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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 L14 Gen 1 (AMD)
ThinkPad L15 Gen 1 (AMD)
ThinkPad P15 Gen 1
ThinkPad P17 Gen 1

►**Spec updated**
ThinkPad 11e (5th Gen)
ThinkPad Yoga 11e (5th Gen)
ThinkPad 11e Yoga Gen 6
ThinkPad E14
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ThinkPad P72
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►**Spec updated**
ThinkPad T480
ThinkPad T490
ThinkPad T490s
ThinkPad T495
ThinkPad T580
ThinkPad T590
ThinkPad X1 Extreme
ThinkPad_X280
ThinkPad X390
ThinkPad X13 Yoga

Withdrawals in this update

►**Withdrawn product(s)**
None

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ThinkPad 11e (5th Gen) Platform Specifications

Processor

7th Generation Intel® Core™ m / i5 Processor, Intel Celeron® processor, or Intel Pentium® Silver processor

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		1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600
Celeron N4120			1.1 GHz	2.6 GHz	4MB		
Pentium Silver N5000			1.1 GHz	2.7 GHz	4MB		Intel UHD Graphics 605
Pentium Silver N5030			1.1 GHz	3.1 GHz	4MB		

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)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
11.6"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	400:1 or 500:1	45%	90°
11.6"	HD (1366x768)	WVA	Anti-glare	250 nits	16:9	800:1	45%	170°

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (HD WVA only, NOT available in EMEA)

Storage

eMMC flash memory on board or M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Realtek RTL8111GUS Gigabit Network Connection

WLAN + Bluetooth™

One of the following, configurable by model:

- 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)
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm

Weight

Starting at 2.99 lb / 1.36 kg

Case color

Black

Case material

Display cover: PC/ABS+GF;
Bottom: PC/ABS plastic

Smart card reader

None

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec, stereo speakers, 2W x 2, Dolby® Audio™, mono digital microphone, combo audio/microphone jack

Keyboard

6-row, spill-resistant, multimedia Fn keys

Touchpad

Buttonless Mylar surface touchpad below keyboard, multi-touch

Security

Power-on password, supervisor password, security keyhole

Security chip

Discrete TPM 2.0, TCG Certified (may be disabled in some region)

System Mgt

None

Fingerprint reader

None

NFC

None

Battery

Integrated Li-ion 42Wh battery

Max battery life

MobileMark® 2014: 13.9 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 45W slim tip AC adapter
- 65W USB-C AC adapter
- 65W slim tip AC adapter

Operating system *(optional)*

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

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™ Silver; ENERGY STAR® 6.1; RoHS-compliant

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

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July 2020

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ThinkPad 11e Yoga Gen 6 Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ m / i5 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics
m3-8100Y	2	4	1.1 GHz	3.4 GHz	4MB	LPDDR3-1866	Intel UHD Graphics 615
i5-8200Y			1.3 GHz	3.9 GHz	4MB		

Graphics

Intel UHD Graphics 615 in processor,
supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB or 8GB / 1866MHz or 2133MHz LPDDR3 /
soldered to systemboard, no sockets
** System clocks down for processors with lower memory controller*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
11.6"	HD (1366x768)	WVA	Glossy	250 nits	16:9	800:1	45%	170°

MultiTouch

Capacitive-type multi-touch, supports 10 fingers gesture, Corning® Gorilla® Glass

Hinge

Yoga hinge, 360 degree

Convertible mode

Laptop, tent, stand and tablet

Pen *(Optional)*

- Pen upgradable (with a pen garage ready)
- ThinkPad Pen Pro, pencil touch support, batteries required, on-board garage

Storage

M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

None (support MAC pass through)

WLAN + Bluetooth™

- Intel Dual Band Wireless-AC 8265, 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
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1

WWAN

None

SIM card

None

Dimensions

WxDxH: 11.54" x 8.15" x 0.78"; 293mm x 207mm x 19.9mm

Weight

From 3.1 lb / 1.41 kg

Case color

Black

Case material

Display cover: PC/ABS plastic;
Bottom: PC/ABS plastic

Smart card reader

None

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),
HDMI1.4, headphone / microphone combo jack, microSD card reader,
security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Camera

- HD720p resolution, low light sensitive, fixed focus
- Optional World facing camera, 5MP resolution, auto focus

Audio support

HD Audio, Realtek® ALC3287 codec Dolby® Advanced Audio /
stereo speakers, 2W x 2 / monaural microphone,
headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys

Touchpad

Buttonless Mylar surface multi-touch touchpad below keyboard

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Discrete TPM 2.0, TCG Certified

System Mgt

None

Fingerprint reader

None

NFC

None

Battery

Integrated Li-Polymer 46Wh battery

Max battery life

MobileMark® 2014: 15.69 hrs
MobileMark 2018: 11.05 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Light sensor

None

G-sensor

Yes

Gyroscope

None

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

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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

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		1.1 GHz	2.4 GHz	4MB	DDR4-2400	Intel UHD Graphics 600
Celeron N4120			1.1 GHz	2.6 GHz	4MB		
Pentium Silver N5000			1.1 GHz	2.7 GHz	4MB		Intel UHD Graphics 605
Pentium Silver N5030			1.1 GHz	3.1 GHz	4MB		

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)

Chipset — Intel SoC (System on Chip) platform

Memory — 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

Display — 11.6" (295mm) HD (1366x768), glossy, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, Corning® Gorilla® Glass

MultiTouch — Capacitive-type multi-touch, supports 10 fingers

Hinge — Yoga hinge, 360 degree

Convertible mode — Laptop, tent, stand and tablet

Pen *(Optional)* — • Pen upgradable (with a pen garage ready) • ThinkPad Pen Pro, batteries required, on-board garage

Storage — eMMC flash memory on board or M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

Optical — None

Ethernet — Realtek RTL8111GUS-CG Gigabit Network Connection

WLAN — *One of the following, configurable by model:*
- 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
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1, M.2 card

Bluetooth™ — Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN — None

SIM card — None

Dimensions — *WxDxH:* 11.81" x 8.27" x 0.89"; 300mm x 210mm x 22.5mm

Weight — From 3.4 lb / 1.54kg

Case color — Black

Case material — *Display cover:* PC/ABS+GF; *Bottom:* PC/ABS plastic

Smart card reader — None

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), HDMI1.4, 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*

Control buttons — Power button, volume control button

Camera — *One of the following, configurable by model:*
720p: HD720p resolution, low light sensitive, fixed focus
World facing: Rear camera, 5MP resolution, auto focus

Audio support — HD Audio, Realtek® ALC3287 codec Dolby Audio™ / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack

Keyboard — 6-row, multimedia Fn keys

Touchpad — Buttonless Mylar surface touchpad below keyboard, multi-touch

Security — Power-on password, hard disk password, supervisor password, security keyhole

Security chip — Discrete TPM 2.0, TCG Certified (may be disabled in some region)

System Mgt — None

Fingerprint reader — None

NFC — None

Battery — Integrated Li-Ion 42Wh battery

Max battery life — *MobileMark® 2014:* 12 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter —
- 45W slim tip AC adapter
- 65W slim tip AC adapter
- 45W USB-C AC adapter
- 65W USB-C AC adapter

Preload — *One of the following, configurable by model:*
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

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™ Gold; ENERGY STAR® 6.1; RoHS-compliant

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

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July 2020

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ThinkPad A285 Platform Specifications

Processor — AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	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)

Chipset — AMD SoC (System on Chip) platform

Memory — 8GB or 16GB / 2400MHz DDR4, soldered to systemboard, no sockets

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, WVA, 300 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 — *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

Optical — None

Ethernet — Gigabit Ethernet connection
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™
- 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 *(optional)*
- Wireless WAN upgradable
- 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*

SIM card *(opt)* — Nano-SIM card slot, in the combo slot with microSD card reader,
optional Verizon LTE (US) SIM card

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

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

Case color — Black

Case material
Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model);
Bottom: Magnesium/Aluminum

Smart card reader — *Optional:* Smart card reader

Media reader — MicroSD card reader, in the combo slot with nano-SIM card

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*

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

Bundled Accy — *Optional:* ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)* — *One of the following, configurable by model:*
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support — HD Audio, Realtek ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional 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

System Mgt — DASH Management

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 AC adapter

Max battery life — *MobileMark® 2014:* 10.55 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter — 45W or 65W USB Type-C AC adapter

Operating system — 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; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad A485 Platform Specifications

Processor AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	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)

Chipset AMD SoC (System on Chip) platform

Memory 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
** Installed DIMMs are actually 2666MHz but run at 2400MHz due to AMD limitation*

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, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

Multi-touch *(opt)* On-cell touch, supports 10-finger gesture (FHD only)

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
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*

Optical None

Ethernet Realtek® RTL8111GUL Gigabit Ethernet connection

WLAN + Bluetooth™
- Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

WWAN *(optional)*
- Wireless WAN upgradable
- 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*

SIM card *(opt)* Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions *WxDxH:* 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm

Weight

Models	24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh + 48Wh / 72Wh
Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg
PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg

Case color Black

Case material *Display cover:* Magnesium Hybrid or PPS;
Bottom: Glass-Fiber Reinforced Plastic

Smart card reader *Optional:* Smart card reader

Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-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, 4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(opt)* *HDMI to VGA:* Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Bundled Accy None

Camera *(optional)* *One of the following, configurable by model:*
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional 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

System Mgt DASH Management

Fingerprint reader *Optional:* Touch style match on chip fingerprint reader on the keyboard bezel

NFC None

Battery Integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

Max battery life (*MobileMark® 2014*)

Models	24Wh	48Wh	72Wh	24Wh + 24Wh	24Wh + 48Wh	24Wh + 72Wh
Max battery life	5.37 hr	10.76 hr	16.4 hr	10.76 hr	16.4 hr	22.15 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter 45W or 65W USB Type-C AC adapter

Operating system Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*
- 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 and might change by regions.

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ThinkPad E14 Platform Specifications

Processor

10th Generation Intel® Core™ i3 / i5 / i7 Processor
** i7-10710U is NOT available in EMEA*

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10710U	6	12	1.1 GHz	4.7 GHz	12MB		

Graphics

Integrated Graphics	Discrete Graphics (Memory)
Intel UHD Graphics	-
Intel UHD Graphics	AMD Radeon 625 (2GB GDDR5)
Intel UHD Graphics	AMD Radeon RX 640 Graphics (2GB GDDR5)

supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

Chipset
Intel SoC (System on Chip) platform

Memory
16GB max / 2666MHz DDR4, one DDR4 SO-DIMM socket

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
14.0"	FHD (1920x1080)	TN	Anti-glare	220 nits	16:9	400:1	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	170°

Multi-touch
None

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 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- 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

Optane™ memory *(optional)*
- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory integrated with SSD, PCIe NVMe 3.0 x 4

Optical
None

Ethernet
Gigabit Ethernet Connection, Realtek R8111GUS

WLAN + Bluetooth™
One of the following, configurable by model:
- Realtek® RTL8822CE, 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
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

WWAN
None

SIM card
None

Dimensions

Case Material	Dimensions *(WxDxH)*
Aluminum	12.80" x 9.13" x 0.70"; 325mm x 232mm x 17.9mm
PC/ABS	12.80" x 9.13" x 0.81"; 325mm x 232mm x 20.5mm
Aluminum Display cover + PC/ABS Bottom	12.80" x 9.13" x 0.74"; 325mm x 232mm x 18.9mm

Weight

Case Material	Weight
Aluminum	starting at 3.81 lb / 1.73 kg
PC/ABS	starting at 3.90 lb / 1.77 kg
Aluminum Display cover + PC/ABS Bottom	starting at 3.74 lb / 1.69 kg

Case color
Black or silver

Case material
Display cover: Aluminum or PC/ABS plastic;
Bottom: Aluminum or PC/ABS plastic

Smart card reader
None

Media reader
None

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,
security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable
None

Bundled Accy
None

Camera
- HD720p camera, fixed focus
- HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support
HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Advanced 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
Integrated model: discrete TPM 2.0, TCG Certified
Discrete model: firmware TPM 2.0 integrated in chipset

System Mgt
None

Fingerprint reader
Optional: Touch style fingerprint reader on power button

NFC
None

Battery
Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life
MobileMark® 2014: 12.8 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter
45W or 65W USB-C AC adapter

Operating system *(optional)*
One of the following, configurable by model:
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode
- No OS

Limited warranty *(optional)*
- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service

Mil-Spec test
MIL-STD-810G military testing

Environment
EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

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ThinkPad E14 Gen 2 (AMD) Platform Specifications

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Graphics
(Ryzen 7 4800U is NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Types	Processor Graphics
Ryzen 3 4300U	4	4	2.7 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-3200	AMD Radeon Graphics
Ryzen 5 4500U	6	6	2.3 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 7 4700U	8	8	2.0 GHz	4.1 GHz	4MB L2 / 8MB L3		
Ryzen 7 4800U	8	16	1.8 GHz	4.2 GHz			

Graphics

AMD Radeon Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 3840x2160@30Hz) or
USB Type-C (up to 3840x2160@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

20GB or 24GB max / 3200MHz DDR4, dual-channel capable
4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
14.0"	FHD (1920x1080)	TN	Anti-glare	220 nits	16:9	400:1	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	170°

Multi-touch

None

Storage

Up to two drives
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek R8111GUS

WLAN + Bluetooth™

One of the following, configurable by model:
- Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card
  (Realtek RTL8822CE is NOT available in EMEA)

WWAN

None

SIM card

None

Dimensions

Case Material	Dimensions *(WxDxH)*
Aluminum	12.76" x 8.66" x 0.70"; 324mm x 220mm x 17.9mm
PC/ABS	12.76" x 8.66" x 0.81"; 324mm x 220mm x 20.5mm
Aluminum (top) + PC/ABS (bottom)	12.76" x 8.66" x 0.74"; 324mm x 220mm x 18.9mm

Weight

Case Material	Weight
Aluminum	starting at 3.62 lb / 1.64 kg
PC/ABS	starting at 3.73 lb / 1.69 kg
Aluminum (top) + PC/ABS (bottom)	starting at 3.51 lb / 1.59 kg

Case color

Black
Display cover: Aluminum or PC/ABS plastic;
Bottom: Aluminum or PC/ABS plastic

Smart card reader

None

Media reader

None

Ports

One USB 2.0, one USB 3.2 Gen 1 (Always On),
one USB 3.2 Type-C Gen 1
(with the function of Power Delivery and DisplayPort 1.2),
HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack,
security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

None

Bundled Accy

None

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

Audio support

HD Audio, Realtek ALC3287 codec /
stereo HARMAN-branded speakers, 2W x 2, Dolby Audio® /
dual array microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls,
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
- Firmware TPM 2.0 integrated in chipset

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on power button

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 13 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

65W USB-C AC adapter

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 8.0; ErP lot3; TCO Certified; RoHS-compliant

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

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ThinkPad E15 Platform Specifications

Processor

10th Generation Intel® Core™ i3 / i5 / i7 Processor

** i7-10710U is NOT available in EMEA*

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10710U	6	12	1.1 GHz	4.7 GHz	12MB		

Graphics

Integrated Graphics	Discrete Graphics (Memory)
Intel UHD Graphics	-
Intel UHD Graphics	AMD Radeon 625 (2GB GDDR5)
Intel UHD Graphics	AMD Radeon RX 640 Graphics (2GB GDDR5)

supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 3840x2160@60Hz (USB Type-C); 3840x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

16GB max / 2666MHz DDR4, one DDR4 SO-DIMM socket

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
15.6"	FHD (1920x1080)	TN	Anti-glare	220 nits	16:9	400:1	90°
15.6"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	170°

Multi-touch

None

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 2242 SSD / PCIe NVMe, PCIe 3.0 x 2 or PCIe 3.0 x 4
- 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

Optane™ memory *(optional)*

- Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2
- Intel Optane™ Memory integrated with SSD, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek R8111GUS

WLAN + Bluetooth™

One of the following, configurable by model:

- Realtek® RTL8822CE, 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
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 14.49" x 9.65" x 0.74"; 368mm x 245mm x 18.9mm

Weight

Starting at 4.3 lb / 1.9 kg

Case color

Black or silver

Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

Smart card reader

None

Media reader

None

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,
security keyhole

** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

None

Bundled Accy

None

Camera

- HD720p camera, fixed focus
- HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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

Integrated model: discrete TPM 2.0, TCG Certified
Discrete model: firmware TPM 2.0 integrated in chipset

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on power button

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.2 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

Limited warranty *(optional)*

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

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ThinkPad E15 Gen 2 (AMD) Platform Specifications

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Graphics
(Ryzen 7 4800U is NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Types	Processor Graphics
Ryzen 3 4300U	4	4	2.7 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-3200	AMD Radeon Graphics
Ryzen 5 4500U	6	6	2.3 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 7 4700U	8	8	2.0 GHz	4.1 GHz	4MB L2 / 8MB L3		
Ryzen 7 4800U	8	16	1.8 GHz	4.2 GHz			

Graphics

AMD Radeon Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 3840x2160@30Hz) or
USB Type-C (up to 3840x2160@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

20GB or 24GB max / 3200MHz DDR4, dual-channel capable
4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
15.6"	FHD (1920x1080)	TN	Anti-glare	220 nits	16:9	400:1	90°
15.6"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	170°

Multi-touch

None

Storage

Up to two drives
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek R8111GUS

WLAN + Bluetooth™

One of the following, configurable by model:
- Realtek® RTL8822CE, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card
  (Realtek RTL8822CE is NOT available in EMEA)

WWAN

None

SIM card

None

Dimensions

WxDxH: 14.37" x 9.45" x 0.74"; 365mm x 240mm x 18.9mm

Weight

Starting at 3.75 lb / 1.7 kg

Case color

Black

Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

Smart card reader

None

Media reader

None

Ports

One USB 2.0, one USB 3.2 Gen 1 (Always On),
one USB 3.2 Type-C Gen 1
(with the function of Power Delivery and DisplayPort 1.2),
HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack,
security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

None

Bundled Accy

None

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

Audio support

HD Audio, Realtek ALC3287 codec /
stereo HARMAN-branded speakers, 2W x 2, Dolby Audio® /
dual array microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls,
numeric keypad, 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
- Firmware TPM 2.0 integrated in chipset

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on power button

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.7 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

65W USB-C AC adapter

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Gold (US, Canada, and Germany only); ENERGY STAR® 8.0; ErP lot3;
TCO Certified; RoHS-compliant

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

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ThinkPad E480 Platform Specifications

Processor

7th Generation Intel® Core™ i3 / i5 Processor
(i3-7130U is NOT available in US and EMEA) or

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

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 GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
supports dual independent display;
Max resolution: 1920x1080 (HDMI)@60Hz

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, 400:1 contrast ratio
Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 400:1 contrast ratio

Multi-touch

None

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

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek R8111GUS

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, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

WWAN

None

SIM card

None

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

Weight

Starting at 3.87 lb / 1.75kg

Case color

Black or silver

Case material

Display cover: Aluminum or PC/ABS plastic;
Bottom: PC/ABS plastic

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 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*

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Synaptic® CX11852 codec /
stereo speakers, 1.5W x 2, Dolby® Advanced 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 13.51 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB Type-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year mail-in repair service
- 1-year depot repair service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Gold (US only); ENERGY STAR® 6.1; TCO Certified; RoHS-compliant

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

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ThinkPad E490 Platform Specifications

Processor

8th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics
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		

** i5-8365U is for speicial bid only*

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and
AMD Radeon RX 550X Graphics, 2GB GDDR5 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size / Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch
14.0" HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	90°	Non-touch
14.0" FHD (1920x1080)	TN	Anti-glare	220 nits	16:9	400:1	90°	Non-touch
14.0" FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	600:1	170°	Non-touch

Multi-touch

None

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 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

** 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

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

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

Weight

Starting at 3.87 lb / 1.75 kg

Case color

Black or silver

Case material

Display cover: Aluminum or PC/ABS plastic;
Bottom: PC/ABS plastic

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 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*

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

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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 13 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year mail-in repair service
- 1-year depot repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

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ThinkPad E495 Platform Specifications

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
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)

Chipset

AMD SoC (System on Chip) platform

Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
** Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation*

Display

Size / Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch
14.0" HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	90°	Non-touch
14.0" FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	600:1	170°	Non-touch

Multi-touch

None

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
- M.2 2280 SSD / PCIe NVMe, 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

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

Weight

Starting at 3.87 lb / 1.75 kg

Case color

Black

Case material

Display cover: Aluminum or PC/ABS plastic;
Bottom: PC/ABS plastic

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

Fingerprint reader

None

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 11 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year mail-in repair service
- 1-year depot repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

Lenovo
July 2020

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ThinkPad E580 Platform Specifications

Processor

7th Generation Intel® Core™ i3 / i5 Processor or

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

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		

** i3-7130U is NOT available in US and EMEA*

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 GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
supports dual independent display;
Max resolution: 1920x1080 (HDMI)@60Hz

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: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio
Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 600:1 contrast ratio

Multi-touch

None

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

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Gigabit Ethernet Connection, Realtek R8111GUS

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, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.95mm

Weight

Starting at 4.7 lb / 2.1kg

Case color

Black or silver

Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

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 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*

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Synaptic® CX11852 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.23 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year mail-in repair service
- 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.

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ThinkPad E590 Platform Specifications

Processor

8th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB		
i7-8565U			1.8 GHz	4.6 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and
AMD Radeon RX 550X Graphics, 2GB GDDR5 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size / Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch
15.6" HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	90°	Non-touch
15.6" FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	600:1	170°	Non-touch

Multi-touch

None

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 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

** 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

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

Dimensions

WxDxH: 14.53" x 9.94" x 0.78"; 369mm x 252.5mm x 19.9mm

Weight

Starting at 4.68 lb / 2.12 kg

Case color

Black or silver

Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

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 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*

Monitor cable

None

Bundled Accy

None

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

None

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 11 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year mail-in repair service
- 1-year depot repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

Lenovo
July 2020

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ThinkPad E595 Platform Specifications

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
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)

Chipset

AMD SoC (System on Chip) platform

Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
** Installed memory is actually 2666MHz but run at 2400MHz due to AMD limitation*

Display

Size / Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle	Multi-touch
15.6" HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	90°	Non-touch
15.6" FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	600:1	170°	Non-touch

Multi-touch

None

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
- M.2 2280 SSD / PCIe NVMe, 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

Dimensions

WxDxH: 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.9mm

Weight

Starting at 4.7 lb / 2.1 kg

Case color

Black

Case material

Display cover: Aluminum;
Bottom: PC/ABS plastic

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

None

Bundled Accy

None

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone, headphone / microphone combo 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

Fingerprint reader

None

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 10.3 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year mail-in repair service
- 1-year depot repair service
- 1-year limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

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

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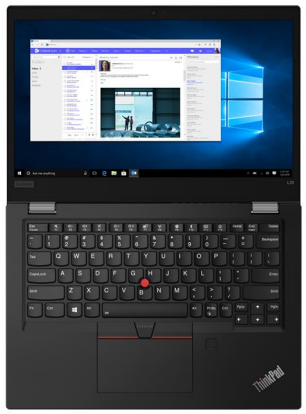
July 2020



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ThinkPad L13 Platform Specifications

Processor

Intel® Celeron® Processor or 10th Generation Intel Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Celeron 5205U	2	2	1.9 GHz	-	2MB	DDR4-2400	Intel UHD Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB, 8GB, or 16GB / 2666MHz DDR4 / soldered to systemboard, no sockets
** System clocks down for processor with lower memory controller*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	90°
13.3"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	800:1 (non-touch) 700:1 (multi-touch)	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

One of the following, configurable by model:
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*), RJ45 connector via optional ThinkPad Ethernet Extension Adapter Gen 2 or Lenovo USB-C to Ethernet Adapter

WLAN + Bluetooth™

One of the following, configurable by model:
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 12.26" x 8.62" x 0.69"; 311.5mm x 219mm x 17.6mm

Weight

Starting at 3.06 lb / 1.38 kg

Case color

Black or Silver

Case material

Display cover: Aluminum
Bottom: GFRP

Smart card reader

Optional: 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 extension connector, 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*

Monitor cable *(optional)*

- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to DisplayPort Adapter
- Lenovo HDMI to VGA Monitor Adapter

Bundled Accessories *(optional)*

- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m
- Lenovo USB-C to Ethernet Adapter
- ThinkPad Ethernet Extension Adapter Gen 2

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

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array microphone, headphone / microphone combo jack

Keyboard UltraNav™

6-row, spill-resistant, multimedia Fn keys, optional LED backlight
TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-ion 46Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.1 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L13 Yoga Platform Specifications

Processor

10th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB, 8GB, or 16GB / 2666MHz DDR4 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	FHD (1920x1080)	WVA	Anti-reflection	300 nits	16:9	800:1	72%	170°

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture, anti-reflection (AR), could reduce the brightness by up to 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

One of the following, configurable by model:

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*), RJ45 connector via optional ThinkPad Ethernet Extension Adapter Gen 2 or Lenovo USB-C to Ethernet Adapter

WLAN + Bluetooth™

One of the following, configurable by model:

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 12.26" x 8.62" x 0.69"; 311.5mm x 219mm x 17.6mm

Weight

Starting at 3.17lb / 1.43kg

Case color

Black or Silver

Case material

Display cover: Magnesium / Aluminum
Bottom: GFRP

Smart card reader

Optional: 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 extension connector, 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*

Monitor cable *(optional)*

- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to DisplayPort Adapter
- Lenovo HDMI to VGA Monitor Adapter

Bundled Accessories *(optional)*

- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m
- Lenovo USB-C to Ethernet Adapter
- ThinkPad Ethernet Extension Adapter Gen 2

Camera

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
- World facing camera, 5MP resolution, auto focus (selectable for fingerprint model only)

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
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 touchpad, multi-touch

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-ion 46Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.23 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Light sensor

None

G-sensor

Yes

Gyroscope

None

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L14 Gen 1 (AMD) Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Graphics or
AMD Ryzen PRO 4000 Series Mobile Processors

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 3 4300U	4	4	2.7 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-3200	AMD Radeon™ Graphics
Ryzen 3 PRO 4450U	4	8	2.5 GHz	3.7 GHz	2MB L2 / 4MB L3		
Ryzen 5 4500U	6	6	2.3 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 5 PRO 4650U	6	12	2.1 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 7 PRO 4750U	8	16	1.7 GHz	4.1 GHz	4MB L2 / 8MB L3		

Graphics

AMD Radeon Graphics in processor;
supports up to 4 independent displays via native display and 3 external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz) or
USB Type-C (up to 3840x2160@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

64GB max / 3200MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Realtek® RTL8111HN *(Non-DASH)* or RTL8111EPV *(DASH)*
Gigabit Ethernet connection

WLAN + BT *(opt)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth™ 5.1

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 13.03" x 9.25" x 0.80"; 331mm x 235mm x 20.4mm

Weight

Starting at 3.56 lb / 1.61 kg

Case color

Black

Case material

Display cover: PC/ABS plastic;
Bottom: PC/ABS plastic

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (w/ the function of Power Delivery and DP 1.2),
one USB 3.2 Type-C Gen 2 (w/ the function of Power Delivery and DP 1.2),
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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio / dual array far-field microphone (optional for special bid model), headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

DASH Management

Fingerprint reader

Optional: Touch style match on host fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.36 hr
MobileMark 2018: 10.7 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

Work in progress

Environment

EPEAT™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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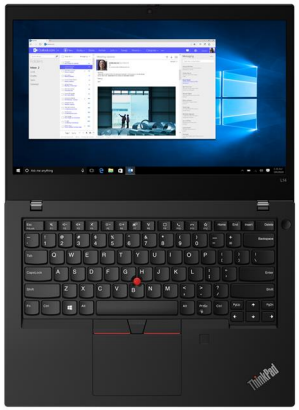
July 2020



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ThinkPad L14 Gen 1 (Intel) Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Pentium® Gold Processor or
10th Generation Intel Core™ i3 / i5 / i7 Processor
(i7-10610U is NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Pentium Gold 6405U	2	4	2.4 GHz	-	2MB	DDR4-2400	Intel UHD Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and AMD Radeon 625, 2GB GDDR5 memory (discrete models are NOT available in EMEA);
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz) or
USB Type-C (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

64GB max / 3200MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
** Installed memory is actually 3200MHz but run at 2400MHz or 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

Up to 2 drives (one HDD and one M.2 2242 SSD)
- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ (NOT available in EMEA)
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(opt)*

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

Aluminum (WxDxH): 13.03" x 9.25" x 0.75"; 331mm x 235mm x 19.1mm
PC/ABS (WxDxH): 13.03" x 9.25" x 0.80"; 331mm x 235mm x 20.4mm

Weight

Aluminum: starting at 3.83 lb / 1.73 kg
PC/ABS: starting at 3.56 lb / 1.61 kg

Case color

Black

Case material

Display cover: PC/ABS plastic or Aluminum (Aluminum is NOT available in EMEA);
Bottom: PC/ABS plastic

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio /
dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader *(optional)*

- Touch style fingerprint reader on the palm rest, match on host
- Touch style fingerprint reader on the palm rest, match on chip (special bid only)

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.3 hr
MobileMark 2018: 7.95 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter (NOT available in EMEA)
- 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

Work in progress

Environment

EPEAT™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad L15 Gen 1 (AMD) Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ Mobile Processors with Radeon™ Graphics or
AMD Ryzen PRO 4000 Series Mobile Processors

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 3 4300U	4	4	2.7 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-3200	AMD Radeon™ Graphics
Ryzen 3 PRO 4450U	4	8	2.5 GHz	3.7 GHz	2MB L2 / 4MB L3		
Ryzen 5 4500U	6	6	2.3 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 5 PRO 4650U	6	12	2.1 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 7 PRO 4750U	8	16	1.7 GHz	4.1 GHz	4MB L2 / 8MB L3		

Graphics

AMD Radeon Graphics in processor;
supports up to 4 independent displays via native display and 3 external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz) or
USB Type-C (up to 3840x2160@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

64GB max / 3200MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
15.6"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
15.6"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 4
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Realtek® RTL8111HN *(Non-DASH)* or RTL8111EPV *(DASH)*
Gigabit Ethernet connection

WLAN + BT *(opt)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth™ 5.1

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions *WxDxH:* 14.43" x 9.84" x 0.83"; 366.5mm x 250mm x 21mm

Weight Starting at 4.37 lb / 1.98 kg

Case color Black

Case material PC/ABS plastic

Smart card reader *Optional:* Smart card reader

Media reader MicroSD card reader

Ports Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (w/ the function of Power Delivery and DP 1.2),
one USB 3.2 Type-C Gen 2 (w/ the function of Power Delivery and DP 1.2),
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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio / dual array far-field microphone (optional for special bid model), headphone / microphone combo jack

Keyboard 6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad, 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 Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

System Mgt *(opt)* DASH Management

Fingerprint reader *Optional:* Touch style match on host fingerprint reader on the palm rest

NFC None

Battery Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life *MobileMark® 2014:* 13.78 hr
MobileMark 2018: 10.43 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter

Operating system *Optional:* Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test Work in progress

Environment EPEAT™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L15 Gen 1 (Intel) Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron® Processor or 10th Generation Intel Core™ i3 / i5 / i7 Processor
(i7-10610U is NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Celeron 5205U	2	2	1.9 GHz	-	2MB	DDR4-2400	Intel UHD Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and AMD Radeon 625, 2GB GDDR5 memory (discrete models are NOT available in EMEA);
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz) or
USB Type-C (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

64GB max / 3200MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

** Installed memory is actually 3200MHz but run at 2400MHz or 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
15.6"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
15.6"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

Up to 2 drives (one HDD and one M.2 2242 SSD)

- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ (NOT available in EMEA)
- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(opt)*

- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions *WxDxH:* 14.43" x 9.84" x 0.83"; 366.5mm x 250mm x 21mm

Weight Starting at 4.37 lb / 1.98 kg

Case color Black

Case material *Display cover:* PC/ABS plastic
Bottom: PC/ABS plastic

Smart card reader *Optional:* Smart card reader

Media reader MicroSD card reader

Ports Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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

** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio /
dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader *(optional)*

- Touch style fingerprint reader on the palm rest, match on host
- Touch style fingerprint reader on the palm rest, match on chip (special bid only)

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 11.6 hr
MobileMark 2018: 8.56 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter (NOT available in EMEA)
- 65W USB-C AC adapter

Operating system *Optional:* Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test Work in progress

Environment EPEAT™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L380 Platform Specifications

Processor

Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
i3-7020U		4	2.3 GHz	-	3MB		Intel HD Graphics 620
i3-7130U			2.7 GHz	-	3MB		
i5-7200U			2.5 GHz	3.1 GHz	3MB		

8th Generation Intel Core 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		

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)

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: 13.3" (338mm) HD (1366x768), anti-glare, LED backlight, 250 nits, 16:9 aspect ratio, 500:1 contrast ratio
Some: 13.3" (338mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

Multi-touch *(opt)*

on-cell touch, supports 10-finger gesture

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)

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Cable

WLAN + Bluetooth™

- 11ac, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- 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*

WWAN

None

SIM card

None

Dimensions

WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm

Weight

Starting at 3.22 lb / 1.46 kg

Case color

Black or Silver

Case material

Display cover: Aluminum
Bottom: GFRP

Smart card reader

None

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 extension connector, headphone / microphone combo jack,
microSD card reader, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Cable

Camera

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 touchpad, multi-touch

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Discrete TPM 2.0, TCG Certified (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style 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 AC adapter

Max battery life

MobileMark® 2014: 16.1 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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 and might change by regions.

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ThinkPad L380 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor

7th Generation Intel® Core™ i3 / i5 Processor

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

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		

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)

Chipset
Intel SoC (System on Chip) platform

Memory
Up to 32GB max / 2400MHz DDR4, dual-channel capable,
two DDR4 SO-DIMM sockets
* System clocks down for processors with lower memory controller

Display
13.3" (338mm) FHD (1920x1080), LED backlight, WVA, 300 nits,
16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle, AR (anti-reflection)

Multi-touch *(opt)*
Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

Hinge
Yoga hinge, 360 degree

Convert-mode
Laptop, tent, stand, yoga and tablet

Pen (*optional*)
ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

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)

Optical
None

Ethernet
Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*))
via optional ThinkPad Ethernet Extension Cable

WLAN + Bluetooth™
- 11ac, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card
- 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*

WWAN
None

SIM card
None

Dimensions
WxDxH: 12.67" x 8.82" x 0.74"; 322mm x 224.2mm x 18.8mm

Weight
Starting at 3.44 lb / 1.56 kg

Case color
Black or Silver

Case material
Display cover: Aluminum
Bottom: GFRP

Smart card reader
None

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 extension connector, headphone / microphone combo jack,
microSD card reader, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy
Optional: ThinkPad Ethernet Extension Cable

Camera
720p: HD720p resolution, low light sensitive, fixed focus
IR & 720p: IR camera and HD720p camera, fixed focus
World facing: Rear camera, 5MP resolution, auto focus

Audio support
HD Audio, Realtek ALC3287 codec, Dolby® Advance / stereo speakers, 2W x 2 /
dual array microphone, headphone / microphone combo jack

Keyboard
6-row, multimedia Fn keys, optional LED backlight

UltraNav™
TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

Security
Power-on password, hard disk password, supervisor password, security keyhole

Security chip
Discrete TPM 2.0, TCG Certified (may be disabled in some region)

System Mgt *(opt)*
Intel vPro Technology

Fingerprint reader
Optional: Touch style 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
MobileMark® 2014: 12.85 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter
45W or 65W USB-C AC adapter

Preload
Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty
One of the following, configurable by model:
- 1-year depot repair service
- 1-year depot with 2-year system board service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad L390 Platform Specifications

Processor

Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB		
i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB		
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB		

Graphics

Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Viewing Angle
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	90°
13.3"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1 (non-touch) 800:1 (multi-touch)	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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
- 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

Optical

None

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

WLAN + Bluetooth™

- Intel Wireless-AC 9462, Wi-Fi 1x1 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm

Weight

Starting at 3.22 lb / 1.46 kg

Case color

Black or Silver

Case material

Display cover: Aluminum
Bottom: GFRP

Smart card reader

None

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 extension connector, headphone / microphone combo jack,
microSD card reader, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to VGA plus Power Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to HDMI plus Power Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accessories *(optional)*

- Lenovo USB-C to Ethernet Adapter
- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m
- ThinkPad Ethernet Extension Cable

Camera

HD720p camera, fixed focus

Audio support

HD Audio, Realtek ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
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 touchpad, multi-touch

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.61 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB		
i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB		
i7-8565U	4	8	1.8 GHz	4.6 GHz	8MB		

Graphics

Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	FHD (1920x1080)	WVA	Anti-reflection	300 nits	16:9	800:1	72%	170°

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture, anti-reflection (AR), could reduce the brightness by up to 10%

Hinge

Yoga hinge, 360 degree

Multi-mode

Laptop, tent, stand and tablet

Pen *(optional)*

ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

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
- 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

Optical

None

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

WLAN + Bluetooth™

- Intel Wireless-AC 9462, Wi-Fi 1x1 802.11ac + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

WWAN

None

SIM card

None

Dimensions

WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm

Weight

Starting at 3.44 lbs / 1.56 kg

Case color

Black or Silver

Case material

Display cover: Magnesium / Aluminum
Bottom: GFRP

Smart card reader

None

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 extension connector, headphone / microphone combo jack,
microSD card reader, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to VGA plus Power Adapter
- Lenovo USB-C to HDMI Adapter
- Lenovo USB-C to HDMI plus Power Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accessories *(optional)*

- Lenovo USB-C to Ethernet Adapter
- Lenovo USB-C to USB-A Adapter
- Lenovo USB-C to USB-C Cable 2m
- ThinkPad Ethernet Extension Cable

Camera

One of the following, configurable by model:

- HD720p camera, fixed focus
- IR camera and HD720p camera, fixed focus (black model only)
- World facing camera, 5MP resolution, auto focus (mutually exclusive with fingerprint reader)

Audio support

HD Audio, Realtek ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
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 touchpad, multi-touch

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest (mutually exclusive with World facing camera)

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.17 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad L480 Platform Specifications

Processor

Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
i3-7020U		4	2.3 GHz	-	3MB		Intel HD Graphics 620
i3-7130U			2.7 GHz	-	3MB		
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	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		

** i3-7130U is NOT available in US and EMEA*

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)

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, WVA, 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

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
Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/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 + Bluetooth™ *(optional)*

One of the following, configurable by model:
- 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

** Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS*

WWAN *(optional)*

One of the following, configurable by model:
- 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

** 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

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

Optional: 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to VGA: Lenovo USB-C to VGA Adapter

Camera *(optional)*

One of the following, configurable by model:
- 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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: 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 AC adapter

Max battery life

MobileMark® 2014: 12.2 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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 and might change by regions.

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ThinkPad L490 Platform Specifications

Processor

Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB		
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 in processor only or
Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	500:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	800:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

- 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

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(optional)*

One of the following, configurable by model:

- 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 Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm

Weight

Starting at 3.72 lb / 1.69 kg

Case color

Black

Case material

PC/ABS plastic

Smart card reader

Optional: 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 (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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
dual array microphone (for special bid model, microphone is optional),
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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

One of the following, configurable by model:

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

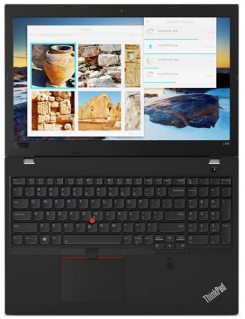
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad L580 Platform Specifications

Processor

Intel® Celeron® Processor, 7th Generation Intel Core™ i3 / i5 Processor or

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 3965U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel HD Graphics 610
i3-7020U		4	2.3 GHz	-	3MB		Intel HD Graphics 620
i3-7130U			2.7 GHz	-	3MB		
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	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		

** i3-7130U is NOT available in US and EMEA*

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)

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: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio
Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 800:1 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 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 / PCIe NVMe, PCIe 3.0 x 2, 16Gb/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 + Bluetooth™ *(optional)*

One of the following, configurable by model:
- 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

** Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS*

WWAN *(optional)*

One of the following, configurable by model:
- Wireless WAN upgradable (special bid only)
- 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*

SIM card *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm

Weight

Starting at 4.46 lb / 2.0 kg

Case color

Black

Case material

PC/ABS plastic

ExpressCard

None

Smart card reader

Optional: 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to VGA: Lenovo USB-C to VGA Adapter

Camera *(optional)*

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, numeric keypad, 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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest, 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 AC adapter

Max battery life

MobileMark® 2014: 11 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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 and might change by regions.

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ThinkPad L590 Platform Specifications

Processor

Intel® Celeron® Processor or 8th Generation Intel Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Cel 4305U	2	2	2.2 GHz	-	2MB	DDR4-2133	Intel UHD Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	
i5-8265U	4	8	1.6 GHz	3.9 GHz	6MB		
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 in processor only or
Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

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*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	500:1	45%	90°
15.6"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	800:1	45%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

- 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

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(optional)*

One of the following, configurable by model:

- 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 Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm

Weight

Starting at 4.48 lb / 2.03 kg

Case color

Black

Case material

PC/ABS plastic

Smart card reader

Optional: 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 (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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Advanced Audio /
optional dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 45Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad P1 Platform Specifications

Processor

8th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-8400H	4	8	2.5 GHz	4.2 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB		
i7-8850H			2.6 GHz	4.3 GHz	9MB		
E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630

Graphics

Intel UHD Graphics 630 or P630 in processor and
NVIDIA® Quadro® P1000 or P2000, 4GB GDDR5 memory;
supports external digital monitor via HDMI or Thunderbolt™;
Up to 4 displays with 3 external monitors plus system LCD screen.
Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

Display

Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

Some: 15.6" (396mm) UHD (3840x2160), anti-reflection, LED backlight, WVA, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (4K only)

Pen *(optional)*

Lenovo Pen Pro

Storage

Up to two M.2 SSD, supports single sided M.2 2280 drives only
M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*))
via bundled or optional ThinkPad Ethernet Extension Cable

WLAN

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

Bluetooth™

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

None

SIM card

None

Dimensions

WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm
WxDxH (multi-touch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm

Weight

Non-touch model: starting at 3.76 lb / 1.7 kg;
Multi-touch model: starting at 4.06 lb / 1.8 kg

Case color

Black

Case material

Display cover: CFRP/GFRP hybrid;
Bottom: Aluminum alloy

Smart card reader

Optional: Smart card reader

ExpressCard

None

Media reader

SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card

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, SD card reader, security keyhole
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Cable

Camera *(optional)*

One of the following, configurable by model:

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

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

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass 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

Touch style match on chip fingerprint reader on the keyboard bezel

Color calibration

None

NFC

None

Battery

Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life *(MobileMark 2014)*

Discrete mode: 7.36 hr; *Hybrid mode:* 13.87 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

135W slim tip AC adapter

Operating system

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 1-year depot with 2-year system board 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.

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ThinkPad P1 (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

9th Generation Intel® Core™ i5 / i7 / i9 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-9400H	4	8	2.5 GHz	4.3 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i7-9750H	6	12	2.6 GHz	4.5 GHz	12MB		
i7-9850H	6	12	2.6 GHz	4.6 GHz	12MB		
i9-9880H	8	16	2.3 GHz	4.8 GHz	16MB		
E-2276M	6	12	2.8 GHz	4.7 GHz	12MB		Intel UHD Graphics P630

Graphics

Intel UHD Graphics 630 in processor only or
Intel UHD Graphics 630 or P630 in processor and
NVIDIA® Quadro® T1000 or T2000, 4GB GDDR5 memory;
supports external digital monitor via HDMI or Thunderbolt™;
Up to 4 displays with 3 external monitors plus system LCD screen.
Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	700:1	72% NTSC	170°
15.6"	FHD (1920x1080) Dolby Vision™ HDR	WVA	Anti-glare	500 nits	16:9	1200:1	72% NTSC	170°
15.6"	UHD (3840x2160) Dolby Vision HDR	WVA	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°
15.6"	UHD (3840x2160) Dolby Vision HDR, Multi-touch	OLED	Anti-reflection / Anti-smudge	SDR 400nit, HDR 500nit (peak)	16:9	100000:1	100% DCI-P3	170°

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), AR (anti-reflection) / AS (anti-smudge) coating

Pen *(optional)*

Lenovo Pen Pro (special bid only)

Storage

Up to two M.2 SSD, supports single sided M.2 2280 drives only
M.2 2280 SSD / PCIe NVMe 3.0 x 4

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*))
via bundled or optional ThinkPad Ethernet Extension Cable

WLAN *(optional)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1

Bluetooth™ *(opt)*

Bluetooth 5.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

None

SIM card

None

Dimensions

WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm
WxDxH (multi-touch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm

Weight

Non-touch model: starting at 3.75 lb / 1.7 kg;
Multi-touch model: starting at 4.0 lb / 1.81 kg

Case color

Black paint (FHD model) or black weave (UHD model)

Case material

Display cover: CFRP/GFRP hybrid;
Bottom: Aluminum alloy

Smart card reader

Optional: Smart card reader

Media reader

SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card

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, SD card reader, security keyhole
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Cable

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

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array far-field microphone, headphone / microphone combo jack,
Dolby Atmos® sound system

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

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

Touch style match on chip fingerprint reader on the keyboard bezel

Color calibration

Optional: X-Rite Pantone factory color calibration (UHD model only)

NFC

None

Battery

Integrated Li- Polymer 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 13.8 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

135W slim tip AC adapter

Operating system

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

Limited warranty

One of the following, configurable by model:

- 1-year depot repair service
- 1-year depot with 2-year system board 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™ Silver; ENERGY STAR® 7.1; RoHS-compliant

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

Lenovo
November 2019

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ThinkPad P14s Gen 1 Platform Specifications

Processor

Supports one 10th Core i7 and i5 -U suffix processor as following:

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i7-10610U	4	8	1.8GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics
i7-10510U	4	8	1.8GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics
i5-10310U	4	8	1.7GHz	4.4GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6GHz	4.2GHz	6MB	DDR4-2666	Intel UHD Graphics

Chipset

Intel SoC (System on Chip) platform

Memory Type

DDR4-3200, operates at DDR4-2666.
8GB/16GB/32GB DDR4-3200 SO-DIMM non-ECC for DIMM socket,
8GB/16GB DDR4-3200 non-ECC for soldered DIMM

Memory Sockets

1 DIMM socket plus 1 soldered DIMM, dual-channel capable

Memory Protection

None

Max Memory

48GB with one 32GB SO-DIMM plus one 16GB soldered DIMM

Graphics

Intel UHD Graphics in processor and NVIDIA Quadro P520, 2GB GDDR5 memory

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	multi-touch	500 nits	16:9	1000:1	72%	170°
14.0"	UHD (3840x2160) Dolby Vision, HDR 400	WVA	Glossy	-	500 nits	16:9	1500:1	100% Adobe	170°

Color Calibration

Factory Color Calibration on UHD panels

Touchscreen

Optional on-cell touch on selected FHD models, supports 10-finger gesture

Pen

None

Storage

Up to one M.2 SSD as following, 2TB max:
• M.2 2280 PCIe NVMe, PCIe 3.0 x4, 256GB / 512GB / 1TB / 2TB
• M.2 2242 PCIe NVMe, PCIe 3.0 x2, 128GB, for special bids
• M.2 2280 512GB SSD + 32 GB Optane, PCIe NVMe 3.0 x 4, for special bids

Optical

None

Ethernet

One onboard GbE port via integrated gigabit ethernet, Intel i219LM for vPro models or i219V for non-vPro models

NFC

Optional

WLAN + Bluetooth

Optional Intel Wi-Fi 6 AX201 on most models, Wi-Fi 2x2 802.11ax + Bluetooth 5.1. Bluetooth 5.1 requires the latest version of Windows 10 (version 2004 or above)

WWAN

One of the following, configurable by model:
• No WWAN card and non upgradable
• Integrated Mobile Broadband Upgradable, No WWAN Card, WWAN Antenna 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

SIM card

Optional Nano-SIM card slot

Dimensions

Width: 329 mm (12.95 in). Depth: 227 mm (8.94 in).
Thickness: 17.9 mm (0.7 inches)

Weight

Starting at 3.24 lb (1.47kg)

Case color

Black

Case material

Display cover: PPS / 50% GF;
Bottom: PA / 50% GF

Media reader

MicroSD card reader

Standard Ports

On left: 1x USB-C (USB 3.2 Gen 1, PD, DP), 1x Thunderbolt (USB-C form, Thunderbolt 3, USB 3.2 Gen 2, PD, DP), 1x side docking connector,
1x USB-A 3.2 Gen 1, 1x HDMI 1.4b, 1x headphone / microphone combo jack,
1x microSD card reader
On right: 1x security keyhole, 1x RJ-45, 1x USB-A 3.2 Gen 1 (Always On)

Optional Ports

One optional smart card reader on right, one optional Nano-SIM card slot on rear

Monitor support

Up to 3 displays with 2 external monitors plus system LCD screen. External monitors supported via USB-C, Thunderbolt, and HDMI. 4096x2304@60Hz on USB-C and Thunderbolt, 4096x2160 @24Hz on HDMI

Monitor cable

Optional HDMI to VGA, USB-C to DP, or USB-C to VGA adapters, up to two

Bundled Accy

None

Camera

Supports one optional camera as following:
• HD720p camera with ThinkShutter camera privacy, fixed focus
• IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio chip

Realtek ALC3287 codec

Speaker

Stereo speakers, 2W x 2, Dolby Audio Speaker System

Microphone

Optional dual array near-field microphone

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls. LED backlight on most models, non LED backlight is for special bids

UltraNav

TrackPoint pointing device and Mylar surface multi-touch touchpad

Password

Power-on password, hard disk password, supervisor password

Security chip

Discrete TPM 2.0, TCG Certified, may be disabled in some regions

System mgmt

Optional Intel vPro Technology supported on vPro enable models

Security locks

Security keyhole for optional Kensington lock

Smart card reader

Optional

Fingerprint reader

Optional

Battery

Integrated Li-Polymer 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark 2014: 15.1 hr.
MobileMark 2018: 10.96 hr.
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

Power Adapter

65W or 65W slim USB-C AC adapter

Operating system

Supports one optional preloaded operating system as following:
• Windows 10 Home 64
• Windows 10 Pro 64
• Windows 10 Government Edition 64 for special bids
• Ubuntu Linux LTS

Base Warranty

Optional warranty plans as following:
• 1-year depot repair service
• 3-year depot repair service
• 1-year + 2-year depot repair service
• 1-year limited onsite service
• 3-year limited onsite service
• 1-year + 2-year limited onsite service
• 1-year depot with 2-year system board repair service

Mil-Spec test

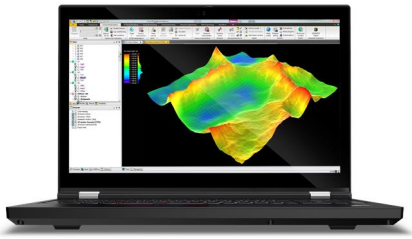
MIL-STD-810G military testing

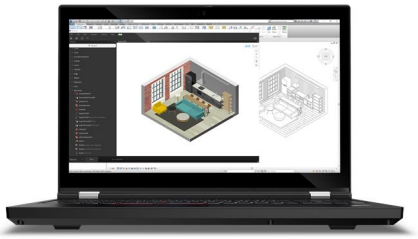
Environment

EPEAT Gold. ENERGY STAR 8.0. RoHS-compliant

ISV certifications

Please visit www.thinkworkstations.com/isv-certifications/





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ThinkPad P15 Gen 1 Platform Specifications

Processor

Supports one 10th Xeon W, Core i9, i7, or i5 processor as following:

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Xeon W-10885M	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Xeon W-10855M	6	12	2.8GHz	5.1GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i9-10980HK	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i9-10885H	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i7-10875H	8	16	2.3GHz	5.1GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i7-10850H	6	12	2.7GHz	5.1GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i7-10750H	6	12	2.6GHz	5.0GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i5-10400H	4	8	2.6GHz	4.6GHz	8MB	DDR4-2933	Intel UHD Graphics

Chipset

Intel WM490 Chipset

Memory Type

SO-DIMM. DDR4-3200 for non-ECC, DDR4-2933 for ECC. Operates at DDR4-2933. 8GB/16GB/32GB available for both ECC and non-ECC

Memory Sockets

4 DIMM socket

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

Max Memory

128GB

Graphics

Support one of the following discrete graphics:
- NVIDIA Quadro T1000, 4GB GDDR6 memory
- NVIDIA Quadro T2000, 4GB GDDR6 memory
- NVIDIA Quadro RTX 3000, 6GB GDDR6 memory
- NVIDIA Quadro RTX 4000 with Max-Q Design, 8GB GDDR6 memory
- NVIDIA Quadro RTX 5000 with Max-Q Design, 16GB GDDR6 memory

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	-	300 nits	16:9	700:1	72% NTSC	160°
15.6"	FHD (1920x1080) Dolby Vision, HDR 400	WVA	Anti-glare	-	500 nits	16:9	1200:1	72% NTSC	160°
15.6"	UHD (3840x2160) Dolby Vision, HDR 400	WVA	Anti-glare	-	600 nits	16:9	1400:1	100% Adobe	178°
15.6"	UHD (3840x2160) Dolby Vision, HDR 400	OLED	Anti-reflection / Anti-smudge	multi-touch	SDR 400nit, HDR 500nit (peak)	16:9	100000:1	100% DCI-P3	170°

Color Calibration

Factory Color Calibration on UHD panels

Touchscreen

Touch enable on selected UHD OLED models, supports 10-finger gesture

Pen

Optional Lenovo Pen Pro

Storage

Up to two M.2 2280 SSD, PCIe NVMe, 256GB / 512GB / 1TB / 2TB each

RAID

RAID 0 / 1 support

Optical

None

Ethernet

One onboard GbE port via integrated gigabit ethernet, Intel i219LM for vPro models or i219V for non-vPro models

NFC

None

WLAN + Bluetooth

Optional Intel Wi-Fi 6 AX201 on most models, Wi-Fi 2x2 802.11ax + Bluetooth 5.1. Bluetooth 5.1 requires the latest version of Windows 10 (version 2004 or above)

WWAN

One of the following, configurable by model:
- No WWAN card and non upgradable
- Integrated Mobile Broadband Upgradable, No WWAN Card, WWAN Antenna Only
- Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card

Note: WWAN cannot be supported on UHD WVA models

SIM card

Optional Nano-SIM card slot

Dimensions

Width: 375.4 mm (14.78 in). Depth: 252.3 mm (9.93 in).
Thickness for non-touch models: 24.5 ~ 31.45 mm (0.96 ~ 1.24 in)
Thickness for touch models: 25.25 ~ 32.2mm (0.99 ~ 1.27 in)

Weight

Starting at 2.74 kg (6.05 lb, FHD)

Case color

Black

Case material

Display cover: GFRP 50% (PPS695 + GF 50%).
Bottom: PPS + GF

Media reader

SD card reader

Standard Ports

1x USB-C (USB 3.2 Gen 1, PD, DP), 2x Thunderbolt (USB-C form, Thunderbolt 3, USB 3.2 Gen 2, PD, DP), 2x USB-A 3.2 Gen 1 (one Always-on), 1x HDMI 2.0, 1x headphone / microphone combo jack, 1x SD card reader,
1x security keyhole, 1x RJ-45

Optional Ports

One optional smart card reader on right, one optional Nano-SIM card slot on left

Monitor support

Up to 5 displays with 4 external monitors plus system LCD screen. External monitors supported via 1x USB-C, 2x Thunderbolt, and 1x HDMI.
USB-C and HDMI support up to 4K@60Hz.
With Thunderbolt, one supports up to 5K@60Hz and one supports up to 4K@60Hz

Monitor cable

Optional HDMI to VGA, USB-C to DP, or USB-C to VGA adapters

Bundled Accy

None

Camera

Supports one optional camera as following:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- Hybrid IR camera with ThinkShutter camera privacy, fixed focus

Audio chip

Realtek ALC3286 codec

Speaker

Stereo speakers, Dolby Atmos sound system

Microphone

Optional dual array far-field microphone

Keyboard

6-row, spill-resistant, LED backlight, numeric keypad, multimedia Fn keys with Unified Communications controls.

