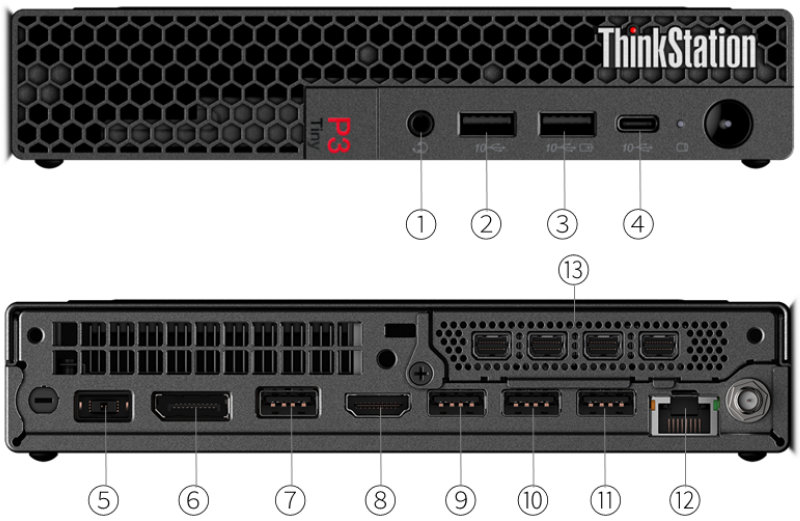
## OVERVIEW




| | |
|---|---|
| 1. Headphone / microphone combo jack (3.5mm) | 8. HDMI 2.1 TMDS |
| 2. USB 3.2 Gen 2 | 9. USB 3.2 Gen 1 (with Smart Power On feature) |
| 3. USB 3.2 Gen 2 (Always On and fast charge) | 10. USB 3.2 Gen 2 |
| 4. USB-C 3.2 Gen 2 | 11. USB 3.2 Gen 2 |
| 5. Power connector | 12. Ethernet (RJ-45) |
| 6. DisplayPort 1.4 | 13. 2 Punch out ports or expansion card * |
| 7. USB 3.2 Gen 1 | |

Notes:

- Items with * are only available on selected models

# PERFORMANCE

## Processor

**Processor Family**

Up to one 13th Gen Intel® Core™ i3 / i5 / i7 / i9 processor, supports up to 24 cores, up to 5.6GHz

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

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Memory Support | Processor Graphics |
|---|---|---|---|---|---|---|---|
| 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 i3-13100T | 4 (4 P-core + 0 E-core) | 8 | P-core 2.5GHz | P-core 4.2GHz | 12MB | DDR5-4800 | Intel UHD Graphics 730 |
| Core i5-13400 | 10 (6 P-core + 4 E-core) | 16 | P-core 2.5GHz / E-core 1.8GHz | P-core 4.6GHz / E-core 3.3GHz | 20MB | 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 i5-13500 | 14 (6 P-core + 8 E-core) | 20 | P-core 2.5GHz / E-core 1.8GHz | P-core 4.8GHz / E-core 3.5GHz | 24MB | DDR5-4800 | Intel UHD Graphics 770 |
| Core i5-13500T | 14 (6 P-core + 8 E-core) | 20 | P-core 1.6GHz / E-core 1.2GHz | P-core 4.6GHz / E-core 3.2GHz | 24MB | DDR5-4800 | Intel UHD Graphics 770 |
| 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 i5-13600T | 14 (6 P-core + 8 E-core) | 20 | P-core 1.8GHz / E-core 1.3GHz | P-core 4.8GHz / E-core 3.4GHz | 24MB | DDR5-4800 | 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 i7-13700T | 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 i9-13900T | 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 |

**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****

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

## Graphics

**Integrated Graphics****

- Intel UHD Graphics 730

- Intel UHD Graphics 770

**Discrete Graphics Support**[1]

Supports up to one NVIDIA® T1000 8GB

**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 | 4GB GDDR6 | 50W | 4x miniDP 1.4 | Single slot | None |
| NVIDIA T1000 8GB | 8GB GDDR6 | 50W | 4x miniDP 1.4 | Single slot | None |

Notes:

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

## Monitor Support

**Monitor Support**

Onboard graphics supports up to 4 independent displays via (onboard DP, onboard HDMI®, punch out port 1 [VGA / HDMI / DP / USB-C®], and punch out port 2 [VGA / HDMI / DP]);
the number of maximum monitors also depends on the discrete graphic card in use

