 2.0, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA and two DisplayPort (not available on models with AMD Ryzen processor), two PS/2 ports (keyboard / mouse); additional DisplayPort on optional graphics on some models																																																														
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																														
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)																																																														
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1																																																														
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN® None																																																														
Manageability Security chip	DASH TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																														

Note: The specifications above may not be available in all regions.

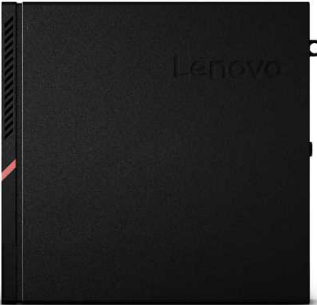
Lenovo, July 2017



ThinkCentre M715 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6, A10, or A12 series APUs						Keyboard	<i>Some:</i> Fullsize USB Keyboard (USB connector), Lenovo logo <i>Some:</i> Lenovo New Slim USB Keyboard (USB connector), black, Lenovo logo
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Types	Integrated Graphics	Mouse	<i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo
	PRO A6-9500E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series	Mechanical	Tiny (1L), black color; metal case
	PRO A10-9700E	4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series		M715 Tiny only: 7.05" W X 7.20" D X 1.36" H
	PRO A12-9800E	4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series		179mm W X 182.9mm D X 34.5mm H
	PRO A6-8570E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series		2.9 lb (1.3 kg), weight may vary by configuration
	PRO A10-8770E	4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series		With VESA mount & ODD box: 7.42" W X 7.30" D X 2.48" H
PRO A12-8870E	4	2.9 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series	188.4mm W X 185.38mm D X 63mm H		
								4.12 lb (1.87 kg), weight may vary by configuration
Memory	32GB max, DDR4 2400, two 260-pin SO-DIMM sockets, dual-channel capable *16GB single SO-DIMM memory is only available via special bid models						VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm
Disk	<i>Some:</i> SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / SATA interface or PCIe NVMe interface						Floor Stand	Optional system floor stand for vertical orientation
Optical	<i>Some:</i> DVD-ROM, 9.0mm high, via USB external ODD box <i>Some:</i> DVD±RW, 9.0mm high, via USB external ODD box						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)
Onboard SATA Media reader	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar None						Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz						Preload	Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit <i>Some:</i> Windows® 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit
DP cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle							Preloaded applications (only some listed) - <i>Windows 10 only</i> ● Lenovo Companion ● Microsoft Office preloaded; purchase a product key to activate - <i>Windows 7 only</i> ● Lenovo Solution Center ● ThinkVantage System Update ● Create Recovery Media ● Lenovo ThinkVantage Tools ● CyberlinkPowerDVD Create(DVD±RW) ● Microsoft Office preloaded; purchase a product key to activate ● Adobe® Reader®
Chipset	AMD B300 Chipset						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*Not for non-OS models); ErP Lot 3; GREENGUARD®; RoHS-compliant
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
Rear ports*	One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, HDMI, or serial on some models), one headphone							
I/O box*	Optional external I/O box, extends four USB 2.0 (two on front and two on rear), one serial, and two PS/2, via USB port (occupy one specific USB 2.0 of M715q Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
Audio support	High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)							
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1							
Bluetooth™ Ethernet Modem	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN® None							
Manageability Security chip Security features	DASH 1.0/1.1 Discrete TPM 2.0, TCG Certified ● Security slot (in rear for optional Kensington® MicroSaver® cable) ● Padlock loop ● Smart USB protection, allows keyboard/mouse only, blocks all storage devices ● Power-on password ● Administrator password ● Hard disk password ● Boot sequence control ● Boot without keyboard and mouse ● Individual USB port disablement ● Chassis intrusion switch							



ThinkCentre M715 Tiny (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Athlon, A6, A10, A12, or Ryzen processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Administrator password Padlock loop Hard disk password Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Boot sequence control Power-on password Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch 																																																																								
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max</th> <th>L2 Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Athlon 200GE</td> <td>2 / 4</td> <td>3.2 GHz</td> <td>1 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 3</td> </tr> <tr> <td>Athlon PRO 200GE</td> <td>2 / 4</td> <td>3.2 GHz</td> <td>1 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 3</td> </tr> <tr> <td>PRO A6-8570E</td> <td>2 / 2</td> <td>3.0 / 3.4 GHz</td> <td>1 MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A10-8770E</td> <td>4 / 4</td> <td>2.8 / 3.5 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A6-9500E</td> <td>2 / 2</td> <td>3.0 / 3.4 GHz</td> <td>1 MB</td> <td>DDR4-2400</td> <td>Radeon R5</td> </tr> <tr> <td>PRO A10-9700E</td> <td>4 / 4</td> <td>3.0 / 3.5 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>PRO A12-9800E</td> <td>4 / 4</td> <td>3.1 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2400</td> <td>Radeon R7</td> </tr> <tr> <td>Ryzen 3 2200GE</td> <td>4 / 4</td> <td>3.2 / 3.6 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> <tr> <td>Ryzen 3 PRO 2200GE</td> <td>4 / 4</td> <td>3.2 / 3.6 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon Vega 8</td> </tr> <tr> <td>Ryzen 5 2400GE</td> <td>4 / 8</td> <td>3.2 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon RX Vega 11</td> </tr> <tr> <td>Ryzen 5 PRO 2400GE</td> <td>4 / 8</td> <td>3.2 / 3.8 GHz</td> <td>2 MB</td> <td>DDR4-2933</td> <td>Radeon RX Vega 11</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics	Athlon 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3	Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3	PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5	PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7	PRO A6-9500E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5	PRO A10-9700E	4 / 4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7	PRO A12-9800E	4 / 4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7	Ryzen 3 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8	Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8	Ryzen 5 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11	Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Processor	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics																																																																						
Athlon 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3																																																																						
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3																																																																						
PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5																																																																						
PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7																																																																						
PRO A6-9500E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5																																																																						
PRO A10-9700E	4 / 4	3.0 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7																																																																						
PRO A12-9800E	4 / 4	3.1 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7																																																																						
Ryzen 3 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8																																																																						
Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8																																																																						
Ryzen 5 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11																																																																						
Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB	DDR4-2933	Radeon RX Vega 11																																																																						
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																								
		Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open (need optional toolless chassis screw) Optional dust filter M715 Gen2 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.91 lb (1.32 kg), weight may vary by configuration With VESA mount & ODD box: 7.42" W X 7.30" D X 2.48" H 188.4mm W X 185.38mm D X 63mm H 3.66 lb (1.66 kg), weight may vary by configuration Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation																																																																								
Memory	32GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the lower memory controller	VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation																																																																								
Disk	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s	Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)																																																																								
Optical	<i>Some:</i> DVD-ROM, 9.0mm high, via USB external ODD box <i>Some:</i> DVD±RW, 9.0mm high, via USB external ODD box	Limited warranty	1-year or 3-year, limited onsite service / service upgrades available																																																																								
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar	Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit <i>Some:</i> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit																																																																								
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz	Preloaded applications (only some listed)	- Windows 10 only <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn Windows 7 only Lenovo Solution Center ThinkVantage System Update Create Recovery Media Microsoft Office preloaded; purchase a product key to activate Adobe® Reader® 																																																																								
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle	Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*Not for non-OS models); ErP Lot 3; ; RoHS-compliant																																																																								
Chipset	AMD B300 Chipset	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)																																																																								
Front ports* (Std.)	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																								
Rear ports* (Std.)	One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone																																																																										
Rear ports* (Opt.)	One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models) * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Not support VGA, 3rd DP, HDMI for the models with Athlon / Athlon PRO																																																																										
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2 / internal speaker (1.5 watt)																																																																										
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1 Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®																																																																										
Bluetooth																																																																											
Ethernet																																																																											
Manageability	DASH 1.0/1.1																																																																										
Security chip	Discrete TPM 2.0, TCG Certified																																																																										

Note: The specifications above may not be available in all regions.

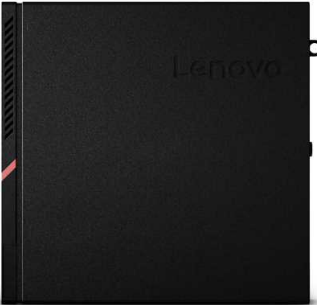
Lenovo, July 2018



ThinkCentre M715 Tiny Thin Client Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6, A10, or A12 series APUs						Keyboard	<i>Some:</i> Fullsize USB Keyboard (USB connector), Lenovo logo
	APU	Cores	Frequency Base/Max	L2 Cache	Memory Types	Integrated Graphics	Mouse	<i>Some:</i> USB Optical Wheel Mouse, black, Lenovo logo
	PRO A6-8570E	2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5 Series	Mechanical	Tiny (1L), black color; metal case M715 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.9 lb (1.3 kg), weight may vary by configuration Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation
	PRO A10-8770E	4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7 Series		
PRO A12-8870E*	4	2.9 / 3.8 GHz	2 MB	DDR4-2400	Radeon R7 Series			
*PRO A12-8870E (support Windows 10 IOT only) is only available via special bid models								
Memory	4GB max, DDR4 2400, two 260-pin SO-DIMM sockets						VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation
Disk	<i>Some:</i> 256GB Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"* *256GB SATA (support Windows 10 IOT only) is only available via special bid models <i>Some:</i> 32GB M.2 Solid State Drive (SSD) / SATA interface <i>Some:</i> 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface						Floor Stand	
Optical	None						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar						Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available
Media reader	None						Preload	Preloaded operating system <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; GREENGUARD®; RoHS-compliant
DP cable	Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
Chipset	AMD B300 Chipset							
Front ports*	Two USB 3.0 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)							
Rear ports*	One USB 3.0 and three USB 2.0 (optional external optical box or I/O box occupies one specific USB 2.0 on some models), ethernet (RJ-45), two DisplayPort, one optional port (VGA, 3rd DP, HDMI, or serial on some models), one headphone							
I/O box	None							
Audio support	High Definition (HD) Audio, Realtek ALC233-CG / internal speaker (1.5 watt)							
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821AE (dual band), Wi-Fi + Bluetooth 4.0 combo adapter, 1x1							
Bluetooth™	<i>Some:</i> Bluetooth 4.0 or 4.1 wireless, integrated in Wi-Fi + BT combo adapter							
Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®							
Modem	None							
Manageability	DASH 1.0/1.1							
Security chip	Discrete TPM 2.0, TCG Certified							
Security features	<ul style="list-style-type: none"> ● Security slot (in rear for optional Kensington® MicroSaver® cable) ● Padlock loop ● Smart USB protection, allows keyboard/mouse only, blocks all storage devices ● Power-on password ● Administrator password ● Hard disk password ● Boot sequence control ● Boot without keyboard and mouse ● Individual USB port disablement ● Chassis intrusion switch 							



ThinkCentre M715 Tiny Thin Client (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD Athlon, A6, A10, or Ryzen processor						Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
	APU	Cores / Threads	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics	Mouse	
	Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB	DDR4-2933	Radeon Vega 3		
	PRO A6-8570E	2 / 2	3.0 / 3.4 GHz	1 MB	DDR4-2400	Radeon R5		
	PRO A10-8770E	4 / 4	2.8 / 3.5 GHz	2 MB	DDR4-2400	Radeon R7		
	Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB	DDR4-2933	Radeon Vega 8		
Memory	8GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the lower memory controller						Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (need optional toolless chassis screw) • Optional dust filter M715 Gen2 Tiny only: 7.05" W X 7.20" D X 1.36" H 179mm W X 182.9mm D X 34.5mm H 2.91 lb (1.32 kg), weight may vary by configuration VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm Floor Stand Optional system floor stand for vertical orientation
Disk	<i>Some:</i> 32GB M.2 Solid State Drive (SSD) / SATA interface <i>Some:</i> 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 2 None						VESA mount	
Optical	None						Floor Stand	
Onboard SATA	One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar						Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)
Graphics	AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional port (HDMI, VGA, or 3rd DP), supports 3 independent displays (supports maximum of 2 concurrent HDMI/DVI displays when using HDMI port or DP to DVI/HDMI dongles, and Athlon / Athlon PRO only support 2 displays); <i>Max resolution:</i> 4096x2160 (DP) @60Hz; 4096x2160 (HDMI) @30Hz; 1920x1200 (VGA) @60Hz						Limited warranty	1-year or 3-year, limited onsite service / service upgrades available
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle						Preload	Preloaded operating system <i>Some:</i> Windows Embedded Standard 7 V2 (WES 7 V2) <i>Some:</i> Windows 10 IoT Enterprise <i>Some:</i> LeTOS V2 (Lenovo Terminal Operating System, Linux-based)
Chipset	AMD B300 Chipset						Environment	ENERGY STAR® 6.1*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant
Front ports* (Std.)	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (stereo, 3.5mm), one headphone / microphone combo jack (stereo, 3.5mm)						MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock)
Rear ports* (Std.)	One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphone						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com
Rear ports* (Opt.)	One optional port (VGA**, 3rd DP**, HDMI**, or serial on some models) * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Not support VGA, 3rd DP, HDMI for the models with Athlon / Athlon PRO							
Audio support	High Definition (HD) Audio, Realtek ALC233-VB2 / internal speaker (1.5 watt)							
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter							
Bluetooth	* Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1							
Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®							
Manageability	DASH 1.0/1.1							
Security chip	Discrete TPM 2.0, TCG Certified							
Security features	<ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Smart USB protection, allows keyboard/mouse only, blocks all storage devices • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Chassis intrusion switch 							

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M720 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor	<p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter</p>																																																																																																																								
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr><td>Celeron G4900</td><td>2 / 2</td><td>3.1G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Celeron G4920</td><td>2 / 2</td><td>3.2G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5400</td><td>2 / 4</td><td>3.7G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5500</td><td>2 / 4</td><td>3.8G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Pentium Gold G5600</td><td>2 / 4</td><td>3.9G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8100</td><td>4 / 4</td><td>3.6G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8300</td><td>4 / 4</td><td>3.7G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i5-8400</td><td>6 / 6</td><td>2.8G / 4.0G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8500</td><td>6 / 6</td><td>3.0G / 4.1G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8600</td><td>6 / 6</td><td>3.1G / 4.3G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i7-8700</td><td>6 / 12</td><td>3.2G / 4.6G</td><td>12 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i3-9100</td><td>4 / 4</td><td>3.6G / 4.2G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-9300</td><td>4 / 4</td><td>3.7G / 4.3G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-9320</td><td>4 / 4</td><td>3.7G / 4.4G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i5-9400</td><td>6 / 6</td><td>2.9G / 4.1G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-9500</td><td>6 / 6</td><td>3.0G / 4.4G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-9600</td><td>6 / 6</td><td>3.1G / 4.6G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i7-9700</td><td>8 / 8</td><td>3.0G / 4.7G</td><td>12 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i9-9900</td><td>8 / 16</td><td>3.1G / 5.0G</td><td>16 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630	Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630	Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630	<p><i>Some:</i> Intel Ethernet Server Adapter I350-T4*, gigabit ethernet, 4x RJ-45, PCIe x4</p> <p><i>Some:</i> Bitland BN8E88*, gigabit ethernet, PCIe x1 (only available via special bid)</p> <p>* Choose either I350-T4 or BN8E88</p>
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		<p>None</p> <p>Discrete TPM 2.0, TCG Certified</p> <p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 																																																																																																																								
		<p>Keyboard</p> <p><i>Some:</i> Lenovo Calliope Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Traditional Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p><i>Some:</i> Lenovo Calliope Mouse (USB connector), black</p> <p><i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p><i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p>																																																																																																																								
Memory	64GB max, UDIMM, DDR4-2666, four 288-pin DIMM sockets, non-ECC, dual-channel capable* * System automatically clocks down for the processors with lower memory controller																																																																																																																									
Storage	<p><i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm</p> <p><i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"</p> <p><i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s</p> <p>* M.2 SSD (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</p> <p><i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</p>																																																																																																																									
Optical	<p><i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)</p> <p><i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</p>																																																																																																																									
Onboard SATA Media reader	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader																																																																																																																									
Graphics	<p>Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;</p> <p><i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz</p> <p><i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts;</p> <p><i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;</p>																																																																																																																									
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle																																																																																																																									
Chipset	Intel B360 Chipset																																																																																																																									
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)																																																																																																																									
Front ports* (Opt.)	Optional: 1x media reader																																																																																																																									
Rear ports* (Std.)	4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)																																																																																																																									
Rear ports* (Opt.)	Optional: 2x USB 3.1 Gen1 via PCI2 x1**, 2x USB 3.1 Type-C Gen2 via PCIe x4** (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), additional RJ-45 and video ports available on optional graphics or ethernet card																																																																																																																									
	* Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																																																																									
	** Choose either 2x USB 3.1 Gen1 or 2x USB 3.1 Type-C Gen2																																																																																																																									
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)																																																																																																																									
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1																																																																																																																									
Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.64" X 11.44" X 13.52"; 92.5mm X 290.5mm X 343.5mm Approx. 13.24 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical, and extension card removal Optional dust filter <p>Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay)</p> <p>Slot 1: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x16 Slot 2: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1 Slot 3: low-profile (length < 147mm, height < 68.9mm), PCIe 3.0 x1 Slot 4: no slot, only bracket for optional port extension</p> <p>M.2 card slots: Two (one for WLAN, one for SSD/Optane)</p> <p>Optional system floor stand for vertical orientation</p>																																																																																																																									
Floor Stand																																																																																																																										
Power supply	<p><i>Some:</i> 180 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 210 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)</p>																																																																																																																									
Limited warranty ³	<p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available</p> <p><i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p>																																																																																																																									
Preload	<p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit</p> <p><i>Some:</i> Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 																																																																																																																									
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant																																																																																																																									
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																																																																									

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M720 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor						Manageability None Security chip Discrete TPM 2.0, TCG Certified Security features <ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Chassis intrusion switch • Power-on password • Administrator password • Hard disk password <ul style="list-style-type: none"> • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Smart USB protection, allows keyboard/mouse only, blocks all storage devices
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G4900T	2 / 2	2.9G	2 MB	DDR4-2400	UHD 610	
	Pentium Gold G5400T	2 / 4	3.1G	4 MB	DDR4-2400	UHD 610	
	Pentium Gold G5500T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 630	
	Core i3-8100T	4 / 4	3.1G	6 MB	DDR4-2400	UHD 630	
	Core i3-8300T	4 / 4	3.2G	8 MB	DDR4-2400	UHD 630	
	Core i5-8400T	6 / 6	1.7G / 3.3G	9 MB	DDR4-2666	UHD 630	
	Core i5-8500T	6 / 6	2.1G / 3.5G	9 MB	DDR4-2666	UHD 630	
	Core i5-8600T	6 / 6	2.3G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630	
	Core i3-9100T	4 / 4	3.1G / 3.7G	6 MB	DDR4-2400	UHD 630	
	Core i3-9300T	4 / 4	3.2G / 3.8G	8 MB	DDR4-2400	UHD 630	
	Core i5-9400T	6 / 6	1.8G / 3.4G	9 MB	DDR4-2666	UHD 630	
	Core i5-9500T	6 / 6	2.2G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i5-9600T	6 / 6	2.3G / 3.9G	9 MB	DDR4-2666	UHD 630	
	Core i7-9700T	8 / 8	2.0G / 4.3G	12 MB	DDR4-2666	UHD 630	
Core i9-9900T	8 / 16	2.1G / 4.4G	16 MB	DDR4-2666	UHD 630		
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box One onboard SATA 6.0Gb/s connector						
Optical							
Onboard SATA	One onboard SATA 6.0Gb/s connector						
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (onboard HDMI)@24Hz; 2048x1536 (VGA)@50Hz Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Chipset	Intel B360 Chipset						
Front ports* (Std.)	one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI						
Rear ports* (Opt.)	Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1 * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)						
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2						
Bluetooth	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter						
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®						
Ethernet (Opt.)	<i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4						
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black						
Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black						
Mechanical	Tiny (1L), black color; metal case • Toolless chassis open (need optional toolless chassis screw) • Toolless HDD, SSD, memory removal • Optional dust filter one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive						
		Dimensions (WxDxH)		Weight (Approx.)			
	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm		2.91 lb (1.32 kg), vary by config			
	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm		3.66 lb (1.66 kg), vary by config			
VESA mount	Optional VESA mount bracket kit, supports VESA 75mm and 100mm						
Floor Stand	Optional system floor stand for vertical orientation						
Power supply	<i>Some:</i> 65 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 90 watts AC/DC adapter, autosensing, 88% PSU <i>Some:</i> 135 watts AC/DC adapter, autosensing, 88% PSU						
Limited warranty	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	Preloaded operating system <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> • Lenovo Vantage • Microsoft Office preloaded; purchase a product key to activate • Cyberlink Power2GO (only for models with DVD / DVD±RW) • Cyberlink Power2GO (only for models with DVD±RW) • LinkedIn 						
Environment	ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://smartfind.lenovo.com						

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M720 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th Generation Intel Core™ i3 / i5 / i7 Processor	WLAN ¹³	<p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter</p>																																																																																																																								
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr><td>Celeron G4900</td><td>2 / 2</td><td>3.1G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Celeron G4920</td><td>2 / 2</td><td>3.2G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5400</td><td>2 / 4</td><td>3.7G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5500</td><td>2 / 4</td><td>3.8G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Pentium Gold G5600</td><td>2 / 4</td><td>3.9G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8100</td><td>4 / 4</td><td>3.6G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8300</td><td>4 / 4</td><td>3.7G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i5-8400</td><td>6 / 6</td><td>2.8G / 4.0G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8500</td><td>6 / 6</td><td>3.0G / 4.1G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8600</td><td>6 / 6</td><td>3.1G / 4.3G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i7-8700</td><td>6 / 12</td><td>3.2G / 4.6G</td><td>12 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i3-9100</td><td>4 / 4</td><td>3.6G / 4.2G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-9300</td><td>4 / 4</td><td>3.7G / 4.3G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-9320</td><td>4 / 4</td><td>3.7G / 4.4G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i5-9400</td><td>6 / 6</td><td>2.9G / 4.1G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-9500</td><td>6 / 6</td><td>3.0G / 4.4G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-9600</td><td>6 / 6</td><td>3.1G / 4.6G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i7-9700</td><td>8 / 8</td><td>3.0G / 4.7G</td><td>12 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i9-9900</td><td>8 / 16</td><td>3.1G / 5.0G</td><td>16 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630	Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630	Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630	Bluetooth™	<p><i>Some:</i> Gigabit ethernet, Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®</p> <p><i>Some:</i> Intel Ethernet Server Adapter I350-T4*, gigabit ethernet, 4x RJ-45, PCIe x4</p> <p><i>Some:</i> Bitland BN8E88*, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)</p> <p>* Choose either I350-T4 or BN8E88</p>
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		Ethernet Ethernet (Opt.)																																																																																																																									
		Manageability	None																																																																																																																								
		Security chip	Discrete TPM 2.0, TCG Certified																																																																																																																								
		Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices 																																																																																																																								
		Keyboard	<p><i>Some:</i> Lenovo Calliope Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Traditional Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p><i>Some:</i> Lenovo Calliope Mouse (USB connector), black</p> <p><i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p><i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p>																																																																																																																								
Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller	Mouse																																																																																																																									
Storage	<p><i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm</p> <p><i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"</p> <p><i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s</p> <p><i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2</p>	Mechanical	<ul style="list-style-type: none"> Tower (15L), black color, metal case (WxDxH) 5.91" X 10.65" X 14.17"; 150mm X 270.5mm X 360mm Approx. 15.21 lb (6.9 kg), weight may vary by configuration Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 3.5", 1" high, internal, HDD/SSD (optional bay) Slot 1: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x16 Slot 2: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1 Slot 3: half-length full-height (length < 189mm, height < 104mm), PCIe 3.0 x1 Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane) 																																																																																																																								
Optical	<p><i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm)</p> <p><i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)</p>	Power supply	<p><i>Some:</i> 180 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 210 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)</p>																																																																																																																								
Onboard SATA Media reader	Three onboard SATA 6.0Gb/s connectors Optional 7-in-1 media reader	Limited warranty ³	<p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available</p> <p><i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p>																																																																																																																								
Graphics	<p>Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays;</p> <p><i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz</p> <p><i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts;</p> <p><i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;</p>	Preload	<p>Preloaded operating system</p> <p><i>Some:</i> Windows® 10 Pro 64-bit</p> <p><i>Some:</i> Windows 10 Home 64-bit</p> <p>Preloaded applications (only some listed)</p> <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 																																																																																																																								
Monitor Cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant																																																																																																																								
Chipset	Intel B360 Chipset	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																																																																								
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)																																																																																																																										
Front ports* (Opt.)	Optional: 1x media reader																																																																																																																										
Rear ports* (Std.)	4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)																																																																																																																										
Rear ports* (Opt.)	Optional: 2x USB 3.1 Gen1 via PCIe x1**, 2x USB 3.1 Type-C Gen2 via PCIe x4** (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** Choose either 2x USB 3.1 Gen1 or 2x USB 3.1 Type-C Gen2																																																																																																																										
Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)																																																																																																																										

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M725 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	AMD A6 / A8 / A10 / A12 and Ryzen 3 / 5 / 7 series processor						Ethernet	Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®																																																																		
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	Processor	Cores / Threads	Frequency (Base/Max)	L2 Cache	Memory Support (Up to)	Integrated Graphics																																																																				
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	Ryzen 3 2300X	4 / 4	3.5 / 4.0	2MB	DDR4-2933	None																																																																				
	Ryzen 5 2500X	4 / 8	3.6 / 4.0	2MB	DDR4-2933	None																																																																				
	Ryzen 3 PRO 2200G	4 / 4	3.5 / 3.6	2MB	DDR4-2933	Radeon Vega 8																																																																				
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Ryzen 7 PRO 2700	8 / 16	3.2 / 4.1	4MB	DDR4-2933	None																																																																					
Memory	64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * Systemboard supports up to DDR4-2666, memory frequency may automatically clocks down for the lower capability of memory controller in processor						Manageability	DASH 10/1.1																																																																		
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe and AMD A6 / A8 / A10 / A12 processor only supports PCIe 3.0 x 2, 16Gb/s						Security chip	Discrete TPM 2.0, TCG Certified																																																																		
Optical	<i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)						Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																																		
Onboard SATA	Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)						Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)																																																																		
Media reader	Optional 7-in-1 media reader						Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)																																																																		
Graphics	AMD Radeon™ Graphics in processor (only for some processors), uses main memory, DirectX® 12, one VGA, two DisplayPort™ (Onboard VGA and DP ports are only available on the models with integrated graphics), supports 3 independent displays, works along with AMD discrete graphics to support more displays; <i>Max resolution:</i> 4096x2160 (DP)@60Hz; 1920x1200 (VGA)@60Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB GDDR5, PCIe 2.0 x16 (x8 elec.) adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz						Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color; metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 13.2 lb (6.0 kg), weight may vary by configuration Toolless cover, disk, optical removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (bay only comes with 2.5" 2nd disk) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1 Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 2.0 x1 Slot 4: low-profile (length < 150mm, height < 68mm), PCI 3.0 M.2 card slots: two (one for WLAN, one for SSD) Optional system floor stand for vertical orientation 																																																																		
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle						Floor Stand	Optional system floor stand for vertical orientation																																																																		
Chipset	AMD B450 Chipset						Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)																																																																		
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)						Limited warranty	1-year or 3-year, limited onsite service / service upgrades available																																																																		
Front ports* (Opt.)	Optional: 1x media reader, 2x USB 3.1 Type-C Gen2 via PCIe card (special bid only)						Preload	Preloaded operating system <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn 																																																																		
Rear ports* (Std.)	2x USB 3.1 Gen1, 2x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA**, 2x DisplayPort**, 2x PS/2 ports (keyboard / mouse); 1x line-in (3.5mm), 1x line-out (3.5mm), 1x microphone (3.5mm)						Environment	ENERGY STAR® 7.0*, EPEAT™ Gold rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant																																																																		
Rear ports* (Opt.)	Optional: 2x USB 2.0, 1x 2nd serial (9-pin), 1x parallel (25-pin), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed ** only available on the models with integrated graphics						Accessories	For compatible accessories, please go to http://smartfind.lenovo.com																																																																		
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt)																																																																									
WLAN	<i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2																																																																									
Bluetooth™	<i>Some:</i> Bluetooth 4.2* wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1																																																																									

Note: The specifications above may not be available in all regions.

Lenovo, July 2018



ThinkCentre M910 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Smart USB protection, allows keyboard/mouse only, blocks all storage devices Optional cable lock to physically lock both keyboard and mouse Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Optional chassis intrusion switch 																																																
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i3-7300</td> <td>2 / 4</td> <td>4.0G / --</td> <td>4 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7400</td> <td>4 / 4</td> <td>3.0G / 3.5G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																														
Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530																																														
Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530																																														
Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630																																														
Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630																																														
Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630																																														
Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630																																														
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630																																														
		Mouse	<i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																
Memory	64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller	Mechanical	<ul style="list-style-type: none"> SFF (8.4L), black color, metal case (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm Approx. 11.92 lb (5.4 kg), weight may vary by configuration Toolless cover, disk, optical, graphic card removal Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16* Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1* Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 (x4 signal)* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial / cable lock / Wi-Fi antenna occupies one expansion slot 																																																
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)	Floor Stand	Optional system floor stand for vertical orientation																																																
Optical	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)	Power supply	<i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 85% PSU <i>Some:</i> 210 watts, autosensing, 92% PSU (only available via special bid)																																																
Onboard SATA	Optional 7-in-1 media reader	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																
Media reader	Optional 7-in-1 media reader	Preload	Preloaded operating system <i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit																																																
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz <i>Some:</i> NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort)@60Hz;	Preloaded applications (only some listed)	<ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) 																																																
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																
Chipset	Intel Q270 Chipset	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)	Bluetooth™	<i>Some:</i> Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter																																																
Rear ports*	Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse); additional DisplayPort on optional graphics on some models	Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®																																																
Rear audio ports*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm)	Modem	None																																																
IEEE 1394*	None * Depending on many factors, actual data transfer speed may be lower than theoretical speed	Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)																																																
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																

Note: The specifications above may not be available in all regions.

Lenovo, August 2017

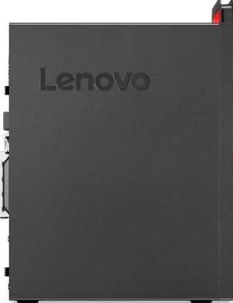


ThinkCentre M910 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Core i5-6500T	4 / 4	2.5G / 3.1G	6 MB	DDR4-2133	HD 530	
	Core i7-6700T	4 / 8	2.8G / 3.6G	8 MB	DDR4-2133	HD 530	
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630	
	Core i5-7600T	4 / 4	2.8G / 3.7G	6 MB	DDR4-2400	HD 630	
Core i7-7700T	4 / 8	2.9G / 3.8G	8 MB	DDR4-2400	HD 630		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s <i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box						
Optical	One onboard SATA 6.0Gb/s connector None						
Onboard SATA Media reader	None						
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (HDMI)@24Hz; 1920x1200 (VGA)@60Hz						
Monitor cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						
Chipset	Intel Q270 Chipset						
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports*	Four USB 3.1 Gen1 (optional external optical box or external I/O box occupies one or two specific USB 3.1 Gen1 on some models), ethernet (RJ-45), two DisplayPort, two optional ports (Port 1 for VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode), Port 2 for serial)						
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy two specific USB 3.1 Gen1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)						
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, Intel vPro technology support, 2x2						
Bluetooth™	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1						
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®						
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)						
Security chip	TPM (Trusted Platform Module) 2.0*, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS						
Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black						
Mouse	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black						
Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open Toolless HDD, SSD, memory removal Optional toolless chassis screw Optional dust filter 						
VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation						
Power supply	65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models) 90 watts AC/DC adapter, autosensing, 88% PSU (only for models with I/O box)						
Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available						
Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit						
Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)						
MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)						
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com						

See footnotes for more detailed information



ThinkCentre M910 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor						Ethernet Modem	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® None
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)
	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS
	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Power-on password Administrator password Padlock loop Hard disk password Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Boot sequence control Boot without keyboard and mouse Optional cable lock to physically lock both keyboard and mouse Individual USB port disablement Optional chassis intrusion switch
	Core i3-7300	2 / 4	4.0G / --	4 MB	DDR4-2400	HD 630		
	Core i5-7400	4 / 4	3.0G / 3.5G	6 MB	DDR4-2400	HD 630		
	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630		
	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630		
Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630			
Memory	64GB max, UDIMM, DDR4-2400*, four 288-pin DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller						Keyboard	Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Storage	Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s Some: Intel Optane™ Memory (models with 7th gen Core processor), M.2 Some: Front accessible and removable HDD, 3.5", lockable via physical key						Mouse	Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
Optical	Some: DVD-ROM, SATA 1.5Gb/s, 5.25" or slim (9.0mm) Some: DVD Burner (DVD±RW), SATA 1.5Gb/s, 5.25" or slim (9.0mm)						Mechanical	<ul style="list-style-type: none"> Tower (18L), black color, metal case (WxDxH) 6.5" X 12.65" X 16.15"; 165mm X 321.35mm X 410.25mm Approx. 15.45 lb (7 kg), weight may vary by configuration Toolless cover, disk, optical, graphic card removal Optional carry handle, dust filter Bay 1: Slim external ODD bay Bay 2: 5.25", 1.6" high, external, ODD / optional front access HDD Bay 3: 3.5", 1" high, internal, HDD/SSD Bay 4: 3.5", 1" high, internal, HDD/SSD (optional bay, bay comes with disk) Bay 5: 2.5", internal, HDD/SSD (optional bay) Notes: M910 Tower supports up to 3 SATA devices (ODD/HDD/SSD) and 1 eSATA device (front access HDD) Slot 1: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x16* Slot 2: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x1* Slot 3: full-length full-height (length < 268mm, height < 112mm), PCIe 3.0 x16 (x4 signal)* Slot 4: no slot, only bracket for optional port extension* M.2 card slots: Two (one for WLAN, one for SSD/Optane) * Optional 2 front USB3.1 Type-C ports module occupies PCIe x16 (x4 signal) slot, optional rear 2x USB2.0 / parallel / 2nd serial occupies one expansion slot
Onboard SATA	Four onboard SATA 6.0Gb/s connectors (1x eSATA and 3x SATA), RAID 0/1 support (RAID preset only available via special bid model)						Power supply	Some: 180 watts, autosensing, 85% PSU Some: 250 watts, autosensing, 85% PSU Some: 400 watts, autosensing, 92% PSU (only available via special bid)
Media reader	Optional 7-in-1 media reader						Limited warranty	Some: 1-year or 3-year, depot service / service upgrades available Some: 1-year or 3-year, limited onsite service / service upgrades available
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; Max resolution: 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz Some: NVIDIA GeForce® GT 730, DirectX 12, 2GB, PCIe 2.0 x8 adapter, two DisplayPort, 35 watts; Max resolution: 3840x2160 (DisplayPort) @60Hz; Some: AMD Radeon™ R7 350, DirectX 11, 2GB, PCIe 3.0 x8 adapter, one VGA, one HDMI, 75 watts, occupies two slots; Max resolution: 4096x2160 (HDMI) @24Hz; 2048x1536 (VGA) @85Hz Some: NVIDIA GeForce GTX™ 1080 (only available via special bid model), DirectX 12, 8GB, PCIe 3.0 x16 adapter, one DVI-D, one HDMI, three DisplayPort, 180 watts, occupies two slots; Max resolution: 2560x1600 (DVI-D) @60Hz; 4096x2160 (HDMI) @60Hz 7680x4320 (with Single DP) @60Hz						Preload	Preloaded operating system Some: Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) Some: Windows 10 Pro 64-bit Some: Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW)
Monitor Cable	Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4						Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)
Chipset	Intel Q270 Chipset						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
Front ports*	Four USB 3.1 Gen1, optional two USB 3.1 Type-C Gen 2 (only available via special bid), microphone (3.5mm), headphone (3.5mm)							
Rear ports*	Four USB 3.1 Gen1, optional two USB 2.0, serial (9-pin), optional 2nd serial (9-pin), optional parallel (25-pin), ethernet (RJ-45), one VGA, two DisplayPort, optional two PS/2 ports (keyboard/mouse); additional VGA, DisplayPort, DVI-D, or HDMI on optional graphics on some models							
Rear audio ports* IEEE 1394*	Line-in (3.5mm), line-out (3.5mm), microphone-in (3.5mm) None * Depending on many factors, actual data transfer speed may be lower than theoretical speed							
Audio support	High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1.5 watt)							
WLAN	Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.1 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.1 combo adapter, Intel vPro technology support, 2x2							
Bluetooth™	Some: Bluetooth 4.1 wireless, integrated in Wi-Fi + BT combo adapter							

Note: The specifications above may not be available in all regions.