UltraNav

3-button TrackPoint pointing device and 2-button Mylar surface multi-touch touchpad

Password

Power-on password, hard disk password, supervisor password

Security chip

Discrete TPM 2.0, TCG Certified, may be disabled in some regions

System mgmt

Optional Intel vPro Technology supported on vPro enable models

Security locks

Security keyhole for optional Kensington lock

Smart card reader

Optional

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

Battery

Integrated Li-Polymer 94Wh battery. Supports Rapid Charge (charge up to 80% in 1hr) with 230W AC adapter

Max battery life

MobileMark 2014: 16.4 hr.
MobileMark 2018: 10.3 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

Power Adapter

One of the following:
- 230W slim AC adapter
- 170W slim AC adapter

Operating system

Supports one optional preloaded operating system as following:
- Windows 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations
- Ubuntu Linux LTS
- Fedora Linux

Base Warranty

Optional warranty plans as following:
- 1-year depot repair service
- 3-year depot repair service
- 1-year + 2-year depot repair service
- 1-year limited onsite service
- 3-year limited onsite service
- 1-year + 2-year limited onsite service
- 1-year depot with 2-year system board repair service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT Silver. ENERGY STAR 8.0. RoHS-compliant

ISV certifications

Please visit www.thinkworkstations.com/isv-certifications/

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ThinkPad P15s Gen 1 Platform Specifications

Processor	Supports one 10th Core i7 and i5 -U suffix processor as following:

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i7-10610U	4	8	1.8GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics
i7-10510U	4	8	1.8GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics
i5-10310U	4	8	1.7GHz	4.4GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6GHz	4.2GHz	6MB	DDR4-2666	Intel UHD Graphics

ChWVAet	Intel SoC (System on Chip) platform
Memory Type	DDR4-3200, operates at DDR4-2666. 8GB/16GB/32GB DDR4-3200 SO-DIMM non-ECC for DIMM socket, 8GB/16GB DDR4-3200 non-ECC for soldered DIMM
Memory Sockets	1 DIMM socket plus 1 soldered DIMM, dual-channel capable
Memory Protection	None
Max Memory	48GB with one 32GB SO-DIMM plus one 16GB soldered DIMM
Graphics	Intel UHD Graphics in processor and NVIDIA Quadro P520, 2GB GDDR5 memory
Display	

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	800:1	45%	170°
15.6"	FHD (1920x1080)	WVA	Anti-glare	multi-touch	300 nits	16:9	800:1	45%	170°

Color Calibration	Factory Color Calibration on UHD models
Touchscreen	Optional on-cell touch on selected FHD models, supports 10-finger gesture
Pen	None
Storage	Up to one M.2 SSD as following, 2TB max: • M.2 2280 PCIe NVMe, PCIe 3.0 x 4, 256GB / 512GB / 1TB / 2TB • M.2 2242 PCIe NVMe, PCIe 3.0 x 2, 128GB, for special bids • M.2 2280 512GB SSD + 32 GB Optane, PCIe NVMe 3.0 x 4, for special bids
Optical	None
Ethernet	One onboard GbE port via integrated gigabit ethernet, Intel i219LM for vPro models or i219V for non-vPro models
NFC	Optional
WLAN + Bluetooth	Optional Intel Wi-Fi 6 AX201 on most models, Wi-Fi 2x2 802.11ax + Bluetooth 5.1. Bluetooth 5.1 requires the latest version of Windows 10 (version 2004 or above)
WWAN	One of the following, configurable by model: • No WWAN card and non upgradable • Integrated Mobile Broadband Upgradable, No WWAN Card, WWAN Antenna 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
SIM card	Optional Nano-SIM card slot
Dimensions	Width: 365.8 mm (14.4 in). Depth: 248 mm (9.76 in). Thickness: 19.1 mm (0.75 inches)
Weight	Starting at 3.86 lb (1.75kg)
Case color	Black

Case material	*Display cover:* PPS / 50% GF; *Bottom:* PA / 50% GF
Media reader	MicroSD card reader
Standard Ports	On left: 1x USB-C (USB 3.2 Gen 1, PD, DP), 1x Thunderbolt (USB-C form, Thunderbolt 3, USB 3.2 Gen 2, PD, DP), 1x side docking connector, 1x USB-A 3.2 Gen 1, 1x HDMI 1.4b, 1x headphone / microphone combo jack, 1x microSD card reader On right: 1x security keyhole, 1x RJ-45, 1x USB-A 3.2 Gen 1 (Always On)
Optional Ports	One optional smart card reader on right, one optional nano-SIM card slot on rear
Monitor support	Up to 3 displays with 2 external monitors plus system LCD screen. Two external monitors supported via USB-C, Thunderbolt, and HDMI. 4096x2304@60Hz on USB-C and Thunderbolt, 4096x2160 @24Hz on HDMI
Monitor cable	Optional HDMI to VGA, USB-C to DP, or USB-C to VGA adapters, up to two
Bundled Accy	None
Camera	Supports one optional camera as following: • HD720p camera with ThinkShutter camera privacy, fixed focus • IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
Audio chip	Realtek ALC3287 codec
Speaker	Stereo speakers, 2W x 2, Dolby Audio Speaker System
Microphone	Optional dual array near-field microphone
Keyboard	6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad. LED backlight on most models, non LED backlight is for special bids
UltraNav	TrackPoint pointing device and Mylar surface multi-touch touchpad
Password	Power-on password, hard disk password, supervisor password
Security chip	Discrete TPM 2.0, TCG Certified, may be disabled in some regions
System mgmt	Optional Intel vPro Technology supported on vPro enable models
Security locks	Security keyhole for optional Kensington lock
Smart card reader	Optional
Fingerprint reader	Optional
Battery	Integrated Li-Polymer 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter
Max battery life	MobileMark 2014: 16.5 hr. MobileMark 2018: 10.48 hr. ** Battery life varies significantly with hardware configurations, settings, usage, & other factors*
Power Adapter	65W or 65W slim USB-C AC adapter
Operating system	Supports one optional preloaded operating system as following: • Windows 10 Home 64 • Windows 10 Pro 64 • Windows 10 Government Edition 64 for special bids • Ubuntu Linux LTS
Base Warranty	Optional warranty plans as following: • 1-year depot repair service • 3-year depot repair service • 1-year + 2-year depot repair service • 1-year limited onsite service • 3-year limited onsite service • 1-year + 2-year limited onsite service • 1-year depot with 2-year system board repair service
Mil-Spec test	MIL-STD-810G military testing
Environment	EPEAT Gold. ENERGY STAR 8.0. RoHS-compliant
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

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ThinkPad P17 Gen 1 Platform Specifications

Processor

Supports one 10th Xeon W, Core i9, i7, or i5 processor as following:

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
Xeon W-10885M	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Xeon W-10855M	6	12	2.8GHz	5.1GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i9-10980HK	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i9-10885H	8	16	2.4GHz	5.3GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i7-10875H	8	16	2.3GHz	5.1GHz	16MB	DDR4-2933	Intel UHD Graphics
Core i7-10850H	6	12	2.7GHz	5.1GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i7-10750H	6	12	2.6GHz	5.0GHz	12MB	DDR4-2933	Intel UHD Graphics
Core i5-10400H	4	8	2.6GHz	4.6GHz	8MB	DDR4-2933	Intel UHD Graphics

Chipset	Intel WM490 Chipset
Memory Type	SO-DIMM. DDR4-3200 for non-ECC, DDR4-2933 for ECC. ECC and non-ECC operate at DDR4-2933. 8GB/16GB/32GB available for both ECC and non-ECC
Memory Sockets	4 DIMM socket
Memory Protection	ECC on models with ECC DIMMs and Xeon processor
Max Memory	128GB
Graphics	Support one of the following discrete graphics: • NVIDIA Quadro T1000, 4GB GDDR6 memory • NVIDIA Quadro T2000, 4GB GDDR6 memory • NVIDIA Quadro RTX 3000, 6GB GDDR6 memory • NVIDIA Quadro RTX 4000 with Max-Q Design, 8GB GDDR6 memory • NVIDIA Quadro RTX 5000 with Max-Q Design, 16GB GDDR6 memory

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
17.3"	FHD (1920x1080)	WVA	Anti-glare	-	300 nits	16:9	700:1	72% NTSC	160°
17.3"	UHD (3840x2160) Dolby Vision, HDR 400	WVA	Anti-glare	-	500 nits	16:9	1500:1	100% Adobe	178°

Color Calibration	Factory Color Calibration on UHD panels
Touchscreen	None
Pen	None
Storage	Up to two M.2 2280 SSD, PCIe NVMe, 256GB / 512GB / 1TB / 2TB each
RAID	RAID 0 / 1 support
Optical	None
Ethernet	One onboard GbE port via integrated gigabit ethernet, Intel i219LM for vPro models or i219V for non-vPro models
NFC	None
WLAN + Bluetooth	Optional Intel Wi-Fi 6 AX201 on most models, Wi-Fi 2x2 802.11ax + Bluetooth 5.1. Bluetooth 5.1 requires the latest version of Windows 10 (version 2004 or above)
WWAN	One of the following, configurable by model: • No WWAN card and non upgradable • Integrated Mobile Broadband Upgradable, No WWAN Card, WWAN Antenna Only • Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 4x4, M.2 card
SIM card	Optional Nano-SIM card slot

Dimensions	Width: 415.44 mm (16.36 in). Depth: 280.81 mm (11.06 in). Thickness: 25.11~ 33.25 mm (0.99 ~ 1.31 in)
Weight	Starting at 3.5 kg (7.7 lb, FHD)
Case color	Black
Case material	*Display cover:* GFRP 50% (PPS695 + GF 50%). *Bottom:* PPS + GF
Media reader	SD card reader
Standard Ports	1x USB-C (USB 3.2 Gen 1, PD, DP), 2x Thunderbolt (USB-C form, Thunderbolt 3, USB 3.2 Gen 2, PD, DP), 3x USB-A 3.2 Gen 1 (one Always-on), 1x HDMI 2.0, 1x headphone / microphone combo jack, 1x SD card reader, 1x security keyhole, 1x RJ-45
Optional Ports	One optional smart card reader on right, one optional Nano-SIM card slot on left
Monitor support	Up to 5 displays with 4 external monitors plus system LCD screen. External monitors supported via 1x USB-C, 2x Thunderbolt, and 1x HDMI. USB-C and HDMI support up to 4K@60Hz. With Thunderbolt, one supports up to 5K@60Hz and one supports up to 4K@60Hz
Monitor cable	Optional HDMI to VGA, USB-C to DP, or USB-C to VGA adapters
Bundled Accy	None
Camera	Optional Hybrid IR camera with ThinkShutter camera privacy, fixed focus
Audio chip	Realtek ALC3286 codec
Speaker	Stereo speakers, Dolby Atmos sound system
Microphone	Optional dual array far-field microphone
Keyboard	6-row, spill-resistant, LED backlight, numeric keypad, multimedia Fn keys with Unified Communications controls
UltraNav	3-button TrackPoint pointing device and 2-button Mylar surface multi-touch touchpad
Password	Power-on password, hard disk password, supervisor password
Security chip	Discrete TPM 2.0, TCG Certified, may be disabled in some regions
System mgmt	Optional Intel vPro Technology supported on vPro enable models
Security locks	Security keyhole for optional Kensington lock
Smart card reader	Optional
Fingerprint reader	Touch style match on chip fingerprint reader on the palm rest
Battery	Integrated Li-Polymer 94Wh battery. Supports Rapid Charge (charge up to 80% in 1hr) with 230W AC adapter
Max battery life	MobileMark 2014: 14.6 hr. MobileMark 2018: 9.75 hr. ** Battery life varies significantly with hardware configurations, settings, usage, & other factors*
Power Adapter	One of the following: • 230W slim AC adapter • 170W slim AC adapter
Operating system	Supports one optional preloaded operating system as following: • Windows 10 Home 64 • Windows 10 Pro 64 • Windows 10 Pro 64 for Workstations • Ubuntu Linux LTS
Base Warranty	Optional warranty plans as following: • 1-year depot repair service • 3-year depot repair service • 1-year + 2-year depot repair service • 1-year limited onsite service • 3-year limited onsite service • 1-year + 2-year limited onsite service • 1-year depot with 2-year system board repair service
Mil-Spec test	MIL-STD-810G military testing
Environment	EPEAT Silver. ENERGY STAR 8.0. RoHS-compliant
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

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ThinkPad P43s Platform Specifications

Processor

8th Generation Intel® Core™ i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB	DDR4-2400	Intel UHD Graphics
i7-8565U			1.8 GHz	4.6 GHz	8MB		
i7-8665U			1.9 GHz	4.8 GHz	8MB		

Graphics

Intel UHD Graphics in processor and
NVIDIA Quadro® P520, 2GB GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
Up to 3 displays with 2 external monitors plus system LCD screen.
Max resolution: 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI)

ChWVAet Memory

Intel SoC (System on Chip) platform
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
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°
14.0"	WQHD (2560x1440) Dolby Vision™ HDR	WVA	Glossy	500 nits	16:9	1500:1	100% Adobe	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Pen

None

Storage

Supports single sided M.2 2280 drives only
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN Bluetooth™

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

One of the following, configurable by model:
- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	FHD	FHD Low Power	WQHD
Weight	3.43 lb / 1.55 kg	3.28 lb / 1.49 kg	3.24 lb / 1.47 kg

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

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*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array far-field microphone, 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

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- Polymer 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 14.7 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

65W or 65W slim USB Type-C AC adapter

Operating system

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™ Silver; ENERGY STAR® 7.1; RoHS-compliant

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

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ThinkPad P51 Platform Specifications

Processor

6th or 7th Generation Intel® Core™ i7 Processor or
Intel Xeon® Processor E3 v5 or v6 Family

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i7-6820HQ	4	8	2.7 GHz	3.6 GHz	8MB	DDR4-2133	Intel HD Graphics 530
E3-1505M v5			2.8 GHz	3.7 GHz			Intel HD Graphics P530
i7-7700HQ			2.8 GHz	3.8 GHz	6MB	DDR4-2400	Intel HD Graphics 630
i7-7820HQ			2.9 GHz	3.9 GHz	8MB		
E3-1505M v6			3.0 GHz	4.0 GHz			Intel HD Graphics P630
E3-1535M v6			3.1 GHz	4.2 GHz			

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™;
Up to 4 displays with 3 external monitors plus system LCD screen.
Max resolution: 3840x2160@60Hz (DisplayPort via Mini DisplayPort cable);
3840x2160@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

Chipset

Mobile Intel CM238 Chipset

Memory

64GB max / 2400MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets
** System clocks down for processors with lower memory controller*

Display

Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 160° viewing angle
Some: 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture, 220 nits (FHD only)

Pen *(optional)*

ThinkPad Pen Pro, active pen for multi-touch display

Storage

Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only
Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

RAID *(optional)*

RAID 0/1 support

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:
- 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™

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*

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), M.2 card

SIM card *(opt)*

Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card

Dimensions

WxDxH: 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm
WxDxH(Touch): 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm

Weight

Models	*4-cell*	*6-cell*
Non-touch	5.6 lb / 2.55kg	5.9 lb / 2.67kg
Multi-touch	6.2 lb / 2.82kg	6.4 lb / 2.90kg

Case color

Black

Case material

Display cover: Glass-Fiber Reinforced Plastic;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

ExpressCard

One slot (ExpressCard/34)

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Camera *(optional)*

HD720p resolution, fixed focus

Audio support

HD Audio, Realtek® ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight

UltraNav™

3-button TrackPoint® pointing device and
3-button 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

Touch style match on chip fingerprint reader on the palm rest

Color calibration

Optional: Pantone® color calibrator by X-Rite® color calibration sensor in palm rest

NFC

None

Battery

Lithium Polymer 4-cell *(66Wh)* or 6-cell *(90Wh)*

Max battery life[10] (*MobileMark® 2014*)

Model	*4-cell*	*6-cell*
Discrete Graphics	4.5 hr	6.1 hr
Hybrid Graphics	6.5 hr	8.9 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

170W slim tip AC adapter

Operating system

One of the following, configurable by model:
- 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

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.

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ThinkPad P52 Platform Specifications

Processor

8th Generation Intel® Core™ i7 / i9 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630
i7-8850H			2.6 GHz	4.3 GHz	9MB		
i9-8950HK			2.9 GHz	4.8 GHz	12MB		
E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630

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™;
Up to 4 displays with 3 external monitors plus system LCD screen.
Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable);
5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

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
** Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation*
** 128GB non-ECC memory for special bid only*

Display

Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 160° viewing angle
Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, WVA, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (4K only)

Pen

Supports pen accessory, please see the accessory compatibility for details

Storage

Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only
Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

Bluetooth™

Bluetooth 5.0 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, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

SIM card *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm
WxDxH(Touch): 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm

Weight

Non-touch model: starting at 5.4 lb / 2.45kg;
Multi-touch model: starting at 6.4 lb / 2.9kg

Case color

Black

Case material

Display cover: Glass-Fiber Reinforced Plastic;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

ExpressCard

None

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

Ports

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
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3286 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array microphone, headphone / microphone combo jack,
Dolby Atmos® headphone

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight

UltraNav™

3-button TrackPoint® pointing device and
3-button 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

Touch style match on chip fingerprint reader on the palm rest

Color calibration

None

NFC *(optional)*

Near Field Communication

Battery

Swappable Li-ion 90Wh battery

Max battery life (*MobileMark® 2014*)

Discrete mode: 6.1 hr; *Hybrid mode:* 8.9 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

170W slim tip AC adapter

Operating system

One of the following, configurable by model:
- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

Limited warranty *(optional)*

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™ Silver; ENERGY STAR® 6.1; RoHS-compliant

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

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ThinkPad P52s Platform Specifications

Processor — 8th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-8350U	4	8	1.7 GHz	3.6 GHz	6MB	DDR4-2400	Intel UHD Graphics 620
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 and
NVIDIA Quadro® P500, 2GB GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
Up to 3 displays with 2 external monitors plus system LCD screen.
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
** System clocks down for processors with lower memory controller*

Display
Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 45% gamut, 170° viewing angle
Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch *(opt)* — On-cell touch, supports 10-finger gesture (FHD only)

Pen — None

Storage
System has one HDD slot or one M.2 2280 slot exclusively for storage, and supports single sided M.2 2280 drives only
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 / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN

Optane™ memory — *Optional:* Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical — None

Ethernet
Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

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*

WWAN *(optional)* — *One of the following, configurable by model:*
- 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

** 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

Dimensions — *WxDxH:* 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm

Weight — starting at 4.39 lb / 1.99 kg

Case color — Black

Case material — *Display cover:* GFRP + PPS;
Bottom: GFRP

Smart card reader — *Optional:* Smart card reader

Media reader — 4-in-1 reader (MMC, SD, SDHC, SDXC)

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)* — *HDMI to VGA:* Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Camera *(optional)* — *One of the following, configurable by model:*
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support — HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array microphone, headphone / microphone combo jack

Keyboard — 6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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 — *Optional:* 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
swappable Li-ion 24Wh, 48Wh, or 72Wh battery

Max battery life (*MobileMark® 2014*)

Models	*48Wh*	*72Wh*	*32Wh + 24Wh*	*32Wh + 48Wh*	*32Wh + 72Wh*
Max battery life	12.2 hr	18.5 hr	13.5 hr	20.1 hr	26.3 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter — 65W USB Type-C AC adapter

Operating system — Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty — *One of the following, configurable by model:*
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service
- 3-year (including battery) limited onsite service

Mil-Spec test — MIL-STD-810G military testing

Environment — EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant

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

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ThinkPad P53 Platform Specifications

Processor

9th Generation Intel® Core™ i5 / i7 / i9 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-9400H	4	8	2.5 GHz	4.3 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i7-9750H	6	12	2.6 GHz	4.5 GHz	12MB		
i7-9850H	6	12	2.6 GHz	4.6 GHz	12MB		
i9-9880H	8	16	2.3 GHz	4.8 GHz	16MB		
E-2276M	6	12	2.8 GHz	4.7 GHz	12MB		Intel UHD Graphics P630

Graphics

Intel UHD Graphics 630 or P630 in processor and
NVIDIA® Quadro® T1000 (4GB GDDR5), T2000 (4GB GDDR5),
RTX 3000 (6GB GDDR6, VR ready), RTX 4000 (8GB GDDR6, VR ready), or
RTX 5000 (16GB GDDR6, VR ready);
supports external digital monitor via HDMI or Thunderbolt™;
Up to 5 displays with 4 external monitors plus system LCD screen.
Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (USB-C or HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	700:1	72%	160°
15.6"	FHD (1920x1080) Dolby Vision™ HDR	WVA	Anti-glare	500 nits	16:9	1200:1	72%	160°
15.6"	UHD (3840x2160) Dolby Vision HDR	WVA	Anti-glare	500 nits	16:9	1200:1	100%	170°
15.6"	UHD (3840x2160) Dolby Vision HDR, Multi-touch	OLED	Anti-reflection / Anti-smudge	SDR 400nit, HDR 500nit (peak)	16:9	100000:1	100% DCI-P3	170°

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (UHD only), anti-reflection (AR), anti-smudge (AS) coating

Pen *(optional)*

Lenovo Pen Pro (special bid only)

Storage

Up to 3 drives (3x M.2 SSD or 1x HDD + 2x M.2 SSD), supports single sided M.2 2280 drives only

- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

** HDD is only available for T1000 and T2000 graphics model*

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

RAID *(optional)*

RAID 0/1/5 support

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN *(optional)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1

Bluetooth™ *(opt)*

Bluetooth 5.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH (non-touch): 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm
WxDxH (multi-touch): 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm

Weight

Non-touch model: starting at 5.51 lb / 2.5 kg;
Multi-touch model: starting at 6.4 lb / 2.9 kg

Case color

Black

Case material

Display cover: Glass-Fiber Reinforced Plastic;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

ExpressCard

None

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD 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),
two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP),
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

** Power Delivery only supports power-out for charging peripherals*
** USB-C Dock is not supported in right-side USB-C port*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

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

Audio support

HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack, Dolby Atmos® sound system

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight

UltraNav™

3-button TrackPoint® pointing device and 3-button 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

Touch style match on chip fingerprint reader on the palm rest

Color calibration

Optional: X-Rite Pantone factory color calibration (UHD model only)

NFC *(optional)*

Near Field Communication

Battery

Integrated Li- Polymer 90Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life (*MobileMark® 2014*)

Discrete mode: 8 hr; *Hybrid mode:* 13 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

170W or 230W slim tip AC adapter

Operating system

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

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™ Silver; ENERGY STAR® 7.1; RoHS-compliant

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

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ThinkPad P53s Platform Specifications

Processor

8th Generation Intel® Core™ i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-8365U	4	8	1.6 GHz	4.1 GHz	6MB	DDR4-2400	Intel UHD Graphics
i7-8565U			1.8 GHz	4.6 GHz	8MB		
i7-8665U			1.9 GHz	4.8 GHz	8MB		

Graphics

Intel UHD Graphics in processor and
NVIDIA Quadro® P520, 2GB GDDR5 memory;
supports external digital monitor via HDMI or USB Type-C;
supports 3 independent displays with 2 external monitors plus system LCD screen.
Max resolution: 3840x2160@60Hz (USB-C); 3840x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

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
15.6"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	45%	170°
15.6"	UHD (3840x2160) Dolby Vision™ HDR	WVA	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Pen

None

Storage

Supports single sided M.2 2280 drives only
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

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 *(optional)*

One of the following, configurable by model:
- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 14.40" x 9.76" x 0.75"; 365.8mm x 248mm x 19.1mm

Weight

starting at 3.87 lb / 1.75 kg

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

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*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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

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- Polymer 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 15 hr (FHD model) / 10 hr (UHD model)
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

65W USB Type-C AC adapter

Operating system

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

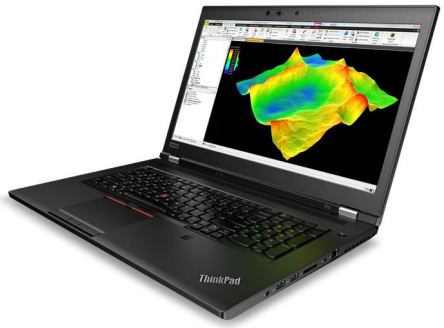
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

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



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ThinkPad P72 Platform Specifications

Processor

8th Generation Intel® Core™ i7 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB	DDR4-2400	Intel UHD Graphics 630
i7-8850H			2.6 GHz	4.3 GHz	9MB		
E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630
E-2186M			2.9 GHz	4.8 GHz	12MB		

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 4 independent displays with 3 external monitors plus system LCD screen.
Max resolution: 3840X2160@60Hz (DisplayPort via Mini DisplayPort cable);
5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

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
** Installed DIMMs are actually 2666MHz but run at 2400MHz due to Intel limitation*

Display

Some: 17.3" (439mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle
Some: 17.3" (439mm) UHD (3840x2160), anti-glare, LED backlight, WVA, 400 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 100% Adobe gamut, 170° viewing angle

Multi-touch

None

Pen

None

Storage

Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only
Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

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

WWAN

None

SIM card

None

Dimensions

WxDxH: 16.38" x 11.06" x 0.96-1.16"; 416mm x 281mm x 24.5-29.4mm

Weight

Starting at 7.5 lb / 3.4kg

Case color

Black

Case material

Display cover: GFRP + PPS;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

ExpressCard

None

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

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
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

Optional: Lenovo Mini-DisplayPort to DisplayPort Monitor Cable

Camera *(optional)*

IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3286 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium / optional dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone

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

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

Color calibration

None

NFC *(optional)*

Near Field Communication

Battery

Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 16 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

230W slim tip AC adapter

Operating system *(optional)*

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

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® 7.0; RoHS-compliant

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

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ThinkPad P73 Platform Specifications

Processor

9th Generation Intel® Core™ i5 / i7 / i9 Processor or Intel Xeon® E Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-9400H	4	8	2.5 GHz	4.3 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i7-9750H	6	12	2.6 GHz	4.5 GHz	12MB		
i7-9850H	6	12	2.6 GHz	4.6 GHz	12MB		
i9-9880H	8	16	2.3 GHz	4.8 GHz	16MB		
E-2276M	6	12	2.8 GHz	4.7 GHz	12MB		Intel UHD Graphics P630

Graphics

Intel UHD Graphics 630 or P630 in processor and
NVIDIA Quadro® P620 (4GB GDDR5), T2000 (4GB GDDR5),
RTX 3000 (6GB GDDR6, VR ready), RTX 4000 Max-Q (8GB GDDR6, VR ready),
or RTX 5000 Max-Q (16GB GDDR6, VR ready);
Up to 5 displays with 4 external monitors plus system LCD screen. External monitors supported via USB-C, Thunderbolt, and HDMI
Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (USB-C or HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

128GB max / 2666MHz DDR4 (ECC function supported only on Xeon processor), dual-channel capable, four DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
17.3"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	700:1	72%	160°
17.3"	UHD (3840x2160) Dolby Vision™ HDR	WVA	Anti-glare	400 nits	16:9	1000:1	100%	170°

Multi-touch

None

Pen

None

Storage

Up to 3 drives (two M.2 SSD and one HDD), supports single sided M.2 2280 drives only

- HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optane™ memory

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN *(optional)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.1

Bluetooth™ *(opt)*

Bluetooth 5.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

None

SIM card

None

Dimensions

WxDxH: 16.38" x 11.06" x 1.02-1.22"; 416mm x 281mm x 25.9-31mm

Weight

Starting at 7.5 lb (3.4kg)

Case color

Black

Case material

Display cover: GFRP + PPS;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

ExpressCard

None

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card

Ports

Three USB 3.1 Gen 1 (one Always On),
one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP),
HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack,
optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC),
security keyhole
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

Camera *(optional)*

IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Synaptic® CX11880 codec / stereo speakers, 2W x 2 /
dual array far-field microphone, headphone / microphone combo jack,
Dolby Atmos® sound system

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight

UltraNav™

3-button TrackPoint® pointing device and
3-button 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

Touch style match on chip fingerprint reader on the palm rest

Color calibration

Optional: X-Rite Pantone factory color calibration (UHD model only)

NFC *(optional)*

Near Field Communication

Battery

Integrated Li- Polymer 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 17.2 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

170W or 230W slim tip AC adapter

Operating system

One of the following, configurable by model:

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations

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

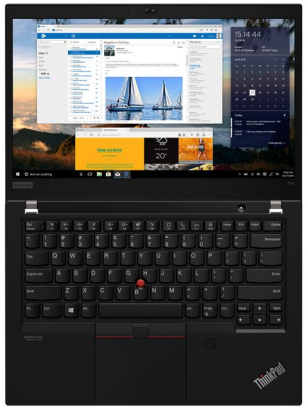
MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

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

Lenovo
November 2019



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ThinkPad T14 Gen 1 (AMD) Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ PRO 4000 Series Mobile Processors

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 5 PRO 4650U	6	12	2.1 GHz	4.0 GHz	3MB L2 / 8MB L3	DDR4-3200	AMD Radeon™ Graphics
Ryzen 7 PRO 4750U	8	16	1.7 GHz	4.1 GHz	4MB L2 / 8MB L3		

Graphics

AMD Radeon Graphics in processor;
supports up to 4 independent displays via native display and 3 external monitors;
supports external monitors via HDMI (up to 4K@60Hz) or
USB Type-C (up to 5K@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

32GB max / 3200MHz DDR4, dual-channel capable,
8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Realtek® RTL8111EPV Gigabit Ethernet connection

WLAN + BT

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth™ 5.1

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	HD / FHD / FHD Touch	FHD Low Power / Privacy Guard
Weight	3.42 lb / 1.55 kg	3.22 lb / 1.46 kg

Case color

Black

Case material

Top cover: PPS / 50% GF;
Keyboard cover: PC / ABS / Talc15 + Magnesium alloy;
Bottom: PA / 50% GF
with optional ISO 22196 compliant anti-microbial surface treatment

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
two USB 3.2 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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

** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 2W x 2 /
optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls,
optional LED backlight

UltraNav™

TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhol

Security chip

Discrete TPM 2.0 TCG Certified

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14 hr
MobileMark 2018: 11.5 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

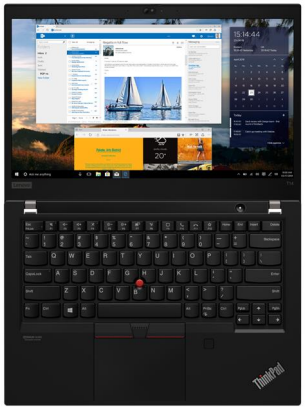
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 8.0; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad T14 Gen 1 (Intel) Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and
NVIDIA® GeForce® MX330, 2GB GDDR5 memory;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 48GB max / 2666MHz DDR4, dual-channel capable,
8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	-	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1000:1	72%	178°
14.0"	UHD (3840x2160) HDR400, Dolby Vision™	WVA	Glossy	-	500 nits	16:9	1500:1	100%	178°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- Wireless WAN upgradable
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	HD	FHD	FHD Touch	FHD Low Power	UHD	Privacy Guard
Weight	3.37 lb / 1.53 kg	3.41 lb / 1.55 kg	3.41 lb / 1.55 kg	3.28 lb / 1.49 kg	3.28 lb / 1.49 kg	3.56 lb / 1.61 kg

Case color

Black

Case material

Top cover: PPS / 50% GF
Keyboard cover: PC / ABS / Talc15 + Magnesium alloy
Bottom: PA / 50% GF
with optional ISO 22196 compliant anti-microbial surface treatment
(not including keyboard, display, and display bezel)

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

- Firmware TPM 2.0 integrated in chipset
- 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-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.5 hr
MobileMark 2018: 11.45 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

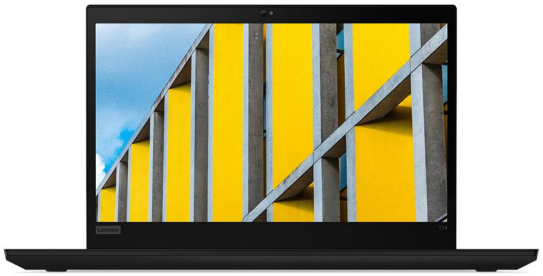
MIL-STD-810G military testing

Environment

EPEAT™ Gold; ENERGY STAR® 8.0; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020



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ThinkPad T14 Secure Access / Healthcare Edition Gen 1 Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10310U	4	8	1.7 GHz	4.4 GHz	6MB	DDR4-2666	Intel UHD Graphics
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and
NVIDIA® GeForce® MX330, 2GB GDDR5 memory;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 48GB max / 2666MHz DDR4, dual-channel capable,
8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1000:1	72%	178°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	FHD / FHD Touch	Privacy Guard
Weight	3.41 lb / 1.55 kg	3.56 lb / 1.61 kg

Case color

Black

Case material

Top cover: PPS / 50% GF;
Keyboard cover: PC / ABS / Talc15 + Magnesium alloy;
Bottom: PA / 50% GF
with ISO 22196 compliant anti-microbial surface treatment

Smart card reader

None

RFID reader

RFID reader supporting RFID / NFC

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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, microSD card reader,
side docking connector, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

- Firmware TPM 2.0 integrated in chipset
- Discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

FWVA 201 fingerprint reader on palm rest

NFC

NFC support via RFID reader

Battery

Integrated Li-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.5 hr
MobileMark 2018: 10.5 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite 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; ENERGY STAR® 8.0; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad T14s Gen 1 (AMD) Platform Specifications

Processor

AMD Ryzen™ PRO 4000 Series Mobile Processors

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 5 PRO 4650U	6	12	2.1 GHz	4.0 GHz	3MB L2 / 8MB L3	DDR4-3200	AMD Radeon™ Graphics
Ryzen 7 PRO 4750U	8	16	1.7 GHz	4.1 GHz	4MB L2 / 8MB L3		

Graphics

AMD Radeon Graphics in processor;
supports up to 4 independent displays via native display and 3 external monitors;
supports external monitors via HDMI (up to 4K@60Hz) or
USB Type-C (up to 5K@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

8GB, 16GB, or 32GB / 3200MHz DDR4 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Native Realtek® RTL8111EPV Gigabit Ethernet connection
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + BT

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth™ 5.1

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH (FHD / FHD Touch / Privacy Guard):
12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm
WxDxH (FHD Low Power):
12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm

Weight

Models	FHD / FHD Touch	FHD Low Power	FHD Privacy Guard
Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	2.81 lb / 1.27 kg

Case color

Black

Case material

Display cover: CFRP Hybrid;
Bottom: Magnesium

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
two USB 3.2 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 1W x 2 /
optional dual array far-field microphone, headphone / microphone combo jack

Keyboard
UltraNav™

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls,
optional LED backlight
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

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 15.9 hr
MobileMark 2018: 13.6 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 8.0; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad T14s Gen 1 (Intel) Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB, 16GB or 32GB / 2666MHz DDR4 / soldered to systemboard, no sockets
** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1000:1	72%	170°
14.0"	UHD (3840x2160) HDR400, Dolby Vision™	WVA	Glossy	-	500 nits	16:9	1500:1	100% DCI-P3	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- Wireless WAN upgradable
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH (black with FHD / FHD Touch / Privacy Guard):
12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm
WxDxH (black with FHD Low Power / UHD):
12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm
WxDxH (silver): 12.96" x 8.92" x 0.68"; 329.15mm x 226.45mm x 17.2mm

Weight

Models	Black with FHD / FHD Touch / Privacy Guard	Black with FHD Low Power / UHD	Silver
Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg

Case color

Black or Silver

Case material

Display cover: CFRP Hybrid (black) or Aluminum (silver);
Bottom: Magnesium

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 1W x 2 / optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

- Firmware TPM 2.0 integrated in chipset
- 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-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 21 hr
MobileMark 2018: 14.28 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 3-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery limited onsite service
- 3-year/1-yr battery limited onsite service

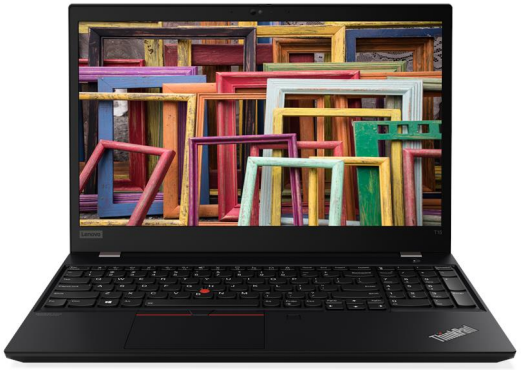
Mil-Spec test

Work in progress

Environment

EPEAT™ Gold; ENERGY STAR® 8.0; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad T15 Gen 1 Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics in processor and
NVIDIA® GeForce® MX330, 2GB GDDR5 memory;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 48GB max / 2666MHz DDR4, dual-channel capable,
8GB or 16GB memory soldered to systemboard, one DDR4 SO-DIMM socket
** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	-	250 nits	16:9	800:1	45%	170°
15.6"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	800:1	45%	170°
15.6"	UHD (3840x2160) HDR400, Dolby Vision™	WVA	Anti-glare	-	500 nits	16:9	1400:1	100%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- Wireless WAN upgradable
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 14.40" x 9.76" x 0.75"; 365.8mm x 248mm x 19.1mm

Weight

FHD model: 3.99 lb / 1.81 kg;
UHD model: 3.84 lb / 1.74 kg

Case color

Black

Case material

Display cover: PPS / 50% GF
Keyboard cover: PC / ABS / Talc15 + Magnesium alloy
Bottom: PA / 50% GF
with optional ISO 22196 compliant anti-microbial surface treatment
(not including keyboard, display, and display bezel)

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

None

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 2W x 2 / optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad, 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

- Firmware TPM 2.0 integrated in chipset
- 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-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 15.26 hr
MobileMark 2018: 10.81 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad T480 Platform Specifications

Processor

7th Generation Intel® Core™ i5 Processor

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		

or 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		
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
(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)

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, 400:1 contrast ratio
Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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*

Optane™ memory

Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(opt)*

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*

WWAN *(optional)*

One of the following, configurable by model (mutually exclusive with Intel Optane memory):
- 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

** 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

Dimensions

WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm

Weight

Models	*24Wh or 24Wh + 24Wh*	*48Wh, 72Wh, or 24Wh + 48Wh / 72Wh*
Integrated Magnesium	3.49 lb / 1.58 kg	3.92 lb / 1.78 kg
Integrated PPS	3.63 lb / 1.65 kg	4.08 lb / 1.85 kg
Discrete Magnesium	3.53 lb / 1.60 kg	3.97 lb / 1.80 kg
Discrete PPS	3.68 lb / 1.67 kg	4.12 lb / 1.87 kg

Case color

Black

Case material

Display cover: Magnesium Hybrid or PPS;
Bottom: Glass-Fiber Reinforced Plastic

Smart card reader

Optional: Smart card reader

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone (for special bid model, microphone is optional), 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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology

NFC *(optional)*

Near Field Communication

Battery

Optional integrated Li-ion 24Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery

Max battery life (*MobileMark® 2014*)

Models	*24Wh*	*48Wh*	*72Wh*	*24Wh + 24Wh*	*24Wh + 48Wh*	*24Wh + 72Wh*
Integrated model	7.2 hr	14.4 hr	21.8 hr	14.4 hr	21.8 hr	29.0 hr
Discrete model	6.6 hr	13.2 hr	19.8 hr	13.6 hr	19.8 hr	26.4 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year/3-yr battery depot repair service
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/3-yr battery depot repair service
- 3-year/1-yr battery limited onsite service
- 3-year/3-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 and might change by regions.

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ThinkPad T480s Platform Specifications

Processor

7th Generation Intel® Core™ i5 Processor

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		

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	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)

Chipset

Intel SoC (System on Chip) platform

Memory

20GB or 24GB max / 2400MHz DDR4, dual-channel capable,
4GB or 8GB memory soldered to systemboard, one DDR4 SO-DIMM socket
** System clocks down for processors with lower memory controller*

Display

Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle, supports ThinkPad Privacy Guard on some models
Some: 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture, 250 nits (FHD only)

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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(opt)*

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*

WWAN

One of the following, configurable by model:
- 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

SIM card *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 13.03" x 8.93" x 0.73"; 331mm x 226.8mm x 18.45mm

Weight

Starting at 2.9 lb / 1.32 kg

Case color

Black or Silver

Case material

Display cover: CFRP Hybrid;
Bottom: Magnesium

Smart card reader

Optional: Smart card reader

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

USB-C to VGA: Lenovo USB-C to VGA Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
optional 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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter

Max battery life

MobileMark® 2014: 15.6 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

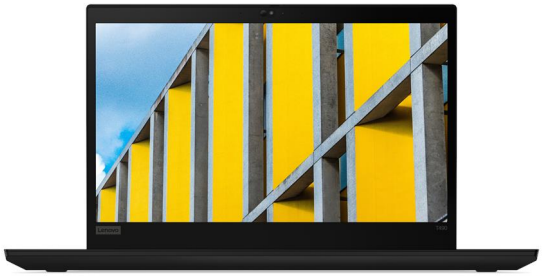
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad T490 Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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		

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2400	Intel UHD Graphics
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10710U	6	12	1.1 GHz	4.7 GHz	12MB		

Graphics

Intel UHD Graphics in processor only or
Intel UHD Graphics 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)

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°
14.0"	WQHD (2560x1440) HDR, Dolby Vision™	WVA	Glossy	500 nits	16:9	1500:1	100% Adobe	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 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*

Storage

- M.2 2280 SSD / SATA 6.0Gb/s (NOT available in EMEA)
- 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

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN + Bluetooth™ *(optional)*

- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
- Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0 (AX201 for 10th Gen processor only)

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid only in EMEA)
- 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)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	HD	FHD	FHD Low Power / WQHD	Privacy Guard
Weight	3.37 lb / 1.53 kg	3.41 lb / 1.55 kg	3.23 lb / 1.46 kg	3.56 lb / 1.61 kg

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

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*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array far-field microphone (for special bid model, microphone is optional),
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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

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-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.11 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system *(optional)*

- Windows® 10 Home 64
- Windows 10 Pro 64
- Windows 10 Pro in S mode

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year onsite repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

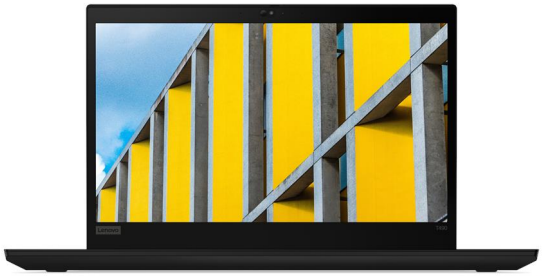
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Gold; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad T490 Secure Access / Healthcare Edition Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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 in processor only or
Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 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
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN *(optional)*
Bluetooth™ *(opt)*

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid 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 *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	FHD	Privacy Guard
Weight	3.41 lb / 1.55 kg	3.56 lb / 1.61 kg

Case color

Black

Case material

Display cover: PPS / 50% GF;
Keyboard cover: PC/ABS + Magnesium alloy (with ISO 22196 compliant anti-microbial surface treatment);
Bottom: PA / 50% GF

Smart card reader

None

RFID reader

RFID reader supporting RFID / NFC

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 (RJ-45), nano-SIM card slot (WWAN model),
headphone / microphone combo jack, microSD card reader,
side docking connector, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual array far-field microphone, headphone / microphone combo jack

Keyboard
UltraNav™

6-row, spill-resistant, multimedia Fn keys, optional LED backlight
TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

FWVA 201 fingerprint reader on palm rest

NFC

NFC support via RFID reader

Battery

Integrated Li-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.11 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 3-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery limited onsite service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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July 2020

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ThinkPad T490s Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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 in processor;
supports external digital monitor via HDMI or Thunderbolt;
supports three independent displays;
Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets
** 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
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°
14.0"	WQHD (2560x1440) HDR, Dolby Vision™	WVA	Glossy	500 nits	16:9	1500:1	100% Adobe	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™ *(optional)*

One of the following, configurable by model:

- 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

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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH (black with FHD / Privacy Guard): 12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm
WxDxH (black with FHD Low Power / WQHD): 12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm
WxDxH (silver): 12.96" x 8.92" x 0.68"; 329.15mm x 226.45mm x 17.2mm

Weight

Models	Black with FHD / Privacy Guard	Black with FHD Low Power / WQHD	Silver
Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg

Case color

Black or Silver

Case material

Display cover: CFRP Hybrid (black) or Aluminum (silver);
Bottom: Magnesium

Smart card reader

Optional: 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,
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*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
dual array far-field microphone (for special bid model, microphone is optional),
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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

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-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 20 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 3-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery depot repair service
- 1-year + 2-year/1-yr battery limited onsite service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Gold; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad T495 Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	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 four independent displays;
Max resolution: 4096x2304@60Hz (USB-C); 4096x2160@60Hz (HDMI)

Chipset

AMD SoC (System on Chip) platform

Memory

32GB 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 AMD limitation*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	HD (1366x768)	TN	Anti-glare	220 nits	16:9	400:1	45%	90°
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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

Optical

None

Ethernet

Realtek® RTL8111 Gigabit Ethernet connection

WLAN

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

Bluetooth™

Bluetooth 4.2 or 5.0 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, Fibocom L850-GL, M.2 card

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH: 12.95" x 8.94" x 0.70"; 329mm x 227mm x 17.9mm

Weight

Models	HD	FHD	FHD Low Power
Weight	3.46 lb / 1.57 kg	3.46 lb / 1.57 kg	3.39 lb / 1.54 kg

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

Ports

One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2,
two USB 3.1 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array far-field microphone (for special bid model, microphone is optional),
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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 13.4 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad T495s Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 5 PRO 3500U	4	8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics
Ryzen 7 PRO 3700U	4	8	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 10 Graphics

Graphics

AMD Radeon 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)

Chipset

AMD 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 AMD limitation*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Native Realtek® RTL8111EPV Gigabit Ethernet connection
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN *(optional)*

Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

Bluetooth™

Bluetooth 5.0 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, Fibocom L850-GL, M.2 card

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH (FHD / Privacy Guard):
12.95" x 8.90" x 0.66"; 329.0mm x 226.15mm x 16.7mm
WxDxH (Low Power):
12.94" x 8.89" x 0.63"; 328.8mm x 225.8mm x 16.1mm

Weight

Models	FHD	FHD Low Power	FHD Privacy Guard
Weight	2.92 lb / 1.33 kg	2.76 lb / 1.25 kg	2.89 lb / 1.31 kg

Case color

Black

Case material

Display cover: CFRP Hybrid;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader

Ports

One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2,
two USB 3.1 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
optional dual array far-field 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.4 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad T580 Platform Specifications

Product Specifications Reference (PSREF)

Processor

7th Generation Intel® Core™ i5 Processor

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		

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	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 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)

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: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle
Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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
Some: 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

Optional: Intel Optane memory, PCIe NVMe, PCIe 3.0 x 2

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

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*

WWAN *(optional)*

One of the following, configurable by model:
- Wireless WAN upgradable (special bid only)
- 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*

SIM card *(opt)*

Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm

Weight

Integrated model: starting at 4.29 lb / 1.95 kg;
Discrete model: starting at 4.39 lb / 1.99 kg

Case color

Black

Case material

Display cover: GFRP + PPS;
Bottom: GFRP

Smart card reader

Optional: Smart card reader

Media reader

4-in-1 reader (MMC, SD, SDHC, SDXC)

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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, numeric keypad, 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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: 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*)

Models	*24Wh*	*48Wh*	*72Wh*	*32Wh + 24Wh*	*32Wh + 48Wh*	*32Wh + 72Wh*
Max battery life	5.8 hr	12.5 hr	18.1 hr	13.8 hr	20.3 hr	26.1 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad T590 Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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 in processor only or
Intel UHD Graphics 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)

Chipset

Intel SoC (System on Chip) platform

Memory

40GB or 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
15.6"	FHD (1920x1080)	WVA	Anti-glare	250 nits	16:9	700:1	45%	170°
15.6"	UHD (3840x2160) HDR, Dolby Vision™	WVA	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

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
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville)
vPro model: Intel Ethernet Connection I219-LM (Jacksonville)

WLAN *(optional)*
Bluetooth™

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

One of the following, configurable by model:

- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions
Weight
Case color
Case material

WxDxH: 14.40" x 9.76" x 0.75"; 365.8mm x 248mm x 19.1mm
FHD model: 3.87 lb / 1.75 kg; *UHD model:* 3.86 lb / 1.75 kg
Black
Display cover: PPS / 50% GF;
Bottom: PA / 50% GF

Smart card reader

Optional: 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 (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*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to VGA: Lenovo USB-C to VGA Adapter (NOT available in EMEA)
USB-C to DP: Lenovo USB-C to DisplayPort Adapter (NOT available in EMEA)

Bundled Accy

None

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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array far-field microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard
UltraNav™

6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight
TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad

Security
Security chip

Power-on password, hard disk password, supervisor password, security keyhole
Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified (may be disabled in some region)

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-Polymer 57Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X13 Gen 1 (AMD) Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Ryzen™ PRO 4000 Series Mobile Processors

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	Cache	Memory Controller	Processor Graphics
Ryzen 3 PRO 4450U	4	8	2.5 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-3200	AMD Radeon™ Graphics
Ryzen 5 PRO 4650U	6	12	2.1 GHz	4.0 GHz	3MB L2 / 8MB L3		
Ryzen 7 PRO 4750U	8	16	1.7 GHz	4.1 GHz	4MB L2 / 8MB L3		

Graphics

AMD Radeon Graphics in processor;
supports up to 4 independent displays via native display and 3 external monitors;
supports external monitors via HDMI (up to 4K@60Hz) or
USB Type-C (up to 5K@60Hz)

Chipset

AMD SoC (System on Chip) platform

Memory

8GB, 16GB, or 32GB / 3200MHz DDR4 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	HD (1366x768)	TN	Anti-glare	-	250 nits	16:9	300:1	45%	90°
13.3"	FHD (1920x1080)	WVA	Anti-glare	-	300 nits	16:9	800:1	72%	170°
13.3"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	72%	170°
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	-	500 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4

Optical

None

Ethernet

Native Realtek® RTL8111EPV Gigabit Ethernet connection
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + BT

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth™ 5.1

WWAN *(optional)*

- 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*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.28" x 8.55" x 0.67"; 311.9mm x 217.2mm x 16.9mm

Weight

Models	HD	FHD Non-touch	FHD Touch	FHD Privacy Guard
Weight	2.85 lb / 1.29 kg	2.85 lb / 1.29 kg	2.84 lb / 1.28 kg	2.85 lb / 1.29 kg

Case color

Black

Case material

Display cover: PPS/GF;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader, in the combo slot with nano-SIM card

Ports

Two USB 3.2 Gen 1 (Always On),
two USB 3.2 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 1W x 2 /
optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls,
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

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 48Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 12.8 hr
MobileMark 2018: 10.35 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X13 Gen 1 (Intel) Platform Specifications

Processor

10th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-10110U	2	4	2.1 GHz	4.1 GHz	4MB	DDR4-2666	Intel UHD Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB		
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB, 16GB or 32GB / 2666MHz DDR4 / soldered to systemboard, no sockets

** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	HD (1366x768)	TN	Anti-glare	-	250 nits	16:9	300:1	45%	170°
13.3"	FHD (1920x1080)	WVA	Anti-glare	-	300 nits	16:9	800:1	72%	170°
13.3"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	300 nits	16:9	700:1	72%	170°
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	-	500 nits	16:9	1000:1	72%	170°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™ *(opt)*

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- Wireless WAN upgradable
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

Gemalto eSIM

Dimensions

Models	FHD Non-touch	HD / FHD Multi-touch / Privacy Guard
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"	311.9mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"

Weight

Models	FHD Non-touch	HD	FHD Multi-touch / Privacy Guard
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

Case color

Black

Case material

Display cover: Carbon Fiber (FHD non-touch only) or PPS;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader, in the combo slot with nano-SIM card

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 1W x 2 / optional dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

- Firmware TPM 2.0 integrated in chipset
- 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-Polymer 48Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 15.9 hr
MobileMark 2018: 10.45 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

Mil-Spec test

Work in progress

Environment

EPEAT™ Gold; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X13 Yoga Gen 1 Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2666	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4096x2160@24Hz),
USB-C (up to 4096x2304@60Hz) or Thunderbolt (up to 4096x2304@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB or 16GB / 2666MHz DDR4 / soldered to systemboard, no sockets

** Installed memory is actually 3200MHz but run at 2666MHz due to Intel limitation*

Display

Size	Resolution	Type	Surface	Touch	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	FHD (1920x1080)	WVA	Anti-reflection Anti-smudge	Multi-touch	300 nits	16:9	800:1	72%	170°
13.3"	FHD (1920x1080) Low Power	WVA	Anti-reflection Anti-smudge	Multi-touch	400 nits	16:9	1500:1	72%	170°
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-reflection Anti-smudge	Multi-touch	500 nits	16:9	1000:1	72%	170°
13.3"	UHD (3840x2160)	OLED	Anti-reflection Anti-smudge	Multi-touch	400 nits	16:9	100000:1	100% DCI-P3	170°

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture, anti-reflection (AR), AS (anti-smudge), could reduce the brightness by up to 10%

Hinge

Yoga hinge, 360 degree

Convert-mode

Laptop, tent, stand and tablet

Pen

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

Storage

- M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™ *(opt)*

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

Gemalto eSIM

Dimensions

WxDxH: 12.22" x 8.62" x 0.63"; 310.4mm x 219mm x 15.95mm

Weight

Starting at 2.76 lb /1.25 kg

Case color

Black

Case material

Display cover: CF Hybrid PA + 55% GF
Bottom: CF Hybrid PA + 55% GF

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader, in the combo slot with nano-SIM card

Ports

Two USB 3.2 Gen 1 (one Always On),
one USB 3.2 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
one USB 3.2 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*

Monitor cable *(optional)*

- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec / Dolby® Audio speaker system, 2W x 2 / dual array far-field microphone, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, 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

- Firmware TPM 2.0 integrated in chipset
- Discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

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 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 18.2 hr
MobileMark 2018: 12.05 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad X280 Platform Specifications

Processor

7th Generation Intel® Core™ i3 / i5 Processor

** i3-7130U is NOT available in US and EMEA; i5-7200U is NOT available in US*

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		
i5-7300U			2.6 GHz	3.5 GHz	3MB		

or 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		
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: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

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*

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, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)
** FHD non-touch model is NOT available in US*

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)

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN *(optional)*
Bluetooth™ *(opt)*

Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

- Wireless WAN upgradable (special bid only)
- 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*

SIM card *(opt)*

Nano-SIM card slot, in the combo slot with microSD card reader,
optional Verizon LTE (US) SIM card

Dimensions

WxDxH: 12.11" x 8.26" x 0.69-0.70"; 307.7mm x 209.8mm x 17.4-17.8mm

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

Case color

Black

Case material

Display cover: Carbon Fiber (FHD non-touch model) or Glass Fiber (HD & FHD multi-touch model);
Bottom: Magnesium/Aluminum

Smart card reader

Optional: 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack

Keyboard
UltraNav™

6-row, spill-resistant, multimedia Fn keys, optional LED backlight
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 (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest, anti-spoofing technology

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 16.6 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

One of the following, configurable by model:
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year/3-yr battery depot repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/3-yr battery depot repair service
- 3-year/1-yr battery limited onsite service
- 3-year/3-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 and might change by regions.

