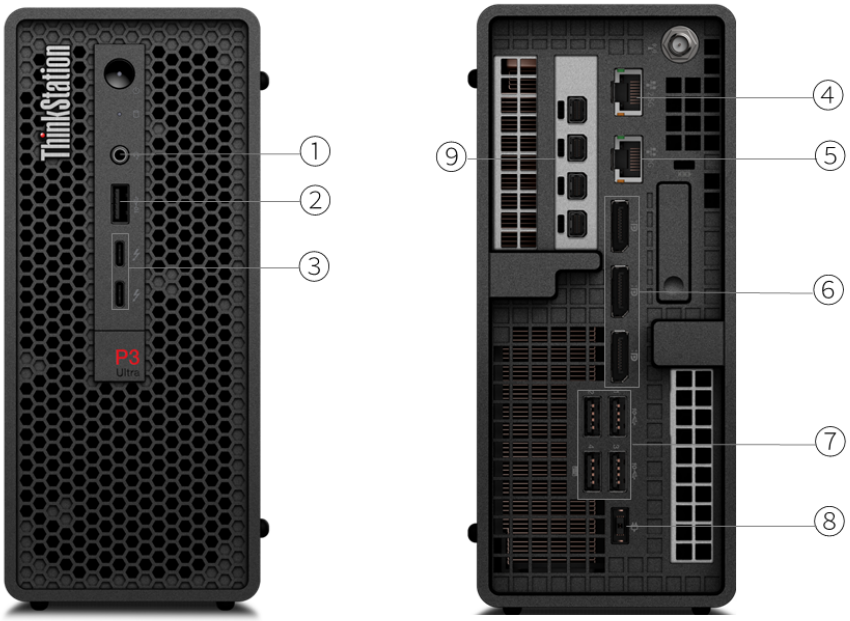
## OVERVIEW




| | |
|---|---|
| 1. Headphone (3.5mm) | 6. 3x DisplayPort |
| 2. USB-A (USB 10Gbps) | 7. 4x USB-A (USB 10Gbps) |
| 3. 2x Thunderbolt 4 | 8. Power connector |
| 4. Ethernet (2.5GbE RJ-45) | 9. Optional ports on expansion cards * |
| 5. Ethernet (GbE RJ-45) | |

Notes:

- Items with * are only available on selected models

# PERFORMANCE

## Processor

### Processor Family

Up to one Intel® Core™ i5 / i7 / i9 (12th Gen) or Intel® Core™ i3 / i5 / i7 / i9 (13th and 14th Gen) processor; supports up to 24 cores; up to 6GHz.