Lenovo, August 2017



ThinkCentre M910x Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor	Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®																																																																		
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr> <td>Core i5-6500T</td> <td>4 / 4</td> <td>2.5G / 3.1G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700T</td> <td>4 / 8</td> <td>2.8G / 3.6G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i5-7500T</td> <td>4 / 4</td> <td>2.7G / 3.3G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600T</td> <td>4 / 4</td> <td>2.8G / 3.7G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700T</td> <td>4 / 8</td> <td>2.9G / 3.8G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-6500</td> <td>4 / 4</td> <td>3.2G / 3.6G</td> <td>6 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i7-6700</td> <td>4 / 8</td> <td>3.4G / 4.0G</td> <td>8 MB</td> <td>DDR4-2133</td> <td>HD 530</td> </tr> <tr> <td>Core i5-7500</td> <td>4 / 4</td> <td>3.4G / 3.8G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i5-7600</td> <td>4 / 4</td> <td>3.5G / 4.1G</td> <td>6 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> <tr> <td>Core i7-7700</td> <td>4 / 8</td> <td>3.6G / 4.2G</td> <td>8 MB</td> <td>DDR4-2400</td> <td>HD 630</td> </tr> </tbody> </table>	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	Core i5-6500T	4 / 4	2.5G / 3.1G	6 MB	DDR4-2133	HD 530	Core i7-6700T	4 / 8	2.8G / 3.6G	8 MB	DDR4-2133	HD 530	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630	Core i5-7600T	4 / 4	2.8G / 3.7G	6 MB	DDR4-2400	HD 630	Core i7-7700T	4 / 8	2.9G / 3.8G	8 MB	DDR4-2400	HD 630	Core i5-6500	4 / 4	3.2G / 3.6G	6 MB	DDR4-2133	HD 530	Core i7-6700	4 / 8	3.4G / 4.0G	8 MB	DDR4-2133	HD 530	Core i5-7500	4 / 4	3.4G / 3.8G	6 MB	DDR4-2400	HD 630	Core i5-7600	4 / 4	3.5G / 4.1G	6 MB	DDR4-2400	HD 630	Core i7-7700	4 / 8	3.6G / 4.2G	8 MB	DDR4-2400	HD 630	Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)
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		Security chip	TPM (Trusted Platform Module) 2.0*, TCG Certified * Downgrade to TPM1.2 for the models with Win10 DG Win7 32 OS																																																																		
		Security features	<ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Smart USB protection, allows keyboard/ mouse only, blocks all storage devices Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Chassis intrusion switch 																																																																		
		Keyboard	<i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black																																																																		
Memory	32GB max, DDR4-2400*, two 260-pin SO-DIMM sockets, non-ECC, dual-channel capable * System automatically clocks down for the processors with lower memory controller	Mouse																																																																			
Storage	<i>Some:</i> Hard Drive* / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm, APS <i>Some:</i> Solid State Drive (SSD)* / SATA 6.0Gb/s, 2.5" (* 2.5" HDD/SSD and RX 460 graphics are mutually exclusive) <i>Some:</i> M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model)	Mechanical	Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open Toolless HDD, SSD, memory removal Optional toolless chassis screw Optional dust filter 																																																																		
Optical	<i>Some:</i> Intel Optane™ Memory (models with 7th gen Core processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box		<table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>M910 Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> <tr> <td>With VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> <tr> <td>With VESA mount & I/O box</td> <td>7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Weight (Approx.)	M910 Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config	With VESA mount & I/O box	7.42" X 7.30" X 2.62" 188.4mm X 185.38mm X 66.6mm	3.66 lb (1.66 kg), vary by config																																																						
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Onboard SATA Media reader	One onboard SATA 6.0Gb/s connector None	VESA mount Floor Stand	Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation																																																																		
Graphics	Intel HD Graphics 510/530/610/630 in processor, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (HDMI, VGA, 3rd DP, or USB 3.1 Type-C with DisplayPort Alternate Mode), up to 3 independent displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (HDMI) @24Hz; 1920x1200 (VGA) @60Hz <i>Some:</i> AMD Radeon™ RX 460 , DirectX 12, 4GB, PCIe 3.0 x8 adapter (low profile), four mini DisplayPort, 35 watts (TDP), up to 4 independent displays, works along with 2 onboard DisplayPort to support up to 6 independent displays; <i>Max resolution:</i> 5120x2880 @60Hz (up to 2 mini DisplayPort); 4096x2160 @60Hz (up to 4 mini DisplayPort)	Power supply	135 watts AC/DC adapter, autosensing, 88% PSU																																																																		
Monitor cable	Optional DP to VGA, DP to DVI-D, DP to dual DP, mini DP to DP, or DP to HDMI 1.4	Limited warranty ³	<i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available																																																																		
Chipset	Intel Q270 Chipset	Preload	<i>Some:</i> Windows® 7 Professional 32/64 preinstalled through downgrade rights in Windows 10 Pro 64-bit (not available with 7th Gen Intel processor) <i>Some:</i> Windows 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit																																																																		
Front ports*	Two USB 3.1 Gen1 (one is Always On and fast charge), one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)	Preloaded applications (only some listed)	<ul style="list-style-type: none"> Microsoft Office preloaded; purchase a product key to activate Only for Window 10 Lenovo Companion Intel Unite download link (vPro models only) Only for Window 7 Lenovo Solution Center Lenovo ThinkVantage Tools Create Recovery Media Adobe® Reader® Cyberlink PowerDVD Create (DVD±RW) Intel Unite (vPro models only) 																																																																		
Rear ports*	Four USB 3.1 Gen1 (optional optical box or I/O box occupies one or two specific USB 3.1 Gen1), ethernet (RJ-45), two DisplayPort, two optional ports (not available for the models with RX 460 graphics): Port 1 for [VGA / 3rd DP / HDMI / serial / USB 3.1 Type-C Gen 1 (with DisplayPort Alternate Mode)]; Port 2 for [serial]																																																																				
I/O box*	Optional external I/O box, extends two USB 2.0, two USB 3.1 Gen1, and one serial on rear, two USB 2.0 on front, via USB cable (occupy 2 specific USB 3.1 G1 of Tiny) * Depending on many factors, actual data transfer speed may be lower than theoretical speed	Environment	ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, GREENGUARD®, RoHS-compliant, TUV low noise verified (on some models)																																																																		
Audio support	High Definition (HD) Audio, Realtek ALC294 / optional internal speaker (1w or 2w)	MIL-SPEC test	MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)																																																																		
WLAN ¹³	<i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, Intel vPro technology support, 2x2	Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																																																																		
Bluetooth™	<i>Some:</i> Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter * Hardware supports BT 4.2, but Win10 RS3 and earlier only supports BT 4.1																																																																				

See footnotes for more detailed information

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ThinkCentre M920 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor	Audio support	High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)																																																																																																																																															
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G5420</td><td>2 / 4</td><td>3.8G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5620</td><td>2 / 4</td><td>4.0G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8100</td><td>4 / 4</td><td>3.6G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i3-8300</td><td>4 / 4</td><td>3.7G</td><td>8 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core i5-8400</td><td>6 / 6</td><td>2.8G / 4.0G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8500</td><td>6 / 6</td><td>3.0G / 4.1G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i5-8600</td><td>6 / 6</td><td>3.1G / 4.3G</td><td>9 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i7-8700</td><td>6 / 12</td><td>3.2G / 4.6G</td><td>12 MB</td><td>DDR4-2666</td><td>UHD 630</td></tr> <tr><td>Core i3-9100</td><td>4 / 4</td><td>3.6G / 4.2G</td><td>6 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Core 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G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5420	2 / 4	3.8G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5620	2 / 4	4.0G	4 MB	DDR4-2400	UHD 630	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630	Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630	Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630	<p>WLAN</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2</p> <p><i>Some:</i> 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2</p> <p>Bluetooth</p> <p>Ethernet</p> <p>Ethernet (Opt.)</p> <p><i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter</p> <p>Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®</p> <p><i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4</p> <p><i>Some:</i> Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)</p> <p>Manageability</p> <p>Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)</p> <p>Security chip</p> <p>Discrete TPM 2.0, TCG Certified</p> <p>Security features</p> <ul style="list-style-type: none"> • Security slot (in rear for optional Kensington® MicroSaver® cable) • Padlock loop • Optional cable lock to physically lock both keyboard and mouse • Optional chassis intrusion switch • Optional chassis E-Lock (special bid) • Power-on password • Administrator password • Hard disk password • Boot sequence control • Boot without keyboard and mouse • Individual USB port disablement • Smart USB protection, allows keyboard/mouse only, blocks all storage devices <p>Keyboard</p> <p><i>Some:</i> Lenovo Calliope Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Traditional Keyboard (USB connector), black</p> <p><i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p><i>Some:</i> Lenovo Calliope Mouse (USB connector), black</p> <p><i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black</p> <p><i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black</p> <p><i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p> <p>Mouse</p> <p>Mechanical</p> <ul style="list-style-type: none"> • SFF (8.4L), black color, metal case • (WxDxH) 3.6" X 11.4" X 13.5"; 92.5mm X 290.5mm X 343.5mm • Approx. 13.23 lb (6 kg), weight may vary by configuration • Toolless cover, disk, optical, extension card removal • Optional dust filter Bay 1: Slim external ODD bay Bay 2: 3.5", 1" high, internal, HDD/SSD Bay 3: 2.5", internal, HDD/SSD (optional bay) Slot 1: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 Slot 2: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x1 Slot 3: low-profile (length < 150mm, height < 68mm), PCIe 3.0 x16 (x4 signal) Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane) <p>Floor Stand</p> <p>Optional system floor stand for vertical orientation</p> <p>Power supply</p> <p><i>Some:</i> 180 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 210 watts, autosensing, 85% PSU</p> <p><i>Some:</i> 260 watts, autosensing, 92% PSU (only available via special bid)</p> <p>Limited warranty</p> <p><i>Some:</i> 1-year or 3-year, depot service / service upgrades available</p> <p><i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p> <p>Preload</p> <p><i>Some:</i> Windows® 10 Pro 64-bit</p> <p><i>Some:</i> Windows 10 Home 64-bit</p> <p>Environment</p> <p>ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant</p> <p>Accessories</p> <p>For compatible accessories, please go to http://smartfind.lenovo.com</p>
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics																																																																																																																																													
Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610																																																																																																																																													
Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610																																																																																																																																													
Celeron G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610																																																																																																																																													
Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610																																																																																																																																													
Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610																																																																																																																																													
Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630																																																																																																																																													
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Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630																																																																																																																																													
Memory	64GB max, DDR4-2666*, four 288-pin DIMM sockets, dual-channel capable * System automatically clocks down for the processors with lower memory controller																																																																																																																																																	
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, SATA 1.5Gb/s Drive, slim (9.0mm) <i>Some:</i> DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)																																																																																																																																																	
Optical	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)																																																																																																																																																	
Onboard SATA	Optional 7-in-1 media reader																																																																																																																																																	
Media reader																																																																																																																																																		
Graphics	Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays: <i>Max resolution:</i> 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort)@60Hz;																																																																																																																																																	
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle																																																																																																																																																	
Chipset	Intel Q370 Chipset																																																																																																																																																	
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)																																																																																																																																																	
Front ports* (Opt.)	<i>Optional:</i> 1x media reader																																																																																																																																																	
Rear ports* (Std.)	4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)																																																																																																																																																	
Rear ports* (Opt.)	<i>Optional:</i> 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																																																																																																	

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M920 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor						Bluetooth Ethernet (Opt.) Some: Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics	
	Celeron G4900T	2 / 2	2.9G	2 MB	DDR4-2400	UHD 610	
	Celeron G4930T	2 / 2	3.0G	2 MB	DDR4-2400	UHD 610	
	Pentium Gold G5400T	2 / 4	3.1G	4 MB	DDR4-2400	UHD 610	
	Pentium Gold G5500T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 630	
	Pentium Gold G5600T	2 / 4	3.3G	4 MB	DDR4-2400	UHD 630	
	Pentium Gold G5420T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 610	
	Core i3-8100T	4 / 4	3.1G	6 MB	DDR4-2400	UHD 630	
	Core i3-8300T	4 / 4	3.2G	8 MB	DDR4-2400	UHD 630	
	Core i5-8400T	6 / 6	1.7G / 3.3G	9 MB	DDR4-2666	UHD 630	
	Core i5-8500T	6 / 6	2.1G / 3.5G	9 MB	DDR4-2666	UHD 630	
	Core i5-8600T	6 / 6	2.3G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630	
	Core i3-9100T	4 / 4	3.1G / 3.7G	6 MB	DDR4-2400	UHD 630	
	Core i3-9300T	4 / 4	3.2G / 3.8G	8 MB	DDR4-2400	UHD 630	
	Core i5-9400T	6 / 6	1.8G / 3.4G	9 MB	DDR4-2666	UHD 630	
	Core i5-9500T	6 / 6	2.2G / 3.7G	9 MB	DDR4-2666	UHD 630	
	Core i5-9600T	6 / 6	2.3G / 3.9G	9 MB	DDR4-2666	UHD 630	
	Core i7-9700T	8 / 8	2.0G / 4.3G	12 MB	DDR4-2666	UHD 630	
Core i9-9900T	8 / 16	2.1G / 4.4G	16 MB	DDR4-2666	UHD 630		
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the processors with lower memory controller						Manageability Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection) Security chip Security features <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Chassis intrusion switch Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices Keyboard Some: Lenovo Calliope Keyboard (USB connector), black Some: Lenovo Traditional Keyboard (USB connector), black Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black Mouse Some: Lenovo Calliope Mouse (USB connector), black Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black Some: Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black Mechanical Tiny (1L), black color; metal case <ul style="list-style-type: none"> Toolless chassis open (need optional toolless chassis screw) Toolless HDD, SSD, memory removal Optional dust filter one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), two M.2 slots (one for WLAN, one for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive VESA mount Floor Stand Optional VESA mount bracket kit, supports VESA 75mm and 100mm Optional system floor stand for vertical orientation Power supply Some: 65 watts AC/DC adapter, autosensing, 88% PSU Some: 90 watts AC/DC adapter, autosensing, 88% PSU Some: 135 watts AC/DC adapter, autosensing, 88% PSU Limited warranty Some: 1-year or 3-year, depot service / service upgrades available Some: 1-year or 3-year, limited onsite service / service upgrades available Preload Preloaded operating system Some: Windows® 10 Pro 64-bit Some: Windows 10 Home 64-bit Preloaded applications (only some listed) <ul style="list-style-type: none"> Lenovo Vantage Microsoft Office preloaded; purchase a product key to activate Cyberlink PowerDVD (only for models with DVD / DVD±RW) Cyberlink Power2GO (only for models with DVD±RW) LinkedIn Intel Unite (Machine Type 10V8 models only) Environment ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant MIL-SPEC test MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation) Accessories For compatible accessories, please go to http://smartfind.lenovo.com
Storage	Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2						
Optical	Some: DVD-ROM, slim (9.0mm), via USB external ODD box Some: DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box						
Onboard SATA	One onboard SATA 6.0Gb/s connector						
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (onboard HDMI)@24Hz; 2048x1536 (VGA)@50Hz						
Monitor cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle						
Chipset	Intel Q370 Chipset						
Front ports (Std.)	* one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)						
Rear ports (Std.)	* 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI						
Rear ports (Opt.)	* Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 * Depending on many factors, actual data transfer speed may be lower than theoretical speed						
Audio support	Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)						
WLAN	Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Realtek RTL8822BE (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 3165, Wi-Fi + Bluetooth 4.2 combo adapter, 1x1 Some: 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, Wi-Fi + Bluetooth 4.2 combo adapter, 2x2 Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2						

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M920 Tower Platform Specifications

Product Specifications Reference (PSREF)

Processor	Intel® Celeron®, Intel Pentium®, or 8th /9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor	USB3.1 Type-C Gen 2 / DisplayPort) via PCIe x4 (available on 09/30/2018), additional RJ-45 and video ports available on optional graphics or ethernet card * Depending on many factors, actual data transfer speed may be lower than theoretical speed																																																																																																																																																
	<table border="1"> <thead> <tr> <th>Processor</th> <th>Cores / Threads</th> <th>Frequency Base/Max(GHz)</th> <th>Cache</th> <th>Memory Support (Up to)</th> <th>Integrated Graphics</th> </tr> </thead> <tbody> <tr><td>Celeron G4900</td><td>2 / 2</td><td>3.1G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Celeron G4920</td><td>2 / 2</td><td>3.2G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Celeron G4930</td><td>2 / 2</td><td>3.2G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Celeron G4950</td><td>2 / 2</td><td>3.3G</td><td>2 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5400</td><td>2 / 4</td><td>3.7G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 610</td></tr> <tr><td>Pentium Gold G5500</td><td>2 / 4</td><td>3.8G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Pentium Gold G5600</td><td>2 / 4</td><td>3.9G</td><td>4 MB</td><td>DDR4-2400</td><td>UHD 630</td></tr> <tr><td>Pentium Gold 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G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610	Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	Pentium Gold G5420	2 / 4	3.8G	4 MB	DDR4-2400	UHD 610	Pentium Gold G5620	2 / 4	4.0G	4 MB	DDR4-2400	UHD 630	Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630	Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630	Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630	Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630	Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630	Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630	Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	Core i7-9700	8 / 8	3.0G / 4.7G	12 MB	DDR4-2666	UHD 630	Core i9-9900	8 / 16	3.1G / 5.0G	16 MB	DDR4-2666	UHD 630	<p>Audio support High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)</p> <p>WLAN <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1 <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2 <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1 <i>Some:</i> 11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2 <i>Some:</i> 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2</p> <p>Bluetooth™ Ethernet Ethernet (Opt.) <i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® <i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4 <i>Some:</i> Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)</p> <p>Manageability Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)</p> <p>Security chip Discrete TPM 2.0, TCG Certified</p> <p>Security features</p> <ul style="list-style-type: none"> Security slot (in rear for optional Kensington® MicroSaver® cable) Padlock loop Optional cable lock to physically lock both keyboard and mouse Optional chassis intrusion switch Optional chassis E-Lock (special bid) Power-on password Administrator password Hard disk password Boot sequence control Boot without keyboard and mouse Individual USB port disablement Smart USB protection, allows keyboard/mouse only, blocks all storage devices <p>Keyboard <i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Keyboard (PS/2 connector), black (only available via special bid)</p> <p>Mouse <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black <i>Some:</i> Lenovo Mouse (PS/2 connector), black (only available via special bid)</p> <p>Mechanical</p> <ul style="list-style-type: none"> Tower (18L), black color, metal case (WxDxH) 6.5" X 12.65" X 16.15"; 165mm X 321.35mm X 410.25mm Approx. 15.45 lb (7 kg), weight may vary by configuration Toolless cover, disk, optical, extension card removal Optional carry handle, dust filter Bay 1: Slim external ODD bay Bay 2: 5.25", 1.6" high, external, ODD / optional front access HDD Bay 3: 3.5", 1" high, internal, HDD/SSD Bay 4: 3.5", 1" high, internal, HDD/SSD (optional bay, bay comes with disk) Bay 5: 2.5", internal, HDD/SSD (optional bay) Notes: M920 Tower supports up to 3 SATA devices (ODD/HDD/SSD) and 1 eSATA device (front access HDD) Slot 1: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x16 Slot 2: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x1 Slot 3: full-length (< 268mm) full-height (< 112mm), PCIe 3.0 x16 (x4 signal) Slot 4: no slot, only bracket for optional port extension M.2 card slots: Two (one for WLAN, one for SSD/Optane) <p>Power supply <i>Some:</i> 180 watts, autosensing, 85% PSU <i>Some:</i> 250 watts, autosensing, 85% PSU <i>Some:</i> 400 watts, autosensing, 92% PSU (only available via special bid)</p> <p>Limited warranty <i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available</p> <p>Preload <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit</p> <p>Environment ENERGY STAR® 6.1, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV low noise verified (coming soon, on some models), RoHS-compliant</p> <p>Accessories For compatible accessories, please go to http://smartfind.lenovo.com</p>
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Memory	64GB max, DDR4-2666*, four 288-pin DIMM sockets, dual-channel capable * System automatically clocks down for the processors with lower memory controller																																																																																																																																																	
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4*, 32Gb/s * SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 Optional DVD-ROM or DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)																																																																																																																																																	
Optical	Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)																																																																																																																																																	
Onboard SATA	Optional 7-in-1 media reader																																																																																																																																																	
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Graphics	Intel UHD Graphics 610/630 in processor, uses main memory, DirectX® 12, one VGA, two DisplayPort™, supports 3 independent displays, works along with discrete graphics to support more displays; <i>Max resolution:</i> 4096x2304 (DP) @60Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> NVIDIA GeForce® GT 730 , DirectX 12, 2GB, PCIe 2.0 x16 adapter, two DisplayPort, 35 watts; <i>Max resolution:</i> 3840x2160 (DisplayPort) @60Hz; <i>Some:</i> NVIDIA GeForce GTX 1060 (special bid only), DirectX 12, 6GB, PCIe 3.0 x16 adapter, 1x DVI-D, 1x HDMI, 3x DP, 120 watts, occupies two slots; <i>Max resolution:</i> 2560x1600 (DVI-D)@60Hz; 4096x2160 (HDMI)@60Hz 5120x3200 (DP)@60Hz																																																																																																																																																	
Monitor Cable	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with intel integrated graphics), or DP to HDMI 1.4 dongle																																																																																																																																																	
Chipset	Intel Q370 Chipset																																																																																																																																																	
Front ports* (Std.)	2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x USB 3.1 Type-C Gen1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)																																																																																																																																																	
Front ports* (Opt.)	<i>Optional:</i> 1x media reader																																																																																																																																																	
Rear ports* (Std.)	4x USB 3.1 Gen1, 1x serial (9-pin), 1x ethernet (RJ-45), 1x VGA, 2x DisplayPort, 1x line-out (3.5mm)																																																																																																																																																	
Rear ports* (Opt.)	<i>Optional:</i> 2x USB 2.0, 2x USB 3.1 Gen1 via PCIe x1, 2x USB 3.1 Type-C Gen2 via PCIe x4 (special bid only), 1x 2nd serial (9-pin), 4x serial (9-pin) via PCIe x1, 1x parallel (25-pin), 2x PS/2 ports (keyboard/mouse), 1x Thunderbolt 3 (combo)																																																																																																																																																	

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkCentre M920x Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor		Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 Processor													
Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics										
Celeron G4900	2 / 2	3.1G	2 MB	DDR4-2400	UHD 610	4x Mini DisplayPort, up to 4 independent displays, works along with onboard DP and HDMI to support up to 6 independent displays; <i>Max resolution:</i> 5120x2880@60Hz ((up to 2 Mini DisplayPort); 4096x2160@60Hz ((up to 4 Mini DisplayPort)									
Celeron G4920	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610										
Celeron G4930	2 / 2	3.2G	2 MB	DDR4-2400	UHD 610	Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle (for Collage Display with Intel integrated graphics), or DP to HDMI 1.4 dongle, Mini DP to DP									
Celeron G4950	2 / 2	3.3G	2 MB	DDR4-2400	UHD 610										
Pentium Gold G5400	2 / 4	3.7G	4 MB	DDR4-2400	UHD 610	Intel Q370 Chipset									
Pentium Gold G5500	2 / 4	3.8G	4 MB	DDR4-2400	UHD 630										
Pentium Gold G5600	2 / 4	3.9G	4 MB	DDR4-2400	UHD 630	Front ports (Std.)* one USB 3.1 Gen1 (Always On and fast charge), one USB 3.1 Type-C Gen 1, one microphone (3.5mm), one headphone / microphone combo jack (3.5mm)									
Pentium Gold G5420	2 / 4	3.8G	4 MB	DDR4-2400	UHD 610										
Pentium Gold G5620	2 / 4	4.0G	4 MB	DDR4-2400	UHD 630	Rear ports (Std.)* 2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x ethernet (RJ-45), 1x DP, 1x HDMI Rear ports (Opt.)* Two optional ports (mutually exclusive with PCIe card): Port 1 for VGA / 2nd DP / 2nd HDMI / serial / USB 3.1 Type-C Gen 1 with DP function); Port 2 for serial; Optional ports via PCIe card: 2x USB 3.1 Gen1 via PCIe x1, 4x serial (9-pin) via PCIe x1, 1x Thunderbolt 3 (combo USB3.1 Type-C Gen 2 / DP) via PCIe x4 * Depending on many factors, actual data transfer speed may be lower than theoretical speed									
Core i3-8100	4 / 4	3.6G	6 MB	DDR4-2400	UHD 630										
Core i3-8300	4 / 4	3.7G	8 MB	DDR4-2400	UHD 630	Audio support Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)									
Core i5-8400	6 / 6	2.8G / 4.0G	9 MB	DDR4-2666	UHD 630										
Core i5-8500	6 / 6	3.0G / 4.1G	9 MB	DDR4-2666	UHD 630	WLAN <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1 <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2 <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1 <i>Some:</i> 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2 <i>Some:</i> 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2									
Core i5-8600	6 / 6	3.1G / 4.3G	9 MB	DDR4-2666	UHD 630										
Core i7-8700	6 / 12	3.2G / 4.6G	12 MB	DDR4-2666	UHD 630	Bluetooth <i>Some:</i> Bluetooth 4.2/5.0 wireless, integrated in Wi-Fi + BT combo adapter Ethernet Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN® Ethernet (Opt.) <i>Some:</i> Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4									
Core i3-9100	4 / 4	3.6G / 4.2G	6 MB	DDR4-2400	UHD 630										
Core i3-9300	4 / 4	3.7G / 4.3G	8 MB	DDR4-2400	UHD 630	Manageability Intel Active Management Technology 12 (Intel AMT 12); Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)									
Core i3-9320	4 / 4	3.7G / 4.4G	8 MB	DDR4-2400	UHD 630										
Core i5-9400	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	UHD 630	Security chip Discrete TPM 2.0, TCG Certified Security features <ul style="list-style-type: none">• Security slot (in rear for optional Kensington® MicroSaver® cable)• Chassis intrusion switch• Power-on password• Administrator password• Hard disk password <ul style="list-style-type: none">• Boot sequence control• Boot without keyboard and mouse• Individual USB port disablement• Smart USB protection, allows keyboard/mouse only, blocks all storage devices									
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630										
Core i5-9600	6 / 6	3.1G / 4.6G	9 MB	DDR4-2666	UHD 630	Keyboard <i>Some:</i> Lenovo Calliope Keyboard (USB connector), black <i>Some:</i> Lenovo Traditional Keyboard (USB connector), black <i>Some:</i> Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black Mouse <i>Some:</i> Lenovo Calliope Mouse (USB connector), black <i>Some:</i> Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black <i>Some:</i> Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black									
Celeron G4900T	2 / 2	2.9G	2 MB	DDR4-2400	UHD 610										
Celeron G4930T	2 / 2	3.0G	2 MB	DDR4-2400	UHD 610	Mechanical Tiny (1L), black color; metal case <ul style="list-style-type: none">• Toolless chassis open (need optional toolless chassis screw)• Toolless HDD, SSD, memory removal• Optional dust filter one 2.5" bay for HDD/SSD, one PCIe 3.0 x8 slot (low-profile), three M.2 slots (one for WLAN, two for M.2 SSD), 2.5" HDD/SSD and PCIe card are mutually exclusive									
Pentium Gold G5400T	2 / 4	3.1G	4 MB	DDR4-2400	UHD 610										
Pentium Gold G5500T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 630	<table border="1"> <thead> <tr> <th></th> <th>Dimensions (WxDxH)</th> <th>Weight (Approx.)</th> </tr> </thead> <tbody> <tr> <td>Tiny only</td> <td>7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm</td> <td>2.91 lb (1.32 kg), vary by config</td> </tr> <tr> <td>With VESA mount & ODD box</td> <td>7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm</td> <td>3.66 lb (1.66 kg), vary by config</td> </tr> </tbody> </table>		Dimensions (WxDxH)	Weight (Approx.)	Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config	With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config
	Dimensions (WxDxH)	Weight (Approx.)													
Tiny only	7.05" X 7.20" X 1.36" 179mm X 182.9mm X 34.5mm	2.91 lb (1.32 kg), vary by config													
With VESA mount & ODD box	7.42" X 7.30" X 2.48" 188.4mm X 185.38mm X 63mm	3.66 lb (1.66 kg), vary by config													
Pentium Gold G5600T	2 / 4	3.3G	4 MB	DDR4-2400	UHD 630										
Pentium Gold G5420T	2 / 4	3.2G	4 MB	DDR4-2400	UHD 610	Memory 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the processors with lower memory controller									
Core i3-8100T	4 / 4	3.1G	6 MB	DDR4-2400	UHD 630										
Core i3-8300T	4 / 4	3.2G	8 MB	DDR4-2400	UHD 630	Storage <i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4", 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model) * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box									
Core i5-8400T	6 / 6	1.7G / 3.3G	9 MB	DDR4-2666	UHD 630										
Core i5-8500T	6 / 6	2.1G / 3.5G	9 MB	DDR4-2666	UHD 630	Optical One onboard SATA 6.0Gb/s connector									
Core i5-8600T	6 / 6	2.3G / 3.7G	9 MB	DDR4-2666	UHD 630										
Core i7-8700T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630	Onboard SATA One onboard SATA 6.0Gb/s connector									
Core i3-9100T	4 / 4	3.1G / 3.7G	6 MB	DDR4-2400	UHD 630										
Core i3-9300T	4 / 4	3.2G / 3.8G	8 MB	DDR4-2400	UHD 630	Graphics Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> c4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (onboard HDMI) @24Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> AMD Radeon™ RX 560 , DirectX 12, 4GB GDDR5, PCIe 3.0 x8 adapter,									
Core i5-9400T	6 / 6	1.8G / 3.4G	9 MB	DDR4-2666	UHD 630										
Core i5-9500T	6 / 6	2.2G / 3.7G	9 MB	DDR4-2666	UHD 630	VESA mount Optional VESA mount bracket kit, supports VESA 75mm and 100mm Floor Stand Optional system floor stand for vertical orientation									
Core i5-9600T	6 / 6	2.3G / 3.9G	9 MB	DDR4-2666	UHD 630										
Core i7-9700T	8 / 8	2.0G / 4.3G	12 MB	DDR4-2666	UHD 630	Power supply 135 watts AC/DC adapter, autosensing, 88% PSU									
Core i9-9900T	8 / 16	2.1G / 4.4G	16 MB	DDR4-2666	UHD 630										
Memory	32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable * System automatically clocks down for the processors with lower memory controller					Limited warranty <i>Some:</i> 1-year or 3-year, depot service / service upgrades available <i>Some:</i> 1-year or 3-year, limited onsite service / service upgrades available									
Storage	<i>Some:</i> Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm <i>Some:</i> Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5" <i>Some:</i> M.2 SSD (support up to two M.2 SSD) / PCIe NVMe, PCIe 3.0 x 4", 32Gb/s, RAID 0/1 support (RAID preset only available via special bid model) * 128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s <i>Some:</i> Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2 <i>Some:</i> DVD-ROM, slim (9.0mm), via USB external ODD box <i>Some:</i> DVD Burner (DVD±RW), slim (9.0mm), via USB external ODD box														
Optical	One onboard SATA 6.0Gb/s connector					Preload <i>Some:</i> Windows® 10 Pro 64-bit <i>Some:</i> Windows 10 Home 64-bit									
Onboard SATA	One onboard SATA 6.0Gb/s connector														
Graphics	Intel HD Graphics 610/630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional video port (2nd HDMI, VGA, 2nd DP, or USB 3.1 Type-C Gen1 with DisplayPort function), up to 3 independent displays; <i>Max resolution:</i> c4096x2304 (DP) @60Hz; 4096x2304 (Type-C) @60Hz; 4096x2160 (onboard HDMI) @24Hz; 2048x1536 (VGA) @50Hz <i>Some:</i> AMD Radeon™ RX 560 , DirectX 12, 4GB GDDR5, PCIe 3.0 x8 adapter,					Environment ENERGY STAR® 7.0, EPEAT™ Gold rating (North America), ErP Lot 3, TCO, TUV ultra low noise verified (coming soon, on some models), RoHS-compliant									
						MIL-SPEC test MIL-STD-810G military certification (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)									
						Accessories For compatible accessories, please go to http://smartfind.lenovo.com									

Note: The specifications above may not be available in all regions.

Lenovo, June 2019



ThinkSmart Hub 500 Platform Specifications

Product Specifications Reference (PSREF)

Positioning	Purpose-built Skype Room Systems device						Security chip	TPM (Trusted Platform Module) 2.0, TCG Certified
Processor	7th Gen Intel Core™ i5 Processor with vPro						Security features	<ul style="list-style-type: none"> • Security slot (in rear for attachment of optional Kensington® MicroSaver® cable; Kensington lock also locks chassis) • Secure cable management door • Power-on, admin, hard disk password • Boot sequence control • Boot without keyboard and mouse • USB port disablement
	Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics		
	Core i5-7500T	4 / 4	2.7G / 3.3G	6 MB	DDR4-2400	HD 630		
Memory	4GBx2, DDR4-2400, two 260-pin SO-DIMM sockets, dual-channel capable						Keyboard	None
Storage	128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s						Mouse	None
Graphics Display	Intel HD Graphics 630 in processor, uses main memory, DirectX® 12 11.6" (294.64mm) Full HD 1080p (1920x1080) TFT color , wide viewing angle (+/- 85°), LED backlight, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, anti-glare, smudge resistant						Mechanical	<ul style="list-style-type: none"> • Business black color • (WxDxH) 7.60" X 10.98" X 7.02"; 193.25mm X 278.9mm X 178.45mm • Approx. 5.51 lb (2.5 kg) • Secure Cable Management Door, secures physical ports and prevents cables being accidentally disconnected • 360 degree rotatable Display
Multi-touch Sensor	Supports 10-point touch, OGS IR Presence/Motion sensor, automatically dim / brighten display (Detection angle: +/- 45% (from display); detection distance: 3 meters at minimum)						Power supply	90 watts adapter, autosensing, 88% efficiency
LED indicators	360 degree LED ring on hinge neck, indicates Skype status for all users in the room; power LED on power button						Limited warranty ³	3-year, limited onsite service / service upgrades available
Chipset	Intel Q270 Chipset						Preload	Preloaded operating system Windows® 10 IoT Enterprise CBB X64 (RS3) Preloaded applications Microsoft Skype Room Systems App
Ports*	Four USB 3.1 Gen1(Type A), two HDMI-out, one HDMI-in (1920x1080@60Hz at maximum), one ethernet (RJ-45), one headphone / microphone combo jack (3.5mm), one power connector <small>* Depending on many factors, actual data transfer speed may be lower than theoretical speed</small>						Certification	Skype for Business Group Certified
M.2 card slot	Two M.2 Card slots (one for WLAN, one for SSD)						Environment	ErP Lot 26, GREENGUARD® certified, RoHS, WEEE
Audio support	Dual 4W speakers, 2 omnidirectional microphones for 360 degree audio capture						Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
WLAN ¹³	11ac wireless, M.2 Card, Intel Dual Band Wireless-AC 8265,Wi-Fi + Bluetooth 4.1* combo adapter, Intel vPro technology support, 2x2							
Bluetooth™	Bluetooth 4.1* wireless, integrated in Wi-Fi + Bluetooth combo adapter * Hardware supports Bluetooth 4.2, but Win10 RS3 only supports Bluetooth 4.1							
Ethernet	Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®							
Manageability	Intel Active Management Technology 11.0 (Intel AMT 11.0), Intel vPro technology							

See footnotes for more detailed information

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(Hub500-Spec) March 2018



ThinkCentre Tiny-in-One (TIO) 22

Product Specifications Reference (PSREF)

Model	10LKPAR6++ / 10LKPAT6++		
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 22, clean cabling and effortless setup		
Compatible Tiny:	M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox * Non-TIO models can't be turned on by pressing power button of TIO 22		
Panel	TFT-LCD, In-Plane Switching (IPS), White LED backlight		
Viewable image size	21.5" (546.1mm) diagonal		
Max view area (W x H)	18.74" x 10.54" / 476.06mm x 267.79mm		
Bezel Width	Top / Side: 2mm, Bottom: 16.3mm		
Optimum resolution	1920x1080		
Aspect ratio	16:9		
Pixel pitch (mm)	0.24795mm		
Dot/Pixel per Inch	102.4 dpi		
Brightness	250 nits or cd/m ² (typical)		
Contrast ratio	1000:1 (typical)		
Pixel response time	7ms		
Color gamut	72%		
Anti-reflective	Anti-glare		
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical		
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz		
Presets / user settings	Presets: 25; user settings: 25		
On screen display	On screen display with digital user controls (8 languages)		
Control features	Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button		
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)		
Front ports	Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm) * The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port		
Side ports	Side ports offered by installed Tiny (optional)		
Rear ports	One DisplayPort 1.2 port, one USB upstream port, one power connector		
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0/USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)		
Internal Speaker	1.5 watt x1		
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 22 together, more security features offered by Tiny installed (optional)		
Mechanical	Dimensions	TIO 22 without stand	TIO 22 with stand
	W x D x H (inch)	19.25 x 2.65 x 12.47	19.25 x 9.90 x 14.02 - 18.35
	W x D x H (mm)	489.06 x 67.2 x 316.78	489.06 x 251.4 x 356.07 - 466.07
	Weight (approximately)	11.27 lb /5.11 kg (with stand)	
Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount) <i>Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°</i>		
Adjustable stand			
Power supply	90 watts AC/DC adapter, 88% PSU, universal		
Power consumption	15.57 watts typical, 35 watts maximum, <0.5 watts standby / suspend		
Limited warranty ³	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service		
VESA-compliant ²	VESA DDC2B/CI, VESA DPMS-compliant		
Ergonomics	ISO 9241-307		
Emission standards	FCC Class B		
Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0 EPEAT™ Gold rating, ULE Gold, TUV, VOC		
Windows certifications	Windows 7, Windows 8/8.1, and Windows 10 certified		
Ship group	TIO 22 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster		
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com		
ThinkCentre Tiny-in-One 22 Compatible list			
Model	M900 Tiny, M700 Tiny, M600 Tiny, M83 Tiny, M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models

See footnotes for more detailed information



ThinkCentre Tiny-in-One (TIO) 22 Gen3

Product Specifications Reference (PSREF)

Model	<i>Non-touch model:</i> 10R1PAR1++/10R1PAT1++; <i>Touch model:</i> 10R0PAR1++/10R0PAT1++			Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount)
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup			Adjustable stand	<i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; <i>Pivot:</i> clockwise 0° to 90°
Compatible Tiny:	M910 / M710 / M900 / M700 / M600 / M715 / M93/p* / M83 / M73* / M53 / Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO			Power supply	90 watts AC/DC adapter, 88% PSU, universal
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight <i>Notes:</i> In-Plane Switching may refer to VA, PLS, and IPS panels			Power consumption	19 watts typical, 32 watts maximum, <0.5 watts standby / suspend
Viewable image size	21.5" (546.1mm) diagonal			Limited warranty	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service
Max view area (W x H)	18.74" x 10.54" / 476.1mm x 267.8mm			VESA-compliant	VESA DDC2B/CI, VESA DPMS-compliant
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm			Ergonomics	ISO 9241-307, TUV Eye Comfort certified
Native resolution	1920x1080			Emission standards	FCC Class B
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch			Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Gold rating, ULE Gold, TUV, VOC
Aspect ratio	16:9			Windows certifications	Windows 7 and Windows 10 certified
Pixel pitch (mm)	0.24795mm			Ship group	TIO (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster
Dot/Pixel per Inch	102.4 dpi			Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com
Brightness	250 nits or cd/m² (typical)				
Contrast ratio	1000:1 (typical)				
Pixel response time	14ms (default), over drive to 4ms, 6ms				
Color gamut	72%				
Anti-reflective	Anti-glare				
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical				
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz				
Presets / user settings	Presets: 25; user settings: 25				
On screen display	On screen display with digital user controls (8 languages)				
Control features	<i>Font:</i> Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button <i>Bottom:</i> Volume up button, Volume down button				
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)				
Side ports (TIO)	One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port) <i>Notes:</i> The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port				
Side ports (Tiny)	Side ports offered by installed Tiny (optional)				
Rear ports	One DisplayPort in port, one USB upstream port, one power connector				
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)				
Camera	720p camera with dual microphone for VOIP, LED indicator				
Internal Speaker	2 watt x2				
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)				
Mechanical					
	Dimensions	TIO without stand	TIO with stand		
	W x D x H (inch)	19.26 x 2.85 x 13.35	19.26 x 10.76 x 14.59 - 18.93		
	W x D x H (mm)	489.3 x 72.5 x 339	489.3 x 273.3 x 370.7 - 480.7		
	Weight (Approx.)	7.01 lb / 3.19 kg	11.77 lb / 5.34 kg		

ThinkCentre Tiny-in-One 22 Gen3 Compatible list			
Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models



ThinkCentre Tiny-in-One (TIO) 24

Product Specifications Reference (PSREF)