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ThinkPad X380 Yoga Platform Specifications

Processor

7th Generation Intel® Core™ i5 Processor

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		

or 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		
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)

Chipset
Intel SoC (System on Chip) platform

Memory
8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets
* System clocks down for processors with lower memory controller

Display
13.3" (337.8mm) FHD (1920x1080), LED backlight, WVA,
300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle,
AR (anti-reflection)

Multi-touch
Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge),
supports 10-finger gesture

Hinge
Yoga hinge, 360 degree

Convert-mode
Laptop, tent, stand, yoga and tablet

Pen
ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

Storage
Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
Some: 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 I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Cable

WLAN
Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card

Bluetooth™
Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*
One of the following, configurable by model:
• 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

SIM card
None

Dimensions
WxDxH: 12.34" x 8.75" x 0.72"; 313.5mm x 222.2mm x 18.2mm

Weight
Starting at 3.17 lb / 1.43kg

Case color
Black or silver

Case Material
Carbon-Fiber Hybrid

Smart card reader
Optional: Smart card reader (mutually exclusive with NFC)

Media reader
One microSD card slot (microSD, microSDHC, microSDXC), UHS-I

Ports
Two USB 3.1 Gen 1 (one Always On), Ethernet extension connector,
one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (Power Delivery, DisplayPort, Data transfer), HDMI 1.4b, microSD card reader, nano-SIM card slot (WWAN models),
headphone / microphone combo jack, optional smart card reader
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

WiGig dock
None

Monitor cable *(optional)*
USB-C to VGA: Lenovo USB-C to VGA Plus Power Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter
HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy
Optional: ThinkPad Ethernet Extension Cable

Camera
One of the following, configurable by model:
720p: HD720p camera, fixed focus
IR & 720p: IR camera and HD720p camera, fixed focus

Audio support
HD Audio, Conexant® CX11771 codec / stereo speakers, 2W x 2 /
optional dual array microphone, headphone / microphone combo jack

Keyboard
6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™
TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

Security
Power-on password, hard disk password, supervisor password, security keyhole

Security chip
Discrete TPM 2.0 TCG Certified (may be disabled in some region)

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 (mutually exclusive with smart card reader)

Battery
Li-Ion 51Wh battery

Max battery life
MobileMark® 2014: 13.6 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter
• 45W USB-C AC adapter
• 45W slim tip AC adapter
• 65W USB-C AC adapter
• 65W slim tip AC adapter

Light sensor
Ambient Light Sensor

G-sensor/ eCompass
3D accelerometer and 3D magnetometer
3D compass

Gyroscope
3D gyrometer

Operating system
Optional: Windows® 10 Home 64 or Windows 10 Pro 64

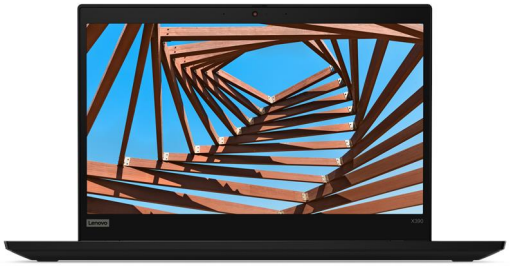
Limited warranty
One of the following, configurable by model:
• 1-year depot repair service
• 1-year depot with 2-year system board service
• 1-year + 2-year depot repair service
• 1-year + 2-year limited onsite service
• 3-year/1-yr battery depot repair service
• 3-year/1-yr battery limited onsite service

Mil-Spec test
MIL-STD-810G military testing

Environment
EPEAT™ Gold; ENERGY STAR®; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020



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ThinkPad X390 Platform Specifications

Processor

8th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i3-8145U	2	4	2.1 GHz	3.9 GHz	4MB	DDR4-2400	Intel UHD Graphics
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		

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	DDR4-2400	Intel UHD Graphics
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10710U	6	12	1.1 GHz	4.7 GHz	12MB		

Graphics

Intel UHD Graphics in processor;
supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

Chipset

Intel SoC (System on Chip) platform

Memory

4GB, 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets
** 32GB memory is NOT available for models with 10th Gen processor*
** 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
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	500:1	45%	90°
13.3"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	178°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

- 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
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN *(optional)*

- 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

Bluetooth™ *(opt)*

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

- Wireless WAN upgradable (special bid only in EMEA)
- 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 *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

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"	311.9mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67"

Weight

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

Case color

Black

Case material

Display cover: Carbon Fiber (FHD non-touch only) or PPS;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
dual array far-field microphone (for special bid model, microphone is optional),
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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

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-Polymer 48Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 17.6 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X390 Yoga Platform Specifications

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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 in processor;
supports external digital monitor via HDMI or USB Type-C;
supports three independent displays;
Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI)

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

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	FHD (1920x1080)	WVA	Anti-reflection	300 nits	16:9	800:1	72%	170°

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture, anti-reflection (AR), AS (anti-smudge), could reduce the brightness by up to 10%

Hinge

Yoga hinge, 360 degree

Convert-mode

Laptop, tent, stand and tablet

Pen

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

Storage

- 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
- Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN *(optional)*

One of the following, configurable by model:

- 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

Bluetooth™ *(opt)*

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)*

One of the following, configurable by model:

- 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 *(opt)*

- Verizon LTE (US) SIM card (special bid only)
- Gemalto eSIM

Dimensions

WxDxH: 12.22" x 8.62" x 0.63"; 310.4mm x 219mm x 15.95mm

Weight

Starting at 2.85 lb /1.29 kg

Case color

Black or silver (silver is NOT available in EMEA)

Case material

Display cover: CF Hybrid PA + 50% GF
Bottom: CF Hybrid PA + 50% GF

Smart card reader

Optional: 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to VGA: Lenovo USB-C to VGA Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 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

Audio support

HD Audio, Realtek® ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
dual array far-field microphone, 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 50Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.5 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Light sensor

None

G-sensor

3D accelerometer

Gyroscope

3D gyrometer

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year/3-yr battery depot repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/3-yr battery depot repair service
- 3-year/1-yr battery limited onsite service
- 3-year/3-yr battery limited onsite service

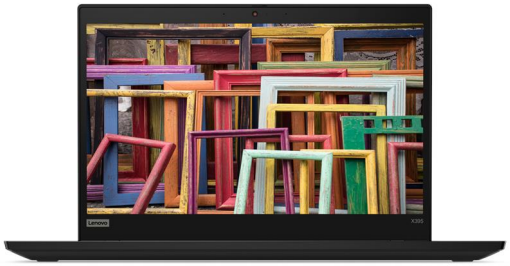
Mil-Spec test

MIL-STD-810G military testing

Environment

EPEAT™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.



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ThinkPad X395 Platform Specifications

Processor

AMD Ryzen™ PRO Mobile Processors with Radeon™ Vega Graphics

Processor Number	# of Cores	# of Threads	Base Clock	Max Boost Clock	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)

Chipset

AMD 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 AMD limitation*

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
13.3"	HD (1366x768)	TN	Anti-glare	250 nits	16:9	300:1	45%	90°
13.3"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	800:1 (non-touch) 700:1 (multi-touch)	72%	170°
13.3"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	178°

Multi-touch *(opt)*

On-cell touch, supports 10-finger gesture (FHD only)

Storage

- 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

Optical

None

Ethernet

Native Realtek® RTL8111EPV Gigabit Ethernet connection
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN *(optional)*

Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0

Bluetooth™

Bluetooth 5.0 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, Fibocom L850-GL, M.2 card

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH: 12.28" x 8.55" x 0.67"; 311.9mm x 217.2mm x 16.9mm

Weight

Models	HD / FHD Touch	FHD Non-touch	FHD Privacy Guard
Weight	2.91 lb / 1.32 kg	2.82 lb / 1.28 kg	3.01 lb / 1.37 kg

Case color

Black

Case material

Display cover: PPS/GF;
Bottom: Magnesium/Aluminum

Smart card reader

Optional: Smart card reader

Media reader

MicroSD card reader, in the combo slot with nano-SIM card

Ports

One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2,
two USB 3.1 Type-C Gen 2 (w/ the function of Power Delivery and DisplayPort 1.4),
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*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to VGA: Lenovo USB-C to VGA Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 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

Audio support

HD Audio, Realtek ALC3287 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium /
optional dual array far-field 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

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt

DASH Management

Fingerprint reader

Optional: Touch style match on chip fingerprint reader on the palm rest

NFC

None

Battery

Integrated Li-Polymer 48Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 14.5 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

45W or 65W USB-C AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X1 Carbon (6th Gen) Platform Specifications

Processor

7th Generation Intel® Core™ i5 Processor

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)

Chipset
Intel SoC (System on Chip) platform

Memory
8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets
** System clocks down for processors with lower memory controller*

Display
One of the following, configurable by model:
- 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle
- 14.0" (355mm) WQHD (2560x1440), anti-glare, LED backlight, WVA, 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, WVA, LED backlight, 500 nits,16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle

Multi-touch *(opt)*
On-cell touch, supports 10-finger gesture (FHD only)

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)

Optical
None

Ethernet
Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™
One of the following, configurable by model:
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card (special bid only)

** Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS*

WWAN *(optional)*
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*

SIM card *(opt)*
Nano-SIM card slot, optional Verizon LTE (US) SIM card

Dimensions
WxDxH: 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 case is NOT available in EMEA)

Case material
Display cover: CFRP/GFRP hybrid;
Bottom: magnesium alloy / PPS hybrid

Smart card reader
None

Media reader
MicroSD card reader, supports UHS-II

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, microSD card reader,
side docking connector, security keyhole
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy
Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*
One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support
HD Audio, Realtek® ALC3286 codec /
stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone,
headphone / microphone combo jack, Dolby® Atmos™ via headphones

Keyboard
6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™
TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security
Power-on password, hard disk password, supervisor password, security keyhole

Security chip
Discrete TPM 2.0, TCG Certified (may be disabled in some region)

vPro *(optional)*
Intel vPro Technology

Fingerprint reader
Touch style match on chip fingerprint reader on the palm rest,
anti-spoofing technology

NFC *(optional)*
Near Field Communication

Battery
Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life
MobileMark® 2014: 19.3 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter
- 45W USB-C AC adapter
- 45W Low Halogen USB-C AC adapter
- 65W USB-C AC adapter
- 65W Low Halogen USB-C AC adapter

Operating system
Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty
One of the following, configurable by model:
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year/3-yr battery depot repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite service
- 3-year/1-yr battery depot repair service
- 3-year/3-yr battery depot repair service
- 3-year/1-yr battery limited onsite service
- 3-year/3-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 and might change by regions.

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ThinkPad X1 Carbon (7th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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		

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	LPDDR3-2133	Intel UHD Graphics
i7-10510U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports external digital monitor via HDMI or USB Type-C / Thunderbolt;
supports three independent displays;
Max resolution: 5K@60Hz (Thunderbolt); 4K@24Hz (HDMI)

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	WVA	Anti-reflection Anti-smudge	300 nits	16:9	700:1	72%	170°
14.0"	FHD (1920x1080) Low Power	WVA	Anti-glare	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	400 nits	16:9	1000:1	72%	170°
14.0"	WQHD (2560x1440)	WVA	Anti-glare	300 nits	16:9	700:1	72%	170°
14.0"	UHD (3840x2160) HDR 400, Dolby Vision™	WVA	Glossy	500 nits	16:9	1400:1	90%	170°

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (FHD only),
anti-reflection (AR) / anti-smudge (AS) coating

Storage

One of the following, configurable by model:

- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + BT

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth™ 5.0

WWAN *(optional)*

- Wireless WAN upgradable (special bid only)
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH (Privacy Guard): 12.72" x 8.54" x 0.61"; 323mm x 217mm x 15.4mm
WxDxH (other model): 12.72" x 8.54" x 0.59"; 323mm x 217mm x 14.95mm

Weight

Privacy Guard model: starting at 2.66 lb / 1.21 kg;
Other model: starting at 2.4 lb / 1.09 kg

Case color

Black paint or black weave

Case material

Display cover: Carbon Fiber;
Bottom: magnesium alloy

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

** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

Optional: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 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

Audio support

HD Audio, Realtek® ALC3286 codec /
Dolby® Atmos™ speaker system, 2W x 2, 0.8 x 2 /
four 360° far-field microphones, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

- Firmware TPM 2.0 integrated in chipset
- Discrete TPM 2.0 TCG Certified
- Discrete TPM 2.0 with L3 Security Support (special bid only)

** May be disabled in some region*

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 51Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 18.3 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad X1 Carbon Gen 8 Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	LPDDR3-2133	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4K@24Hz) or Thunderbolt (5K@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Touch	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080)	WVA	Anti-glare	-	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080)	WVA	Anti-glare	Multi-touch	400 nits	16:9	700:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-glare	Multi-touch	500 nits	16:9	1500:1	72%	170°
14.0"	WQHD (2560x1440)	WVA	Anti-glare	-	300 nits	16:9	1000:1	72%	170°
14.0"	UHD (3840x2160) HDR 400, Dolby Vision™	WVA	Glossy	-	500 nits	16:9	1500:1	90% DCI-P3	170°

** WQHD is NOT available in EMEA*

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture,
anti-reflection (AR) / anti-smudge (AS) coating

Storage

- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- Wireless WAN upgradable
- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Gemalto eSIM
- Nano-SIM card, Lenovo Connect 4 month, 4G LTE

Dimensions

WxDxH (Privacy Guard model): 12.72" x 8.54" x 0.61"; 323mm x 217mm x 15.4mm
WxDxH (other model): 12.72" x 8.54" x 0.59"; 323mm x 217mm x 14.9mm

Weight

Privacy Guard model: starting at 2.66 lb / 1.21 kg;
Other model: starting at 2.4 lb / 1.09 kg

Case color

Black paint or black weave

Case material

Display cover: Carbon Fiber;
Bottom: magnesium alloy

Smart card reader

None

Media reader

None

Ports

Two USB 3.2 Gen 1 (one Always On), two USB 3.2 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

Optional: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, USI 4551-513711-00 codec /
Dolby® Atmos™ speaker system, 2W x 2, 0.8 x 2 /
four 360° far-field microphones, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

- Firmware TPM 2.0 integrated in chipset
- Discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 51Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 19.5 hr
MobileMark 2018: 13.8 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

- Windows® 10 Home 64
- Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad X1 Extreme Platform Specifications

Processor

8th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-8300H	4	8	2.3 GHz	4.0 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i5-8400H			2.5 GHz	4.2 GHz			
i7-8750H	6	12	2.2 GHz	4.1 GHz	9MB		
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: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display

Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, WVA, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle

Some: 15.6" (396mm) HDR UHD (3840x2160) with Dolby Vision™, LED backlight, WVA, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR)

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (4K only)

Pen *(optional)*

Lenovo Pen Pro (special bid only)

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)

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*))
via optional ThinkPad Ethernet Extension Cable

WLAN *(optional)*

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

Bluetooth™ *(opt)*

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

None

SIM card

None

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

Weight

Non-touch model: starting at 3.76 lb / 1.7 kg;
Multi-touch model: starting at 4.06 lb / 1.8 kg

Case color

Black

Case material

Display cover: CFRP/GFRP hybrid;
Bottom: Aluminum alloy

Smart card reader

Optional: Smart card reader

Media reader

SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card

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,
SD card reader, security keyhole
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable *(optional)*

HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Cable

Camera *(optional)*

One of the following, configurable by model:
- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera, fixed focus

Audio support

HD Audio, Realtek® ALC3286 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
dual array microphone (for special bid model, microphone is optional),
headphone / microphone combo jack, Dolby Atmos® headphone

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Discrete TPM 2.0, TCG Certified (may be disabled in some region)

vPro *(optional)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the keyboard bezel

Color calibration

None

NFC

None

Battery

Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

Max battery life *(MobileMark 2014)*

Discrete mode: 9.5 hr; *Hybrid mode:* 14.9 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

135W slim tip AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

One of the following, configurable by model:
- 1-year depot repair service
- 1-year depot with 2-year system board 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; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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ThinkPad X1 Extreme (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

9th Generation Intel® Core™ i5 / i7 / i9 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-9300H	4	8	2.4 GHz	4.1 GHz	8MB	DDR4-2666	Intel UHD Graphics 630
i5-9400H	4	8	2.5 GHz	4.3 GHz	8MB		
i7-9750H	6	12	2.6 GHz	4.5 GHz	12MB		
i7-9850H	6	12	2.6 GHz	4.6 GHz	12MB		
i9-9880H	8	16	2.3 GHz	4.8 GHz	16MB		

Graphics

Intel UHD Graphics 630 in processor and
NVIDIA® GeForce® GTX 1650 Max-Q, 4GB GDDR5 memory;
supports external digital monitor via HDMI or Thunderbolt™;
supports four independent displays;
Max resolution: 5K@60Hz (Thunderbolt); 4K@60Hz (HDMI)

Chipset

Mobile Intel CM246 Chipset

Memory

64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

Display

Size	Resolution	Type	Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
15.6"	FHD (1920x1080)	WVA	Anti-glare	300 nits	16:9	700:1	72% NTSC	170°
15.6"	FHD (1920x1080) Dolby Vision™ HDR	WVA	Anti-glare	500 nits	16:9	1200:1	72% NTSC	170°
15.6"	UHD (3840x2160) Dolby Vision HDR	WVA	Anti-glare	500 nits	16:9	1200:1	100% Adobe	170°
15.6"	UHD (3840x2160) Dolby Vision HDR, Multi-touch	OLED	Anti-reflection Anti-smudge	SDR 400nit, HDR 500nit (peak)	16:9	100000:1	100% DCI-P3	170°

Multi-touch *(opt)*

Capacitive-type multi-touch, supports 10-finger gesture (UHD OLED only), anti-reflection (AR), anti-smudge (AS) coating

Pen *(optional)*

Lenovo Pen Pro (special bid only)

Storage

Up to two M.2 SSD
M.2 2280 SSD / PCIe NVMe 3.0 x 4

RAID *(optional)*

RAID 0/1 support

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*))
via optional ThinkPad Ethernet Extension Cable

WLAN *(optional)*

Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

Bluetooth™ *(opt)*

Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN

None

SIM card

None

Dimensions

WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm
WxDxH (multi-touch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm

Weight

Non-touch model: starting at 3.75 lb / 1.7 kg;
Multi-touch model: starting at 3.97 lb / 1.8 kg

Case color

Black paint (FHD model) or black weave (UHD model)

Case material

Display cover: CFRP/GFRP hybrid;
Bottom: Aluminum alloy

Smart card reader

Optional: Smart card reader

Media reader

SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card

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, SD card reader, security keyhole, slim tip AC adapter
** Power Delivery only supports power-out for charging peripherals*
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy

Optional: ThinkPad Ethernet Extension Cable

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

Audio support

HD Audio, Synaptic® CX11880 codec /
stereo speakers, 2W x 2, Dolby® Audio™ Premium /
optional dual 360° far-field microphone, headphone / microphone combo jack,
Dolby Atmos® sound system

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the keyboard bezel

Color calibration

Optional: X-Rite Pantone factory color calibration (UHD model only)

NFC

None

Battery

Integrated Li-Polymer 80Wh battery,
supports Rapid Charge (charge up to 80% in 1hr)

Max battery life

MobileMark® 2014: 14 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

135W slim tip AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad X1 Yoga (3rd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

7th Generation Intel® Core™ i5 Processor

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

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)

Chipset
Intel SoC (System on Chip) platform

Memory
8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

Display
Some: 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, WVA, AR (anti-reflection)
Some: 14.0" (355mm) WQHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, WVA, AR (anti-reflection)
Some: 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, WVA, AR (anti-reflection)

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
Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
Some: 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 + Bluetooth™
- Intel Dual Band Wireless-AC 8265, 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 *(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
WxDxH: 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
Display cover: Carbon-Fiber and Glass-Fiber hybrid;
Bottom: magnesium-PPS hybrid

Smart card reader
None

Media reader
MicroSD card reader, supports UHS-II

Ports
Two USB 3.1 Gen 1 (one Always On),
two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (Power Delivery, DisplayPort, Data transfer), HDMI 1.4,
Ethernet extension connector, nano-SIM card slot (WWAN models),
headphone / microphone combo jack, microSD card reader
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

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

Bundled Accy
Optional: ThinkPad Ethernet Extension Cable

Camera *(optional)*
One of the following, configurable by model:
720p: HD720p camera with ThinkShutter camera privacy, fixed focus
IR & 720p: IR camera and HD720p camera, fixed focus
** WWAN models and HDR panel models can not support IR camera*

Audio support
HD Audio, Realtek® ALC3286 codec, Dolby® Audio™ Premium / stereo speakers, 1W x 2 /, 360° Noise-cancelling Dual Array Far Field,
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 (may be disabled in some region)

System Mgt *(opt)*
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
MobileMark® 2014: 15.4 hrs
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter
45W or 65W USB-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 *(optional)*
- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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™ Silver; ENERGY STAR®; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

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July 2020

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ThinkPad X1 Yoga (4th Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

8th Generation Intel® Core™ i5 / i7 Processor

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
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		

or 10th Generation Intel Core i5 / i7 Processor (NOT available in EMEA)

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	LPDDR3-2133	Intel UHD Graphics
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10710U	6	12	1.1 GHz	4.7 GHz	12MB		

Graphics

Intel UHD Graphics in processor;
supports external digital monitor via HDMI or USB Type-C / Thunderbolt;
supports three independent displays;
Max resolution: 5K@60Hz (Thunderbolt); 4K@24Hz (HDMI)

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) Low Power	WVA	Anti-reflection Anti-smudge	400 nits	16:9	800:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-reflection Anti-smudge	400 nits	16:9	1000:1	72%	170°
14.0"	WQHD (2560x1440)	WVA	Anti-reflection Anti-smudge	300 nits	16:9	800:1	72%	170°
14.0"	UHD (3840x2160) HDR 400, Dolby Vision™	WVA	Anti-reflection Anti-smudge	500 nits	16:9	1400:1	90%	170°

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture,
AR (anti-reflection) / AS (anti-smudge) coating,
could reduce the brightness by up to 10%

Hinge

Yoga hinge, 360 degree

Convert-mode

Laptop, tent, stand and tablet

Pen

ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

Storage

One of the following, configurable by model:

- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via 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 *(optional)*

One of the following, configurable by model:

- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Verizon LTE (US) SIM card
- Gemalto eSIM

Dimensions

WxDxH (Privacy Guard): 12.71" x 8.58" x 0.63"; 323mm x 218mm x 15.95mm
WxDxH (other model): 12.71" x 8.58" x 0.61"; 323mm x 218mm x 15.5mm

Weight

Privacy Guard model: starting at 3.24 lb / 1.47 kg;
Other model: starting at 2.99 lb / 1.36 kg

Case color

Iron Grey

Case material

Display cover: Aluminium;
Bottom: Magnesium

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

** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

Optional: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 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

Audio support

HD Audio, Realtek® ALC3286 codec /
Dolby® Atmos™ speaker system, 2W x 2, 0.8 x 2 /
four 360° far-field microphones, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
(may be disabled in some region)

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 51Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 18.1 hr

** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

Optional: Windows® 10 Home 64 or Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 7.1; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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ThinkPad X1 Yoga Gen 5 Platform Specifications

Product Specifications Reference (PSREF)

Processor

10th Generation Intel® Core™ i5 / i7 Processor

Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics
i5-10210U	4	8	1.6 GHz	4.2 GHz	6MB	LPDDR3-2133	Intel UHD Graphics
i5-10310U			1.7 GHz	4.4 GHz	6MB		
i7-10510U			1.8 GHz	4.9 GHz	8MB		
i7-10610U			1.8 GHz	4.9 GHz	8MB		

Graphics

Intel UHD Graphics in processor;
supports up to 3 independent displays via native display and two external monitors;
supports external monitors via HDMI (up to 4K@24Hz) or Thunderbolt (5K@60Hz)

Chipset

Intel SoC (System on Chip) platform

Memory

8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

Display

Size	Resolution	Type	Surface	Bright-ness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle
14.0"	FHD (1920x1080) Low Power	WVA	Anti-reflection Anti-smudge	400 nits	16:9	700:1	72%	170°
14.0"	FHD (1920x1080) ThinkPad Privacy Guard	WVA	Anti-reflection Anti-smudge	500 nits	16:9	1500:1	72%	170°
14.0"	WQHD (2560x1440)	WVA	Anti-reflection Anti-smudge	300 nits	16:9	1000:1	72%	170°
14.0"	UHD (3840x2160) HDR 400, Dolby Vision™	WVA	Anti-reflection Anti-smudge	500 nits	16:9	1500:1	90% DCI-P3	170°

** WQHD is NOT available in EMEA*

Multi-touch

Capacitive-type multi-touch, supports 10-finger gesture,
anti-reflection (AR) / anti-smudge (AS) coating

Hinge

Yoga hinge, 360 degree

Convert-mode

Laptop, tent, stand and tablet

Pen

ThinkPad Pen Pro, rechargeable active pen, on-board garage

Storage

- 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

Optical

None

Ethernet

Native Intel Ethernet Connection I219-V (*Non-vPro*) or I219-LM (*vPro*)
via optional ThinkPad Ethernet Extension Adapter Gen 2

WLAN + Bluetooth™

Intel Wi-Fi 6 AX201, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
** Intel AX201 card supports BT5.1 but is limited to BT5.0 by Windows OS*

WWAN *(optional)*

- 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

** For non-WWAN model, it means the model is NOT WWAN upgradable*

SIM card *(opt)*

- Gemalto eSIM
- Nano-SIM card, Lenovo Connect 4 month, 4G LTE

Dimensions

WxDxH (Privacy Guard): 12.71" x 8.58" x 0.63"; 323mm x 218mm x 15.95mm
WxDxH (other model): 12.71" x 8.58" x 0.61"; 323mm x 218mm x 15.5mm

Weight

Privacy Guard model: starting at 3.24 lb / 1.47 kg;
Other model: starting at 2.99 lb / 1.36 kg

Case color

Iron Grey

Case material

Display cover: Aluminium;
Bottom: Magnesium

Smart card reader

None

Media reader

None

Ports

Two USB 3.2 Gen 1 (one Always On), two USB 3.2 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
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Monitor cable

Optional: Lenovo HDMI to VGA Monitor Adapter

Bundled Accy

Optional: ThinkPad Ethernet Extension Adapter Gen 2

Camera *(optional)*

- HD720p camera with ThinkShutter camera privacy, fixed focus
- IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

Audio support

HD Audio, USI 4551-513711-00 codec /
Dolby® Atmos™ speaker system, 2W x 2, 0.8 x 2 /
four 360° far-field microphones, headphone / microphone combo jack

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, LED backlight

UltraNav™

TrackPoint® pointing device and buttonless glass surface multi-touch touchpad

Security

Power-on password, hard disk password, supervisor password, security keyhole

Security chip

- Firmware TPM 2.0 integrated in chipset
- Discrete TPM 2.0 TCG Certified

System Mgt *(opt)*

Intel vPro Technology

Fingerprint reader

Touch style match on chip fingerprint reader on the palm rest

NFC *(optional)*

Near Field Communication

Battery

Integrated Li-Polymer 51Wh battery,
supports Rapid Charge (charge up to 80% in 1hr) with 65W AC adapter

Max battery life

MobileMark® 2014: 19.3 hr
MobileMark 2018: 13.0 hr
** Battery life varies significantly with hardware configurations, settings, usage, & other factors*

AC adapter

- 45W USB-C AC adapter
- 65W USB-C AC adapter
- 65W USB-C slim AC adapter

Operating system

- Windows® 10 Home 64
- Windows 10 Pro 64

Limited warranty *(optional)*

- 1-year depot repair service
- 1-year depot with 2-year system board repair service
- 1-year limited onsite service
- 1-year + 2-year depot repair service
- 1-year + 2-year limited onsite 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; ENERGY STAR® 8.0; TCO Certified; RoHS-compliant

Note: The specifications above may not be available in all regions and might change by regions.

Lenovo
July 2020

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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

PSREF

Product Specifications Reference

Version 550, October 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.

October 30, 2019 - Version 550

Additions in this update

►**New product(s)**
None

►**New model(s)**
None

►**Others**
ThinkPad X1 Tablet (3rd Gen) - Spec updated

Withdrawals in this update

►**Withdrawn product(s)**
None

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ThinkPad X1 Tablet (3rd Gen) Platform Specifications

Processor — 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 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-figerprint 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 *(optional)* — Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro)

Kick stand — Opening angle up to 170 degrees

Storage — *One of the following, configurable by model:*
- M.2 2280 SSD / SATA 6.0Gb/s
- M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s

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 4.2, M.2 card

Bluetooth™ — Bluetooth 4.2 wireless, integrated in Wi-Fi + Bluetooth combo adapter

WWAN *(optional)* — Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455)

SIM card *(opt)* — Nano-SIM card slot, in the combo slot with microSD card reader

Dimensions — *Tablet only:* 11.97" x 8.9" x 0.35"; 304.1mm x 226mm x 8.9mm
Tablet + keyboard: 11.97" x 8.9" x 0.57"; 304.1mm x 226mm x 14.4mm

Weight — *Tablet only:* starting at 1.96 lb / 0.89kg
Tablet+ keyboard: starting at 2.8 lb / 1.27kg

Case color — Black

Case material — Magnesium/Aluminum

Ports — Two USB 3.1 Type-C Gen 1 ((with the function of Power Delivery and DisplayPort), one Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack, combo slot of nano-SIM card (WWAN models) and microSD card reader
** Depending on many factors, actual data transfer speed may be lower than theoretical speed*

Control buttons — Power button, volume control button, reset switch

Dock (*Optional*) — • Thin Keyboard (Magnetic Detachable)
• USB-C Dock Gen 2

Monitor cable — None

Bundled Accy *(optional)* — *USB-C to RJ45:* Lenovo USB-C to Ethernet Adapter
USB-C to VGA: Lenovo USB C to VGA Plus Power Adapter
USB-C to HDMI: Lenovo USB-C to HDMI Plus Power Adapter

Camera — *Front camera:* 2.0-megapixel, fixed focus
Rear camera: 8.0-megapixel, auto focus

IR Camera — *Optional:* IR camera, fixed focus (mutually exclusive with NFC)

Audio support — Realtek® ALC3278 codec / stereo speakers, 1W x 2 / dual array microphones, combo audio/microphone jack

Pogo keyboard — Magnetic attached thin keyboard, with TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch, backlit

Keyboard color — Black

Security — Kensington lock slot

Security chip — Discrete TPM 2.0 TCG Certified

System Mgt *(opt)* — Intel vPro Technology

Fingerprint reader — *Optional:* Touch style Fingerprint reader

NFC *(optional)* — Near Field Communication (mutually exclusive with IR camera)

Battery — Integrated Li-Ion 42Wh battery

Max battery life — *MobileMark® 2014:* 9.5 hrs
** Battery life varies significantly with settings, usage, & other factors*

AC adapter — 45W or 65W USB Type-C AC adapter

Light sensor — Ambient Light Sensor

G-sensor — 3D accelerometer

Gyroscope — 3D gyrometer

GPS *(optional)* — GPS function is integrated into WWAN module

Preload — *One of the following, configurable by model:*
- Windows® 10 Pro 64
- Windows 10 Home 64

Limited warranty — *One of the following, configurable by model:*
- 1-year depot repair service
- 1-year depot with 2-year system board 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™ Silver, GREENGUARD, Low Halogen, RoHS

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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.
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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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Version 561, June 2020

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

June 2020 - Version 561

Additions in this update

►**New product(s)**
ThinkCntre Tiny-In-One 22 Gen 4
ThinkCntre M90a
ThinkCntre M90s
ThinkCntre M90t
ThinkCntre M90q

►**New model(s)**
None

►**Others**
None

Withdrawals in this update

►**Withdrawn product(s)**
None

►**Withdrawn model(s)**
None

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ThinkCentre M70a Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max*(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

Memory

64GB max (32GB SO-DIMM only available via special bid models), DDR4-3200*, two 260-pin SO-DIMM sockets, dual-channel capable

* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 1x 2.5" HDD and 1x M2.SSD,
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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)

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™(up to 4096x2304@60Hz)

Monitor Cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to 2 DP dongle (MST mode), or DP to HDMI 1.4 dongle

Display

21.5" (546.1mm) **Full HD 1080p (1920x1080)**, In-Plane Switching technology (may refer to IPS, PLS, ADS, AHVA, AAS), wide viewing angle (H/V 178°), LED backlight, 250 nits, 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, borderless design (88% Screen to Body Ratio)

Multi-touch

Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology

Camera

Some: 1080p camera with dual microphone, ThinkShutter (physical switch on/off)
Some: RGBIR camera with dual microphone, support 1080p, ThinkShutter (physical switch on/off), support Windows Hello

Controls

Physical buttons on side for microphone mute and power on/off

Chipset

Intel H470 Chipset

Rear ports*

4x USB 3.2 Gen 1 (one supports Smart Power On), 1x ethernet (RJ-45), 1x DisplayPort, 1x optional serial (9-pin)

Side ports*

1x USB 3.2 Gen 2, 1x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1(5V/3A charging), 1x optional card reader, 1x 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 speed may be lower than theoretical speed

Audio support

High Definition (HD) Audio, Realtek ALC233 / two internal speakers (2W x 2), Dolby® Atmos® certified

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1 (special bid only)
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, 2x2 (Available on 2020/9/29)

Bluetooth™

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Realtek RTL8111K, Wake on LAN®

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Optional Chassis intrusion switch
- Power-on, admin, 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

Mouse

Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

Mechanical

- Business black color
- Toolless back cover, stand removal
- Support VESA mount (100mm)

Without stand (with camera):	
Dimensions (WxDxH)	w/ ODD: 19.3" x 2.3" x 11.7" / 490.14 x 57.8 x 297.75 (mm) w/o ODD: 19.3" x 1.8" x 11.7" / 490.14 x 46 x 297.75 (mm)
Approx weight (lb / kg)	w/ ODD: (Non-touch) 11.3 / 5.12 (Touch) 10.8 / 4.88 w/o ODD: (Non-touch) 10.7 / 4.86 (Touch) 10.2 / 4.62
With Full Function Monitor stand (with camera):	
Dimensions (WxDxH)	19.3" x 7.9" x 15.2" to 18.3" / 490.14 x 199.82 x 386.05 to 466.04 (mm)
Approx weight (lb / kg)	w/ ODD: (Non-touch) 16.2 / 7.33 (Touch) 15.6 / 7.09 w/o ODD: (Non-touch) 15.6 / 7.07 (Touch) 15.1 / 6.83
Adjustments	Tilt: 30° back, -5° forward; Lift: 80mm
With UltraFlex IV stand (with camera):	
Dimensions (WxDxH)	Lowest in flat mode: 19.3" x 11.3" x 7.8" / 490.17 x 288.17 x 197.04 (mm) Highest in vertical mode: 19.3" x 9.2" x 17.3" / 490.17 x 232.75 x 439.28 (mm)
Approx weight (lb / kg)	w/ ODD: (Non-touch) 17.4 / 7.88 (Touch) 16.9 / 7.65 w/o ODD: (Non-touch) 16.8 / 7.62 (Touch) 16.3 / 7.38
Adjustments	Tilt: 70° back, -5° forward; Lift: up to 115mm (vertical mode) / 164mm (flat mode)
Note: Camera adds 14.5mm in height (Vertical mode)	

Power supply

Some: 135 watts adapter, autosensing, 89% PSU
Some: 170 watts adapter, autosensing, 89% PSU

Limited warranty[3]

Some: **1-year, depot repair service** / service upgrades available
Some: **1-year** or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO 8.0, TCO Edge (coming soon), 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

* Only available for MT 11CK/11CL

MIL-SPEC test

MIL-STD-810H 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.

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ThinkCentre M820z Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 series

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

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 (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2

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)

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

21.5" (546.1mm) **Full HD 1080p (1920x1080) TFT color**, Borderless design, TFT-LCD, In-Plane Switching technology (In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA), 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 multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology

Camera

Optional 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°)

Controls

Physical buttons on side for microphone mute and power on/off

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

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

Bluetooth™

Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Realtek RTL8111G, Wake on LAN®

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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

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

- Business black color
- Toolless back cover, stand, memory removal
- Support VESA mount (100mm)

Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments
Without stand (No camera):		
19.3 X 1.9 X 12.6 (inch) 491 X 49 X 321 (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 13.2 to 16.4 (inch) 491 X 252 X 335 to 417 (mm)	(Touch) 17.3 / 7.85 (Non-touch) 16.9 / 7.65	Tilt: 70° back, -5° forward; Lift: up to 136mm (flat mode) / up to 82mm (vertical mode); Swivel: +/-45°
Note: Camera adds 22mm in height (Vertical)		

Power supply

150 watts, autosensing, 90% PSU

Limited warranty[3]

Some: **1-year or 3-year, depot repair 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)

- 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™ Silver 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.

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ThinkCentre M90a Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max*(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

Memory

64GB max (32GB SO-DIMM only available via special bid models), DDR4-3200*, two 260-pin SO-DIMM sockets, dual-channel capable

* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 2x 2.5" HDD (2nd HDD occupy ODD bay) and 1x M2.SSD
Some: Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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)

Media reader

Optional 3-in-1 media card reader

Graphics

Some: **Intel HD Graphics 610/630** in processor, uses main memory, DirectX® 12,
Some: **AMD Radeon™ 625**, 2GB GDDR5, DirectX® 12,
external monitor support via DisplayPort™(up to 4096x2304@60Hz)

Monitor Cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to 2 DP dongle (MST mode), or DP to HDMI 1.4 dongle

Display

23.8" (604.5mm) **Full HD 1080p (1920x1080)**, In-Plane Switching technology (may refer to IPS, PLS, ADS, AHVA, AAS), wide viewing angle (H/V 178°), LED back-light, 250 nits (350 nits for the models with PrivacyGaurd), 16:9 aspect ratio, 1000:1 contrast ratio, anti-glare, borderless design (88% Screen to Body Ratio), optional PrivacyGaurd

Multi-touch

Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology

Camera

Some: 1080p camera with dual microphone, ThinkShutter (physical switch on/off)
Some: RGBIR camera with dual microphone, support 1080p, ThinkShutter (physical switch on/off), support Windows Hello

Controls

Microphone mute and power on/off buttons on side, PrivacyGaurd on/off botton on bottom (only for the models with PrivacyGaurd)

Chipset

Intel Q470 Chipset

Rear ports*

4x USB 3.2 Gen 1 (one supports Smart Power On), 1x ethernet (RJ-45), 1x DisplayPort, 1x optional serial (9-pin),

Side ports*

2x USB 3.2 Gen 2, 1x USB 3.2 Type-C Gen 1(5V/3A charging), 1x optional card reader, 1x 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

Audio support

High Definition (HD) Audio, Realtek ALC233 / two internal speakers (3W x 2), Dolby® Atmos® certified

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth™

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville), Wake on LAN®

Manageability

Intel Active Management Technology 14.0 (Intel AMT 14.0);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Optional Chassis intrusion switch
- Self-Healing BIOS
- Optional PrivacyGuard screen
- Power-on, admin, 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

Mouse

Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

Mechanical

- Business black color
- Toolless back cover, stand removal
- Support VESA mount (100mm)

Stand

Privacy Gaurd	ODD	Dimensions (WxDxH)	Approx weight (lb / kg)
Without stand (with camera):			
		21.3" x 1.8" x 13.4" / 541 x 46 x 340.5 (mm)	11.6 / 5.25
	√	21.3" x 2.3" x 13.4" / 541 x 57.8 x 340.5 (mm)	12.3 / 5.57
√		21.3" x 1.9" x 13.4" / 541 x 49.5 x 340.5 (mm)	13.5 / 6.13
√	√	21.3" x 2.4" x 13.4" / 541 x 61.3 x 340.5 (mm)	14.2 / 6.45
With Full Function Monitor stand (with camera):			
		21.3" x 7.9" x 16.3" to 19.5" / 541 x 200 x 414.2 to 494.2 (mm)	16.6 / 7.51
	√		17.3 / 7.84
√			18.5 / 8.39
√	√		19.2 / 8.71
With UltraFlex IV stand (with camera):			
		Lowest in flat mode: 21.3" x 12.3" x 9.0" / 541 x 312.8 x 227.4 (mm)	18.2 / 8.26
	√	Highest in vertical mode: 21.3" x 9.2" x 18.4" / 541 x 232.7 x 467.7 (mm)	18.9 / 8.58
√		Lowest in flat mode: 21.3" x 12.3" x 9.1" / 541 x 312.8 x 230.5 (mm)	20.1 / 9.14
√	√	Highest in vertical mode: 21.3" x 9.2" x 18.4" / 541 x 232.7 x 467.7 (mm)	20.9 / 9.46
Note: Camera adds 14.5mm in height (Vertical mode)			

Some: Full Function Monitor stand, Tilt: 30° back, -5° forward; Lift: 80mm
Some: UltraFlex IV stand, Tilt: 70° back, -5° forward; Lift: up to 115mm (vertical mode) / 164mm (flat mode)

Power supply

Some: 150 watts adapter, autosensing, 89% PSU
Some: 170 watts adapter, autosensing, 89% PSU

Limited warranty[3]

1-year or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO 8.0, TCO Edge, TUV Eye comfort certified, TUV Low Blue Light certified, TUV Ultra Low Noise certified (on some models), RoHS-compliant
* Only available for MT 11CD/11CE

MIL-SPEC test

MIL-STD-810H 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.

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ThinkCentre M920z Platform Specifications

Processor — Intel® Celeron®, Intel Pentium®, or 8th / 9th Gen Intel Core™ i3 / i5 / i7 / i9 series

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 — *Some:* 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)
Some: Solid State Drive (SSD) / SATA 6.0Gb/s, 2.5"
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2

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)

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, In-Plane Switching technology (In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA), 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 stand-alone monitor via DisplayPort (DP in / out combo)

Multi-touch — Optional multi-touch, supports 10-point, AIT (Advanced In-cell Touch) technology

Camera — *Some:* 1080p camera, with dual microphone, LED indicator, physical switch on/off, supports multi-degree rotation (horizontal 0° to 180°, vertical -25° to 25°)
Some: 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)
* 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 (3W x 2), Dolby® Audio™ Premium

WLAN — *Some:* 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265,, 2x2
Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2

Bluetooth™ — *Some:* 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®

Manageability — Intel Active Management Technology 12.0 (Intel AMT 12.0);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip — Discrete TPM 2.0, TCG Certified

Security features
- 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 — *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

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
- Business black color
- Toolless back cover, stand, disk, memory removal
- Support VESA mount (100mm)

Dimensions (WxDxH)	Max weight (lb / kg)	Adjustments
Without stand (No camera)		
21.3 X 1.8 X 13.7 (inch) 542 X 46 X 349 (mm)	(Touch) 14.0 / 6.34 (Non-touch) 13.5 / 6.13	N/A
With Full Function Monitor stand (No camera):		
21.3 X 9.9 X 15.9 to 20.2 (inch) 542 X 252 X 405 to 514 (mm)	(Non-touch) 18.2 / 8.26	Tilt: 45° back, -5° forward; Lift: 110mm; Swivel: +/-45°
With UltraFlex III stand (No camera):		
21.3 X 9.9 X 14.3 to 17.5 (inch) 542 X 252 X 363 to 444 (mm)	(Touch) 19.7 / 8.94 (Non-touch) 19.2 / 8.73	Tilt: 70° back, -5° forward; Lift: up to 136mm (flat mode) / up to 81mm (vertical mode); Swivel: +/-45°
Note: Camera adds 22mm in height (Vertical)		

Power supply — 150 watts, autosensing, 90% PSU

Limited warranty[3] — *Some:* **1-year** or **3-year, depot repair 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)
- 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™ Silver 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.