## Chipset

**Chipset**

Intel Q670 chipset

## Memory

**Max Memory**[1]

Up to 64GB (2x 32GB DDR5 SO-DIMM)

**Memory Type**

- DDR5-4800 SO-DIMM non-ECC
- DDR5-5600 SO-DIMM non-ECC[2]

**Memory Slots**

Two DDR5 SO-DIMM slots, dual-channel capable

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.
[2] System may come with DDR5-5600 memory and will run at lower speed due to platform limitations:
1x 32GB / 2x 32GB configurations run at DDR5-5200

## Storage

**Storage Support**[1]

Up to two drives, 2x M.2 SSD, up to 2TB each

**Storage Type**

| Disk Type | Interface | Offering | Security |
|---|---|---|---|
| M.2 2280 SSD | PCIe® NVMe®, PCIe 4.0 x4 Performance | 512GB / 1TB / 2TB | Opal 2.0 |

**Storage Controllers**

| Storage Controller | Type | Interface | RAID | Cache |
|---|---|---|---|---|
| Integrated NVMe controller | Standard | PCIe NVMe | 0/1 | None |

Notes:

[1] The storage capacity supported is based on the test results with current Lenovo storage offerings.

## Removable Storage

**Optical Support**

Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW

## Multi-Media

**Audio Chip**

High Definition (HD) Audio, Realtek® ALC256VB codec

**Speakers****

- Single speaker
- Single speaker, premium

## 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**

Tiny (1L)

**Dimensions (WxDxH)**[1]

| Models | Dimensions |
|---|---|
| Tiny only | 179 x 182.9 x 37mm with rubber feet (7.0 x 7.2 x 1.5 inches with rubber feet) |
| Tiny & ODD | 204.2 x 186.6 x 64 mm with rubber feet (8.04 x 7.35 x 2.52 inches with rubber feet) |

**Weight**[2]

| Models | Weight |
|---|---|
| Tiny only | 1.4 kg (3 lbs, maximum configuration) |

**Bays**

No bays

**M.2 Slots**

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

**Expansion Slots**

One PCIe 4.0 x8, low-profile[3]

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] Supports discrete graphic card by x16 riser card (x8 signal), and supports Ethernet card / Thurderbolt 4 / serial card by x4 riser card. Riser card comes with the expension cards.

# CONNECTIVITY

## Network

**Onboard Ethernet**

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

**Optional Ethernet**

One additional ethernet adapter support, up to one additional 2.5GbE port
• Gigabit Ethernet, Intel I350-T2, 2x RJ-45, PCIe x4

- Gigabit Ethernet, Intel I350-T4, 4x RJ-45, PCIe x4
- Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe x1
- Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe x4
- 2.5 Gigabit Ethernet, Realtek RTL8125BGS, 1x RJ-45, BTB

**WLAN + Bluetooth®**[**]**

- Realtek Wi-Fi® 6 RTL8852BE, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.1
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1 (Bluetooth 5.2 hardware ready)
- 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**

- 1x USB 3.2 Gen 2
- 1x USB 3.2 Gen 2 (Always On and 5V@2.1A charging)
- 1x headphone / microphone combo jack (3.5mm)
- 1x USB-C 3.2 Gen 2 (support data transfer)

**Rear Ports**[2]

- 2x USB 3.2 Gen 1 (one supports Smart Power On)
- 2x USB 3.2 Gen 2
- 1x HDMI 2.1 TMDS
- 1x DisplayPort™ 1.4
- 1x Ethernet (RJ-45)

**Optional Rear Ports**

- Punch out port 1 (one of VGA / DisplayPort / HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort and PD 3.0 functions)
- Punch out port 2 (one of VGA / DisplayPort / HDMI / serial / RJ-45)
- 1x Thunderbolt™ 4 (via additional PCIe adapter)
- 2x USB 3.2 Gen 1 (occupies port 1 and 2)
- 4x USB 3.2 Gen 1 (share one USB 3.2 Gen 1 bandwidth, occupy port 1 and 2)
- 2x GbE RJ-45, via additional PCIe adapter
- 4x GbE RJ-45, via additional PCIe adapter
- 4x serial, via additional PCIe adapter

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, FIPS 140-2 certified

**Physical Locks**

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

**Chassis Intrusion Switch**

Chassis intrusion switch

**BIOS Security**

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Certificate based BIOS management
- Cover presence switch
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

# 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

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**

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Gold Registered[2]
- ErP Lot 3
- 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 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 ISV certifications for Lenovo Workstations

- Feature with ** means that only one offering listed under the feature is configured on selected models.
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