Model	10LLPAR6++ / 10LLPAT6++														
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO 24, clean cabling and effortless setup														
Compatible Tiny:	M900 Tiny, M700 Tiny, M600 Tiny, M93/p Tiny*, M83 Tiny, M73 Tiny*, or M53 Tiny, Chromebox * Non-TIO models can't be turned on by pressing power button of TIO 24														
Panel	TFT-LCD, In-Plane Switching (IPS), White LED backlight														
Viewable image size	23.8" (604.7mm) diagonal														
Max view area (W x H)	21.06" x 12.32" / 535.0mm x 313.0mm														
Bezel Width	Top / Side: 2mm, Bottom: 16.3mm														
Optimum resolution	1920x1080														
Aspect ratio	16:9														
Pixel pitch (mm)	0.2745mm														
Dot/Pixel per Inch	92.6 dpi														
Brightness	250 nits or cd/m ² (typical)														
Contrast ratio	1000:1 (typical)														
Pixel response time	7ms														
Color gamut	72%														
Anti-reflective	Anti-glare														
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical														
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz														
Presets / user settings	Presets: 25; user settings: 25														
On screen display	On screen display with digital user controls (8 languages)														
Control features	Mode-switching (TIO mode / standalone monitor mode, switches video / audio / USB input sources) / Back button, Left shift button, Right shift / Brightness button, Selection button / Menu button, Power button														
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)														
Front ports	Two USB 3.0 or two USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port), one headphone / microphone combo jack (3.5mm) * The USB ports are only available when a Tiny is installed or a PC is connected via USB upstream port														
Side ports	Side ports offered by installed Tiny (optional)														
Rear ports	One DisplayPort 1.2 port, one USB upstream port, one power connector														
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB 3.0 [supports USB 3.0/USB 2.0], DisplayPort 1.2), only for connecting to Tiny installed (optional)														
Internal Speaker	1.5 watt x1														
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO 24 together, more security features offered by Tiny installed (optional)														
Mechanical	<table border="1"> <thead> <tr> <th>Dimensions</th> <th>TIO 24 without stand</th> <th>TIO 24 with stand</th> </tr> </thead> <tbody> <tr> <td>W x D x H (inch)</td> <td>21.24 x 2.7 x 13.64</td> <td>21.24 x 9.90 x 15.16 - 19.46</td> </tr> <tr> <td>W x D x H (mm)</td> <td>539.6 x 68.2 x 346.45</td> <td>539.6 x 251.4 x 385.08 - 495.08</td> </tr> <tr> <td>Weight (approximately)</td> <td colspan="2">12.25 lb /5.57 kg (with stand)</td> </tr> </tbody> </table>			Dimensions	TIO 24 without stand	TIO 24 with stand	W x D x H (inch)	21.24 x 2.7 x 13.64	21.24 x 9.90 x 15.16 - 19.46	W x D x H (mm)	539.6 x 68.2 x 346.45	539.6 x 251.4 x 385.08 - 495.08	Weight (approximately)	12.25 lb /5.57 kg (with stand)	
Dimensions	TIO 24 without stand	TIO 24 with stand													
W x D x H (inch)	21.24 x 2.7 x 13.64	21.24 x 9.90 x 15.16 - 19.46													
W x D x H (mm)	539.6 x 68.2 x 346.45	539.6 x 251.4 x 385.08 - 495.08													
Weight (approximately)	12.25 lb /5.57 kg (with stand)														
Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)														
Adjustable stand	Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°														
Power supply	90 watts AC/DC adapter, 88% PSU, universal														
Power consumption	16.7 watts typical, 35 watts maximum, <0.5 watts standby / suspend														
Limited warranty ³	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service														
VESA-compliant ²	VESA DDC2B/CI, VESA DPMS-compliant														
Ergonomics	ISO 9241-307														
Emission standards	FCC Class B														
Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0 EPEAT™ Gold rating, ULE Gold, TUV, VOC														
Windows certifications	Windows 7, Windows 8/8.1, and Windows 10 certified														
Ship group	TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster														
Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com														
ThinkCentre Tiny-in-One 24 Compatible list															
Model	M900 Tiny, M700 Tiny, M600 Tiny, M83 Tiny, M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox												
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support												
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models												

See footnotes for more detailed information



ThinkCentre Tiny-in-One (TIO) 24 Gen3

Product Specifications Reference (PSREF)

Model	<i>Non-touch model:</i> 10QYPAR1++/10QYPAT1++; <i>Touch model:</i> 10QXPAR1++/10QXPAT1++			Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount)																
Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup			Adjustable stand	<i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; <i>Pivot:</i> clockwise 0° to 90°																
Compatible Tiny:	M910 / M710 / M900 / M700 / M600 / M715 / M93/p* / M83 / M73* / M53 / Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO			Power supply	90 watts AC/DC adapter, 88% PSU, universal																
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight <i>Notes:</i> In-Plane Switching may refer to VA, PLS, and IPS panels			Power consumption	19 watts typical, 32 watts maximum, <0.5 watts standby / suspend																
Viewable image size	23.8" (604.7mm) diagonal			Limited warranty	3-years , Customer Carry-In or Mail-In via Rapid Replacement Service																
Max view area (W x H)	21.06" x 12.32" / 535.0mm x 313.0mm			VESA-compliant	VESA DDC2B/CI, VESA DPMS-compliant																
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm			Ergonomics	ISO 9241-307, TUV Eye Comfort certified																
Native resolution	1920x1080			Emission standards	FCC Class B																
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch			Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Gold rating, ULE Gold, TUV, VOC																
Aspect ratio	16:9			Windows certifications	Windows 7 and Windows 10 certified																
Pixel pitch (mm)	0.2745mm			Ship group	TIO 24 (Monitor), detachable stand, AC/DC power adapter, power cord, user's guide and driver CD, quick start and safety poster																
Dot/Pixel per Inch	92.6 dpi			Accessories	For compatible accessories, please go to http://www.lenovoquickpick.com																
Brightness	250 nits or cd/m ² (typical)			<table border="1"> <thead> <tr> <th colspan="4">ThinkCentre Tiny-in-One 24 Gen3 Compatible list</th> </tr> </thead> <tbody> <tr> <td>Model</td> <td>M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny</td> <td>M93/p Tiny, M73 Tiny</td> <td>Chromebox</td> </tr> <tr> <td>Turn on TIO and Tiny together via Alt + P on USB KB</td> <td>All models</td> <td>All models</td> <td>Not support</td> </tr> <tr> <td>Turn on TIO and Tiny together via TIO Power Button</td> <td>All models</td> <td>TIO models</td> <td>All models</td> </tr> </tbody> </table>		ThinkCentre Tiny-in-One 24 Gen3 Compatible list				Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox	Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support	Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models
ThinkCentre Tiny-in-One 24 Gen3 Compatible list																					
Model	M910 / M710 / M900 / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox																		
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support																		
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models																		
Contrast ratio	1000:1 (typical)																				
Pixel response time	14ms (default), over drive to 4ms, 6ms																				
Color gamut	72%																				
Anti-reflective	Anti-glare																				
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical																				
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 67Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz																				
Presets / user settings	Presets: 25; user settings: 25																				
On screen display	On screen display with digital user controls (8 languages)																				
Control features	Font: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button Bottom: Volume up button, Volume down button																				
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some Tiny support, see compatible list)																				
Side ports (TIO)	One USB 3.1 Gen1 / USB 2.0 (when M73 or M53 installed or USB 2.0 connected via USB upstream port) <i>Notes:</i> The USB port is only available when a Tiny is installed or a PC is connected via USB upstream port																				
Side ports (Tiny)	Side ports offered by installed Tiny (optional)																				
Rear ports	One DisplayPort in port, one USB upstream port, one power connector																				
3-in-1 Cable	Undetachable 3-in-1 cable (Power connector, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)																				
Camera	1080p camera with dual microphone for VOIP, LED indicator																				
Internal Speaker	2 watt x2																				
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)																				
Mechanical	<table border="1"> <thead> <tr> <th>Dimensions</th> <th>TIO without stand</th> <th>TIO with stand</th> </tr> </thead> <tbody> <tr> <td>W x D x H (inch)</td> <td>21.25 x 2.85 x 14.47</td> <td>21.25 x 11.11 x 15.72 - 20.06</td> </tr> <tr> <td>W x D x H (mm)</td> <td>539.8 x 72.5 x 367.6</td> <td>539.8 x 282.3 x 399.4 - 509.4</td> </tr> <tr> <td>Weight (Approx.)</td> <td>7.96 lb /3.61 kg</td> <td>12.92 lb /5.86 kg</td> </tr> </tbody> </table>			Dimensions	TIO without stand	TIO with stand	W x D x H (inch)	21.25 x 2.85 x 14.47	21.25 x 11.11 x 15.72 - 20.06	W x D x H (mm)	539.8 x 72.5 x 367.6	539.8 x 282.3 x 399.4 - 509.4	Weight (Approx.)	7.96 lb /3.61 kg	12.92 lb /5.86 kg						
Dimensions	TIO without stand	TIO with stand																			
W x D x H (inch)	21.25 x 2.85 x 14.47	21.25 x 11.11 x 15.72 - 20.06																			
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Weight (Approx.)	7.96 lb /3.61 kg	12.92 lb /5.86 kg																			



ThinkCentre Tiny-in-One (TIO) 27

Product Specifications Reference (PSREF)

Form factor	Tiny-in-One, offers a full All-In-One experience when optional Tiny slots into the back of TIO, clean cabling and effortless setup	Mechanical		TIO without stand	TIO with stand
Compatible Tiny:	ThinkCentre Tiny, ThinkCentre Nano, and ThinkStation Tiny		Dimensions (W x D x H mm / inch)	614.0 x 73.89 x 413.1 / 24.17 x 2.91 x 16.26	614.0 x 329.0 x 444.25 - 554.25 / 24.17 x 12.95 x 17.49 - 21.82
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight **Notes: In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA	Mounting features	Weight (Approx.)	4.91 kg / 10.82 lb	7.95 kg / 17.53 lb
Viewable image size	27" (685.8mm) diagonal		Adjustable stand	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Tilt: 35° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; Pivot: clockwise -5° to 90°	
Max view area (W x H)	23.49" x 13.22" / 596.7mm x 335.7mm	Power supply	170 watts adapter, 88% PSU, universal		
Bezel Width	Top / Side: 2mm, Bottom: 23.3mm	Power consumption	37 watts typical, 57 watts maximum, <0.5 watts standby / suspend		
Native resolution	2560x1440	Limited warranty	3-years , Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)		
Multi-touch	None	VESA-compliant	VESA DDC/CI, VESA DPMS-compliant		
Aspect ratio	16:9	Ergonomics	ISO 9241-307, TUV Eye Comfort certified		
Pixel pitch (mm)	0.2331mm	Emission standards	FCC Class B		
Dot/Pixel per Inch	109 dpi	Environmental	TCO 8.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Bronze rating, ULE Gold, TUV, VOC		
Brightness	350 nits or cd/m² (typical)	Windows certifications	Windows 7 and Windows 10 certified		
Contrast ratio	1000:1 (typical)	Ship group	TIO 27 (Monitor), detachable stand, power adapter, power cord, reference and driver CD		
Pixel response time	14ms (default), over drive to 4ms, 6ms	Accessories	For compatible accessories, please go to http://smartfind.lenovo.com		
Color gamut	99% sRGB				
Anti-glare	Yes (25%)				
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical				
Preset resolutions	640x350 @ 70Hz 640x480 @ 60Hz, 66Hz, 72Hz, 75Hz 720x400 @ 70Hz 800x600 @ 60Hz, 72Hz, 75Hz 1024x768 @ 60Hz, 70Hz, 75Hz 1152x864 @ 75Hz 1280x768 @ 60Hz 1280x800 @ 60Hz 1280x1024 @ 60Hz, 72Hz, 75Hz 1366x768 @ 60Hz 1440x900 @ 60Hz, 75Hz 1600x1200 @ 60Hz, 70Hz, 75Hz 1680x1050 @ 60Hz 1920x1080 @ 60Hz 2560x1440 @ 60Hz				
Presets / user settings	Presets: 27; user settings: 25				
On screen display	On screen display with digital user controls (8 languages)				
Control features	Front: Exit button, Left / Mode-switching button (TIO / monitor mode), Right / Brightness button, Enter / Menu button, Power button Bottom: Volume up button, Volume down button				
Tiny-in-One Power On	Pressing Alt + P on keyboard or pressing Power button positioned on TIO can turn on both TIO and Tiny (only some support, see Compatible Matrix)				
Side ports (TIO)	Two USB 3.1 Gen1 (downgrade to USB 2.0 when installing M73 or M53 or connecting USB 2.0 via USB upstream port), one headphone / microphone combo jack Notes: The USB ports are enabled by installing a Tiny or connecting USB upstream port; the audio port is enabled by installing a Tiny or connecting USB upstream, DisplayPort(in), or HDMI(in) port				
Side ports (Tiny)	Side ports offered by the installed Tiny (optional)				
Rear ports	One DisplayPort(in) port, one HDMI(in) port, one USB (Type-B) upstream port, one power connector				
3-in-1 Cable	Undetachable 3-in-1 cable, connecting to the power connector, one USB, and one DisplayPort of the installed Tiny (optional)				
Camera	RGBIR camera with dual microphone, supports Window Hello and Facial Recognition, Think Shutter for Privacy Security, LED indicator				
Internal Speaker	2 watt x2				
Security	Security keyhole for attachment of optional cable lock (Kensington® lock compatible), locks optional Tiny with TIO together, more security features offered by Tiny installed (optional)				

ThinkCentre Tiny-in-One 27 Compatible Matrix			
Model	P320 / P330 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M600 / M715 / M83 / M53 Tiny	M93/p Tiny, M73 Tiny	Chromebox
Turn on TIO and Tiny together via Alt + P on USB KB	All models	All models	Not support
Turn on TIO and Tiny together via TIO Power Button	All models	TIO models	All models

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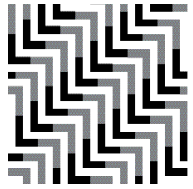
Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo ThinkStation.

PSREF



Product Specifications Reference

Version 544, June 2019

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Summary of Changes

This section describes the changes made in this version of ThinkStation PSREF and in previous version. This edition might also include minor corrections and editorial changes which are not identified.

June 26, 2019 - Version 544

- ▶ Add ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 CPU Async update

May 15, 2019 - Version 542

- ▶ New ThinkStation P330 Tower Gen 2/P330 SFF Gen 2 announced on April 2019
- ▶ Update ThinkStation P920/P720/P520 specifications, add Quadro RTX 8000, DDR4-2933, Xeon Scalable Gen 2

March 13, 2019 - Version 539

- ▶ Add Intel vPro information on ThinkStation P330 Tower/P330 SFF/P520c/P520/P720/P920

February 20, 2019 - Version 538

- ▶ New ThinkStation P330 Tower models announced on February 2019
- ▶ Update ThinkStation P920/P720/P520/P520c specifications, add Quadro RTX4000/5000/6000

August 22, 2018 - Version 529

- ▶ New ThinkStation P330 Tower/SFF/Tiny models announced on August 2018
- ▶ Update ThinkStation P920/P720 specifications, update flex bay and graphics adapter section

August 1, 2018 - Version 528

- ▶ New product ThinkStation P330 Tower/SFF/Tiny announced on July 2018
- ▶ Update ThinkStation P920/P720/P520/P520c, add Refresh 2.0 information
- ▶ Remove all MTM PNs from PDF version

June 20, 2018 - Version 526

- ▶ New ThinkStation P320 Tower models announced on June 2018
- ▶ Update ThinkStation P720 and P920 models, remove EOL models for US
- ▶ Update Windows 10 Pro 64 for Workstations for some ThinkStation P720/P920 models

May 30, 2018 - Version 525

- ▶ Added ThinkStation P720/P920 EMEA May 2018 models

April 18, 2018 - Version 523

- ▶ New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P720/P920 models announced on April 2018

March 28, 2018 - Version 522

- ▶ New ThinkStation P320 Tower/ P320 SFF/P520c/P520/P920 announced on March 2018

March 7, 2018 - Version 521

- ▶ New ThinkStation P320 Tower/ P320 SFF/P720/P920 announced on February 2018

January 30, 2018 - Version 519

- ▶ New ThinkStation P520c and P520 announced on January 2018
- ▶ New ThinkStation P320 Tower/P320 SFF announced on January 2018

December 20, 2017 - Version 517

- ▶ New ThinkStation P920 models announced on December 2017
- ▶ Add Optional Ports on ThinkStation P320 Tiny

September 29, 2017 - Version 513

- ▶ New ThinkStation P920 and P720 announced on September 2017
- ▶ New ThinkStation P320 Tower/P320 SFF/P410/P510/P710/P910 announced on September 2017

September 12, 2017 - Version 512

- ▶ New ThinkStation P320 Tower and P320 SFF models announced on August 2017

August 23, 2017 - Version 511

- ▶ New ThinkStation P320 Tiny models announced on August 2017

August 2, 2017 - Version 510

- ▶ New ThinkStation P320 Tiny/P320 Tower/ P320 SFF/P410/P510 models announced on July 2017

June 21, 2017 - Version 508

- ▶ New ThinkStation P320 Tiny announced on June 2017

May 26, 2017 - Version 507

- ▶ Add ThinkStation P410/P510/P710/P910 Refresh 3.0 Wave 1 models and update platform specifications

April 19, 2017 - Version 505

- ▶ New ThinkStation P320 Tower announced on April 2017
- ▶ New ThinkStation P320 SFF announced on April 2017

March 29, 2017 - Version 504

- ▶ Added ThinkStation P310 Tower and SFF models announced on March 2017
- ▶ Added ThinkStation P410 models announced on March 2017

January 25, 2017 - Version 501

- ▶ Update quantity of PCIe SSD adapter in ThinkStation P510/P910

January 4, 2017 - Version 500

- ▶ Added ThinkStation P310 models announced on December 2016

December 14, 2016 - Version 499

- ▶ Added ThinkStation P410/P510/P710/P910 EMEA models
- ▶ Added 1TB M.2 PCIe SSD, Quadro P5000, Quadro P6000 support on ThinkStation P510/P710/P910
- ▶ Added Quadro P5000 support on ThinkStation P410
- ▶ Added 6TB 7.2K SATA6Gbs HDD support on ThinkStation P410/P510/P710/P910
- ▶ Added ThinkStation P410/P510/P710/P910 models announced on December 2016

November 23, 2016 - Version 498

- ▶ Removed ThinkStation P500/P900 due to EOL
- ▶ Added ThinkStation P310 Tower and SFF models announced on November 2016

October 12, 2016 - Version 496

- ▶ Removed flash option on ThinkStation P510/P710/P910
- ▶ Added ThinkStation P310/P410/P510/P710/P910 models announced on September 2016

August 3, 2016 - Version 493

- ▶ Removed ThinkStation P500/P700/P900 Windows 7 DG from Win8.1 U.S. models
- ▶ Added keyboard and mouse features on all ThinkStation

July 13, 2016 - Version 492

- ▶ Added ThinkStation P500, P700, and P900 Windows 10 downgrade to Windows 7 models
- ▶ Updated Maximum configuration weight of ThinkStation P410
- ▶ Added ThinkStation P710 and P910 models announced on on July 2016
- ▶ Added "Maximum drives in 3.5" bay" feature on ThinkStation P500/P510/P700/P710/P900/P910

June 22, 2016 - Version 491

- ▶ Added new product ThinkStation P410/P510
- ▶ Added NVIDIA Quadro M2000 on ThinkStation P310 Tower
- ▶ Added keyboard and mouse information on ThinkStation P710/P910
- ▶ Added internal USB information on ThinkStation P710/P910

June 2, 2016 - Version 490

- ▶ Added ThinkStation P710/P910 US models
- ▶ Updated ThinkStation P710/P910 processor information

May 19, 2016 - Version 489

- ▶ Added NVIDIA Quadro M2000 on compatible product
- ▶ Updated maximum weight on ThinkStation P710
- ▶ Removed 30AT000BUS

April 27, 2016 - Version 488

- ▶ Added ThinkStation P710 and P910 models for EMEA, announced on April 2016
- ▶ Updated Energy star information on ThinkStation P500/P700/P710/P900/P910

April 6, 2016 - Version 487

- ▶ New ThinkStation P710 and P910, announced April 5, 2016 (specification only)

March 23, 2016 - Version 486

- ▶ Added processors specifications for P310/P500/P700/P900

February 24, 2016 - Version 485

- ▶ Added ThinkStation P310 and P700 models for US, announced on February 2016
- ▶ Added ThinkStation P700 and P900 models for EMEA, announced on February 2016

December 9, 2015 - Version 482

- ▶ New ThinkStation P310 Tower and SFF, announced November 24, 2015

November 18, 2015 - Version 481

- ▶ Combines ThinkStation PSREF United States version and Western Europe version.
- ▶ Extends the supported GEO into Europe, Middle East and Africa.
- ▶ Covers all TopSeller and Relationship models for US and all focus models for EMEA

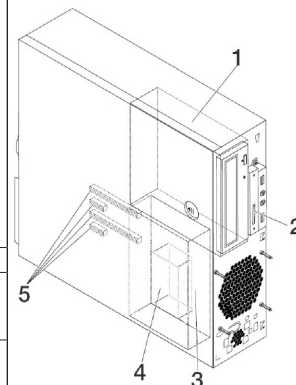


ThinkStation P320 SFF Platform Specifications

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 "Kabylake" or "Skylake" processor as listed: "Kaby Lake"																																			
	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 i7-7700	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"																																			
	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 NVIDIA Quadro P1000. Supports the following NVIDIA graphic adapters:																																			
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connector</th> </tr> </thead> <tbody> <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>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> </tbody> </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	Quadro P400	256	2GB	30W	3xminiDP	Quadro P600	384	2GB	40W	4xminiDP	Quadro P1000	640	4GB	47W	4xminiDP
	Adapter	Cores	Memory	Power	Connector																															
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	Quadro P600	384	2GB	40W	4xminiDP																															
Quadro P1000	640	4GB	47W	4xminiDP																																
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* support * RAID 5 needs three 2.5" SSD drives.																																			
Drive Bays	One external 5.25" bay, one internal 3.5" bay (see right). Up to one 9mm optical + 2 x 3.5" disk drive bays + 1 x 2.5" disk drive bay + two M.2 NVMe SSD																																			
Supporting disk drives	3.5" SATA HDD (7.2K 6Gbs)	1TB/2TB/4TB/1TB hybrid/2TB hybrid																																		
	2.5" SATA SSD (6Gbs)	256GB Opal/512GB/512GB Opal/1TB Opal/2TB opal																																		
	M.2 NVMe SSD, via PCIe adapter	256GB Opal/512GB Opal/1TB Opal, via PCIe 3.0 x4 adapter, up to 2; or 16GB Intel Optane Memory, PCIe 3.0 x2																																		
Max internal storage	10TB (2 x 4TB 3.5" HDDs + 1 x 2TB 2.5" SSD) plus two 1TB M.2 NVMe SSD																																			
Media reader	9-in-1 card reader. Optional 29-in-1 card reader on selected models																																			
Power supply	210 watts with variable speed fan, autosensing, Climate Savers Computing Bronze, 80 PLUS Bronze qualified																																			
Onboard Ethernet	One onboard gigabit ethernet, Intel I219LM, supports Wake-on-LAN																																			
HD Audio	Realtek ALC662 codec																																			
TPM	Standard, TCG 2.0-compliant																																			

Components	Specification
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	<ul style="list-style-type: none"> Raven black color; metal case 4.02"W x 15.53"D x 13.31"H 102mm W x 394.5mm D x 338mm H 17.2 lb (7.9kg) max configuration 12.9-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	5.25", supports one of the following: HH optical/flex module***/9mm optical+3.5" HDD bay/ 3.5" HDD bay/Front Access Storage Enclosure *** Flex module supports one or more of the following: 9mm optical/ 29-in-1 reader/front IEEE 1394/front eSATA. Up to one flex module is supported per system.
Bay 2	Optional 9-in-1 single slot reader
Bay 3	Standard 3.5" HDD bay
Bay 4	Optional 2.5" HDD bay (under Bay 3)
5 -Slots	Four PCIe slots (top-down): Slot 1: Low Profile, PCIe 3.0 x16 (near CPU) Slot 2: Low Profile, PCIe 3.0 x1 Slot 3: Low Profile, PCIe 3.0 x16 (x4 elec) Slot 4: Low Profile, PCIe 3.0 x1

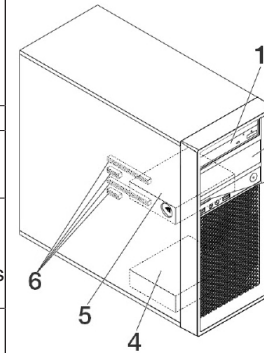


ThinkStation P320 Tower Platform Specifications

Product Specifications Reference (PSREF)

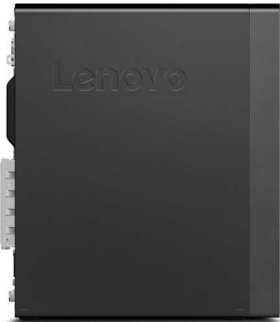
Components	Specification					
Chipset	Intel C236 Chipset					
Intel AMT	Intel Active Management Technology 11 on Xeon models, Intel Standard Manageability on other models					
Processor	One Intel "Kaby Lake" or "Skylake" processor as listed: "Kaby Lake"					
	Xeon E3-1280 v6	4C/3.9GHz/8MB/72W/DDR4-2400				
	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				
	Processor	"Skylake"				
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/3.9GHz/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:				
		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)	1TB/2TB/4TB/1TB hybrid/2TB hybrid				
	2.5" SATA SSD (6Gbs)	256GB Opal/512GB/512GB Opal/1TB Opal/2TB opal				
	M.2 NVMe SSD, via PCIe adapter	256GB Opal/512GB Opal/1TB Opal, PCIe 3.0 x4, up to 2; or 16GB Intel Optane Memory, PCIe 3.0 x2				
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.
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	<ul style="list-style-type: none"> 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 x16 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.

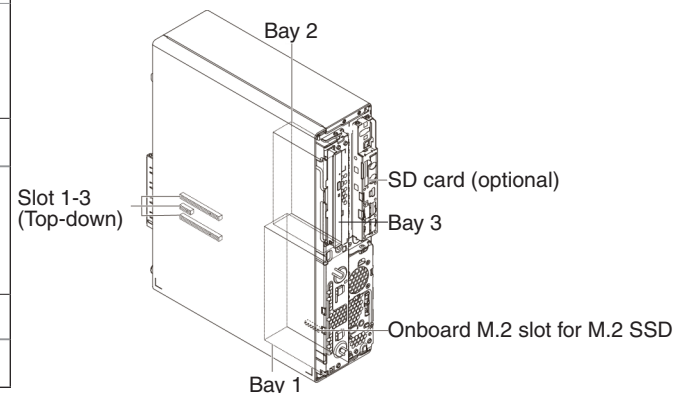


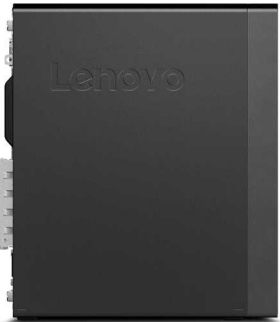
ThinkStation P330 SFF Platform Specifications

Components	Specification																								
Machine Type	MT 30C7 for Transactional model and MT 30C8 for Relationship model. For configuration of all 30C7 EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_SFF																								
Form factor	8.4L mini-tower																								
Dimensions	Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)																								
Weight	Maximum configuration: 13.23 lb (6.0kg)																								
Processor	Up to one Intel Xeon E-2100 family processor, up to 80W, up to 6 cores at 3.7GHz, up to 3.8GHz with 4 cores, up to 12MB cache, DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 65W, up to 6 cores at 3.2GHz, up to 3.7GHz with 4 cores, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium G5400 via Special Bids, 58W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed																								
Chipset	Intel C246 Chipset																								
Memory	4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed																								
Memory capacity	Up to 64GB with 4x 16GB, both ECC and non-ECC																								
Memory protection	ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM																								
Expansion slots	Three PCIe 3.0 slots as following:																								
	Slot 1 PCIe 3.0 x16, low profile, links to CPU																								
	Slot 2 PCIe 3.0 x1, low profile, links to PCH																								
	Slot 3 PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH																								
Graphics - Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400. Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI. HDMI is optional) on rear																								
Graphics - Discrete graphics card	Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:																								
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connectors</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>Quadro P400</td> <td>256</td> <td>2GB GDDR5</td> <td>30W</td> <td>3x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB GDDR5</td> <td>47W</td> <td>4x miniDP</td> <td>2</td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connectors	Max qty	Quadro P400	256	2GB GDDR5	30W	3x miniDP	2	Quadro P620	512	2GB GDDR5	40W	4x miniDP	2	Quadro P1000	640	4GB GDDR5	47W	4x miniDP	2
	Adapter	Cores	Memory	Power	Connectors	Max qty																			
	Quadro P400	256	2GB GDDR5	30W	3x miniDP	2																			
	Quadro P620	512	2GB GDDR5	40W	4x miniDP	2																			
Quadro P1000	640	4GB GDDR5	47W	4x miniDP	2																				
Storage controllers	Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD																								
Internal storage bay	Up to 3 bays with two disk bays and one slim optical bay:																								
	Bay 1 Primary 3.5" SATA bay																								
	Bay 2 2.5" SATA bay Bay 3 9mm Slim ODD bay																								
Disks	3.5" HDD supports up to 4TB each, 6Gbps SATA, 7.2K. 2.5" SSD supports up to 1TB each, 6Gbps SATA																								
M.2 slot for SSD	Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH, When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models																								
M.2 SSD	M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint																								
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps																								

Components	Specification
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional rear ports	2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. 1x Audio line-out <i>Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor</i>
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 210W or 260W power supply. 210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified. 260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](#)





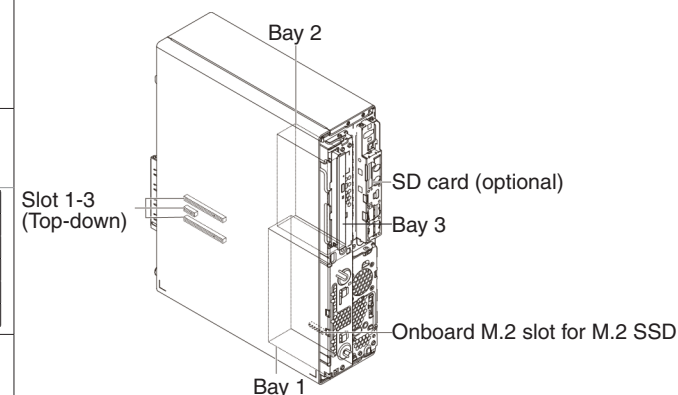
ThinkStation P330 SFF Gen 2 (30D1 and 30D2) Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																														
Form factor	8.4L mini-tower																														
Dimensions	Height: 343.5 mm (13.5 in). Width: 92.5 mm (3.6 in). Depth: 305.6 mm (12 in)																														
Weight	Maximum configuration: 13.23 lb (6.0kg)																														
Processor	<p>Supports one of the following processor:</p> <ul style="list-style-type: none"> Xeon E-2278G 8C/16T/3.4GHz/16MB/80W/DDR4-2666 (260W PSU needed) Xeon E-2276G 6C/12T/3.8GHz/12MB/80W/DDR4-2666 Xeon E-2274G 4C/8T/4.0GHz/8MB/83W/DDR4-2666 Xeon E-2246G 6C/12T/3.6GHz/12MB/80W/DDR4-2666 Xeon E-2244G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 Xeon E-2236 6C/12T/3.4GHz/12MB/80W/DDR4-2666 Xeon E-2234 4C/8T/3.6GHz/8MB/71W/DDR4-2666 Xeon E-2226G 6C/6T/3.4GHz/12MB/80W/DDR4-2666 Xeon E-2224G 4C/4T/3.5GHz/8MB/71W/DDR4-2666 Xeon E-2224 4C/4T/3.4GHz/8MB/71W/DDR4-2666 Xeon E-2174G 4C/8T/3.8GHz/8MB/71W/DDR4-2666 Core i9-9900 8C/16T/3.1GHz/16MB/65W/DDR4-2666 Core i7-9700 8C/8T/3.0GHz/12MB/65W/DDR4-2666 Core i7-8700 6C/12T/3.2GHz/12MB/65W/DDR4-2666 Core i5-9600 6C/6T/3.1GHz/9MB/65W/DDR4-2666 Core i5-9500 6C/6T/3.0GHz/9MB/65W/DDR4-2666 Core i5-9400 6C/6T/2.9GHz/9MB/65W/DDR4-2666 Core i5-8500 6C/6T/3.0GHz/9MB/65W/DDR4-2666 Core i3-9300 4C/4T/3.7GHz/8MB/62W/DDR4-2400 Core i3-9100 4C/4T/3.6GHz/6MB/65W/DDR4-2400 Core i3-8300 4C/4T/3.7GHz/8MB/62W/DDR4-2400 Core i3-8100 4C/4T/3.6GHz/6MB/65W/DDR4-2400 Pentium Gold G5620 2C/4T/4.0GHz/4MB/54W/DDR4-2400 																														
Chipset	Intel C246 Chipset																														
Memory Sockets	4 DIMM sockets with 2 channels																														
Memory Types	8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC																														
Memory Capacity	64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC																														
Memory Protection	ECC on models with UDIMM ECC memory																														
Expansion slots	<p>Three PCIe 3.0 slots as following:</p> <table border="1"> <tr> <td>Slot 1</td> <td>PCIe 3.0 x16, low profile, links to CPU</td> </tr> <tr> <td>Slot 2</td> <td>PCIe 3.0 x1, low profile, links to PCH</td> </tr> <tr> <td>Slot 3</td> <td>PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH</td> </tr> </table>	Slot 1	PCIe 3.0 x16, low profile, links to CPU	Slot 2	PCIe 3.0 x1, low profile, links to PCH	Slot 3	PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH																								
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Slot 2	PCIe 3.0 x1, low profile, links to PCH																														
Slot 3	PCIe 3.0 x16 (negotiable link width x4), low profile, links to PCH																														
Processor graphics	<p>Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i5 or i3 processors.</p> <p>Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)</p>																														
Discrete graphics card	<p>Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:</p> <table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connectors</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>Quadro P400</td> <td>256</td> <td>2GB GDDR5</td> <td>30W</td> <td>3x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> <td>2</td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB GDDR5</td> <td>47W</td> <td>4x miniDP</td> <td>2</td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connectors	Max qty	Quadro P400	256	2GB GDDR5	30W	3x miniDP	2	Quadro P620	512	2GB GDDR5	40W	4x miniDP	2	Quadro P1000	640	4GB GDDR5	47W	4x miniDP	2						
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Storage Support	<table border="1"> <thead> <tr> <th>Disk Type</th> <th>Interface</th> <th>RPM</th> <th>Offering</th> <th>Max Qty</th> </tr> </thead> <tbody> <tr> <td>3.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>1TB/2TB/4TB</td> <td>1</td> </tr> <tr> <td>2.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>500GB FIPS</td> <td>2</td> </tr> <tr> <td>2.5" SATA SSD</td> <td>SATA 6Gb/s</td> <td></td> <td>256GB/512GB/1TB</td> <td>2</td> </tr> <tr> <td>Optane Memory</td> <td>PCIe NVMe</td> <td></td> <td>32GB</td> <td>1, used with HDD/SSD</td> </tr> <tr> <td>M.2 PCIe SSD</td> <td>PCIe NVMe</td> <td></td> <td>256GB/512GB/1TB</td> <td>3</td> </tr> </tbody> </table>	Disk Type	Interface	RPM	Offering	Max Qty	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	1	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	2	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	2	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3
Disk Type	Interface	RPM	Offering	Max Qty																											
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	1																											
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	2																											
2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	2																											
Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD																											
M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3																											
Storage bay	<p>Up to 3 bays with two disk bays and one slim optical bay:</p> <table border="1"> <tr> <td>Bay 1</td> <td>Primary 3.5" SATA bay</td> </tr> <tr> <td>Bay 2</td> <td>2.5" SATA bay (Optional)</td> </tr> <tr> <td>Bay 3</td> <td>9mm Slim ODD bay</td> </tr> <tr> <td>M.2</td> <td>3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)</td> </tr> </table>	Bay 1	Primary 3.5" SATA bay	Bay 2	2.5" SATA bay (Optional)	Bay 3	9mm Slim ODD bay	M.2	3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)																						
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Bay 3	9mm Slim ODD bay																														
M.2	3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)																														

Components	Specification
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional rear ports	<p>Supports the following via cable:</p> <p>1x COM. 1x Parallel. 2x PS/2. 1x DP or 1x HDMI. 2x USB 2.0</p> <p>Supports the following via PCIe adapter:</p> <p>4x COM. 2x USB 3.1 Type-C. 2x USB 3.0. 1x Thunderbolt. <i>Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor</i></p>
Temperature	<p>Operating: 41 °F to 104 °F (10 °C to 35 °C)</p> <p>Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C)</p> <p>Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)</p>
Altitude	<p>Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft).</p> <p>Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)</p>
Humidity	<p>Operating: 30%-90%, non-condensing</p> <p>Storage (with package): 20%-90%, non-condensing</p>
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	<p>Supports one 210W or 260W power supply.</p> <p>210W is 100V - 240V, 85% PSU, Climate Savers Computing Bronze and 80 PLUS Bronze qualified.</p> <p>260W is 100V - 240V, 92% PSU, Climate Savers Computing Platinum and 80 PLUS Platinum qualified</p>
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)