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ThinkCentre M75n Platform Specifications

Processor

AMD Ryzen 3 / 5 PRO series processor

Processor	Cores / Threads	Frequency Base/Max	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
Ryzen 3 PRO 3300U	4 / 4	2.1 / 3.5 GHz	2 MB / 4MB	DDR4-2400	Radeon Vega 6
Ryzen 5 PRO 3500U	4 / 8	2.1 / 3.7 GHz	2 MB / 4MB	DDR4-2400	Radeon Vega 8

Memory

8GB / DDR4-2400* / soldered to systemboard, no sockets, dual-channel capable, non-ECC
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to two M.2 SSD (one PCIe x4, one PCIe x2)
Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4*
Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2
* M.2 SSD in PCIe 3.0 x2 M.2 slot can only run at PCIe 3.0 x2

RAID
None

Optical
None

Graphics

AMD Radeon™ Vega 6/8 Graphics in processor, uses main memory, DirectX® 12, one DisplayPort™, one USB 3.2 Type-C Gen2 with display function, up to 2 independent displays;
Max resolution: 3840x2160 (DP)@60Hz; 3840x2160 (Type-C)@60Hz

Monitor cable

Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

Chipset

AMD SoC (System on Chip) platform

Front ports (Std.)*

1x USB 2.0, 1x USB 3.2 Gen 2, 1x USB 3.2 Type-C Gen 2, one headphone / microphone combo jack (3.5mm)

Rear ports (Std.)*

1x USB 2.0, 1x USB 3.2 Gen2, 1x USB 3.2 Type-C Gen 2 (with display function, support power-in [20V and >45W]), 1x ethernet (RJ-45), 1x DisplayPort
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233 / internal speaker (1watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Bluetooth
Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet
Gigabit ethernet, Realtek RTL8111FP-CG, Wake on LAN®

Manageability
Dash 1.1/1.2

Security chip
Discrete TPM 2.0, TCG Certified

Security features

- 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

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

Nano (0.35L), Iron Gray top cover / Black mid bezel / Red bottom cover
Three M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2) and one for WLAN

	Dimensions (WxDxH)	Weight (Approx.)
M75n (with fan, 0.35L)	7.05" X 3.46" X 0.87" 179mm X 88mm X 22mm	1.11 lb (0.505 kg), vary by config

Mounting

Some: VESA mount bracket kit, supports VESA 75mm
Some: VESA mount bracket kit with adaper holder, supports VESA 75mm
Some: DIN rail mount bracket kit

Floor Stand
None

Power supply

65 watts adapter, autosensing, 89% PSU (Not for TIO models)

Limited warranty

Some: **1-year**, **limited onsite service** / service upgrades available
Some: **3-year**, **limited onsite service** / service upgrades available

Preload

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0, EPEAT™ Silver rating, ErP Lot 3, TCO 8.0 (coming soon), TUV ultra low noise verified (on some models), RoHS, WEEE, REACH

MIL-SPEC test

MIL-STD-810H 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**

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ThinkCentre M75n IoT Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Athlon processor

Processor	Cores / Threads	Frequency Base/Max	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
AMD Athlon Silver 3050e	2 / 4	1.4 / 2.8 GHz	1 MB / 4MB	DDR4-2400	Radeon Graphics

Memory

4GB / DDR4-2400* / soldered to systemboard, no sockets, non-ECC
* System automatically clocks down for the processors with lower memory controller

Storage

Support one M.2 SSD
Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4
Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2

RAID

None

Optical

None

Graphics

AMD Radeon™ Graphics in processor, uses main memory, DirectX® 12, one DisplayPort™, one USB 3.2 Type-C Gen2 with display function, up to 2 independent displays;
Max resolution: 3840x2160 (DP)@60Hz; 3840x2160 (Type-C)@60Hz

Monitor cable

Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

Chipset

AMD SoC (System on Chip) platform

Front ports (Std.)*

1x USB 2.0, 1x USB 3.2 Gen 2, 1x USB 3.2 Type-C Gen 2, one headphone / microphone combo jack (3.5mm), 2x serial (RS-232)

Rear ports (Std.)*

1x USB 3.2 Gen 2, 1x USB 3.2 Type-C Gen 2 (with display function, support power-in [20V, > 45W]), 1x ethernet (RJ-45), 1x DisplayPort

I/O box*

Optional I/O box, connect to the USB 3.2 Type-C Gen 2 port of M75n IoT, extends 2x serial, 2x ethernet (RJ-45, I/O box is equipped with Realtek RTL8153B, gigabit ethernet), 1x DI (Digital Input) connector, 1x DO (Digital Output) connector
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233 / internal speaker (1watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Bluetooth

Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

WWAN

None

Ethernet

Gigabit ethernet, Realtek RTL8111FP-CG, Wake on LAN®

Manageability

Dash 1.1/1.2

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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

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

Nano (fanless 0.55L), Iron Gray top cover / Black mid bezel / Black bottom cover
Two M.2 slots: one for M.2 SSD, one for WLAN

	Dimensions (WxDxH)	Weight (Approx.)
M75 IoT (fanless, 0.55L)	7.05" X 3.46" X 1.36" 179mm X 88mm X 34.5mm	1.58 lb (0.72 kg), vary by config
With I/O box	7.05" X 3.46" X 2.41" 179mm X 88mm X 61.3mm	2.65 lb (1.2 kg), vary by config

Mounting

Some: VESA mount bracket kit, supports VESA 75mm
Some: VESA mount bracket kit with adaper holder, supports VESA 75mm
Some: DIN rail mount bracket kit

Floor Stand

None

Power supply

Some: 65 watts AC/DC adapter*, autosensing, 89% PSU
Some: 65 watts AC/DC adapter (wide temperature)*, autosensing, 88% PSU (only for Machine Type 11GW/11GX)
* Not for the models with I/O box

Limited warranty

Some: **1-year**, **limited onsite service** / service upgrades available
Some: **3-year**, **limited onsite service** / service upgrades available

Preload

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO 8.0* (coming soon), TUV ultra low noise verified (on some models), RoHS, WEEE, REACH
* Not for the models with I/O box or 65w adapter (wide temperature)

MIL-SPEC test

MIL-STD-810H 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**

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Lenovo, May 2020

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ThinkCentre M90n-1 Nano Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® 8th Generation Intel Core™ i3 / i5 / i7 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Core i3-8145U	2 / 4	2.1G / 3.9G	4 MB	DDR4-2400	UHD 620
Core i5-8265U	4 / 8	1.6G / 3.9G	6 MB	DDR4-2400	UHD 620
Core i5-8365U	4 / 8	1.6G / 4.1G	6 MB	DDR4-2400	UHD 620
Core i7-8665U	4 / 8	1.9G / 4.8G	8 MB	DDR4-2400	UHD 620

Memory

8GB or 16GB / DDR4-2666* / soldered to systemboard, no sockets, non-ECC
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to two M.2 SSD
Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4*
Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2**
Some: Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celeron)
** M.2 SSD / Optane with SSD in PCIe 3.0 x 2 M.2 slot can only run at PCIe 3.0 x2*
*** 128G M.2 2242 SSD not supported on Machine Type 11AM / 11AS / 11AK / 11AL*

RAID

RAID 0/1 support (RAID preset only available via special bid model)

Optical

None

Graphics

Intel UHD Graphics 620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one USB 3.1 Type-C Gen2 with display function, up to 2 independent displays;

Monitor cable

Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz;
Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

Chipset

Intel SoC (System on Chip) platform

Front ports (Std.)*

2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm)

Rear ports (Std.)*

2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2 (with display function, support power-in [20V and >45W]), 1x ethernet (RJ-45), 1x DisplayPort
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / internal speaker (1watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 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

Bluetooth

Some: Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM (Jacksonville) or Intel Ethernet Connection I219-V (Jacksonville), Wake on LAN®

Manageability

Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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

Nano (0.35L), Iron Gray top cover / Black mid bezel / Red bottom cover
Three M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2) and one for WLAN

	Dimensions (WxDxH)	Weight (Approx.)
M90n-1 Nano (with fan, 0.35L)	7.05" X 3.46" X 0.87" 179mm X 88mm X 22mm	1.11 lb (0.505 kg), vary by config

Mounting

Some: VESA mount bracket kit, supports VESA 75mm
Some: VESA mount bracket kit with adaper holder, supports VESA 75mm
Some: DIN rail mount bracket kit

Floor Stand

None

Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (Not for TIO models)

Limited warranty

Some: **1-year**, **limited onsite service** / service upgrades available
Some: **3-year**, **limited onsite service** / service upgrades available

Preload

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

Environment

ENERGY STAR® 7.1, EPEAT™ Silver rating (North America), ErP Lot 3, TCO 8.0, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH

MIL-SPEC test

MIL-STD-810H (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.

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ThinkCentre M90n-1 Nano IoT Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron® or 8th Generation Intel Core™ i3 / i5 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron 4205U	2 / 2	1.8G	2 MB	DDR4-2133	UHD 610
Core i3-8145U	2 / 4	2.1G / 3.9G	4 MB	DDR4-2400	UHD
Core i3-8145UE	2 / 4	2.2G / 3.9G	4 MB	DDR4-2400	UHD 620
Core i5-8365U	4 / 8	1.6G / 4.1G	6 MB	DDR4-2400	UHD 620

Memory

4GB or 8GB / DDR4-2666* / soldered to systemboard, no sockets, non-ECC
(Celeron 4205U / Core i3-8145U models equipped with 4GB memory, and Core i3-8145UE / Core i5-8365U models equipped with 8GB memory)
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to two M.2 SSD
Some: M.2 2280 SSD / PCIe NVMe, PCIe 3.0 x 4*
Some: M.2 2242 SSD / PCIe NVMe, PCIe 3.0 x 2**
Some: Intel Optane™ Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4 (not support Celeron)
** M.2 SSD / Optane with SSD in PCIe 3.0 x 2 M.2 slot can only run at PCIe 3.0 x2*
*** 128G M.2 2242 SSD not supported on Machine Type 11AM / 11AS / 11AK / 11AL*

RAID

RAID 0/1 support (RAID preset only available via special bid model)

Optical

None

Graphics

Intel UHD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™ or HDMI (for 8145UE models only), one USB 3.1 Type-C Gen2 with display function, up to 2 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2160 (HDMI)@24Hz; 4096x2304 (Type-C)@60Hz

Monitor cable

Optional DP to VGA dongle, DP to HDMI dongle, Type-C to VGA dongle, Type-C to HDMI dongle, Type-C to DP dongle

Chipset

Intel SoC (System on Chip) platform

Front ports (Std.)*

2x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2, one headphone / microphone combo jack (3.5mm), 2x serial (RS-232)

Rear ports (Std.)*

With Celeron: 1x USB 2.0, 1x USB 3.1 Type-C Gen 2 (with display function, support power-in [20V, > 45W]), 1x ethernet (RJ-45), 1x DisplayPort
With i3/i5: 1x USB 3.1 Gen2, 1x USB 3.1 Type-C Gen 2 (with display function, support power-in [20V, > 45W]), 2x ethernet (RJ-45), 1x DisplayPort or HDMI (for 8145UE models only)

I/O box*

Optional I/O box, connect to the USB 3.1 Type-C Gen 2 port of M90n-1 Nano, extends 2x serial, 2x ethernet (RJ-45, I/O box is equipped with Realtek RTL8153B, gigabit ethernet), 1x DI (Digital Input) connector, 1x DO (Digital Output) connector
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / internal speaker (1watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 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

Bluetooth

Some: Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter

WWAN

Some: Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

Ethernet

With Celeron: Gigabit ethernet, Realtek RTL8111K, 1x RJ-45, Wake on LAN®
With Core i3: Two gigabit ethernet, Realtek RTL8111K and RTL8111H, 2x RJ-45 Wake on LAN
With Core i5: Two gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville) and Realtek RTL8111H, 2x RJ-45, Wake on LAN

Manageability

Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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

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

Nano (fanless 0.55L), Iron Gray top cover / Black mid bezel / Black bottom cover
Four M.2 slots: two for M.2 SSD (one PCIe 3.0 x4 and one PCIe 3.0 x2), one for WLAN, and one for WWAN

	Dimensions (WxDxH)	Weight (Approx.)
M90n-1 Nano IoT (fanless, 0.55L)	7.05" X 3.46" X 1.36" 179mm X 88mm X 34.5mm	1.58 lb (0.72 kg), vary by config
With I/O box	7.05" X 3.46" X 2.41" 179mm X 88mm X 61.3mm	2.65 lb (1.2 kg), vary by config

Mounting

Some: VESA mount bracket kit, supports VESA 75mm
Some: VESA mount bracket kit with adaper holder, supports VESA 75mm
Some: DIN rail mount bracket kit

Floor Stand

None

Power supply

Some: 65 watts AC/DC adapter*, autosensing, 88% PSU
Some: 65 watts AC/DC adapter (wide temperature)*, autosensing, 88% PSU (only for Machine Type 11AS)
* Not for the models with I/O box

Limited warranty

Some: **1-year**, **limited onsite service** / service upgrades available
Some: **3-year**, **limited onsite service** / service upgrades available

Preload

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 7.1*, EPEAT™ Silver rating (North America)*, ErP Lot 3, TCO 8.0*, TUV ultra low noise verified (on some models), RoHS, WEEE, REACH
* Not for the models with I/O box

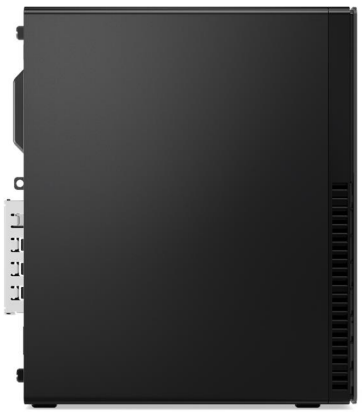
MIL-SPEC test

MIL-STD-810H* (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation) * Not for the models with I/O box

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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



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ThinkCentre M70s Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 2x HDD ([2.5" + 3.5"] or [dual 2.5"]) and up to 1x M2.SSD
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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

Three onboard SATA 6.0Gb/s connectors

Media reader

Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, two DisplayPort™, one HDMI, supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP)@60Hz; 1920x1080 (HDMI)@60Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@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 H470 Chipset

Front ports* (Std.)

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

Optional: 3-iin-1 media reader

Rear ports* (Std.)

4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DisplayPort**, 1x HDMI**, 1x line-out (3.5mm)

Rear ports* (Opt.)

Optional: 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1 (special bid only)
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-V(Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- 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

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

- SFF (8.2L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 3.6" X 11.7" X 13.4"; 93mm X 298mm X 340mm
- Weight (approx.): 11.7 lb (5.3 kg), weight may vary by configuration

Bays

Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 2.5" HDD bay (optional bay, or bay comes with disk)

Slots

Slot 1: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x16
Slot 2: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x1
Slot 3: no slot, only bracket for optional port extension
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: two (one for WLAN, one for SSD/Optane)

Floor Stand

Optional system floor stand for vertical orientation

EOU design

Toolless cover, disk, optical, extension card removal

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 85% PSU
Some: 310 watts, autosensing, 92% PSU
Some: 380 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty

Some: **1-year**, **depot service** / service upgrades available
Some: **1-year** or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11DB/11DC

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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

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ThinkCentre M710e SFF Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 6/7th Generation Intel Core™ i3 / i5 / i7 Processor

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

Security features

- 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

Keyboard

Some: Lenovo Calliope Keyboard (USB connector), black
Some: Lenovo Traditional Keyboard (USB connector), black

Mouse

Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

Mechanical

- 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

Floor Stand

Optional system floor stand for vertical orientation

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

Preloaded operating system
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)

Preloaded applications (only some listed)

- 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™ Silver 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.

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ThinkCentre M720 SFF Platform Specifications

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
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 i5-9400F	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	None
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630
Core i5-9500F	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	None
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

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

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
* M.2 SSD (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 SATA 1.5Gb/s Drive, slim (9.0mm)
Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA

Three onboard SATA 6.0Gb/s connectors

Media reader

Optional 7-in-1 media reader

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
Some: **NVIDIA Geforce® GT 730** (End Of Life), DirectX 12, 2GB GDDR5, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@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 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

Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2

Bluetooth™

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4*, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88*, gigabit ethernet, PCIe x1 (only available via special bid)
* Choose either I350-T4 or BN8E88

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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 Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- 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

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 < 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
M.2 card slots: Two (one for WLAN, one for SSD/Optane)

Floor Stand

Optional system floor stand for vertical orientation

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

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

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Preloaded applications (only some listed)

- 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™ Silver 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.

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ThinkCentre M720e SFF Platform Specifications

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
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 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 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 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, UDIMM, DDR4-2666*, two 288-pin DIMM sockets, non-ECC, dual-channel capable
* Memory may be underclocked to DDR4-2400 for the lower memory controller in processor

Storage

Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
Some: M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

Optane memory

Some: Intel Optane™ Memory, M.2 2280, PCIe NVMe, PCIe 3.0 x 2

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 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: 4096x2304 (DP)@60Hz; 2048x1536 (VGA)@50Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, one VGA, one HDMI, 30 watts (Max);
Max resolution: 3840x2160 (HDMI)@30Hz; 2048x1536 (VGA)@85Hz

Monitor cable

Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Chipset

Intel B365 Chipset

Front ports* (Std.)

Two USB 3.1 Gen1, microphone (3.5mm), one headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

None

Rear ports* (Std.)

Two USB 3.1 Gen1, two USB 2.0, serial (9-pin), ethernet (RJ-45), one VGA, one DisplayPort, Line-out jack (3.5mm)

Rear ports* (Opt.)

optional two USB 2.0, optional 2nd serial (9-pin), optional parallel (25-pin), optional external USB to PS/2 ports cable (for PS/2 keyboard / mouse);
additional video ports or RJ-45 on optional graphics / ethernet card on some models
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

High Definition (HD) Audio, Realtek ALC623 / internal speaker (2 watt)

WLAN[13]

None

Bluetooth™

None

Ethernet

Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®

Ethernet (Opt.)

Some: Bitland BN8E88*, gigabit ethernet, PCIe x1

Modem

None

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

Keyboard

Some: Lenovo Calliope Keyboard (USB connector), black
Some: Lenovo Traditional Keyboard (USB connector), black

Mouse

Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black

Mechanical

- SFF (7.4L), black color, metal case
- *(WxDxH)* 3.9" X 11.9" X 10.8"; 100mm X 303.5mm X 274.8mm
- Approx. 9.37 lb (4.25 kg), weight may vary by configuration

Bay 1: Slim ODD bay
Bay 2: 3.5" disk bay, supports 2.5" HDD (2.5 to 3.5 bracket comes with 2.5" 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 slot: one for SSD
*Optional rear 2x USB2.0 / parallel occupies one expansion slot

Floor Stand

Optional system floor stand for vertical orientation

Packaging

- *(WxDxH)* 7.7" X 15.4" X 19.7"; 195mm X 390mm X 500mm
- Cross weight (approx.) 14.48 lb (6.57 kg)

Power supply

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

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Linux Ubuntu

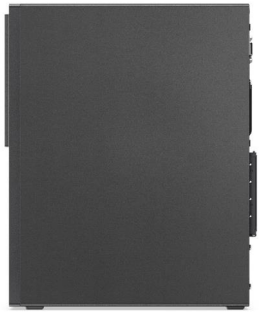
Environment

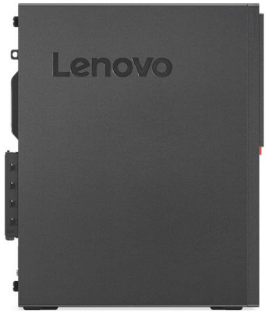
ENERGY STAR® 7, EPEAT™ Silver rating (North America), ErP Lot 3, RoHS-compliant, WEEE

Accessories

For compatible accessories, please go to **http://www.lenovoquickpick.com**

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





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ThinkCentre M725 SFF Platform Specifications

Processor

AMD A6 / A8 / A10 / A12 and Ryzen 3 / 5 / 7 series processor

Processor	Cores / Threads	Frequency (Base/Max)	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
PRO A6-9500	2 / 2	3.5 / 3.8	1MB / -	DDR4-2400	Radeon R5
PRO A8-9600	4 / 4	3.1 / 3.4	2MB / -	DDR4-2400	Radeon R7
PRO A10-9700	4 / 4	3.5 / 3.8	2MB / -	DDR4-2400	Radeon R7
PRO A12-9800	4 / 4	3.8 / 4.2	2MB / -	DDR4-2400	Radeon R7
Ryzen 3 2300X	4 / 4	3.5 / 4.0	2MB / 8MB	DDR4-2933	None
Ryzen 5 2500X	4 / 8	3.6 / 4.0	2MB / 8MB	DDR4-2933	None
Ryzen 3 PRO 2200G	4 / 4	3.5 / 3.6	2MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 PRO 2400G	4 / 8	3.6 / 3.8	2MB / 4MB	DDR4-2933	Radeon RX Vega 11
Ryzen 5 PRO 2600	6 / 12	3.4 / 3.9	3MB / 16MB	DDR4-2933	None
Ryzen 7 PRO 2700	8 / 16	3.2 / 4.1	4MB / 16MB	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

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 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

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

Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader

Optional 7-in-1 media reader

Graphics

AMD Radeon™ Graphics in processor (only for some processors), uses main memory, DirectX® 12, one VGA (up to 1920x1200@60Hz), two DisplayPort™ (up to 4096x2160@60Hz, 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;
Some: **NVIDIA Geforce® GT 730**, DirectX 12, 2GB GDDR5, PCIe 2.0 x16 (x8 elec.) adapter, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset

AMD B450 Chipset

Front ports* (Std.)

2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)

Front ports* (Opt.)

Optional: 1x media reader, 2x USB 3.1 Type-C Gen2 via PCIe card (special bid only)

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)

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

Audio support

High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 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, Qualcomm Atheros QCA9377A (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, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2

Bluetooth™

Some: 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, Realtek RTL8111EPV, Wake on LAN®

Ethernet (Opt.)

Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)

Manageability

DASH 10/1.1

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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 Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- 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", nternal, 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)

Floor Stand

Optional system floor stand for vertical orientation

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

Limited warranty

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)

- 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

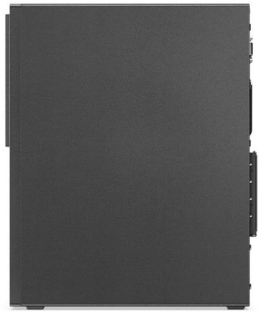
Environment

ENERGY STAR® 7.0*, EPEAT™ Silver rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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



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ThinkCentre M75s-1 SFF Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Athlon, Athlon PRO, Ryzen 3 / 5, or Ryzen 3 / 5 PRO series processor

Processor	Cores / Threads	Frequency (Base/Max)	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB / 4MB	DDR4-2666	Radeon Vega 3
Athlon PRO 300GE	2 / 4	3.4 / 3.4 GHz	1MB / 4MB	DDR4-2666	Radeon Vega 3
Ryzen 3 PRO 2200G	4 / 4	3.5 / 3.7 GHz	2MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 PRO 2400G	4 / 8	3.6 / 3.9 GHz	2MB / 4MB	DDR4-2933	Radeon Vega 11
Ryzen 3 PRO 3200G	4 / 4	3.6 / 4.0 GHz	2MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 PRO 3350G	4 / 8	3.6 / 4.0 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 11
Ryzen 5 PRO 3400G	4 / 8	3.7 / 4.2 GHz	2MB / 4MB	DDR4-2933	Radeon Vega 11
Ryzen 5 PRO 3600	6 / 12	3.6 / 4.2 GHz	3MB / 32MB	DDR4-3200	None
Ryzen 7 PRO 3700	8 / 16	3.6 / 4.4 GHz	4MB / 32MB	DDR4-3200	None
Ryzen 9 PRO 3900	12 / 24	3.1 / 4.3 GHz	6MB / 64MB	DDR4-3200	None
Athlon 300GE	2 / 4	3.4 / 3.4 GHz	1MB / 4MB	DDR4-2666	Radeon Vega 3
Ryzen 3 3200G	4 / 4	3.6 / 4.0 GHz	2MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 3350G	4 / 8	3.6 / 4.0 GHz	2 MB / 4MB	DDR4-2933	Radeon RX Vega 11
Ryzen 5 3400G	4 / 8	3.7 / 4.2 GHz	2MB / 4MB	DDR4-2933	Radeon RX Vega 11
Ryzen 5 3600	6 / 12	3.6 / 4.2 GHz	3MB / 32MB	DDR4-3200	None

Memory

64GB max, UDIMM, DDR4-2666*, four 288-pin DIMM sockets, non-ECC, dual-channel capable

* System board supports up to DDR4-2666 memory, and memory may clocks down to DDR4-1866, DDR4-2133 or DDR-2400 for lower capacity of memory controller in processor

Storage

Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 5400 rpm or 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

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

Three onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader

Optional 7-in-1 media reader

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;
Max resolution: 4096x2160 (DP)@60Hz;
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8 adapter, two DisplayPort, 30 watts (Max);
Max resolution: 4096x2160 (DP)@60Hz

Monitor cable

Optional DP to VGA, DP to DVI-D (single link), DP to dual DP, or DP to HDMI 1.4

Chipset

AMD PRO 560 FCH

Front ports* (Std.)

2x USB 3.1 Gen2, 2x USB 3.1 Gen1, 1x microphone (3.5mm), 1x headphone (3.5mm)

Front ports* (Opt.)

Optional: 1x media reader

Rear ports* (Std.)

2x USB 3.1 Gen1 (one support Smart Power-On), 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)

Rear ports* (Opt.)

Optional: 2x USB 2.0, 1x parallel (25-pin), additional video ports available on optional graphics card

* Depending on many factors, actual data transfer speed may be lower than theoretical speed
** only available on the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC662 / optional internal speaker (1 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Bluetooth™

Some: Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Realtek RTL8111EPV, Wake on LAN®

Ethernet (Opt.)

None

Manageability

DASH 10/1.1

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

Keyboard

Some: Lenovo Traditional Keyboard (USB connector), black
Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
Some: Lenovo Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- 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, and extension card 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)

Floor Stand

Optional system floor stand for vertical orientation

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

Limited warranty

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
Some: Windows 10 IoT Enterprise
Some: Linux Ubuntu

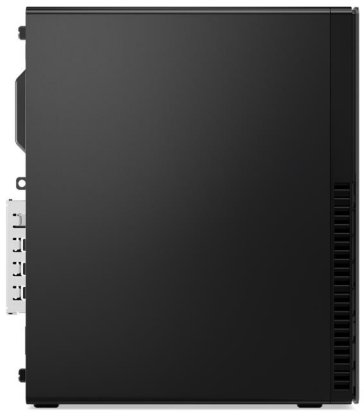
Environment

ENERGY STAR® 7.0*, EPEAT™ Silver rating* (*not for non-OS models); ErP Lot 3; RoHS-compliant, WEEE

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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



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ThinkCentre M80s Platform Specifications

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 2x HDD ([2.5" + 3.5"] or [dual 2.5"]) and up to 1x M2.SSD, RAID 0/1 support for HDD (RAID preset only available via special bid)
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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

Three onboard SATA 6.0Gb/s connectors

Media reader

Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, two DisplayPort™, one HDMI, supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP)@60Hz; 1920x1080 (HDMI)@60Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@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 Q470 Chipset

Front ports* (Std.)

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

Optional: 3-iin-1 media reader

Rear ports* (Std.)

4x USB 3.2 Gen 1, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DP**, 1x HDMI**, 1x line-out (3.5mm)

Rear ports* (Opt.)

Optional: 2x USB 2.0, 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- 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

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

- SFF (8.2L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 3.6" X 11.7" X 13.4"; 93mm X 298mm X 340mm
- Weight (approx.): 11.7 lb (5.3 kg), weight may vary by configuration

Bays

Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 2.5" HDD bay (optional bay, or bay comes with disk)

Slots

Slot 1: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x16
Slot 2: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x1
Slot 3: no slot, only bracket for optional port extension
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: two (one for WLAN, one for SSD/Optane)

Floor Stand

Optional system floor stand for vertical orientation

EOU design

Toolless cover, disk, optical, extension card removal

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 85% PSU
Some: 310 watts, autosensing, 92% PSU
Some: 380 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty

Some: **1-year**, **depot service** / service upgrades available
Some: **1-year** or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

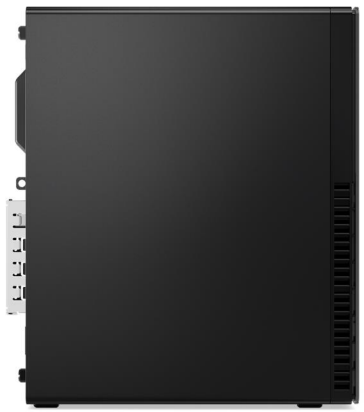
Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11CU/11CV

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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



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ThinkCentre M90s Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 3x HDD ([2.5" + dual 3.5"] or [dual 2.5" + 3.5"]) and up to 2x M2.SSD, RAID 0/1 support (RAID preset only available via special bid)
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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

Four onboard SATA 6.0Gb/s connectors

Media reader

Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (choose one from HDMI / DP / Type-C), supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP / Type-C)@60Hz; 4096x2160 (HDMI)@24Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@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 Q470 Chipset

Front ports* (Std.)

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

Optional: 3-iin-1 media reader

Rear ports* (Std.)

4x USB 3.2 Gen 1, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DisplayPort**, 1x line-out (3.5mm)

Rear ports* (Opt.)

Optional: 1x optional video port** (choose one from HDMI / DP / USB 3.2 Type-C Gen 1 with DP function), 2x USB 2.0, 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- 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
- Self-Healing BIOS

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

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

- SFF (8.2L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 3.6" X 11.7" X 13.4"; 93mm X 298mm X 340mm
- Weight (approx.): 11.7 lb (5.3 kg), weight may vary by configuration

Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 2.5" HDD bay (optional bay, or bay comes with disk)
Slot 1: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x16
Slot 2: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x1
Slot 3: low-profile (length < 155mm, height < 68mm), PCIe 3.0 x4
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: three (one for WLAN, two for SSD/Optane)

Floor Stand

Optional system floor stand for vertical orientation

EOU design

Toolless cover, disk, optical, extension card removal

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 85% PSU
Some: 310 watts, autosensing, 92% PSU
Some: 380 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty

1-year or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11D1/11D2

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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

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ThinkCentre M920 SFF Platform Specifications

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
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
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 i5-9400F	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	None
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630
Core i5-9500F	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	None
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 — 64GB max, DDR4-2666*, four 288-pin DIMM sockets, 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
* 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, SATA 1.5Gb/s Drive, slim (9.0mm)
Some: DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA — Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader — Optional 7-in-1 media reader

Graphics — **Intel UHD Graphics 610/630** in some processors, uses main memory, DirectX® 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
Some: **NVIDIA Geforce® GT 730** (End Of Life), DirectX 12, 2GB GDDR5, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@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.) — *Optional:* 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.) — *Optional:* 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

Audio support — High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)

WLAN — *Some:* 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2
Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2

Bluetooth — *Some:* 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.) — *Some:* Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)

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 — Discrete TPM 2.0, TCG Certified

Security features
- 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 — *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 Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical
- 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)

Floor Stand — Optional system floor stand for vertical orientation

Power supply — *Some:* 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

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 — *Some:* Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

Environment — ENERGY STAR® 7.0, EPEAT™ Silver 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.

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ThinkCentre M625 Tiny Platform Specifications

Processor

AMD A9 series APU

APU	Cores	Frequency Base/Max	L2 Cache	Memory Support (Up to)	Integrated Graphics
A9-9420e	2	1.8 / 2.7 GHz	1 MB	DDR4-1866	Radeon R5 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

Disk

Some: SATA 6.0Gb/s, 2.5" Wide, 5400 rpm or 7200 rpm
Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface
Some: 256GB M.2 Solid State Drive (SSD) / PCIe NVMe interface

Optical

None

Onboard SATA

one SATA 6.0Gb/s connector on planar

Media reader

None

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

Monitor cable

Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

Chipset

AMD SoC platform

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*

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

I/O box

None

Audio support

High Definition (HD) Audio, Realtek ALC233-VB2-CG/ internal speaker (1.5 watt)

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

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

Ethernet

Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®

Modem

None

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

Some: Fullsize USB Keyboard (USB connector), black, Lenovo logo

Mouse

Some: USB Optical Wheel Mouse, black, Lenovo logo

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

Power supply

Some: 65 watts adapter, autosensing, 88% PSU (not included for TIO models)
Some: 135 watts adapter, autosensing, 89% PSU

Limited warranty[3]

Some: 1-year, depot service / service upgrades available
Some: 1-year, limited onsite service / service upgrades available

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

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®

Environment

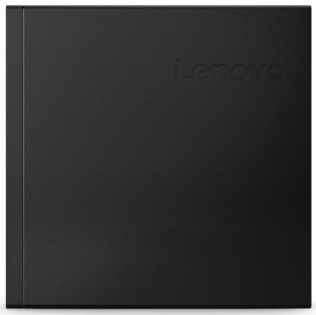
ENERGY STAR® 7.0*, EPEAT™ Gold rating (with 135W adapter) or EPEAT™ Silver rating (with 65W), ErP Lot 3, RoHS-compliant, WEEE, TCO

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**



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ThinkCentre M625 Tiny Thin Client Platform Specifications

Processor

AMD E2 series APU

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
E2-9120e	2	1.5 / 2.2 GHz	1 MB	DDR4-1866	Radeon R3 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

Disk

Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe interface

Optical

None

Onboard SATA

one SATA 6.0Gb/s connector on planar

Media reader

None

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

Monitor cable

Optional DP to VGA, DP to DVI-D (single link), or DP to HDMI 1.4 dongle

Chipset

AMD SoC platform

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*

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

I/O box

None

Audio support

High Definition (HD) Audio, Realtek ALC233-VB2-CG / internal speaker (1.5 watt)

WLAN[13]

Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (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, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Bluetooth™

Some: Bluetooth 4.2/5.0* wireless, integrated in Wi-Fi + BT combo adapter
* Win 10 RS3 and Win10 earlier version only support Bluetooth 4.1

Ethernet

Gigabit ethernet, Realtek RTL8111HN, Wake on LAN®

Modem

None

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

Some: Fullsize USB Keyboard (USB connector), black, Lenovo logo

Mouse

Some: USB Optical Wheel Mouse, black, Lenovo logo

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

VESA mount

Optional VESA mount bracket kit, supports VESA 75mm and 100mm

Floor Stand

Optional system floor stand for vertical orientation

Power supply

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

Limited warranty[3]

Some: 1-year, depot service / service upgrades available
Some: 1-year, limited onsite service / service upgrades available

Preload

Preloaded operating system
Some: Windows Embedded Standard 7 V2 (WES 7 V2)
Some: Windows 10 IoT Enterprise
Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

Environment

ENERGY STAR® 7.0*, EPEAT™ Silver rating* (*Not for non-OS models), ErP Lot 3, RoHS-compliant, WEEE, TCO

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**

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ThinkCentre M630e Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Pentium®, or 8th Generation Intel Core™ i3 / i5 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Pentium Gold 5405U	2 / 4	2.3G	2 MB	DDR4-2133	UHD 610
Core i3-8145U	2 / 4	2.1G / 3.9G	4 MB	DDR4-2400	UHD 620
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

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 (2280) / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s
Some: M.2 SSD (2242) / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

Onboard SATA

One onboard SATA 6.0Gb/s connector

Graphics

Intel HD Graphics 610/620 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, up to 2 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (HDMI)@24Hz

Monitor cable

Optional DP to VGA dongle or DP to HDMI 1.4 dongle

Chipset

Intel SoC (System on Chip) platform

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)

Rear ports* (Std.)

Two USB 3.1 Gen1, two USB 2.0, one ethernet (RJ-45), one DisplayPort, one HDMI

Rear ports* (Opt.)

None

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / internal speaker (1.5 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

Bluetooth

Some: Bluetooth 4.2 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Realtek RTL8111HN-CG

Ethernet (Opt.)

None

Manageability

None

Security chip

None

Security features

Firmware TPM 2.0, integrated in chipset

- 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

Mouse

Some: Lenovo Calliope Mouse (USB connector), black

Mechanical

Tiny (1L), black color; metal case
- Optional dust filter
- One 2.5" bay for HDD/SSD, two M.2 slots (one for WLAN, one for M.2 SSD)

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.91 lb (1.32 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

Some: 65 watts adapter, autosensing, 88% PSU

Limited warranty

Some: **1-year**, **depot service** / service upgrades available
Some: **1-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)
- Lenovo Vantage
- Microsoft Office preloaded; purchase a product key to activate
- LinkedIn

Environment

ENERGY STAR® 7.0, EPEAT™ Silver rating, ErP Lot 3, TCO, RoHS-compliant, WEEE, REACH

MIL-SPEC test

MIL-STD-810G (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, April 2020

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ThinkCentre M70q Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900T	2 / 2	3.2G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400T	2 / 4	3.4G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500T	2 / 4	3.5G	4 MB	DDR4-2666	UHD 630
Core i3-10100T	4 / 8	3.0G / 3.8G	6 MB	DDR4-2666	UHD 630
Core i3-10300T	4 / 8	3.0G / 3.9G	8 MB	DDR4-2666	UHD 630
Core i5-10400T	6 / 12	2.0G / 3.6G	12 MB	DDR4-2666	UHD 630
Core i5-10500T	6 / 12	2.3G / 3.8G	12 MB	DDR4-2666	UHD 630
Core i5-10600T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630
Core i7-10700T	8 / 16	2.0G / 4.5G	16 MB	DDR4-2933	UHD 630
Core i9-10900T	10 / 20	1.9G / 4.6G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

64GB max, DDR4-3200*, two 260-pin SO-DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 1x 2.5" HDD + 1x M.2 SSD
Some: Hard Drive / SATA 6.0Gb/s, 2.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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, more video ports available via optional ports, up to 3 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (HDMI)@24Hz; 2048x1536 (VGA)@50Hz

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset

Intel H470 Chipset

Front ports (Std.)* one USB 3.2 Gen 2 (Always On and fast charge), one USB 3.2 Type-C Gen 1, one headphone / microphone combo jack (3.5mm)
Rear ports (Std.)* 1x USB 3.2 Gen 2, 3x USB 3.2 Gen 1, 1x ethernet (RJ-45), 1x DP, 1x HDMI
Rear ports (Opt.)* Two optional ports:

Position	Port 1	Port 2	Port 1&2
Optional parts	VGA / 2nd DP / 2nd HDMI / USB 3.2 Type-C Gen 1 with DP function) / Serial	Serial	Dual USB 3.2 Gen 1 ports (Available at end of July)

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / optional internal speaker (1.5 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1 (special bid only)
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-V(Jacksonville), Wake on LAN®

Ethernet (Opt.)

None

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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
one 2.5" bay for HDD, two M.2 slots (one for WLAN, one for M.2 SSD)

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.76 lb (1.25 kg), vary by config
With VESA mount & ODD box	8.04" X 7.35" X 2.52" 204.2mm X 186.6mm X 64mm	3.84 lb (1.74 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

Dust filter

Optional dust filter

EOU design

Toolless chassis open (need optional toolless chassis screw), toolless HDD, SSD and memory assembly / removal

Power supply

Some: 65 watts AC/DC adapter, autosensing, 89% PSU
Some: 90 watts AC/DC adapter, autosensing, 89% PSU (special bid only)
Some: 135 watts AC/DC adapter, autosensing, 89% PSU

Limited warranty

Some: **1-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

Environment

ENERGY STAR® 8.0, EPEAT™ Gold / Silver rating (on some models), ErP Lot 3, TCO 8.0 (coming soon), TUV low noise / ultra low noise verified (on some models), RoHS-compliant

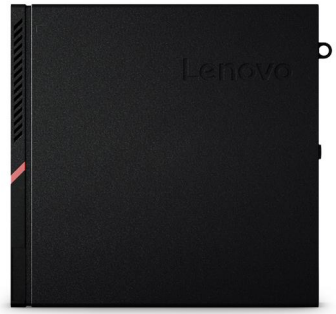
MIL-SPEC test

MIL-STD-810H 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.



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ThinkCentre M715 Tiny (2nd Gen) Platform Specifications

Product Specifications Reference (PSREF)

Processor

AMD Athlon, A6, A10, A12, or Ryzen processor

Processor	Cores / Threads	Frequency Base/Max	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
Athlon 200GE	2 / 4	3.2 GHz	1 MB / 4MB	DDR4-2666	Radeon Vega 3
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB / 4MB	DDR4-2666	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 / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB / 4MB	DDR4-2933	Radeon RX Vega 11
Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB / 4MB	DDR4-2933	Radeon RX Vega 11

Memory

32GB max, DDR4 2666*, two 260-pin SO-DIMM sockets, dual-channel capable
* System automatically clocks down for the lower memory controller

Disk

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

Optical

Some: DVD-ROM, 9.0mm high, via USB external ODD box
Some: DVD±RW, 9.0mm high, via USB external ODD box

Onboard SATA

One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

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);
Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

Chipset

AMD B300 Chipset

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)

Rear ports* (Std.)

One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphoneone

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

Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (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, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
Some: 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

- 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

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

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
- Toolless chassis open (need optional toolless chassis screw)
- Optional dust filter

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	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

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

Limited warranty

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
Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 10 Pro 64-bit

Preloaded applications (only some listed)
- WIndows 10 only
- 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®

Environment

ENERGY STAR® 7.0*, EPEAT™ Silver rating* (*Not for non-OS models); ErP Lot 3; ; RoHS-compliant

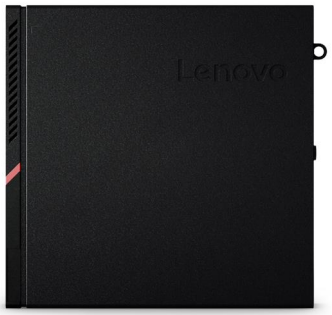
MIL-SPEC test

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://smartfind.lenovo.com**

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



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

Product Specifications Reference (PSREF)

Processor

AMD Athlon, A6, A10, or Ryzen processor

APU	Cores / Threads	Frequency Base/Max	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB / 4MB	DDR4-2666	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 / 4MB	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

Disk

Some: 32GB M.2 Solid State Drive (SSD) / SATA interface
Some: 128GB M.2 Solid State Drive (SSD) / PCIe NVMe, PCIe 3.0 x 2

Optical

None

Onboard SATA

One SATA cable (1-drop to device), one SATA 6.0Gb/s connector on planar

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);
Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, or DP to HDMI 1.4 dongle

Chipset

AMD B300 Chipset

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)

Rear ports* (Std.)

One USB 3.1 Gen1 and three USB 2.0, ethernet (RJ-45), two DisplayPort, one headphoneone

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

Some: 11ac wireless, M.2 Card, Realtek RTL8821CE (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 1x1
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA9377 (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, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2* combo adapter, 2x2
Some: 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

- 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

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

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
- Toolless chassis open (need optional toolless chassis screw)
- Optional dust filter

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.91 lb (1.32 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

65 watts AC/DC adapter, autosensing, 88% PSU (not included for TIO models)

Limited warranty

1-year or 3-year, limited onsite service / service upgrades available

Preload

Preloaded operating system
Some: Windows Embedded Standard 7 V2 (WES 7 V2)
Some: Windows 10 IoT Enterprise
Some: LeTOS V2 (Lenovo Terminal Operating System, Linux-based)

Environment

ENERGY STAR® 7.0*, EPEAT™ Silver rating* (*not for non-OS models);
ErP Lot 3; 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://smartfind.lenovo.com**

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

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ThinkCentre M720 Tiny Platform Specifications

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 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

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 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

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

Bluetooth

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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
- 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	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	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

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)
- 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 (with 135W adapter) or EPEAT™ Silver rating (with 65W/90W adapter), ErP Lot 3, TCO, TUV ultra low noise verified (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.

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ThinkCentre M75q-1 Tiny Platform Specifications

Product Specifications Reference (PSREF)

Processor — AMD Athlon, Athlon PRO, Ryzen 3 / 5, or Ryzen 3 / 5 PRO series processor

Processor	Cores / Threads	Frequency Base/Max	L2 / L3 Cache	Memory Support (Up to)	Integrated Graphics
Athlon PRO 200GE	2 / 4	3.2 GHz	1 MB / 4MB	DDR4-2666	Radeon Vega 3
Athlon PRO 300GE	2 / 4	3.4 GHz	1 MB / 4MB	DDR4-2666	Radeon Vega 3
Ryzen 3 PRO 2200GE	4 / 4	3.2 / 3.6 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 PRO 2400GE	4 / 8	3.2 / 3.8 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 11
Ryzen 3 PRO 3200GE	4 / 4	3.3 / 3.8 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 PRO 3350GE	4 / 8	3.3 / 3.9 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 11
Ryzen 5 PRO 3400GE	4 / 8	3.3 / 4.0 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 11
Athlon 300GE	2 / 4	3.4 GHz	1 MB / 4MB	DDR4-2666	Radeon Vega 3
Ryzen 3 3200GE	4 / 4	3.3 / 3.8 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 8
Ryzen 5 3350GE	4 / 8	3.3 / 3.9 GHz	2 MB / 4MB	DDR4-2933	Radeon RX Vega 11
Ryzen 5 3400GE	4 / 8	3.3 / 4.0 GHz	2 MB / 4MB	DDR4-2933	Radeon Vega 11

Memory — 32GB max, DDR4-2666*, two 260-pin SO-DIMM sockets, dual-channel capable
* System board supports up to DDR4-2666 memory, and memory may clocks down to DDR4-1866, DDR4-2133 or DDR-2400 for lower capacity of memory controller in processor

Disk — *Some:* Hard Drive / SATA 6.0Gb/s, 2.5", 5400 rpm or 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4

Optical — *Some:* DVD-ROM, 9.0mm high, via USB external ODD box
Some: DVD±RW, 9.0mm high, via USB external ODD box

Onboard SATA — One SATA 6.0Gb/s connector on system board

Graphics — **AMD Radeon™ Graphics** in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI, one optional port (VGA, 2nd DP, or 2nd HDMI), 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);
Max resolution: 4096x2160 (DP)@60Hz; 4096x2160 (HDMI)@30Hz; 1920x1200 (VGA)@60Hz

Monitor cable — Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset — **AMD B300 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.) — 1x USB 3.1 Gen1, 3x USB 2.0, 1x ethernet (RJ-45), 1x DisplayPort, 1x HDMI

Rear ports* (Opt.) — Two optional ports: Port 1 for VGA / 2nd DP / 2nd HDMI / serial; Port 2 for serial;
* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support — High Definition (HD) Audio, Realtek ALC222CG / internal speaker (1.5 watt)

WLAN — *Some:* 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Qualcomm Atheros QCA6174A (dual band), Wi-Fi + Bluetooth 4.2 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9260 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2

Bluetooth — *Some:* Bluetooth 4.2 / 5.0 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet — Gigabit ethernet, Realtek RTL8111EPV-CG, Wake on LAN®

Manageability — DASH 1.0/1.1

Security chip — Discrete TPM 2.0, TCG Certified

Security features
- 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
Some: Lenovo Traditional Keyboard (USB connector), black
Some: Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black

Mouse
Some: Lenovo Calliope Mouse (USB connector), black
Some: Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black (only available via special bid models)
Some: 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

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	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 — *Some:* 65 watts adapter, autosensing, 88% PSU (not included for TIO models)
Some: 135 watts adapter, autosensing, 88% PSU (not included for TIO models)

Limited warranty — 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
Some: Windows 10 IoT Enterprise
Some: Linux Ubuntu

Environment — ENERGY STAR® 7.1*, EPEAT™ Gold rating* (with 135W adapter) or EPEAT Silver rating* (with 65W adapter); ErP Lot 3; RoHS-compliant; TUV low noise verified
*Not applicable for non-OS models

MIL-SPEC test — MIL-STD-810H 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.

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ThinkCentre M80q Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900T	2 / 2	3.2G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400T	2 / 4	3.4G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500T	2 / 4	3.5G	4 MB	DDR4-2666	UHD 630
Core i3-10100T	4 / 8	3.0G / 3.8G	6 MB	DDR4-2666	UHD 630
Core i3-10300T	4 / 8	3.0G / 3.9G	8 MB	DDR4-2666	UHD 630
Core i5-10400T	6 / 12	2.0G / 3.6G	12 MB	DDR4-2666	UHD 630
Core i5-10500T	6 / 12	2.3G / 3.8G	12 MB	DDR4-2666	UHD 630
Core i5-10600T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630
Core i7-10700T	8 / 16	2.0G / 4.5G	16 MB	DDR4-2933	UHD 630
Core i9-10900T	10 / 20	1.9G / 4.6G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

64GB max, DDR4-3200*, two 260-pin SO-DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Some: Hard Drive / SATA 6.0Gb/s, 2.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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, more video ports available via optional ports, up to 3 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (HDMI)@24Hz; 2048x1536 (VGA)@50Hz

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset

Intel Q470 Chipset

Front ports (Std.)*

one USB 3.2 Gen 2 (Always On and fast charge), one USB 3.2 Type-C Gen 1, one headphone / microphone combo jack (3.5mm)

Rear ports (Std.)*

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x ethernet (RJ-45), 1x DP, 1x HDMI

Rear ports (Opt.)*

Two optional ports:

Position	Port 1	Port 2	Port 1&2
Optional parts	VGA / 2nd DP / 2nd HDMI / USB 3.2 Type-C Gen 1 with DP function) / Serial	Serial	Dual USB 3.2 Gen 1 ports (Available at end of July)

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / optional internal speaker (1.5 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

None

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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
one 2.5" bay for HDD, two M.2 slots (one for WLAN, one for M.2 SSD)

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.76 lb (1.25 kg), vary by config
With VESA mount & ODD box	8.04" X 7.35" X 2.52" 204.2mm X 186.6mm X 64mm	3.84 lb (1.74 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

Dust filter

Optional dust filter

EOU design

Toolless chassis open (need optional toolless chassis screw), toolless HDD, SSD and memory assembly / removal

Power supply

Some: 65 watts AC/DC adapter, autosensing, 89% PSU
Some: 90 watts AC/DC adapter, autosensing, 89% PSU (special bid only)
Some: 135 watts AC/DC adapter, autosensing, 89% PSU

Limited warranty

Some: **1-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

Environment

ENERGY STAR® 8.0, EPEAT™ Gold / Silver rating (on some models), ErP Lot 3, TCO 8.0 (coming soon), TUV low noise / ultra low noise verified (on some models), RoHS-compliant

MIL-SPEC test

MIL-STD-810H 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.

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ThinkCentre M90q Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max*(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900T	2 / 2	3.2G	2 MB	DDR4-2666	UHD 610
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400T	2 / 4	3.4G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500T	2 / 4	3.5G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100T	4 / 8	3.0G / 3.8G	6 MB	DDR4-2666	UHD 630
Core i3-10300T	4 / 8	3.0G / 3.9G	8 MB	DDR4-2666	UHD 630
Core i5-10400T	6 / 12	2.0G / 3.6G	12 MB	DDR4-2666	UHD 630
Core i5-10500T	6 / 12	2.3G / 3.8G	12 MB	DDR4-2666	UHD 630
Core i5-10600T	6 / 12	2.4G / 4.0G	12 MB	DDR4-2666	UHD 630
Core i7-10700T	8 / 16	2.0G / 4.5G	16 MB	DDR4-2933	UHD 630
Core i9-10900T	10 / 20	1.9G / 4.6G	20 MB	DDR4-2933	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

64GB max, DDR4-3200*, two 260-pin SO-DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 1x 2.5" HDD + 2x M.2 SSDs, RAID 0/1 support for M.2 SSDs (RAID preset only available via special bid model)
Some: Hard Drive / SATA 6.0Gb/s, 2.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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, more video ports available via optional ports, up to 3 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (HDMI)@24Hz; 2048x1536 (VGA)@50Hz

Monitor cable

Optional DP to VGA dongle, DP to DVI-D dongle, DP to dual DP dongle, or DP to HDMI 1.4 dongle

Chipset

Intel Q470 Chipset

Front ports (Std.)*

one USB 3.2 Gen 2 (Always On and fast charge), one USB 3.2 Type-C Gen 1, one headphone / microphone combo jack (3.5mm)

Rear ports (Std.)*

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x ethernet (RJ-45), 1x DP, 1x HDMI

Rear ports (Opt.)*

Two optional ports:

Position	Port 1	Port 2	Port 1&2
Optional parts	VGA / 2nd DP / 2nd HDMI / USB 3.2 Type-C Gen 1 with DP function) / Serial	Serial	Dual USB 3.2 Gen 1 ports (Available at end of July)

* Depending on many factors, actual data transfer speed may be lower than theoretical speed

Audio support

Realtek ALC233VB / optional internal speaker (1.5 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

None

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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
- Self-Healing BIOS

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

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
one 2.5" bay for HDD, three M.2 slots (one for WLAN, two for M.2 SSD)

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.76 lb (1.25 kg), vary by config
With VESA mount & ODD box	8.04" X 7.35" X 2.52" 204.2mm X 186.6mm X 64mm	3.84 lb (1.74 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

Dust filter

Optional dust filter

EOU design

Toolless chassis open (need optional toolless chassis screw), toolless HDD, SSD and memory assembly / removal

Power supply

Some: 65 watts AC/DC adapter, autosensing, 89% PSU
Some: 90 watts AC/DC adapter, autosensing, 89% PSU (special bid only)
Some: 135 watts AC/DC adapter, autosensing, 89% PSU
Some: 230 watts AC/DC adapter, autosensing, 89% PSU

Limited warranty

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

Environment

ENERGY STAR® 8.0, EPEAT™ Gold / Silver rating (on some models), ErP Lot 3, TCO 8.0 (coming soon), TUV low noise / ultra low noise verified (on some models), RoHS-compliant

MIL-SPEC test

MIL-STD-810H 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.

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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

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

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

Bluetooth

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

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

Discrete TPM 2.0, TCG Certified

Security features

- 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

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
- 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	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	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

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)
- 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 (with 135W adapter) or EPEAT™ Silver rating (with 65W/90W adapter), ErP Lot 3, TCO, TUV ultra low noise verified (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.

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ThinkCentre M920x Tiny Platform Specifications

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
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
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
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

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 (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
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:*c4096x2304 (DP)@60Hz; 4096x2304 (Type-C)@60Hz; 4096x2160 (onboard HDMI)@24Hz; 2048x1536 (VGA)@50Hz
Some: **AMD Radeon™ RX 560**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8 adapter, 4x Mini DisplayPort, up to 4 independent displays, works along with onboard DP and HDMI to support up to 6 independent displays;
Max resolution: 5120x2880@60Hz ((up to 2 Mini DisplayPort); 4096x2160@60Hz ((up to 4 Mini DisplayPort)

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, Mini DP to DP

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 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

Audio support

Realtek ALC233VB2 / optional internal speaker (1.5 watt or 2 watt)

WLAN

Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2
Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2

Bluetooth

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4

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

Discrete TPM 2.0, TCG Certified

Security features

- 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

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
- 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

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	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

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

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

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

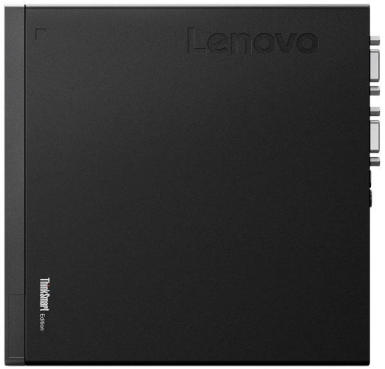
MIL-SPEC test

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.



