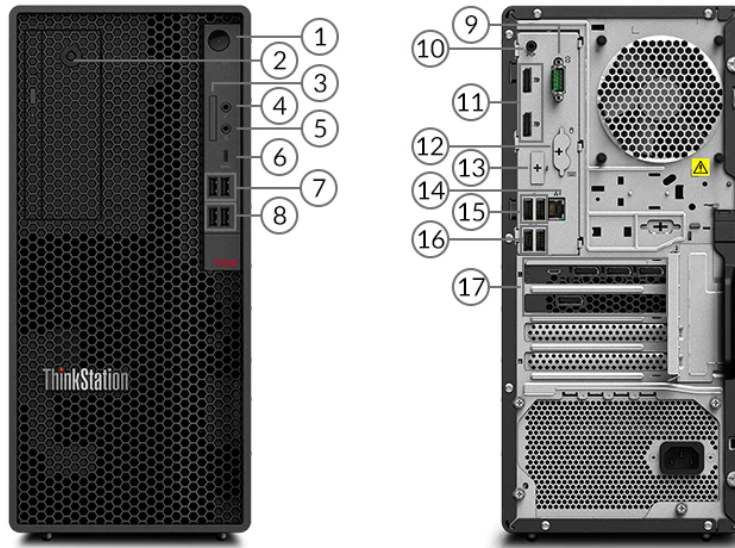


OVERVIEW



1. Power button	10. Line-out (3.5mm)
2. Optical drive *	11. 2x DisplayPort
3. Card reader *	12. 2x PS/2 ports (keyboard / mouse) *
4. Microphone (3.5mm)	13. Video port (DisplayPort, HDMI, or USB-C) *
5. Headphone / microphone combo jack (3.5mm)	14. Ethernet (RJ-45)
6. USB-C 3.2 Gen 2 (data transfer only)	15. 2x USB 3.2 Gen 1
7. 2x USB 3.2 Gen 1	16. 2x USB 3.2 Gen 1
8. 2x USB 3.2 Gen 2	17. Optional ports on expansion cards *
9. Serial	

Notes:

- Items with * are only available on selected models

PERFORMANCE

Processor

Processor Family

10th Generation Intel® Core™ i3, 11th Generation Intel Core i5 / i7 / i9, or Intel Xeon® Processor

Processor**^[1]

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-10105	4	8	3.7GHz	4.4GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10305	4	8	3.8GHz	4.5GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10325	4	8	3.9GHz	4.7GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500	6	12	3.1GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-11400	6	12	2.6GHz	4.4GHz	12MB	DDR4-3200	Intel UHD Graphics 730
Core i5-11500	6	12	2.7GHz	4.6GHz	12MB	DDR4-3200	Intel UHD Graphics 750
Core i7-11700	8	16	2.5GHz	4.9GHz	16MB	DDR4-3200	Intel UHD Graphics 750
Core i7-11700K	8	16	3.6GHz	5.0GHz	16MB	DDR4-3200	Intel UHD Graphics 750
Core i5-11600	6	12	2.8GHz	4.8GHz	12MB	DDR4-3200	Intel UHD Graphics 750
Core i5-11600K	6	12	3.9GHz	4.9GHz	12MB	DDR4-3200	Intel UHD Graphics 750
Core i7-10700	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i7-10700K	8	16	3.8GHz	5.1GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900K	10	20	3.7GHz	5.3GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-11900	8	16	2.5GHz	5.2GHz	16MB	DDR4-3200	Intel UHD Graphics 750
Core i9-11900K	8	16	3.5GHz	5.3GHz	16MB	DDR4-3200	Intel UHD Graphics 750
Xeon W-1350	6	12	3.3GHz	5.0GHz	12MB	DDR4-3200	Intel UHD Graphics P750
Xeon W-1350P	6	12	4.0GHz	5.1GHz	12MB	DDR4-3200	Intel UHD Graphics P750
Xeon W-1370	8	16	2.9GHz	5.1GHz	16MB	DDR4-3200	Intel UHD Graphics P750
Xeon W-1370P	8	16	3.6GHz	5.2GHz	16MB	DDR4-3200	Intel UHD Graphics P750
Xeon W-1390	8	16	2.8GHz	5.2GHz	16MB	DDR4-3200	Intel UHD Graphics P750
Xeon W-1390P	8	16	3.5GHz	5.3GHz	16MB	DDR4-3200	Intel UHD Graphics P750

Processor Sockets

1x FCLGA1200

Notes:

1. 10th Core i5, i7, and i9 processors are available after August 2021

Operating System

Operating System**^[1]

- Windows® 11 Pro
- Windows 11 Pro for Workstations
- Windows 11 Home
- Windows 11 Home Single Language
- Windows 11 DG Windows 10 Pro 64 for Workstations
- Windows 10 Pro 64
- Windows 10 Pro 64 for Workstations
- Windows 10 Home 64
- Windows 10 Home 64 Single Language
- Ubuntu Linux LTS
- Red Hat Enterprise Linux 8.6 (certified only, for detailed and latest information, please visit [Red Hat Certified Hardware](#))

- No operating system

Notes:

1. Some features may not be supported on the system with Linux preload, including but not limited to Intel RST RAID, Human Presence Detection, etc.