ThinkStation P330 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification	Components	Specification															
Machine Type	MT 30CF for Transactional model and MT 30CE for Relationship model. For configuration of all 30CF EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tiny	Intel vPro Technology	Supports vPro on models with the following processors: Core i7-8700T, Core i7-8700, Core i5-8600T, Core i5-8600, Core i5-8500T, Core i5-8500. vPro also requires Wireless-AC 9560 if Wi-Fi is needed															
Form factor	1L. Optional VESA mount bracket kit, supports VESA 75mm and 100mm. Optional floor stand for vertical orientation. Optional tool-less chassis open. Optional dust filter	Systems management	Intel Active Management Technology 12 on vPro models, Intel Standard Manageability on other models															
Dimensions	Height: 179 mm (7.0 in). Width: 36.5 mm (1.437 in). Depth: 182.9 mm (7.2 in)	Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs															
Weight	Maximum configuration: 3.08 lb (1.4kg)	HD Audio	Intel HD Audio interface with Realtek ALC233 Codec															
Supported TIO monitors	Tiny-in-One 23 (MT: 10DQ). Tiny-in-One 22 (MT: 10LK). Tiny-in-One 24 (MT: 10LL). Tiny-in-One22 Gen3 (MT: 10R1). Tiny-in-One22 Gen3 Touch (MT: 10R0). Tiny-in-One24 Gen3 (MT: 10QY). Tiny-in-One24 Gen3 Touch (MT: 10QX).	Front standard ports	1x USB 3.1 Gen 1 Type A (charging). 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack															
		Rear standard ports	2x USB 3.1 Gen 2 Type A. 2x USB 3.1 Gen 1 Type-A. 1x RJ-45. 1x DP. 1x HDMI															
Processor	Up to one Intel Core family processor, i7, i5, or i3. Core i7 supports 65W or 35W, 6 cores, up to 3.2GHz, 12MB cache, DDR4-2666 memory speed. Core i5 supports 65W or 35W, 6 cores, up to 3.1GHz, 9MB cache, DDR4-2666 memory speed. Core i3 supports 65W, 62W, or 35W, 4 cores, up to 3.7GHz, 6MB or 8MB cache, DDR4-2400 memory speed.	Optional rear ports - via punch out cable	Up to two optional rear ports via punch out cable. Port 1 supports one of the following: 1x USB 3.1 Gen 1 Type-C, also supports DP function. 1x COM. 1x VGA. 1x DP. 1x HDMI. Port 2 supports one COM															
Chipset	Intel Q370 Chipset	Optional rear ports - via PCIe adapter	Supports one of the following: 4x miniDP with Quadro P620 or P1000, 35W processor models only 2x USB 3.1 Gen 1. 4x RJ-45 GbE with Intel I350-T4. 4x COM <i>Note: Punch out cable and PCIe adapter are mutually exclusive</i>															
Memory	2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECC	Temperature	Operating: 50 °F to 95 °F (10 °C to 35 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)															
Expansion slots	One PCIe slot via specific riser card: PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card; PCIe 3.0 x4 and low profile for i350-T4 adapter and quad COM ports adapter	Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)															
Graphics	65W or 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter	Humidity	Operating: 20%~80%, non-condensing Storage (with package): 20%~90%, non-condensing															
Graphics - Processor graphics	Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display	MIL-SPEC	Certified															
Graphics - Discrete graphics card	One of the following discrete graphics cards on 35W processor models:	Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified															
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Cores</th> <th>Memory</th> <th>Power</th> <th>Connectors</th> </tr> </thead> <tbody> <tr> <td>Quadro P620</td> <td>512</td> <td>2GB GDDR5</td> <td>40W</td> <td>4x miniDP</td> </tr> <tr> <td>Quadro P1000</td> <td>640</td> <td>4GB GDDR5</td> <td>47W</td> <td>4x miniDP</td> </tr> </tbody> </table>	Adapter	Cores	Memory	Power	Connectors	Quadro P620	512	2GB GDDR5	40W	4x miniDP	Quadro P1000	640	4GB GDDR5	47W	4x miniDP	Power supply	Supports one 135W power adapter, 100V - 240V, 88% PSU
	Adapter	Cores	Memory	Power	Connectors													
Quadro P620	512	2GB GDDR5	40W	4x miniDP														
Quadro P1000	640	4GB GDDR5	47W	4x miniDP														
		ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/															
Storage controllers	Integrated Intel SATA AHCI controller in chipset, 6Gbps SATA, one onboard SATA port for 2.5" HDD																	
Internal storage bay	Up to one 2.5" HDD																	
Disks	2.5" HDD supports up to 1TB, 6Gbps SATA, 7.2K or 5.4K																	
M.2 slot for SSD	Two onboard M.2 slots for M.2 SSD, one for M.2 2280 SSD, one for M.2 2280 or 2242 SSD																	
M.2 SSD	M.2 2280 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, optional Opal. M.2 2242 SSD supports up to 128GB, PCIe 3.0 x2, NVMe																	
Optane memory	Up to one 16GB Optane memory per system. Optane memory must work with a 2.5" HDD																	
M.2 slot for Wi-Fi and Bluetooth	One dedicated M.2 2230 slot for optional Wi-Fi card, supports one of the following: Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps. Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps. <i>Note: Wi-Fi card, or specific functions of Wi-Fi card may not be supported in some countries</i>																	
Wi-Fi antenna	Optional Tiny 2.4GHz/5GHz SMA antenna kit																	
Optical	Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW. VESA mount is required																	
Media reader	None. Using USB adapter																	
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional Intel i350-T4 for 4x GbE ports, using PCIe slot																	
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Chassis intrusion switch. Optional Kensington lock																	

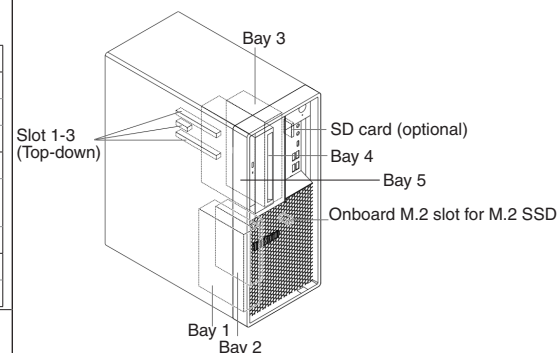


ThinkStation P330 Tower Platform Specifications

Components	Specification																																																																								
Machine Type	MT 30C5 for Transactional model and MT 30C6 for Relationship model. For configuration of all 30C5 EMEA and US models, please visit: http://psref.lenovo.com/Product/ThinkStation/ThinkStation_P330_Tower																																																																								
Form factor	18L Tower																																																																								
Dimensions	Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)																																																																								
Weight	Maximum configuration: 23.4 lb (10.6kg)																																																																								
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core family processor, i7, i5, or i3, up to 95W, up to 6 cores at 3.7GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one Intel Pentium Gold G5400 via Special Bids, 54W, 2 cores at 3.7GHz, 4MB cache, DDR4-2400 memory speed																																																																								
Chipset	Intel C246 Chipset																																																																								
Memory	4 DIMM sockets. DDR4-2666. UDIMM. ECC and non-ECC are supported, but memory types cannot be intermixed																																																																								
Memory capacity	Up to 64GB with 4x 16GB, both ECC and non-ECC																																																																								
Memory protection	ECC with ECC UDIMM. Core i7 and i5 processors cannot support ECC UDIMM																																																																								
Expansion slots	Three PCIe 3.0 slots as following:																																																																								
	Slot 1 PCIe 3.0 x16, full height, half length, links to CPU																																																																								
	Slot 2 PCIe 3.0 x1, full height, full length, links to PCH																																																																								
	Slot 3 PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH																																																																								
Graphics - Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, or i3 processors, or Intel UHD Graphics 610 in Pentium Gold G5400. Works along with discrete graphics to support multi-display, enables three display connectors (2x DP, 1x HDMI. HDMI is optional) on rear																																																																								
Graphics - Discrete graphics card	Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:																																																																								
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	Adapter	Cores	Memory	Power	Connectors	Max qty																																																																			
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<i>Notes:</i>																																																																									
1. Quadro P4000, 2x Quadro P2000, Geforce GTX1060/1070/1080 needs 400W PSU.																																																																									
2. Geforce GTX 1060/1070/1080 are dual-slot width.																																																																									
3. Geforce GTX 1060/1070/1080 and Radeon Pro WX 3100/4100 are SBO.																																																																									
Storage controllers	Integrated Intel SATA AHCI/RAID controller in chipset, 6Gbps SATA, RAID 0/1/10/5. Four onboard SATA ports for max 4 SATA HDD/SSD/ODD																																																																								
Internal storage bay	Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD																																																																								
	Bay 1 Primary disk bay, 3.5" or 2.5"																																																																								
	Bay 2 2.5" SATA bay, cannot be available when 2nd Quadro P2000 is used																																																																								
	Bay 3 Secondary disk bay, 3.5" or 2.5"																																																																								
	Bay 4 5.25" Flex bay, supports one of the following: <ul style="list-style-type: none"> Flex module for optional front eSATA/Thunderbolt/IEEE1394 3rd disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode 3rd disk bay, 3.5" or 2.5", via 5.25" to 3.5" HDD Kit M.2 drive, via Front removable M.2 enclosure, also occupies slot 1 or 3 																																																																								
	Bay 5 9mm Slim ODD bay																																																																								
Disks	3.5" HDD supports up to 4TB each, 6Gbps SATA, 7.2K 2.5" SSD supports up to 1TB each, 6Gbps SATA																																																																								

Components	Specification
M.2 slot for SSD	Up to 3x M.2 SSD with one dedicated onboard M.2 slot plus two PCIe to M.2 adapters. PCIe to M.2 adapter uses slot 1 or 3. Supports RAID 0/1 with PCH, When used as RAID, M.2 SSD should be installed in onboard M.2 slot and slot 3. Up to one Optane memory per system; Optane memory must work with a HDD or SSD; Optane memory cannot supported on Pentium G5400 models
M.2 SSD	M.2 SSD supports up to 1TB each, PCIe 3.0 x4, NVMe, Opal. Optane memory supports 32GB, PCIe 3.0 x2, NVMe, 3D Xpoint
M.2 slot for Wi-Fi and Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps
Media reader	Optional SD card reader on most models
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>
Optional front ports (on flex module)	2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394
Optional rear ports	2x USB 3.1 Type-C. 1x COM. PS/2. 1x Parallel. 1x Thunderbolt. 1x IEEE1394. 1x HDMI. <i>Notes: HDMI needs Core, Pentium, or -G suffix Xeon processor</i>
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%-90%, non-condensing Storage (with package): 20%-90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)





ThinkStation P330 Tower Gen 2 (30CY and 30D0) Platform Specifications - I of II

Product Specifications Reference (PSREF)

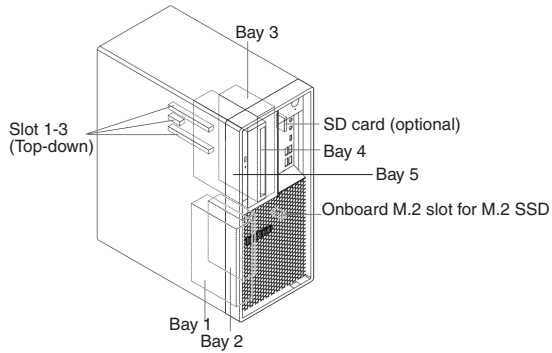
Components	Specification																																																																																																																																																						
Form factor	18L Tower																																																																																																																																																						
Dimensions	Height: 376 mm (14.8 in). Width: 165 mm (6.5 in). Depth: 328 mm (12.9 in)																																																																																																																																																						
Weight	Maximum configuration: 28.22 lb (12.8kg)																																																																																																																																																						
Processor	Supports one of the following processors:																																																																																																																																																						
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Chipset	Intel C246 Chipset																																																																																																																																																						
Memory Sockets	4 DIMM sockets with 2 channels																																																																																																																																																						
Memory Types	8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB DDR4-2666 UDIMM non-ECC																																																																																																																																																						
Memory Capacity	64B with 4 x 16GB, both UDIMM ECC or UDIMM non-ECC																																																																																																																																																						
Memory Protection	ECC on models with UDIMM ECC memory																																																																																																																																																						
Expansion slots	Three PCIe 3.0 slots as following:																																																																																																																																																						
	Slot 1 PCIe 3.0 x16, full height, half length, links to CPU																																																																																																																																																						
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Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i7, i5, i3, or Pentium processors. Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 DP or HDMI optional)																																																																																																																																																						
Discrete Graphics Offering	Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:																																																																																																																																																						
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Components	Specification																														
Storage Controller	Storage Controller																														
	Onboard Intel RST SATA RAID																														
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Storage Support	<table border="1"> <thead> <tr> <th>Disk Type</th> <th>Interface</th> <th>RPM</th> <th>Offering</th> <th>Max Qty</th> </tr> </thead> <tbody> <tr> <td>3.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>1TB/2TB/4TB</td> <td>3</td> </tr> <tr> <td>2.5" SATA HDD</td> <td>SATA 6Gb/s</td> <td>7.2K</td> <td>500GB FIPS</td> <td>4</td> </tr> <tr> <td>2.5" SATA SSD</td> <td>SATA 6Gb/s</td> <td></td> <td>256GB/512GB/1TB</td> <td>4</td> </tr> <tr> <td>Optane Memory</td> <td>PCIe NVMe</td> <td></td> <td>32GB</td> <td>1, used with HDD/SSD</td> </tr> <tr> <td>M.2 PCIe SSD</td> <td>PCIe NVMe</td> <td></td> <td>256GB/512GB/1TB</td> <td>3</td> </tr> </tbody> </table>	Disk Type	Interface	RPM	Offering	Max Qty	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	3	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	4	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	4	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3
	Disk Type	Interface	RPM	Offering	Max Qty																										
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	3																										
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	Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD																										
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Storage Bays	Up to five bays with four disk bays plus one slim optical bay, supports up to 3x 3.5" HDD plus 1x 2.5" SSD, or 4x 2.5" HDD/SSD																														
	Bay 1 Primary disk bay, 3.5" or 2.5"																														
	Bay 2 2.5" SATA bay, cannot be available when 2nd Quadro P2000 is used																														
	Bay 3 Secondary disk bay, 3.5" or 2.5"																														
	Bay 4 5.25" Flex bay, supports one of the following: <ul style="list-style-type: none"> Flex module for optional front eSATA/Thunderbolt/IEEE1394 3rd disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode 3rd disk bay, 3.5" or 2.5", via 5.25" to 3.5" HDD Kit 																														
	Bay 5 9mm Slim ODD bay																														
M.2 3x M.2 SSD (1 onboard, 2 via PCIe to M.2 adapter)																															
Media reader	Optional SD card reader on most models																														
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available																														
WLAN + Bluetooth	One dedicated onboard M.2 slot for optional Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5, up to 1.73Gbps																														
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Optional chassis intrusion switch, e-lock, cable lock, Kensington lock, and pad lock																														
Intel vPro	Supports Intel vPro on Xeon models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed																														
Intel AMT	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models																														
Base warranty	US models comes with 3-year limited onsite service with 9x5/NBD. 1 or 3-year limited onsite service with 9x5/NBD in EMEA or other GEOs																														
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec																														
Front ports	2x USB 3.1 Gen 1 Type A. 2x USB 3.1 Gen 2 Type A. 1x USB 3.1 Gen 1 Type-C. 1x Mic-in. 1x Combo jack																														
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out <i>Notes: DP needs Core, Pentium, or -G suffix Xeon processor</i>																														
Optional front ports (on flex module)	2x Thunderbolt (USB Type-C), one of two ports supports video-out. 1x eSATA. 1x IEEE1394																														
Optional rear ports	Supports the following via cable: 1x COM. 1x Parallel. 2x PS/2. 1x DP or 1x HDMI. 2x USB 2.0 Supports the following via PCIe adapter: 4x COM. 2x USB 3.1 Type-C. 2x USB 3.0. 1x Thunderbolt. <i>Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor</i>																														
Temperature	Operating: 41 °F to 104 °F (10 °C to 35 °C) Non operating (no package): 14 °F to 140 °F (-10 °C to 60 °C) Non operating (with package): -40 °F to 140 °F (-40 °C to 60 °C)																														

Components	Specification
Altitude	Operating: -15.2 m (-50 ft) to 3048 m (10 000 ft). Storage: -15.2 m (-50 ft) to 10, 668 m (35 000 ft)
Humidity	Operating: 30%~90%, non-condensing Storage (with package): 20%~90%, non-condensing
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Gold rating and ENERGY STAR 7 qualified
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](#)





ThinkStation P520 Platform Specifications

Product Specifications Reference (PSREF)

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 Family	Up to one 140W Intel Xeon W family processor: <ul style="list-style-type: none"> Up to 18 cores at 2.3 GHz Up to 4.0 GHz with 4 cores Up to 24.75 MB cache Up to DDR4-2666 memory speed 					
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 / 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		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: <ul style="list-style-type: none"> 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 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.0 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: <ul style="list-style-type: none"> 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 3.0 reader on flex module	
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available	
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 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)	
Rear ports	2x USB 2.0, 4x USB 3.0, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2	
Optional ports	Supports the following optional ports: Front: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: <ul style="list-style-type: none"> 1x internal USB 3.0 port 	
	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)
Environmental specification	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 Gold 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](mailto:ThinkStation_PSREF_developer)



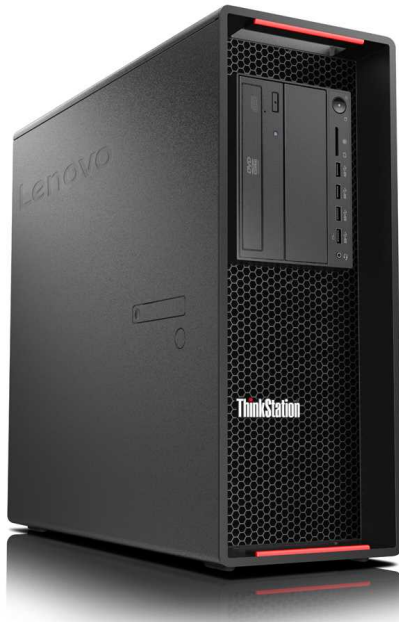
ThinkStation P520c Platform Specifications

Product Specifications Reference (PSREF)

Form factor	25L Tower					
Dimensions	175mm/6.89" W x 426mm/16.77" D x 376mm/14.8" H (with feet)					
Weight	Maximum configuration: 31.97 lb (14.5kg)					
Processor Family	Up to one 140W Intel Xeon W family processor: <ul style="list-style-type: none"> Up to 18 cores at 2.3 GHz Up to 4.0 GHz with 4 cores Up to 24.75 MB cache Up to DDR4-2666 memory speed 					
Processor Sockets	1x FCLGA2066					
Chipset	Intel C422 Chipset					
Memory Sockets	4 DIMM sockets with 4 channels					
Memory Types	DDR4-2666 RDIMM					
Memory Capacity	128GB with 4 x 32GB RDIMMs					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU)	PCIe 3.0 x16, full height, full length, 75W,				
	Slot 2 (CPU)	PCIe 3.0 x8, full height, full length, 25W, open ended				
	Slot 3 (CPU)	PCIe 3.0 x16, full height, full length, 75W				
	Slot 4 (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		1
	Quadro P400	2GB GDDR5	30W	3xminiDP		2
	Quadro P600	2GB GDDR5	45W	4xminiDP		2
	Quadro P620	2GB GDDR5	40W	4x miniDP		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		1
Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		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		
	NVMe Basic	Opt	PCIe NVMe	0/1/10		
	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	4	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	4	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	4	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	5	
Storage Bays	Bay Type	Maximum Drives Qty				
	M.2 slot	5x M.2 SSD (2 onboard, 3 via PCIe to M.2 adapter)				
	Flex Bay	2 flex bays. Supports the following: <ul style="list-style-type: none"> 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 3.0 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.0 Type-C or eSATA 2x M.2 SSD with 2x Front Removable Drive Enclosures 				
Disk bay	Up to 2x 3.5"/2.5" disks with 2 disk bays					

Max Storage	Supports up to 5x M.2 SSD + 4x 3.5" HDD/4x 2.5" SSD/4x 2.5" HDD All HDD: 24TB using 4x 3.5" HDD All SSD: 18TB using 4x 2.5" SATA SSD and 5x M.2 SSD												
Power supply	One fixed 500W, autosensing, 92%, 80 PLUS Platinum qualified												
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module												
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available												
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	ThinkStation Diagnostics for Windows. 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	2x USB 3.0, microphone (3.5mm), headphone (3.5mm)												
Rear ports	2x USB 2.0, 4x USB 3.0, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2												
Optional ports	Supports the following optional ports: Front: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: <ul style="list-style-type: none"> 1x internal USB 3.0 port 												
	Environmental specification	<table border="1"> <tr> <td>Temperature - operating</td> <td>50 °F to 95 °F (10 °C to 35 °C)</td> </tr> <tr> <td>Temperature - storage (no package)</td> <td>14 °F to 140 °F (-10 °C to 60 °C)</td> </tr> <tr> <td>Temperature - storage (with package)</td> <td>-40 °F to 140 °F (-40 °C to 60 °C)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): -50ft-10000ft (-15.2m-3048m)</td> </tr> <tr> <td>Humidity - operating</td> <td>10%~80%, non-condensing</td> </tr> <tr> <td>Humidity - storage (with package)</td> <td>10%~90%, non-condensing</td> </tr> </table>	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)
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 Gold rating. ENERGY STAR 6.1 qualified on model 30BX0008US and 30BX0009US												
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](#)



Expansion slots

Slot 1 (CPU2)	PCIe 3.0 x16, full height, full length, 75W
Slot 2 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 3 (CPU1)	PCIe 3.0 x8, full height, full length, 25W, open ended
Slot 4 (CPU1)	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

900W PSU supports two 6+2-pin aux power connectors.
690W PSU supports one 6+2-pin aux power connector.

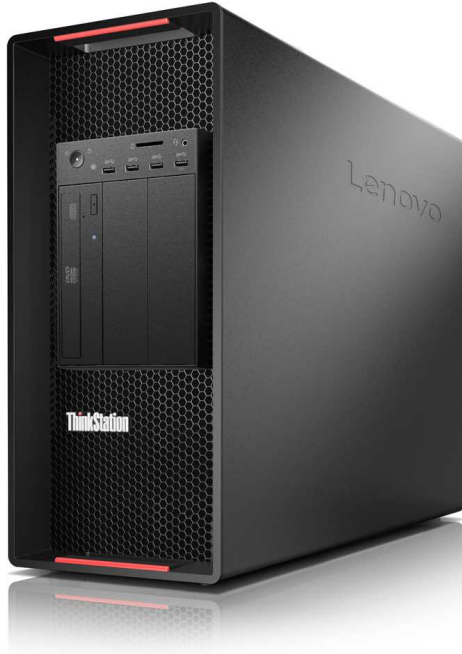
Note: All expansion cards are optional

ThinkStation P720 Platform Specifications

Form factor	36L Tower					
Dimensions	175mm/6.89" W x 485mm/19.1" D x 446mm/17.6" H (with feet)					
Weight	Maximum configuration: 52.25 lb (23.7kg)					
Processor Family	Up to two 150 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum: <ul style="list-style-type: none"> Up to 24 cores at 2.1 GHz Up to 3.6 GHz with 4 cores Up to 33 MB cache Up to DDR4-2933 memory speed 					
Processor Sockets	2x FCLGA3647					
Chipset	Intel C621 Chipset					
Memory Sockets	12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor					
Memory Types	DDR4-2666 RDIMM					
Memory Capacity	768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU2)	PCIe 3.0 x16, full height, full length, 75W				
	Slot 2 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 3 (CPU1)	PCIe 3.0 x8, full height, full length, 25W, open ended				
	Slot 4 (CPU1)	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		3
	Quadro P600	2GB GDDR5	45W	4xminiDP		3
	Quadro P620	2GB GDDR5	40W	4xminiDP		3
	Quadro P1000	4GB GDDR5	50W	4xminiDP		3
	Quadro P2000	5GB GDDR5	75W	4xDP		3
	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		1
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 (Blind connection + 9460 used)	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6 (Also supports additional 4x 2.5" SATA SSD/HDD)	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	10	
	2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB	8	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	10	
	2.5" PCIe SSD	PCIe NVMe		1.5TB	2	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9	
PCIe AIC SSD	PCIe NVMe		480GB	2		

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"> 2x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 1x 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: <ul style="list-style-type: none"> Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.0 Type-C or eSATA 2x M.2 SSD with 2x Front Removable Drive Enclosures
Disk bay	4 disk bays (2 bays standard, 2 bays optional). Supports one of the following configurations: <ul style="list-style-type: none"> 4x 3.5" SATA HDD 4x 3.5" SATA HDD + 4x 2.5" SATA SSD/HDD (Blind connection needed) 8x 2.5" SATA SSD/HDD or 8x 2.5" SAS HDD (Blind connection needed) 2x 2.5" PCIe SSD + 2x 3.5"/2.5" disks (Blind connection needed) 	
Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD	
Power supply	Supports one of the following: <ul style="list-style-type: none"> 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 3.0 reader on flex module	
Network interfaces	Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet 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. Chassis intrusion switch. 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 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)	
Rear ports	2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2	
Optional ports	Supports the following optional ports: Front: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: <ul style="list-style-type: none"> 1x internal USB 3.0 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): 0-10000ft (0-3048m)
	Humidity - operating	10%-80%, non-condensing
Humidity - storage (with package)	10%-90%, non-condensing	
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BA0007US and 30BA0008US	
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](mailto:ThinkStation_PSREF_developer)



ThinkStation P920 Platform Specifications

Product Specifications Reference (PSREF)

Form factor	55L Tower					
Dimensions	200mm/7.87" W x 620mm/24.4" D x 446mm/17.56" H (with feet)					
Weight	Maximum configuration: 71.3 lb (32.3kg)					
Processor Family	Up to two 205 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum: <ul style="list-style-type: none"> Up to 28 cores at 2.5 GHz Up to 3.6 GHz with 4 cores Up to 38.5 MB cache Up to DDR4-2933 memory speed 					
Processor Sockets	2x FCLGA3647					
Chipset	Intel C621 Chipset					
Memory Sockets	16 DIMM sockets with 12 channels. 8 DIMM sockets with 6 channels per processor					
Memory Types	DDR4-2666 RDIMM, DDR4-2666 LRDIMM, or DDR4-2933 RDIMM					
Memory Capacity	1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)					
Memory Protection	ECC					
Expansion slots	Slot 1 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 2 (CPU1)	PCIe 3.0 x4, full height, full length, 25W, open ended				
	Slot 3 (CPU1)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 4 (CPU1)	PCIe 3.0 x4, full height, full length, 25W, open ended				
	Slot 5 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended				
	Slot 6 (CPU2)	PCIe 3.0 x16, full height, half length, 75W				
	Slot 7 (CPU2)	PCIe 3.0 x16, full height, full length, 75W, double-width				
	Slot 8 (CPU2)	PCIe 3.0 x16, full height, full length, 75W				
	Discrete Graphics Offering	Graphics	Memory	Power	Connector	SLI / NVLink
NVS 810		4GB DDR3	68W	8xmini DP		2
Quadro P400		2GB GDDR5	30W	3xminiDP		5
Quadro P600		2GB GDDR5	45W	4xminiDP		4
Quadro P620		2GB GDDR5	40W	4xminiDP		4
Quadro P1000		4GB GDDR5	50W	4xminiDP		4
Quadro P2000		5GB GDDR5	75W	4xDP		4
Quadro P4000		8GB GDDR5	120W	4xDP		4
Quadro P5000		16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	3
Quadro P6000		24GB GDDR5X	250W	DVI-D DL+4xDP	SLI	3
Quadro RTX 4000		8GB GDDR6	160W	3xDP, 1xVirtualLink		3
Quadro RTX 5000		16GB GDDR6	265W	4xDP, 1xVirtualLink	NVLink	3
Quadro RTX 6000		24GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2
Quadro RTX 8000		48GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVLink	3	
Quadro GV100	32GB HBM2	250W	4xDP	NVLink	3	
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 (9460 used)	
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6 (Also supports additional 4x 2.5" SATA SSD/HDD)	
	2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	10	
	2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB	8	
	2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	10	
	2.5" PCIe SSD	PCIe NVMe		1.5TB	4	
	M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9	
PCIe AIC SSD	PCIe NVMe		480GB	2		

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	<ul style="list-style-type: none"> 2x 3.5" or 2.5" disks. Supports the following: <ul style="list-style-type: none"> 3x half-height optical drives 2x 5.25" 9.0mm optical drives 1x 5.25" 9.0mm optical drive + 1x 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: <ul style="list-style-type: none"> Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.0 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.0 Type-C or eSATA 3x M.2 SSD with 3x Front Removable Drive Enclosures 	
Disk bay	8 disk drives with 4 bays (2 bays standard, 2 bays optional). Supports one of the following configurations: <ul style="list-style-type: none"> 4x 3.5" SATA HDD 4x 3.5" SATA HDD + 4x 2.5" SATA SSD/HDD 8x 2.5" SATA SSD/HDD or 8x 2.5" SAS HDD 		
Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/10x 2.5" SSD/10x 2.5" HDD + 2x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD. All SSD: 38.96TB using 10x 2.5" SATA SSD, 9x M.2 SSD, and 2x PCIe AIC SSD		
Power supply	One fixed 1400 watts, autosensing, 92% PSU, 80 PLUS Platinum qualified. Countries with input voltage under 115V, output power limited to 1125 watts		
Media reader	SD USB 2.0 card reader on most models. Optional UHS-II 15-in-1 USB 3.0 reader on flex module		
Network interfaces	Integrated two-port gigabit ethernet (Intel i219LM and i210AT), supports Wake-on-LAN on both two ports. Optional PCIe ethernet 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. Chassis intrusion switch. 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 4-digit diagnostic display. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diagnostics for Android and iOS		
Base warranty	1 or 3-year limited onsite service with 9x5/NBD		
HD Audio	Realtek ALC662 codec		
Front ports	4x USB 3.0 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)		
Rear ports	2x USB 2.0, 4x USB 3.0, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2		
Optional ports	Supports the following optional ports:		
	<p>Front:</p> <ul style="list-style-type: none"> 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 <p>Rear:</p> <ul style="list-style-type: none"> 1x COM port 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W <p>Internal:</p> <ul style="list-style-type: none"> 1x internal USB 3.0 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): 0-10000ft (0-3048m)	
	Humidity - operating	10%~80%, non-condensing	
Humidity - storage (with package)	10%~90%, non-condensing		
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Gold rating. ENERGY STAR 6.1 qualified on model 30BC0008US and 30BC0009US		
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. Any questions or advice on ThinkStation PSREF, please contact [ThinkStation PSREF developer](mailto:ThinkStation_PSREF_developer)

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Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

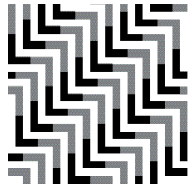
Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

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Lenovo **ThinkSystem**

PSREF



Product Specifications Reference

Version 540, April 2019

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Summary of Changes

This section describes the changes made in this version of ThinkSystem PSREF and in previous version
This edition might also include minor corrections and editorial changes which are not identified

April 3, 2019 - Version 540

- ▶ Add 2nd Xeon Scalable processor, add DDR4-2933 memory, add Intel Optane DC Persistent Memory

September 12, 2018 - Version 530

- ▶ Add ThinkSystem SR670

May 9, 2018 - Version 524

- ▶ Withdraw ThinkSystem SR650/SR630/SR550/SR530/SR850/ST550 LFOs to April 2018
- ▶ Update ThinkSystem SR650/SR630/SR590/SR530 LA LFOs to April 2018

April 18, 2018 - Version 523

- ▶ Update ThinkSystem SR650/630/550/530 LFOs to April 2018

November 29, 2017 - Version 516

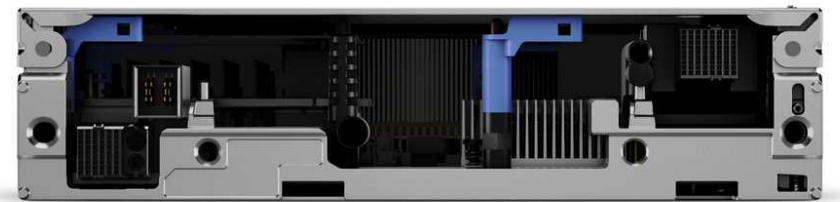
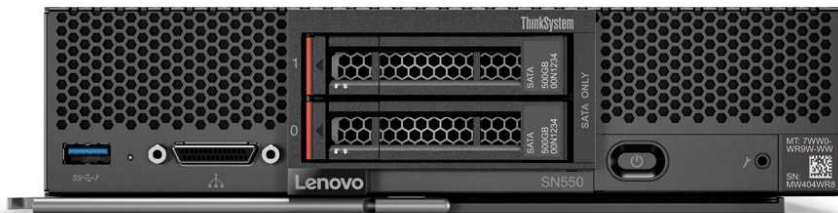
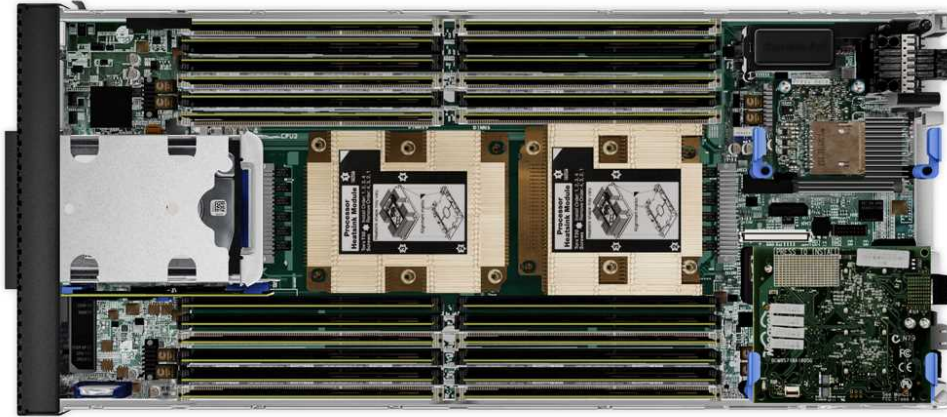
- ▶ Add new ThinkSystem SR860/SR590/SR570
- ▶ Add 128GB 3DS RDIMM, 480GB M.2 SSD, VMware ESXi 6.5U1, Red Hat Enterprise Linux 7.4 supports on compatible ThinkSystem servers

November 8, 2017 - Version 515

- ▶ Add ThinkSystem SN850/SN550/SD530 and ThinkSystem D2 Enclosure

July 12, 2017 - Version 509

- ▶ Initial version, includes ThinkSystem rack servers SR650/SR630/SR550/SR530, tower server ST550, and mission-critical servers SR850 and SR950.

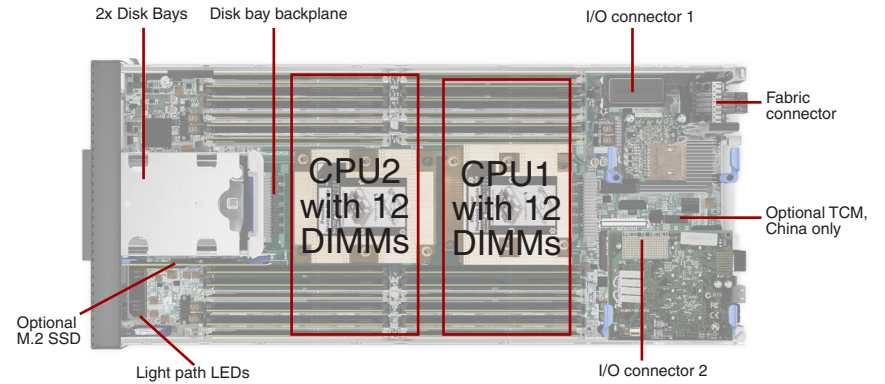


ThinkSystem SN550 Platform Specifications

Components	Specification																															
Form factor	Standard-width Flex System compute node																															
Dimensions	Height: 51 mm (2.0 in). Width: 215 mm (8.5 in). Depth: 493 mm (19.4 in)																															
Chassis support	Flex System Enterprise Chassis with CMM2																															
Weight	Maximum configuration: 15.6 lb (7.1 kg)																															
Processor	Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																															
Chipset	Intel C624 Platform Controller Hub																															
Memory	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, and 3DS RDIMMs are supported, but memory types cannot be intermixed. 3DS RDIMM is planned to available later																															
Memory capacity	Up to 768GB with 24 x 32GB RDIMMs and two processors. Or up to 1.5TB with 24 x 64GB LRDIMMs and two processors. Or up to 3TB with 24 x 128GB 3DS RDIMMs and two -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket																															
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Gold or Platinum processors), memory mirroring, and memory sparing																															
Storage controllers	Supports the following RAID/HBA adapters:																															
	<table border="1"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>930-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1	Yes	None	None	No	530-4i	12Gbps SAS	SATA/SAS	0/1	Yes	None	None	Yes	930-4i	12Gbps SAS	SATA/SAS	0/1	Yes	2GB	Flash backup
Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																									
Onboard Intel RSTe	6Gbps SATA	SATA	0/1	Yes	None	None	No																									
530-4i	12Gbps SAS	SATA/SAS	0/1	Yes	None	None	Yes																									
930-4i	12Gbps SAS	SATA/SAS	0/1	Yes	2GB	Flash backup	Yes																									
Disk drive bays	Two 2.5" hot-swap disk bays. Depending on server configuration and installed backplanes, the two bays can support SATA, SATA/SAS, or SATA/NVMe disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																															
Internal storage	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB/3.84TB																														
	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB																														
	2.5" HDD, SAS12Gbps, 7,2K	1TB/2TB																														
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																														
	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB																														
	2.5" HDD, SAS12Gbps, 10K, SED	300GB/600GB																														
	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB																														
	2.5" SSD, SAS12Gbps	400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB																														
M.2 SATA SSD	32GB/128GB/480GB																															
Network interfaces	Optional 4x 10GbE LOM with fabric connector. The fabric connector is supported to routes the four 10GbE ports to Flex system chassis midplane. Optional adapters are supported, up to 2 adapters, up to 40GbE																															
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																															
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5																															
Systems management	UEFI. Lenovo XClarity Controller with Pilot4 XE401 baseboard management controller (BMC), Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator and Lenovo XClarity Energy Manager																															
GPU support	None																															
Base warranty	MT 7X16: 3-year limited onsite service with 9x5/NBD																															
Power supply	Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.																															
Video	Integrated Matrox G200 in XClarity Controller																															
Front ports	One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional).																															
Environmental specification	Supports ASHRAE A3.																															
	Temperature - operating	A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)																														
	Temperature - non operating (no package)	5°C to 45°C (41°F to 113°F)																														
	Temperature - non operating (with package)	-40°C to 60°C (-40°F to 140°F)																														
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)																														
	Humidity - operating, non-condensing	A3:8%~85%. A2:8%~80%																														
Humidity - storage (with package), non-condensing	8%~90%																															

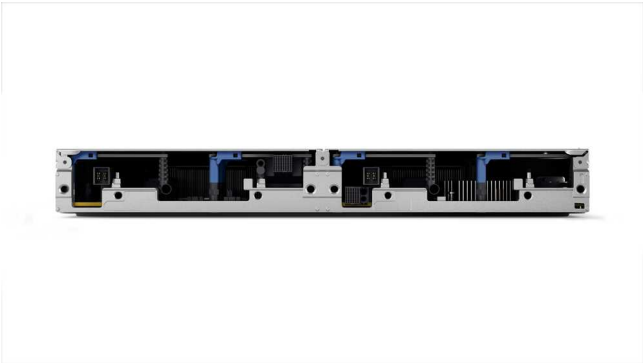
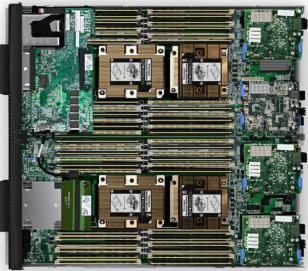
Expansion slots

Supports two PCIe 3.0 x16 I/O expansion connectors for attaching I/O adapter cards, each connector uses high-density, 216-pin PCIe connection. Please see I/O adapters below:



System unique options

7M27A03915	Lenovo SATA HDD/SSD Backplane for SN550
7M27A03916	Lenovo NVMe/SATA Backplane for SN550
7M27A03917	Lenovo RAID 930-4i-2GB 2 Drive Adapter Kit for SN550
7M27A03918	Lenovo RAID 530-4i 2 Drive Adapter Kit for SN550
7X77A01301	Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM
7X77A01302	Lenovo 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM
7X77A01303	Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
7X77A01304	Lenovo 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM
7X77A01305	Lenovo 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM
00AG540	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter
00AG590	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter
01CV780	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced
01CV790	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced
7ZT7A00502	Lenovo Mellanox ConnectX-3 Mezz 40Gb 2-Port Ethernet Adapter
7ZT7A00520	Lenovo QLogic QML2692 Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00521	Lenovo Emulex LPm16002B-L Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00522	Lenovo Emulex LPm16004B-L Mezz 16Gb 4-Port Fibre Channel Adapter
7ZT7A00508	Lenovo Mellanox ConnectX-3 Mezz FDR 2-Port InfiniBand Adapter
7Y37A01092	Lenovo M.2 Enablement Kit
7Y37A01093	Lenovo M.2 with Mirroring Enablement Kit
7N47A00129	Lenovo M.2 32GB SATA 6Gbps Non-Hot-Swap SSD
7N47A00130	Lenovo M.2 128GB SATA 6Gbps Non-Hot-Swap SSD