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ThinkSmart Edition Tiny M920q for Zoom Rooms Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® 9th Gen Core™ i7 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Core i7-9700T	8 / 8	2.0G / 4.3G	12 MB	DDR4-2666	UHD 630

Memory

16GB (8GB x 2) DDR4-2666, two 260-pin SO-DIMM sockets, dual-channel capable

Storage

128GB SSD M.2 (2242) PCIe NVMe only supports PCIe 3.0 x 2, 16Gb/s

Optical

None

Onboard SATA

One onboard SATA 6.0Gb/s connector

Graphics

Intel HD Graphics 630 in processor, uses main memory, DirectX® 12, one DisplayPort™, one HDMI (onboard), one 2nd HDMI (internal DP to HDMI dongle), up to 3 independent displays;
Max resolution: 4096x2304 (DP)@60Hz; 4096x2160 (onboard HDMI)@24Hz

Monitor cable

None

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, 2x HDMI
* 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

11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, Intel vPro technology support, 2x2

Bluetooth

Bluetooth 5.0 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

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

Discrete TPM 2.0, TCG Certified

Security features

- 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

Lenovo Traditional Keyboard (USB connector), black

Mouse

Lenovo Calliope Mouse (USB connector), black

Mechanical

Tiny (1L), black color; metal case

	Dimensions (WxDxH)	Weight (Approx.)
Tiny only	7.0" X 7.2" X 1.4" (1.5" with rubber feet) 179mm X 183mm X 34.5mm (37mm with rubber feet)	2.91 lb (1.32 kg), vary by config

VESA mount

VESA mount bracket kit, supports VESA 75mm and 100mm

Floor Stand

Optional system floor stand for vertical orientation

Power supply

135 watts AC/DC adapter, autosensing, 88% PSU

Limited warranty

3-year, **limited onsite service with premier support** / service upgrades available

Preload

Preloaded operating system
Windows® 10 IoT Enterprise with Zoom Rooms preload

Environment

ENERGY STAR® 7.0, EPEAT™ Silver rating, ErP Lot 3, TCO, TUV ultra low noise verified (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, April 2020

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ThinkCentre Tiny-in-One (TIO) 22 Gen3

Model	*Non-touch model:* 10R1PAR1++/10R1PAT1++; *Touch model:* 10R0PAR1++/10R0PAT1++
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
Compatible Tiny:	P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93/p* / M83 / M73* / M53 /Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight *Notes:* In-Plane Switching may refer to VA, PLS, and IPS panels
Viewable image size	21.5" (546.1mm) diagonal
Max view area (W x H)	18.74" x 10.54" / 476.1mm x 267.8mm
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm
Native resolution	**1920x1080**
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch
Aspect ratio	16:9
Pixel pitch (mm)	0.24795mm
Dot/Pixel per Inch	102.4 dpi
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	*Ftont:* 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) *Notes:* The USB port is only available when a Tiny is istalled 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 connecter, 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

Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)
Adjustable stand	*Tilt:* 30° back, -5° forward; *lift:* 4.3" (110mm); *swivel:* +/-45°; *Pivot:* clockwise 0° to 90°
Power supply Power consumption	90 watts AC/DC adapter, 88% PSU, universal 19 watts typical, 32 watts maximum, <0.5 watts standby / suspend
Limited warranty	**3-years**, Customer Carry-In or Mail-In via Rapid Replacement Service
VESA-compliant Ergonomics Emission standards Environmental	VESA DDC2B/CI, VESA DPMS-compliant ISO 9241-307, TUV Eye Comfort certified FCC Class B TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC
Windows certifications	Windows 7 and Windows 10 certified
Ship group	TIO (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 Gen3 Compatible list			
Model	P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny M90n Nano (with TIO kit)	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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ThinkCentre Tiny-In-One 22 Gen 4 Platform Specifications

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
Compatible Tiny:	P340 / P330 / P320 / M90q / M80q / M70q / M75q / M920(x) / M720 / M910(x) / M710 / M715 / M900(x) / M700 / M630e / M625 / M600 Tiny M90n / M75n Nano (with TIO kit)
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight *Notes:* In-Plane Switching may refer to IPS, PLS, ADS, AHVA, AAS panels
Viewable image size	21.5" (546.1mm) diagonal
Max view area (W x H)	18.74" x 10.54" / 476.1mm x 267.8mm
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm
Native resolution	**1920x1080 @60Hz**
Presets / user settings	25
Multi-touch	Optional 10-point multi-touch, AIT technology
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	14ms (default), over drive to 4ms, 6ms
Color gamut	72% NTSC (CIE 1931)
Anti-reflective	Anti-glare
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
On screen display	On screen display with digital user controls (8 languages)
Control features	*Ftont:* Exit button, Up / Mode-switching button (TIO / monitor mode switchs the sources of both display and side USB port), Down / Brightness button, Enter / Menu button, Power button *Bottom:* Volume up button, Volume down button
TIO Power On features	Pressing Alt + P (on keyboard) or Power button (on TIO) can turn on both TIO and Tiny (some old Tiny cannot fully support, see compatible list)
Side ports (on TIO)	One USB Type A port (The availability and version depends on the Tiny istalled or the PC connected via USB upstream port)
Side ports (on Tiny)	Side ports offered by installed Tiny (front ports)
Rear ports	One DisplayPort in port, one USB upstream port, one power connector
3-in-1 Cable	Undetachable 3-in-1 cable (Power connecter, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)
Camera	720p camera with dual microphone and Think Shutter
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 2.57 x 13.35	19.26 x 8.68 x 16.46 - 22.37.93
W x D x H (mm)	489.3 x 65.3 x 339	489.3 x 220.4 x 418.2 - 568.2
Weight (Approx.)	7.52 lb / 3.41 kg	14.51 lb / 6.58 kg

Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)
Adjustable stand	*Tilt:* 30° back, -5° forward; *lift:* 5.9" (150mm); *swivel:* +/-45°; *Pivot:* clockwise -5° to 90°
Power supply Power consumption	90 watts AC/DC adapter, 88% PSU, universal 25 watts max, 14 watts typical, <0.5 watts standby / suspend
Limited warranty	**3-years**, Carry-In or Courier service
Environmental	TCO 8.0, TCO edge 2.0, ENERGY STAR® 8.0, EPEAT™ Silver rating, UL GREENGUARD Certified, Erp lot5, WEEE, RoHS, TUV Eye comfort
Windows certifications	Windows 7 and Windows 10 certified
Ship group	TIO (Monitor), detachable stand, power adapter, power cord, information flyer, user's guide, and driver CD
Accessories	For compatible accessories, please go to **http://www.lenovoquickpick.com**

ThinkCentre Tiny-In-One 22 Gen 4 Compatible list

Model	P340 / P330 / P320 M90q / M80q / M70q / M75q / M920(x) / M720 / M910(x) / M710 / M715 / M900(x) / M700 / M630e / M625 / M600 Tiny M90n / M75n (with TIO kit)	M93/p / M83 / M73 / M53 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	Not support	All models

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ThinkCentre Tiny-in-One (TIO) 24 Gen3

Model	*Non-touch model:* 10QYPAR1++/10QYPAT1++; *Touch model:* 10QXPAR1++/10QXPAT1++
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
Compatible Tiny:	P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M93/p* / M83 / M73* / M53 /Chromebox Tiny * Non-TIO models can't be turned on by pressing power button of TIO
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight *Notes:* In-Plane Switching may refer to VA, PLS, and IPS panels
Viewable image size	23.8" (604.7mm) diagonal
Max view area (W x H)	20.75" x 11.67" / 527.0mm x 296.5mm
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm
Native resolution	**1920x1080**
Multi-touch	Optional 10-point multi-touch, supports Wake on Touch
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	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	Ftont: 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) *Notes:* The USB port is only available when a Tiny is istalled 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 connecter, 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

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

Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)
Adjustable stand	*Tilt:* 30° back, -5° forward; *lift:* 4.3" (110mm); *swivel:* +/-45°; *Pivot:* clockwise 0° to 90°
Power supply	90 watts AC/DC adapter, 88% PSU, universal
Power consumption	19 watts typical, 32 watts maximum, <0.5 watts standby / suspend
Limited warranty	**3-years**, Customer Carry-In or Mail-In via Rapid Replacement Service
VESA-compliant	VESA DDC2B/CI, VESA DPMS-compliant
Ergonomics	ISO 9241-307, TUV Eye Comfort certified
Emission standards	FCC Class B
Environmental	TCO 7.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC
Windows certifications	Windows 7 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 Gen3 Compatible list

Model	P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny M90n Nano (with TIO kit)	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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ThinkCentre Tiny-In-One 24 Gen 4 Platform Specifications

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
Compatible Tiny:	P340 / P330 / P320 / M90q / M80q / M70q / M75q / M920(x) / M720 / M910(x) / M710 / M715 / M900(x) / M700 / M630e / M625 / M600 Tiny M90n / M75n Nano (with TIO kit)
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight *Notes:* In-Plane Switching may refer to IPS, PLS, ADS, AHVA, AAS panels
Viewable image size	23.8" (604.7mm) diagonal
Max view area (W x H)	20.75" x 11.67" / 527.0mm x 296.5mm
Bezel Width	Top / Side: 2mm, Bottom: 22.1mm
Native resolution	**1920x1080 @60Hz**
Presets / user settings	25
Multi-touch	Optional 10-point multi-touch, AIT technology
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	14ms (default), over drive to 4ms, 6ms
Color gamut	72% NTSC (CIE 1931)
Anti-reflective	Anti-glare
Viewing angle at 10:1 CR	178° (+/- 89°) horizontal, 178° (+/- 89°) vertical
On screen display	On screen display with digital user controls (8 languages)
Control features	*Ftont:* Exit button, Up / Mode-switching button (TIO / monitor mode, switchs the sources of both display and side USB port), Down / Brightness button, Enter / Menu button, Power button *Bottom:* Volume up button, Volume down button
TIO Power On features	Pressing Alt + P (on keyboard) or Power button (on TIO) can turn on both TIO and Tiny (Some old Tiny cannot fully support, see compatible list)
Side ports (on TIO)	One USB Type A port (The availability and version depends on the Tiny istalled or the PC connected via USB upstream port)
Side ports (on Tiny)	Side ports offered by installed Tiny (front ports)
Rear ports	One DisplayPort in port, one USB upstream port, one power connector
3-in-1 Cable	Undetachable 3-in-1 cable (Power connecter, USB [supports USB 3.1 Gen1 / USB 2.0], DisplayPort), only for connecting to Tiny installed (optional)
Camera	*Some:* 1080p camera with dual microphone and Think Shutter *Some:* RGBIR camera with dual microphone, support Think Shutter
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)	21.25 x 2.57 x 14.47	21.25 x 9.07 x 17.59 - 23.5
W x D x H (mm)	539.8 x 65.3 x 367.6	539.8 x 230.4 x 446.9 - 596.9
Weight (Approx.)	7.96 lb /3.61 kg	12.92 lb /6.66 kg

Mounting features	Wall or desk mounting using the extend arm or third-party accessories meeting the VESA FPMPMI® (100mm mount)
Adjustable stand	*Tilt:* 30° back, -5° forward; *lift:* 5.9" (150mm); *swivel:* +/-45°; *Pivot:* clockwise -5° to 90°
Power supply	90 watts AC/DC adapter, 88% PSU, universal
Power consumption	27 watts max, 15 watts typical, <0.5 watts standby / suspend
Limited warranty	**3-years**, Carry-In or Courier service
Environmental	TCO 8.0, TCO edge 2.0, ENERGY STAR® 8.0, EPEAT™ Silver rating, UL GREENGUARD Certified, Erp lot5, WEEE, RoHS, TUV Eye comfort
Windows certifications	Windows 7 and Windows 10 certified
Ship group	TIO (Monitor), detachable stand, power adapter, power cord, information flyer, user's guide, and driver CD
Accessories	For compatible accessories, please go to **http://smartfind.lenovo.com**

ThinkCentre Tiny-In-One 24 Gen 4 Compatible list

Model	P340 / P330 / P320 M90q / M80q / M70q / M75q / M920(x) / M720 / M910(x) / M710 / M715 / M900(x) / M700 / M630e / M625 / M600 Tiny M90n / M75n (with TIO kit)	M93/p / M83 / M73 / M53 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	Not support	All models

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ThinkCentre Tiny-in-One (TIO) 27

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
Compatible Tiny:	ThinkCentre Tiny, ThinkCentre Nano, and ThinkStaion Tiny
Panel	TFT-LCD, In-Plane Switching technology**, White LED backlight ***Notes:* In-Plane Switching may refer to IPS, PLS, ADS, AHVA, and AA
Viewable image size	27" (685.8mm) diagonal
Max view area (W x H)	23.49" x 13.22" / 596.7mm x 335.7mm
Bezel Width	Top / Side: 2mm, Bottom: 23.3mm
Native resolution	**2560x1440**
Multi-touch	None
Aspect ratio	16:9
Pixel pitch (mm)	0.2331mm
Dot/Pixel per Inch	109 dpi
Brightness	350 nits or cd/m^2 (typical)
Contrast ratio	1000:1 (typical)
Pixel response time	14ms (default), over drive to 4ms, 6ms
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	Ftont: 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 connecter, 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)

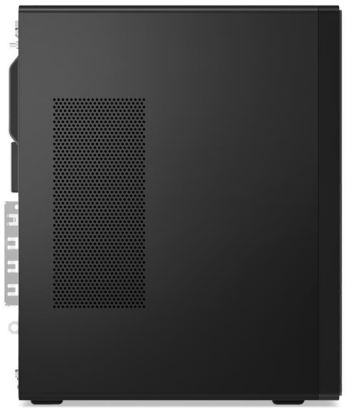
Mechanical

	TIO without stand	TIO with stand
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
Weight (Approx.)	4.91 kg / 10.82 lb	7.95 kg / 17.53 lb

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°; *Pivot:* clockwise -5° to 90°
Power supply	170 watts adapter, 88% PSU, universal
Power consumption	37 watts typical, 57 watts maximum, <0.5 watts standby / suspend
Limited warranty	**3-years**, Product Exchange Service (US and EMEA) or Customer Carry-In Service (EMEA)
VESA-compliant	VESA DDC/CI, VESA DPMS-compliant
Ergonomics	ISO 9241-307, TUV Eye Comfort certified
Emission standards	FCC Class B
Environmental	TCO 8.0, TCO Edge 2.0, WEEE, RoHS, ENERGY STAR® 7.0, EPEAT™ Silver rating, ULE Gold, TUV, VOC
Windows certifications	Windows 7 and Windows 10 certified
Ship group	TIO 27 (Monitor), detachable stand, power adapter, power cord, reference and driver CD
Accessories	For compatible accessories, please go to **http://smartfind.lenovo.com**

ThinkCentre Tiny-in-One 27 Compatible Matrix

Model	P330 / P320 / M920(x) / M720 / M910(x) / M710 / M900(x) / M700 / M630e / M625 / M600 / M75q / M715 / M83 / M53 Tiny M90n Nano (with TIO kit)	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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ThinkCentre M70t Platform Specifications

Processor — Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory — 128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage — Support up to 2x HDD ([2.5" + 3.5"] or [dual 2.5"]) and up to 1x M2.SSD
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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 — Four onboard SATA 6.0Gb/s connectors

Media reader — Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics — **Intel UHD Graphics 610/630** in some processors, uses main memory, DirectX® 12, two DisplayPort™, one HDMI, supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP)@60Hz; 1920x1080 (HDMI)@60Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
Some: **AMD Radeon RX 550X**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048*1536@85Hz), occupies two slots

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 H470 Chipset**

Front ports* (Std.) — 2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.) — *Optional:* 3-iin-1 media reader

Rear ports* (Std.) — 4x USB 2.0, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DisplayPort**, 1x HDMI**, 1x line-out (3.5mm)

Rear ports* (Opt.) — *Optional:* 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support — High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN —
Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9462 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 1x1 (special bid only)
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, 2x2

Bluetooth™ — *Some:* Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet — Gigabit ethernet, Intel Ethernet Connection I219-V(Jacksonville), Wake on LAN®

Ethernet (Opt.) — *Some:* Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability — None

Security chip — Discrete TPM 2.0, TCG Certified

Security features
- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- 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

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
- Tower (13.6L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 5.7" X 11.7" X 13.6; 145mm X 296mm X 346mm
- Weight (approx.): 10.6 lb (4.8 kg), weight may vary by configuration

Bays — Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 2.5" HDD bay (optional bay, or bay comes with disk)

Slots — Slot 1: full-height (length < 215mm), PCIe 3.0 x16
Slot 2: full-height (length < 215mm), PCIe 3.0 x1
Slot 3: no slot, only bracket for optional port extension
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: Two (one for WLAN, one for SSD/Optane)

EOU design — None

Power supply —
Some: 180 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 85% PSU
Some: 310 watts, autosensing, 92% PSU
Some: 380 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty —
Some: **1-year**, **depot service** / service upgrades available
Some: **1-year** or **3-year**, **limited onsite service** / service upgrades available

Preload —
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment — ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11D9/11DA

Accessories — For compatible accessories, please go to **http://smartfind.lenovo.com**

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

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ThinkCentre M720 Tower 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
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 i5-9400F	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	None
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630
Core i5-9500F	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	None
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

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

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 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2

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

Three onboard SATA 6.0Gb/s connectors

Media reader

Optional 7-in-1 media reader

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
Some: **NVIDIA Geforce® GT 730** (End Of Life), DirectX 12, 2GB, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
Some: **AMD Radeon RX 550X**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048x1536@85Hz)

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 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)

WLAN[13]

Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2

Bluetooth™

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4*, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88*, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)
* Choose either I350-T4 or BN8E88

Manageability

None

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- 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

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 Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- 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)

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 210 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 92% PSU (only available via special bid)

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

Preloaded operating system
Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Preloaded applications (only some listed)

- 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™ Silver 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.

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ThinkCentre M80t Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 2x HDD ([2.5" + 3.5"] or [dual 2.5"]) and up to 1x M2.SSD, RAID 0/1 support for HDD (RAID preset only available via special bid)
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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

Four onboard SATA 6.0Gb/s connectors

Media reader

Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, two DisplayPort™, one HDMI, supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP)@60Hz; 1920x1080 (HDMI)@60Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
Some: **AMD Radeon RX 550X**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048*1536@85Hz), occupies two slots

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 Q470 Chipset

Front ports* (Std.)

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

Optional: 3-iin-1 media reader

Rear ports* (Std.)

4x USB 3.2 Gen 1, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DP**, 1x HDMI**
1x line-out (3.5mm)

Rear ports* (Opt.)

Optional: 2x USB 2.0, 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth™

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- 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

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

- Tower (13.6L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 5.7" X 11.7" X 13.6; 145mm X 296mm X 346mm
- Weight (approx.): 10.6 lb (4.8 kg), weight may vary by configuration

Bays

Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 2.5" HDD bay (optional bay, or bay comes with disk)

Slots

Slot 1: full-height (length < 215mm), PCIe 3.0 x16
Slot 2: full-height (length < 215mm), PCIe 3.0 x1
Slot 3: full-height (length < 215mm), PCIe 3.0 x4
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: Two (one for WLAN, one for SSD/Optane)

EOU design

None

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 260 watts, autosensing, 85% PSU
Some: 310 watts, autosensing, 92% PSU
Some: 380 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty

Some: **1-year**, **depot service** / service upgrades available
Some: **1-year** or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11CS/11CT

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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

Lenovo, May 2020

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ThinkCentre M90t Platform Specifications

Product Specifications Reference (PSREF)

Processor

Intel® Celeron®, Intel Pentium®, or 10th Gen Intel Core™ i3 / i5 / i7 / i9 Processor

Processor	Cores / Threads	Frequency Base/Max(GHz)	Cache	Memory Support (Up to)	Integrated Graphics
Celeron G5900	2 / 2	3.4G	2 MB	DDR4-2666	UHD 610
Celeron G5920	2 / 2	3.5G	2 MB	DDR4-2666	UHD 610
Pentium Gold G6400	2 / 4	4.0G	4 MB	DDR4-2666	UHD 610
Pentium Gold G6500	2 / 4	4.1G	4 MB	DDR4-2666	UHD 630
Pentium Gold G6600	2 / 4	4.2G	4 MB	DDR4-2666	UHD 630
Core i3-10100	4 / 8	3.6G / 4.3G	6 MB	DDR4-2666	UHD 630
Core i3-10300	4 / 8	3.7G / 4.4G	8 MB	DDR4-2666	UHD 630
Core i3-10320	4 / 8	3.8G / 4.6G	8 MB	DDR4-2666	UHD 630
Core i5-10400F	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	None
Core i5-10400	6 / 12	2.9G / 4.3G	12 MB	DDR4-2666	UHD 630
Core i5-10500	6 / 12	3.1G / 4.5G	12 MB	DDR4-2666	UHD 630
Core i5-10600	6 / 12	3.3G / 4.8G	12 MB	DDR4-2666	UHD 630
Core i7-10700F	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	None
Core i7-10700	8 / 16	2.9G / 4.8G	16 MB	DDR4-2933	UHD 630
Core i9-10900F	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	None
Core i9-10900	10 / 20	2.8G / 5.2G	20 MB	DDR4-2933	UHD 630

* Max freguency may refer to Intel Turbo Boost Technology 2.0 / Intel Turbo Boost Max Technology 3.0 / Intel Thermal Velocity Boost, and adopt the max one of them

Memory

128GB max, DDR4-3200*, four 288-pin DIMM sockets, dual-channel capable
* System automatically clocks down for the processors with lower memory controller

Storage

Support up to 3x HDD ([2.5" + dual 3.5"] or [dual 2.5" + 3.5"]) and up to 2x M2.SSD, RAID 0/1 support (RAID preset only available via special bid)
Some: Hard Drive / SATA 6.0Gb/s, 2.5" or 3.5", 7200 rpm
Some: M.2 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory M10, M.2 2280, PCIe 3.0 x2

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

Four onboard SATA 6.0Gb/s connectors

Media reader

Optional 3-in-1 media reader (support SD, SDHC, and SDXC)

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, two DisplayPort™, one optional video port (choose one from HDMI / DP / Type-C), supports up to 3 independent displays, more displays support via discrete graphics
Max resolution: 4096×2304 (DP / Type-C)@60Hz; 4096x2160 (HDMI)@24Hz
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
Some: **AMD Radeon RX 550X**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048*1536@85Hz), occupies two slots
Some: **NVIDIA Geforce GTX 1660 SUPER**, DirectX 12, 6GB GDDR6, PCIe 3.0 x16, 125 watts, 1x DVI-D (up to 2560x1600@60Hz), 1x HDMI (up to 4096x2160@60Hz), 1x DP (up to 7680x4320@60Hz with DSC), occupies two slots
Some: **NVIDIA Geforce RTX 2060**, DirectX 12, 6GB GDDR6, PCIe 3.0 x16, 170 watts, three DisplayPort (up to 7680x4320@60Hz with DSC), one HDMI (up to 4096x2160@60Hz), occupies two slots

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 Q470 Chipset

Front ports* (Std.)

2x USB 3.2 Gen 2, 2x USB 3.2 Gen 1, 1x USB 3.2 Type-C Gen 1 (15W charging), 1x microphone (3.5mm), 1x headphone / microphone combo jack (3.5mm)

Front ports* (Opt.)

Optional: 3-iin-1 media reader

Rear ports* (Std.)

4x USB 3.2 Gen 1, 1x serial (9-pin), 1x ethernet (RJ-45), 2x DisplayPort**, 1x line-out (3.5mm)

Rear ports* (Opt.)

Optional: 1x optional video port** (choose one from HDMI / DP / USB 3.2 Type-C Gen 1 with DP function), 2x USB 2.0, 2x USB 3.2 Gen 1 via PCIe x1, 2x USB 3.2 Type-C Gen 2 via PCIe x4, 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
** Only available for the models with integrated graphics

Audio support

High Definition (HD) Audio, Realtek ALC623-CG / internal speaker (2 watt)

WLAN

Some: 11ac wireless, M.2 Card, Realtek RTL8822CE (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ac wireless, M.2 Card, Intel Wireless-AC 9560 (dual band), Wi-Fi + Bluetooth 5.0 combo adapter, 2x2
Some: 11ax wireless, M.2 Card, Intel Wi-Fi 6 AX201 (dual band), Wi-Fi + Bluetooth 5.1 combo adapter, Intel vPro technology support, 2x2

Bluetooth™

Some: Bluetooth 5.0/5.1 wireless, integrated in Wi-Fi + BT combo adapter

Ethernet

Gigabit ethernet, Intel Ethernet Connection I219-LM(Jacksonville), Wake on LAN®

Ethernet (Opt.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1

Manageability

Intel Active Management Technology 14 (Intel AMT 14);
Intel vPro technology on some models (require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection)

Security chip

Discrete TPM 2.0, TCG Certified

Security features

- Security slot (for Kensington® lock)
- Padlock loop
- Optional Smart Cable Clip to physically lock keyboard and mouse
- Optional chassis intrusion switch
- Optional chassis E-Lock
- Self-Healing BIOS
- 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

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

- Tower (17L), black color, metal case
- Dimensins with bezel & PCI holder & rubber foot: *(WxDxH)* 6.7" X 11.7" X 14.8"; 170mm X 298mm X 376mm
- Weight (approx.): 14.33 lb (6.5 kg), weight may vary by configuration

Bays

Bay 1: Slim ODD bay
Bay 2: 3.5" HDD bay
Bay 3: 3.5" HDD bay (optional bay, or bay comes with disk)
Bay 4: 2.5" HDD (bay comes with 2.5" disk)

Slots

Slot 1: full-height (length < 245mm), PCIe 3.0 x16
Slot 2: full-height (length < 245mm), PCIe 3.0 x1
Slot 3: full-height (length < 245mm), PCIe 3.0 x4
Slot 4: no slot, only bracket for optional port extension
M.2 card slots: Two (one for WLAN, two for SSD/Optane)

EOU design

Toolless cover, disk, optical, extension card removal

Power supply

Some: 180 watts, autosensing, 85% PSU
Some: 300 watts, autosensing, 85% PSU
Some: 300 watts, autosensing, 90% PSU
Some: 500 watts, autosensing, 92% PSU
* Discrete graphics card / 10-core processors need > 180w power supply

Limited warranty

1-year or **3-year**, **limited onsite service** / service upgrades available

Preload

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit
Some: Windows 10 IoT Enterprise (only available via special bid model)

Environment

ENERGY STAR® 8.0*, EPEAT™ Silver rating*, ErP Lot 3, TCO (coming soon), TUV low noise verified (on some models), RoHS-compliant
* Only available for MT 11D0/11CY

Accessories

For compatible accessories, please go to **http://smartfind.lenovo.com**

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

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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

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
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 i5-9400F	6 / 6	2.9G / 4.1G	9 MB	DDR4-2666	None
Core i5-9500	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	UHD 630
Core i5-9500F	6 / 6	3.0G / 4.4G	9 MB	DDR4-2666	None
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

64GB max, DDR4-2666*, four 288-pin DIMM sockets, 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 SSD (2242 / 2280) / PCIe NVMe, PCIe 3.0 x2 or PCIe 3.0 x4
Some: Intel Optane™ Memory (not support Celeron / Pentium Processor), M.2

Optical

Optional DVD-ROM or DVD Burner (DVD±RW), SATA 1.5Gb/s Drive, slim (9.0mm)

Onboard SATA

Four onboard SATA 6.0Gb/s connectors, RAID 0/1 support (RAID preset only available via special bid model)

Media reader

Optional 7-in-1 media reader

Graphics

Intel UHD Graphics 610/630 in some processors, uses main memory, DirectX® 12, one VGA (up to 2048x1536@50Hz), two DisplayPort™ (up to 4096x2304@60Hz), supports 3 independent displays, more displays support via discrete graphics
Some: **NVIDIA Geforce® GT 730** (End Of Life), DirectX 12, 2GB GDDR5, PCIe 2.0 x16, 35 watts, two DisplayPort (up to 3840x2160@60Hz)
Some: **AMD Radeon™ 520**, DirectX 12, 2GB GDDR5, PCIe 3.0 x8, 30 watts, two DisplayPort (up to 4096x2160@60Hz)
Some: **AMD Radeon RX 550X**, DirectX 12, 4GB GDDR5, PCIe 3.0 x8, 50 watts, one DisplayPort (up to 3840x2160@60Hz), one HDMI (up to 4096x2160@60Hz), one VGA (up to 2048*1536@85Hz)
Some: **NVIDIA Geforce GTX 1060** (special bid only), DirectX 12, 6GB GDDR5, PCIe 3.0 x16, 120 watts, 1x DVI-D (up to 2560x1600@60Hz), 1x HDMI (up to 4096x2160@60Hz), 3x DP (up to 5120x3200@60Hz), occupies two slots

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.)

Optional: 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.)

Optional: 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

Audio support

High Definition (HD) Audio, Realtek ALC233VB2 / internal speaker (2 watt)

WLAN

Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8821CE (dual band), 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Realtek RTL8822BE (dual band), 2x2
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 3165, 1x1
Some: 11ac Wi-Fi + BT 4.2, M.2 Card, Intel Dual Band Wireless-AC 8265, 2x2
Some: 11ac Wi-Fi + BT 5.0, M.2 Card, Intel Wireless-AC 9560 (dual band), Intel vPro technology support, 2x2

Bluetooth™

Some: 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.)

Some: Intel Ethernet Server Adapter I350-T4, gigabit ethernet, 4x RJ-45, PCIe x4
Some: Bitland BN8E88, gigabit ethernet, 1x RJ-45, PCIe x1 (special bid only)

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

Discrete TPM 2.0, TCG Certified

Security features

- 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

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 Keyboard (PS/2 connector), black (only available via special bid)

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
Some: Lenovo Mouse (PS/2 connector), black (only available via special bid)

Mechanical

- 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)

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)

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

Some: Windows® 10 Pro 64-bit
Some: Windows 10 Home 64-bit

Environment

ENERGY STAR® 7.0, EPEAT™ Silver 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.

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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 ThinkStation

PSREF

Product Specifications Reference

Version 563, July 2020

U.S. EMEA

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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.

July 29, 2020 - Version 563
►Add new processors for ThinkStation P340 Tower / SFF

June 17, 2020 - Version 561
►New ThinkStation P340 Tower / SFF annouced on June 9, 2020
►Add 625W / 1000W PSU, RTX 2070 Super, RTX 2080 Super, NVlink support

May 27, 2020 - Version 560
►New ThinkStation P340 Tiny annouced on May 21, 2020

May 6, 2020 - Version 559
►Update vPro information on ThinkStation P330 Tower Gen 2 / SFF Gen 2

April 15, 2020 - Version 558
►Update weight data on ThinkStation P330 Tower Gen 2
►Add new product ThinkStation P920 Rack

March 25, 2020 - Version 557
►Add Core i5-8700K, Geforce GTX 1660 Ti, RTX 2070, RTX 2080 on ThinkStation P330 Tower Gen 2

March 4, 2020 - Version 556
►Add Core i5-9400F on ThinkStation P330 Tower Gen 2 and ThinkStation P330 SFF Gen 2

December 31, 2019 - Version 553
►Add Xeon W-2200 series Processor and DDR4-2933 memory on ThinkStation P520c and P520

December 11, 2019 - Version 552
►Add Xeon Gold 6226 and 6244 on ThinkStation P920 and P720

August 7, 2019 - Version 546
►Update processor information on Thinktation P330 Tiny

July 17, 2019 - Version 545
►Update EPEAT rating to Silver on most ThinkStation

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

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

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	Supports one of the following processor:

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 i5-9400F	6C/6T/2.9GHz/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/32GB DDR4-2666 UDIMM non-ECC
Memory Capacity	64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
Memory Protection	ECC on models with UDIMM ECC memeory
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

Processor graphics	Integrated Intel UHD Graphics P630 in -G suffix Xeon processors, or Intel UHD Graphics 630 in Core i5 or i3 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 card	Up to two PCIe 3.0 x16 slots for discrete graphics adapter (Slot 1 and 3). Supports the following graphics adapters:

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 Controller

Storage Controller	Type	Interface	Disk Type	RAID
Onboard Intel RST SATA RAID	Std	SATA 6Gb/s	HDD or SSD	0/1
Onboard Intel RST PCIe RAID	Std	PCIe NVMe	M.2 PCIe SSD	0/1

Notes: M.2 SSD support is limited, please see Storage bay section for more information

Storage Support

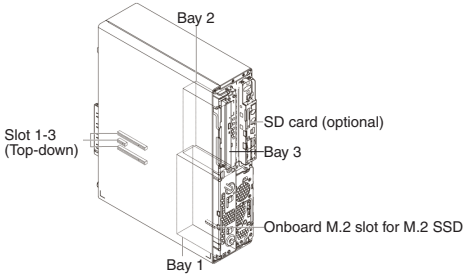
Disk Type	Interface	RPM	Offering	Max Qty
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB	1
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS	2
2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB	2
Optane Memory	PCIe NVMe		32GB	1, used with HDD/SSD
M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB	3

Components	Specification
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 (Optional)
Bay 3	9mm Slim ODD bay
M.2	3x M.2 SSD (1 onboard. 2 via PCIe to M.2 adapter) *Notes: Support 1x M.2 SSD at present, 3x M.2 SSD support is pending availability*

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 7-in-1 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, E-lock, cable lock, Kensington lock, and pad lock
Intel vPro	Supports Intel vPro on Xeon and selected Core i7 or i5 models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon and selected Core i7 or i5 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 *Notes: DP needs Core, Pentium, or -G suffix Xeon processor*
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 3.1 Gen 1. 1x Thunderbolt. *Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor*
Temperature	Operating: 50 °F to 95 °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 Silver 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



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ThinkStation P330 Tiny Platform Specifications - I of II

Components	Specification
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
Dimensions	Height: 179 mm (7.0 in). Width: 37 mm (1.5 in). Depth: 183 mm (7.2 in)
Weight	Maximum configuration: 2.9 lb (1.3kg)
Recommended monitors	Lenovo recommends ThinkVision P series monitors for best display performance and productivity
Processor	Supports one of the following:

Processor Number	Cores	Threads	Base Frequency	Cache	TDP	Memory Types	Processor Graphics
Core i9-9900T	8	16	2.1GHz	16MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i7-9700T	8	8	2.0GHz	12MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i7-9700	8	8	3.0GHz	12MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-9600T	6	6	2.3GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-9600	6	6	3.1GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-9500T	6	6	2.2GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-9500	6	6	3.0GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-9400T	6	6	1.8GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-9400	6	6	2.9GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i3-9320	4	4	3.7GHz	8MB	62W	DDR4-2400	Intel UHD Graphics 630
Core i3-9300T	4	4	3.2GHz	8MB	35W	DDR4-2400	Intel UHD Graphics 630
Core i3-9300	4	4	3.7GHz	8MB	62W	DDR4-2400	Intel UHD Graphics 630
Core i3-9100T	4	4	3.1GHz	6MB	35W	DDR4-2400	Intel UHD Graphics 630
Core i3-9100	4	4	3.6GHz	6MB	65W	DDR4-2400	Intel UHD Graphics 630
Core i7-8700T	6	12	2.4GHz	12MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i7-8700	6	12	3.2GHz	12MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-8600T	6	6	2.3GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-8600	6	6	3.1GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-8500T	6	6	2.1GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-8500	6	6	3.0GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i5-8400T	6	6	1.7GHz	9MB	35W	DDR4-2666	Intel UHD Graphics 630
Core i5-8400	6	6	2.8GHz	9MB	65W	DDR4-2666	Intel UHD Graphics 630
Core i3-8300T	4	4	3.2GHz	8MB	35W	DDR4-2400	Intel UHD Graphics 630
Core i3-8300	4	4	3.7GHz	8MB	62W	DDR4-2400	Intel UHD Graphics 630
Core i3-8100T	4	4	3.1GHz	6MB	35W	DDR4-2400	Intel UHD Graphics 630
Core i3-8100	4	4	3.6GHz	6MB	65W	DDR4-2400	Intel UHD Graphics 630

Components	Specification
Chipset	Intel Q370 Chipset
Memory	2 DIMM sockets. DDR4-2666. SoDIMM. Non-ECC
Memory Capacity	64GB (2x 32GB)
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
Graphics	65W or 62W processor models supports processor graphics only. 35W processor models come with processor graphics plus a discrete graphics adapter
Graphics - Processor graphics	Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display
Graphics - Discrete graphics card	One of the following discrete graphics cards on 35W processor models:

Adapter	Cores	Memory	Power	Connectors
Quadro P620	512	2GB GDDR5	40W	4x miniDP
Quadro P1000	640	4GB GDDR5	47W	4x miniDP

Components	Specification
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 on models without discrete graphics card
Disks	2.5" HDD supports up to 2TB, SATA 6Gbps, 5.4K; or 1TB SATA 6Gbps, 7.2K
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, optional Opal. M.2 2242 SSD supports up to 512GB each
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. *Note: Wi-Fi card, or specific functions of Wi-Fi- card may not be supported in some countries*
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
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
Systems management	Intel Active Management Technology 12 on vPro 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 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
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

ThinkStation P330 Tiny Platform Specifications - II of II

Components	Specification
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 *Note: Punch out cable and PCIe adapter are mutually exclusive*
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)
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: 20%~80%, non-condensing Storage (with package): 20%~90%, non-condensing
MIL-SPEC	Certified
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Silver rating and ENERGY STAR 7 qualified
Power supply	Supports one 135W power adaper, 100V - 240V, 88% PSU
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

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

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: 23.37 lb (10.6kg)
Processor	Supports one of the following processors:

Xeon E-2286G	6C/12T/4.0GHz/12MB/95W/DDR4-2666	400W PSU needed
Xeon E-2278G	8C/16T/3.4GHz/16MB/80W/DDR4-2666	400W 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-2186G	6C/12T/3.8GHz/12MB/95W/DDR4-2666	400W PSU needed
Xeon E-2174G	4C/8T/3.8GHz/8MB/71W/DDR4-2666	
Core i9-9900K	8C/16T/3.6GHz/16MB/95W/DDR4-2666	400W PSU needed
Core i9-9900	8C/16T/3.1GHz/16MB/65W/DDR4-2666	
Core i7-9700K	8C/8T/3.6GHz/12MB/95W/DDR4-2666	400W PSU needed
Core i7-9700	8C/8T/3.0GHz/12MB/65W/DDR4-2666	
Core i7-8700K	6C/12T/3.7GHz/12MB/95W/DDR4-2666	
Core i7-8700	6C/12T/3.2GHz/12MB/65W/DDR4-2666	
Core i5-9600K	6C/6T/3.7GHz/9MB/95W/DDR4-2666	400W PSU needed
Core i5-9600	6C/6T/3.1GHz/9MB/65W/DDR4-2666	
Core i5-9500	6C/6T/3.0GHz/9MB/65W/DDR4-2666	
Core i5-9400F	6C/6T/2.9GHz/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	

Chipset	Intel C246 Chipset
Memory Sockets	4 DIMM sockets with 2 channels
Memory Types	8GB/16GB DDR4-2666 UDIMM ECC or 4GB/8GB/16GB/32GB DDR4-2666 UDIMM non-ECC
Memory Capacity	64GB with 4 x 16GB for UDIMM ECC or 128GB with 4 x 32GB UDIMM non-ECC
Memory Protection	ECC on models with UDIMM ECC memeory
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

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)

Components	Specification
Discrete Graphics Offering	Up to two PCIe 3.0 x16 slots for discrete graphics card (Slot 1 and 3). Supports the following graphics adapters:

Graphics	Memory	Power	Connector	Max Qty
Quadro P400	2GB wGDDR5	30W	3x miniDP	2
Quadro P620	2GB GDDR5	40W	4x miniDP	2
Quadro P1000	4GB GDDR5	50W	4x miniDP	2
Quadro P2000	5GB GDDR5	75W	4x DP	2
Quadro P2200	5GB GDDR5X	75W	4x DP	2
Quadro P4000	8GB GDDR5	105W	4x DP	1
Quadro P5000	16GB GDDR5X	180W	DVI-D DL + 4x DP	1
Quadro RTX 4000	8GB GDDR6	160W	3x DP, 1x VirtualLink	1

Note: 2x Quadro P2000, Quadro P4000, Quadro P5000 or Quadro RTX 4000 needs 400W PSU

Storage Controller

Storage Controller	Type	Interface	Disk Type	RAID
Onboard Intel RST SATA RAID	Std	SATA 6Gb/s	HDD or SSD	0/1/10/5
Onboard Intel RST PCIe RAID	Std	PCIe NVMe	M.2 PCIe SSD	0/1

Storage Support

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

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

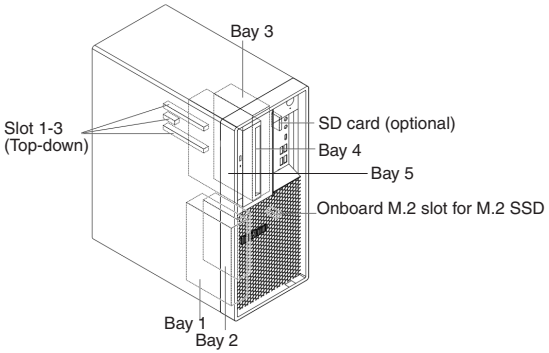
Bay 1	Primary disk bay, 3.5" or 2.5"
Bay 2	2.5" SATA bay, cannot be available when 2nd Quadro P2000 is used
Bay 3	Secondary disk bay, 3.5" or 2.5"
Bay 4	5.25" Flex bay, supports one of the following:
	• Flex module for optional front eSATA/Thunderbolt/IEEE1394
	• 3rd disk bay, 3.5" or 2.5", removable, 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 7-in-1 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 and selected Core i7 or i5 models. vPro also requires Wireless-AC 9560 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 12 on Xeon and selected Core i7 or i5 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

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

Components	Specification
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 *Notes: DP needs Core, Pentium, or -G suffix Xeon processor*
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 3.1 Gen 1. 1x Thunderbolt. *Notes: DP or HDMI needs Core, Pentium, or -G suffix Xeon processor*
Temperature	Operating: 50 °F to 95 °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 Silver 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



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ThinkStation P340 SFF Platform Specifications

Components	Specification
Form factor	8.2L
Dimensions	Height: 339.5 mm (13.4 in). Width: 92.5 mm (3.6 in). Depth: 309.7 mm (9.3 in)
Weight	Maximum configuration: 12.6 lb (5.7 kg)
Processor Sockets	1x FCLGA1200
Processor Support	Up to one Xeon, Core i9, i7, i5, or i3 processor

Processor

Processor Number	Cores	Threads	Base Frequency	Cache	TDP	Memory Types	ECC	Processor Graphics	vPro
Xeon W-1290	10	20	3.2GHz	20MB	80W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1270	8	16	3.4GHz	16MB	80W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1250	6	12	3.3GHz	12MB	80W	DDR4-2666	Yes	UHD P630	Yes
Core i9-10900	10	20	2.8GHz	20MB	65W	DDR4-2933	No	UHD 630	Yes
Core i7-10700	8	16	2.9GHz	16MB	65W	DDR4-2933	No	UHD 630	Yes
Core i5-10600	6	12	3.3GHz	12MB	65W	DDR4-2666	No	UHD 630	Yes
Core i5-10500	6	12	3.1GHz	12MB	65W	DDR4-2666	No	UHD 630	Yes
Core i5-10400	6	12	2.9GHz	12MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10320	4	8	3.8GHz	8MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10300	4	8	3.7GHz	8MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10100	4	8	3.6GHz	6MB	65W	DDR4-2666	No	UHD 630	No

Chipset	Intel W480 Chipset
Memory Sockets	4 DIMM sockets with 2 channels
Memory Types	8GB/16GB/32GB DDR4-2933 UDIMM ECC, or 4GB/8GB/16GB/32GB DDR4-2933 UDIMM non-ECC
Memory Capacity	128GB
Memory Protection	ECC. ECC memory and ECC-enable CPU are needed

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

Processor graphics	Integrated Intel UHD Graphics P630 in Xeon processors, or Intel UHD Graphics 630 in Core processors. Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 video port optional (Video port can be DP, HDMI, or USB-C)

Discrete Graphics Offering

Graphics	Memory	Power	Connector	Max Qty
Quadro P400	2GB GDDR5	30W	3x miniDP	2
Quadro P620	2GB GDDR5	40W	4x miniDP	2
Quadro P1000	4GB GDDR5	50W	4x miniDP	2

Storage Controller

Storage Controller	Type	Interface	Disk Type	RAID
Onboard Intel RST SATA RAID	Std	SATA 6Gb/s	HDD or SSD	0/1
Onboard Intel RST PCIe RAID	Std	PCIe NVMe	M.2 PCIe SSD	0/1

Storage Support

Disk Type	Interface	RPM	Offering	Max Qty
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	1
2.5" SATA HDD	SATA 6Gb/s	7.2K	1TB FIPS	2
2.5" SATA SSD	SATA 6Gb/s	-	512GB/1TB	2
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB	4

Storage Bays

Bay 1	First 3.5" disk bay
Bay 2	First 2.5" SATA bay
Bay 3	9mm Slim ODD bay
Bay 4	Media reader
M.2	4x M.2 SSD (2 onboard. 2 via PCIe to M.2 adapter)

Components	Specification
Media reader	Optional SD 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	Optional Intel Wi-Fi 6 AX201, 2x2, 2.4GHz/5GHz (160MHz channels), WiFi 6, Bluetooth 5
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 models with vPro-enable processor. vPro also requires AX201 if Wi-Fi function is needed
Intel AMT	Intel Active Management Technology 14 on vPro models, Intel Standard Manageability on other models
Base warranty	Most models comes with 3-year limited onsite service with 9x5/NBD. Other models may have 1 or 2-year limited onsite service
HD Audio	Intel HD Audio interface with Realtek ALC623 Codec
Front ports	2x USB-A 3.2 Gen 1. 2x USB-A 3.2 Gen 2. 1x USB-C 3.2 Gen 1. 1x Mic-in. 1x Combo jack
Rear ports	2x USB-A 3.2 Gen 1. 2x USB-A 2.0. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out
Optional rear ports	Supports the following via cable: 1x COM. 1x Parallel. 2x PS/2. 1x video (DP, HDMI, or USB-C). 2x USB 2.0. Supports the following via PCIe adapter: 4x COM*. 1x USB-C 3.2 Gen 2. 2x USB-A 3.2 Gen 1*. 1x Thunderbolt Notes: 4x COM and 2x USB-A 3.2 Gen 1 are special bids only.
Temperature	Operating: 50 °F to 95 °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, EPEAT Silver rating, and ENERGY STAR 8 qualified
Power supply	Supports one of the following: • 310W, 92% PSU, 100V - 240V, 80 PLUS Platinum qualified • 380W, 92% PSU, 100V - 240V, 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 Lenovo workstation PSREF developer

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ThinkStation P340 Tiny Platform Specifications

Components	Specification
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
Dimensions	Height: 179 mm (7.0 in). Width: 37 mm (1.5 in). Depth: 182.9 mm (7.2 in)
Weight	Maximum configuration: 3 lb (1.4kg)

Processor

Processor Number	Cores	Threads	Base Frequency	Cache	TDP	Memory Types	vPro
i9-10900T	10	20	1.9GHz	20MB	35W	DDR4-2933	Yes
i9-10900	10	20	2.8GHz	20MB	65W	DDR4-2933	Yes
i7-10700T	8	16	2.0GHz	16MB	35W	DDR4-2933	Yes
i7-10700	8	16	2.9GHz	16MB	65W	DDR4-2933	Yes
i5-10600T	6	12	2.4GHz	12MB	35W	DDR4-2666	Yes
i5-10600	6	12	3.3GHz	12MB	65W	DDR4-2666	Yes
i5-10500T	6	12	2.3GHz	12MB	35W	DDR4-2666	Yes
i5-10500	6	12	3.1GHz	12MB	65W	DDR4-2666	Yes
i5-10400T	6	12	2.0GHz	12MB	35W	DDR4-2666	No
i5-10400	6	12	2.9GHz	12MB	65W	DDR4-2666	No
i3-10320	4	8	3.8GHz	8MB	65W	DDR4-2666	No
i3-10300T	4	8	3.0GHz	8MB	35W	DDR4-2666	No
i3-10300	4	8	3.7GHz	8MB	65W	DDR4-2666	No
i3-10100T	4	8	3.0GHz	6MB	35W	DDR4-2666	No
i3-10100	4	8	3.6GHz	6MB	65W	DDR4-2666	No

Components	Specification
Chipset	Intel Q470 Chipset
Memory Sockets	2 DIMM sockets
Memory Types	4GB/8GB/16GB/32GB DDR4-2933 SoDIMM non-ECC
Memory Capacity	64GB (2x 32GB)
Memory Protection	None
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 ethernet adapter and Thunderbolt adapter
Processor graphics	Integrated Intel UHD Graphics 630. Works along with discrete graphics to support multi-display

Discrete Graphics Offering

Graphics	Memory	Power	Connector	Max Qty
Quadro P620	2GB GDDR5	40W	4x miniDP	1
Quadro P1000	4GB GDDR5	50W	4x miniDP	1

Components	Specification
Storage Controller	Supports M.2 SSD RAID 0 / 1, for special bids only

Storage Support

Disk Type	Interface	RPM	Offering	Max Qty
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2T	2

Components	Specification
Storage Bays	Two M.2 slots for M.2 SSD
Media reader	None
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 M.2 slot for optional Wi-Fi card, supports one of the following: • Intel Wi-Fi 6 AX201, 2x2, 2.4GHz/5GHz (160MHz channels), WiFi 6, Bluetooth 5 • Intel Wireless-AC 9560, 2x2, 2.4GHz/5GHz (160MHz channels), 802.11ac, Bluetooth 5 • Realtek 8822CE, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 5
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant. Chassis intrusion switch. Kensington slot
Intel vPro	Supports vPro on models with the vPro enable processors vPro also requires Wi-Fi 6 AX201 if WiFi is needed
Systems management	Intel Active Management Technology 14 on vPro models, Intel Standard Manageability on other models
Base warranty	Most models comes with 3-year limited onsite service with 9x5/NBD. Other models may have 1 or 2-year limited onsite service
HD Audio	Intel HD Audio interface with Realtek ALC233 Codec
Optical	Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW.
Front standard ports	1x USB-A 3.2 Gen 2 (charging). 1x USB-C 3.2 Gen 1. 1x Combo jack
Rear standard ports	2x USB-A 3.2 Gen 2. 2x USB-A 3.2 Gen 1 (one supports smart power-on). 1x RJ-45. 1x DP. 1x HDMI. 1x security-lock slot
Optional rear ports	Reserved area for two optional ports. Ports 1 supports one of the following: • 1x USB-C, also supports DP function • 1x COM • 1x VGA • 1x DP • 1x HDMI Port 2 supports 2nd COM. Also supports optional Thunderbolt via PCIe adpater and Wi-Fi antenna slot
Temperature	Operating: 50 °F to 95 °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: 20%~80%, non-condensing Storage (with package): 20%~90%, non-condensing
MIL-SPEC	Certified
Environmental certification	RoHS-compliant. GREENGUARD. EPEAT Silver rating and ENERGY STAR 8 qualified
Power supply	• 170W power adaper, 100V - 240V, 89% PSU • 230W power adaper, 100V - 240V, 89% PSU
ISV certifications	Please visit www.thinkworkstations.com/isv-certifications/

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ThinkStation P340 Tower Platform Specifications

Components	Specification
Form factor	17L Tower
Dimensions	Height: 376 mm (14.8 in). Width: 170 mm (6.7 in). Depth: 315.35 mm (12.4 in)
Weight	Maximum configuration: 20.7 lb (9.4 kg)
Processor Sockets	1x FCLGA1200
Processor Support	Up to one Xeon, Core i9, i7, i5, or i3 processor

Processor

Processor Number	Cores	Threads	Base Frequency	Cache	TDP	Memory Types	ECC	Processor Graphics	vPro
Xeon W-1290P	10	20	3.7GHz	20MB	125W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1290	10	20	3.2GHz	20MB	80W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1270P	8	16	3.8GHz	16MB	125W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1270	8	16	3.4GHz	16MB	80W	DDR4-2933	Yes	UHD P630	Yes
Xeon W-1250P	6	12	4.1GHz	12MB	125W	DDR4-2666	Yes	UHD P630	Yes
Xeon W-1250	6	12	3.3GHz	12MB	80W	DDR4-2666	Yes	UHD P630	Yes
Core i9-10900K	10	20	3.7GHz	20MB	125W	DDR4-2933	No	UHD 630	Yes
Core i9-10900	10	20	2.8GHz	20MB	65W	DDR4-2933	No	UHD 630	Yes
Core i7-10700K	8	16	3.8GHz	16MB	125W	DDR4-2933	No	UHD 630	Yes
Core i7-10700	8	16	2.9GHz	16MB	65W	DDR4-2933	No	UHD 630	Yes
Core i5-10600K	6	12	4.1GHz	12MB	125W	DDR4-2666	No	UHD 630	Yes
Core i5-10600	6	12	3.3GHz	12MB	65W	DDR4-2666	No	UHD 630	Yes
Core i5-10500	6	12	3.1GHz	12MB	65W	DDR4-2666	No	UHD 630	Yes
Core i5-10400	6	12	2.9GHz	12MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10320	4	8	3.8GHz	8MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10300	4	8	3.7GHz	8MB	65W	DDR4-2666	No	UHD 630	No
Core i3-10100	4	8	3.6GHz	6MB	65W	DDR4-2666	No	UHD 630	No

Chipset	Intel W480 Chipset
Memory Sockets	4 DIMM sockets with 2 channels
Memory Types	8GB/16GB/32GB DDR4-2933 UDIMM ECC, or 4GB/8GB/16GB/32GB DDR4-2933 UDIMM non-ECC
Memory Capacity	128GB
Memory Protection	ECC. ECC memory and ECC-enable CPU are needed

Expansion slots

Three PCIe 3.0 slots as following:

Slot 1	PCIe 3.0 x16, full height, full 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, full length, links to PCH

Processor graphics

Integrated Intel UHD Graphics P630 in Xeon processors, or Intel UHD Graphics 630 in Core processors.
Works along with discrete graphics to support multi-display, enables three rear display connectors (2 DP standard, 1 video port optional (Video port can be DP, HDMI, or USB-C)

Discrete Graphics Offering

Graphics	Memory	Power	Connector	Max Qty
Quadro P400	2GB GDDR5	30W	3x miniDP	2
Quadro P620	2GB GDDR5	40W	4x miniDP	2
Quadro P1000	4GB GDDR5	50W	4x miniDP	2
Quadro P2200	5GB GDDR5X	75W	4x DP	2
Quadro RTX 4000	8GB GDDR6	160W	3x DP, 1x VirtualLink	1
Quadro RTX 5000	16GB GDDR6	265W	4x DP, 1x VirtualLink	1

Notes: RTX 4000/RTX 5000/2x P2200 needs 500W PSU.