**Processor**[**][1]

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Memory Support | Processor Graphics |
|---|---|---|---|---|---|---|---|
| Core™ i5-12500 | 6 (6 P-core + 0 E-core) | 12 | P-core 3.0GHz | P-core 4.6GHz | 18MB | DDR5-4800 | Intel® UHD Graphics 770 |
| Core™ i7-12700 | 12 (8 P-core + 4 E-core) | 20 | P-core 2.1GHz / E-core 1.6GHz | Max Turbo up to 4.9GHz / P-core 4.8GHz / E-core 3.6GHz | 25MB | DDR5-4800 | Intel® UHD Graphics 770 |
| Core™ i9-12900 | 16 (8 P-core + 8 E-core) | 24 | P-core 2.4GHz / E-core 1.8GHz | Max Turbo up to 5.1GHz / P-core 5.0GHz / E-core 3.8GHz | 30MB | DDR5-4800 | Intel® UHD Graphics 770 |
| Core™ i3-13100 | 4 (4 P-core + 0 E-core) | 8 | P-core 3.4GHz | P-core 4.5GHz | 12MB | DDR5-4800 | Intel® UHD Graphics 730 |
| Core™ i5-13400T | 10 (6 P-core + 4 E-core) | 16 | P-core 1.3GHz / E-core 1.0GHz | P-core 4.4GHz / E-core 3.0GHz | 20MB | DDR5-4800 | Intel® UHD Graphics 730 |
| Core™ i5-13600 | 14 (6 P-core + 8 E-core) | 20 | P-core 2.7GHz / E-core 2.0GHz | P-core 5.0GHz / E-core 3.7GHz | 24MB | DDR5-4800 | Intel® UHD Graphics 770 |
| Core™ i5-13600K | 14 (6 P-core + 8 E-core) | 20 | P-core 3.5GHz / E-core 2.6GHz | P-core 5.1GHz / E-core 3.9GHz | 24MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i7-13700 | 16 (8 P-core + 8 E-core) | 24 | P-core 2.1GHz / E-core 1.5GHz | Max Turbo up to 5.2GHz / P-core 5.1GHz / E-core 4.1GHz | 30MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i7-13700K | 16 (8 P-core + 8 E-core) | 24 | P-core 3.4GHz / E-core 2.5GHz | Max Turbo up to 5.4GHz / P-core 5.3GHz / E-core 4.2GHz | 30MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i7-13700T | 16 (8 P-core + 8 E-core) | 24 | P-core 1.4GHz / E-core 1.0GHz | Max Turbo up to 4.9GHz / P-core 4.8GHz / E-core 3.6GHz | 30MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-13900 | 24 (8 P-core + 16 E-core) | 32 | P-core 2.0GHz / E-core 1.5GHz | Max Turbo up to 5.6GHz / P-core 5.2GHz / E-core 4.2GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-13900K | 24 (8 P-core + 16 E-core) | 32 | P-core 3.0GHz / E-core 2.2GHz | Max Turbo up to 5.8GHz / P-core 5.4GHz / E-core 4.3GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-13900T | 24 (8 P-core + 16 E-core) | 32 | P-core 1.1GHz / E-core 0.8GHz | Max Turbo up to 5.3GHz / P-core 5.1GHz / E-core 3.9GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i3-14100 | 4 (4 P-core + 0 E-core) | 8 | P-core 3.5GHz | P-core 4.7GHz | 12MB | DDR5-4800 | Intel® UHD Graphics 730 |
| Core™ i5-14400T | 10 (6 P-core + 4 E-core) | 16 | P-core 1.5GHz / E-core 1.1GHz | P-core 4.5GHz / E-core 3.2GHz | 20MB | DDR5-4800 | Intel® UHD Graphics 730 |
| Core™ i5-14600 | 14 (6 P-core + 8 E-core) | 20 | P-core 2.7GHz / E-core 2.0GHz | P-core 5.2GHz / E-core 3.9GHz | 24MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i5-14600K | 14 (6 P-core + 8 E-core) | 20 | P-core 3.5GHz / E-core 2.6GHz | P-core 5.3GHz / E-core 4.0GHz | 24MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i7-14700 | 20 (8 P-core + 12 E-core) | 28 | P-core 2.1GHz / E-core 1.5GHz | Max Turbo up to 5.4GHz / P-core 5.3GHz / E-core 4.2GHz | 33MB | DDR5-5600 | Intel® UHD Graphics 770 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Core™ i7-14700K | 20 (8 P-core + 12 E-core) | 28 | P-core 3.4GHz / E-core 2.5GHz | Max Turbo up to 5.6GHz / P-core 5.5GHz / E-core 4.3GHz | 33MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i7-14700T | 20 (8 P-core + 12 E-core) | 28 | P-core 1.3GHz / E-core 0.9GHz | Max Turbo up to 5.2GHz / P-core 5.0GHz / E-core 3.7GHz | 33MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-14900 | 24 (8 P-core + 16 E-core) | 32 | P-core 2.0GHz / E-core 1.5GHz | Max Turbo up to 5.8GHz / P-core 5.4GHz / E-core 4.3GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-14900K | 24 (8 P-core + 16 E-core) | 32 | P-core 3.2GHz / E-core 2.4GHz | Max Turbo up to 6.0GHz / P-core 5.6GHz / E-core 4.4GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |
| Core™ i9-14900T | 24 (8 P-core + 16 E-core) | 32 | P-core 1.1GHz / E-core 0.8GHz | Max Turbo up to 5.5GHz / P-core 5.1GHz / E-core 4.0GHz | 36MB | DDR5-5600 | Intel® UHD Graphics 770 |

**Processor Sockets**

1x FCLGA1700

Notes:

[1] Intel® Max Turbo frequency will vary depending on application workload and the hardware and software configurations, see http://www.intel.com/technology/turboboost/ for more information.