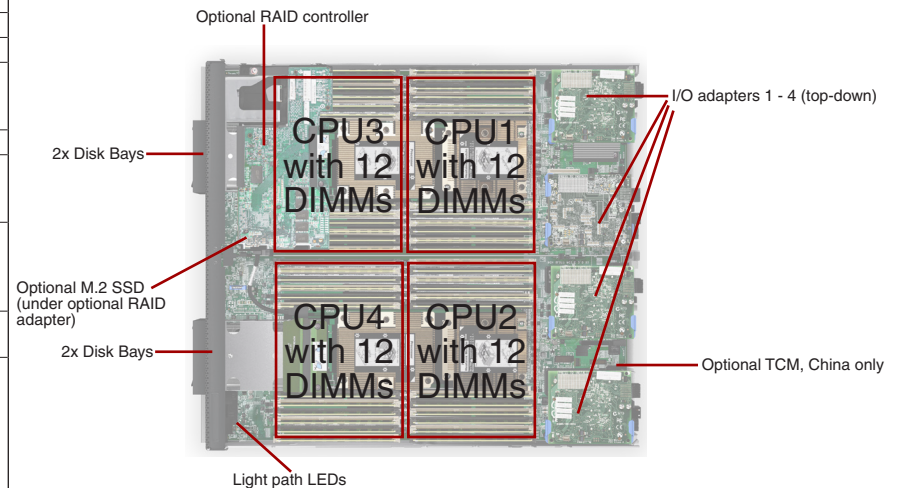


ThinkSystem SN850 Platform Specifications

Components	Specification																																
Form factor	Double-width Flex System compute node																																
Dimensions	Height: 55 mm (2.2 in). Width: 435 mm (17.1 in). Depth: 493 mm (19.4 in)																																
Chassis support	Flex System Enterprise Chassis with CMM2																																
Weight	Maximum configuration: 27 lb (12.3 kg)																																
Processor	Supports up to four 165W Intel Xeon Scalable family processors, Gold or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to three UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																																
Chipset	Intel C624 Platform Controller Hub																																
Memory	Up to 48 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. DDR4-2666. RDIMMs, LRDIMMs, and 3DS RDIMMs are supported, but memory types cannot be intermixed. 3DS RDIMM is planned to be available later																																
Memory capacity	Up to 1.5TB with 48 x 32GB RDIMMs and four processors. Or up to 3TB with 48 x 64GB LRDIMMs and four processors. Or up to 6TB with 48 x 128GB 3DS RDIMMs and four -M suffix processors. -M suffix processor supports 1.5TB memory per socket, non -M suffix processor supports 768GB memory per socket																																
Memory protection	ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs), memory mirroring, and memory sparing.																																
Storage controllers	Supports the following RAID/HBA adapters: <table border="1" data-bbox="289 560 972 662"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>930-4i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/6</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-4i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes	930-4i	12Gbps SAS	SATA/SAS	0/1/10/5/6	Yes	2GB	Flash backup	Yes
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930-4i	12Gbps SAS	SATA/SAS	0/1/10/5/6	Yes	2GB	Flash backup	Yes																										
Disk drive bays	Four 2.5" hot-swap disk bays. Depending on server configuration and installed backplanes, the four bays can support SATA, SATA/SAS, or SATA/NVMe disks. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																
Internal storage	<table border="1" data-bbox="289 743 951 938"> <tbody> <tr> <td>2.5" NVMe SSD</td> <td>800GB/960GB/1.6TB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" HDD, SATA6Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB/900GB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K</td> <td>300GB/600GB/900GB/1.2TB/1.8TB/2.4TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K, SED</td> <td>300GB/600GB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB/960GB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" SSD, SAS12Gbps</td> <td>400GB/1.6TB/15.36TB</td> </tr> <tr> <td>M.2 SATA SSD</td> <td>32GB/128GB/480GB</td> </tr> </tbody> </table>	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB/3.84TB	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB	2.5" HDD, SAS12Gbps, 10K, SED	300GB/600GB	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB	2.5" SSD, SAS12Gbps	400GB/1.6TB/15.36TB	M.2 SATA SSD	32GB/128GB/480GB														
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M.2 SATA SSD	32GB/128GB/480GB																																
Network interfaces	Optional 4x 10GbE LOM with fabric connector. The fabric connector is supported to routes the four 10GbE ports to Flex system chassis midplane. Optional adapters are supported, up to 4 adapters, up to 40GbE																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																																
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware vSphere 6.0 and 6.5																																
Systems management	UEFI. Lenovo XClarity Controller with Pilot4 XE401 baseboard management controller (BMC), Predictive Failure Analysis, light path diagnostics panel, automatic server restart, remote presence. Support for Lenovo XClarity Administrator and Lenovo XClarity Energy Manager																																
GPU support	None																																
Base warranty	MT 7X15: 3-year limited onsite service with 9x5/NBD																																
Power supply	Power to the blade server is derived from the power supplies that are installed in the chassis. There are no server options regarding power supplies.																																
Video	Integrated Matrox G200 in XClarity Controller																																
Front ports	One USB 3.0, one console breakout cable port that provides local KVM and serial ports (cable standard with chassis, more cables optional).																																
Environmental specification	Supports ASHRAE A3. <table border="1" data-bbox="289 1385 1003 1507"> <tbody> <tr> <td>Temperature - operating</td> <td>A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>5°C to 45°C (41°F to 113°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 60°C (-40°F to 140°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A3:8%~85%. A2:8%~80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%~90%</td> </tr> </tbody> </table>	Temperature - operating	A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	5°C to 45°C (41°F to 113°F)	Temperature - non operating (with package)	-40°C to 60°C (-40°F to 140°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A3:8%~85%. A2:8%~80%	Humidity - storage (with package), non-condensing	8%~90%																				
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Expansion slots

Supports four PCIe 3.0 x16 I/O expansion connectors for attaching I/O adapter cards, each connector uses high-density, 216-pin PCIe connection. Please see I/O adapters below:



System unique options

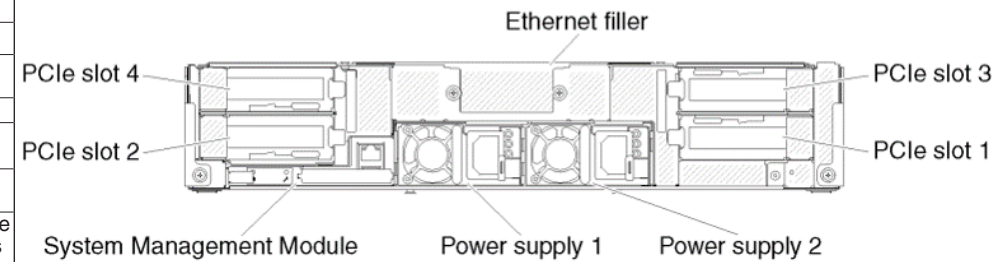
7M17A03930	Lenovo SATA HDD/SSD kit for SN850
7M17A03931	Lenovo NVMe/SATA Enablement Kit for SN850
7M17A03932	Lenovo RAID 530-4i 4 Drive Adapter Kit for SN850
7M17A03933	Lenovo RAID 930-4i-2GB 4 Drive Adapter Kit for SN850
7X77A01301	Lenovo 8GB TruDDR4 2666 MHz (1Rx8 1.2V) RDIMM
7X77A01302	Lenovo 16GB TruDDR4 2666 MHz (1Rx4 1.2V) RDIMM
7X77A01303	Lenovo 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM
7X77A01304	Lenovo 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM
7X77A01305	Lenovo 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM
00AG540	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter
00AG590	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter
01CV780	Flex System CN4052S 2-port 10Gb Virtual Fabric Adapter Advanced
01CV790	Flex System CN4054S 4-port 10Gb Virtual Fabric Adapter Advanced
7ZT7A00502	Lenovo Mellanox ConnectX-3 Mezz 40Gb 2-Port Ethernet Adapter
7ZT7A00520	Lenovo QLogic QML2692 Mezz 16Gb 2-Port Fibre Channel Adapter
7ZT7A00521	Lenovo Emulex LPm16002B-L Mezz 16Gb 2-Port Fibre Channel Adapter
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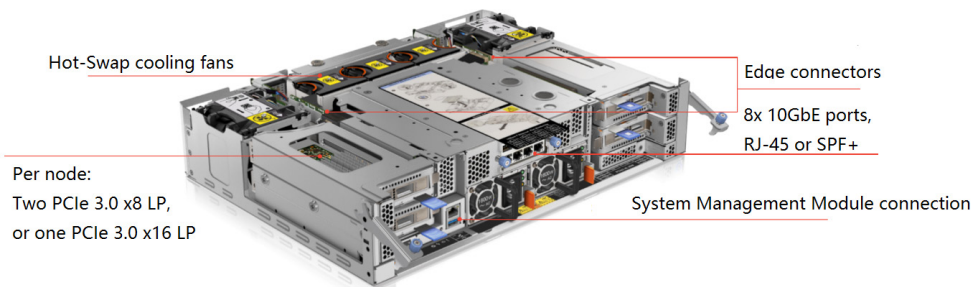
ThinkSystem D2 Enclosure Platform Specifications

Components	Specification
Form factor	2U rack
Dimensions	Height: 87 mm (3.5 in). Width: 488 mm (19.3 in). Depth: 892 mm (35.1 in)
Server support	Per enclosure: up to 4 servers per chassis Per 42U rack: up to 84 servers in 21 enclosures
Weight	Maximum configuration with four fully configured nodes: 121.2 lb (55 kg)
Network interfaces	Optional 8x 10 GbE ports Ethernet I/O Module (EIOM), SFP+ or RJ-45, two ports per server from chipset
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only
Systems management	The hot-swappable System Management Module (SMM) is the management device for the enclosure. Provides integrated systems management functions and controls the power and cooling features of the enclosure. Provides remote browser and CLI-based user interfaces for remote access via the dedicated Gigabit Ethernet port. Remote access is to both the management functions of the enclosure as well as the XClarity Controller (XCC) in each server. SMM provides four LEDs: system error, identification, status, and system power. Each power supply has AC, DC and error LEDs
Base warranty	MT 7X20: 3-year limited onsite service with 9x5/NBD
Power supply	Up to two redundant hot-swap 1100W/1600W/2000W 80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 200V - 240V, 1100W is 100V - 240V
Cooling	Five hot-swap system fans, accessible via removable panel in the top cover of the enclosure

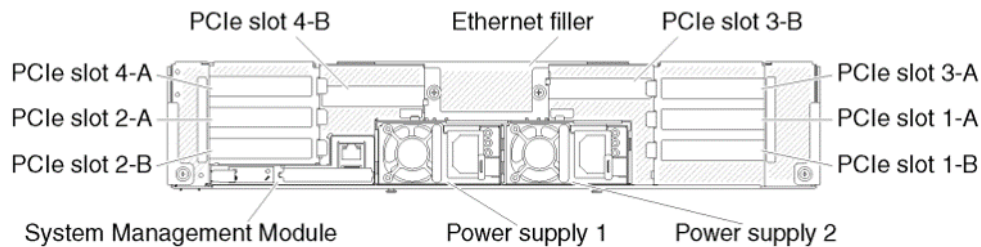
Expansion slots for PCIe 3.0 x16 models



Shuttle



Expansion slots for PCIe 3.0 x8 models



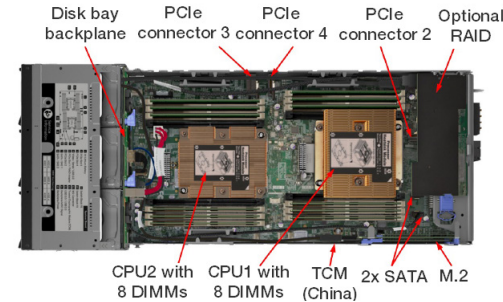


ThinkSystem SD530 Platform Specifications

Components	Specification																								
Form factor	Half-wide, 1U compute node																								
Dimensions	Height: 41 mm (1.7 in). Width: 222 mm (8.8 in). Depth: 562 mm (22.2 in)																								
Chassis support	ThinkSystem D2 Enclosure. 2U. Up to 4 ThinkSystem SD530 servers per enclosure																								
Weight	Maximum configuration: 16.6 lb (7.5 kg)																								
Processor	Up to two 165W Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.1GHz, up to 3.6GHz with 4 cores. Up to two UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																								
Chipset	Intel C624 Platform Controller Hub																								
Memory	Up to 12 or 16 DIMM sockets depending on the processor selected. Each processor supports up to 6 or 8 DIMM sockets. DDR4-2666. RDIMMs and LRDIMMs are supported, but memory types cannot be intermixed.																								
Memory capacity	16 DIMMs models: RDIMMs: Up to 512GB with 16x 32GB RDIMMs and two processors LRDIMMs: Up to 1TB with 16x 64GB LRDIMMs and two processors 12 DIMMs models: RDIMMs: Up to 384GB with 12x 32GB RDIMMs and two processors LRDIMMs: Up to 768GB with 12x 64GB LRDIMMs and two processors																								
Memory protection	ECC, Chipkill protection (for x4-based memory DIMMs), memory mirroring, and memory sparing																								
Storage controllers	Supports the following RAID adapters: <table border="1"> <thead> <tr> <th>Adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard Intel RSTe</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> </tbody> </table>	Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes
Adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																		
Onboard Intel RSTe	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																		
530-8i	12Gbps SAS	SATA/SAS	0/1/10/5	Yes	None	None	Yes																		
Disk drive bays	Up to four 2.5" hot-swap disk bays, or up to six 2.5" hot-swap disk bays, or up to six 2.5" hot-swap disk bays with two AnyBay. SAS support requires 530-8i. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																								
Internal storage	<table border="1"> <tbody> <tr> <td>2.5" NVMe SSD</td> <td>800GB/960GB/1.6TB/1.92TB</td> </tr> <tr> <td>2.5" HDD, SATA6Gbps, 7,2K</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K</td> <td>2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 7,2K, SED</td> <td>1TB/2TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 15K</td> <td>300GB/600GB/900GB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K</td> <td>300GB/600GB/900GB/1.2TB/1.8TB/2.4TB</td> </tr> <tr> <td>2.5" HDD, SAS12Gbps, 10K, SED</td> <td>2.4TB</td> </tr> <tr> <td>2.5" SSD, SATA6Gbps</td> <td>240GB/480GB/960GB/1.92TB/3.84TB</td> </tr> <tr> <td>2.5" SSD, SAS12Gbps</td> <td>400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB</td> </tr> <tr> <td>M.2 SATA SSD</td> <td>32GB/128GB</td> </tr> </tbody> </table>	2.5" NVMe SSD	800GB/960GB/1.6TB/1.92TB	2.5" HDD, SATA6Gbps, 7,2K	1TB/2TB	2.5" HDD, SAS12Gbps, 7,2K	2TB	2.5" HDD, SAS12Gbps, 7,2K, SED	1TB/2TB	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB	2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB/2.4TB	2.5" HDD, SAS12Gbps, 10K, SED	2.4TB	2.5" SSD, SATA6Gbps	240GB/480GB/960GB/1.92TB/3.84TB	2.5" SSD, SAS12Gbps	400GB/800GB/1.6TB/3.84TB/7.68TB/15.36TB	M.2 SATA SSD	32GB/128GB				
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M.2 SATA SSD	32GB/128GB																								
Network interfaces	Two 10 GbE ports, SFP+ or RJ-45, routed through the Ethernet I/O Module at the rear of the D2 Enclosure. Networking ports are based on Intel Ethernet Connection X722 in chipset																								
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 and 2.0 compliant. Optional TCM, China only																								
Operating systems supported	Microsoft Windows Server 2016, 2012 R2, Red Hat Enterprise Linux 6 and 7 x64, SUSE Linux Enterprise Server 11 and 12 x64, VMware ESXi 6.0 and 6.5																								
Systems management	Operator panel with system error LED and ID and power controls. XClarity Controller embedded management, XClarity Administrator centralized infrastructure delivery, XClarity Integrator plugins, and XClarity Energy Manager centralized server power management. Optional XClarity Controller Advanced to enable remote control functions. System Management Module (SMM) in the D2 Enclosure provides additional systemsmanagement functions																								
GPU support	None																								
Base warranty	MT 7X21: 3-year limited onsite service with 9x5/NBD																								
Power supply	Supplied by D2 Enclosure																								
Video	Integrated Matrox G200 in XClarity Controller																								
Front ports	Optional KVM breakout module for one USB 3.0 and one console breakout cable port for local KVM and serial ports. KVM breakout module will occupy one disk bay on 6x 2.5" disk bay model																								

Components	Specification	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized); 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
Models should meet the following requirements to support A3 and A4: <ul style="list-style-type: none"> NVMe drives not installed M.2 drives not installed 		

Expansion slots
Supports one PCIe 3.0 x16 low-profile slot, or two PCIe 3.0 x8 low-profile slots. Slots are housed in I/O shuttle in rear of the D2 Enclosure



Backplane and memory DIMM sockets supports by processor

Maxium DIMM Sockets	12 DIMMs		16 DIMMs	
Backplane	2x2	2x3	2x2	2x3
Xeon Bronze 3104	Yes	Yes	Yes	No
Xeon Bronze 3106	Yes	Yes	Yes	No
Xeon Silver 4108	Yes	Yes	Yes	No
Xeon Silver 4109T	Yes	No	No	No
Xeon Silver 4110	Yes	Yes	Yes	No
Xeon Silver 4112	Yes	Yes	Yes	No
Xeon Silver 4114	Yes	Yes	Yes	No
Xeon Silver 4116	Yes	Yes	Yes	No
Xeon Gold 5115	Yes	Yes	Yes	No
Xeon Gold 5118	Yes	Yes	Yes	No
Xeon Gold 5120	Yes	Yes	Yes	No
Xeon Gold 5120T	Yes	No	No	No
Xeon Gold 5122	Yes	No	No	No
Xeon Gold 6126	Yes	Yes	No	No
Xeon Gold 6130	Yes	Yes	Yes	No
Xeon Gold 6130T	Yes	No	No	No
Xeon Gold 6134	Yes	No	No	No
Xeon Gold 6136	Yes	No	No	No
Xeon Gold 6138	Yes	Yes	No	No
Xeon Gold 6138T	Yes	No	No	No
Xeon Gold 6140	Yes	Yes	No	No
Xeon Gold 6142	Yes	No	No	No
Xeon Gold 6148	Yes	No	No	No
Xeon Gold 6150	Yes	No	No	No
Xeon Gold 6152	Yes	Yes	No	No
Xeon Platinum 8153	Yes	Yes	Yes	No
Xeon Platinum 8156	Yes	No	No	No
Xeon Platinum 8158	Yes	No	No	No
Xeon Platinum 8160	Yes	No	No	No
Xeon Platinum 8164	Yes	No	No	No
Xeon Platinum 8170	Yes	No	No	No
Xeon Platinum 8176	Yes	No	No	No

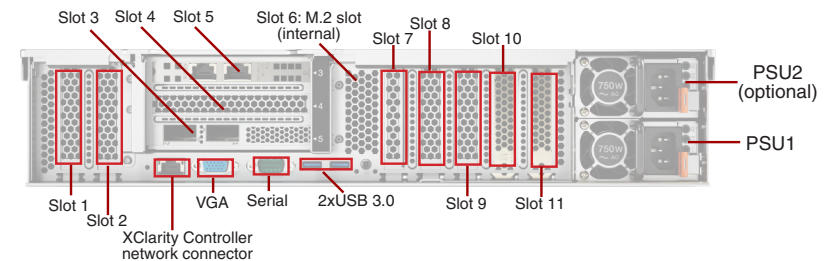


ThinkSystem SR850 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																										
Form factor	2U rack																																																																																										
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in) without security bezel																																																																																										
Weight	Maximum configuration: 59.52 lb (27 kg)																																																																																										
Processor	Supports up to four 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10.4GT/s UPI (Ultra Path Interconnect)																																																																																										
Chipset	Intel C624 Platform Controller Hub																																																																																										
Memory offering	Up to 48 DIMM sockets. 24 DIMM sockets on system main board, 24 DIMM sockets on optional processor and memory expansion tray. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																										
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Disk drive bays	Supports 8 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																										
Internal storage	2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB																																																																																									
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	2.5" SSD, SATA6Gbps	240GB/480GB																																																																																									
	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																									
	NVMe SSD, PCIe 3.0 x4, HHHL adapter	1.6TB/1.92TB/3.2TB/3.84TB																																																																																									
M.2 SATA SSD for boot	32GB/128GB/480GB																																																																																										
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																										
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on one port of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.																																																																																										
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																										
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3																																																																																										
Systems management	XClarity Controller Advanced, optional upgrades to Enterprise is available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Light Path Diagnostics with optional LCD diagnostic pull-out panel																																																																																										
GPU support	None																																																																																										
Base warranty	MT 7X18: 1-year limited onsite service with 9x5/NBD MT 7X19: 3-year limited onsite service with 9x5/NBD																																																																																										
Power supply	Up to two redundant hot-swap 750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. 1600W Platinum are 200V - 240V, others are 100V - 240V																																																																																										

Components	Specification	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Six hot-swap fans, N + 1 redundancy	
Front ports	One XClarity Controller USB connector, one USB 2.0 or USB 3.0 (model dependent), one optional VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
<i>Models should meet the following requirements to support A3 and A4:</i>		
<ul style="list-style-type: none"> NVMe drives not installed PCIe flash adapter not installed M.2 SSD not installed 		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: All riser cards, expansion cards, and LOM adapters are optional. Slots are labelled as 1, 2, 3, 4, 5, 7, 8, 9, 10, 11. Slot 6 is internal M.2 slot for optional M.2 enablement kit

Expansion slots

Slot 1 (onboard)	PCIe 3.0 x16, low profile, requires 2nd CPU
Slot 2 (onboard)	PCIe 3.0 x8, low profile, requires 2nd CPU
Slot 3-5 (riser card)	Supports one of the following for riser card: Option 1: PCIe 3.0 x8/x8/x8 (slot 3-5). Full height, half length. Option 2: PCIe 3.0 x8/x8/x8 ML2 (slot 3-5). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 3 and 5). Full height, half length Slot 3 - 5 requires 2nd CPU
Slot 7 (onboard)	LOM, low profile
Slot 8 (onboard)	PCIe 3.0 x8, low profile
Slot 9 (onboard)	PCIe 3.0 x8, low profile
Slot 10 (onboard)	PCIe 3.0 x8, low profile
Slot 11 (onboard)	PCIe 3.0 x16, low profile

System unique options for ThinkSystem SR850

7B27A03953	ThinkSystem SR850/SR860 Processor and Memory Expansion Tray
7C57A03999	ThinkSystem SR850/SR860 2.5" Anybay 8-Bay BP Kit
7C57A03998	ThinkSystem SR850/SR860 2.5" SATA/SAS 8-Bay BP Kit
7X97A03954	ThinkSystem SR850 Front VGA Connector Upgrade Kit
7C57A03950	ThinkSystem SR850/SR860 x8/x8/x8 PCIe FH Riser Kit
7C57A03951	ThinkSystem SR850/SR860 x8/x8/x8ML2 PCIe FH Riser Kit
7C57A03952	ThinkSystem SR850/SR860 x8/x16ML2 PCIe FH Riser Kit

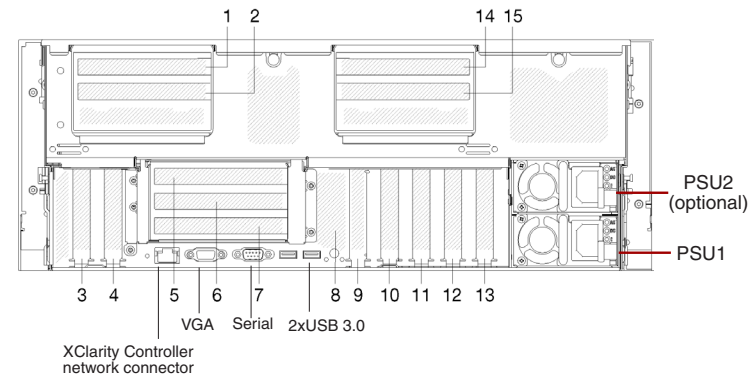


ThinkSystem SR860 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																										
Form factor	4U rack																																																																																										
Dimensions	Height: 175 mm (6.9 in). Width: 482 mm (19.0 in) with rack latches. Depth: 765.88 mm (30.15 in) without security bezel																																																																																										
Weight	Maximum configuration: 87.74 lb (39.8 kg)																																																																																										
Processor	Supports up to four 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. 2 processor sockets on system board, 2 processor sockets on optional processor and memory expansion tray. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Four processors are connected in ring topology with two 10.4GT/s UPI (Ultra Path Interconnect) per processor																																																																																										
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Disk drive bays	Supports 8 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay, or 16 front 2.5" SATA/SAS HS bays with maximum 8 AnyBay Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																										
Internal storage	2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB																																																																																									
	2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB																																																																																									
	2.5" HDD, SAS12Gbps, 10K	300GB/300GB SED/600GB/600GB SED/900GB/1.2TB/1.8TB																																																																																									
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																																																																																									
	2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB/7.68TB																																																																																									
	2.5" SSD, SATA6Gbps	240GB/480GB																																																																																									
	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																									
NVMe SSD, PCIe 3.0 x4, HHHL adapter	1.6TB/1.92TB/3.2TB/3.84TB, up to 10																																																																																										
M.2 SATA SSD for boot	32GB/128GB/480GB																																																																																										
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																										
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on one port of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.																																																																																										
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																										
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/6.9. SUSE Linux Enterprise Server 12 SP3/11 SP4. VMware ESXi 6.5 U1/6.0 U3																																																																																										
Systems management	XClarity Controller Advanced, optional upgrades to Enterprise is available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Light Path Diagnostics with optional LCD diagnostic pull-out panel																																																																																										
GPU support	Up to two NVIDIA Tesla M60 GPU accelerator, 300W each																																																																																										
Base warranty	MT 7X69: 3-year limited onsite service with 9x5/NBD MT 7X70: 1-year limited onsite service with 9x5/NBD																																																																																										
Power supply	Up to two redundant hot-swap 750W/1100W/1600W/2000W 80 PLUS Platinum qualified AC power supplies. 1600W and 2000W are 200V - 240V, others are 100V - 240V																																																																																										
Video	Integrated Matrox G200 in XClarity Controller																																																																																										

Components	Specification	
Cooling	Six hot-swap fans, N + 1 redundancy	
Front ports	One XClarity Controller USB connector, one USB 2.0 or USB 3.0 (model dependent), one VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:8%-80%
Humidity - storage (with package), non-condensing	8%-90%	
<i>Models should meet the following requirements to support A3 and A4:</i>		
<ul style="list-style-type: none"> Two PSU installed NVMe drives not installed PCIe flash adapter not installed GPU not installed 		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



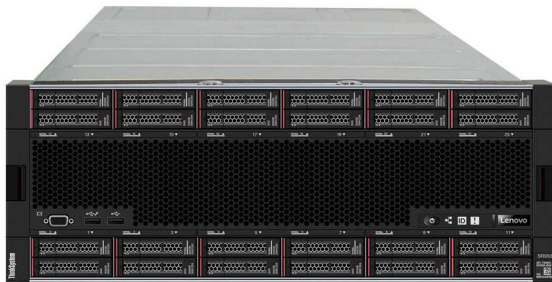
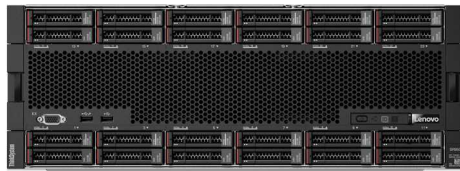
Expansion slots

Up to 13 PCIe slots with one LOM slot and one M.2 slot

Slot 1-2 (riser card 2)	One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length
Slot 3 (onboard)	PCIe 3.0 x16, for riser card 2 or used as a low profile slot if riser card 2 not used
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5-7 (riser card 1)	Supports one of the following for riser card: Option 1: PCIe 3.0 x8/x8/x8 (slot 5-7). Full height, half length Option 2: PCIe 3.0 x8/x8/x8 ML2 (slot 5-7). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 5 and 7). Full height, half length
Slot 8 (onboard)	M.2 slot for M.2 enablement kit, internal
Slot 9 (onboard)	LOM slot, low profile
Slot 10 -12 (onboard)	PCIe 3.0 x8, low profile
Slot 13 (onboard)	PCIe 3.0 x16, for riser card 3 or used as a low profile slot if riser card 3 not used
Slot 14-15 (riser card 3)	One PCIe 3.0 x16 for GPU or two PCIe 3.0 x8, full height, full length, 4 CPU required

System unique options for ThinkSystem SR850

7B27A03953	ThinkSystem SR850/SR860 Processor and Memory Expansion Tray
7C57A03999	ThinkSystem SR850/SR860 2.5" Anybay 8-Bay BP Kit
7C57A03998	ThinkSystem SR850/SR860 2.5" SATA/SAS 8-Bay BP Kit
7C57A03950	ThinkSystem 2U x8/x8/x8 PCIe FH Riser 1
7C57A03951	ThinkSystem 2U x8/x8/x8ML2 PCIe FH Riser 1
7C57A03952	ThinkSystem 2U x8/x16ML2 PCIe FH Riser 1
4C57A08184	ThinkSystem SR860 2x8 PCIe FH Riser 2 (Slot 1 & 2)
4C57A08186	ThinkSystem SR860 1x16 PCIe FH Riser 2 (Slot 1)
4C57A08185	ThinkSystem SR860 2x8 PCIe FH Riser 3 (Slot 14 & 15)
4C57A08187	ThinkSystem SR860 1x16 PCIe FHFL Riser 3 (Slot 14)
00KG655	NVIDIA Tesla M60 GPU, PCIe (Passive)

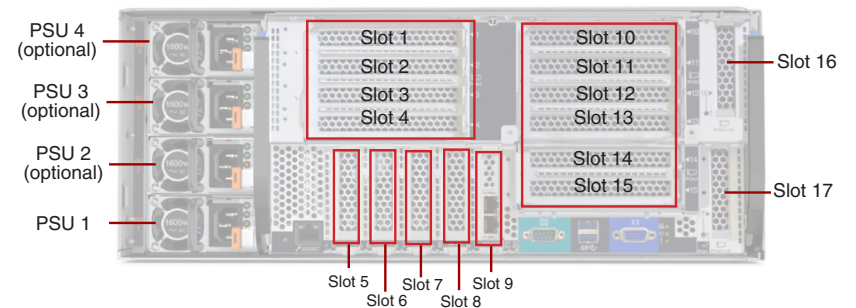


ThinkSystem SR950 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																	
Form factor	4U rack																																																																																	
Dimensions	Height: 175.8 mm (6.9 in). Width: 483 mm (19.0 in) at EIA Flange. Depth: 853 mm (33.6 in)																																																																																	
Weight	Maximum configuration: 129.4 lb (58.7 kg)																																																																																	
Processor	Supports up to four Gen 1 or Gen 2 Intel Xeon Scalable family processors, Gold or Platinum. Or up to eight Intel Xeon Scalable family processors, Platinum only. Processors and memory are located on system boards installed in compute trays: 2 processors per system board, 2 system boards per compute tray, up to 2 compute tray per system. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Up to three UPI (Ultra Path Interconnect) links at maximum 10.4GT/s each																																																																																	
Chipset	Intel C624 Platform Controller Hub																																																																																	
Memory offering	Up to 96 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																	
	<table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>Intel Optane DC Persistent Memory</td> <td>DDR4-2666</td> <td>128GB/256GB/512GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2933</td> <td>64GB/128GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2933</td> <td>64GB/128GB/256GB</td> </tr> <tr> <td>Performance+ RDIMM</td> <td>DDR4-2933</td> <td>16GB/32GB/64GB</td> </tr> <tr> <td>Performance+ 3DS RDIMM</td> <td>DDR4-2933</td> <td>128GB/256GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> <tr> <td>3DS RDIMM</td> <td>DDR4-2666</td> <td>64GB/128GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	Intel Optane DC Persistent Memory	DDR4-2666	128GB/256GB/512GB	RDIMM	DDR4-2933	16GB/32GB/64GB	LRDIMM	DDR4-2933	64GB/128GB	3DS RDIMM	DDR4-2933	64GB/128GB/256GB	Performance+ RDIMM	DDR4-2933	16GB/32GB/64GB	Performance+ 3DS RDIMM	DDR4-2933	128GB/256GB	RDIMM	DDR4-2666	16GB/32GB	LRDIMM	DDR4-2666	64GB	3DS RDIMM	DDR4-2666	64GB/128GB																																																			
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	Performance+ 3DS RDIMM	DDR4-2933	128GB/256GB																																																																															
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LRDIMM	DDR4-2666	64GB																																																																																
3DS RDIMM	DDR4-2666	64GB/128GB																																																																																
Memory capacity	<ul style="list-style-type: none"> 24TB with 96x 256GB 3DS RDIMM and eight L SKU processors 24TB with 48x 512GB DC Persistent Memory (memory mode) and eight L SKU processors 36TB with 48x 512GB DC Persistent Memory (memory mode) + 48x 256GB 3DS RDIMM and eight L SKU processors 																																																																																	
Memory protection	ECC, memory mirroring, and memory rank sparing.																																																																																	
Storage controllers	Up to two dedicated internal RAID slots for most RAID/HBA adapters. Supports the following RAID/HBA adapters:																																																																																	
	<table border="1"> <thead> <tr> <th>Feature</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> <td>2</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>2</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>2</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>4</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>14</td> </tr> </tbody> </table>	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	2	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	2	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	2	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	4	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	14
	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																									
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2																																																																									
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	2																																																																									
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	2																																																																									
	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	2																																																																									
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2																																																																									
	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2																																																																									
	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	4																																																																									
430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	14																																																																										
<i>Note: 730-8i is available in China only. 930-8e should be placed in slot 7 firstly. 430-8e should be placed in slot 5 firstly.</i>																																																																																		
Disk drive bays	Up to 12 disk bays with maximum 6 AnyBay, or up to 24 disk bays with maximum 12 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																	
Internal storage	2.5" NVMe SSD, AnyBay	800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																
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	NVMe SSD, PCIe x4 HHL adapter	1.6TB/1.92TB/3.2TB/3.84TB																																																																																
M.2 SATA SSD	32GB/128GB																																																																																	
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. One standard ML2 slot, one optional ML2 slot via optional riser card																																																																																	
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM, China only																																																																																	
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3																																																																																	
Systems management	XClarity Controller Enterprise. XClarity Administrator. XClarity Energy Manager. XClarity Provisioning Manager. XClarity Essentials. Lenovo Capacity Planner. Light Path Diagnostics with LCD diagnostic pull-out panel																																																																																	
GPU support	None																																																																																	
Base warranty	MT 7X11: 1-year limited onsite service with 9x5/NBD MT 7X12: 3-year limited onsite service with 9x5/NBD MT 7X13: 3-year limited onsite service with 9x5/NBD, SAP HANA optimized																																																																																	

Components	Specification	
Power supply	Supports one, two or four hot-swap 1100W/1600W 80 PLUS Platinum qualified AC power supplies. Redundant with two or four power supplies (N+N, N = 1 or 2). 1600W Platinum is 200V - 240V, 1100W is 100V - 240V and de-rated to 1050W for operation from 110V input	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Up to 12 hot-swap fans. N + 1 redundancy. 6 fans per compute tray, 3 fans per storage tray	
Front ports	One XClarity Controller USB connector, one USB 2.0, one VGA	
Rear ports	One VGA, two USB 3.0, one serial, one XClarity Controller network connector	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%~80%
	Humidity - storage (with package), non-condensing	8%~90%
Environmental certification	Models should meet the following requirements to support A3 and A4: • 2.5" NVMe SSD and PCIe NVMe flash adapter not installed (NVMe devices are supported up to 35°C) • Processors with TDP more than or equal to 150-watt not installed	
	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: All riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Supports five standard expansion slots (slot 5 - 9) and up to 12 optional expansion slots (slot 1 - 4, 10 - 15, 16 - 17) via 3 riser cards. The slots are as follows:

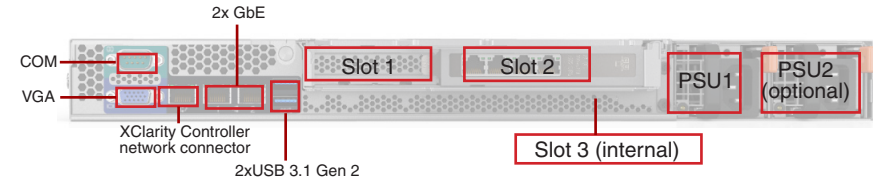
Slot 1-4 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-4). Full height, half length Option 2: PCIe 3.0 x16/x16 (slot 3 and 4). Full height, half length Option 3: PCIe 3.0 x16/x16/x16/x16 (slot 1-4). Full height, half length
Slot 5 (on main I/O tray)	PCIe 3.0 x16, low profile
Slot 6 (on main I/O tray)	PCIe 3.0 x16, low profile
Slot 7 (on main I/O tray)	PCIe 3.0 x8, low profile
Slot 8 (on main I/O tray)	PCIe 3.0 x16 ML2, low profile
Slot 9 (on main I/O tray)	LOM slot, low profile
Slot 10-15 (riser card 2)	Supports one of the following for riser card 2: Option 1: PCIe 3.0 x8/x8/x8 (slot 10-13). Full height, half length Option 2: PCIe 3.0 x16/x16 (slot 12 and 13). Full height, half length Option 3: PCIe 3.0 x16/x16/x16/x16/x16 ML2 (slot 10-15). Full height, half length
Slot 16-17 (riser card 3)	PCIe 3.0 x8, low profile

For riser cards configuration of each model, please see model configuration table.