Storage Controller

Storage Controller	Type	Interface	Disk Type	RAID
Onboard Intel RST SATA RAID	Std	SATA 6Gb/s	HDD or SSD	0/1/10/5
Onboard Intel RST PCIe RAID	Std	PCIe NVMe	M.2 PCIe SSD	0/1

Notes: RAID 5 and 10 are available on 2.5" HDD/SSD.

Components	Specification

Storage Support

Disk Type	Interface	RPM	Offering	Max Qty
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	2
2.5" SATA HDD	SATA 6Gb/s	7.2K	1TB FIPS	4
2.5" SATA SSD	SATA 6Gb/s	-	512GB/1TB	4
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB	4

Storage Bays

Bay 1	First 3.5" disk bay
Bay 2	First 2.5" SATA bay
Bay 3	Secondary 3.5" disk bay
Bay 4	Secondary 2.5" disk bay
Bay 5	9mm Slim ODD bay
Bay 6	Media reader
M.2	4x M.2 SSD (2 onboard. 2 via PCIe to M.2 adapter)

Media reader	Optional SD 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	Optional Intel Wi-Fi 6 AX201, 2x2, 2.4GHz/5GHz (160MHz channels), WiFi 6, Bluetooth 5
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 and selected Core i7 or i5 models. vPro also requires AX201 if Wi-Fi function is needed
Intel AMT	Intel Active Management Technology 14 on vPro models, Intel Standard Manageability on other models
Base warranty	Most models comes with 3-year limited onsite service with 9x5/NBD. Other models may have 1 or 2-year limited onsite service
HD Audio	Intel HD Audio interface with Realtek ALC623 Codec
Front ports	2x USB-A 3.2 Gen 1. 2x USB-A 3.2 Gen 2. 1x USB-C 3.2 Gen 1. 1x Mic-in. 1x Combo jack
Rear ports	2x USB-A 3.2 Gen 1. 2x USB-A 2.0. 1x RJ-45. 1x COM. 2x DP. 1x Audio line-out
Optional rear ports	Supports the following via cable: 1x COM. 1x Parallel. 2x PS/2. 1x video (DP, HDMI, or USB-C). 2x USB 2.0. Supports the following via PCIe adapter: 4x COM*. 1x USB-C 3.2 Gen 2. 2x USB-A 3.2 Gen 1*. 1x Thunderbolt Notes: 4x COM and 2x USB-A 3.2 Gen 1 are special bids only.
Temperature	Operating: 50 °F to 95 °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, EPEAT Silver rating, and ENERGY STAR 8 qualified
Power supply	Supports one of the following: • 300W, 90% PSU, 100V - 240V, 80 PLUS Gold qualified • 500W, 92% PSU, 100V - 240V, 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 Lenovo workstation PSREF developer

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ThinkStation P520 Platform Specifications - I of II

Form factor	33L Tower
Dimensions	165mm/6.5" W x 460mm/18.1" D x 440mm/17.3" H (with feet)
Weight	Maximum configuration: 52.91 lb (24kg)

Processor Support

Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
Xeon W-2295	18	36	3.0GHz	24.75MB	165W	DDR4-2933
Xeon W-2275	14	28	3.3GHz	19.25MB	165W	DDR4-2933
Xeon W-2265	12	24	3.5GHz	19.25MB	165W	DDR4-2933
Xeon W-2255	10	20	3.7GHz	19.25MB	165W	DDR4-2933
Xeon W-2245	8	16	3.9GHz	16.5MB	155W	DDR4-2933
Xeon W-2235	6	12	3.8GHz	8.25MB	130W	DDR4-2933
Xeon W-2225	4	8	4.1GHz	8.25MB	105W	DDR4-2933
Xeon W-2223	4	8	3.6GHz	8.25MB	120W	DDR4-2666
Xeon W-2195	18	36	2.3GHz	24.75MB	140W	DDR4-2666
Xeon W-2175	14	28	2.5GHz	19MB	140W	DDR4-2666
Xeon W-2155	10	20	3.3GHz	13.75MB	140W	DDR4-2666
Xeon W-2145	8	16	3.7GHz	11MB	140W	DDR4-2666
Xeon W-2135	6	12	3.7GHz	8.25MB	140W	DDR4-2666
Xeon W-2133	6	12	3.6GHz	8.25MB	140W	DDR4-2666
Xeon W-2125	4	8	4.0GHz	8.25MB	120W	DDR4-2666
Xeon W-2123	4	8	3.6GHz	8.25MB	120W	DDR4-2666
Xeon W-2104	4	4	3.2GHz	8.25MB	120W	DDR4-2400
Xeon W-2102	4	4	2.9GHz	8.25MB	120W	DDR4-2400

Processor Sockets	1x FCLGA2066
Chipset	Intel C422 Chipset
Memory Sockets	8 DIMM sockets with 4 channels
Memory Types	DDR4-2666 RDIMM or DDR4-2933 RDIMM
Memory Capacity	512GB with 8 x 64GB DDR4-2933 RDIMMs
Memory Protection	ECC

Expansion slots

Slot 1 (CPU)	PCIe 3.0 x8, full height, full length, 25W, open ended
Slot 2 (CPU)	PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 3 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended
Slot 4 (CPU)	PCIe 3.0 x16, full height, full length, 75W, double-width
Slot 5	PCI, full height, full length, 25W
Slot 6 (PCH)	PCIe 3.0 x4, full height, half length, 25W, open ended

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
NVS 810	4GB DDR3	68W	8xmini DP		2
Quadro P400	2GB GDDR5	30W	3xminiDP		2
Quadro P600	2GB GDDR5	45W	4xminiDP		2
Quadro P620	2GB GDDR5	40W	4xminiDP		2
Quadro P1000	4GB GDDR5	50W	4xminiDP		2
Quadro P2000	5GB GDDR5	75W	4xDP		2
Quadro P4000	8GB GDDR5	120W	4xDP		2
Quadro P5000	16GB GDDR5X	180W	DVI-D DL+4xDP	SLI	2
Quadro P6000	24GB GDDR5X	250W	DVI-D DL+4xDP		1
Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		2
Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink	NVLink	2
Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink	NVLink	2
Quadro RTX 8000	48GB GDDR6	295W	4xDP, 1xVirtualLink		1
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVLink	2
Quadro GV100	32GB HBM2	250W	4xDP		1

Storage Controller

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe	Std	SATA 6Gb/s	0/1/10/5	
9440-8i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5	
9460-16i PCIe	Opt	SAS 12Gb/s, SATA 6Gb/s	0/1/10/5/6	4GB DDR4, SuperCap
NVMe Basic	Opt	PCIe NVMe	0/1/10	
NVMe Premium	Opt	PCIe NVMe	0/1/10/5	
NVMe for Intel SSD	Opt	PCIe NVMe	0/1/10/5	

Storage Support

Disk Type	Interface	RPM	Offering	Max Qty
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB/6TB	6
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB/500GB FIPS	6
2.5" SATA SSD	SATA 6Gb/s		256GB/512GB/1TB/2TB	6
M.2 PCIe SSD	PCIe NVMe		256GB/512GB/1TB/2TB	9
PCIe AIC SSD	PCIe NVMe		480GB	2 (1 when quad M.2 adapter used)

Storage Bays

Bay Type	Maximum Drives Qty
M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)
Flex Bay	2 flex bays. Supports the following: • 2x half-height optical drives • 2x 5.25" 9.0mm optical drives • 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD • 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure • 1x flex module for the following options: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA • 2x M.2 SSD with 2x Front Removable Drive Enclosures
Disk bay	Up to 4x 3.5" or 2.5" disks with 4 disk bays (2 bays standard, 2 bays optional)

Max Storage	Supports up to 9x M.2 SSD + 6x 3.5" HDD/6x 2.5" SATA disks/4x 2.5" SAS HDD + 1x PCIe AIC SSD. All HDD: 36TB using 6x 3.5" HDD All SSD: 30.48TB using 6x 2.5" SATA SSD, 9x M.2 SSD, and 1x PCIe AIC SSD
Power supply	Supports one of the following: • One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified • One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified • One fixed 1000W, autosensing, 92%, 80 PLUS Platinum qualified
Media reader	USB 2.0 9-in-1 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 11
Diagnostic	Front panel warning LED. ThinkStation Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diag-nostics for Android and iOS. Optional front 4-digit diagnostic display on flex module
Base warranty	1 or 3-year limited onsite service with 9x5/NBD
HD Audio	Realtek ALC662 codec
Front ports	4x USB 3.1 Gen 1 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)
Rear ports	2x USB 2.0, 4x USB 3.1 Gen 1, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2
Optional ports	Front: • 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out • 1x eSATA on flex module • 1x USB Type-C on flex module, USB 3.1 Gen 1 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 port

ThinkStation P520 Platform Specifications - II of II

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

Note:
1. Depending on many factors, actual data transfer speed mentioned on this page may be lower than theoretical speed.
2. To support the maximum expandability, 900W power supply may be needed.
3. Any questions or advice on ThinkStation PSREF, please contact ThinkStation PSREF developer

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ThinkStation P520c Platform Specifications

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 Support

Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
Xeon W-2245	8	16	3.9GHz	16.5MB	155W	DDR4-2933
Xeon W-2235	6	12	3.8GHz	8.25MB	130W	DDR4-2933
Xeon W-2225	4	8	4.1GHz	8.25MB	105W	DDR4-2933
Xeon W-2223	4	8	3.6GHz	8.25MB	120W	DDR4-2666
Xeon W-2195	18	36	2.3GHz	24.75MB	140W	DDR4-2666
Xeon W-2175	14	28	2.5GHz	19MB	140W	DDR4-2666
Xeon W-2155	10	20	3.3GHz	13.75MB	140W	DDR4-2666
Xeon W-2145	8	16	3.7GHz	11MB	140W	DDR4-2666
Xeon W-2135	6	12	3.7GHz	8.25MB	140W	DDR4-2666
Xeon W-2133	6	12	3.6GHz	8.25MB	140W	DDR4-2666
Xeon W-2125	4	8	4.0GHz	8.25MB	120W	DDR4-2666
Xeon W-2123	4	8	3.6GHz	8.25MB	120W	DDR4-2666
Xeon W-2104	4	4	3.2GHz	8.25MB	120W	DDR4-2400
Xeon W-2102	4	4	2.9GHz	8.25MB	120W	DDR4-2400

Processor Sockets	1x FCLGA2066
Chipset	Intel C422 Chipset
Memory Sockets	4 DIMM sockets with 4 channels
Memory Types	DDR4-2666 RDIMM or DDR4-2933 RDIMM
Memory Capacity	256GB with 4 x 64GB 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
Quadro RTX 5000	16GB GDDR6	265W	4xDP, 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: • 2x half-height optical drives • 2x 5.25" 9.0mm optical drives • 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD • 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure • 1x flex module for the following options: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt, or 4-digit diagnostic display Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA • 2x M.2 SSD with 2x Front Removable Drive Enclosures
Disk bay	Up to 2x 3.5"/2.5" disks with 2 disk bays

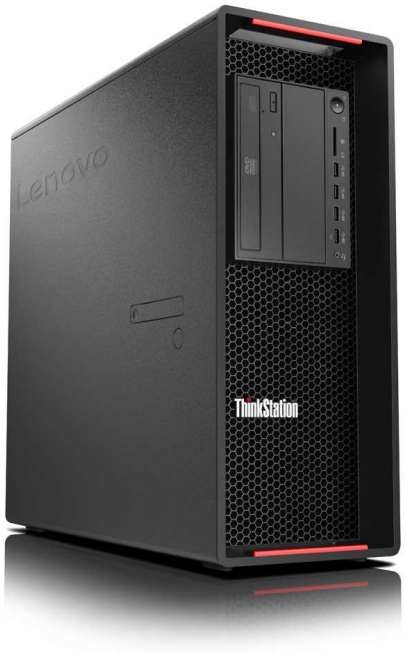
Power supply	One of the following: • One fixed 500W, autosensing, 92%, 80 PLUS Platinum qualified • One fixed 625W, autosensing, 92%, 80 PLUS Platinum qualified
Media reader	USB 2.0 9-in-1 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module
Network interfaces	Integrated one gigabit ethernet (Intel i219LM), supports Wake-on-LAN. Optional PCIe ethernet or wireless adapters are available
WLAN + Bluetooth	Optional Intel Wireless-AC 8265, 2x2, 2.4GHz/5GHz, 802.11ac, Bluetooth 4.2, up to 867Mbps
Security features	Power-on and admin password. Trusted Platform Module, TCG 2.0 compliant, switch to 1.2 via UEFI setting. Optional access panel lock, Kensington lock, and pad lock
Intel vPro	Intel vPro technology supported. vPro requires Wireless-AC 8265 if Wi-Fi is needed
Intel AMT	Intel Active Management Technology 11
Diagnostic	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 3.1 Gen 1, microphone (3.5mm), headphone (3.5mm)
Rear ports	2x USB 2.0, 4x USB 3.1 Gen 1, 1x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2
Optional ports	Supports the following optional ports: Front: • 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out • 1x eSATA on flex module • 1x USB Type-C on flex module, USB 3.1 Gen 1 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 port

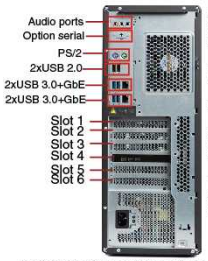
Environmental specification

Temperature - operating	50 °F to 95 °F (10 °C to 35 °C)
Temperature - storage (no package)	14 °F to 140 °F (-10 °C to 60 °C)
Temperature - storage (with package)	-40 °F to 140 °F (-40 °C to 60 °C)
Altitude - operating	(Unpressurized): -50ft-10000ft (-15.2m-3048m)
Humidity - operating	10%~80%, non-condensing
Humidity - storage (with package)	10%~90%, non-condensing

Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 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





Note: All expansion cards are optional

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.

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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 Sockets	2x FCLGA3647
Processor Support	Up to two 165 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum

Processor Offering

Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
Xeon Gold 6246	12	24	3.3GHz	24.75MB	165W	DDR4-2933
Xeon Gold 6244	8	16	3.6GHz	25MB	150W	DDR4-2933
Xeon Gold 6242	16	32	2.8GHz	22MB	150W	DDR4-2933
Xeon Gold 6238T	22	44	1.9GHz	30MB	125W	DDR4-2933
Xeon Gold 6234	8	16	3.3GHz	25MB	130W	DDR4-2933
Xeon Gold 6230	20	40	2.1GHz	28MB	125W	DDR4-2933
Xeon Gold 6226	12	24	2.7GHz	19MB	125W	DDR4-2933
Xeon Gold 5222	4	8	3.8GHz	16.5MB	105W	DDR4-2933
Xeon Gold 5218	16	32	2.3GHz	22MB	125W	DDR4-2666
Xeon Gold 5217	8	16	3.0GHz	11MB	115W	DDR4-2666
Xeon Gold 5215	10	20	2.5GHz	13.75MB	85W	DDR4-2666
Xeon Silver 4216	16	32	2.1GHz	22MB	100W	DDR4-2400
Xeon Silver 4215	8	16	2.5GHz	11MB	85W	DDR4-2400
Xeon Silver 4214	12	24	2.2GHz	17MB	85W	DDR4-2400
Xeon Silver 4210	10	20	2.2GHz	14MB	85W	DDR4-2400
Xeon Silver 4209T	8	16	2.2GHz	11MB	70W	DDR4-2400
Xeon Silver 4208	8	16	2.1GHz	11MB	85W	DDR4-2400
Xeon Bronze 3204	6	6	1.9GHz	8.25MB	85W	DDR4-2133
Xeon Platinum 8160T	24	48	2.1GHz	33MB	150W	DDR4-2666
Xeon Gold 6146	12	24	3.2GHz	24.75MB	165W	DDR4-2666
Xeon Gold 6142	16	32	2.6GHz	22MB	150W	DDR4-2666
Xeon Gold 6136	12	24	3.0GHz	24.75MB	150W	DDR4-2666
Xeon Gold 6134	8	16	3.2GHz	24.75MB	130W	DDR4-2666
Xeon Gold 6128	6	12	3.4GHz	19.25MB	115W	DDR4-2666
Xeon Gold 5122	4	8	3.6GHz	16.5MB	105W	DDR4-2666
Xeon Gold 5120T	14	28	2.2GHz	19.25MB	105W	DDR4-2400
Xeon Gold 5118	12	24	2.3GHz	16.5MB	105W	DDR4-2400
Xeon Gold 5115	10	20	2.4GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4116	12	24	2.1GHz	16.5MB	85W	DDR4-2400
Xeon Silver 4114T	10	20	2.2GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4114	10	20	2.2GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4112	4	8	2.6GHz	8.25MB	85W	DDR4-2400
Xeon Silver 4110	8	16	2.1GHz	11MB	85W	DDR4-2400
Xeon Silver 4109T	8	16	2.0GHz	11MB	70W	DDR4-2400
Xeon Silver 4108	8	16	1.8GHz	11MB	85W	DDR4-2400

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	SLI	2

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		2
Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink	NVlink	2
Quadro RTX 6000	24GB GDDR6	295W	4xDP, 1xVirtualLink	NVlink	2
Quadro RTX 8000	48GB GDDR6	295W	4xDP, 1xVirtualLink	NVlink	2
Quadro GP100	16GB HBM2	235W	1xDVI-D DL, 4xDP	NVlink	2
Quadro GV100	32GB HBM2	250W	4xDP	NVlink	2

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: • 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: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.1 Gen 1 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA • 2x M.2 SSD with 2x Front Removable Drive Enclosures
Disk bay	4 disk bays (2 bays standard, 2 bays optional). Supports one of the following configurations: • 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)

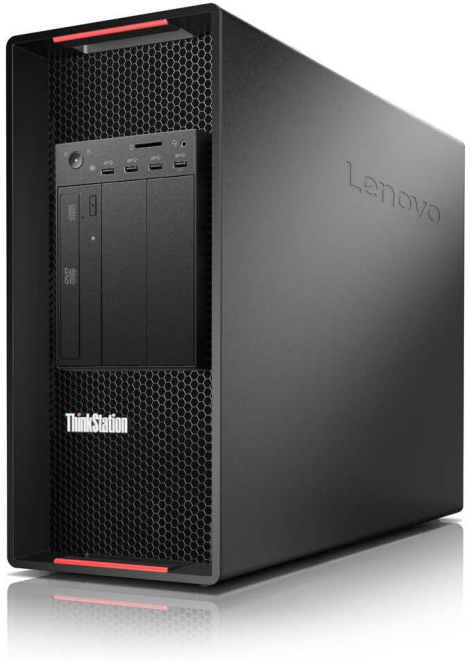
Power supply

Supports one of the following:
- One fixed 690W, autosensing, 92%, 80 PLUS Platinum qualified
- One fixed 900W, autosensing, 92%, 80 PLUS Platinum qualified
- One fixed 1000W, autosensing, 92%, 80 PLUS Platinum qualified

ThinkStation P720 Platform Specifications

Media reader	USB 2.0 9-in-1 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module
Network interfaces	Integrated 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. ThinkSta-tion Diagnostics for Windows. Photo-audio transfer with Lenovo PC Diag-nostics for Android and iOS. Optional front 4-digit diagnostic display on flex module
Base warranty	1 or 3-year limited onsite service with 9x5/NBD
HD Audio	Realtek ALC662 codec
Front ports	4x USB 3.1 Gen 1 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)
Rear ports	2x USB 2.0, 4x USB 3.1 Gen 1, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2
Optional ports	Supports the following optional ports: Front: • 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out • 1x eSATA on flex module • 1x USB Type-C on flex module, USB 3.1 Gen 1 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 port
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - storage (no package): 14 °F to 140 °F (-10 °C to 60 °C) Temperature - storage (with package): -40 °F to 140 °F (-40 °C to 60 °C) Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 10%~80%, non-condensing Humidity - storage (with package): 10%~90%, non-condensing
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 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



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ThinkStation P920 Platform Specifications

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 Sockets	2x FCLGA3647
Processor Support	Up to two 205 W Gen 1 or Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, Gold, or Platinum

Processor Offering

Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
Xeon Platinum 8280	28	56	2.7GHz	39MB	205W	DDR4-2933
Xeon Gold 6254	18	36	3.1GHz	25MB	200W	DDR4-2933
Xeon Gold 6244	8	16	3.6GHz	25MB	150W	DDR4-2933
Xeon Gold 6242	16	32	2.8GHz	22MB	150W	DDR4-2933
Xeon Gold 6238T	22	44	1.9GHz	30MB	125W	DDR4-2933
Xeon Gold 6234	8	16	3.3GHz	25MB	130W	DDR4-2933
Xeon Gold 6230	20	40	2.1GHz	28MB	125W	DDR4-2933
Xeon Gold 6226	12	24	2.7GHz	19MB	125W	DDR4-2933
Xeon Gold 5222	4	8	3.8GHz	16.5MB	105W	DDR4-2933
Xeon Gold 5218	16	32	2.3GHz	22MB	125W	DDR4-2666
Xeon Gold 5217	8	16	3.0GHz	11MB	115W	DDR4-2666
Xeon Gold 5215	10	20	2.5GHz	13.75MB	85W	DDR4-2666
Xeon Silver 4216	16	32	2.1GHz	22MB	100W	DDR4-2400
Xeon Silver 4215	8	16	2.5GHz	11MB	85W	DDR4-2400
Xeon Silver 4214	12	24	2.2GHz	17MB	85W	DDR4-2400
Xeon Silver 4210	10	20	2.2GHz	14MB	85W	DDR4-2400
Xeon Silver 4209T	8	16	2.2GHz	11MB	70W	DDR4-2400
Xeon Silver 4208	8	16	2.1GHz	11MB	85W	DDR4-2400
Xeon Bronze 3204	6	6	1.9GHz	8.25MB	85W	DDR4-2133
Xeon Platinum 8160T	24	48	2.1GHz	33MB	150W	DDR4-2666
Xeon Gold 6154	18	36	3.0GHz	24.75MB	200W	DDR4-2666
Xeon Gold 6142	16	32	2.6GHz	22MB	150W	DDR4-2666
Xeon Gold 6136	12	24	3.0GHz	24.75MB	150W	DDR4-2666
Xeon Gold 6134	8	16	3.2GHz	24.75MB	130W	DDR4-2666
Xeon Gold 6128	6	12	3.4GHz	19.25MB	115W	DDR4-2666
Xeon Gold 5122	4	8	3.6GHz	16.5MB	105W	DDR4-2666
Xeon Gold 5120T	14	28	2.2GHz	19.25MB	105W	DDR4-2400
Xeon Gold 5118	12	24	2.3GHz	16.5MB	105W	DDR4-2400
Xeon Gold 5115	10	20	2.4GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4116	12	24	2.1GHz	16.5MB	85W	DDR4-2400
Xeon Silver 4114T	10	20	2.2GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4114	10	20	2.2GHz	13.75MB	85W	DDR4-2400
Xeon Silver 4112	4	8	2.6GHz	8.25MB	85W	DDR4-2400
Xeon Silver 4110	8	16	2.1GHz	11MB	85W	DDR4-2400
Xeon Silver 4109T	8	16	2.0GHz	11MB	70W	DDR4-2400
Xeon Silver 4108	8	16	1.8GHz	11MB	85W	DDR4-2400

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	Max Qty
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

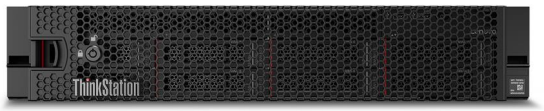
Storage Bays

Bay Type	Maximum Drives Qty
M.2 slot	9x M.2 SSD (2 onboard, 7 via PCIe to M.2 adapter)
Flex Bay	2x 3.5" or 2.5" disks. Supports the following: • 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: Tray 1: 9.0mm optical Tray 2: 15-in-1 USB 3.1 Gen 1 reader or 2x Thunderbolt Port 1 and 2: Front USB 3.1 Gen 1 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: • 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

ThinkStation P920 Platform Specifications

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	USB 2.0 9-in-1 card reader on most models. Optional UHS-II 15-in-1 USB 3.1 Gen 1 reader on flex module
Network interfaces	Integrated 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 3.1 Gen 1 (includes one 11W charging), 1x combo audio/microphone jack (3.5mm)
Rear ports	2x USB 2.0, 4x USB 3.1 Gen 1, 2x RJ-45, 3x analog audio ports (line-in, line-out, mic-in), 2x PS/2
Optional ports	Supports the following optional ports: Front: • 2x Thunderbolt ports (USB Type-C) on flex module, one of two ports supports video-out • 1x eSATA on flex module • 1x USB Type-C on flex module, USB 3.1 Gen 1 Rear: • 1x COM port • 2x USB Type-C ports via PCIe adapter, USB 3.1 gen 2. One 15W, one 5W Internal: • 1x internal USB 3.1 Gen 1 port
Environmental specification	Temperature - operating: 50 °F to 95 °F (10 °C to 35 °C) Temperature - storage (no package): 14 °F to 140 °F (-10 °C to 60 °C) Temperature - storage (with package): -40 °F to 140 °F (-40 °C to 60 °C) Altitude - operating: (Unpressurized): 0-10000ft (0-3048m) Humidity - operating: 10%~80%, non-condensing Humidity - storage (with package): 10%~90%, non-condensing
Environmental Certifications	RoHS-compliant. GREENGUARD. EPEAT Silver rating. ENERGY STAR 6.1 qualified on model 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 (houyf@lenovo.com)



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ThinkStation P920 Rack Platform Specifications

Form factor	2U rack
Dimensions	Height: 87 mm (3.4 in). Width: 445 mm (17.5 in). Depth: 720 mm (28.3 in)
Weight	Maximum configuration: 70.54 lb (32 kg)
Processor Sockets	2x FCLGA3647
Processor Support	Up to two Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, or Gold

Processor Offering

Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types
Xeon Gold 6252	24	48	2.1GHz	35.75MB	150W	DDR4-2933
Xeon Gold 6234	8	16	3.3GHz	25MB	130W	DDR4-2933
Xeon Gold 6230	20	40	2.1GHz	28MB	125W	DDR4-2933
Xeon Gold 5218	16	32	2.3GHz	22MB	125W	DDR4-2666
Xeon Gold 5215	10	20	2.5GHz	13.75MB	85W	DDR4-2666
Xeon Silver 4215	8	16	2.5GHz	11MB	85W	DDR4-2400
Xeon Silver 4214	12	24	2.2GHz	17MB	85W	DDR4-2400
Xeon Silver 4210	10	20	2.2GHz	14MB	85W	DDR4-2400
Xeon Silver 4208	8	16	2.1GHz	11MB	85W	DDR4-2400
Xeon Bronze 3204	6	6	1.9GHz	8.25MB	85W	DDR4-2133

Chipset	Intel C624 Platform Controller Hub
Memory Sockets	24 DIMM sockets with 12 channels. 12 DIMM sockets with 6 channels per processor
Memory Types	DDR4-2933 RDIMM, 8GB/16GB/32GB available
Memory Capacity	768GB with 24x 32GB DDR4-2933 RDIMM
Memory protection	ECC, memory mirroring, and memory sparing

Expansion slots

Slot 1 (riser card 1)	Full height, half length, double-wide
Slot 2	Not present, for double-wide card in slot 1
Slot 3 (riser card 1)	PCIe 3.0 x16 (x8 lanes). 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 x16, full height, half length, requires 2nd CPU
Slot 7 (onboard)	PCIe 3.0 x8 (dedicated to an internal storage controller)

Integrated Graphics	Integrated Matrox G200 in XClarity Controller

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink	Max Qty
Quadro P620	2GB GDDR5	40W	4xminiDP		3
Quadro RTX 4000	8GB GDDR6	160W	3xDP, 1xVirtualLink		3
Quadro RTX 5000	16GB GDDR6	265W	4xDP, 1xVirtualLink		2
T4	16GB GDDR6	70W	-		5
V100	16GB/32GB HBM2	250W	-		2

Storage Controller

Storage Controller	Type	Interface	RAID	Cache
530-8i	Optional	12Gbps SAS	0/1/10/5/50	-

Storage Support

Disk Type	Interface	RPM	Offering	Max Qty
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/4TB/6TB/8TB/10TB/12TB/14TB	8
3.5" SATA SSD	SATA 6Gb/s	7.2K	240GB/480GB/960GB/1.92TB/3.84TB	8
M.2 SATA SSD	SATA 6Gb/s		480GB	2

Storage Bays

Bay Type	Maximum Drives Qty
M.2	2x M.2 SATA SSD non-hot swap
Disk bay	8x 3.5" SATA/SAS hot-swap disk bays

Power supply	Up to two redundant hot-swap 1100W or 1600W 80 PLUS Platinum qualified AC power supplies. 100V - 240V
Media reader	None
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 10GbE ports. Wake-on-LAN and NC-SI are available on Port 0 of LOM
WLAN + Bluetooth	None
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional lockable security bezel
Systems management	XClarity Controller Standard. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials
Diagnostic	Light Path Diagnostics
Base warranty	3-year limited onsite service with 9x5/NBD

Warranty upgrades

5WS7A72784	Foundation Service - 3Yr Next Business Day Response
5WS7A72785	Foundation Service - 4Yr Next Business Day Response
5WS7A72786	Foundation Service - 5Yr Next Business Day Response
5PS7A72787	Essential Service - 3Yr 24x7 4Hr Response + YourDrive YourData
5PS7A72788	Essential Service - 4Yr 24x7 4Hr Response + YourDrive YourData
5PS7A72789	Essential Service - 5Yr 24x7 4Hr Response + YourDrive YourData

HD Audio	None
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
Operating system	Microsoft Windows Server 2016 and 2019. Red Hat Enterprise Linux (RHEL) 7 and 8. SUSE Linux Enterprise Server (SLES) 12 and 15. VMware vSphere (ESXi) 6.5 and 6.7.

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%

Models should meet the following requirements to support A3 and A4:

- *NVMe drives not installed*
- *PCIe flash adapter not installed*
- *Graphic processing unit (GPU) not installed*
- *Must have redundant PSU*
- *Processors with TDP more than or equal to 150-watt not installed*

Environmental Certifications	Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/
ISV certifications	Certifications from NVIDIA Quadro ISV Certified

Options

4XB7A62801	Intel S4510 3.5" 240G SSD OPT
4XB7A62802	Intel S4510 3.5" 480G SSD OPT
4XB7A62803	Intel S4510 3.5" 960G SSD OPT
4XB7A62804	Intel S4510 3.5" 1.92T SSD OPT
4XB7A62805	Intel S4510 3.5" 3.84T SSD OPT
4XB7A62806	4TB7.2K 6GSATA 3.5G4HS HDD OPT
4XB7A62807	6TB7.2K 6GSATA512e 3.5G4HS OPT
4XB7A62808	8TB7.2K 6GSATA512e 3.5G4HS OPT
4XB7A62809	10T7.2K 6GSATA512e 3.5G4HS OPT
4XB7A62810	3.5" 12TB 7.2K SATA 512e HDD
4XB7A62811	14T 3.5" 7.2 SATA HDD OPT
4ZC7A62797	8GB 1RX8 PC4-2933R 8Gb 1.2V
4ZC7A62798	16GB 1RX4 PC4-2933R 8Gb 1.2V
4ZC7A62799	16GB 2RX8 PC4-2933R 8Gb 1.2V
4ZC7A62800	32GB 2RX4 PC4-2933R 8Gb 1.2V

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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 563, Jul 2020

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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)**
None

►**New model(s)**
None

►**Others**
None

Withdrawals in this update

►**Withdrawn product(s)**
None

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ThinkVision E2054 Monitor

SPECIFICATIONS

DISPLAY

Panel Size	19.5"
Panel Type	IPS
Backlight	WLED
Viewable Area (Diagonal)	19.5"
Screen Dimensions (W x H) (mm)	418.61 (H) x 262.35 (V)
Resolution	1440 x 900
Aspect Ratio	16:10
Viewing Angle (H/V at CR 10:1)	178°/178°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (W x H) (mm)	0.0969 x 0.2915
Dot/Pixel Per Inch (DP/PPI)	87.3
Color Gamut (CIE 1931)	72%
Number of Colors	16.7 Million
Response Time	
Extreme Mode	<5 ms
Normal Mode	7 ms
Off-Mode	14 ms
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° ~ 22°
Swivel Angle (Left / Right)	No
Lift (mm)	No
Pivot	No
VESA Mount (mm)	100 x 100
Kensington Lock Slot	Yes
Cable Management	No
Ambient Light Sensor	No
Control Buttons	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	17.9 / 0.7"
Top (mm / inches)	18 / 0.71"
Bottom (mm / inches)	26 / 1.02"

SIGNAL INPUT

Video Input Signals	VGA
Video Cables Supplied	VGA
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 83 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1440 x 900
Maximum Pixel Clock Speed / Bandwidth	VGA : 205 MHz
Default Color Temperature	7200K
Preset Display Modes	18
User-defined Display Modes	10
OSD Buttons	5
OSD Languages	8

POWER CONSUMPTION

Power Consumption	
Typical	16 W
Maximum	20 W
Sleep-Mode	0.5 W
Off-Mode	0.5 W
Heat Dissipation	
Typical	54.56 Btu/h
Maximum	68.2 Btu/h
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC, 0.75 A - 0.3 A
Voltage Dynamic Frequency	47 Hz – 63 Hz

ENVIRONMENTAL

Temperature	
Operating	0°C – 45°C (non-condensing)
Non-operating	-20°C – 60°C (non-condensing)
Humidity	
Operating	8% – 80% (non-condensing)
Non-operating	5% – 95% (non-condensing)
Altitude	
Operating	5,000 m
Non-operating	40,000 ft

DIMENSIONS (W x D x H)

Size Packed	
(mm)	513 x 388 x 124
(inches)	20.2" x 15.27" x 4.88"
Size Unpacked with Stand	
(mm)	456 x 188.3 x 372
(inches)	17.95" x 7.41" x 14.65"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	456 x 44.5 x 308
(inches)	17.95" x 1.75" x 12.13"
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	90 / 3.54"
Highest Pixel at Top of Screen	354 / 13.94"
Stand Base Footprint Area (mm / inches)	162.3 x 200.8 / 6.39" x 7.91"
Weight	
Packed	Starting at 8.7 lbs (3.96 kg)
Unpacked	Starting at 6.2 lbs (2.8 kg)
Monitor Head	Starting at 5.4 lbs (2.45 kg)

COMPLIANCE

Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	85%
EPEAT	Silver
ENERGY STAR Rating	8.0
TCO	6.0
TCO Edge	No
TUV	No
RoHS (EU 2002/95/EC)	Yes
China Energy Efficiency Standard	Tier 1
Windows Certification	Windows 7, Windows 8, Windows 8.1, Windows 10

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	World Wide
ThinkVision Logo	Yes
Global Model	No

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ThinkVision E22-20

DISPLAY

Panel Size
21.5-inch

Screen Dimensions
476.06 mm x 267.79 mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2480 x 0.2480 mm

Dot/Pixel Per Inch (DPI/PPI)
102

Viewing angle (H x V @ CR 10:1)
178°/ 178°

Response Time
14ms

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Color Depth
8-bit

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

MULTI-MEDIA

Integrated Speakers
Yes (2 x 1.5W)

POWER

Power Consumption (typ./max)
18W / 24W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch Off-Mode
< 0.5W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
11.24W / 35.64kWh

Power Supply
Internal

Voltage Required
AC 90 to 264 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

Lift (max range)
155 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Bezel Color
Raven Black

Bezel Width (side)
15 mm

Bezel Width (top/bottom)
17.25 / 21.15 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
131.0 x 405.0 x 610.0 mm
5.16 x 15.94 x 24.02 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
178.6 x 301.6 x 508.0 mm
7.03 x 11.87 x 20.00 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
178.6 x 443.4 x 508.0 mm
7.03 x 17.46 x 20.00 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
43.4 x 307.9 x 508.0 mm
1.71 x 12.12 x 20.00 inches

Weight Packed (kg/lbs.)
5.40 kg / 11.90 lbs.

Weight Unpacked (kg/lbs.)
3.90 kg / 8.60 lbs.

Weight (Monitor Head Only) (kg/lbs.)
2.20 kg / 4.85 lbs.

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Certification
Yes

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (2011/65/EU)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

Depends on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments.

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ThinkVision S22e-19

DISPLAY

Panel Size
21.5-inch

Screen Dimensions (W x H) (mm)
476.06 mm × 267.79 mm

Panel Type
3-side NearEdgelss, VA

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080 mm

Pixel Pitch (H x V) (mm)
0.2480 × 0.2480 mm

Dot/Pixel Per Inch (DPI/PPI)
102

Viewing Angle (H x V)
178°/ 178°

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

Contrast Ratio (typical)
3000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut NTSC (CIE 1931)
72% NTSC

Color Support (typical)
16.7M

Refresh rate
60 Hz

Brightness (typical)
250 cd/m²

CONNECTIVITY

Video Input Signals
1 x VGA
1 x HDMI 1.4

Audio Out
Yes (3.5 mm)

MULTI-MEDIA

Optional Soundbar Support
Yes

SPECIAL FEATURES

Anti-Glare
Yes

Thin Client Support (Tiny)
Yes (by VESA mount PN:4XF0N03161)

Sync Technology
FreeSync™

POWER

Power Consumption (Typ./Max)
18W / 22W

MECHANICAL

Tilt Angle (front / back)
-5°/ 22°

VESA Mount
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top / bottom)
2.0 mm / 21.2 mm

DIMENSIONS

Size Packed (D x H x W) (mm/inch)
120 x 350 x 582 mm / 4.7 x 13.7 x 22.9 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)
200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest Position)
200.0 x 373.8 x 489.3 mm / 7.87 x 14.71 x 19.26 inch

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
41.5 x 296.8 x 489.3 mm / 1.63 x 11.68 x 19.26 inch

Weight Packed (kg/lbs.)
4.07kg / 8.97 lbs.

Weight Unpacked (kg/lbs.)
2.75kg / 6.06 lbs.

Weight (Monitor Head Only) (kg/lbs.)
2.46kg / 5.42 lbs.

WHAT'S IN THE BOX

Monitor with stand
1 x HDMI Cable
1 x Power Cable
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

TCO
TCO 7.0/TCO Edge 2.0

EPEAT
Silver

ULE
Gold

RoHS
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

Ambient Operating Temperature
0°C to 40°C

Low Blue Light
Yes

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ThinkVision T2054p Monitor

SPECIFICATIONS

DISPLAY

Panel Size	19.5"
Panel Type	IPS
Backlit	WLED
Viewable Area (Diagonal)	19.5"
Screen Dimensions (W x H) (mm)	262.35 x 418.61
Resolution	1440 x 900
Aspect Ratio	16:10
Viewing Angle (H/V at CR 10:1)	178° / 178°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Pixel Pitch (W x H) (mm)	0.0969 x 0.2915
Dot/Pixel Per Inch (DP / PPI)	87.3
Color Gamut (CIE 1931)	72%
Number of Colors	16.7 M
Response Time	7 ms
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° ~ 22°
Swivel Angle (Left / Right)	-45° – 45°
Lift (mm)	110
Pivot	No
VESA Mount (mm)	100 x 100
Kensington Lock Slot	Yes
Cable Management	Yes
Ambient Light Sensor	No
Control Buttons	Yes
Bezel Color	Raven Black
Bezel Width (Side) (mm / inches)	17 / 0.67"
Bezel Width (Top / Bottom) (mm / inches)	17 / 0.67"

SIGNAL INPUT

Video Input Signals	VGA, HDMI, DisplayPort
Video Cables Supplied	VGA
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 81 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1440 x 900
Maximum Pixel Clock Speed / Bandwidth	VGA : 150 MHz HDMI : 150 MHz DisplayPort: 150 MHz
Default Color Temperature	7200K
Preset Display Modes	22
User-defined Display Modes	16
OSD Buttons	5
OSD Languages	8

POWER CONSUMPTION

Power Consumption	
Typical	14.5 W
Max. without USB Hub	21 W
Max. with USB Hub	N/A
Sleep-Mode	0.3 W
Off-Mode	0.3 W
Heat Dissipation	
Typical	49.45 Btu/h
Max.	71.61 Btu/h
Power Supply	Internal
Power Voltage	90 – 264 VAC, 1.5 A
Voltage Dynamic Frequency	47 – 63 Hz

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	6.0
TCO Edge	2.0
TUV	Yes
GREENGUARD	No
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7, Windows 8, Windows 8.1, Windows 10
China Energy Efficiency Standard	Tier 1

DIMENSIONS (W X D X H)

Size Packed	
(mm)	509 x 176 x 368
(inches)	20.04" x 6.93" x 14.49"
Size Unpacked with Stand	
(mm)	454.2 x 242.6 x 345.9 ~ 455.9
(inches)	17.88" x 9.55" x 13.62" ~ 17.95"
Size Unpacked without Stand (Head Only)	
(mm)	454.2 x 53 x 297.9
(inches)	17.88" x 2.09" x 11.73"
Distance from Table to Panel	**(mm / inches)**
Lowest Pixel at Bottom of Screen	65.8 / 2.59"
Highest Pixel at Top of Screen	328.2 / 12.92"
Stand Base Footprint Area (mm / inches)	Diameter 240 / 9.45"
Weight	
Packed	Starting at 10.8 lbs (4.9 kg)
Unpacked	Starting at 8.15 lbs (3.7 kg)
Monitor Head	Starting at 4.85 lbs (2.2 kg)

ENVIRONMENTAL

Temperature	
Operating	0 °C – 45 °C
Non-operating	-20 °C – 60 °C (non-condensing)
Humidity	
Operating	10% – 80%
Non-operating	5% – 95% (non-condensing)
Altitude	
Operating	8,000 ft
Non-operating	40,000 ft
Arsenic-free Glass	Yes
PVC Free	Yes
Mercury Free	Yes
PCC % of Plastic Resins	85%
Low Halogen	No

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	World Wide
ThinkVision Logo	Yes
Global Model	Yes

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ThinkVision T2224d MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	21.5"
Panel Type	IPS
Backlight	WLED
Screen Dimensions (W x H) (mm)	476.064 (H) x 267.786 (V)
Resolution	1920 x 1080
Aspect Ratio	16:9 (Wide)
Viewing Angle (H/V at CR 10:1)	178°/178°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3000000:1
Pixel Pitch (mm)	0.248
Dot/Pixel Per Inch (DP/PPI)	102
Color Gamut (CIE 1931) NTSC	72%
Number of Colors	16.7 Million
Response Time	4 ms (extreme mode)
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° / 22°
Swivel Angle (Left / Right)	No
Lift Range	No
Pivot	No
VESA Mount (mm)	100 x 100
Kensington Lock Slot	Yes
Cable Management	Yes
Ambient Light Sensor	No
Control Buttons	Yes
Bezel Color	Raven Black
Bezel Width	
Bottom (mm / inches)	25.6 / 1.01"
Top (mm / inches)	17.6 / 0.69"
Sides (mm / inches)	17.6 / 0.69"

SIGNAL INPUT

Video Input Signals	VGA + DisplayPort
Video Cables Supplied	VGA + DisplayPort
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No

POWER CONSUMPTION

Typical	20 W
Maximum	25 W
Sleep-Mode	<0.5 W
Switch-Off Mode	<0.5 W
Power Supply	Internal
Power Voltage	90 VAC - 264 VAC
Voltage Dynamic Frequency	47 Hz - 63 Hz

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz ~ 83 kHz
Vertical Frequency	50 Hz ~ 75 Hz
Native Resolution	1920 x 1080
Maximum Pixel Clock Speed Bandwidth	
VGA	205 MHz
DisplayPort	165 MHz
Default Color Temperature	7200K
Plug 'n' Play	Yes
Preset Display Modes	22
User-defined Display Modes	22
OSD Buttons	5
OSD Languages	8
Lockable Controls	No

DIMENSIONS (W x D x H)

Size Unpacked with Stand	
(mm)	512.9 x 204.9 x 381.4
(inches)	20.19" x 8.07" x 15.01"
Size Unpacked without Stand (Head Only)	
(mm)	512.9 x 51 x 312.6
(inches)	20.19" x 2.01" x 12.31"
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	94.4 / 3.72"
Highest Pixel at Top of Screen	363.9 / 14.33"
Stand Base Footprint Area (mm / inches)	180 x 180 / 7.09" x 7.09"
Weight	
Packed	Starting at 9.19 lbs (4.17 kg)
Unpacked	Starting at 6.48 lbs (2.94 kg)
Monitor Head Only	Starting at 5.93 lbs (2.69 kg)

ENVIRONMENTAL

Temperature	
Operating	0°C - 45°C
Non-operating	-20°C - 60°C
Humidity	
Operating	10% - 80%
Non-operating	5% - 95%
Altitude	
Operating	5000 m
Non-operating	0 ft - 40,000 ft
Arsenic-free Glass	Yes
PVC-free	Yes
Mercury-free	Yes
PCC % of Plastic Resins	>85%
Low Halogen	No

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
TCO	Display 7.0 / Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7, Windows 10
Image Quality Capability	ISO 9241-307
China Energy Efficiency Standard	Tier 1

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	World Wide
Global Model	Yes

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SPECIFICATIONS

DISPLAY

Panel Size	22" Wide
Panel Type	TN
Backlight	WLED
Viewable Area (Diagonal)	22" (558.8 mm)
Screen Dimensions (W x H)	473.76 mm x 296.1 mm
Resolution	1680 x 1050
Aspect Ratio	16:10
Viewing Angle (H/V at CR 10:1)	170°/160°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.282 (H) x 0.282 (W)
Dot/Pixel Per Inch (DP/PPI)	90
Color Gamut (CIE 1931)	72%
Number of Colors	16.7 M
Response Time	5 ms (On/Off)
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° to 30°
Swivel Angle (left/right)	NA
Lift	110 mm
Pivot	NA
VESA® Mount	100 x 100 mm
Kensington® Lock Slot	Yes
Cable Management	Yes
Ambient Light sensor	No
Bezel Color	Raven Black
Bezel Width (Side)	17 mm
Bezel Width (Top / Bottom)	17 mm

SIGNAL INPUT

Video Input Signals	VGA, DVI
Video Cables Supplied	VGA, DVI
Video Cable Length	1.8 m
USB Hub	None
USB Cable Supplied	None

POWER CONSUMPTION

Power	
Typical	16 W
Max.	22 W
Sleep Mode	0.5 W
Off Mode	0.5 W
Heat Dissipation	
Typical	54.56 Btu/h
Max.	75.02 Btu/h
Power Supply	Internal
Power Voltage	90–264 VAC, 0.75–0.3 A
Voltage Dynamic Frequency	47–63 Hz

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz to 83 kHz
Vertical Frequency	50 kHz to 75 Hz
Native Resolution	1680 x 1050
Maximum Pixel Clock Speed / Bandwidth	146.25 MHz
Default Color Temperature	7200 K
Preset Display Modes	28
User-defined Display Modes	20
OSD Buttons	5
OSD Languages	8

DIMENSIONS (W x D x H)

Size Packed	22.44" x 7.52" x 16.57" (570 mm x 191 mm x 421 mm)
Size Unpacked with stand	20.05" x 9.61" x 14.97" (509.3 mm x 244.2 mm x 380.2 mm)
Size Unpacked without stand (Head Only)	20.05" x 1.73" x 13.06" (509.3 mm x 44 mm x 331.7 mm)
Min. Distance from Table to Panel (lowest pixel at bottom of screen)	2.58" (65.5 mm)
Max. Distance from Table to Panel (highest pixel at top of screen)	14.30" (363.2 mm)
Stand Base Footprint Area	8.31" (211 mm) (diameter)
Weight Packed	6.98 kg (15.38 lbs)
Weight Unpacked	4.71 kg (10.38 lbs)
Weight (Monitor Head Only)	3.09 kg (6.81 lbs)

COMPLIANCE

EPEAT®	GOLD
ENERGY STAR Rating	6.0
ULE	Gold
TCO®	Display 6.0
TCO® Edge	2.0
TUV	Yes
GREENGUARD®	No
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7, Windows 8.0, Windows 8.1
China Energy Efficiency Standard	Tier 1

ENVIRONMENTAL

Temperature – Operating	0 °C to 45 °C
Temperature – Non-operating	-20 °C to 60 °C (non-condensing)
Humidity – Operating	10% to 80%
Humidity – Non-operating	5% to 95% (non-condensing)
Altitude – Operating	5,000 m
Altitude – Non-operating	40,000 ft
Arsenic-free Glass	Yes
PVC free	Yes
Mercury free	Yes
PCC % of plastic resins	85%
Low Halogen	No

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	EMEA, ASEAN, Japan

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ThinkVision T22i-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	21.5" Wide
Panel Type	IPS
Backlight	WLED
Resolution (H x V)	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Borderless Screen	Yes
Screen Dimensions (W x H)	
(mm)	476.064 x 267.786
(inches)	18.74" x 10.54"
Maximum Brightness (Typical)	250 cd/m^2
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.248 x 0.248
Color Gamut NTSC (CIE 1931)	72%
Color Support (Typical)	16.7 Million
Response Time	4/6/14 ms

DIMENSIONS (W x D x H)

Size Packed	
(mm)	577 x 378 x 191
(inches)	22.7" x 14.9" x 7.5"
Size Unpacked with Stand	
(mm)	489.7 x 251.9 x 357.6
(inches)	19.28" x 9.92" x 14.08"
Size Monitor Head Only	
(mm)	489.7 x 43.5 x 297
(inches)	19.28" x 1.71" x 11.69"
Stand Base Footprint Area	
(mm)	240 x 240
(inches)	9.45" x 9.45"
Weight	
Packed	Starting at 16.36 lbs (7.42 kg)
Unpacked	Starting at 10.85 lbs (4.92 kg)
Monitor Head Only	Starting at 6.94 lbs (3.15 kg)

CONNECTIVITY

Video Input Signals	VGA + HDMI 1.4 + DisplayPort 1.2
Video Cables Supplied (Length)	1.8 m
Audio	Audio-Out
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

POWER CONSUMPTION

Typical	20 W
Maximum	55 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm / inches)	110 / 4.33"
Pivot	-90° / 90°
Cable Management	Yes
Kensington Lock	Yes
VESA Mounting	Yes (100 mm)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	21.4 / 0.84"
Sides (mm / inches)	2 / 0.08"

COMPLIANCE

Arsenic-Free Glass	Yes
ULE	Gold
PVC-Free	Yes; Without Cable
Mercury-Free	Yes
EPEAT	Silver
ENERGY STAR Rating	8.0
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

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ThinkVision T22i-20

DISPLAY

Panel Size
21.5-inch

Screen Dimensions
476.06 mm x 267.79 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2479 x 0.2479 mm

Dot/Pixel Per Inch (DPI/PPI)
102

Viewing Angle (H x V @ CR 10:1)
178°/ 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m^2

Brightness (peak)
250 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB 3.2 Gen1

USB Downstream
4 x USB 3.2 Gen1 (1 x BC 1.2)

MULTI-MEDIA

Optional Soundbar Support
Yes (PN: 0A36190)

POWER

Power Consumption (typ./max.)
12W / 43W

Power Consumption Sleep/Off Mode
<0.3W

Power Consumption Switch Off-Mode
<0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
10.4W / 32.97kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Tiny Bracket Support
Yes (sold separately)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
1.8 mm

Bezel Width (top/bottom)
1.8 / 22 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
390.0 x 187.0 x 577.0 mm
15.35 x 7.36 x 22.72 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205.0 x 396.0 x 489.3 mm
8.07 x 15.59 x 19.26 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205.0 x 546.0 x 489.3 mm
8.07 x 21.50 x 19.26 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
48.5 x 297.4 x 489.3 mm
1.91 x 11.71 x 19.26 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
121.6 mm

Max. Distance from Table to Panel (highest pixel at bottom of screen, mm)
539.4 mm

Weight Packed (kg/lbs.)
7.20 kg / 15.87 lbs.