## Operating System

**Operating System****

- Windows® 11 Pro
- Windows® 11 Home
- Windows® 11 Home Single Language
- Windows® 11 DG Windows® 10 Pro 64
- Red Hat Enterprise Linux 9.2 (certified only, for detailed and latest information, please visit Red Hat Certified Hardware)
- Ubuntu Linux LTS
- No preload operating system

## Graphics

**Integrated Graphics****

- Intel® UHD Graphics 730
- Intel® UHD Graphics 770

**Discrete Graphics Support[1]**

Supports up to one NVIDIA® RTX A5500 Laptop GPU

**Discrete Graphics Offering**

| Graphics | Memory | Power | Connector | Form Factor | SLI / NVLink |
|---|---|---|---|---|---|
| NVIDIA® T400 4GB | 4GB GDDR6 | 40W | 3x miniDP 1.4 | Single slot | None |
| NVIDIA® T1000 8GB | 8GB GDDR6 | 50W | 4x miniDP 1.4 | Single slot | None |
| NVIDIA® RTX A2000 12GB | 12GB GDDR6 | 70W | 4x miniDP 1.4a | Dual slot | None |
| NVIDIA® RTX A3000 Laptop GPU | 12GB GDDR6 | 80W | 4x miniDP 1.4a | MXM Card | None |
| NVIDIA® RTX A5000 Laptop GPU | 16GB GDDR6 | 115W | 4x miniDP 1.4a | MXM Card | None |
| NVIDIA® RTX A5500 Laptop GPU | 16GB GDDR6 with ECC | 115W | 4x miniDP 1.4a | MXM Card | None |
| NVIDIA® RTX 4000 SFF Ada Generation | 20GB GDDR6 with ECC | 70W | 4x miniDP 1.4a | Dual slot | None |

Notes:

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

## Monitor Support

### Monitor Support

Supports up to 8 independent displays, 4 via onboard ports (3x DP and 2x Thunderbolt™, simultaneously supports 4 display) and 4 via discrete graphics.
Onboard ports support (with max simultaneous displays):
• DP supports up to 4096x2160@60Hz
• Thunderbolt™ supports up to 5120x2880@60Hz
Discrete graphics ports support (with max simultaneous displays):
• miniDP supports up to 4096x2160@120Hz (RTX A2000)

## Chipset

### Chipset

Intel® W680 chipset

## Memory

### Max Memory[1]

Up to 128GB (4x 32GB DDR5 SO-DIMM)

### Memory Type**

- DDR5-4800 SO-DIMM ECC[2]
- DDR5-4800 SO-DIMM non-ECC[3]

### Memory Slots

Four DDR5 SO-DIMM slots, dual-channel capable

### Memory Protection

ECC on models with ECC DIMMs and ECC capable processor

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.
[2], [3] System comes with DDR5-4800 memory and will run at lower speed due to platform limitations:
4x 32GB configuration runs at DDR5-3600;
other configurations run at DDR5-4000.

## Storage

### Storage Support[1][2]

Up to 1x 2.5" HDD or SSD + 2x M.2 SSD
• 2.5" HDD up to 1TB
• 2.5" SSD up to 7.68TB
• M.2 SSD up to 4TB each

### Storage Type***

| Disk Type | Interface | RPM | Offering | Security |
|---|---|---|---|---|
| 2.5" SATA HDD | SATA 6Gb/s | 7.2K | 1TB / 1TB FIPS | - |
| M.2 2280 SSD for Onboard M.2 slots | PCIe® NVMe®, PCIe® 4.0 x4 | - | 256GB | Opal |
| M.2 2280 SSD for Onboard M.2 slots | PCIe® NVMe®, PCIe® 4.0 x4 Performance | - | 256GB / 512GB / 1TB / 2TB / 4TB | Opal 2.0 |
| 2.5" SATA SSD | SATA 6Gb/s | - | 3.84TB / 7.68TB | Opal |

### Storage Controllers

| Storage Controller | Type | Interface | RAID | Cache |
|---|---|---|---|---|
| Integrated NVMe® controller | Standard | PCIe® NVMe® | 0/1 | None |
| Integrated SATA controller | Standard | SATA 6.0Gb/s | - | None |

Notes:

[1] The storage capacity supported is based on the test results with current Lenovo® storage offerings.
[2] For detailed storage bays infomation and how to upgrade optional drives for ThinkStation® products, please visit ThinkStation® Storage Upgrade Guide