ThinkSystem SR250 Platform Specifications

Components	Specification																																																																
Form factor	1U rack																																																																
Dimensions	Height: 43 mm (1.7 in), width: 434.4 mm (17.1 in), depth: 497.8 mm (19.6 in). The depth is counted from EIA flange front surface to rear of chassis																																																																
Weight	Maximum configuration: 27.1 lb (12.3 kg)																																																																
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed																																																																
Chipset	Intel C246 Platform Controller Hub																																																																
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666.																																																																
Memory capacity	64GB with 4x 16GB UDIMMs																																																																
Memory protection	ECC																																																																
Storage controllers	Supports the following RAID/HBA adapters:																																																																
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	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																									
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	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																									
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	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																									
Disk drive bays	Supports 4 front 3.5" SATA simple-swap bays. Or 4 front 3.5" SATA/SAS HS bays. Or 8 front 2.5" SATA/SAS HS bays. Or 10x 2.5" HS bays with 8 SATA/SAS bays plus 2 Anybay. Optional one internal M.2 SSD for boot, consumes one onboard SATA port																																																																
Disk support	For 3.5" SS bay	3.5" HDD, SATA6Gbps, 7.2K 2.5" SSD, SATA6Gbps	1TB/2TB/4TB/6TB/8TB 240GB/480GB/960GB																																																														
	For 3.5" HS bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB																																																														
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB																																																														
		2.5" SSD, SATA6Gbps	240GB/480GB/960GB																																																														
	For 2.5" HS bay	2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB																																																														
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M.2 SSD	2.5" SSD, SATA6Gbps 2.5" SSD, SATA6Gbps	240GB/480GB/960GB 32GB/128GB/480GB																																																															
Optical	None optical bay, using USB optical (External USB DVD-RW, PN: 7XA7A05926)																																																																
Network interfaces	Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available																																																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																
Operating systems supported	Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7/6.5 U2																																																																
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error																																																																
GPU support	Up to one optional GPU, NVIDIA Quadro P620																																																																
Base warranty	MT 7Y51: 3-year limited onsite service with 9x5/NBD MT 7Y52: 1-year limited onsite service with 9x5/NBD																																																																
Power supply	Supports one of the following PSU: • One fixed power supply, 300W. 80 PLUS Gold certified. • Up to two redundant hot-swap power supplies, 450W each. 80 PLUS Platinum certified																																																																

Components	Specification
Video	Integrated Matrox G200 in XClarity Controller
Cooling	Four non-hot-swap system fans.
Front ports	One XClarity Controller USB connector, one USB 3.1 Gen 1. One optional VGA
Rear ports	2x USB 3.1 Gen 2. 2x RJ-45. 1x XClarity Controller network connector. 1x COM. 1x VGA
Environmental specification	Supports ASHRAE A2
Environmental certification	Energy Star Server 2.1 certified



Expansion slots

Supports up to three PCIe 3.0 slots as following:

Slot 1-2 (riser card)	Supports one of the following Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, full height half length for x16, x16 is negotiable link width x8 Option 2: PCIe 3.0x16 (slot 2). Full height half length
Slot 3	Slot 3 is covered by riser card so this slot is not available
Slot 4	PCIe 3.0 x8 (negotiable link width x4), dedicated internal RAID slot

Partial options for ThinkSystem SR250

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00049
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00053
900GB 15K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00023
300GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00024
600GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00025
900GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00026
1.2TB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00027
1.8TB 10K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00028
2.4TB 10K SAS 12Gb HS 512e HDD	7XB7A00069
300GB 10K 12Gbps SAS 2.5" G4HS SED	7XB7A00030
1TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00034
2TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00035
M.2 CV3 128GB SATA SSD	7N47A00130
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785

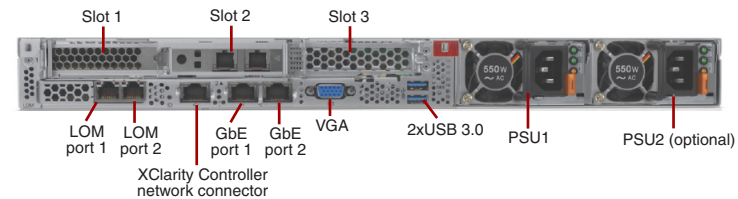


ThinkSystem SR530 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																				
Form factor	1U rack																																																																																				
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																				
Weight	Maximum configuration: 35.27 lb (16 kg)																																																																																				
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 22 cores at 1.9GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																				
Chipset	Intel C622 Platform Controller Hub																																																																																				
Memory	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. Supports following:																																																																																				
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Memory capacity	768GB with 12x 64GB RDIMM and dual processor																																																																																				
Memory protection	ECC, memory mirroring, and memory sparing																																																																																				
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		RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty																																																																											
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		430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	2																																																																											
930-8e		12Gbps SAS	SATA/SAS	0/1/10/5/50/60/60	Yes	4GB	Flash backup	Yes	2																																																																												
<i>Note: 730-8i is available in China only. All RAID/HBA adapters should be placed in slot 1 firstly.</i>																																																																																					
Disk drive bays		Support 4 front 3.5" SATA simple-swap bays, or 4 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																			
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																		
	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																		
		3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																		
	For 2.5" bay	2.5" HDD, SAS12Gbs, 15K	300GB/600GB																																																																																		
		2.5" SSD, SATA6Gbs	240GB/480GB																																																																																		
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		2.5" HDD, SAS12Gbs, 15K	300GB/600GB																																																																																		
		2.5" SSD, SAS12Gbs	400GB/800GB/3.84TB																																																																																		
2.5" SSD, SATA6Gbs		240GB/480GB																																																																																			
	M.2 SATA SSD	32GB/128GB																																																																																			
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																				
Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																				
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																				
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																				
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																				
GPU support	None																																																																																				

Components	Specification	
Base warranty	MT 7X07: 1-year limited onsite service with 9x5/NBD MT 7X08: 3-year limited onsite service with 9x5/NBD	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Four fans (3+1) for single processor model, six fans (5+1) for dual processor model	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%~80%
Humidity - storage (with package), non-condensing	8%~90%	
<i>Models should meet the following requirements to support A3 and A4:</i> • Redundant power supplies required • No system fan fails		
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/	



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8/x8 ML2 (slot 1-2). Low profile
Slot 3 (riser card 2)	Option 1: PCIe 3.0 x 8, low profile, for single processor model Option 2: PCIe 3.0 x 16, low profile, for dual processor model When slot 2 is full height, slot 3 cannot be used

System unique options

Option	Description
ZXH7A05892	ThinkSystem SR530/SR570 x8/x8ML2 PCIe LP+LP Riser 1 kit
ZXH7A02682	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
ZXH7A05893	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
ZXH7A05891	ThinkSystem SR530/SR570 x8 PCIe LP Riser 2 kit
ZXH7A02685	ThinkSystem SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
Z17A02579	ThinkSystem SR530/SR570/SR630 Front VGA Connector Upgrade Kit
Z17A02581	ThinkSystem 1U Security Bezel
Z17A02577	ThinkSystem COM Port Upgrade Kit
ZXH7A05896	ThinkSystem SR530/SR630 2.5" SATA/SAS 8-Bay Backplane Kit

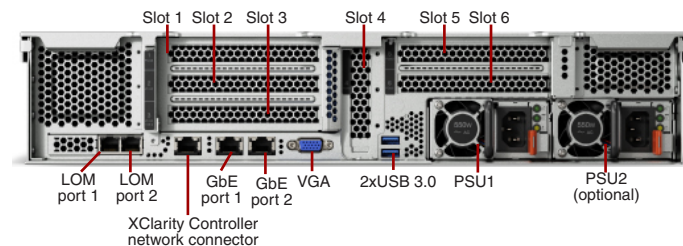


ThinkSystem SR550 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																						
Form factor	2U rack																																																																																																						
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																						
Weight	Maximum configuration: 57.32 lb (26 kg)																																																																																																						
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 22 cores at 1.9GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																																						
Chipset	Intel C622 Platform Controller Hub																																																																																																						
Memory offering	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. Supports following: <table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>8GB/16GB/32GB/64GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>8GB/16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	RDIMM	DDR4-2933	8GB/16GB/32GB/64GB	RDIMM	DDR4-2666	8GB/16GB/32GB	LRDIMM	DDR4-2666	64GB																																																																																										
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Memory capacity	768GB with 12x 64GB RDIMM and dual processor																																																																																																						
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	Disk drive bays	Support 8 front 3.5" SATA simple-swap bays, or 8 front 3.5" SATA/SAS HS bays, or 12 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays, or 16 front 2.5" SATA/SAS HS bays. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																					
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Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																																						
Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																																						
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																																						
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																																						
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																																						
GPU support	None																																																																																																						

Components	Specification												
Base warranty	MT 7X03: 1-year limited onsite service with 9x5/NBD MT 7X04: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	Three fans (2+1) for single processor model, four fans (3+1) for dual processor model												
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45) one XClarity Controller connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations. <table border="1"> <tbody> <tr> <td>Temperature - operating</td> <td>A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>-10°C to 60°C (14°F to 140°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 70°C (-40°F to 158°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A4: 8%-90%. A3:8%-85%. A2:20%~80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%~90%</td> </tr> </tbody> </table> <p>Models should meet the following requirements to support A3 and A4: • Redundant power supplies required • No system fan fails</p>	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A4: 8%-90%. A3:8%-85%. A2:20%~80%	Humidity - storage (with package), non-condensing	8%~90%
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Humidity - storage (with package), non-condensing	8%~90%												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, half length Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x8, full height, half length

System unique options

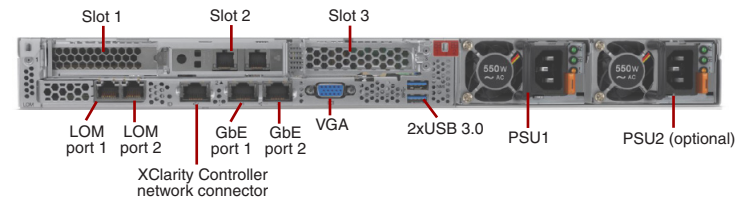
7XH7A02680	Lenovo SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit
7XH7A02679	Lenovo SR550/SR590/SR650 (x16/x8)/(x16/x16) PCIe FH Riser 2 Kit
7XH7A02678	Lenovo SR550/SR590/SR650 x16/x8 PCIe FH Riser 1 Kit
7XH7A02677	Lenovo SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit
7Z17A02578	Lenovo SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit
7XH7A026254	Lenovo SR550/SR650 2.5" SATA/SAS 8-Bay Backplane Kit
7Z17A02580	Lenovo 2U Security Bezel
7Z17A02577	Lenovo COM Port Upgrade Kit



ThinkSystem SR570 Platform Specifications

Components	Specification																																																																																											
Form factor	1U rack																																																																																											
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																											
Weight	Maximum configuration: 35.27 lb (16 kg)																																																																																											
Processor	Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 26 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s each																																																																																											
Chipset	Intel C622 Platform Controller Hub																																																																																											
Memory offering	Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels. Supports following:																																																																																											
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Memory capacity	<ul style="list-style-type: none"> 1TB with 16x 64GB RDIMM and dual processor 2TB with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1) 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1) 																																																																																											
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430-8e		12Gbs SAS	SATA/SAS	-	Yes	None	-	3																																																																																				
430-16e		12Gbs SAS	SATA/SAS	-	Yes	None	-	3																																																																																				
930-8e	12Gbs SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																																																					
<i>Note: 730-8i is available in China only</i>																																																																																												
Disk drive bays	Support 4 front 3.5" SATA simple-swap bays, or 4 front 3.5" SATA/SAS HS bays, or 8 front 2.5" SATA/SAS HS bays, or 10 front 2.5" SATA/SAS HS bays with 4 AnyBay. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																											
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB																																																																																									
	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																									
		3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																									
		3.5" HDD, SAS12Gbs, 15K	300GB/600GB/900GB																																																																																									
		2.5" SSD, SATA6Gbs	240GB/480GB																																																																																									
	For 2.5" bay	2.5" NVMe SSD, AnyBay	960GB/1.92TB/3.84TB																																																																																									
		2.5" HDD, SATA6Gbs, 7.2K	1TB/2TB																																																																																									
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M.2 boot drive	2.5" NVMe SSD, AnyBay	960GB/1.6TB/1.92TB/3.84TB																																																																																										
	M.2 SATA SSD	32GB/128GB																																																																																										
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																											
Network interfaces	Integrated one dedicated management port plus two GbE ports. One LOM slot for customized LOM with two RJ-45 or SFP+ ports, up to 10GbE. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot. Up to two ports supports Wake-on-LAN and NC-SI (see right)																																																																																											
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																											
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware ESXi 6.5/6.0 U3																																																																																											
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics																																																																																											
GPU support	None																																																																																											

Components	Specification												
Base warranty	MT 7Y02: 1-year limited onsite service with 9x5/NBD MT 7Y03: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	4x 3.5" or 8x 2.5" models: four fans for single processor model, six fans for dual processor model, all fans are 4028 10x 2.5" models: six fans for both single and dual processor models, all fans are 4056												
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations.												
	<table border="1"> <tbody> <tr> <td>Temperature - operating</td> <td>A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)</td> </tr> <tr> <td>Temperature - non operating (no package)</td> <td>-10°C to 60°C (14°F to 140°F)</td> </tr> <tr> <td>Temperature - non operating (with package)</td> <td>-40°C to 70°C (-40°F to 158°F)</td> </tr> <tr> <td>Altitude - operating</td> <td>(Unpressurized): 0-10000ft (0-3048m)</td> </tr> <tr> <td>Humidity - operating, non-condensing</td> <td>A4: 8%~90%. A3:8%~85%. A2:8%~80%</td> </tr> <tr> <td>Humidity - storage (with package), non-condensing</td> <td>8%~90%</td> </tr> </tbody> </table>	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)	Humidity - operating, non-condensing	A4: 8%~90%. A3:8%~85%. A2:8%~80%	Humidity - storage (with package), non-condensing	8%~90%
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	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)											
	Humidity - operating, non-condensing	A4: 8%~90%. A3:8%~85%. A2:8%~80%											
	Humidity - storage (with package), non-condensing	8%~90%											
	<i>Models should meet the following requirements to support A3 and A4:</i>												
	<ul style="list-style-type: none"> Redundant power supplies required No system fan fails No NVMe drive No rear two HS bays Processor TDP is less than or equal to 140 watts, and no Intel Xeon 6140 or 6152 processor is installed On 12x 3.5" models, no M.2 drives 												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8/x8 ML2 (slot 1-2). Low profile
Slot 3 (riser card 2)	Option 1: PCIe 3.0 x 8, low profile, for single processor model Option 2: PCIe 3.0 x 16, low profile, for dual processor model When slot 2 is full height, slot 3 cannot be used

System unique options

7XH7A05892	ThinkSystem SR530/SR570 x8/x8ML2 PCIe LP+LP Riser 1 Kit
7XH7A02682	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
7XH7A05893	ThinkSystem SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
7XH7A05891	ThinkSystem SR530/SR570 x8 PCIe LP Riser 2 Kit
7XH7A02685	ThinkSystem SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
7Z17A02579	ThinkSystem SR530/SR570/SR630 Front VGA Connector Upgrade Kit
7Z17A02581	ThinkSystem 1U Security Bezel
7Z17A02577	ThinkSystem COM Port Upgrade Kit
4XH7A08762	ThinkSystem SR570 2.5" SATA/SAS 8-Bay Backplane Kit

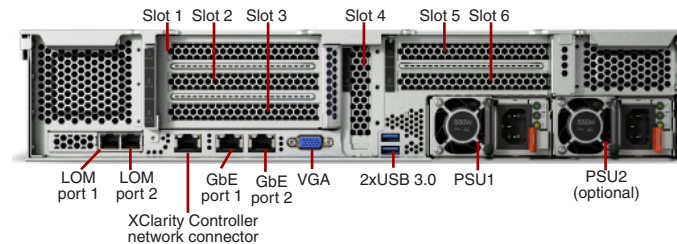


ThinkSystem SR590 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification																																																																																																						
Form factor	2U rack																																																																																																						
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																						
Weight	Maximum configuration: 61.7 lb (28 kg)																																																																																																						
Processor	Up to two 150W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 26 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s each																																																																																																						
Chipset	Intel C622 Platform Controller Hub																																																																																																						
Memory offering	Up to 16 DIMM sockets. Each processor supports up to 8 DIMM sockets with 6 channels. Supports following:																																																																																																						
	<table border="1"> <thead> <tr> <th>Memory Type</th> <th>Speed</th> <th>Offering</th> </tr> </thead> <tbody> <tr> <td>Intel Optane DC Persistent Memory</td> <td>DDR4-2666</td> <td>128GB/256GB/512GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2933</td> <td>8GB/16GB/32GB/64GB</td> </tr> <tr> <td>RDIMM</td> <td>DDR4-2666</td> <td>8GB/16GB/32GB</td> </tr> <tr> <td>LRDIMM</td> <td>DDR4-2666</td> <td>64GB</td> </tr> </tbody> </table>	Memory Type	Speed	Offering	Intel Optane DC Persistent Memory	DDR4-2666	128GB/256GB/512GB	RDIMM	DDR4-2933	8GB/16GB/32GB/64GB	RDIMM	DDR4-2666	8GB/16GB/32GB	LRDIMM	DDR4-2666	64GB																																																																																							
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LRDIMM	DDR4-2666	64GB																																																																																																					
Memory capacity	<ul style="list-style-type: none"> 1TB with 16x 64GB RDIMM and dual processor 2TB with 4x 512GB DC Persistent Memory and dual processor (Gen 2 or M SKU Gen 1) 2.76TB with 4x 512GB DC Persistent Memory + 12x 64GB RDIMM and processor (Gen 2 or M SKU Gen 1) 																																																																																																						
Memory protection	ECC, memory mirroring, and memory sparing																																																																																																						
Storage controllers	Supports the following RAID/HBA adapters:																																																																																																						
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	For SS bays	Onboard SATA	6Gb SATA	SATA	0/1/10/5	Yes	None	None	No	-																																																																																													
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<i>Note: 730-8i is available in China only</i>																																																																																																							
Disk drive bays	Supports 3.5" Simple-swap bay up to 8, or 3.5" HS bay up to 12, or 2.5" HS bay up to 12. On 12x 3.5", 8x 2.5", or 16x 2.5" bay models, 4 bays can be upgraded to AnyBay. Optional 2 rear 3.5" HS bays are supported on 12 x 3.5" model, takes place in riser card 1 location. Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																																						
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbs, 7.2K	1TB/2TB/4TB/6TB/8TB																																																																																																				
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	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SAS12Gbs, 7.2K	1TB/2TB/4TB/6TB/10TB																																																																																																				
		3.5" HDD, SAS12Gbs, 15K	300GB/600GB/900GB																																																																																																				
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		2.5" NVMe SSD, AnyBay	960GB/1.92TB/3.84TB																																																																																																				
	For 2.5" bay	2.5" HDD, SATA6Gbs, 7.2K	1TB/2TB																																																																																																				
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Components	Specification	
Power supply	Up to two redundant hot-swap 550W and 750W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Three fans (2+1) for single processor model, four fans (3+1) for dual processor model	
Front ports	One XClarity Controller USB, one USB 3.0, one optional VGA	
Rear ports	One VGA, two USB 3.0, two ethernet (RJ-45), one XClarity Controller connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 8%-80%
	Humidity - storage (with package), non-condensing	8%-90%
	<i>Models should meet the following requirements to support A3 and A4:</i>	
	<ul style="list-style-type: none"> Redundant power supplies required No system fan fails No NVMe drive No rear two HS bays Processor TDP is less than or equal to 140 watts, and no Intel Xeon 6140 or 6152 processor is installed On 12x 3.5" models, no M.2 drives 	
	Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/



Note: GbE port 1 and LOM port 1 support Wake-on-LAN and NC-SI. Riser cards, expansion cards, and LOM adapters are optional.

Expansion slots

Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, half length Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length Option 4: Two rear 3.5" disk bays, 12 x 3.5" models only
Slot 4 (onboard)	PCIe 3.0 x8, low profile
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU
Slot 6 (riser card 2)	PCIe 3.0 x8, full height, half length

System unique options

7XH7A06253	ThinkSystem SR590/SR650 Rear HDD Kit
4XH7A08778	ThinkSystem SR550/SR590/SR650 x8/x8/x8ML2 PCIe FH Riser 1 Kit
4XH7A08779	ThinkSystem SR550/SR590/SR650 x16/x8 PCIe FH Riser 1 Kit
4XH7A08777	ThinkSystem SR550/SR590/SR650 x8/x8/x8 PCIe FH Riser 1 Kit
4XH7A08780	ThinkSystem SR550/SR590/SR650 x16/x8(or x16) PCIe FH Riser 2 Kit
7Z17A02578	ThinkSystem SR550/SR590/SR650 EIA Latch w/ VGA Upgrade Kit
7Z17A02580	ThinkSystem 2U Security Bezel
7Z17A02577	ThinkSystem COM Port Upgrade Kit
4XH7A08764	ThinkSystem SR590 2.5" Anybay 8-Bay Backplane Kit
4XH7A08763	ThinkSystem SR590 2.5" SATA/SAS 8-Bay Backplane Kit

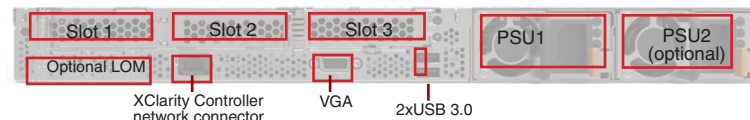


ThinkSystem SR630 Platform Specifications

Product Specifications Reference (PSREF)

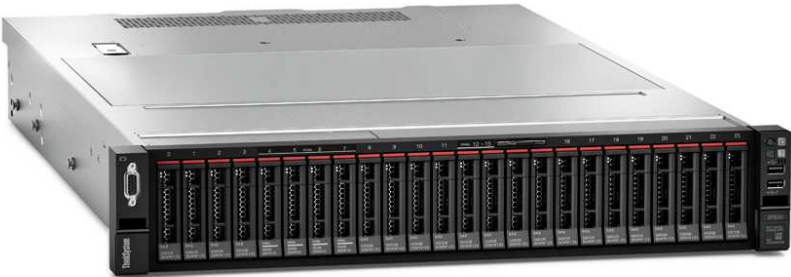
Components	Specification																																																																																										
Form factor	1U rack																																																																																										
Dimensions	Height: 43 mm (1.7 in). Width: 482 mm (19.0 in) with rack latches. Depth: 778.3 mm (30.64 in)																																																																																										
Weight	Maximum configuration: 41.9 lb (19 kg)																																																																																										
Processor	Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																										
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Memory offering	Up to 24 DIMM sockets. Each processor supports up to 12 DIMM sockets with 6 channels. Supports following:																																																																																										
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<i>Note: 730-8i is available in China only. 930-8e, 430-8e, and 430-16e will be placed in slot 2 firstly.</i>																																																																																											
Disk drive bays	Supports the following disk bay configurations, optional rear bay occupies riser card 1 location:																																																																																										
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Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring																																																																																											
Internal storage	For 3.5" bay (3.5" disks or 2.5" disks with 3.5" tray)																																																																																										
	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB																																																																																									
	3.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/6TB SED FIPS/6TB/10TB																																																																																									
	2.5" HDD, SAS12Gbps, 15K	300GB/600GB																																																																																									
	2.5" SSD, SATA6Gbps	240GB/480GB																																																																																									
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2.5" NVMe SSD, AnyBay		800GB/960GB/1.6TB/1.92TB/3.84TB																																																																																									
PCIe 3.0 x4, HHHL adapter	NVMe SSD	1.6TB/1.92TB/3.2TB/3.84TB																																																																																									
M.2 boot drive	M.2 SATA SSD	32GB/128GB/480GB																																																																																									
Optical	No internal optical bay. Optional USB DVD±RW optical drive																																																																																										
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.																																																																																										
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel																																																																																										
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3																																																																																										

Components	Specification												
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics												
GPU support	Requires riser card with PCIe x16 slot. 2nd or 3rd GPU requires 2nd CPU. Supports up to 1 FHFL and single width GPU adapters, or up to 3 LP and single width GPU adapters (Quadro P620)												
Base warranty	MT 7X01: 1-year limited onsite service with 9x5/NBD MT 7X02: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W/750W/1100W 80 PLUS Platinum qualified power supplies. Or up to two redundant hot-swap 750W Titanium qualified power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	Five fans (4+1) for single processor model, seven fans (6+1) for dual processor model												
Front ports	One XClarity Controller USB connector, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, one XClarity Controller network connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations.												
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	<i>Models should meet the following requirements to support A3 and A4:</i>												
	<ul style="list-style-type: none"> Processors with TDP higher than or equal to 150-Watt and Xeon 4112, 5122, 6126, 6128, 6132, 6134, 6134M, and 8156 processors not installed Both NVMe 2.5" SSD and NVMe PCIe adapter not installed GPU not installed Must have redundant PSU RAID super capacitor module cannot be installed on the bottom of the air baffle, but only can be installed on the chassis. 												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												



Expansion slots	
Slot 1-2 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x16 (slot 1-2). Low profile for x8, low profile or full height half length for x16 Option 2: PCIe 3.0 x8 ML2/x16 (slot 1-2). Low profile for x8 ML2, low profile or full height half length for x16 Option 3: PCIe 3.0 x16 ML2/x8 (slot 1-2). Low profile for x16 ML2, low profile or full height half length for x8 Option 4: 2x 2.5" drive bay, for 10 x 2.5" model only
Slot 3 (riser card 2)	PCIe 3.0 x 16, low profile, requires 2nd CPU. When slot 2 is full height, slot 3 cannot be used

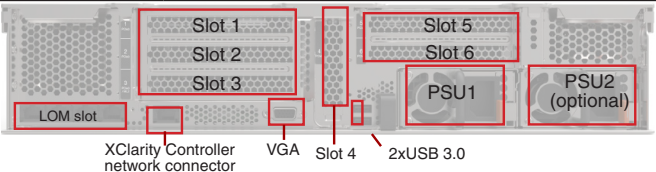
System unique options	
7XH7A05896	Lenovo SR530/SR570/SR630 2.5" SATA/SAS 8-Bay Backplane Kit
7XH7A05893	Lenovo SR530/SR570/SR630 x8/x16 PCIe LP+FH Riser 1 Kit
7XH7A05895	Lenovo SR630 x16ML2/x8 PCIe LP+FH Riser 1 Kit
7XH7A05894	Lenovo SR630 x8ML2/x16 PCIe LP+FH Riser 1 Kit
7XH7A02682	Lenovo SR530/SR570/SR630 x8/x16 PCIe LP+LP Riser 1 Kit
7XH7A02683	Lenovo SR630 x8ML2/x16 PCIe LP+LP Riser 1 Kit
7XH7A02684	Lenovo SR630 x16ML2/x8 PCIe LP+LP Riser 1 Kit
7XH7A02685	Lenovo SR530/SR570/SR630 x16 PCIe LP Riser 2 Kit
7XH7A06252	Lenovo SR630 Rear HDD Kit
7Z17A02577	Lenovo COM Port Upgrade Kit
7Z17A02579	Lenovo SR530/SR570/SR630 Front VGA Connector Upgrade Kit
7Z17A02581	Lenovo 1U Security Bezel



ThinkSystem SR650 Platform Specifications

Product Specifications Reference (PSREF)

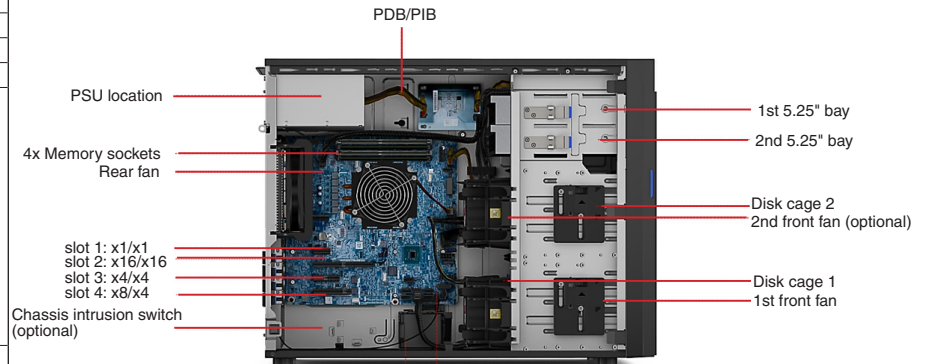
Components	Specification																																																																																																			
Form factor	2U rack																																																																																																			
Dimensions	Height: 86.5 mm (3.4 in). Width: 482 mm (19.0 in) with rack latches. Depth: 763.7 mm (30.1 in)																																																																																																			
Weight	Maximum configuration: 70.54 lb (32 kg)																																																																																																			
Processor	Up to two 205W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 28 cores at 2.7GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s																																																																																																			
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	<table border="1"> <thead> <tr> <th>Feature</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> <th>Max qty</th> </tr> </thead> <tbody> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> <td>2</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> <td>3</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> <td>3</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>1</td> </tr> <tr> <td>930-24i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>1</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>3</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>1</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> <td>5</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>5</td> </tr> <tr> <td>430-16e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> <td>5</td> </tr> </tbody> </table>	Feature	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Max qty	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	2	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	3	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	3	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1	930-24i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	1	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	3	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	1	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	5	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5	430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	5
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Disk drive bays	Supports the following disk bay configurations, optional rear bay occupies riser card 1 location:																																																																																																			
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Components	Specification												
Optical	No internal optical bay. Optional USB DVD±RW optical drive												
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 or SFP+ ports, up to 10GbE. Wake-on-LAN and NC-SI are available on Port 0 of LOM. Optional ML2 or PCIe adapters are supported. ML2 adapter requires riser card with ML2 slot.												
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel												
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.4/7.3/6.9. SUSE Linux Enterprise Server 12 SP3/12 SP2/11 SP4. VMware ESXi 6.5U1/6.5/6.0 U3												
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials. Light Path Diagnostics												
GPU support	Requires riser card with PCIe x16 slot. 2nd or 3rd GPU requires 2nd CPU. Supports up to 2 FHFL and double width GPU adapters, or up to 3 FHFL and single width GPU adapters												
Base warranty	MT 7X05: 1-year limited onsite service with 9x5/NBD MT 7X06: 3-year limited onsite service with 9x5/NBD												
Power supply	Up to two redundant hot-swap 550W/750W/1100W/1600W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium and 1600W Platinum are 200V - 240V, others are 100V - 240V												
Video	Integrated Matrox G200 in XClarity Controller												
Cooling	Five fans (4+1) for single processor model, six fans (5+1) for dual processor model												
Front ports	One XClarity Controller USB connector, one USB 3.0, one optional VGA												
Rear ports	One VGA, two USB 3.0, one XClarity Controller network connector. Optional COM port												
Environmental specification	Supports ASHRAE A4 with limitations.												
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	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 8%-80%											
	Humidity - storage (with package), non-condensing	8%-90%											
	Models should meet the following requirements to support A3 and A4:												
	<ul style="list-style-type: none"> NVMe drives not installed PCIe flash adapter not installed Graphic processing unit (GPU) not installed Must have redundant PSU Certain processors not installed: <ul style="list-style-type: none"> Processors with TDP more than or equal to 150-watt not installed On 16 x 2.5", 24 x 2.5", and 12 x 3.5" models, the following processors not installed: Intel Xeon 4112, 5122, 6126, 6128*, 6132*, 6134, 6134M*, and 8156 processors (Processors marked with * will be available later) 												
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/												
													
Expansion slots													
Slot 1-3 (riser card 1)	Supports one of the following for riser card 1: Option 1: PCIe 3.0 x8/x8/x8 (slot 1-3). Full height, half length. Option 2: PCIe 3.0 x16/x8 (slot 1 and 3). Full height, full length for x16. Full height, half length for x8 Option 3: PCIe 3.0 x8/x8/x8 ML2 (slot 1-3). Full height, half length Option 4: PCIe 3.0 x8/x16 ML2 (slot 1 and 3). Full height, half length Option 5: Two rear 3.5" disk bays, 12 x 3.5" models only												
Slot 4 (onboard)	PCIe 3.0 x8, low profile												
Slot 5 (riser card 2)	PCIe 3.0 x16, full height, full length, requires 2nd CPU												
Slot 6 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU												

ThinkSystem ST250 Platform Specifications

Components	Specification																																																																																								
Form factor	Tower or 4U rack with optional rack mount kit																																																																																								
Dimensions	Height: 430 mm (16.93 in), width: 175 mm (6.89 in), depth: 565.7 mm (22.27 in)																																																																																								
Weight	Maximum configuration: 51.94 lb (23.56 kg)																																																																																								
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed																																																																																								
Chipset	Intel C246 Platform Controller Hub																																																																																								
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666.																																																																																								
Memory capacity	64GB with 4x 16GB UDIMMs																																																																																								
Memory protection	ECC																																																																																								
Storage controllers	Supports the following RAID/HBA adapters:																																																																																								
	<table border="1"> <thead> <tr> <th>RAID adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard SATA</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>930-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-16i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-16e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes
	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																																																	
	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																																																																																	
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																																																	
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No																																																																																	
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes																																																																																	
	930-16i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																																																	
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																	
	430-16i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																	
430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																		
430-16e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																																																		
930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																																																		
Disk drive bays	Supports 4 or 8 front 3.5" SATA simple-swap bays. Or 4 or 8 front 3.5" SATA/SAS HS bays. Or 8 or 16 front 2.5" SATA/SAS HS bays. Or 4x 3.5" plus 8x 2.5" hybrid SATA/SAS HS bays. Optional one internal M.2 SSD for boot, consumes one onboard SATA port																																																																																								
Disk support	For 3.5" SS bay	3.5" HDD, SATA6Gbps, 7.2K 2.5" SSD, SATA6Gbps	1TB/2TB/4TB/6TB/8TB 240GB/480GB/960GB																																																																																						
	For 3.5" HS bay (3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SATA6Gbps, 7.2K 2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB 1TB/2TB/4TB/6TB/8TB																																																																																						
		2.5" HDD, SAS12Gbps, 15K 2.5" SSD, SATA6Gbps	300GB/600GB/900GB 240GB/480GB/960GB																																																																																						
	For 2.5" HS bay	2.5" HDD, SATA6Gbps, 7.2K 2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB 1TB/2TB																																																																																						
		2.5" HDD, SAS12Gbps, 10K 2.5" HDD, SAS12Gbps, 15K	300GB/300GB SED/600GB/900GB/1.2TB/1.8TB/2.4TB 300GB/600GB/900GB																																																																																						
		2.5" SSD, SATA6Gbps 2.5" SSD, SATA6Gbps	240GB/480GB/960GB 32GB/128GB/480GB																																																																																						
	M.2 SSD	M.2 SATA SSD																																																																																							
Optical	Two 5.25" bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drive. Up to two optical or one tape drive																																																																																								
Network interfaces	Two onboard GbE port via integrated gigabit ethernet Broadcom BCM5720 plus one dedicated management port. Optional PCIe ethernet adapters are available																																																																																								
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																																								
Operating systems supported	Microsoft Windows Server 2019/2016/2012 R2. Red Hat Enterprise Linux 7.5. SUSE Linux Enterprise Server 12 SP3. VMware vSphere (ESXi) 6.7/6.5 U2																																																																																								
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error																																																																																								
GPU support	Up to one optional GPU, NVIDIA Quadro P620 or Quadro P2000																																																																																								
Base warranty	MT 7Y45: 3-year limited onsite service with 9x5/NBD MT 7Y46: 1-year limited onsite service with 9x5/NBD																																																																																								
Power supply	Supports one of the following PSU: <ul style="list-style-type: none"> One fixed power supply, 250W. 80 PLUS Platinum certified. Up to two redundant hot-swap power supplies, 550W each. 80 PLUS Platinum certified 																																																																																								

Components	Specification
Video	Integrated Matrox G200 in XClarity Controller
Cooling	One fixed rear fan, one fixed front fan, CPU fan, PSU fan. One optional front fan for 2nd disk drive cage
Front ports	One XClarity Controller USB connector, one USB 3.1 Gen 1
Rear ports	2x USB 3.1 Gen 2. 2x USB 3.1 Gen 1. 2x RJ-45. 1x XClarity Controller network connector. 1x COM. 1x VGA
Environmental specification	Supports ASHRAE A2
Environmental certification	Energy Star Server 2.1 certified



Expansion slots

Supports three PCIe 3.0 slots as following:

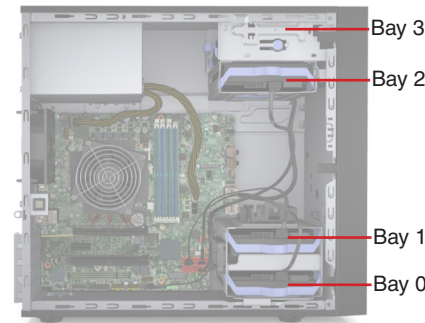
Slot 1	PCIe 3.0 x1, full height, half length, links to PCH
Slot 2	PCIe 3.0 x16, full height, half length, links to CPU
Slot 3	PCIe 3.0 x4, full height, half length, links to PCH
Slot 4	PCIe 3.0 x8 (negotiable link width x4), full height, half length, links to PCH

Partial options for ThinkSystem ST250

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem 3.5" 1TB 7.2K SATA 6Gb Hot Swap 512n HDD	7XB7A00049
ThinkSystem 3.5" 8TB 7.2K SATA 6Gb Hot Swap 512e HDD	7XB7A00053
900GB 15K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00023
300GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00024
600GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00025
900GB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00026
1.2TB 10K 12Gbps SAS 2.5" G4HS HDD	7XB7A00027
1.8TB 10K 12Gbps SAS 2.5" G4HS 512e HDD	7XB7A00028
2.4TB 10K SAS 12Gb HS 512e HDD	7XB7A00069
300GB 10K 12Gbps SAS 2.5" G4HS SED	7XB7A00030
1TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00034
2TB 7.2K 12Gbps NL SAS 2.5" G4HS HDD	7XB7A00035
M.2 CV3 128GB SATA SSD	7N47A00130
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785

ThinkSystem ST50 Platform Specifications

Components	Specification																																																																
Form factor	Tower or 4U rack with optional rack mount kit																																																																
Dimensions	Height: 375 mm (14.76 in), width: 175 mm (6.89 in), depth: 407 mm (16.0 in)																																																																
Weight	Maximum configuration: 24.7 lb (11.2 kg)																																																																
Processor	Up to one Intel Xeon E family processor, up to 95W, up to 6 cores at 3.8GHz, up to 12MB cache, up to DDR4-2666 memory speed. Or up to one 8th Intel Core i3 processor, up to 91W, up to 4 cores at 4.0GHz, up to 8MB cache, up to DDR4-2400 memory speed. Or up to one Intel Pentium Gold processor, up to 54W, 2 cores at 3.9GHz, 4MB cache, DDR4-2400 memory speed Or up to one Intel Celeron processor, up to 54W, 2 cores at 3.2GHz, 2MB cache, DDR4-2400 memory speed																																																																
Chipset	Intel C246 Platform Controller Hub																																																																
Memory	4 DIMM sockets with 2 channels, 2 DIMMs per channel. UDIMM. DDR4-2666. Non-ECC UDIMM are supported in China only																																																																
Memory capacity	64GB with 4x 16GB UDIMMs, both ECC and Non-ECC																																																																
Memory protection	ECC																																																																
Storage controllers	Supports the following RAID/HBA adapters:																																																																
	<table border="1"> <thead> <tr> <th>RAID adapter</th> <th>Interface</th> <th>Drive type</th> <th>RAID levels</th> <th>JBOD</th> <th>Cache</th> <th>Cache protection</th> <th>FastPath</th> </tr> </thead> <tbody> <tr> <td>Onboard SATA</td> <td>6Gbps SATA</td> <td>SATA</td> <td>0/1/10/5</td> <td>Yes</td> <td>None</td> <td>None</td> <td>No</td> </tr> <tr> <td>530-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>None</td> <td>None</td> <td>Yes</td> </tr> <tr> <td>730-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50</td> <td>Yes</td> <td>1GB</td> <td>None</td> <td>No</td> </tr> <tr> <td>930-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>2GB</td> <td>Flash backup</td> <td>Yes</td> </tr> <tr> <td>430-8i</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>430-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>-</td> <td>Yes</td> <td>None</td> <td>None</td> <td>-</td> </tr> <tr> <td>930-8e</td> <td>12Gbps SAS</td> <td>SATA/SAS</td> <td>0/1/10/5/50/6/60</td> <td>Yes</td> <td>4GB</td> <td>Flash backup</td> <td>Yes</td> </tr> </tbody> </table>	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes
	RAID adapter	Interface	Drive type	RAID levels	JBOD	Cache	Cache protection	FastPath																																																									
	Onboard SATA	6Gbps SATA	SATA	0/1/10/5	Yes	None	None	No																																																									
	530-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	None	None	Yes																																																									
	730-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50	Yes	1GB	None	No																																																									
	930-8i	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	2GB	Flash backup	Yes																																																									
	430-8i	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	430-8e	12Gbps SAS	SATA/SAS	-	Yes	None	None	-																																																									
	930-8e	12Gbps SAS	SATA/SAS	0/1/10/5/50/6/60	Yes	4GB	Flash backup	Yes																																																									
Disk drive bays	Up to 4x 3.5"/2.5" Non-hot swap SATA/SAS cabled drive, HDD, SSD, or mixing of HDD and SSD. 4th bay is optional with 5.25" to 3.5" conversion kit and occupies 5.25" bay																																																																
SD card reader	Up to two SD card with optional SD card module, 32GB or 64GB																																																																
Disk support	3.5" HDD, SATA6Gbps, 7.2K																																																																
	2.5" SSD, SATA6Gbps																																																																
	SD card																																																																
Optical	One 5.25" bays for half-height optical, LTO-7 SAS or RDX USB 3.0 tape drive, or 4th disk bay plus one slim optical																																																																
Network interfaces	One onboard GbE port via integrated gigabit ethernet Intel i219LM, supports Wake-on-LAN. Optional PCIe ethernet adapters are available																																																																
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 or 2.0 compliant, Optional TCM in China only. Optional chassis intrusion switch, Kensington lock, and pad lock																																																																
Operating systems supported	Microsoft Windows Server 2019/2016. Red Hat Enterprise Linux 7.5. VMware vSphere (ESXi) 6.5 U2																																																																
Systems management	Intel Active Management Technology 12 on Xeon models, Intel Standard Manageability on other models																																																																
GPU support	Up to one optional NVIDIA Quadro P620																																																																
Base warranty	MT 7Y48: 3-year limited onsite service with 9x5/NBD MT 7Y49: 1-year limited onsite service with 9x5/NBD																																																																
Power supply	Supports one 250W or 400W power supply, 100V - 240V, 92% PSU. Climate Savers Computing Platinum and 80 PLUS Platinum qualified. 400W PSU supports one 6+2-pin aux power connector.																																																																
Video	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i3, or Intel UHD Graphics 610 in Pentium and Celeron processors																																																																
Cooling	Two fixed system fans, CPU fan, PSU fan, and optional media bay fan																																																																
Front ports	2x USB 3.1 Gen 1 Type A																																																																
Rear ports	2x USB 3.1 Gen 1 Type A. 2x USB 2.0 Type-A. 1x RJ-45. 1x COM. 1x line-out. 2x DP (DP needs Core, Pentium, Celeron, or -G suffix Xeon processor)																																																																
Environmental specification	Supports ASHRAE A2																																																																
Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/																																																																