Weight Unpacked (kg/lbs.)
5.47 kg / 12.06 lbs.

Weight (monitor head only) (kg/lbs.)
3.01 kg / 6.66 lbs.

Full Container Load (40' STD / 20' STD)
1188 / 550 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-A to B cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Yes

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision T22v-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	21.5"
Panel Type	In-Plane Switching
Backlight	WLED
Resolution	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Screen Dimensions (W x H) (mm)	476.06 x 267.79
Maximum Brightness (Typical)	250 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (W x H) (mm)	0.25 x 0.25
Dot/Pixel Per Inch (DP/PPI)	102
Color Gamut (CIE 1931)	72% sRGB
Response Time (Extreme/Typical/Off)	4/6/14 ms (G-to-G)

POWER CONSUMPTION

Typical	18 W
Maximum	43 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
Voltage Dynamic Frequency	47 Hz – 63 Hz

SIGNAL INPUT

Video Input Signals	HDMI 1.4 + DisplayPort 1.2 + VGA
Video Cables Supplied	HDMI (ROW) + DisplayPort + VGA + USB 3.0[1]
Video Cable Length	1.8 m
USB Hub	Yes
USB Cable Supplied	Yes
Audio-Out	Yes (3.5 mm)

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 81 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1920 x 1080
Maximum Pixel Clock Speed/ Bandwidth	VGA : 205 MHz HDMI : 165 MHz DisplayPort : 165 MHz
Default Color Temperature	6500K
Preset/User Modes	24/20
OSD Buttons	5+2 Buttons
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	Yes (110)
Pivot	+/-90°
VESA Mount (mm)	Yes (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)	21.4 / 0.84"
Sides (mm / inches)	2 / 0.08"

ENVIRONMENTAL

Temperature	
Operating	0°C – 40°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	10% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	0 m – 8000 m
Non-Operating	0 ft – 40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

DIMENSIONS (W x D x H)

Size Packed	
(mm)	554 x 365 x 187
(inches)	21.81" x 14.37" x 7.36"
Size Unpacked with Stand	
Lowest Position	
(mm)	489.7 x 251.9 x 375.8
(inches)	19.28" x 9.92" x 14.79"
Highest Position	
(mm)	489.7 x 251.9 x 485.8
(inches)	19.28" x 9.92" x 19.13"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	489.7 x 43.5 x 315.1
(inches)	19.28" x 1.71" x 12.41"
Distance from Table to Panel	
Lowest Pixel at Bottom of Screen (mm / inches)	82.1 / 3.23"
Highest Pixel at Top of Screen (mm / inches)	192.1 / 7.56"
Stand Base Footprint Area (mm / inches)	232 x 203.6 / 9.13" x 8.02"
Weight	
Packed	Starting at 14.46 lbs (6.56 kg)
Unpacked	Starting at 10.16 lbs (4.61 kg)
Monitor Head Only	Starting at 6.48 lbs (2.94 kg)

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	TCO Display 7.0 / TCO Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
China Energy Efficiency Standard	Grade 2
TÜV Eye Comfort	Yes

WARRANTY AND AVAILABILITY

Warranty	
ROW	3 Years
PRC	18 Months
Geography Availability	WW

[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 T22v-20

DISPLAY

Panel Size
21.5-inch

Screen Dimensions
476.06 mm x 267.79 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2479 x 0.2479 mm

Dot/Pixel Per Inch (DPI/PPI)
102

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m^2

Brightness (peak)
250 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Colour Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

Audio Signal
1 x Audio Combo
(3.5 mm; in/out)

USB Hub
Yes

USB Upstream
1 x USB 3.2 Gen1

USB Downstream
2 x USB 3.2 Gen1 (1 x BC 1.2)

MULTI-MEDIA

Integrated Webcam
Yes

Integrated Microphone
Yes

Integrated Speakers
Yes (2 x 3W)

POWER

Power Consumption (typ./max.)
13W / 43W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
10.75W / 33.81kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max. range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Tiny Bracket Support
Yes (sold separately)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
1.8 mm

Bezel Width (top/bottom)
1.8 / 22.0 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
390.0 x 187.0 x 577.0 mm
15.35 x 7.36 x 22.72 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205.0 x 413.0 x 489.3 mm
8.07 x 16.26 x 19.26 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205.0 x 563.0 x 489.3 mm
8.07 x 22.17 x 19.26 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
48.3 x 314.4 x 489.3 mm
1.90 x 12.38 x 19.26 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
121.7 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
539.4 mm

Weight Packed (kg/lbs.)
7.22 kg/15.92 lbs.

Weight Unpacked (kg/lbs.)
5.49 kg/12.10 lbs.

Weight (monitor head only) (kg/lbs.)
3.03 kg/6.68 lbs.

Full Container Load (40' STD/20' STD)
1188/550 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-A to Type-B cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Yes

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision T23d-10

DISPLAY

Panel Size
22.5 inch

Screen Dimensions (H x V) (mm)
496.2 x 313.9

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:10

Resolution
1920 x 1200

Pixel Pitch (H x V) (mm)
0.25 x 0.25

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

Video Cable Length
1.8 m

MULTI-MEDIA

Optional Soundbar Support
Yes

DIMENSIONS

Size Packed (D x H x W) (mm/inch)
655 x 422 x 160 mm / 25.78 x 16.61 x 6.30 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)
251.9 x 381.9 x 501.2 mm / 9.9 x 15.04 x 19.73 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest Position)
251.9 x 491.9 x 501.2 mm / 9.9 x 19.37 x 19.73 inch

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
43.4 x 326.5 x 501.2 mm / 1.71 x 13.54 x 19.73 inch

Weight Packed (kg/lbs.)
6.84 kg / 15.05 lbs.

Weight Unpacked (kg/lbs.)
4.85 kg / 10.67 lbs.

Weight (Monitor Head Only) (kg/lbs.)
2.87 kg / 6.31 lbs.

SPECIAL FEATURES

Anti-Glare
Yes

Thin Client Support (Tiny)
Yes (by Tiny Clamp Bracket Kit+VESA mount PN:4XF0N82412+PN:4XF0N03161)

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)
2.3 mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable
1 x DP-DP cable
1 x VGA cable
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

TCO
TCO 7.0/TCO Edge 2.0

EPEAT
Silver

ULE
Gold

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

Ambient Operating Temperature
0°C to 50°C

Eye Comfort Certification
Yes

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ThinkVision T23i-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23 Wide
Panel Type	IPS
Backlight	WLED
Resolution (H x V)	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Borderless Screen	Yes
Screen Dimensions (W x H)	
(mm)	517.2 x 302.8
(inches)	20.36" x 11.92"
Maximum Brightness (Typical)	250 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.265 x 0.265
Color Gamut NTSC (CIE 1931)	72%
Color Support (Typical)	16.7 Million
Response Time	4/6/14 ms

DIMENSIONS (W x D x H)

Size Packed	
(mm)	590 x 187 x 422
(inches)	23.23" x 7.36" x 16.61"
Size Unpacked with Stand	
(mm)	522.2 x 264.2 x 337.7
(inches)	20.56" x 10.4" x 13.3"
Size Monitor Head Only	
(mm)	522.2 x 42.7 x 317.6
(inches)	20.56" x 1.68" x 12.5"
Stand Base Footprint Area	
(mm)	218.7 x 218.7
(inches)	8.61" x 8.61"
Weight	
Packed	Starting at 16.36 lbs (7.42 kg)
Unpacked	Starting at 10.85 lbs (4.92 kg)
Monitor Head Only	Starting at 6.94 lbs (3.15 kg)

CONNECTIVITY

Video Input Signals	VGA + HDMI 1.4 + DisplayPort 1.2
Video Cables Supplied (Length)	1.8 m
Audio	Audio-Out
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

POWER CONSUMPTION

Typical	16 W
Maximum	45 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm / inches)	110 / 4.33"
Pivot	-90° / 90°
Cable Management	Yes
Kensington Lock	Yes
VESA Mounting	Yes (100 mm)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	23.7 / 0.93"
Sides (mm / inches)	2 / 0.08"

COMPLIANCE

Arsenic-Free Glass	Yes
PVC-Free	Yes; Without Cable
Mercury-Free	Yes
EPEAT	Silver
ENERGY STAR Rating	8.0
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

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ThinkVision T23i-20

DISPLAY

Panel Size
23-inch

Screen Dimensions
509.19 mm × 286.42 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2652 × 0.2652 mm

Dot/Pixel Per Inch (DPI/PPI)
95.78

Viewing Angle (H x V @ CR 10:1)
178°/ 178°

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

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
75% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB 3.2 Gen 1
Type-B

USB Downstream
4 x USB 3.2 Gen 1
(1 x BC1.2)

POWER

Power Consumption (typ./max.)
14.5W / 52W

Power Consumption Sleep/Off Mode
< 0.5 W

Power Consumption Switch-off Mode
< 0.3 W

Energystar Power Consumption (P_{on}/E_{TEC})
10.52W / 33.73kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max. range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Tiny Bracket Support
Yes (sold separately)

Nano Bracket Support
Yes (sold separately)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 22.0 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
175 x 387 x 599 mm
6.89 x 15.24 x 23.58 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
200 x 404.34 x 521.8 mm
7.87 x 15.92 x 20.54 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
200 x 554.34 x 521.8 mm
7.87 x 21.82 x 20.54 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
44.82 x 316.31 x 521.8 mm
1.76 x 12.45 x 20.54 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
111.62 mm

Max. Distance from Table to Panel (highest pixel at bottom of screen, mm)
398.04 mm

Weight Packed (kg/lbs.)
7.5 kg / 16.53 lbs.

Weight Unpacked (kg/lbs.)
5.59 kg / 12.32 lbs.

Weight (monitor head only) (kg/lbs.)
3.32 kg / 7.32 lbs.

Full Container Load (40' STD / 20' STD)
1260 / 600 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision E24-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8"
Panel Type	In-Panel Switching
Backlight	WLED
Screen Dimensions (H x V)	527.04 x 296.46
Resolution	1920 x 1080
Anti-Glare	Yes
Aspect Ratio	16:9
Viewing Angle (H/V at CR 10:1)	178°/178°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (H x V) (mm)	0.2745 x 0.2745
Dot/Pixel Per Inch (DP/PPI)	92.5 PPI
Color Gamut NTSC (CIE 1931)	72% sRGB
Response Time (Extreme/Default/Off)	4/6/14 ms (G to G)

POWER CONSUMPTION

Typical	18W
Maximum	23W
Sleep-Mode	<0.3W
Switch Off-Mode	<0.3W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
Voltage Dynamic Frequency	47 Hz – 63 Hz

SIGNAL INPUT

Video Input Signals	VGA + DisplayPort 1.2
Video Cables Supplied	Analog Cable DisplayPort to DisplayPort Cable (for RoW)
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No
Audio-Out	No

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 81 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution (H x V)	1920 x 1080
Maximum Pixel Clock Speed/ Bandwidth	
VGA	205 MHz
DisplayPort	165 MHz
Default Color Temperature	6500 K
Preset/User Modes	24/20
OSD Buttons	5 Buttons
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
China Energy Efficiency Standard	Tier 2

ENVIRONMENTAL

Temperature	
Operating	0°C – 40°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	10% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	5,000 m
Non-Operating	0 ft – 40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes (without cable)
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

DIMENSIONS (W x D x H)

Size Packed	
(mm)	617 x 399 x 140
(inches)	24.3" x 15.7" x 5.51"
Size Unpacked with Stand	
(mm)	554 x 204.9 x 403.8
(inches)	21.8" x 8.07" x 15.9"
Size Unpacked without Stand	
(mm)	336.7 x 554 x 49.2
(inches)	13.3" x 21.8" x 1.9"
Distance from Table to Panel	
Lowest Pixel at Bottom of Screen (mm / inches)	93.4 / 3.7"
Highest Pixel at Top of Screen (mm / inches)	390.8 / 15.4"
Stand Base Footprint Area (mm / inches)	200 x 200 / 7.9" x 7.9"
Weight	
Packed	Starting at 11.7 lbs (5.3 kg)
Unpacked	Starting at 8.2 lbs (3.7 kg)
Monitor Head Only	Starting at 7.7 lbs (3.5 kg)

MECHANICAL

Tilt Angle (Front / Back)	-5° / 22°
Swivel Angle (Left / Right)	No
Lift	No
Pivot	No
VESA Mount (mm x mm)	Yes (100 x 100)
Kensington Lock Slot	Yes
Cable Management	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	13 / 0.51"
Top (mm / inches)	13 / 0.51"
Bottom (mm / inches)	26.3 / 1.03"

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	WW

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ThinkVision E24-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
527.04 mm x 296.46 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2745 x 0.2745 mm

Dot/Pixel Per Inch (DPI/PPI)
92

Viewing angle (H x V @ CR 10:1)
178°/ 178°

Response Time
14ms

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Color Depth
8-bit

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

MULTI-MEDIA

Integrated Speakers
Yes (2 x 1.5W)

POWER

Power Consumption (typ./max)
18W / 24W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch Off-Mode
< 0.5W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
12.98W / 40.98kWh

Power Supply
Internal

Voltage Required
AC 90 to 264 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

Lift (max range)
155 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Bezel Color
Raven Black

Bezel Width (side)
3.1 mm

Bezel Width (top/bottom)
3.1 / 20.9 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
145.0 x 397.0 x 638.0 mm
5.71 x 15.63 x 25.12 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
178.6 x 317.1 x 541.8 mm
7.03 x 12.48 x 21.33 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
178.6 x 462.5 x 541.8 mm
7.03 x 18.21 x 21.33 inches

Size Unpacked w/o Stand (head only)(D x H x W, mm/inch)
41.7 x 326.4 x 541.8 mm
1.64 x 12.85 x 21.33 inches

Weight Packed (kg/lbs.)
5.70 kg / 12.57 lbs.

Weight Unpacked (kg/lbs.)
4.80 kg / 10.58 lbs.

Weight (Monitor Head Only) (kg/lbs.)
3.10 kg / 6.83 lbs.

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Certification
Yes

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (2011/65/EU)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

Depends on many factors such as the processing capability of peripheral devices, file attributes, and other factors related to system configuration and operating environments.

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ThinkVision P24h-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8" Wide
Panel Type	IPS
Backlight	WLED
Resolution	2560 x 1440
Aspect Ratio	16:9
Anti-Glare	Yes
Borderless Screen	Yes
Screen Dimensions (W x H) (mm)	526.848 (H) x 296.352 (V)
Maximum Brightness (Typical)	300 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.2058
Color Gamut (CIE 1931)	99% sRGB
Display Colors (Typical)	16.7 Million
Response Time	4/6/14 ms (G-to-G)

SIGNAL INPUT

Video Input Signals	2 x HDMI 1.4 + USB-C + DisplayPort 1.2 + DisplayPort-Out
Video Cables Supplied (Length)	USB-C – USB-C Cable (1.8 m)

SIGNAL INTERFACE / PERFORMANCE

Audio	Audio-Out
OSD Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Cable Management	Yes
Kensington Lock	Yes
VESA Mounting	Yes (100 mm)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	22 / 0.87"
Sides (mm / inches)	2 / 0.08"

DIMENSIONS (W x D x H)

Size Packed	
(mm)	635 x 188 x 422
(inches)	25" x 7.4" x 16.61"
Size Unpacked with Stand	
(mm)	540.2 x 261.75 x 373.4
(inches)	21.26" x 10.3" x 14.7"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 46.45 x 325.98
(inches)	21.26" x 1.82" x 12.83"
Stand Base Footprint Area	
(mm / inches)	250 x 250 / 9.84" x 9.84"
Weight	
Packed	Starting at 19.73 lbs (8.95 kg)
Unpacked	Starting at 12.54 lbs (5.69 kg)
Monitor Head Only	Starting at 8.42 lbs (3.82 kg)

POWER CONSUMPTION

Typical	24 W
Maximum	120 W
Sleep-Mode	<0.5 W
Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC

COMPLIANCE

Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	7.0
TCO Edge	2.0
TÜV Eye Comfort Certification.	Yes
RoHS (EU 2002/95/EC)	Yes
China Energy Efficiency Standard	Tier 2
Windows Certification	Windows 7 / Windows 10

[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 P24h-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
526.85 mm x 296.35 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2058 x 0.2058 mm

Dot/Pixel Per Inch (DPI/PPI)
123

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
300 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB,
99% BT.709,
84% DCI-P3

Color Support (typical)
16.7 Million

Processor LUT
8-bit

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1
(DP1.2 Alt Mode)
1 x HDMI 1.4
1 x DP 1.2
1 x DP 1.2 (Out)

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

Ethernet
Yes (10M/100M/1000M)

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

USB Downstream
4 x USB 3.1 Gen1 (1 x BC1.2)

MULTI-MEDIA

Integrated Speakers
Yes (2 x 1W)

Optional Soundbar Support
Yes (PN 0A36190)

SPECIAL FEATURES

Factory Calibration
Yes (Avg. ΔE<2)

POWER

Power Consumption (typ./max.)
23W / 132W

Power Consumption Sleep/Off Mode
≤0.5W

Power Consumption Switch-off Mode
≤0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
18.49W / 60.11kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 75 W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max. range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2 mm

Bezel Width (top/bottom)
2 / 21.4 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
620 x 149 x 423 mm
24.4 x 5.9 x 16.7 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205 x 420 x 539.8 mm
8.07 x 16.5 x 21.3 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205 x 570 x 539.8 mm
8.07 x 22.4 x 21.3 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
44.6 x 325.7 x 539.8 mm
1.8 x 12.8 x 21.3 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
117.9 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
415 mm

Weight Packed (kg/lbs.)
8.1 kg / 17.86 lbs.

Weight Unpacked (kg/lbs.)
6.18 kg / 13.6 lbs.

Weight (monitor head only) (kg/lbs.)
3.85 kg / 7.89 lbs.

Full Container Load (40' STD/20' STD)
1395 / 645 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
Factory calibration report
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*up to 75 W power delivery to compatible devices by USB Type-C

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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ThinkVision P24q-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8"
Panel Type	In-Plane Switching
Backlight	WLED
Resolution	2560 x 1440, QHD
Aspect Ratio	16:9
Screen Dimensions (W x H) (mm)	526.848 (H) x 296.352 (V)
Maximum Brightness (Typical)	300 cd/m²
Minimum Brightness (Typical)	240 cd/m²
Viewable Area (Diagonal) (mm / inches)	604.5 / 23.8"
Viewing Angle (H/V at CR 10:1)	178°/178°
Viewing Angle (H/V at CR 5:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio (Typical)	3M:1
Pixel Pitch (mm)	0.2058
Dot/Pixel Per Inch (DP/PPI)	123.6
Color Gamut (CIE 1931)	99% sRGB
Color Support (Typical)	16.7 Million
Response Time (Typical)	4/6/14 ms (G to G)
Processor LUT	8-bit (6-bit + 2-bit FRC)

DIMENSIONS (W x D x H)

Size Packed	
(mm)	635 x 188 x 422
(inches)	25" x 7.4" x 16.61"
Size Unpacked with Stand	
(mm)	540.2 x 261.75 x 373.4
(inches)	21.26" x 10.3" x 14.7"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 42 x 325.98
(inches)	21.26" x 1.65" x 12.83"
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	70.64 / 2.78"
Highest Pixel at Top of Screen	366.99 / 14.45"
Stand Base Footprint Area (mm / inches)	250 x 250 / 9.84" x 9.84"
Weight	
Packed	Starting at 19.69 lbs (8.93 kg)
Unpacked	Starting at 12.35 lbs (5.6 kg)
Monitor Head Only	Starting at 8.22 lbs (3.73 kg)
Full Container Load (40' STD / 20' STD)	1050 Units / 500 Units

SIGNAL INPUT

Video Input Signals	2 x HDMI 1.4 DisplayPort 1.2 Mini DisplayPort DisplayPort-Out
Video Cables Supplied	Mini DisplayPort – DisplayPort Cable
Video Cable Length	1.8 m
Daisy Chain Support	Yes
USB Hub	USB 3.0[1] (1 x Up, 4 x Down (1 x BC 1.2)
USB Cable Supplied	Yes
USB Cable Length	1.8 m
Audio-Out	Yes (3.5 mm)

POWER CONSUMPTION

Typical	24 W
Maximum	67 W
Sleep-Mode	<0.5 W
Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
Voltage Dynamic Frequency	47 Hz – 63 Hz

WARRANTY AND AVAILABILITY

Geography Availability	Worldwide
ThinkVision Logo	Yes
Global Model	Yes
Warranty	3 Years

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	110
Pivot	CW/CCW 90°
VESA Mount	Yes (100 mm)
Kensington Lock Slot	Yes
Pivot Auto Rotation	No
Cable Management	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	2 / 0.08"
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	22 / 0.87"

SPECIAL FEATURES

Anti-Glare	Yes
Thin Client Support (Tiny)	Yes
Others	Daisy Chain

ENVIRONMENTAL

Temperature	
Operating	0 °C – 40 °C
Non-operating	-20 °C – 60 °C
Humidity	
Operating	10% – 80%
Non-operating	5% – 95%
Altitude	
Operating	0 m – 5000 m
Non-operating	0 ft – 40,000 ft
Ambient Operating Temperature	0 °C – 40 °C
Heat Dissipation	
Typical	75.02 Btu/h
Maximum	228.47 Btu/h
Arsenic-Free Glass	Yes
PVC-Free	Yes (Without Cable)
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	50 Hz – 76 Hz
Vertical Frequency	30 kHz – 99 KHz
Native Resolution	2560 x 1440
Maximum Pixel Clock Speed / Bandwidth	
HDMI	300 MHz
DisplayPort	5.4 GHz
Default Color Temperature	6500K
Preset/User Modes	20/24
On Screen Display (OSD) Controls	
Buttons	5 Buttons
Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

CERTIFICATIONS

TCO	TCO 7.0 / TCO Edge 2.0
GREENGUARD	VOC
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
Image Quality Capability	ISO 9241-307
Reduction of Hazardous Substances	Arsenic-Free / Mercury-Free
China Energy Efficiency Standard	Tier 2

[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 P24q-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
526.85 mm x 296.35 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2058 x 0.2058 mm

Dot/Pixel Per Inch (DPI/PPI)
123

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
300 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB,
99% BT.709,
84 % DCI-P3

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x DP 1.2 (out)

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB3.1 Gen1 Type-B

USB Downstream
4 x USB3.1 Gen1 (1 x BC1.2)

SPECIAL FEATURES

Factory Calibration
Yes (Avg. Delta E<2)

POWER

Power Consumption (typical/max)
20W / 61W

Power Consumption Sleep/Off Mode
≤ 0.5W

Power Consumption Switch-off Mode
≤ 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
16.04W / 51.61kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (Max range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 X 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 21.4 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
620 x 149 x 423 mm /
24.4 x 5.9 x 16.7 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205 x 420 x 539.8 mm /
8.07 x 16.5 x 21.3 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205 x 570 x 539.8 mm /
8.07 x 22.4 x 21.3 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
44.6 x 325.7 x 539.8 mm /
1.8 x 12.8 x 21.3 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
117.9 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
415 mm

Weight Packed (kg/lbs.)
8.1 kg / 17.86 lbs.
Weight Unpacked (kg/lbs.)
6.18 kg / 13.6 lbs.

Weight (monitor head only) (kg/lbs.)
3.85 kg / 7.89 lbs.

Full Container Load (40′ STD / 20′ STD)
1395 / 645 units

WHAT'S IN THE BOX

MONITOR WITH STAND
1 X POWER CABLE (1.8 M)
1 X DP CABLE (1.8 M)
1 X USB TYPE-A TO TYPE-B CABLE (1.8 M)
FACTORY CALIBRATION REPORT
QUICK SETUP GUIDE

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision S24e-10

DISPLAY

Panel Size
23.8-inch

Screen Dimensions (H x V)
527.04 x 296.46 mm

Panel Type
3-side NearEdgelss, VA

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch (H x V)
0.2745 x 0.2745 mm

Dot/Pixel Per Inch (DPI/PPI)
92

Viewing Angle (H x V @ CR 10:1)
178°/ 178°

Response Time (gray to gray)
4 ms (Extreme Mode)
6 ms (Normal Mode)

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m²

Contrast Ratio (typical)
3000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut NTSC (CIE 1931)
72% NTSC

Color Support
16.7 Million

CONNECTIVITY

Video Signal
1 x VGA
1 x HDMI 1.4

Video Cable Length
1.8 m

Audio Signal
1 x Audio Out (3.5 mm)

MULTI-MEDIA

Optional Speakers Support
Yes

SPECIAL FEATURES

Sync Technology
FreeSync™

Thin Client Support (Tiny)
Yes (by VESA mount PN:4XF0N03161)

Anti-glare
Yes

POWER

Power Consumption (Typ./Max)
24W / 31W

Power Consumption Sleep/Off Mode
< 0.3W

Power Consumption Switch-Off Mode
< 0.3W

Power Supply
Internal

Voltage Required
AC 100 to 240 V (47/63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

VESA Mount
Yes (100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (Side)
2.0 mm

Bezel Width (top / bottom)
2.0 / 22 mm

DIMENSION

Size Packed (D x H x W) (mm/inch)
122 x 405 x 639 mm /
4.80 x 15.94 x 25.16 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)
200.0 x 402.7 x 539.5 mm /
7.87 x 15.85 x 21.24 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest Position)
200.0 x 402.7 x 539.5 mm /
7.87 x 15.85 x 21.24 inch

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
41.5 x 325.7 x 539.5 mm /
1.63 x 12.82 x 21.24 inch

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
99.0 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
399.9 mm

Weight Packed (kg/lbs.)
4.84kg / 10.67 lbs.

Weight Unpacked (kg/lbs.)
3.36kg / 7.41 lbs.

Weight (Monitor Head Only) (kg/lbs.)
3.07kg / 6.77 lbs.

Full Container Load (40' STD / 20' STD)
1660 / 800 Units

WHAT'S IN THE BOX

Monitor with stand
interchange
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

EPEAT
Silver

ULE
Gold

RoHS (EU 2002/95/EC)
Yes (2011/65/EU)

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

Low Blue Light
Yes

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ThinkVision S24q-10

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
526.85 mm x 296.35 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2058 x 0.2058 mm

Dot/Pixel Per Inch (DPI/PPI)
124

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
240 cd/m^2

Brightness (peak)
300 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
> 99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

SPECIAL FEATURES

Tiny Support
Yes

POWER

Power Consumption (typical/max)
20W / 31W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

Power Supply
Internal

Energystar Power Consumption (P_{on}/E_{TEC})
16.76 W / 52.75 kWh

Voltage Required
AC 100 to 240 V (47/63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington™ Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2 mm

Bezel Width (top/bottom)
2 / 21.4 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
122 x 405 x 639 mm /
4.80 x 15.94 x 25.16 inches

Size Unpacked w/stand (D x H x W, mm/inch) (lowest position)
200 x 402.7 x 539.8 mm /
7.87 x 15.85 x 21.25 inches

Size Unpacked w/stand (D x H x W, mm/inch) (highest position)
200 x 402.7 x 539.8 mm /
7.87 x 15.85 x 21.25 inches

Size Unpacked w/o Stand (D x H x W, mm/inch) (head only)
42 x 325.7 x 539.8 mm /
1.65 x 12.82 x 21.25 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
98.4 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
399.9 mm

Weight Packed (kg/lb)
5.10 kg / 11.24 lbs.

Weight Unpacked (kg/lb)
3.50 kg / 7.72 lbs.

Weight (monitor head only) (kg/lb)
3.21 kg / 7.08 lbs.

Full Container Load (40′ STD / 20′ STD)
1660 / 800 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR® Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT™
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Eye Comfort
Yes

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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ThinkVision T24d-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	24"
Panel Type	In-Plane Switching
Resolution	1920 x 1200
Backlight	WLED
Aspect Ratio	16:10
Pixel Pitch (W x H) (mm)	0.27 x 0.27
Dot/Pixel Per Inch (DPI/PPI)	94 PPI
Anti-Glare	Yes
Screen Dimensions (W x H)	
(mm)	518.4 x 324
(inches)	20.41" x 12.75"
Maximum Brightness (Typical)	300 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Color Gamut (CIE 1931)	99% sRGB
Display Colors (Typical)	16.7 Million
Response Time	
Extreme	4 ms
Typical	7 ms
Off	15 ms

DIMENSIONS (W x D x H)

Size Packed	
(mm)	160 x 655 x 422
(inches)	6.3" x 25.79" x 16.61"
Size Unpacked with Stand	
(mm)	533.2 x 260.4 x 497.4
(inches)	20.99" x 10.25" x 19.58"
Size Monitor Head Only	
(mm)	533.2 x 42.3 x 355.1
(inches)	20.99" x 1.67" x 13.98"
Distance from Table to Panel	
Lowest Pixel at Bottom of Screen (mm / inches)	56 / 2.2"
Highest Pixel at Top of Screen (mm / inches)	490 / 19.29"
Stand Base Footprint Area	
(mm)	250 x 250
(inches)	9.84" x 9.84"
Weight	
Packed	Starting at 19.18 lbs (8.7 kg)
Unpacked	Starting at 12.41 lbs (5.63 kg)
Monitor Head Only	Starting at 8.77 lbs (3.98 kg)

SIGNAL INPUT

Video Input Signals	VGA + DisplayPort 1.2 + HDMI 1.4
Video Cables Supplied	VGA + DisplayPort + HDMI
Video Cable Length	1.8 m
USB Hub	USB 3.0[1]
USB Cable Supplied	Yes
Audio-Out	Yes (3.5 mm)

POWER CONSUMPTION

Typical	22 W
Maximum	64 W
Sleep-Mode	<0.3 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC
Voltage Dynamic Frequency	50 Hz – 60 Hz

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz - 83 KHz
Vertical Frequency	50 Hz - 75 Hz
Native Resolution	1920 x 1200
Maximum Pixel Clock Speed/ Bandwidth	
VGA	205 MHz
HDMI™	165 MHz
DisplayPort™	165 MHz
Default Color Temperature	6500 K
Preset Display Modes	20
OSD Buttons	5
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

ENVIRONMENTAL

Temperature	
Operating	0°C – 40°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	10% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	0 m – 5000 m
Non-Operating	0 ft – 40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	110
Pivot	+/-90°
VESA® Mount (mm x mm)	100 x 100
Cable Management	Yes
Kensington® Lock	Yes
Bezel Color	Business Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	22.7 / 0.89"
Sides (mm / inches)	2 / 0.08"

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	TCO Display 7.0 / TCO Edge 2.0
RoHS (EU 2002/95/EC)	Yes
China Energy Efficiency Standard	Tier 2
Windows Certification	Windows 7 / Windows 10

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	WW

* NA only.

[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 T24h-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
526.85 mm x 296.35 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2058 x 0.2058 mm

Dot/Pixel Per Inch (DPI/PPI)
123

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
300 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1 (DP 1.2 Alt Mode)
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

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

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typ./max.)
23W / 120W

Power Consumption Sleep/Off Mode
≤ 0.5W

Power Consumption Switch-off Mode
≤ 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
16.36W / 53.37kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 75W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (47-63 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45°/ -45°

Lift (max range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 24.1 mm

DIMENSIONS

Size Packed (D x H x W, mm/inch)
620 x 149 x 423 mm
24.4 x 5.9 x 16.7 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205 x 420 x 539.8 mm
8.07 x 16.5 x 21.3 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205 x 570 x 539.8 mm
8.07 x 22.4 x 21.3 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
44.6 x 325.7 x 539.8 mm
1.8 x 12.8 x 21.3 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
117.9 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
415 mm

Weight Packed (kg/lbs.)
8.1 kg / 17.86 lbs.

Weight Unpacked (kg/lbs.)
6.18 kg / 13.6 lbs.

Weight (monitor head only) (kg/lbs.)
3.85 kg / 7.89 lbs.

Full Container Load (40' STD / 20' STD)
1395 / 645 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

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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ThinkVision T24i-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8" Wide
Panel Type	In-Plane Switchng
Backlight	WLED
Resolution (H x V)	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Near Edgeless Screen	Yes
Screen Dimensions (W x H)	
(mm)	527.04 x 296.46
(inches)	20.75" x 11.67"
Maximum Brightness (Typical)	250 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.2745 x 0.2745
Color Gamut (CIE 1931)	72% NTSC
Color Support (Typical)	16.7 Million
Response Time (gray to gray)	4 ms (Extreme mode) 6 ms (Normal mode)
OSD Controls	
Buttons	5
Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

DIMENSIONS (W x D x H)

Size Packed	
(mm)	422 x 622 x 190
(inches)	16.61" x 24.48" x 7.48"
Size Unpacked with Stand Lowest Position	
(mm)	540.2 x 261.75 x 373.4
(inches)	21.26" x 10.3" x 14.7"
Highest Position	
(mm)	540.2 x 261.75 x 483.4
(inches)	21.26" x 10.3" x 19"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 46.45 x 325.98
(inches)	21.26" x 1.82" x 12.83"
Stand Base Footprint Area	
(mm)	250 x 250
(inches)	9.84" x 9.84"
Weight	
Packed	Starting at 16.39 lbs (7.45 kg)
Unpacked	Starting at 11.33 lbs (5.15 kg)
Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
Full Container Load (40' STD / 20' STD)	1140 / 540 Units

CONNECTIVITY

Video Input Signals	VGA + HDMI 1.4 + DisplayPort 1.2
Video Cables Supplied (Length)	1.8 m
USB Hub	1 x USB 3.0[1] (Upstream) 4 x USB 3.0[1] (Downstream, Incl. 1 BC)
Audio Out	Yes (3.5 mm)

POWER CONSUMPTION

Typical	16.5 W
Maximum	55 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Swivel Angle (Left / Right)	+/-45°
Lift Range (mm)	110
Pivot	+/-90°
Cable Management	Yes
Kensington Lock	Yes
VESA Mount (mm x mm)	Yes (100 X 100)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Sides (mm / inches)	2 / 0.08"

WHAT'S IN THE BOX

Monitor with Stand
1 x Power Cable
1 x VGA Cable
1 x DisplayPort - DisplayPort Cable
1 x HDMI Cable (NA Only)
Quick Setup Guide

CERTIFICATIONS

EPEAT	Silver
ENERGY STAR Rating	8.0
TCO	7.0
TCO Edge	2.0
ULE	Gold
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

Panel Size	23.8" Wide
Panel Type	In-Plane-Switching
Backlight	WLED
Resolution	FHD (1920 x 1080)
Aspect Ratio	16:9
Anti-Glare	Yes
Near Edgeless Screen	Yes
Screen Dimensions (W x H)	
(mm)	527.04 x 296.46
(inches)	20.75" x 11.67"
Brightness	250 nits
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
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

DIMENSIONS (W x D

Size Packed	
(mm)	422 x 622 x 190
(inches)	16.61" x 24.48" x 7.48"
Size Unpacked with Stand Lowest Position	
(mm)	540.2 x 261.75 x 373.4
(inches)	21.26" x 10.3" x 14.7"
Highest Position	
(mm)	540.2 x 261.75 x 483.4
(inches)	21.26" x 10.3" x 19"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 46.45 x 325.98
(inches)	21.26" x 1.82" x 12.83"
Stand Base Footprint Area	
(mm)	250 x 250
(inches)	9.84" x 9.84"
Weight	
Packed	Starting at 16.39 lbs (7.45 kg)
Unpacked	Starting at 11.33 lbs (5.15 kg)
Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
Full Container Load (40' STD / 20' STD)	1140 / 540 Units

CONNECTIVITY

Video Input Signals	VGA + HDMI + DisplayPort
Video Cables Supplied	VGA, DisplayPort, USB, Power, HDMI (for NA only)
USB Hub	USB 3.0[1] (4 x down, 1 x BC)
Audio Out	Yes (3.5 mm)
Power	Internal
Soundbar Support*	Yes

POWER CONSUMPTION

Typical	16.5 W
Maximum	59 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
ENERGY STAR (P_{on})	13.67 W
ENERGY STAR (E_{TEC})	43.51 kWh

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Swivel Angle (Left / Right)	+/-45°
Lift Range (mm)	110
Pivot	+/-90°
Stand	LTPS
Cable Management	Yes
Kensington Lock	Yes
VESA Mount (mm x mm)	Yes (100 X 100)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Sides (mm / inches)	2 / 0.08"

WHAT'S IN THE BOX

Monitor with Stand
1 x Power Cable
1 x VGA Cable
1 x DisplayPort - DisplayPort Cable
1 x HDMI Cable (NA Only)
Quick Setup Guide

CERTIFICATIONS

EPEAT	Silver
ENERGY STAR Rating	8.0
TCO	7.0
TCO Edge	2.0
ULE	Gold
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

* Optional.

[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-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
527.04 mm x 296.46 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2745 x 0.2745 mm

Dot/Pixel Per Inch (DPI/PPI)
93

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m^2

Brightness (peak)
250 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB 3.2 Gen1

USB Downstream
4 x USB 3.2 Gen1 (1 x BC 1.2)

MULTI-MEDIA

Optional Soundbar Support
Yes (PN 0A36190)

POWER

Power Consumption (typ./max.)
14W / 55W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
12.35W / 38.83kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max. range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Tiny Bracket Support
Yes (sold separately)

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 mm / 22.2 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
422.0 x 187.0 x 622.0 mm
16.61 x 7.36 x 24.49 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205.0 x 409.3 x 539.8 mm
8.07 x 16.11 x 21.25 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205.0 x 559.3 x 539.8 mm
8.07 x 22.02 x 21.25 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
46.8 x 326.5 x 539.8 mm
1.84 x 12.85 x 21.25 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
106.62 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
557.0 mm

Weight Packed (kg/lbs.)
8.17 kg/18.01 lbs

Weight Unpacked (kg/lbs.)
5.90 kg/13.01 lbs.

Weight (monitor head only) (kg/lbs.)
3.30 kg/7.28 lbs.

Full Container Load (40' STD/20' STD)
1140/540 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-A to B cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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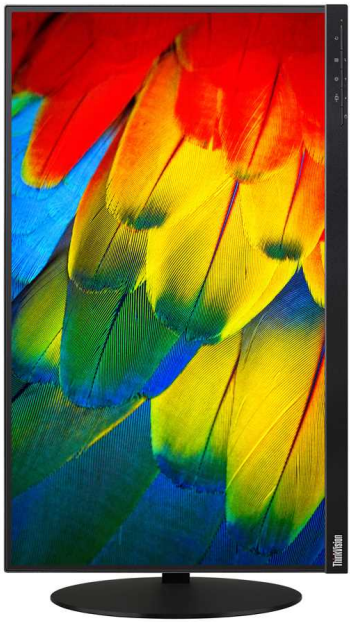

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ThinkVision T24m-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8"
Panel Type	In-Plane Switching
Backlight	WLED
Resolution	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Screen Dimensions (W x H) (mm)	527.04 (H) x 296.46 (V)
Maximum Brightness (Typical)	250 cd/m^2
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio (Typical)	3M:1
Pixel Pitch (mm)	0.2745 (H) x 0.2745 (V)
Dot/Pixel Per Inch (DPI/PPI)	92
Color Gamut (CIE 1931)	72% NTSC
Response Time (gray to gray)	4 ms (Extreme mode) 6 ms (Normal mode)

POWER CONSUMPTION

Typical	19 W
Maximum	116 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
Voltage Dynamic Frequency	47 Hz – 63 Hz

CONNECTIVITY

Video Input Signals	HDMI 1.4 + DisplayPort 1.2a + USB Type-C
Video Cables Supplied	USB Type-C to Type-C Cable
Video Cable Length	1.8 m
USB Hub	Yes
	1 x USB 3.0[1] (Upstream, by USB Type-C)
	4 x USB 3.0[1] (Downstream, incl. 1BC)
Audio-Out	Yes (3.5 mm)

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift Range (mm)	110
Pivot	+/-90°
VESA Mount (mm x mm)	Yes (100 x 100)
Kensington Lock Slot	Yes
Cable Management	Yes
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Sides (mm / inches)	2 / 0.08"

DIMENSIONS (W x D x H)

Size Packed	
(mm)	422 x 622 x 190
(inches)	16.61" x 24.48" x 7.48"
Size Unpacked with Stand Lowest Position	
(mm)	540.2 x 261.75 x 373.4
(inches)	21.26" x 10.3" x 14.7"
Highest Position	
(mm)	540.2 x 261.75 x 483.4
(inches)	21.26" x 10.3" x 19"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 46.45 x 325.98
(inches)	21.26" x 1.82" x 12.83"
Distance from Table to Panel Lowest Pixel at Bottom of Screen (mm / inches)	70.37 / 2.77"
Highest Pixel at Top of Screen (mm / inches)	476.8 / 18.77"
Stand Base Footprint Area (mm / inches)	250 x 250 / 9.84" x 9.84"
Weight	
Packed	Starting at 16.39 lbs (7.45 kg)
Unpacked	Starting at 11.33 lbs (5.15 kg)
Monitor Head Only	Starting at 7.26 lbs (3.3 kg)
Full Container Load (40' STD / 20' STD)	1140 / 540 Units

SPECIAL FEATURES

Thin Client Support (Tiny)	Yes (by Tiny Clamp Bracket Kit + VESA Mount)

WHAT'S IN THE BOX

Monitor with Stand
1 x Power Cable
1 x USB Type-C™ to Type-C™ Cable
Quick Setup Guide

CERTIFICATIONS

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	TCO 7.0 / TCO Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
China Energy Efficiency Standard	Tier 2
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 T24v-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	23.8"
Panel Type	In-Plane Switching
Backlight	WLED
Resolution	1920 x 1080
Aspect Ratio	16:9
Anti-Glare	Yes
Screen Dimensions (W x H) (mm)	527.04 x 296.46
Maximum Brightness (Typical)	250 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (W x H) (mm)	0.25 x 0.25
Dot/Pixel Per Inch (DP/PPI)	102
Color Gamut (CIE 1931)	72% sRGB
Response Time (Extreme/Typical/Off)	4/6/14 ms (G-to-G)

POWER CONSUMPTION

Typical	20 W
Maximum	45 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC
Voltage Dynamic Frequency	47 Hz – 63 Hz

SIGNAL INPUT

Video Input Signals	HDMI 1.4 + DisplayPort 1.2 + VGA
Video Cables Supplied	HDMI (ROW) + DisplayPort + VGA + USB 3.0[1]
Video Cable Length	1.8 m
USB Hub	Yes
USB Cable Supplied	Yes
Audio-Out	Yes (3.5 mm)

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 81 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1920 x 1080
Maximum Pixel Clock Speed/ Bandwidth	VGA : 205 MHz HDMI : 165 MHz DisplayPort : 165 MHz
Default Color Temperature	6500K
Preset/User Modes	27/21
OSD Buttons	5+2 Buttons
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	Yes (110)
Pivot	+/-90°
VESA Mount (mm)	Yes (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)	22 / 0.87"
Sides (mm / inches)	2 / 0.08"

ENVIRONMENTAL

Temperature	
Operating	0°C – 40°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	10% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	0 m – 8000 m
Non-Operating	0 ft – 40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

DIMENSIONS (W x D x H)

Size Packed	
(mm)	608 x 395 x 187
(inches)	23.94" x 15.55" x 7.36"
Size Unpacked with Stand	
Lowest Position	
(mm)	540.2 x 261.9 x 390.5
(inches)	21.28" x 10.32" x 15.39"
Highest Position	
(mm)	540.2 x 261.9 x 500.5
(inches)	21.28" x 10.32" x 19.72"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 43.8 x 343.7
(inches)	21.27" x 1.72" x 13.53"
Distance from Table to Panel	
Lowest Pixel at Bottom of Screen (mm / inches)	69.6 / 2.74"
Highest Pixel at Top of Screen (mm / inches)	69.6 / 2.74"
Stand Base Footprint Area (mm / inches)	242.5 x 212.8 / 9.55" x 8.38"
Weight	
Packed	Starting at 15.78 lbs (7.16 kg)
Unpacked	Starting at 11.18 lbs (5.07 kg)
Monitor Head Only	Starting at 7.3 lbs (3.31 kg)

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	TCO Display 7.0 / TCO Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
China Energy Efficiency Standard	Grade 2
TÜV Eye Comfort	Yes

WARRANTY AND AVAILABILITY

Warranty	
ROW	3 Years
PRC	18 Months
Geography Availability	WW

[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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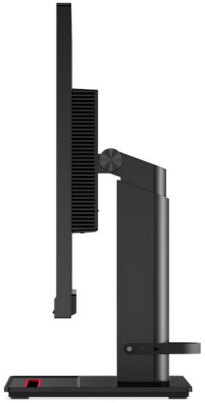

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ThinkVision T24v-20

DISPLAY

Panel Size
23.8-inch

Screen Dimensions
527.04 x 296.46 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch
0.2745 x 0.2745 mm

Dot/Pixel Per Inch (DPI/PPI)
93

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
250 cd/m²

Brightness (peak)
250 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
72% NTSC (CIE 1931)

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x VGA

Audio Signal
1 x Audio combo (3.5 mm; in/out)

USB Hub
Yes

USB Upstream
1 X USB 3.2 Gen1

USB Downstream
2 x USB 3.2 Gen1 (1 x BC 1.2)

MULTI-MEDIA

Integrated Webcam
Yes

Integrated Microphone
Yes

Integrated Speakers
Yes (2 x 3W)

POWER

Power Consumption (typical/max)
13W / 44W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
11.36W / 35.68kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max range)
150 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Tiny Bracket Support
Yes (sold separately)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
1.8 mm

Bezel Width (top/bottom)
1.8 / 22.0 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
418.0 x 187.0 x 644.0 mm
16.46 x 7.36 x 25.35 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
205.0 x 434.0 x 539.8 mm
8.07 x 17.0 x 21.2 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
205.0 x 584.0 x 539.8 mm
8.07 x 23.0 x 21.2 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
48.35 x 344.3 x 539.8 mm
1.9 x 13.55 x 21.25 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
114.1 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
560.56 mm

Weight Packed (kg/lbs.)
7.86 kg/17.33 lbs.

Weight Unpacked (kg/lbs.)
5.94 kg/13.10 lbs.

Weight (monitor head only) (kg/lbs.)
3.48kg/7.67 lbs.

Full Container Load (40′ STD / 20′ STD)
1012/440 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-A to Type-B cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision T25d-10

DISPLAY

Panel Size
25.0 inches

Screen Dimensions (H x V)
533.45 x 338.76mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:10

Resolution
1920 x 1200 pixels

Refresh Rate
60Hz

Pixel Pitch (H x V)
0.2789 x 0.2823mm

Viewing Angle (H x V)
178°/178°

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

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Brightness (typical)
300 cd/m²

Color Gamut sRGB (CIE 1931)
99%

Color Support
16.7M

CONNECTIVITY

Video Input Signals
HDMI 1.4 + DP 1.2 + VGA

Video Cables Supplied
DP + HDMI*

Video Cable Length
1.8m

USB Hub
Yes

USB Upstream
1 x USB 3.1 Gen1

USB Downstream
4 x USB 3.1 Gen1 (with 1 BC

Audio Out
Yes (3.5mm)

POWER

Power Consumption (Typical/Max)
25W/66W

Power Consumption Sleep/Off Mode
<0.5W

Power Consumption Switch Off-Mode
<0.3W

Power Supply
Internal

ENERGY STAR (P_{on})
16.54W

ENERGY STAR (E_{TEC})
52.06kWh

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

DIMENSIONS

Size Packed (D x H x W)
706 x 450 x 160mm/
27.79 x 17.72 x 6.30 inches

Size Unpacked w/stand (D x H x W)(mm/inch) (Lowest position)
260.4 x 399.5 x 548.7mm/
10.25 x 15.73 x 21.60 inches

Size Unpacked w/stand (D x H x W)(mm/inch) (Highest position)
260.4 x 509.5 x 548.7mm/
10.25 x 20.06 x 21.60 inches

Size Unpacked w/o stand (D x H x W)(mm/inch) (Head Only)
43.0 x 369.1 x 548.7mm/
1.69 x 14.53 x 21.60 inches

Weight Packed
7.8kg/17.20lbs.

Weight Unpacked
5.5kg/12.13lbs.

Weight (Monitor Head Only)
3.58kg/7.89lbs.

SPECIAL FEATURES

Anti-glare
Yes

Optional Soundbar Support
Yes

ThinkCentre Tiny 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)
2.0/22.2mm

WHAT'S IN THE BOX

Monitor with stand
1 × Power Cable
1 × USB 3.1 Gen1 Cable
1 × HDMI Cable*
1 × DP Cable
Quick Setup Guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

EU RoHS
Yes

CCC
Yes

TCO
TCO 8.0/TCO Edge 2.0

EPEAT
Silver

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

*For NA and LA only

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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ThinkVision T25m-10

DISPLAY

Panel Size
25.0 inches

Screen Dimensions (H x V)
535.45 x 338.76mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:10

Resolution
1920 x 1200 pixels

Pixel Pitch (H x V)
0.2789 x 0.2823mm

Viewing Angle (H x V)
178°/178°

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

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Brightness (typical)
300 cd/m^2

Color Gamut sRGB (CIE 1931)
99%

Color Support
16.7M

CONNECTIVITY

Video Input Signals
HDMI 1.4 + DP 1.2 + USB 3.1 Type-C (DP 1.2 Alt Mode)

Video Cables Supplied
USB 3.1 Type-C

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)

POWER

Power Consumption (Typical/Max)
30W/150W

Power Consumption Sleep/Off Mode
<0.5W

Power Consumption Switch Off-Mode
<0.3W

Power Supply
Internal

ENERGY STAR (P_{on})
17.05W

ENERGY STAR (E_{TEC})
63.12kWh

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

DIMENSIONS

Size Packed (D x H x W)
706 x 450 x 160mm/
27.79 x 17.72 x 6.30 inches

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest position)
260.4 x 399.5 x 548.7mm/
10.25 x 15.73 x 21.60 inches

Size Unpacked w/stand (D x H x W) (mm/inch) (Highest position)
260.4 x 509.5 x 548.7mm/
10.25 x 20.06 x 21.60 inches

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
43.0 x 369.1 x 548.7mm/
1.69 x 14.53 x 21.60 inches

Weight Packed
7.8kg/17.20lbs.

