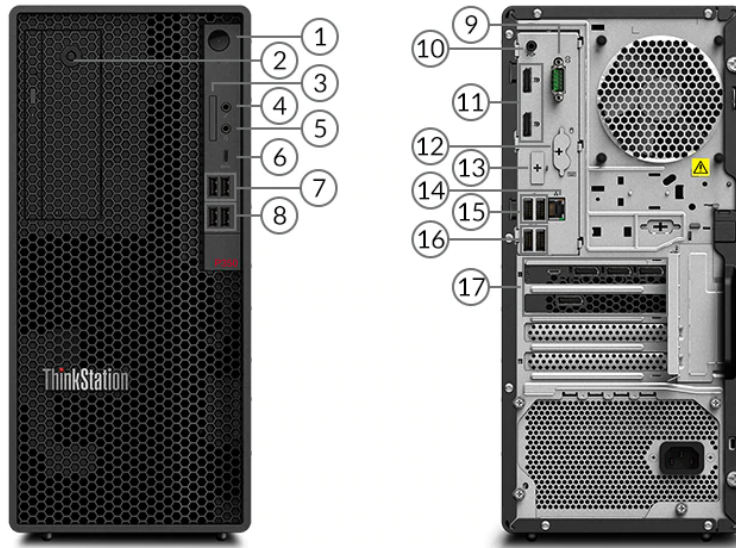


## OVERVIEW



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:

- Ports 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 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 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 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\*\*

- Windows® 11 Pro 64
- Windows 11 Pro 64 for Workstations
- Windows 11 Home 64
- Windows 11 Home 64 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

## Graphics

### Integrated Graphics\*\*

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

### Discrete Graphics Support

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

### Discrete Graphics Offering\*\*\*

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro® P2200	5GB GDDR5	75W	4x DP 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 8GB	8GB GDDR6	50W	4x miniDP 1.4	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

## 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<sup>[1]</sup>

Up to 128GB DDR4-3200

### 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

### 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<sup>[1][2]</sup>

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<sup>[3]</sup>**

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:**

1. 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.
2. Model with Core i3 processor supports 2x M.2 SSD
3. 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)**

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

**Weight**

9.4 kg (20.7 lbs, maximum configuration)

**Bays**

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

**M.2 Slots<sup>[1]</sup>**

- 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. 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<sup>®</sup>\*\*<sup>[1]</sup>

- Intel Wi-Fi<sup>®</sup> 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- Mediatek Wi-Fi 6 MT7921, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- No WLAN and Bluetooth

#### Notes:

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

### Ports<sup>[1]</sup>

#### Front Ports

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x USB-C<sup>®</sup> 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

#### Rear Ports<sup>[2]</sup>

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

#### Optional Rear Ports<sup>\*\*\*</sup>

- 1x USB-C (video)
- 1x USB-C 3.2 Gen 2x2 (support data transfer, via USB-C expansion card, PCIe x4)
- 2x USB 2.0
- 2x USB 3.2 Gen 1
- 1x HDMI<sup>®</sup>
- 1x DP
- 1x Thunderbolt<sup>™</sup> 4
- 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;
- USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 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<sup>[1]</sup>

- (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<sup>\*\*[1][2]</sup>

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

### Diagnostic

#### Diagnostic

Lenovo UEFI Bootable Diagnostics

## SERVICE

### Warranty

#### Base Warranty<sup>\*\*[1]</sup>

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

Notes:

1. More information 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

**Green Certifications**

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

### Other Certifications

**Mil-Spec Test**

MIL-STD-810H military test passed

### ISV Certifications

**ISV Certifications**

Please visit [www.thinkworkstations.com/isv-certifications/](http://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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