Disk bays

Bay 0	3.5" bay, HDD or SSD
Bay 1	3.5" bay, HDD or SSD
Bay 2	3.5" bay, HDD or SSD
Bay 3	One of the following:
	• half-height optical
	• tape drive
	• 3.5" bay + slim optical

Expansion slots

Supports three PCIe 3.0 slots as following:

Slot 1	PCIe 3.0 x16, full height, half length, links to CPU
Slot 2	PCIe 3.0 x1, full height, half length, links to PCH
Slot 3	PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to PCH

Partial options for ThinkSystem ST50

ThinkSystem 8GB TruDDR4 (1Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08696
ThinkSystem 16GB TruDDR4 (2Rx8, 1.2V) 2666 MHz UDIMM	4ZC7A08699
ThinkSystem ST50 3.5" 1TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13554
ThinkSystem ST50 3.5" 2TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13555
ThinkSystem ST50 3.5" 4TB 7.2K SATA 6Gb Non-Hot Swap 512n HDD	4XB7A13556
ThinkSystem ST50 3.5" 6TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	4XB7A13557
ThinkSystem ST50 3.5" 8TB 7.2K SATA 6Gb Non-Hot Swap 512e HDD	4XB7A13558
ThinkSystem ST50 3.5" Intel S4510 240GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14914
ThinkSystem ST50 3.5" Intel S4510 480GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14915
ThinkSystem ST50 3.5" Intel S4510 960GB Entry SATA 6Gb Non Hot Swap SSD	4XB7A14916
ThinkSystem ST50 HH ODD / Tape Cable Kit	4Z57A13568
ST50 5.25 to 3.5 HDD kit W/ Slim ODD	4M17A12096
ST50 DP to HDMI Dongle Kit	4X97A12100
ST50 DP to VGA Dongle Kit	4X97A12099
ThinkSystem ST50 Super Cap Bracket & Cable Kit	4M17A12094
ST50 Dual SD Cards Adapter Kit	4M17A12095
ThinkSystem ST50/ST250 Rack Mount Kit	4M17A12785



ThinkSystem ST550 Platform Specifications

Product Specifications Reference (PSREF)

Components	Specification		
Form factor	Tower or 4U rack		
Dimensions	Without foot stands and security door: Height: 425.5 mm (16.8 in). Width: 175.8 mm (6.92 in). Depth: 666.4 mm (26.24 in)		
Weight	Maximum configuration: 81.35 lb (36.9 kg)		
Processor	Up to two 125W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum. Up to 20 cores at 2.0GHz, up to 3.8GHz with 4 cores. Two processors are connected with two UPI (Ultra Path Interconnect) links up to 10.4GT/s		
Chipset	Intel C621 Platform Controller Hub		
Memory	Up to 12 DIMM sockets. Each processor supports up to 6 DIMM sockets with 6 channels. DDR4-2933 or DDR4-2666. RDIMMs		
Memory capacity	Up to 768GB with 12 x 64 GB DIMMs and two processors		
Memory protection	ECC, memory mirroring, and memory sparing		
Storage controllers	Supports the following RAID/HBA adapters:		
	<i>Note: 730-8i is available in China only. All RAID/HBA adapters should be placed in slot 1 firstly.</i>		
Disk drive bays	Supports 4 or 8 front 3.5" SATA simple-swap bays. Or 4 or 8 front 3.5" SATA/SAS HS bays. Or 8 or 16 front 2.5" SATA/SAS HS bays with maximum 4 AnyBay. Optional 4 front 2.5" HS bays are supported on hot-swap models, takes place in two 5.25" bays location Optional one or two internal M.2 SSD for boot, dual M.2 SSD supports mirroring		
Internal storage	For 3.5" SS bay	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB
	For 3.5" bay	3.5" HDD, SATA6Gbps, 7.2K	1TB/2TB/4TB/6TB/8TB/10TB
	(3.5" disks or 2.5" disks with 3.5" tray)	3.5" HDD, SAS12Gbps, 7.2K	1TB/2TB/4TB/6TB/10TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB
	For 2.5" bay	2.5" SSD, SATA6Gbps	240GB/480GB
		2.5" HDD, SATA6Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 7.2K	1TB/2TB
		2.5" HDD, SAS12Gbps, 10K	300GB/600GB/900GB/1.2TB/1.8TB
		2.5" HDD, SAS12Gbps, 15K	300GB/600GB/900GB
		2.5" SSD, SAS12Gbps	400GB/800GB/3.84TB
2.5" SSD, SATA6Gbps		240GB/480GB	
2.5" NVMe SSD, AnyBay		1.92TB/3.84TB	
	M.2 SATA SSD	32GB/128GB/480GB	
Optical	Two 5.25" bays for optical and tape drive. Supports DVD-ROM or DVD±RW drives, half-height. Supports LTO-6 SAS, LTO-7 SAS, and RDX USB 3.0 tape drives		
Network interfaces	Integrated one dedicated management port plus two GbE ports. Optional PCIe adapters are supported. NC-SI and Wake-on-LAN are available on GbE port 1 (See right)		
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional TCM in China only. Optional lockable security bezel. Optional chassis intrusion switch		
Operating systems supported	Microsoft Windows Server 2016/2012 R2. Red Hat Enterprise Linux 7.3/6.9. SUSE Linux Enterprise Server 12 SP2/11 SP4. VMware vSphere (ESXi) 6.5/6.0 U3		
Systems management	XClarity Controller Standard, optional upgrades to Advanced or Enterprise are available. Energy Manager. XClarity Administrator. Provisioning Manager. Essentials. LEDs on front panel show the status of power, ID, network, simple-swap disks, and system error		
GPU support	Up to two optional NVIDIA Quadro P2000 or Quadro P6000		

Components	Specification	
Base warranty	MT 7X09: 1-year limited onsite service with 9x5/NBD MT 7X10: 3-year limited onsite service with 9x5/NBD	
Power supply	Supports one fixed 450W 80 PLUS Gold qualified AC power supply, non-hot swap, no redundant. Or up to two redundant hot-swap 550W/750W/1000W 80 PLUS Platinum qualified AC power supplies. Or up to two redundant hot-swap 750W Titanium qualified AC power supplies. 750W Titanium is 200V - 240V, others are 100V - 240V	
Video	Integrated Matrox G200 in XClarity Controller	
Cooling	Up to four fans with one for redundant. Two fans for single processor, three fans for dual processor or single processor with 4 x 2.5" HS bay installed. 4th fan is N + 1 redundant or GPU installed	
Front ports	One XClarity Controller USB connector, one USB 3.0	
Rear ports	One VGA, two USB 3.0, four USB 2.0, two ethernet (RJ-45), one XClarity Controller network connector. Optional COM port	
Environmental specification	Supports ASHRAE A4 with limitations.	
	Temperature - operating	A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)
	Temperature - non operating (no package)	-10°C to 60°C (14°F to 140°F)
	Temperature - non operating (with package)	-40°C to 70°C (-40°F to 158°F)
	Altitude - operating	(Unpressurized): 0-10000ft (0-3048m)
	Humidity - operating, non-condensing	A4: 8%-90%. A3: 8%-85%. A2: 20%-80%
	Humidity - storage (with package), non-condensing	8%-90%
	<i>Models should meet the following requirements to support A3 and A4:</i>	
	<ul style="list-style-type: none"> System rear fan required, no system fan fail 450W fixed power supply not installed, redundant power supplies required NVMe SSD not installed GPU not installed When 4 x 2.5" bay installed, only support up to 2TB SAS HDD/SSD and all SATA HDD/SSD 	
	Environmental certification	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/

Expansion slots

Slot 1 (CPU1)	PCIe 3.0 x8, full height, half length
Slot 2 (CPU1)	PCIe 3.0 x16, full height, half length
Slot 3 (CPU1)	PCIe 3.0 x16, full height, full length, double-width
Slot 4 (CPU2)	PCIe 3.0 x16 (x8 elec), full height, full length
Slot 5 (CPU2)	PCIe 3.0 x16, full height, full length, double-width
Slot 6 (CPU1)	PCIe 3.0 x8 (x4 elec), full height, full length

Note: All expansion cards and redundant PSU are optional.

System unique options	Part Number	Description
	7X77A03475	ThinkSystem ST550 2.5" SATA/SAS 4-Bay Backplane Kit
	7X77A03476	ThinkSystem ST550 2.5" Anybay 8-Bay Backplane Kit
	7TP7A04369	ThinkSystem ST550 2.5" 8-Bay Backplane Kit
	7TP7A04370	ThinkSystem ST550 3.5" SATA/SAS 4-Bay Backplane kit
	7X77A03481	ThinkSystem ST550 3.5" Simple Swap Bracket Plate
	7X77A03484	ThinkSystem ST550 4U Security Bezel
	7X77A03485	ThinkSystem ST550 CMA kit
	7X77A03488	ThinkSystem ST550 4U Tower to Rack Conversion Kit
	7Z17A02577	ThinkSystem ST550 COM Port Upgrade Kit
	7XH7A06781	ThinkSystem ST550 Front Mid FAN Module for 4x2.5" ODD conversion
	7TP7A04371	ThinkSystem ST550 Rear FAN Module for RDN FAN

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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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Lenovo™ **ThinkVision**

PSREF



Product Specifications Reference

Version 543, June 2019

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

June, 2019 - Version 543

Additions in this update

▶ **New product(s)**

ThinkVision T27p-10 announced May 2019

▶ **New model(s)**

None

▶ **Others**

None

Withdrawals in this update

▶ **Withdrawn product(s)**

ThinkVision P27 is withdrawn in the book

ThinkVision T24i is withdrawn in the book

ThinkVision T2423 is withdrawn in the book

ThinkVision T2424z is withdrawn in the book


ThinkVision T2220VA is withdrawn in the book

ThinkVision T2364t is withdrawn in the book


ThinkVision T2224z is withdrawn in the book

ThinkVision Pro2820 is withdrawn in the book




<p>Name E1922s Wide Flat Panel Monitor Case color Black Type-model 60G2AAR6US / 60G2AAT6EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 18.5" (470mm) diagonal Max view area (W x H) 16.1" x 9.1" / 409.8mm x 230.4mm Native resolution 1366x768 Aspect ratio 16:9 Pixel pitch (mm) 0.3mm Dot/Pixel per Inch 85 dpi Brightness 200 nits or cd/m² (typical) Contrast ratio 600:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 180° (+/- 90°) horizontal, 100° (+/- 50°) vertical Stand Tilt adjustable stand Bezel width Sides: 0.73" (18.5mm) Dimensions (HxWxD) 13.44" H x 17.65" W x 6.58" D; 341.5mm H x 448.4mm W x 167.2mm D Power supply 13.7 watts typical, 17 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.03 lb; 2.74 kg Limited warranty⁴ 3 year (includes backlight) Available date March 2014</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 18.5-inch monitor • Supports HD 1366x768 resolution • Supports VESA mount (100mm) • Mercury free panel and arsenic free glass • Kensington lock slot ready for enhanced security • Support Lenovo Tiny PC via VESA mount • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified 				
<p>VESA-compliant² VESA DPMS-compliant Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO (TCO Displays 7.0), WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E1922s Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1366x768</p> <p>Presets / user settings Standard presets: 15 user settings: 16</p>					
<p>Viewing adjustments Tilt: 20° backward, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (control buttons on front) for automatic image setup and adjustment for brightness Multiple input None Monitor connectors VGA 15-pin D-shell, analog, blue Signal cables detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name E2054 Wide Flat Panel Monitor Case color Raven black Type-model 60DFAAR1US / 60DFAAT1EU Panel TFT-LCD, In-Plane Switching (IPS), LED backlight Viewable image size 19.5" (494mm) diagonal Max view area (W x H) 16.48" x 10.33" / 418.6mm x 262.4mm Native resolution 1440x900 Aspect ratio 16:10 Pixel pitch (mm) 0.097mm x 0.292mm Dot/Pixel per Inch 87 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt adjustable stand Bezel width Top: 0.71" (18.0mm) Bottom: 0.70" (17.9mm) Sides: 1.02" (26.0mm) Dimensions (HxWxD) 14.65" H x 17.95" W x 7.41" D; 372.0mm H x 456.0mm W x 188.3mm D Power supply 16 watts typical, 20 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.17 lb; 2.8 kg Limited warranty 3 year (includes backlight) Available date November 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 19.5-inch monitor • Supports HD 1440x900 resolution • Supports VESA mount (100mm) • Mercury free panel and arsenic free glass • Kensington lock slot ready for enhanced security • Support Lenovo Tiny PC via VESA mount • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified
<p>VESA-compliant VESA DPMS-compliant Power management ENERGY STAR® 6.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO (TCO Displays 6.0), WEEE, RoHS, EPEAT™ Silver rating</p>	<div style="text-align: center;">  <p>ThinkVision E2054 Wide Monitor</p> </div>
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x768, 1280x1024 WXGA: 1366x768 WXGA+: 1440x900</p> <p>Presets / user settings Standard presets: 18 user settings: 10</p>	
<p>Viewing adjustments Tilt: 22° backward, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (control buttons on front) for automatic image setup and adjustment for brightness Multiple input None Monitor connectors VGA 15-pin D-shell, analog, blue Signal cables detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	
<p>Ship group Monitor with stand, 1.8 meter analog signal cable, 1.8 meter black power cord</p>	

<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name LT1913p Square Flat Panel Monitor Case color Black Type-model 60FBHAR1US / 60FBHAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 19.0" (480.0mm) diagonal Max view area (W x H) 14.76" x 11.80" (374.7mm x 299.8mm) Optimum resolution 1280x1024 Max pixel rate 205MHz (VGA), 165MHz (DVI) Aspect ratio 5:4 Pixel pitch (mm) 0.0976 (H) x 0.2928 (V) mm Dot/Pixel per Inch 86.8 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.68" (17.4mm); top: 0.68" (17.4mm); bottom: 0.68" (17.4mm) Dimensions (HxWxD) 14.63" H x 16.18" W x 10.40" D; 371.5mm H x 411.0mm W x 264.2mm D Power supply 24 watts typical, 27 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.69 lb; 4.85kg Limited warranty⁴ 3 year (includes backlight) Available date April 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 19-inch Square IPS LED backlight panel • Supports 1280x1024 resolution • Supports ThinkCentre Tiny Clamp Bracket • Mercury and arsenic free glass • Low Halogen • Recycled content in plastic material • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 								
<p>VESA-compliant² VESA DDC2B/C1, EDID 1.3 Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 1.1, WEEE, RoHS, EPEAT™ Gold rating, ULE Gold</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 823x624 XGA: 1024x768, 1152x864, 1152x900 SXGA: 1280x1024</p> <p>Presets / user settings Standard presets: 20; user settings: 20</p>	 <p>ThinkVision LT1913p Square Monitor</p>								
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/- 45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, input switch, and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>									
<p>Ship group Monitor, attached stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>									
<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td>55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303	Lenovo Easy Reach Monitor Stand	55Y9258
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Kensington Twin Head Cable Lock	45K1620								
Lenovo Security Cable Lock	57Y4303								
Lenovo Easy Reach Monitor Stand	55Y9258								




<p>Name T1714 Square Flat Panel Monitor Case color Black Type-model 60FDHAR1US / 60FDHAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 17.0" (432mm) diagonal Max view area (W x H) 13.3" x 10.6" (337.9mm x 270.3mm) Optimum resolution 1280x1024 Aspect ratio 5:4 Pixel pitch (mm) 0.264mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt stand Bezel width Sides: 0.69" (17.5mm) Dimensions (HxWxD, including stand) 14.72" H x 14.74" W x 7.87" D; 373.9mm H x 374.5mm W x 200mm D Power supply 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 5.75 lb; 2.61kg Limited warranty 3 year (includes backlight) Available date September 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 17-inch Square LCD monitor • Supports SXGA 1280x1024 resolution • Includes dual input connection for attachment to two systems concurrently (analog and digital) • Mercury Arsenic free glass • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 certified • Microsoft Windows 8.1 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T1714 Monitor</p> </div>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864, SXGA: 1280x800, 1280x1024</p> <p>Presets / user settings Standard presets: 17; user settings: 17</p>							
<p>Viewing adjustments Tilt: 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>	<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td>55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Easy Reach Monitor Stand	55Y9258
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Easy Reach Monitor Stand	55Y9258						




<p>Name T1714p Square Flat Panel Monitor Case color Black Type-model 60FELAR1US / 60FELAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 17.0" (432mm) diagonal Max view area (W x H) 13.3" x 10.6" (337.9mm x 270.3mm) Optimum resolution 1280x1024 Aspect ratio 5:4 Pixel pitch (mm) 0.264mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt height adjustable stand Bezel width Sides: 0.69" (17.5mm) Dimensions (HxWxD, including stand) 17.63" H x 14.74" W x 9.61" D; 447.9mm H x 374.5mm W x 244.2mm D Power supply 14.0 watts typical, 18.0 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 8.71 lb; 3.95kg Limited warranty 3 year (includes backlight) Available date September 2015</p>	<p>Features</p> <ul style="list-style-type: none"> • 17-inch Square LCD monitor • Supports SXGA 1280x1024 resolution • Includes dual input connection for attachment to two systems concurrently (analog and digital) • Mercury Arsenic free glass • Supports Lenovo Tiny PC and 3rd party thin client via optional Lenovo bracket • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 certified • Microsoft Windows 8.1 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T1714p Monitor</p> </div>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864, SXGA: 1280x800, 1280x1024 Presets / user settings Standard presets: 22; user settings: 22</p>							
<p>Viewing adjustments Tilt: 22° back, -5° forward; lift: 4.3" (110mm) Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) Digital Visual Interface (DVI-D), digital, white, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DVI-D at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	<p>Ship group Monitor and stand, Setup poster, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DVI-D cable, 1.8 meter black power cord</p>						
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> <tr> <td>Lenovo Easy Reach Monitor Stand</td> <td style="text-align: right;">55Y9258</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Easy Reach Monitor Stand	55Y9258
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Easy Reach Monitor Stand	55Y9258						




<p>Name T2054p Wide Flat Panel Monitor Bezel color Raven black Type-model 60G1MAR2US / 60G1MAT2EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 19.5" (495mm) diagonal Max view area (W x H) 16.48" x 10.33" (418.6mm x 262.4mm) Native resolution 1440x900 Aspect ratio 16:10 Pixel pitch (mm) 0.2915 x 0.2915 mm Dot/Pixel per Inch 87 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, and height adjustable Bezel width Sides: 0.67" (17.0mm) Dimensions (HxWxD) 13.62" H x 17.88" W x 9.55" D; 345.9mm H x 454.2mm W x 242.6mm D</p> <p>Power supply 14.5 watts typical, 21 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 8.16 lb; 3.70 kg Limited warranty⁴ 3 year (includes backlight) Available date September 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 19.5-inch monitor • Supports 1440x900 resolution • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant² VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2054p Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400, 720x576 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x800, 1280x1024 WXGA: 1366x768 WXGA+: 1440x900</p> <p>Presets / user settings Standard presets: 22 user settings: 16</p>					
<p>Viewing adjustments <i>Tilt: 22° backward, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand</i> Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name E21 Wide Flat Panel Monitor Bezel color Black Type-model 61B9JAR1US / 61B9JAT1EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 20.7" (525.78mm) diagonal Max view area (W x H) 18.03" x 10.14" (457.92mm x 257.58mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2385 x 0.2385 mm Dot/Pixel per Inch 106 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt adjustable stand Bezel width Sides: 0.6" (15.3mm) Dimensions (HxWxD) 14.6" H x 19.31" W x 8.07" D; 370.9mm H x 490.5mm W x 204.9mm D Power supply 18 watts typical, 23 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 5.82 lb; 2.64 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 20.7-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Low Blue Light certification • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E21 Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Standard presets: 22</p>					
<p>Viewing adjustments Tilt: 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort (1.2), digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name E24 Wide Flat Panel Monitor Bezel color Black Type-model 61B7JAR6US / 61B7JAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92.5 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt adjustable stand Bezel width <i>Sides:</i> 0.51" (13mm) Dimensions (HxWxD) 15.9" H x 21.81" W x 8.07" D; 403.8mm H x 554mm W x 204.9mm D Power supply 18 watts typical, 23 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 8.2 lb; 3.7 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny VESA mount • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision E24 Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Standard presets: 24; user settings: 20</p>					
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					




<p>Name P24h Wide Flat Panel Monitor Bezel color Black Type-model 61AEGAR3US / 61AEGAT3EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.74" x 11.67" (526.9mm x 296.4mm) Native resolution 2560x1440 Aspect ratio 16:9 Pixel pitch (mm) 0.2058x 0.2058 mm Dot/Pixel per Inch 124 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms (extreme) / 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 14.7" H x 21.26" W x 10.3" D; 373.4mm H x 540.2mm W x 261.75mm D Power supply 24 watts typical, 120 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 12.54 lb; 5.69 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 2560x1440 resolution • Supports optional soundbar • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision P24h Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440 Presets display modes HDMI: 22; DP: 14</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) DisplayPort-out, digital (4) USB 3.1 Type-C Signal cables (1) USB 3.1 Type-C cable, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>	<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord</p>				
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name P24q Wide Flat Panel Monitor Case color Black Type-model 61A5GAR3US / 61A5GAT3EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.74" x 11.67" (526.85mm x 296.35mm) Optimum resolution 2560x1440 Max pixel rate 300MHz Aspect ratio 16:9 Pixel pitch (mm) 0.2058 x 0.2058mm Dot/Pixel per Inch 123 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms Color gamut 99% sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2mm) Dimensions (HxWxD, including stand) 373.4mm H x 540.2mm W x 261.75mm D Power supply 24 watts typical, 67 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off integrated (no external brick-like power supply) Weight 12.35 lb; 5.6kg (including stand) Limited warranty 3 year Available date January 2017</p>	<p>Features</p> <ul style="list-style-type: none"> • 23.8-inch IPS LED backlight monitor • Supports 2560x1440 resolution • 5-Ports USB hub, support USB 3.0 • Support ThinkCentre Tiny • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Gold rating, ULE Gold</p>	<div style="text-align: center;">  <p>ThinkVision P24q Monitor</p> </div>						
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440</p> <p>Presets / user settings Standard presets: 20; user settings: 24</p>							
<p>Viewing adjustments <i>Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45°</i> Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for menu, source switch, and brightness USB hub USB Hub: one USB 3.0 upstream port, four USB 3.0 downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, mini DisplayPort, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) Mini DisplayPort, digital, HDCP-compliant Signal cables (1) detachable, mini DisplayPort to DisplayPort, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.0 cable, 1.8 meter mini DP to DP cable, 1.8 meter black power cord</p>	<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						



<p>Name T2224d Wide Flat Panel Monitor Bezel color Black Type-model 61B1JAR1US / 61B1JAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.69" (17.6mm) Dimensions (HxWxD) 15.02" H x 20.19" W x 8.06" D; 381.4mm H x 512.9mm W x 204.9mm D Power supply 20 watts typical, 25 watts maximum <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 6.48 lb; 2.94 kg Limited warranty 3 year (includes backlight) Available date March 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2224d Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets / user settings Standard presets: 22; user settings: 22</p>					
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					



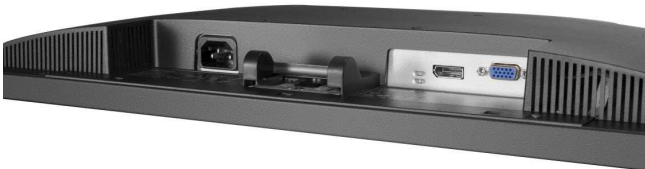
<p>Name T2254p Wide Flat Panel Monitor Bezel color Raven black Type-model 61BAMAR2US / 60E1MAR2US / 60CCMAR2US / 60CCMAT2EU / 61BAMAT2EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 22.0" (559mm) diagonal Max view area (W x H) 18.70" x 11.70" (473.8mm x 296.1mm) Native resolution 1680x1050 Aspect ratio 16:10 Pixel pitch (mm) 0.282 x 0.282 mm Dot/Pixel per Inch 90 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt, swivel, pivot, and height adjustable Bezel width Sides: 0.67" (17.1mm) Dimensions (HxWxD) 14.63" H x 20.01" W x 9.55" D; 371.7mm H x 509.3mm W x 242.7mm D Power supply 20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.14 lb; 4.60 kg Limited warranty 3 year (includes backlight) Available date March 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 22.0-inch monitor • Supports 1680x1050 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2254p Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1600x900, 1680x1050 Presets / user settings Standard presets: 28; user settings: 20</p>					
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name T22i Wide Flat Panel Monitor Bezel color Black Type-model 61A9MAR1US / 61A9MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 14.08" H x 19.28" W x 9.92" D; 357.6mm H x 489.7mm W x 251.9mm D Power supply 16.5 watts typical, 55 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.85 lb; 4.92 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T22i Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets display modes HDMI: 17; DP: 17</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T22v Wide Flat Panel Monitor Bezel color Black Type-model 61BBMAR6US / 61BBMAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 21.5" (546mm) diagonal Max view area (W x H) 18.74" x 10.54" (476.1mm x 267.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.248 x 0.248 mm Dot/Pixel per Inch 102 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.14" H x 19.28" W x 9.92" D; 485.8mm H x 489.7mm W x 251.9mm D Power supply 18 watts typical, 43 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.16 lb; 4.61 kg Limited warranty 3 year (includes backlight) Available date October 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 21.5-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T22v Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets display modes Presets: 24; user modes: 20</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0) Multimedia Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported Camera Integrated FHD camera with IR Multiple input Support HDMI, DisplayPort, VGA Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name T2324d Wide Flat Panel Monitor Bezel color Black Type-model 60F3JAR2US / 60F3JAT2EU Panel TFT-LCD, twisted nematic (TN), White LED backlight Viewable image size 23.0" (584mm) diagonal Max view area (W x H) 20.07" x 11.29" (509.8mm x 286.7mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2655 x 0.2655 mm Dot/Pixel per Inch 96 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 5ms (typical) Color gamut 72% Viewing angle at 10:1 CR 170° (+/- 85°) horizontal, 160° (+/- 80°) vertical Stand Tilt stand Bezel width Sides: 0.68" (17.3mm) Dimensions (HxWxD) 15.75" H x 21.48" W x 8.06" D; 400.3mm H x 545.8mm W x 204.9mm D Power supply 20 watts typical, 27 watts maximum <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 7.06 lb; 3.20 kg Limited warranty 3 year (includes backlight) Available date June 2016</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.0-inch monitor • Supports 1920x1080 resolution • Supports optional soundbar • Supports ThinkCentre Tiny via VESA back mount • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T2324d Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x768, 1280x800, 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets / user settings Standard presets: 26; user settings: 16</p>					
<p>Viewing adjustments Tilt: 22° back, -5° Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T23d-10 Wide Flat Panel Monitor Bezel color Black Type-model 61C3MAR6US / 61C3MAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 22.5" (571.5mm) diagonal Max view area (W x H) 19.5" x 12.4" (496.2mm x 313.9mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.25 x 0.25 mm Dot/Pixel per Inch 100.6 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.09" (2.3mm) Dimensions (HxWxD) 19.37" H x 19.73" W x 9.9" D; 491.9mm H x 501.2mm W x 251.9mm D</p> <p>Power supply 15 watts typical, 18 watts maximum, <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 10.67 lb; 4.85 kg Limited warranty 3 year (includes backlight) Available date June 2018</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 22.5-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 																	
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T23d-10 Wide Monitor</p> </div>																	
<p>Preset resolutions</p> <table border="0"> <tr><td>VGA:</td><td>640x480, 720x400</td></tr> <tr><td>SVGA:</td><td>800x600</td></tr> <tr><td>XGA:</td><td>1024x768</td></tr> <tr><td>SXGA:</td><td>1280x1024</td></tr> <tr><td>WXGA:</td><td>1366x768</td></tr> <tr><td>WXGA+:</td><td>1440x900</td></tr> <tr><td>WSXGA+:</td><td>1680x1050</td></tr> <tr><td>Full HD:</td><td>1920x1080</td></tr> <tr><td>WUXGA:</td><td>1920x1200</td></tr> </table> <p>Presets display modes Standard presets: 27; user settings: 20</p>		VGA:	640x480, 720x400	SVGA:	800x600	XGA:	1024x768	SXGA:	1280x1024	WXGA:	1366x768	WXGA+:	1440x900	WSXGA+:	1680x1050	Full HD:	1920x1080	WUXGA:
VGA:	640x480, 720x400																	
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XGA:	1024x768																	
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WXGA+:	1440x900																	
WSXGA+:	1680x1050																	
Full HD:	1920x1080																	
WUXGA:	1920x1200																	
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>																		
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</p>																		
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620													
Kensington MicroSaver Cable Lock	73P2582																	
Kensington Twin Head Cable Lock	45K1620																	

Note: The specifications above may not be available in all regions.



<p>Name T23i Wide Flat Panel Monitor Bezel color Black Type-model 61ABMAR1US / 61ABMAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23" (584.2mm) diagonal Max view area (W x H) 20.36" x 11.92" (517.2mm x 302.8mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2652 x 0.2652 mm Dot/Pixel per Inch 95.8 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2.0mm) Dimensions (HxWxD) 13.3" H x 20.56" W x 10.4" D; 337.7mm H x 522.2mm W x 264.2mm D Power supply 16 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 10.85 lb; 4.92 kg Limited warranty 3 year (includes backlight) Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T23i Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400; SVGA: 800x600; XGA: 1024x768, 1152x864; SXGA: 1280x1024; WXGA+: 1440x900; WSXGA+: 1680x1050; Full HD: 1920x1080</p> <p>Presets display modes HDMI: 18; DP: 18</p>					
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness and automatic image setup USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue; (2) HDMI (1.4), digital, HDCP-compliant; (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter; (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T2454p Wide Flat Panel Monitor Bezel color Raven black Type-model 60F9MAR1US / 60F9MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight</p> <p>Viewable image size 24.0" (609.6mm) diagonal Max view area (W x H) 20.41" x 12.76" (518.4mm x 324.0mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.270 x 0.270 mm Dot/Pixel per Inch 94 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 77.4% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.74" (18.8mm) Dimensions (HxWxD) 15.85" H x 21.94" W x 10.39" D; 402.5mm H x 557.4mm W x 264.2mm D</p> <p>Power supply 24 watts typical, 27 watts maximum (without USB 3.0 hub), 54 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply)</p> <p>Weight 13.60 lb; 6.15 kg Limited warranty 3 year (includes backlight) Available date March 2015</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 24.0-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently (analog and digital) • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 8 / Windows 8.1 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1280x720, 1280x768, 1280x800 WXGA+: 1440x900 WSXGA+: 1680x1050, 1600x1200 Full HD: 1920x1080, 1920x1200</p> <p>Presets / user settings Standard presets: 21; user settings: 20</p>	 <p style="text-align: center;">ThinkVision T2454p Wide Monitor</p>				
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for automatic image setup, dual input and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DisplayPort cable, 1.8 meter USB signal cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name T24d Wide Flat Panel Monitor Bezel color Black Type-model 61B4MAR1US / 61B4MAT1EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 24" (609.6mm) diagonal Max view area (W x H) 20.41" x 12.75" (518.4mm x 324mm) Native resolution 1920x1200 Aspect ratio 16:10 Pixel pitch (mm) 0.27 x 0.27 mm Dot/Pixel per Inch 94 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 99% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2.0mm) Dimensions (HxWxD) 19.58" H x 20.99" W x 10.25" D; 497.4mm H x 533.2mm W x 260.4mm D Power supply 22 watts typical, 64 watts maximum (with USB 3.0 hub), <0.3 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 12.41 lb; 5.63 kg Limited warranty 3 year (includes backlight) Available date June 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 24-inch monitor • Supports 1920x1200 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • Includes dual input connection for attachment to two systems concurrently • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T24d Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900 WSXGA+: 1680x1050 Full HD: 1920x1080 WUXGA: 1920x1200</p> <p>Presets display modes Standard presets: 22; user settings: 20</p>					
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.3" (110mm); swivel: +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (NA only)</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
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<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>					



ThinkVision T24i-10 MONITOR



SPECIFICATIONS

DISPLAY		DIMENSIONS (W x D x H)	
Panel Size	23.8" Wide	Size Packed	422 x 622 x 190
Panel Type	In-Plane Switchng	(mm)	16.61" x 24.48" x 7.48"
Backlight	WLED	(inches)	
Resolution (H x V)	1920 x 1080	Size Unpacked with Stand	
Aspect Ratio	16:9	Lowest Position	
Anti-Glare	Yes	(mm)	540.2 x 261.75 x 373.4
Near Edgeless Screen	Yes	(inches)	21.26" x 10.3" x 14.7"
Screen Dimensions (W x H)		Highest Position	
(mm)	527.04 x 296.46	(mm)	540.2 x 261.75 x 483.4
(inches)	20.75" x 11.67"	(inches)	21.26" x 10.3" x 19"
Maximum Brightness (Typical)	250 cd/m ²	Size Unpacked without Stand	
Viewing Angle (H/V at CR 10:1)	178°/178°	(Monitor Head Only)	
Contrast Ratio (Typical)	1000:1	(mm)	540.2 x 46.45 x 325.98
Dynamic Contrast Ratio	3M:1	(inches)	21.26" x 1.82" x 12.83"
Pixel Pitch (mm)	0.2745 x 0.2745	Stand Base Footprint Area	
Color Gamut (CIE 1931)	72% NTSC	(mm)	250 x 250
Color Support (Typical)	16.7 Million	(inches)	9.84" x 9.84"
Response Time (gray to gray)	4 ms (Extreme mode)	Weight	
OSD Controls	6 ms (Normal mode)	Packed	Starting at 16.39 lbs (7.45 kg)
Buttons	5	Unpacked	Starting at 11.33 lbs (5.15 kg)
Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian	Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
		Full Container Load	1140 / 540 Units
		(40' STD / 20' STD)	
CONNECTIVITY		POWER CONSUMPTION	
Video Input Signals	VGA + HDMI™ 1.4 + DisplayPort™ 1.2	Typical	16.5 W
Video Cables Supplied (Length)	1.8 m	Maximum	55 W
USB Hub	1 x USB 3.0 ¹ (Upstream) 4 x USB 3.0 ¹ (Downstream, Incl. 1 BC)	Sleep-Mode	<0.5 W
Audio Out	Yes (3.5 mm)	Switch Off-Mode	<0.3 W
		Power Supply	Internal
		Power Voltage	90 VAC - 264 VAC
MECHANICAL		WHAT'S IN THE BOX	
Tilt Angle (Front / Back)	-5° / 30°	Monitor with Stand	
Swivel Angle (Left / Right)	+/-45°	1 x Power Cable	
Lift Range (mm)	110	1 x VGA Cable	
Pivot	+/-90°	1 x DisplayPort™ - DisplayPort™ Cable	
Cable Management	Yes	1 x HDMI™ Cable (NA Only)	
Kensington® Lock	Yes	Quick Setup Guide	
VESA® Mount (mm x mm)	Yes (100 X 100)		
Bezel Color	Raven Black	CERTIFICATIONS	
Bezel Width		EPEAT™	Gold
Top (mm / inches)	2 / 0.08"	ENERGY STAR® Rating	7.1
Sides (mm / inches)	2 / 0.08"	TCO®	7.0
		TCO Edge	2.0
		RoHS (EU 2002/95/EC)	Yes
		China Energy Efficiency Standard	Tier 2
		Windows Certification	Windows 7 / Windows 10
		TüV Eye Comfort Certification	Yes

¹ Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen 1; 10 Gbit/s for USB 3.1 Gen 2 & 20 Gbit/s for USB 3.2.