Weight Unpacked
5.5kg/12.13lbs.

Weight (Monitor Head Only)
3.58kg/7.89lbs.

SPECIAL FEATURES

Anti-glare
Yes

Smart Power*
Yes

ThinkCentre Tiny Support
Yes

Optional Soundbar Support
Yes

Internal Speakers
Yes (3W × 2)

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)
2.0/22.2mm

WHAT'S IN THE BOX

Monitor with stand
1 × Power Cable
1 × USB Type-C to Type-C cable
Quick Setup Guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

EU RoHS
Yes

CCC
Yes

TCO
TCO 8.0/TCO Edge 2.0

EPEAT
Silver

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

*The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to other devices. 75W power delivery by USB Type-C can be achieved when downstream USB ports are not connected and OSD brightness setting is <31.

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.

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ThinkVision P27h-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	27" Wide
Panel Type	IPS
Backlight	WLED
Resolution	2560 x 1440
Aspect Ratio	16:9
Anti-Glare	Yes
Borderless Screen	Yes
Screen Dimensions (W x H) (mm)	596.74 (H) x 335.66 (V)
Maximum Brightness (Typical)	350 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.233
Color Gamut (CIE 1931)	99% sRGB
Display Colors (Typical)	16.7 Million
Response Time	4/6/15 ms (G-to-G)

SIGNAL INPUT

Video Input Signals	2 x HDMI 1.4 + USB-C + DisplayPort 1.2 + DisplayPort-Out
Video Cables Supplied (Length)	USB-C – USB-C Cable (NA only: HDMI, DisplayPort – DisplayPort, USB-C – USB-C) (1.8 m)

SIGNAL INTERFACE / PERFORMANCE

Audio	Audio-Out
OSD Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian

POWER CONSUMPTION

Typical	38 W
Maximum	140 W
Sleep-Mode	<0.5 W
Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC

DIMENSIONS (W x D x H)

Size Packed	
(mm)	453 x 732 x 210
(inches)	17.83" x 28.82" x 8.27"
Size Unpacked with Stand	
(mm)	611.6 x 269.8 x 513
(inches)	24.08" x 10.62" x 20.2"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	611.6 x 45.5 x 368.4
(inches)	24.08" x 1.79" x 14.5"
Stand Base Footprint Area	
(mm / inches)	260 x 260 / 10.24" x 10.24"
Weight	
Packed	Starting at 24.25 lbs (11 kg)
Unpacked	Starting at 15.43 lbs (7 kg)
Monitor Head Only	Starting at 11.02 lbs (5 kg)

MECHANICAL

Tilt Angle (Front / Back)	-5°/ 30°
Cable Management	Yes
Kensington Lock	Yes
VESA Mounting	Yes (100 mm)
Bezel Color	Raven Black
Bezel Width	
Top (mm / inches)	2 / 0.08"
Bottom (mm / inches)	22.9 / 0.9"
Sides (mm / inches)	2 / 0.08"

COMPLIANCE

Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
EPEAT	Silver
ENERGY STAR Rating	8.0
TCO	7.0
TCO Edge	2.0
TÜV Eye Comfort Certification	Yes
RoHS (EU 2002/95/EC)	Yes
China Energy Efficiency Standard	Tier 1
Windows Certification	Windows 7 / Windows 10

[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 P27h-20 Monitor

Specifications

DISPLAY

Panel Size
27-inch

Screen Dimensions
596.74 mm x 335.66 mm

Panel Type
4-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2331 x 0.2331 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB,
99% BT.709,
85% DCI-P3

Color Support (typical)
16.7 Million

Processor LUT
8-bit

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1 (DP1.2 Alt Mode)
1 x HDMI 1.4
1 x DP 1.2
1 x DP 1.2 (Out)

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

Ethernet
Yes (10M/100M/1000M)

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

USB Downstream
4 x USB 3.1 Gen1 (1 x BC1.2)

MULTI-MEDIA

Integrated Speakers
Yes (2 x 1W)

Optional Soundbar Support
Yes (PN 0A36190)

SPECIAL FEATURES

Factory Calibration
Yes (Avg. Delta E<2)

POWER

Power Consumption (typ./max.)
27W / 150W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
19W / 61kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 90 W*

Smart Power**
Yes

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45°/ -45°

Lift (max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 2.0 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
182 x 463 x 722 mm
7.17 x 18.23 x 28.43 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
208 x 441.5 x 613.8 mm
8.19 x 17.38 x 27.17 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
208 x 576.5 x 613.8 mm
8.19 x 22.70 x 27.17 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
46.9 x 353.8 x 613.8 mm
1.85 x 13.92 x 27.17 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
97.3 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
567.9 mm

Weight Packed (kg/lbs.)
9.55 kg / 21.01 lbs.

Weight Unpacked (kg/lbs.)
7.35 kg / 16.17 lbs.

Weight (monitor head only) (kg/lbs.)
4.87 kg / 10.71 lbs.

Full Container Load (40' STD / 20' STD)
792 / 352 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
Factory calibration report
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Listed as maximum capacity of power delivery. Actual capacity may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

**The Smart Power function intelligently detects overall power consumption and dynamically manages the power delivery to each device. Get up to 90 W* of power delivery through the USB Type-C cable with the Smart Power function.

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ThinkVision P27q-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	27″ Wide
Panel Type	In-Plane Switching
Backlight	WLED
Resolution	2560 x 1440, QHD
Aspect Ratio	16:9
Screen Dimensions (W x H) (mm)	596.74 (H) x 335.66 (V)
Maximum Brightness (Typical)	350 cd/m²
Minimum Brightness (Typical)	300 cd/m²
Viewable Area (Diagonal) (mm / inches)	685.8 / 27″
Viewing Angle (H/V at CR 10:1)	178°/178°
Viewing Angle (H/V at CR 5:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio (Typical)	3M:1
Pixel Pitch (mm)	0.2331
Dot/Pixel Per Inch (DP/PPI)	109
Color Gamut (CIE 1931)	99% sRGB
Color Support (Typical)	16.7 Million
Response Time (Typical)	4/6/15 ms (G to G)
Processor LUT	True 8-bit

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	110
Pivot	CW/CCW 90°
VESA Mount	Yes (100 mm)
Kensington Lock Slot	Yes
Cable Management	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	2 / 0.08″
Top (mm / inches)	2 / 0.08″
Bottom (mm / inches)	22.9 / 0.9″

SPECIAL FEATURES

Anti-Glare	Yes
Thin Client Support (Tiny)	Yes
Others	Daisy Chain

DIMENSIONS (W x D x H)

Size Packed	
(mm)	453 x 732 X 210
(inches)	17.83″ x 28.82″ X 8.27″
Size Unpacked with Stand	
(mm)	614 x 269.8 X 513
(inches)	24.17″ x 10.62″ X 20.2″
Size Unpacked without Stand (Monitor Head Only)	
(mm)	540.2 x 42 x 325.98
(inches)	21.26″ x 1.65″ x 12.83″
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	58.8 / 2.31″
Highest Pixel at Top of Screen	504.4 / 19.86″
Stand Base Footprint Area (mm / inches)	260 x 260 / 10.24″ x 10.24″
Weight	
Packed	Starting at 23.8 lbs (10.8 kg)
Unpacked	Starting at 15.43 lbs (7 kg)
Monitor Head Only	Starting at 10.58 lbs (4.8 kg)
Full Container Load (40′ STD / 20′ STD)	800 Units / 350 Units

ENVIRONMENTAL

Temperature	
Operating	0 °C – 40 °C
Non-operating	-20 °C – 60 °C
Humidity	
Operating	8% – 80%
Non-operating	5% – 95%
Altitude	
Operating	0 m – 5000 m
Non-operating	0 ft – 40,000 ft
Ambient Operating Temperature	0 °C – 40 °C
Heat Dissipation	
Typical	129.68 Btu/h
Maximum	255.75 Btu/h
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	>85%

SIGNAL INPUT

Video Input Signals	2 x HDMI 1.4 DisplayPort 1.2 Mini DisplayPort DisplayPort-Out
Video Cables Supplied	Mini DisplayPort – DisplayPort Cable
Video Cable Length	1.8 m
Daisy Chain Support	Yes
USB Hub	USB 3.0[1] (1 x Up, 4 x Down (1 x BC 1.2))
USB Cable Supplied	Yes
USB Cable Length	1.8 m
Audio-Out	Yes (3.5 mm)

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	50 Hz – 76 Hz
Vertical Frequency	30 kHz – 99 KHz
Native Resolution	60 Hz (2560 x 1440)
Maximum Pixel Clock Speed / Bandwidth	
HDMI	300 MHz
DisplayPort	5.4 GHz
Default Color Temperature	6500K
Preset/User Modes	20/24
On Screen Display (OSD) Controls	
Buttons	5 Buttons
Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian

POWER CONSUMPTION

Typical	38 W
Maximum	75 W
Sleep-Mode	<0.5 W
Off-Mode	<0.5 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC
Voltage Dynamic Frequency	50 Hz – 60 Hz

CERTIFICATIONS

TCO	TCO 7.0 / TCO Edge 2.0
ULE	Gold
GREENGUARD	VOC
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
Image Quality Capability	ISO 9241-307
Reduction of Hazardous Substances	Arsenic-Free / Mercury-Free
China Energy Efficiency Standard	Tier 1

WARRANTY AND AVAILABILITY

Geography Availability	Worldwide
ThinkVision Logo	Yes
Global Model	Yes
Warranty	3 Years

[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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Lenovo P27q-20

DISPLAY

Panel Size
27-inch

Screen Dimensions
596.74 mm x 335.66 mm

Panel Type
4-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2331 x 0.2331 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2
1 x DP 1.2 (out)

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB3.1 Gen1 (by USB Type-B)

USB Downstream
4 x USB3.1 Gen1 (1 BC)

POWER

Power Consumption (typical/max)
22W / 57W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
18W / 57kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (Max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 X 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 2.0 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
182.0 x 463.0 x 722.0 mm /
7.17 x 18.23 x 28.43 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
208.0 x 441.5 x 613.8 mm /
8.19 x 17.38 x 27.17 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
208.0 x 576.5 x 613.8 mm /
8.19 x 22.70 x 27.17 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
46.9 x 353.8 x 613.8 mm /
1.85 x 13.92 x 27.17 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
97.3 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
567.9 mm

Weight Packed (kg/lbs.)
9.26 kg / 20.37 lbs.

Weight Unpacked (kg/lbs.)
7.12 kg / 15.7 lbs.

Weight (monitor head only) (kg/lbs.)
4.64 kg / 10.23 lbs.

Full Container Load (40' STD / 20' STD)
792 / 352 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-B to Type-A cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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.

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ThinkVision P27u-10 MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	27″
Panel Type	In-Panel Switching
Backlight	WLED
Resolution	3840 x 2160
Aspect Ratio	16:9
Anti-Glare	Yes
Screen Dimensions (W x H) (mm)	596.74 (H) x 335.66 (V)
Maximum Brightness (Typical)	350 cd/m²
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	3M:1
Pixel Pitch (mm)	0.1554 (H) x 0.1554 (V)
Dot/Pixel Per Inch (DP/PPI)	163
Color Gamut (CIE 1931)	99.5% Adobe RGB
Color Support (Typical)	1.07 Billion
Color Depth	10-bit (8+ FRC)
Response Time	4/6/14 ms (G-to-G)

POWER CONSUMPTION

Typical	50 W
Maximum	160 W
Sleep-Mode	<0.5 W
Switch Off-Mode	<0.3 W
Power Supply	Internal
Power Voltage	100 VAC – 240 VAC
Voltage Dynamic Frequency	50 Hz – 60 Hz

SIGNAL INPUT

Video Input Signals	2 HDMI + DisplayPort + USB Type-C
Video Cables Supplied	HDMI*, DisplayPort, USB Type-C
Video Cable Length	1.8 m
USB Hub	Yes
USB Cable Supplied	Yes (USB Type-C to Type-A Cable)
Audio-Out	Yes

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 160 kHz
Vertical Frequency	23 Hz – 80 Hz
Native Resolution	3840 (H) x 2160 (V)
Maximum Pixel Clock Speed/ Bandwidth	HDMI : 600 MHz DisplayPort : 5.4 Gbps USB Type-C : 5.4 Gbps/Lane
Default Color Temperature	6500K
Preset/User Modes	27/20
OSD Buttons	5 Buttons
OSD Languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese, Russian

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	+/-45°
Lift (mm)	Yes (110)
Pivot	+/-90°
VESA Mount (mm x mm)	Yes (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)	24.5 / 0.96″
Sides (mm / inches)	2 / 0.08″

ENVIRONMENTAL

Temperature	
Operating	0°C – 45°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	10% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	0 ft – 5000 ft
Non-Operating	0 ft – 40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes (without Cable)
Mercury-Free	Yes
PCC % of Plastic Resins	0.85

DIMENSIONS (W x D x H)

Size Packed	
(mm)	453 x 732 x 210
(inches)	17.83″ x 28.82″ x 8.27″
Size Unpacked with Stand Lowest Position	
(mm)	611.6 x 269.8 x 403.3
(inches)	24.08″ x 10.62″ x 15.88″
Highest Position	
(mm)	611.6 x 269.8 x 513.3
(inches)	24.08″ x 10.62″ x 20.21″
Size Unpacked without Stand (Monitor Head Only)	
(mm)	611.6 x 45.5 x 368.4
(inches)	24.08″ x 1.79″ x 14.5″
Distance from Table to Panel Lowest Pixel at Bottom of Screen	
(mm / inches)	60.2 / 2.37″
Highest Pixel at Top of Screen	
(mm / inches)	505.8 / 19.91″
Stand Base Footprint Area	
(mm / inches)	260 x 260 / 10.24″ x 10.24″
Weight	
Packed	Starting at 24.25 lbs (11 kg)
Unpacked	Starting at 15.32 lbs (6.95 kg)
Monitor Head Only	Starting at 11.02 lbs (5 kg)

COMPLIANCE

TCO	TCO Edge 2.0
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 7 / Windows 10
China Energy Efficiency Standard	Tier 2

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	WW

* NA only.

[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 S27i-10

DISPLAY

Panel Size
27-inch

Screen Dimensions (W x H mm)
597.89 mm × 336.31 mm

Panel Type
3-side NearEdgelss,
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch (H x V) (mm)
0.3110 × 0.3110

Dot/Pixel Per Inch(DPI/PPI)
81

Viewing angle (H x V)
178°/ 178°

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

Refresh rate
60 Hz

Brightness (typical)
250 cd/m²

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut NTSC (CIE 1931)
72% NTSC

Color Support
16.7M

CONNECTIVITY

Video Input Signals
1 x VGA
1 x HDMI 1.4

Audio Out
1 x Audio Out (3.5 mm)

Optional Speaker Support
Yes

MULTI-MEDIA

Optional Soundbar Support
Yes

SPECIAL FEATURES

Sync technology
FreeSync

Thin Client Support (Tiny)
Yes
(by Tiny Clamp Bracket Kit+VESA mount PN:4XF0N82412+PN:4XF0N03161)

Anti-glare
Yes

POWER

Power Consumption (Typ. / Max)
24W / 28W

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

VESA Mount
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (Side)
2.0 mm

Bezel Width(top/bottom)
2.0 / 21.7 mm

DIMENSIONS

Size Packed (D x H x W) (mm/inch)
132 x 455 x 715 mm 5.20 x 17.91 x 28.15 inch

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest Position)
220.0 x 443.5 x 611.9 mm 8.66 x 17.46 x 24.10 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)
46.2 x 366.5 x 611.9 mm 1.82 x 14.43 x 24.10 inch

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
98.7 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
440.7 mm

Weight Packed (kg/lbs.)
6.80kg / 14.99 lbs.

Weight Unpacked (kg/lbs.)
4.76kg / 10.49 lbs.

Weight (Monitor Head Only) (kg/lbs.)
4.22kg / 9.30 lbs.

Full Container Load (40' STD / 20'STD)
1088 / 544 Units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

TCO
7.0

TCO Edge
2.0

EPEAT
Silver

ULE
Gold

RoHS (EU 2002/95/EC)
Yes(2011/65/EU)

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

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ThinkVision S27q-10

DISPLAY

Panel Size
27-inch

Screen Dimensions
596.74 mm x 335.66 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2331 x 0.2331 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (extreme mode)

Refresh Rate
60 Hz

Brightness (typical)
280 cd/m^2

Brightness (peak)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
> 99% sRGB

Color Support (typical)
1.07 Billion

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio Port (3.5 mm)

SPECIAL FEATURES

Tiny Support
Yes

POWER

Power Consumption (typical/max)
35W / 45W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

Power Supply
Internal

Energystar Power Consumption (P_{on}/E_{TEC})
19 W / 59.6 kWh

Voltage Required
AC 100 to 240 VAC (50/60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington™ Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2 mm

Bezel Width (top/bottom)
2 / 22 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
132 x 455 x 715 mm /
5.20 x 17.91 x 28.15 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
220 x 444.6 x 613.6 mm /
8.66 x 17.50 x 24.15 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
220 x 444.6 x 613.6 mm /
8.66 x 17.50 x 24.15 inches

Size Unpacked w/o Stand (D x H x W, mm/inch) (head only)
42 x 367.6 x 613.6 mm /
1.65 x 14.47 x 24.15 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
99 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
442.2 mm

Weight Packed (kg/lb)
6.36 kg / 14.02 lbs.

Weight Unpacked (kg/lb)
4.65 kg / 10.25 lbs.

Weight (monitor head only) (kg/lb)
4.10 kg / 9.04 lbs.

Full Container Load (40′ STD / 20′ STD)
1088 / 544 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR® Rating
8.0

CCC
Yes

TCO
8.0

EPEAT™
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Window 7, Window 10

China Energy Efficiency Standard
Tier 1

TÜV Eye Comfort
Yes

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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ThinkVision S28u-10

DISPLAY

Panel Size
28-inch

Screen Dimensions
631.928 mm x 359.78 mm

Panel Type
3-side NearEdgeless,
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160

Refresh Rate
60 Hz

Pixel Pitch (H x V)
0.16 x 0.16

Dot/Pixel Per Inch (DPI/PPI)
157.35

Viewing Angle (H x V @ CR 10:1)
178° / 178°

Response Time
4ms (Extreme Mode)
6ms (Normal Mode)

Brightness (typical)
300 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB,
90% DCI-P3

Color Support (typical)
1.07 Billion

CONNECTIVITY

Video Input Signals
HDMI 2.0 + DP 1.2

Audio Signal
1 x Audio Out (3.5mm)

POWER

Power Consumption (Typical/Max)
31W / 48W

Power Consumption Sleep/Off Mode
<0.3W

Power Consumption Switch Off-Mode
<0.3W

Power Supply
Internal

Energystar Power Consumption (P_{on}/E_{TEC})
24.28W / 75.41kWh

Voltage Required
AC 90 to 264 V (50/60 Hz)

DIMENSIONS

Size Packed (D x H x W) (mm/inch)
127 x 723 x 452 mm /
5 x 28.46 x 17.80 inches

Size Unpacked w/stand (D x H x W) (mm/inch) (Lowest position)
229.99 x 450.82 x 636.94 mm /
9.05 x 17.72 x 25.08 inches

Size Unpacked w/o stand (D x H x W) (mm/inch) (Highest position)
229.99 x 450.82 x 636.94 mm /
9.05 x 17.72 x 25.08 inches

Size Unpacked w/o stand (D x H x W) (mm/inch) (Head Only)
49.2 x 373.68 x 636.94 mm /
1.94 x 14.71 x 25.08 inches

Weight Packed
7.0 kg / 15.43 lbs.

Weight Unpacked
5.24 kg / 11.55 lbs.

Weight (Monitor Head Only)
4.58 kg / 10.10 lbs.

SPECIAL FEATURES

Anti-glare
Yes

ThinkCentre Tiny Support
Yes

MECHANICAL

Tilt Angle (front/back)
-5° / 22°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 22.8 mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x HDMI cable (1.8 m)
Quick setup guide

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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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ThinkVision T27h-20

DISPLAY

Panel Size
27-inch

Screen Dimensions
596.74 mm x 335.66 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2331 x 0.2331 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1
(DP 1.2 Alt Mode)
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

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

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typ./max.)
23W / 122W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
18.1W / 57.6kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 75W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2 mm

Bezel Width (top/bottom)
2 / 23.87 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
694.0 x 163.0 x 480.0 mm
27.32 x 6.42 x 18.90 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
614.0 x 429.4 x 208.0 mm
24.17 x 16.9 x 8.19 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
614.0 x 564.4 x 208.0 mm
24.17 x 22.22 x 8.19 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
614.0 x 369.1 x 46.7 mm
24.17 x 14.53 x 1.84 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
85.2 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
564.4 mm

Weight Packed (kg/lbs.)
9.75 kg / 21.50 lbs.

Weight Unpacked (kg/lbs.)
7.6 kg / 16.76 lbs.

Weight (monitor head only) (kg/lbs.)
5.09 kg / 11.22 lbs.

Full Container Load (40' STD / 20' STD)
952 / 448 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-C to Type-A cable
(1.8 m) (NA only)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

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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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:4XF0N82412+ PN:4XF0N03161)

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 VGA 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
8.0

CCC
Yes

TCO
7.0

EPEAT
Silver

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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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
8.0

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

EPEAT
Silver

*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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ThinkVision T27q-20

DISPLAY

Panel Size
27-inch

Screen Dimensions
596.74 mm x 335.66 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2331 x 0.2331 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing angle (H x V @ CR 10:1)
178°/ 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

USB Upstream
1 x USB 3.1 Gen1
(by USB Type-B)

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typical/max)
23W / 65W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

Energystar Power Consumption (P_{on}/E_{TEC})
17.4W / 54.4kWh

Power Supply
Internal

Voltage Required
AC 100 to 240 V (50/60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2 mm

Bezel Width (top/bottom)
2 / 23.87 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
694 x 163 x 480 mm
27.32 x 6.42 x 18.9 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
614 x 429.4 x 208 mm
24.17 x 16.9 x 8.19 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
614 x 564.4 x 208 mm
24.17 x 22.22 x 8.19 inches

Size Unpacked w/o Stand (head only)(D x H x W, mm/inch)
614 x 369.1 x 46.7 mm
24.17 x 14.53 x 1.84 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
85.2 mm

Max. Distance from Table to Panel (highest pixel at bottom of screen, mm)
564.4 mm

Weight Packed (kg/lbs.)
9.59 kg / 21.14 lbs.

Weight Unpacked (kg/lbs.)
7.44 kg / 16.4 lbs.

Weight (Monitor Head Only) (kg/lbs.)
4.93 kg / 10.87 lbs.

Full Container Load (40' STD / 20' STD)
952 / 448 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power Cable (1.8 m)
1 x DP cable (1.8 m)
1 x USB Type-B to
Type-A cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

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.

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ThinkVision X1 (2nd GEN) MONITOR

SPECIFICATIONS

DISPLAY

Panel Size	27″
Panel Type	IPS
Backlight	WLED
Resolution	3840 (H) x 2160 (V)
Aspect Ratio	16:9
Anti-Glare	Yes
Screen Dimensions (W x H) (mm)	596.7 (H) x 335.7 (V)
Maximum Brightness (Typical)	350 cd/m^2
Viewing Angle (H/V at CR 10:1)	178°/178°
Contrast Ratio (Typical)	1000:1
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

Typical	40 W
Maximum	150 W
Sleep-Mode	0.5 W
Switch Off-Mode	0.5 W
Power Supply	External
Power Voltage	10 VAC - 240 VAC
Voltage Dynamic Frequency	50 Hz - 60 Hz

SIGNAL INPUT

Video Input Signals	DisplayPort 1.2 + HDMI 2.0 + Thunderbolt™ 3
Video Cables Supplied	HDMI + Thunderbolt™ 3
Video Cable Length	1.8 m
USB Hub	Yes (4 x USB 3.0[1])
USB Cable Supplied	N/A
Audio-Jack	Yes

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 KHz - 136 KHz
Vertical Frequency	30 Hz - 60 Hz
Native Resolution	3840 x 2160
Maximum Pixel Clock Speed/ Bandwidth	20 Gbps
Default Color Temperature	6500K
Preset Modes	24
OSD Buttons	2 Buttons + Tracking Point
OSD Languages	English, French, Italian, German, Spanish, Japanese, Chinese, Russian

MECHANICAL

Tilt Angle (Front / Back)	-5° / 30°
Swivel Angle (Left / Right)	N/A
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 / 0.04″
Bottom (mm / inches)	1.2 / 0.04″
Sides (mm / inches)	1.2 / 0.04″

ENVIRONMENTAL

Temperature	
Operating	0°C – 45°C
Non-Operating	-20°C – 60°C
Humidity	
Operating	8% – 80%
Non-Operating	5% – 95%
Altitude	
Operating	16,000 ft
Non-Operating	40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes (W/O cable)
Mercury-Free	Yes
PCC % of Plastic Resins	25%

DIMENSIONS (W x D x H)

Size Packed	
(mm)	718 x 140 x 470
(inches)	28.27″ x 5.51″ x 18.5″
Size Unpacked with Stand	
(mm)	609.74 x 234.81 x 474.76
(inches)	24″ x 9.24″ x 18.69″
Size Unpacked without Stand Monitor Head Only	
(mm)	609.74 x 32.7 x 351.71
(inches)	24″ x 1.29″ x 13.85″
Distance from Table to Panel	
Lowest Pixel at Bottom of Screen (mm / inches)	134 / 5.276″
Highest Pixel at Top of Screen (mm / inches)	450 / 17.717″
Stand Base Footprint Area	
(mm)	234.81 x 234.81
(inches)	9.24″ x 9.24″
Weight	
Packed	Starting at 18.45 lbs (8.37 kg)
Unpacked	Starting at 12.21 lbs (5.54 kg)
Monitor Head Only	Starting at 9.46 lbs (4.29 kg)

COMPLIANCE

ULE	Gold
TCO	7.0
RoHS	Yes
Windows Certification	Windows 10
China Energy Label	Grade 2

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	WW

[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 P32p-20

DISPLAY

Panel Size
31.5-inch

Screen Dimensions
697.31 mm x 392.23 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160

Pixel Pitch
0.1816 x 0.1816 mm

Dot/Pixel Per Inch (DPI/PPI)
140

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB
99% BT.709
90% DCI-P3

Color Support (typical)
1.07 Billion

Color Depth
10-bit

Processor LUT
14-bit

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1 (DP1.2 Alt Mode)
1 x HDMI 2.0
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

Ethernet
Yes (10M/100M/1000M)

USB Upstream
2 x USB 3.2 Gen1 (1 by USB Type-C, 1 by USB Type-B)

USB Downstream
3 x USB 3.2 Gen1 (1 x BC1.2)

MULTI-MEDIA

Optional Soundbar Support
Yes (PN:0A36190)

SPECIAL FEATURES

Factory Calibration
Yes (Avg. Delta E<2)

KVM Switch
Yes

POWER

Power Consumption (typ./max.)
36W / 186W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
27W / 84kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 90 W

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45° / -45°

Lift (max. range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

ThinkCentre M Series Tiny support
Yes, by Tiny/Nano monitor clamp II (PN: 4XH0Z42451) & Tiny VESA mount II (PN: 4XF0N03161)*

ThinkCentre M Series Nano support
Yes, by Tiny/Nano monitor clamp II (PN: 4XH0Z42451) & Nano VESA mount (PN: 4XF0V81630)*

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 24.1 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
528 x 190 x 845 mm
20.79 x 7.48 x 32.27 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
235.0 x 469.4 x 714.6 mm
9.25 x 18.48 x 28.13 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
235.0 x 604.4 x 714.6 mm
9.25 x 23.79 x 28.13 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
714.6 x 426.0 x 51.0 mm
28.13 x 16.77 x 2.01 inches

Weight Packed (kg/lbs.)
13.30 kg/29.32 lbs.

Weight Unpacked (kg/lbs.)
10.21 kg/22.51 lbs.

Weight (monitor head only) (kg/lbs.)
6.96 kg/15.34 lbs.

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (for US and Canada only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-A to Type-B cable (1.8 m)
Factory calibration report
Quick setup guide

CERTIFICATION

ENERGY STAR
Yes

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Accessories sold separately

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ThinkVision P32u-10
SPECIFICATIONS

DISPLAY

Panel Size
32 inches

Screen Dimensions (H x V)
708.48 x 398.52mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160 pixels

Pixel Pitch (H x V)
0.1845 x 0.1845mm

Viewing Angle (H x V)
178°/178°

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

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99.5% Adobe RGB, 100% sRGB, 100% BT.709, 98.2% DCI-P3, 79.3% BT.2020

Color Support
1.07 Billion

CONNECTIVITY

Video Input Signals
2 HDMI 2.0 + DP 1.2 + Thunderbolt™ 3 In + Thunderbolt™ 3 Out

Video Cable Length
2m for Thunderbolt™
1.8m for HDMI & DP

Audio Out
Yes (3.5mm)

USB Hub
Yes
2 x USB 3.0 (Upstream, 1 by Thunderbolt™ 3)
4 x USB 3.0 (Downstream, incl. 1BC)

Power Consumption
<57W (Typical) / <190W (Max) at On mode
<0.5W at Sleep mode
<0.3W at Switch off mode

DIMENSIONS

Size Packed (D x H x W)
844 x 228 x 528mm / 33.23 x 8.98 x 20.79 inches

Size Unpacked w/stand (D x H x W) (Lowest Position)
350.0 x 497.85 x 726.7mm/13.78 x 19.6 x 28.61 inches

Size Unpacked w/stand (D x H x W) (Highest Position)
350.0 x 607.85 x 726.7mm/13.78 x 23.93 x 28.61 inches

Size Unpacked w/o stand (D x H x W) (Head Only)
58.95 x 431.5 x 726.7mm/2.32 x 16.99 x 28.61 inches

WEIGHT

Weight Packed
14.30kg/31.32lbs.

Weight Unpacked
10.97kg/24.18lbs.

Weight (Monitor Head Only)
6.97kg/15.37lbs.

SPECIAL FEATURES

Factory Calibration
Yes

Anti-Glare
Yes

PIP/PBP
Yes

KVM switch
Yes

Software
Yes (ThinkColor)

MECHANICAL

Tilt Angle (front/back)
-5°/22°

Swivel Angle (left/right)
-45°/+45°

Lift (Max range)
110mm

Pivot
-90°/90°

VESA Mount Capability
Yes (100 x 100mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2mm

Bezel Width (top/bottom)
2.0/23.8mm

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable
1 x DP-DP cable
1 x HDMI cable
1 x USB 3.0 cable
1 x Thunderbolt™ 3 cable (20Gbps)
1 x CD (ThinkColor)
Factory calibration report
Quick setup guide

CERTIFICATIONS

CCC
Yes

RoHS
Yes

TCO
7.0

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

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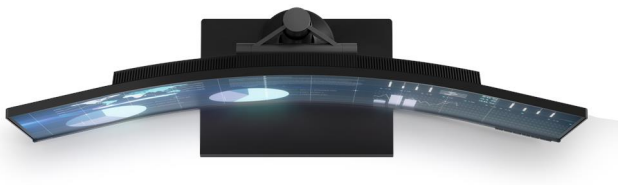

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ThinkVision P44w-10

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)
16.7M

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
Energy Star (P_{on}) - 42.18W
Energy Star (E_{TEC}) - 138.17kWh

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
8.0

CCC
Yes

RoHS
Yes

TCO
8.0

EPEAT
Silver

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Eye Comfort
Yes

*with FreeSync support graphic cards

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ThinkVision T32h-20 Monitor

DISPLAY

Panel Size
31.5-inch

Screen Dimensions
698.11 mm x 392.69 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
2560 x 1440

Pixel Pitch
0.2727 x 0.2727 mm

Dot/Pixel Per Inch (DPI/PPI)
94

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
1.07 Billion

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1
(DP 1.2 Alt Mode)
1 x HDMI 1.4
1 x DP 1.2

Audio Signal
1 x Audio out (3.5 mm)

USB Hub
Yes

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

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typ./max.)
28W / 138W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
21.6W / 69.2kWh

Power Supply
Internal

USB Type-C Power Delivery (W)
up to 75 W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
-45° / 45°

Lift (max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 24.12 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
528.0 x 190.0 x 845.0 mm /
20.79 x 7.48 x 32.27 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
235.0 x 469.4 x 714.6 mm /
9.25 x 18.48 x 28.13 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
235.0 x 604.4 x 714.6 mm /
9.25 x 23.79 x 28.13 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
714.6 x 426.0 x 51.0 mm /
28.13 x 16.77 x 2.01 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
69.2 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
461.8 mm

Weight Packed (kg/lbs.)
12.96 kg / 28.57 lbs.

Weight Unpacked (kg/lbs.)
9.85 kg / 21.72 lbs.

Weight (monitor head only) (kg/lbs.)
6.78 kg / 14.95 lbs.

Full Container Load (40' STD / 20' STD)
672 / 320 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m)
(NA only)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

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.

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ThinkVision T32p-20

DISPLAY

Panel Size
31.5-inch

Screen Dimensions
697.31 mm x 392.23 mm

Panel Type
3-side NearEdgeless
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
3840 x 2160

Pixel Pitch
0.1816 x 0.1816 mm

Dot/Pixel Per Inch (DPI/PPI)
140

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
1000:1

Dynamic Contrast Ratio (typical)
3M:1

Color Gamut
99% sRGB

Color Support (typical)
1.07 Billion

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1 (DP1.2 Alt Mode)**
1 x HDMI 2.0
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

USB Hub
Yes

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

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typ./max.)
39W / 135W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.3W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
26.9W / 84.9kWh

Power Supply
Internal

USB Type-C power delivery (W)
up to 75W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5° / 35°

Swivel Angle (left/right)
+45°/ -45°

Lift (max range)
135 mm

Pivot
-90° / 90°

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.0 mm

Bezel Width (top/bottom)
2.0 / 24.12 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
190 x 528 x 845 mm
7.48 x 20.79 x 32.27 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
235.0 x 469.4 x 714.6 mm
9.25 x 18.48 x 28.13 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
235.0 x 604.4 x 714.6 mm
9.25 x 23.79 x 28.13 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
51.0 x 426.0 x 714.6 mm
2.01 x 16.77 x 28.13 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
69.2 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
461.8 mm

Weight Packed (kg/lbs.)
12.96 kg / 28.57 lbs.

Weight Unpacked (kg/lbs.)
9.85 kg / 21.72 lbs.

Weight (monitor head only) (kg/lbs.)
6.78 kg / 14.95 lbs.

Full Container Load (40' STD / 20' STD)
672 / 320 units

WHAT'S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 1

TÜV Rheinland Eye Comfort
Yes

*Listed as the maximum capacity of power delivery. The actual capacity of power delivery may vary depending upon devices connected or monitor configuration and may decline with downstream USB ports connected or higher brightness settings.

**When connecting one cable USB Type-C at 4K 60Hz, the USB downstream will be USB2.0 by default due to technical limitations. Users can still use USB 3.0 by selecting in OSD and as a result, the display will be adjusted to 4K 30Hz.

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.

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ThinkVision T34w-20

Specifications

DISPLAY

Panel Size
34-inch

Screen Dimensions
797.20 mm x 333.70 mm

Panel Type
3-side NearEdgeless
VA

Curvature
1500R

Backlight
WLED

Aspect Ratio
21:9

Resolution
3440 x 1440

Pixel Pitch
0.2317 x 0.2317 mm

Dot/Pixel Per Inch (DPI/PPI)
109

Viewing Angle (H x V @ CR 10:1)
178° / 178°

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

Refresh Rate
60 Hz

Brightness (typical)
350 cd/m^2

Contrast Ratio (typical)
3000:1

Dynamic Contrast Ratio (typical)
3M:1

Colour Gamut
99% sRGB

Color Support (typical)
16.7 Million

Anti-glare
Yes

CONNECTIVITY

Video Signal
1 x USB Type-C Gen1
(DP1.2 Alt Mode)
1 x HDMI 2.0
1 x DP 1.2

Audio Signal
1 x Audio Out (3.5 mm)

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

USB Downstream
4 x USB 3.1 Gen1 (1 BC)

POWER

Power Consumption (typ./max.)
46W / 140W

Power Consumption Sleep/Off Mode
< 0.5W

Power Consumption Switch-off Mode
< 0.5W

ENERGY STAR Power Consumption (P_{on}/E_{TEC})
34W / 107kWh

USB Type-C Power Delivery (W)
Up to 75W*

Smart Power
Yes

Voltage Required
AC 100 to 240 V (50-60 Hz)

MECHANICAL

Tilt Angle (front/back)
-5°/ 35°

Swivel Angle (left/right)
+45°/ -45°

Lift (max range)
135 mm

VESA Mount Capability
Yes (100 x 100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (side)
2.2 mm

Bezel Width (top/bottom)
2.2 / 27.8 mm

DIMENSION

Size Packed (D x H x W, mm/inch)
523.0 x 250.0 x 980.0 mm /
20.59 x 9.84 x 38.58 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (lowest position)
245.0 x 462.4 x 808.6 mm /
9.65 x 18.21 x 31.84 inches

Size Unpacked w/ Stand (D x H x W, mm/inch) (highest position)
245.0 x 597.4 x 808.6 mm /
9.65 x 23.52 x 31.84 inches

Size Unpacked w/o Stand (head only) (D x H x W, mm/inch)
106.1 x 372.6 x 808.6 mm /
4.18 x 14.67 x 31.84 inches

Min. Distance from Table to Panel (lowest pixel at bottom of screen, mm)
119.1 mm

Max. Distance from Table to Panel (highest pixel at top of screen, mm)
587.9 mm

Weight Packed (kg/lbs.)
13.85 kg / 30.53 lbs.

Weight Unpacked (kg/lbs.)
9.91 kg / 21.85 lbs.

Weight (monitor head only) (kg/lbs.)
6.91 kg / 15.23 lbs.

Full Container Load (40’ STD / 20’ STD)
432 / 216 units

WHAT’S IN THE BOX

Monitor with stand
1 x Power cable (1.8 m)
1 x DP cable (1.8 m) (NA only)
1 x USB Type-C to Type-A cable (1.8 m) (NA only)
1 x USB Type-C to Type-C cable (1.8 m)
Quick setup guide

CERTIFICATION

ENERGY STAR Rating
8.0

CCC
Yes

TCO
8.0

TCO Edge
2.0

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes

Windows Certification
Windows 7, Windows 10

China Energy Efficiency Standard
Tier 2

TÜV Rheinland Eye Comfort
Yes

*Listed as maximum capacity of power delivery. Actual capacity of power delivery may vary depending upon devices connected or monitor configuration, and may decline with downstream USB ports connected or higher brightness setting.

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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Lenovo ThinkVision LT1913p Monitor

SPECIFICATIONS

DISPLAY

Panel Size	19"
Panel Type	In Plane Switching
Aspect Ratio	5:4
Resolution	1280 x 1024
Viewable Area (mm)	479.958
Screen Dimensions (W x H) (mm)	374.7 x 299.8
Pixel Pitch (W x H) (mm)	0.0976 x 0.2928
Dot/Pixel Per Inch (DP / PPI)	86.78
Brightness (Typical)	250 nits
Contrast Ratio (Typical)	1000:1
Viewing Angle (H/V at CR 10:1)	178°/178°
Response Time (Typical)	7 ms
Color Gamut	72%
Number of Colors	16.7 Million

MECHANICAL

Tilt Angle (Front / Back)	-5° - 30°
Swivel Angle (Left / Right)	45° / 45°
Lift (mm)	110
Pivot	0° - 90° (Clockwise)
VESA® Mount	Yes
Kensington® Lock Slot	Yes
USB Hub	No
Multimedia	Optional USB Sound Bar
Bezel Color	Black
Bezel Width	
Sides (mm / inches)	17.4 / 0.68"
Top (mm / inches)	17.4 / 0.68"
Bottom (mm / inches)	17.4 / 0.68"

SIGNAL INPUT

Video Input Signals	VGA, DVI
Cables Supplied	VGA, DVI
Sync on Green	No
Plug 'n' Play	DDC/CI
Preset Display Modes	20
User-defined Display Modes	20
OSD Buttons	Yes
OSD Languages	8
Lockable Controls	Yes

POWER CONSUMPTION

Power Consumption	
Typical	24 W
Maximum	27 W
Sleep-Mode	<0.5 W
Off-Mode	<0.5 W
Heat Dissipation	
Typical	81.84 Btu/h
Maximum	92.07 Btu/h
Power Supply	Internal

DIMENSIONS (W x D x H)

Size Unpacked	
(mm)	411 x 264.2 x 371.5
(inches)	16.18" x 10.4" x 14.63"
Weight Unpacked	Starting at 10.69 lbs (4.85 kg)

COMPLIANCE

TCO	Display 7.0
TCO Edge	1.1
EPEAT	Silver
ENERGY STAR Rating	8.0
TÜV Green Mark	Yes
Windows Certification	Windows 10 / Windows 8.1 / Windows 8 / Windows 7
China Energy Label	Tier 1 (New Standard Tier 2)
PCC	85%

WARRANTY

Warranty	3 Years

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TECH SPECS

LCD PANEL

Panel Size
14-inch

Screen Dimensions (W x H, mm)
309.31 x 173.99 mm

Panel Type
In-Plane Switching

Backlight
WLED

Aspect Ratio
16:9

Resolution
1920 x 1080

Pixel Pitch (H x V, mm)
0.1611 x 0.1611 mm

Dot/Pixel Per Inch (DPI/PPI)
157

Viewing angle (H x V @ CR 10:1)
178° / 178°

Response Time (typical)
6ms with OD

Refresh Rate
60 Hz

Brightness (typical)
300 cd/m²

Contrast Ratio (typical)
700:1

Dynamic Contrast Ratio (typical)
3M:1

Colour Gamut NTSC (CIE 1931)
72%

Color Support (typical)
16.7 Million

Color Depth
8bit (6bit + FRC)

Anti-Glare
Yes

CONNECTIVITY

Video Input Signals
2 x USB 3.1 Type-C (DP1.2 Alt Mode)

POWER

Power Consumption (Typ./Max)
6 W / 7.5 W (Without USB Type-C output)

ENERGY STAR Power Consumption (P_{on})
4.88 W

ENERGY STAR Power Consumption (E_{TEC})
15.53 kWh

Power Consumption Sleep/Off Mode
< 0.3 W

Power Consumption Switch-Off Mode
< 0.3 W

USB Type-C/Power Delivery
Up to 65 W

Power Supply
External (no adapter bundle)

Voltage Required
DC 5 V to 20 V

MECHANICAL

Tilt Angle (front/back)
-5° / 90°

Mounting Support
Yes (100 mm)

Kensington Lock Slot
Yes

Cable Management
Yes

Bezel Color
Raven Black

Bezel Width (Side)
5.48mm

Bezel Width (top / bottom)
5.47 mm / 23.87 mm

DIMENSIONS

Size Packed (D x H x W) (mm / inch)
276 x 61 x 402 mm /
10.87 x 2.40 x 15.83 inches

Size Unpacked w/stand (D x H x W) (mm / inch) (Lowest position)
96.54 x 209.03 x 323.37 mm /
3.8 x 8.23 x 12.73 inches

Size Unpacked w/stand (D x H x W) (mm / inch) (Highest position)
96.54 x 220.03 x 323.37 mm /
3.8 x 8.66 x 12.73 inches

Stand base footprint area (mm²)
260.87 x 69.55 mm /
10.27 x 2.74 inches

Weight Packed (kg / lbs.)
1.67 kg / 3.67 lbs.

Weight Unpacked (kg / lbs.)
0.598 kg / 1.31 lbs.*

WHATS IN THE BOX

1 x Monitor with stand
1 x ThinkVision M14 sleeve
1 x USB Type-C cable (1 m)
1 x QSG
1 x Pair of clips

ENVIRONMENTAL

Temperature - Operating
0° to 40°C

Temperature - Non-operating
-20° to 60°C

Humidity - Operating
30 to 80%

Humidity - Non-operating
30 to 90%

Altitude - Operating
0 to 5000 m

Altitude - Non-operating
0 to 40,000 ft

Arsenic-free Glass
Yes

PVC free
Yes

Mercury free
Yes

PCC % of plastic resins
85%

WARRANTY

Geography Availability
WW

Warranty
3 Years

CERTIFICATIONS

ENERGY STAR Rating
8.0

CCC
Yes

EPEAT
Silver

RoHS (EU 2002/95/EC)
Yes (Arsenic free / Pb free / Mercury free)

Windows Certification
Windows 7 / 10

Image Quality Capability
ISO 9241-307

China Energy Efficiency Standard
Tier 2

Low Blue Light / Eye Comfort
Yes (Low Bluelight)

*Actual weight may vary due to components, manufacturing process and options.

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ThinkVision T1714 Essential Monitor

SPECIFICATIONS

DISPLAY

Panel Size	17"
Panel Type	TN
Backlight	WLED
Viewable Area (Diagonal)	17"
Screen Dimensions (W x H) (mm)	270.34 x 337.92
Resolution	1280 x 1024
Aspect Ratio	5:4
Viewing Angle (H/V at CR 10:1)	170°/160°
Maximum Brightness (Typical)	250 cd/m²
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	NA
Pixel Pitch (W x H) (mm)	0.26 x 0.26
Dot/Pixel Per Inch (DPI / PPI)	96.21
Color Gamut (CIE 1931)	72%
Number of Colors	16.7 Million
Response Time	5 ms (On / Off)
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° ~ 22°
Swivel Angle (Left / Right)	No
Lift	No
Pivot	No
VESA Mount (mm)	100 x 100
Kensington Lock Slot	Yes
Cable Management	Yes
Ambient Light Sensor	No
Control Buttons	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	17.5 / 0.69"
Top (mm / inches)	17.5 / 0.69"
Bottom (mm / inches)	17.5 / 0.69"

POWER CONSUMPTION

Power Consumption	
Typical	14 W
Maximum	18 W
Sleep-Mode	0.5 W
Off-Mode	0.3 W
Heat Dissipation	
Typical	47.74 Btu/h
Maximum	61.38 Btu/h
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC, 1.5 A
Voltage Dynamic Frequency	50 Hz – 60 Hz

SIGNAL INPUT

Video Input Signals	VGA, DVI
Video Cables Supplied	VGA, DVI
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	7.0
TCO Edge	2.0
TUV	Yes
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 10 / Windows 8.1 / Windows 8 / Windows 7
China Energy Efficiency Standard	Tier 1 (New Standard Tier 2)

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 83 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1280 x 1024
Maximum Pixel Clock Speed / Bandwidth	VGA : 205 MHz DVI : 165 MHz
Default Color Temperature	7200K
Preset Display Modes	17
User-defined Display Modes	17
OSD Buttons	5
OSD Languages	8

ENVIRONMENTAL

Temperature	
Operating	0°C – 45°C
Non-operating	-20°C – 60°C (non-condensing)
Humidity	
Operating	10% – 80%
Non-operating	5% – 95% (non-condensing)
Altitude	
Operating	8,000 ft
Non-operating	40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	85%
Low Halogen	No

DIMENSIONS (W x D x H)

Size Packed	
(mm)	432 x 428 x 140
(inches)	17.01" x 16.85" x 5.51"
Size Unpacked with Stand	
(mm)	374.5 x 200 x 373.9
(inches)	14.74" x 7.87" x 14.72"
Size Unpacked without Stand (Monitor Head Only)	
(mm)	374.5 x 53 x 306.9
(inches)	14.74" x 2.09" x 12.08"
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	84.5 / 3.33"
Highest Pixel at Top of Screen	356.4 / 14.03"
Stand Base Footprint Area (mm / inches)	200 x 200 / 7.87" x 7.87"
Weight	
Packed (EPS)	Starting at 8.6 lbs (3.9 kg)
Unpacked	Starting at 5.75 lbs (2.61 kg)
Monitor Head Only	Starting at 5.11 lbs (2.32 kg)

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	PRC + AP
ThinkVision Logo	Yes
Global Model	No

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Lenovo ThinkVision T1714p Essential Monitor

SPECIFICATIONS

DISPLAY

Panel Size	17"
Panel Type	TN
Backlight	WLED
Viewable Area (Diagonal)	17"
Screen Dimensions (W x H) (mm)	270.34 x 337.92
Resolution	1280 x 1024
Aspect Ratio	5:4
Viewing Angle (H/V at CR 10:1)	170°/160°
Maximum Brightness (Typical)	250 cd/m^2
Contrast Ratio (Typical)	1000:1
Dynamic Contrast Ratio	NA
Pixel Pitch (W x H) (mm)	0.26 x 0.26
Dot/Pixel Per Inch (DPI / PPI)	96.21
Color Gamut (CIE 1931)	72%
Number of Colors	16.7 Million
Response Time	5 ms (On / Off)
Anti-Glare	Yes

MECHANICAL

Tilt Angle (Front / Back)	-5° ~ 22°
Swivel Angle (Left / Right)	No
Lift	110
Pivot	No
VESA Mount (mm)	100 x 100
Kensington Lock Slot	Yes
Cable Management	Yes
Ambient Light Sensor	No
Control Buttons	Yes
Bezel Color	Raven Black
Bezel Width	
Sides (mm / inches)	17.5 / 0.69"
Top (mm / inches)	17.5 / 0.69"
Bottom (mm / inches)	17.5 / 0.69"

SIGNAL INPUT

Video Input Signals	VGA, DVI, DisplayPort
Video Cables Supplied	VGA, DVI
Video Cable Length	1.8 m
USB Hub	No
USB Cable Supplied	No

SIGNAL INTERFACE / PERFORMANCE

Horizontal Frequency	30 kHz – 83 kHz
Vertical Frequency	50 Hz – 75 Hz
Native Resolution	1280 x 1024
Maximum Pixel Clock Speed / Bandwidth	VGA : 205 MHz DVI : 165 MHz DisplayPort : 165 MHz
Default Color Temperature	7200K
Preset Display Modes	22
User-defined Display Modes	22
OSD Buttons	5
OSD Languages	8

POWER CONSUMPTION

Power Consumption	
Typical	14 W
Maximum	18 W
Sleep-Mode	0.5 W
Off-Mode	0.3 W
Heat Dissipation	
Typical	47.74 Btu/h
Maximum	61.38 Btu/h
Power Supply	Internal
Power Voltage	90 VAC – 264 VAC, 1.5 A
Voltage Dynamic Frequency	50 Hz – 60 Hz

COMPLIANCE

EPEAT	Silver
ENERGY STAR Rating	8.0
ULE	Gold
TCO	7.0
TCO Edge	2.0
TUV	Yes
RoHS (EU 2002/95/EC)	Yes
Windows Certification	Windows 10 / Windows 8.1 / Windows 8 / Windows 7
China Energy Efficiency Standard	Tier 1 (New Standard Tier 2)

DIMENSIONS (W x D x H)

Size Packed	
(mm)	454 x 406 x 191
(inches)	17.87" x 15.98" x 7.52"
Size Unpacked with Stand	
(mm)	374.5 x 244.2 x 337.9-447.9
(inches)	14.74" x 9.61" x 13.3"-17.63"
Size Unpacked without Stand (Head Only)	
(mm)	374.5 x 53 x 306.9
(inches)	14.74" x 2.09" x 12.08"
Distance from Table to Panel (mm / inches)	
Lowest Pixel at Bottom of Screen	66 / 2.6"
Highest Pixel at Top of Screen	337.9 / 13.3"
Stand Base Footprint Area (mm / inches)	
With Cable Cover	244.2 x 240 / 9.61" x 9.45"
Without Cable Cover	240 x 240 / 9.45" x 9.45"
Weight	
Packed (EPS)	Starting at 12.57 lbs (5.7 kg)
Unpacked	Starting at 8.71 lbs (3.95 kg)
Monitor Head Only	Starting at 5.14 lbs (2.33 kg)

ENVIRONMENTAL

Temperature	
Operating	0°C – 45°C
Non-operating	-20°C – 60°C (non-condensing)
Humidity	
Operating	10% – 80%
Non-operating	5% – 95% (non-condensing)
Altitude	
Operating	8,000 ft
Non-operating	40,000 ft
Arsenic-Free Glass	Yes
PVC-Free	Yes
Mercury-Free	Yes
PCC % of Plastic Resins	85%
Low Halogen	No

WARRANTY AND AVAILABILITY

Warranty	3 Years
Geography Availability	World Wide
ThinkVision Logo	Yes
Global Model	Yes

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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.

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

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