## Multi-Media

**Audio Chip**

High Definition (HD) Audio, Realtek® ALC897-Q codec

**Speakers**

Single speaker

## Power Supply

**Power Supply****

| Power | Type | Efficiency | Key Features |
|---|---|---|---|
| 170W | Adapter | 90% | 100V - 240V |
| 230W | Adapter | 90% | 100V - 240V |
| 300W | Adapter | 90% | 100V - 240V |

# DESIGN

## Mechanical

**Form Factor**

Mini-tower (3.9L)

**Dimensions (WxDxH)**[1]

87 x 223 x 202 mm (3.43 x 8.78 x 7.95 inches)

**Weight**[2]

3.6 kg (7.94 lbs, maximum configuration)

**Bays**

1x 2.5" disk bay (optional, comes with disk)

**M.2 Slots**

- Two M.2 PCIe® Gen 4x4 slots (for SSD)
- One M.2 slot (for WLAN)

**Expansion Slots**

Two PCIe® slots with one PCIe® 4.0 x16 and one PCIe® 3.0 x8.
• Slot 1: PCIe® 4.0 x16 (via MXM to PCIe® riser card), low profile, 75W, double-width
• Slot 2: PCIe® 3.0 x8 (x4 lanes), low profile, 25W

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.

# CONNECTIVITY

## Network

**Onboard Ethernet**

Two Ethernet, 2.5GbE + GbE, Intel® Ethernet Connection I225-LM and I210-AT, 2x RJ-45, supports Wake-on-LAN

**Optional Ethernet**

One additional Ethernet adapter support, up to four additional GbE ports
• Gigabit Ethernet, Intel® I350-T2, 2x RJ-45, PCIe® x4
• Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe® x4
• Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe® x1

**WLAN + Bluetooth®**

- Intel® Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1 (Bluetooth® 5.3 hardware ready), Intel® vPro® technology support[1]
- No WLAN and Bluetooth®

Notes:

[1] Bluetooth® 5.3 is hardware ready but may run at a lower version due to OS limitations. Wi-Fi® 6E is only enabled on Windows® 11 and operates as Wi-Fi® 6 with Windows® 10.

### Ports[1]

**Front Ports**

- 2x Thunderbolt™ 4
- 1x USB-A (USB 10Gbps / USB 3.2 Gen 2)
- 1x headphone / microphone combo jack (3.5mm)

**Rear Ports**[2]

- 3x DisplayPort™ 1.2
- 1x Ethernet (2.5GbE RJ-45)
- 1x Ethernet (GbE RJ-45)
- 4x USB-A (USB 10Gbps / USB 3.2 Gen 2)

**Optional Rear Ports**

- 1x USB-C® (USB 20Gbps / USB 3.2 Gen 2x2), support data transfer, via USB-C® PCIe® x4 card
- 2x USB-C® (USB 10Gbps / USB 3.2 Gen 2), support data transfer, via additional PCIe® adapter
- 2x USB-A (USB 5Gbps / USB 3.2 Gen 1), via additional PCIe® adapter
- 4x serial (via 4-port serial expansion card, PCIe® x1)

Notes:

[1] The transfer speed of the 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 the theoretical speed.

[2] For video ports on discrete graphics, please see graphics section.

## SECURITY & PRIVACY

### Security

**Security Chip**

Discrete TPM 2.0, TCG certified, FIPS 140-2 certified

**Physical Locks**

Kensington® Security Slot™, 3 x 7 mm

**Chassis Intrusion Switch**

Chassis intrusion switch

**BIOS Security**

- Administrator password
- Power-on password
- UEFI Secure Boot
- Self-healing BIOS

## MANAGEABILITY

### System Management

**System Management**[1]

- Intel® vPro® Enterprise with Intel® AMT 16
- Non-vPro®

Notes:

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

## 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)

**Relative Humidity**

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

# CERTIFICATIONS

## Green Certifications[1]

**Green Certifications**

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Gold Registered[2]
- RoHS compliant
- TCO Certified 9.0

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 epeat.net for registration status by country.

## Other Certifications

**Mil-Spec Test**

MIL-STD-810H military test passed

## ISV Certifications

**ISV Certifications**

Please visit ISV certifications for Lenovo® Workstations

- 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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