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ThinkVision T24i-19 MONITOR



SPECIFICATIONS

DISPLAY		DIMENSIONS (W x D)	
Panel Size	23.8" Wide	Size Packed (mm)	422 x 622 x 190
Panel Type	In-Plane-Switching	Size Packed (inches)	16.61" x 24.48" x 7.48"
Backlight	WLED	Size Unpacked with Stand Lowest Position (mm)	540.2 x 261.75 x 373.4
Resolution	FHD (1920 x 1080)	Size Unpacked with Stand Highest Position (mm)	540.2 x 261.75 x 483.4
Aspect Ratio	16:9	Size Unpacked without Stand (Monitor Head Only) (mm)	540.2 x 46.45 x 325.98
Anti-Glare	Yes	Size Unpacked without Stand (Monitor Head Only) (inches)	21.26" x 1.82" x 12.83"
Near Edgeless Screen	Yes	Stand Base Footprint Area (mm)	250 x 250
Screen Dimensions (W x H) (mm)	527.04 x 296.46	Stand Base Footprint Area (inches)	9.84" x 9.84"
Screen Dimensions (W x H) (inches)	20.75" x 11.67"	Weight Packed	Starting at 16.39 lbs (7.45 kg)
Brightness	250 nits	Weight Unpacked	Starting at 11.33 lbs (5.15 kg)
Viewing Angle (H/V at CR 10:1)	178°/178°	Weight Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
Contrast Ratio (Typical)	1000:1	Full Container Load (40' STD / 20' STD)	1140 / 540 Units
Dynamic Contrast Ratio	3M:1		
Speakers	2 x 2W		
Pixel Pitch (mm)	0.2745 x 0.2745		
Color Gamut (CIE 1931)	72% NTSC		
Color Depth	8 bit		
Color Support (Typical)	16.7 Million		
Response Time (GtG)			
Extreme / Normal	4 ms / 6 ms		
OSD Controls			
Buttons	5		
Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian		
CONNECTIVITY		POWER CONSUMPTION	
Video Input Signals	VGA + HDMI™ + DisplayPort™	Typical	16.5 W
Video Cables Supplied	VGA, DisplayPort™, USB, Power, HDMI™ (for NA only)	Maximum	59 W
USB Hub	USB 3.0 (4 x down, 1 x BC)	Sleep-Mode	<0.5 W
Audio Out	Yes (3.5 mm)	Switch Off-Mode	<0.3 W
Power	Internal	Power Supply	Internal
		Power Voltage	90 VAC - 264 VAC
		ENERGY STAR® (P _{on})	13.67 W
		ENERGY STAR® (E _{TEC})	43.51 kWh
MECHANICAL		WHAT'S IN THE BOX	
Tilt Angle (Front / Back)	-5° / 30°	Monitor with Stand	
Swivel Angle (Left / Right)	+/-45°	1 x Power Cable	
Lift Range (mm)	110	1 x VGA Cable	
Pivot	+/-90°	1 x DisplayPort™ - DisplayPort™ Cable	
Stand	LTPS	1 x HDMI Cable (NA Only)	
Cable Management	Yes	Quick Setup Guide	
Kensington® Lock	Yes	CERTIFICATIONS	
VESA® Mount (mm x mm)	Yes (100 X 100)	EPEAT™	Gold
Bezel Color	Raven Black	ENERGY STAR® Rating	7.1
Bezel Width		TCO	7.0
Top (mm / inches)	2 / 0.08"	TCO Edge	2.0
Sides (mm / inches)	2 / 0.08"	ULE	Yes
		RoHS (EU 2002/95/EC)	Yes
		China Energy Efficiency Standard	Tier 2
		Windows Certification	Windows 7 / Windows 10
		TüV Eye Comfort Certification	Yes
		TINY Support	Yes
		Soundbar Support*	Yes
		Package	EPS Cushion

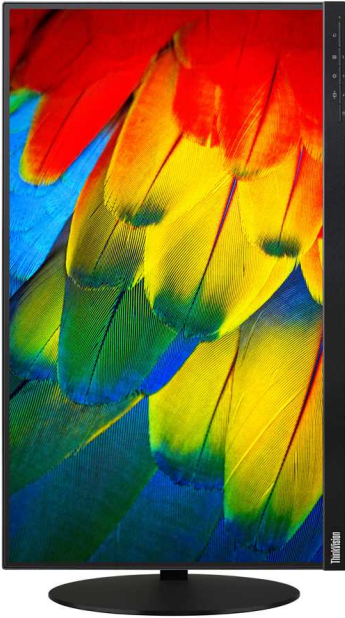
* Optional.




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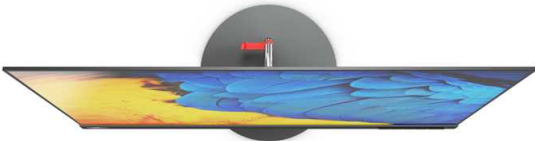
<p>Name T24m Wide Flat Panel Monitor Bezel color Black Type-model 61B8RAR3US / 61B8RAT3EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.7mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.03" H x 21.26" W x 10.3" D; 483.4mm H x 540.2mm W x 261.75mm D Power supply 17 watts typical, 110 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 12.34 lb; 5.6 kg Limited warranty 3 year (includes backlight) Available date August 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p>	<div style="text-align: center;">  <p>ThinkVision T24m Wide Monitor</p> </div>				
<p>Preset resolutions VGA: 640x480 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 HDMI: 19; DP: 11</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 4 ports for accessories (4 USB 3.0) Multimedia Audio-out, optional sound bar supported Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C Monitor connectors (1) HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) USB 3.1 Type-C Signal cables (1) 1.8 meter USB Type-C to USB Type-C cable Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter black power cord</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
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<p>Name T24v Wide Flat Panel Monitor Bezel color Black Type-model 61BCMAR6US / 61BCMAT6EU Panel TFT-LCD, In-Plane Switching (IPS), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.04mm x 296.46mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical); 4ms (extreme mode) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width <i>Sides:</i> 0.08" (2.0mm) Dimensions (HxWxD) 19.72" H x 21.28" W x 10.32" D; 500.5mm H x 540.2mm W x 261.9mm D Power supply 20 watts typical, 45 watts maximum (with USB 3.0 hub), <0.5 watts standby/suspend, universal, integrated (no external brick-like power supply) Weight 11.18 lb; 5.07 kg Limited warranty 3 year (includes backlight) Available date October 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Supports ThinkCentre Tiny Clamp Bracket • Supports optional soundbar • EPEAT Gold certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>VESA-compliant VESA DDC2B/C1 Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating</p> <p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600, 832x624 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets display modes Presets: 24; user modes: 20</p>	<div style="text-align: center;">  <p>ThinkVision T24v Wide Monitor</p> </div>				
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward; <i>lift:</i> 4.3" (110mm); <i>swivel:</i> +/-45°; detachable stand Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access for power, menu, input source select, volume up / down, speaker mute and microphone mute USB hub USB 3.0 Hub: 1 port into PC (USB 3.0); 2 ports for accessories (2 USB 3.0) Multimedia Integrated speakers, dual-array microphone, audio-in and Audio-out, optional sound bar supported Camera Integrated FHD camera with IR Multiple input Support HDMI, DisplayPort, VGA Monitor connectors (1) VGA 15-pin D-shell, analog, blue (2) HDMI (1.4), digital, HDCP-compliant (3) DisplayPort, digital, black, HDCP-compliant</p> <p>Signal cables (1) detachable, VGA 15-pin D-shell at each end, analog, 1.8 meter (2) detachable, HDMI at each end, digital, 1.8 meter</p> <p>Mounting features Wall or desk mounting using the Extend Arm or third-party accessories, 100mm x 100mm mount Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter analog signal cable, 1.8 meter DP signal cable, 1.8 meter USB signal cable, 1.8 meter black power cord, 1.8 meter HDMI signal cable (Row)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name X24 Pro Wide Flat Panel Monitor Bezel color Black Type-model 60E4ECR1US / 60E4ECT1US / 60E4ECT1EU Panel TFT-LCD, AH-IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.0mm x 296.5mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 7ms (typical) Color gamut 72% Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.09" (2.3mm) Dimensions (HxWxD) 17.61" H x 21.30" W x 9.39" D; 447.4mm H x 540.9mm W x 238.4mm D Power supply 20 watts typical, 90 watts maximum, <0.5 watts standby/suspend, universal, external power supply Weight 9.26 lb; 4.20 kg Limited warranty 1 year (includes backlight) Available date July 2016</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Includes dual input connection for attachment to two systems concurrently • EPEAT Silver certified • Intel RealSense 3D camera • Stereo speakers 3 watts x 2 • One cable docking through USB 3.1 Type C with power delivery • Windows Hello certified • Microsoft® Windows® 10 certified 				
<p>Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 6.0, WEEE, RoHS, EPEAT™ Silver rating</p> <p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080</p> <p>Presets / user settings Standard presets: 16; user settings: 20</p>	<div style="text-align: center;">  <p>ThinkVision X24 Pro Wide Monitor</p> </div>				
<p>Viewing adjustments <i>Tilt:</i> 22° back, -5° forward Rotating screen None On screen display On screen display with digital user controls Control features Direct access (buttons on side bezel) for dual input and brightness USB hub USB Hub: two USB 3.1 Type-C and one micro USB 3.0 ports Multimedia Integrated stereo speakers (3 watts x 2), built-in microphone Camera RealSense 3D camera SR300 Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) mDP, Mini DisplayPort, digital, HDCP-compliant (2) USB Type-C, digital Signal cables (1) detachable, mDP to DP, digital, 2.0 meter (2) DP to mDP adapter (3) Micro USB 3.0 cable Mounting features None Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, ThinkPad 90W Square tip power adaptor, 2.0 meter Mini DisplayPort to DisplayPort signal cable (with DP to mDP adapter), Micro USB 3.0 cable (for using camera)</p>					
<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				




<p>Name X24-20 Flat Panel Monitor Bezel color Raven black Type-model 61BDGAR3US / 61BDGAT3EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 23.8" (604.5mm) diagonal Max view area (W x H) 20.75" x 11.67" (527.0mm x 296.5mm) Native resolution 1920x1080 Aspect ratio 16:9 Pixel pitch (mm) 0.2745 x 0.2745 mm Dot/Pixel per Inch 92 dpi Brightness 250 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 72% (NTSC) Viewing angle at 10:1 CR 178° (+/- 89°) horizontal, 178° (+/- 89°) vertical Stand Tilt stand Bezel width <i>Sides:</i> 0.04" (1.1mm) Dimensions (HxWxD) 12.85" H x 21.16" W x 8.66" D; 326.4mm H x 537.4mm W x 220mm D Power supply 20 watts typical, 25 watts maximum, <0.5 watts standby/suspend, universal, external power supply Weight 7.3 lb; 3.3 kg Limited warranty 3 year (includes backlight) Available date December 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • Widescreen 23.8-inch monitor • Supports 1920x1080 resolution • Includes dual input connection for attachment to two systems concurrently • EPEAT Silver certified • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 				
<p>Power management ENERGY STAR® qualified Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Silver rating</p>	<div style="text-align: center;">  <p>ThinkVision X24-20 Monitor</p> </div>				
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080 Presets / user settings Standard presets: 18; user settings: 0</p>					
<p>Viewing adjustments <i>Tilt:</i> 30° back, -5° forward Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on side bezel) for power, dual input and brightness USB hub None Multiple input Dual input (two different PCs attach to two different connectors; one PC shows image; select via button) Monitor connectors (1) HDMI (1.4a), digital, HDCP-compliant (2) DisplayPort, digital, black, HDCP-compliant Signal cables (1) detachable, HDMI at each end, digital, 1.8 meter Mounting features None Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>					
<p>Ship group Monitor with stand, Safety and Warranty Information, 1.8 meter HDMI signal cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p style="text-align: center;">Accessories</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 70%;">Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620
Kensington MicroSaver Cable Lock	73P2582				
Kensington Twin Head Cable Lock	45K1620				



<p>Name P27h Wide Flat Panel Monitor Case color Black Type-model 61AFGAR1US / 61AFGAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (685.8mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.7mm x 335.7mm) Optimum resolution 2560x1440 Max pixel rate 300MHz Aspect ratio 16:9 Pixel pitch (mm) 0.2331 x 0.2331mm Dot/Pixel per Inch 109 dpi Brightness 350 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 4ms (extreme) / 6ms (typical) Color gamut 99% sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2mm) Dimensions (HxWxD, including stand) 513mm H x 611.6mm W x 269.8mm D Power supply 38 watts typical, 140 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off integrated (no external brick-like power supply) Weight 15.43 lb; 7.0kg (including stand) Limited warranty 3 year Available date April 2017</p>	<p style="text-align: center;">Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlit monitor • Supports 2560x1440 resolution • 5-Ports USB hub, support USB 3.0 • Supports optional soundbar • Support ThinkCentre Tiny • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Gold rating, ULE Gold</p>	<div style="text-align: center;">  <p>ThinkVision P27h Monitor</p> </div>						
<p>Preset resolutions VGA: 640x480, 720x400 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x1024 WXGA: 1366x768 WXGA+: 1440x900, 1680x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440</p> <p>Presets display modes HDMI: 22; DP: 14</p>							
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C, DisplayPort-out Monitor connectors (1) 2*HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) DisplayPort-out, digital (4) USB 3.1 Type-C Signal cables (1) USB 3.1 Type-C cable, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB 3.1 Type-C cable, 1.8 meter black power cord</p>	<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <hr/> <p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td style="text-align: right;">57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						



<p>Name P27u Wide Flat Panel Monitor Case color Black Type-model 61CBGAR1US / 61CBGAT1EU / 61CBGAR1EU / 61B0GAR1US / 61B0GAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (684.7mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.74mm x 335.66mm) Optimum resolution 3840x2160 Max pixel rate 600MHz Aspect ratio 16:9 Pixel pitch (mm) 0.1554 x 0.1554mm Dot/Pixel per Inch 163 dpi Brightness 350 nits or cd/m² (typical) Contrast ratio 1000:1 (typical) Pixel response time 6ms (typical) Color gamut 1.457 sRGB Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt, swivel, pivot, and height adjustable stand Bezel width Sides: 0.08" (2mm) Dimensions (HxWxD, including stand) 20.21" H x 24.08" W x 10.62" D; 513.3mm H x 611.6mm W x 269.8mm D Power supply 50 watts typical, 160 watts maximum (with USB), <0.5 watts sleep/off; <0.3 watts switch off integrated (no external brick-like power supply) Weight 15.32 lb; 6.95kg (including stand) Limited warranty 3 year Available date August 2017</p>	<p>Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlight monitor • Supports 3840x2160 resolution • 5-Ports USB hub, support USB 3.0 • Support ThinkCentre Tiny • Supports optional soundbar • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, TCO Certified Edge 2.0, WEEE, RoHS, EPEAT™ Gold rating, ULE Gold</p>	 <p>ThinkVision P27u Monitor</p>						
<p>Preset resolutions VGA: 640x480, 720x400, 720x480, 720x576 SVGA: 800x600 XGA: 1024x768 SXGA: 1280x720, 1280x800, 1280x1024 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 QHD: 2560x1440 UHD: 3840x2160</p> <p>Presets / user settings Standard presets: 27; user settings: 20</p>							
<p>Viewing adjustments Tilt: 30° back, -5° forward; lift: 4.33" (110mm); swivel: +/-45° Rotating screen Screen pivots 90 degrees from landscape to portrait On screen display On screen display with digital user controls (8 languages) Control features Direct access (buttons on front) for power, menu, input source select and brightness USB hub USB Hub: one USB 3.1 Type-C port, four USB 3.0 Type-A downstream ports Multimedia Audio-out, optional sound bar supported Camera None Multiple input Support HDMI, DisplayPort, USB 3.1 Type-C Monitor connectors (1) 2*HDMI (2.0), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant (3) USB 3.1 Type-C Signal cables (1) detachable, DisplayPort to DisplayPort, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter USB Type-C to USB Type-C cable, 1.8 meter DP to DP cable, 1.8 meter HDMI to HDMI cable (NA only), 1.8 meter black power cord, 1.8 meter USB Type-C to USB Type-A cable</p>							
<p>Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p>	<p>Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td>73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td>45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td>57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						



ThinkVision P32u-10 MONITOR



SPECIFICATIONS

DISPLAY		ENVIRONMENTAL	
Panel Size	32"	Temperature	
Panel Type	In-Plane Switching	Operating	0°C – 40°C
Backlight	WLED	Non-Operating	-20°C – 60°C
Resolution	3840 x 2160	Humidity	
Aspect Ratio	16:9	Operating	8% – 80%
Anti-Glare	Yes	Non-Operating	5% – 95%
Screen Dimensions (W x H) (mm)	708.48 (H) x 398.52 (V)	Altitude	
Maximum Brightness (Typical)	300 cd/m ²	Operating	0 ft – 5000 ft
Viewing Angle (H/V at CR 10:1)	178°/178°	Non-Operating	0 ft – 40,000 ft
Contrast Ratio (Typical)	1000:1	Arsenic-Free Glass	Yes
Dynamic Contrast Ratio	3M:1	PVC-Free	Yes
Pixel Pitch (W x H) (mm)	0.1845 (H) x 0.1845 (V)	Mercury-Free	Yes
Dot/Pixel Per Inch (DP/PPI)	137	PCC % of Plastic Resins	85% with >25 g Plastic Parts
Color Gamut (1931)	99.5% AdobeRGB		
Response Time (Typical)	6 ms		
POWER CONSUMPTION		DIMENSIONS (W x D x H)	
Typical	70 W	Size Packed	
Maximum	200 W	(mm)	844 x 228 x 528
Sleep-Mode	≤0.5 W	(inches)	33.23" x 8.98" x 20.79"
Switch Off-Mode	≤0.5 W	Size Unpacked with Stand	
Power Supply	External	Lowest Position	
Power Voltage	90 VAC – 264 VAC	(mm)	726.7 x 350 x 497.8
Voltage Dynamic Frequency	47 Hz – 63 Hz	(inches)	28.61" x 13.78" x 19.6"
		Highest Position	
		(mm)	726.7 x 350 x 606.8
		(inches)	28.61" x 13.78" x 23.89"
		Size Unpacked without Stand	
		(Monitor Head Only)	
		(mm)	726.7 x 63.3 x 431.5
		(inches)	28.61" x 2.49" x 16.99"
		Distance from Table to Panel	
		Lowest Pixel at Bottom of Screen	
		(mm / inches)	90.9 / 3.58"
		Highest Pixel at Top of Screen	
		(mm / inches)	489.4 / 19.27"
		Stand Base Footprint Area	
		(mm / inches)	350 x 350 / 13.78" x 13.78"
		Weight	
		Packed	Starting at 29.32 lbs (13.3 kg)
		Unpacked	Starting at 22.05 lbs (10 kg)
		Monitor Head Only	Starting at 15.21 lbs (6.9 kg)
SIGNAL INPUT		COMPLIANCE	
Video Input Signals	2 x HDMI™ 2.0 + DisplayPort™ 1.2 + Thunderbolt™ 3.0-In + Thunderbolt™ 3.0-Out	EPEAT™	Gold
Video Cables Supplied	HDMI™, DisplayPort™, Thunderbolt™ 3.0	ENERGY STAR® Rating	7.0
Video Cable Length	2 m for Thunderbolt™, 1.8 m for HDMI™ and DisplayPort™	TCO	TCO 7.0 / TCO Edge 2.0
USB Hub	Yes (4 x Downstream, 1 x BC)	Windows Certification	Windows 7 / Windows 10
USB Cable Supplied	Yes (USB Type-A to Type-B)	China Energy Efficiency Standard	Tier 2
Audio-Out	Yes (3.5 mm)		
SIGNAL INTERFACE / PERFORMANCE		WARRANTY AND AVAILABILITY	
Horizontal Frequency	30 kHz – 160 kHz	Warranty	3 Years
Vertical Frequency	23 Hz – 80 Hz	Geography Availability	WW
Native Resolution	3840 x 2160		
Maximum Pixel Clock Speed / Bandwidth	HDMI™ : 600 MHz Display Port™: 5.4 Gbps Thunderbolt™: 10 Gbps		
Preset / User	28 / 20		
OSD Buttons	5 Buttons		
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian		
MECHANICAL			
Tilt Angle (Front / Back)	-5° / 22°		
Swivel Angle (Left / Right)	45° / 45°		
Lift (mm)	110		
(CW / CCW)	90° / 90°		
VESA® Mount (mm)	100 x 100		
Kensington® Lock Slot	Yes		
Cable Management	Yes		
Bezel Color	Raven Black		
Bezel Width			
Top (mm / inches)	2 / 0.08"		
Bottom (mm / inches)	23.8 / 0.94"		
Sides (mm / inches)	2 / 0.08"		



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ThinkVision P44w-10

Specifications

DISPLAY

Panel Size

43.4 inches

Screen Dimensions (H x V)

1052.3 x 328.8mm
41.4 x 12.9 inches

Panel Type

VA NearEdgeless,
anti-glare

Curvature

1800R

Backlight

WLED

Aspect Ratio

32:10

Resolution

3840 x 1200

HDR

VESA Certified DisplayHDR™ 400

Pixel Pitch (H x V)

0.2740 x 0.2740mm

Viewing Angle (H x V)

178°/178°

Response Time (gray to gray)

4/6ms (extreme/typical)

Refresh Rate

Max. 144Hz

Contrast Ratio (typical)

3000:1

Dynamic Contrast Ratio (typical)

3M:1

Color Support (typical)

1.07B

Color Gamut

sRGB: 99.5%
BT.709: 99.5%
DCI-P3: 90%

Brightness

380 nits (typical)
450 nits (peak)

CONNECTIVITY

Video Input Signals

2 x HDMI 2.0
1 x DP1.4
1 x USB Type-C Gen1 (DP1.2 Alt Mode)
1 x USB Type-C Gen2 (DP1.4 Alt Mode)

Video Cable Length

1.5m for USB Type-C Gen2
1.8m for others

Audio Out

Yes (3.5mm)

USB Hub

Yes

USB Upstream

2 x USB 3.1 (1 x USB Type-C Gen1,

1 x USB Type-C Gen2)

USB Downstream

4 x USB 3.1 Gen1 (1 BC)

Power

Internal

Power Consumption

Typical/Max: 70W/250W
Switch-off Mode: <0.5W
Sleep/Off Mode: <0.5W

DIMENSIONS

Size Packed (D x H x W)

1219 x 500 x 376mm
47.99 x 19.68 x 14.80 inches

Size Unpacked w/stand (D x H x W) (Lowest Position)

269.8 x 461.1 x 1058.3mm
10.62 x 18.15 x 41.67 inches

Size Unpacked w/stand (D x H x W) (Highest Position)

269.8 x 591.1 x 1058.3mm
10.62 x 23.27 x 41.67 inches

Size Unpacked w/o stand (D x H x W) (Head Only)

137.2 x 366.1 x 1058.3mm
5.40 x 14.21 x 41.67 inches

Weight Packed

18.59kg/40.98lbs.

Weight Unpacked

13.45kg/29.65lbs.

Weight (Monitor Head Only)

9.35kg/20.61lbs.

SPECIAL FEATURES

Anti-Glare

Yes

PIP/PBP

Yes

Software

Yes (ThinkColor)

Speaker

Supports optional Harman
Kardon certified speaker

MECHANICAL

Tilt Angle (front/back)

-5°/22°

Swivel Angle (left/right)

±30°

Lift (Max. range)

Yes (130mm)

VESA Mount Capability

Yes (100 x 100mm)

Kensington™ Lock Slot

Yes

Cable Management

Yes

Bezel Color

Raven Black

Bezel Width (side)

2.4mm

Bezel Width (top/bottom)

2.4/25.6mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable
1 x HDMI cable
1 x DP cable
1 x USB Type-C Gen2 cable
1 x USB Type-C to Type-A cable
Quick setup guide

CERTIFICATIONS

ENERGY STAR® Rating

71

CCC

Yes

RoHS

Yes

ULE

Gold

TCO

8.0

Windows Certification

Windows 7, Windows 10

China Energy Efficiency Standard

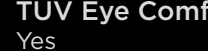
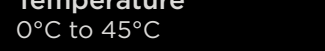
Tier 2

Ambient Operating Temperature

0°C to 45°C

TÜV Eye Comfort

Yes



*with FreeSync support graphic cards

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ThinkVision® T27i-10

DISPLAY

Panel Size

27 inch

Screen Dimensions (H x V) (mm)

597.89 (H) × 336.31 (V)

Panel Type

In-Plane Switching

Backlight

WLED

Aspect Ratio

16:9

Resolution

1920 x 1080

Pixel Pitch (H x V) (mm)

0.3110 × 0.3110

Viewing angle (H x V)

178° / 178°

Response Time (gray to gray)

4 ms (extreme mode)

6 ms (normal mode)

Contrast Ratio (typical)

1000:1

Dynamic Contrast Ratio (typical)

3M:1

Color Gamut NTSC (CIE 1931)

72%

Color Support

16.7M

CONNECTIVITY

Video Input Signals

VGA + HDMI 1.4 + DP 1.2

USB Hub

Yes

1 x USB 3.0 (Upstream)

4 x USB 3.0 (Downstream, incl. 1BC)

Cable Length

1.8 m

Audio Out

Yes (3.5 mm)

Power Consumption

22W (Typical) / 58W (max) at On mode;

<0.5W at Sleep mode; <0.3W at Switch off mode

MULTI-MEDIA

Optional Soundbar Support

Yes

DIMENSIONS

Size Packed (D x H x W) (mm/inch)

187 x 455 x 715 mm / 7.362 x 17.913 x 28.15 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)

269.8 x 403.3 x 611.9 mm / 10.62 x 15.88 x 24.09 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest Position)

269.8 x 513.3 x 611.9 mm / 10.62 x 20.21 x 24.09 inch

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)

49.9 x 366.5 x 611.9 mm / 1.96 x 14.43 x 24.09 inch

Weight Packed (kg/lbs.)

9.32kg / 20.55 lbs.

Weight Unpacked (kg/lbs.)

6.55kg / 14.44 lbs.

Weight (Monitor Head Only) (kg/lbs.)

4.60kg / 10.14 lbs.

SPECIAL FEATURES

Anti-Glare

Yes

Thin Client Support (Tiny)

Yes

(by Tiny Clamp Bracket Kit+VESA

mount PN:4XFON82412+

PN:4XFON03161)

MECHANICAL

Tilt Angle (front/back)

-5°/30°

Swivel Angle (left/right)

-45°/+45°

Lift (Max range)

110 mm

Pivot

-90°/90°

VESA Mount

Yes (100 mm)

Kensington™ Lock Slot

Yes

Cable Management

Yes

Bezel Color

Raven Black

Bezel Width (Side)

2.0 mm

WHAT'S IN THE BOX

Monitor with stand

1 x Power cable

1 x DP-DP cable

1 x HDMI cable (NA only)

1 x USB 3.0 cable

Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating

7.0

CCC

Yes

TCO

7.0

EPEAT™

Gold

ULE

Gold

Windows Certification

Windows 7, Windows 10

China Energy Efficiency Standard

Tier 2

Ambient Operating Temperature

0°C to 40°C

Eye Comfort Certification

Yes



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Specifications may vary depending upon region.



ThinkVision T27p-10

DISPLAY

Panel Size
27.0 inches

Screen Dimensions (H x V)
596.74 x 335.66mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160 pixels

Pixel Pitch (H x V)
0.1554 x 0.1554mm

Viewing Angle (H x V)
178°/178°

Response Time (gray to gray)
4ms (extreme mode)
6ms (normal mode)

Refresh Rate
60Hz

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Brightness (typical)
350 cd/m²

Color Gamut sRGB (CIE 1931)
99%

Color Support
1.07 Billion

POWER

Power Consumption (Typical/Max)
50W/140W

Power Consumption Sleep/Off Mode
<0.5W

Power Consumption Switch Off-Mode
<0.3W

Power Supply
Internal

ENERGY STAR® (P_{on})
23.40W

ENERGY STAR® (E_{TEC})
101.94kWh

Voltage Required
100-240VAC (50/60Hz)

CONNECTIVITY

Video Input Signals
HDMI 2.0 + DP 1.2 + USB 3.1 Type-C™
(DP 1.2 Alt Mode)

Video Cables Supplied
USB 3.1 Type-C™ + HDMI

Video Cable Length
1.8m

USB Hub
Yes

USB Upstream
1 x USB 3.1 Gen1 (by USB Type-C™)

USB Downstream
4 x USB 3.1 Gen1 (with 1 BC)

Audio Out

Yes (3.5mm)

DIMENSIONS

Size Packed (D x H x W)
732 x 210 x 453mm/
28.82 x 8.27 x 17.83 inches

Size Unpacked w/stand (D x H x W) (mm/inch)
269.8 x 403.3 x 611.6mm/
10.62 x 15.88 x 24.08 inches

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
45.5 x 368.4 x 611.6mm/
1.79 x 14.5 x 24.08 inches

Weight Packed
11.00kg/24.25lbs.

Weight Unpacked
6.95kg/15.32lbs.

Weight (Monitor Head Only)
5.0kg/11.02lbs.

SPECIAL FEATURES

Smart Power*
Yes

Anti-glare
Yes

ThinkCentre Tiny Support
Yes

Optional Soundbar Support
Yes

MECHANICAL

Tilt Angle (front/back)
-5°/30°

Swivel Angle (left/right)
+/-45°

Lift
Yes (110mm)

Pivot
+/-90°

VESA Mount Capability
Yes (100 x 100mm)

Kensington™ Lock Slot
Yes

Bezel Width (Side)
2.0mm

Bezel Width (top/bottom)
2.0/24.5mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power Cable
1 x HDMI Cable
1 x USB Type-C™ to Type-C™ cable
Quick Setup Guide

CERTIFICATIONS

ENERGY STAR® Rating
7.1

EU RoHS
Yes

CCC
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

TCO
TCO 8.0/TCO Edge 2.0

ULE
Gold




*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to each device. 75W power delivery can be achieved when downstream USB ports are not connected and OSD brightness setting is <61.

Depending on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and is typically slower than the data rates as defined by the respective USB specifications: - 5 Gbit/s for USB 3.1 Gen1; 10 Gbit/s for USB 3.1 Gen2 & 20 Gbit/s for USB 3.2.

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Specifications may vary depending upon region.



<p>Name X1 Wide Flat Panel Monitor Case color Black Type-model 60E2GAR1US / 60E2GAT1US / 60E2GAT1EU Panel TFT-LCD, IPS (In-Plane Switching), White LED backlight Viewable image size 27" (684.7mm) diagonal Max view area (W x H) 23.49" x 13.21" (596.7mm x 335.7mm) Optimum resolution 3840x2160 Max pixel rate 600MHz Aspect ratio 16:9 Pixel pitch (mm) 0.16 x 0.16mm Dot/Pixel per Inch 163 dpi Brightness 300 nits or cd/m² (typical) Contrast ratio 1300:1 (typical) Pixel response time 6ms Color gamut 99% Viewing angle at 10:1 CR 178° horizontal, 178° vertical Stand Tilt stand Bezel width Sides: 0.088" (2.23mm) Dimensions (HxWxD, including stand) 19.35" H x 24.19" W x 10.63" D; 491.4mm H x 614.5mm W x 270.0mm D Power supply 40 watts typical, 130 watts maximum (with USB), <0.5 watts sleep/off; <0.5 watts switch off Weight 14.11 lb; 6.40kg (including stand) Limited warranty⁴ 3 year Available date March 2016</p>	<p>Features</p> <ul style="list-style-type: none"> • 27-inch IPS LED backlight monitor with speaker • Supports 3840x2160 resolution • 5-Ports USB hub, support USB Type-C • 3watts x 2 stereo speakers • Microsoft® Windows® 7 certified • Microsoft Windows 10 certified 						
<p>VESA-compliant² VESA DDC2B/CI Power management ENERGY STAR® 7.0 Ergonomics ISO 9241-307 Emission standards FCC Class B Environmental TCO Displays 7.0, RoHS, EPEAT™ Silver rating, ULE Gold</p>	 <p style="text-align: center;">ThinkVision X1 Monitor</p>						
<p>Preset resolutions VGA: 640x350, 640x480, 720x400 SVGA: 800x600 XGA: 1024x768, 1152x864 SXGA: 1280x1024 WXGA: 1280x720, 1280x768, 1280x800, 1360x768 WXGA+: 1440x900, 1600x900 WSXGA+: 1680x1050 Full HD: 1920x1080, 1920x1200 UHD: 3840x2160</p> <p>Presets / user settings Standard presets: 20; user settings: 20</p>							
<p>Viewing adjustments <i>Tilt: 22° back, -5° forward;</i> Rotating screen None On screen display On screen display with digital user controls (8 languages) Control features Direct access (touch buttons on front) for menu, mute, volume up/down, and brightness USB hub USB Hub: one USB 3.1 Type-C upstream port, four USB 3.0 Type-A downstream ports Multimedia Integrated stereo speakers (3 watts x 2), built-in microphone Camera Full HD camera with LED light Multiple input Support HDMI, DisplayPort Monitor connectors (1) HDMI (1.4), digital, HDCP-compliant (2) DisplayPort (1.2), digital, HDCP-compliant Signal cables (1) detachable, HDMI at each end, digital, 1.8 meter (2) detachable, DisplayPort at each end, digital, 1.8 meter Mounting features Wall or desk mounting using the Extend Arm or third-party accessories meeting the VESA FPMPI® (100mm mount) Security Security keyhole for attachment of optional cable lock (Kensington® lock-compatible)</p>							
<p>Ship group Monitor, detachable stand, Quick start and safety poster, 1.8 meter DisplayPort cable, 1.8 meter HDMI cable, 1.8 meter USB Type-C cable, 1.8 meter USB Type-C to Type-A cable, 1.8 meter black power cord, mini DP to DP adapter, power adapter (135W)</p>	<p style="text-align: center;">Limited Warranty</p> <p>See details at http://support.lenovo.com/en_US/guides-and-manuals/detail.page?DocID=UM008281</p> <p style="text-align: center;">Accessories</p> <table border="0"> <tr> <td>Kensington MicroSaver Cable Lock</td> <td style="text-align: right;">73P2582</td> </tr> <tr> <td>Kensington Twin Head Cable Lock</td> <td style="text-align: right;">45K1620</td> </tr> <tr> <td>Lenovo Security Cable Lock</td> <td style="text-align: right;">57Y4303</td> </tr> </table> <p>See details at www.lenovo.com/support/monitoraccessories</p> <p>See all monitors at www.lenovo.com/thinkvision</p>	Kensington MicroSaver Cable Lock	73P2582	Kensington Twin Head Cable Lock	45K1620	Lenovo Security Cable Lock	57Y4303
Kensington MicroSaver Cable Lock	73P2582						
Kensington Twin Head Cable Lock	45K1620						
Lenovo Security Cable Lock	57Y4303						

See footnotes for important warranty information



ThinkVision X1 (2nd GEN) MONITOR

EXTREME STYLISH, EXTREME FOREFRONT.



THE MILESTONE OF X-SERIES, 27" FULL-SCREEN, 4K, THUNDERBOLT™ 3 MONITOR.

Pushing the limit of screen share ratio with innovative technology, the 27" Lenovo™ ThinkVision® X1 (2nd GEN) display brings full-screen and ultra-slim appearance in elegant design. With 4K resolution and >99% sRGB color gamut, you will be assured of excellent watching experience and Thunderbolt™ 3 interface will bring the best user experience. "Motor" camera is first used on monitor, which will move up and down automatically and with it you will own standard VoIP system.

WHY YOU SHOULD BUY THE LENOVO THINKVISION X1 (2nd GEN) MONITOR



Full-screen appearance

With world's slimmest (4.7 mm) 27" 4K TBT monitor you will experience full-screen 4-side Near-Edgeless display with the screen ratio of approximately 93%. The monitor also comes with a metal stand and a base.



Brilliant performance

The 4K UHD IPS screen displays 3840 x 2160 resolution at 60 Hz, 99% sRGB color gamut, 10-bit depth, with 1.07 billion color support assures you stunning visuals and superb color experience.



Convenient user experience

Total versatility with Thunderbolt™ 3 interface supporting 4K + USB 3.0 & 45W PD + motor-camera with dual-array microphone. A Think RedDot tracking button is integrated in the back cover.

THE LENOVO THINKVISION X1 (2nd GEN) MONITOR IS BEST SUITED FOR

1

The Executives and CXO of company.

2

SOHO and Gold Collars with high income.

3

Trendsetters who pursue an extreme and forefront monitor.



ThinkVision X1 (2nd GEN) MONITOR



SPECIFICATIONS

DISPLAY		ENVIRONMENTAL	
Panel Size	27"	Temperature Operating	0°C - 45°C
Panel Type	IPS	Temperature Non-Operating	-20°C - 60°C
Backlight	WLED	Humidity Operating	8% - 80%
Resolution	3840 (H) x 2160 (V)	Humidity Non-Operating	5% - 95%
Aspect Ratio	16:9	Altitude Operating	16,000 ft
Anti-Glare	Yes	Altitude Non-Operating	40,000 ft
Screen Dimensions (W x H) (mm)	596.7 (H) x 335.7 (V)	Arsenic-Free Glass	Yes
Maximum Brightness (Typical)	350 cd/m ²	PVC-Free	Yes (W/O cable)
Viewing Angle (H/V at CR 10:1)	178°/178°	Mercury-Free	Yes
Contrast Ratio (Typical)	1000:1	PCC % of Plastic Resins	25%
Dynamic Contrast Ratio	3M:1		
Pixel Pitch (W x H) (mm)	0.1554 x 0.1554		
Dot/Pixel Per Inch (DP/PPI)	163		
Color Gamut (CIE 1931)	99% sRGB		
Response Time (Extreme/Typical/Off)	4/6/14 ms (G-to-G)		
POWER CONSUMPTION		DIMENSIONS (W x D x H)	
Typical	65 W	Size Packed (mm)	718 x 140 x 470
Maximum	135 W	Size Packed (inches)	28.27" x 5.51" x 18.5"
Sleep-Mode	0.5 W	Size Unpacked with Stand (mm)	609.74 x 234.81 x 474.76
Switch Off-Mode	0.5 W	Size Unpacked with Stand (inches)	24" x 9.24" x 18.69"
Power Supply	External	Size Unpacked without Stand (Monitor Head Only) (mm)	609.74 x 32.7 x 351.71
Power Voltage	100 VAC - 240 VAC	Size Unpacked without Stand (Monitor Head Only) (inches)	24" x 1.29" x 13.85"
Voltage Dynamic Frequency	50 Hz - 60 Hz	Distance from Table to Panel Lowest Pixel at Bottom of Screen (mm / inches)	134 / 5.276"
SIGNAL INPUT		Distance from Table to Panel Highest Pixel at Top of Screen (mm / inches)	450 / 17.717"
Video Input Signals	DisplayPort™ 1.2 + HDMI™ 2.0 + Thunderbolt™ 3	Stand Base Footprint Area (mm)	234.81 x 234.81
Video Cables Supplied	HDMI™ + Thunderbolt™ 3	Stand Base Footprint Area (inches)	9.24" x 9.24"
Video Cable Length	1.8 m	Weight Packed	Starting at 18.45 lbs (8.37 kg)
USB Hub	Yes (4 x USB 3.0)	Weight Unpacked	Starting at 12.21 lbs (5.54 kg)
USB Cable Supplied	N/A	Weight Monitor Head Only	Starting at 9.46 lbs (4.29 kg)
Audio-Jack	Yes		
SIGNAL INTERFACE / PERFORMANCE		COMPLIANCE	
Horizontal Frequency	30 kHz - 136 kHz	EPEAT™	Silver
Vertical Frequency	30 Hz - 60 Hz	ENERGY STAR® Rating	7.0
Native Resolution	3840 x 2160	ULE	Silver
Maximum Pixel Clock Speed/Bandwidth	20 Gbps	TCO®	7.0
Default Color Temperature	6500K	RoHS	Yes
Preset Modes	24	Windows Certification	Windows 10
OSD Buttons	2 Buttons + Tracking Point	China Energy Label	Grade 2
OSD Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian		
MECHANICAL		WARRANTY AND AVAILABILITY	
Tilt Angle (Front / Back)	-5° / 30°	Warranty	3 Years
Swivel Angle (Left / Right)	N/A	Geography Availability	WW
Lift (mm)	N/A		
Pivot	N/A		
VESA® Mount (mm)	N/A		
Kensington® Lock Slot	Yes		
Cable Management	Yes		
Bezel Color	N/A		
Bezel Width Top (mm / inches)	1.2 / 0.05"		
Bezel Width Bottom (mm / inches)	1.2 / 0.05"		
Bezel Width Sides (mm / inches)	1.2 / 0.05"		



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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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