Graphics

Integrated Graphics**

- Intel UHD Graphics 630
- Intel UHD Graphics 730
- Intel UHD Graphics 750
- Intel UHD Graphics P750

Discrete Graphics Support^[1]

Supports up to one NVIDIA® RTX A5000 or two RTX A2000

Discrete Graphics Offering***

Graphics	Memory	Power	Connector	SLI / NVLink
Quadro® P400	2GB GDDR5	30W	3x miniDP 1.4	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	None
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400 4GB	4GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000 8GB	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	None
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000 12GB	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	None

Notes:

1. Discrete graphics support may vary by configurations such as processor selection or power supply wattage.

Monitor Support

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel W580 chipset

Memory

Max Memory^[1]

Up to 128GB (4x 32GB DDR4 UDIMM)

Memory Type**

- DDR4-3200 UDIMM non-ECC
- DDR4-3200 UDIMM ECC

Memory Slots

Four DDR4 UDIMM slots, dual-channel capable

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

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Notes:

- The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.

Storage

Storage Support^{[1][2]}

Up to 2x 3.5" SATA HDD / 4x 2.5" SATA HDD + 3x M.2 SSD

- 3.5" HDD up to 4TB each
- 2.5" HDD up to 1TB each
- M.2 SSD up to 2TB each

Storage Type^{***}

Disk Type	Interface	RPM	Offering	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 1TB FIPS	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB	-
M.2 2280 SSD	PCIe® NVMe®, PCIe 4.0	-	256GB / 512GB / 1TB / 2TB	Opal

Storage Controllers^[3]

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RST SATA RAID	Standard	SATA 6.0Gb/s	0/1	None
Onboard Intel RST PCIe RAID	Standard	PCIe NVMe	0/1	None

Notes:

- The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.
- Model with Core i3 processor supports 2x M.2 SSD
- Cannot install OS in SATA RAID 1 volume.
M.2 RAID is supported on onboard M.2 PCIe Gen 3 slot and single M.2 to PCIe adapter only.

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623-CG codec

Speakers

Single speaker

Power Supply

Power Supply^{**}

Power	Type	Efficiency	Key Features
500W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
750W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (17L)

Dimensions (WxDxH)^[1]

170 x 315.4 x 376 mm (6.7 x 12.4 x 14.8 inches)

Weight^[2]

9.4 kg (20.7 lbs, maximum configuration)

Bays

- 1x 3.5" disk bay (standard)
- 1x 3.5" disk bay (optional)
- 2x 2.5" disk bay (optional)

M.2 Slots^[3]

- Up to 2x M.2 SSD on models with 10th Core processor:
 - 1 via onboard slot with M.2 PCIe Gen 3
 - 1 via Single M.2 to PCIe adapter, PCIe Gen 3
- Up to 3x M.2 SSD on models with Xeon or 11th Core processor:
 - 2 via onboard slots with 1x M.2 PCIe Gen 4 and 1x M.2 PCIe Gen 3
 - 1 via Single M.2 to PCIe adapter, PCIe Gen 3

Expansion Slots

- One PCIe 4.0 x16
- One PCIe 3.0 x1
- One PCIe 3.0 x16 (x4 lanes)

Notes:

1. The system dimensions may vary depending on configurations.
2. The system weight is approximate and based on results in Lenovo lab, which varies depending on the source of component, variance of the distribution of each component, and manufacturing process. It may not be the exact weight for each specific model.
3. M.2 Gen 4 SSD works at Gen 3 speed on Gen 3 slot

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

Two additional Ethernet adapters support, up to four additional GbE ports

- Gigabit Ethernet, Intel I210-T1, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel I350-T2, 2x RJ-45, PCIe x4
- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1

WLAN + Bluetooth^{®[1]}**

- Mediatek Wi-Fi[®] 6 MT7921, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1
- No WLAN and Bluetooth

Notes:

1. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitations.

Ports^[1]

Front Ports

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x USB-C[®] 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

Rear Ports^[2]

- 2x DisplayPort™
- 4x USB 3.2 Gen 1 (one supports Smart Power On)
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports^{*}**

- 1x USB-C (video)
- 1x USB-C 3.2 Gen 2x2 (support data transfer, via USB-C expansion card, PCIe x4)

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- 2x USB 2.0
- 2x USB 3.2 Gen 1
- 1x HDMI®
- 1x DP
- 1x Thunderbolt™ 4, via additional PCIe adapter
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB4® 20Gbps / USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
USB4 40Gbps (USB 40Gbps): 40 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks^[1]

- (Optional) Cable lock
- (Optional) E-lock
- Kensington® Security Slot™, 3 x 7 mm
- Padlock Loop

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

Notes:

1. E-lock is not available in EMEA

MANAGEABILITY

System Management

System Management^{**[1]}

- Intel vPro® with Intel AMT 14 on wired LAN
- Intel vPro with Intel AMT 14
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.

Diagnostic

Diagnostic

Lenovo UEFI Bootable Diagnostics

SERVICE

Warranty^[1]

Base Warranty**

- 1-year limited onsite service
- 2-year limited onsite service
- 3-year limited onsite service
- No base warranty

Notes:

1. The warranty upgrades may be bundled with some models, please check the "Included upgrade" column in the specific model's configurations. For more service extensions, please go to <https://smartfind.lenovo.com/>. To learn more details of warranty policy, please access <https://pcsupport.lenovo.com/warranty>.

ENVIRONMENTAL**Operating Environment****Temperature**

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS**Green Certifications^[1]****Green Certifications^[2]**

- (Optional) EPEAT™ Gold Registered
- (Optional) EPEAT Silver Registered
- ENERGY STAR® 8.0
- RoHS compliant

Notes:

1. The items listed under the "Green Certifications" section may not only refer to certification but also registration or self-declaration.
2. EPEAT is registered where applicable, please see <https://www.epeat.net> for registration status by country.

Other Certifications**Mil-Spec Test**

MIL-STD-810H military test passed

ISV Certifications**ISV Certifications**

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

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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