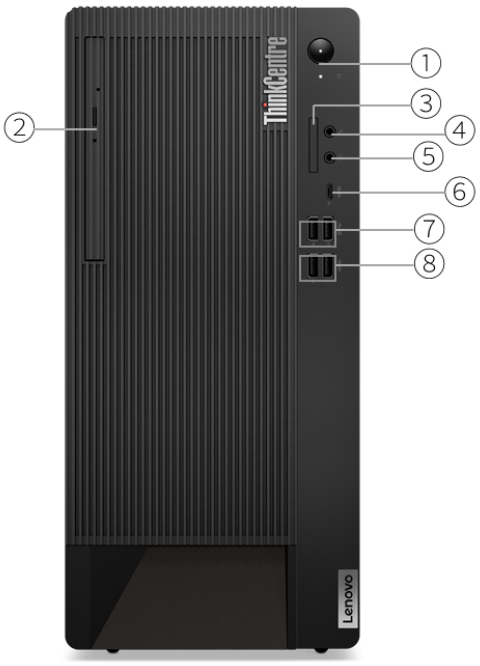
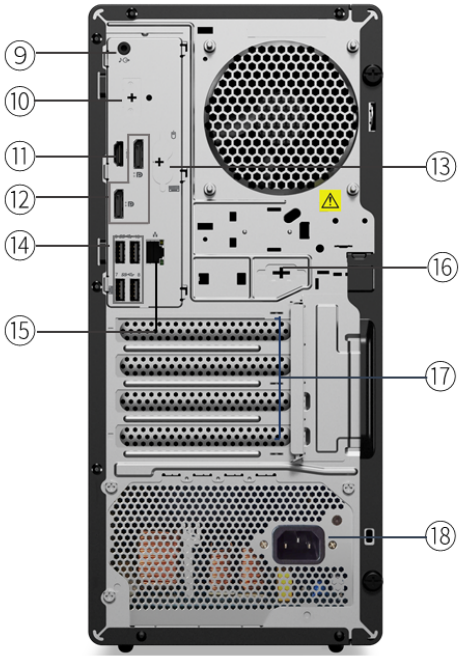
# OVERVIEW




| | |
|---|---|
| 1. Power button | 10. Flex IO * |
| 2. Optical drive * | 11. HDMI 2.1 TMDS |
| 3. Card reader * | 12. 2x DisplayPort 1.4a |
| 4. Microphone (3.5mm) | 13. 2x PS/2 ports (keyboard / mouse) * |
| 5. Headphone / microphone combo jack (3.5mm) | 14. 4x USB 3.2 Gen 1 |
| 6. USB-C 3.2 Gen 2 | 15. Ethernet (RJ-45) |
| 7. 2x USB 3.2 Gen 1 | 16. Serial * |
| 8. 2x USB 3.2 Gen 2 | 17. Optional ports on expansion cards * |
| 9. Line-out (3.5mm) | 18. Power connector |

Notes:

- Items with * are only available on selected models
- More ports are available through the optional expansion cards (not shown on the sample product above)

# PERFORMANCE

## Processor

**Processor Family**

13th Generation Intel® Core™ i3 / i5 / i7 / i9 Processor

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

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Processor Graphics |
|---|---|---|---|---|---|---|
| Core i3-13100 | 4 (4 P-core + 0 E-core) | 8 | P-core 3.4GHz | P-core 4.5GHz | 12MB | 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 | Intel® UHD Graphics 730 |
| Core i5-13400F | 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 | - |
| 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 | 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 | 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 | Intel® UHD Graphics 770 |
| Core i7-13700F | 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 | - |
| 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 | Intel® UHD Graphics 770 |
| Core i9-13900F | 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 | - |

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
- Windows® 10 IoT Enterprise LTSC 2021
- Ubuntu Linux[1]
- No preload 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

**Graphics***[1]

| Graphics | Type | Memory | Max Resolution | Connector | Key Features |
|---|---|---|---|---|---|
| Intel® UHD graphics 730 | Integrated | Shared | 4096x2304@60Hz(DP), 4096x2160@60Hz[HDMI® / Flex IO(HD MI) / Flex IO(DP)], 3840x2160@60Hz[Flex IO(USB-C®)], 2048x1536@50Hz[Flex IO(VGA)] | 2x DP 1.4a (HBR2, DSC), 1x HDMI® 2.1 TMDS, 1x Flex IO (VGA / DP 1.2 / HDMI® 2.1 TMDS / USB-C®) | DirectX® 12 |

| | | | | | |
|---|---|---|---|---|---|
| Intel® UHD graphics 770 | Integrated | Shared | 4096x2304@60Hz(DP), 4096x2160@60Hz[HDMI® / Flex IO(HD MI) / Flex IO(DP)], 3840x2160@60Hz[Flex IO(USB-C®)], 2048x1536@50Hz[Flex IO(VGA)] | 2x DP 1.4a (HBR2, DSC), 1x HDMI® 2.1 TMDS, 1x Flex IO (VGA / DP 1.2 / HDMI® 2.1 TMDS / USB-C®) | DirectX® 12 |
| NVIDIA® GeForce RTX™ 3050 | Discrete | 8GB GDDR6 | 7680x4320@60Hz(HDMI®), 7680x4320@120Hz(DP)[2] | 1x HDMI® 2.1 FRL, 3x DP 1.4a | DirectX® 12, OpenGL 4.6 |
| NVIDIA® GeForce RTX™ 4060 | Discrete | 8G GDDR6 | 7680x4320@60Hz(HDMI®), 7680x4320@60Hz(DP) | 1x HDMI® 2.1a FRL, 3x DP 1.4a | DirectX® 12, OpenGL 4.6 |
| AMD Radeon™ RX 6400 | Discrete | 4GB GDDR6 | 7680x4320@60Hz(HDMI®), 7680x4320@60Hz(DP) | 1x HDMI® 2.1 FRL, 1x DP 1.4a | DirectX® 12, OpenGL 4.6 |

Notes:

[1] The information of integrated graphics are not applicable for the models with processor which has no integrated graphics inside (for the details, please refer to processor section).
[2] Requires two DisplayPort™ 1.4a links and DSC compression.

## Monitor Support

**Monitor Support**[1]

Supports up to 4 independent displays via onboard ports (2x DP, 1x HDMI®, and 1x optional Flex IO), more displays support via discrete graphics

Notes:

[1] Onboard video ports are only available for the models with integrated graphics.

## Chipset

**Chipset**

Intel® Q670 chipset

## Memory

**Max Memory**[1]

Up to 128GB DDR5

**Memory Slots**

Four DDR5 UDIMM slots, dual-channel capable

**Memory Type**[2]

- DDR5-3600
- DDR5-4000
- DDR5-4400

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.
[2] Installed memory is actually DDR5-5600 but may run as DDR5-3600, DDR5-4000, or DDR5-4400 depending on the memory support capability of processor.

## Storage

**Storage Support**[1]

Up to five drives, 2x 2.5"/3.5" HDD + 1x 2.5" HDD + 2x M.2 SSD
• 2.5" HDD up to 1TB each
• 3.5" HDD up to 2TB
• M.2 SSD up to 2TB each

**Storage Type**[***]

| Disk Type | Interface | RPM | Security |
|---|---|---|---|
| 2.5" SATA HDD | SATA 6Gb/s | 7.2K | - |
| 3.5" SATA HDD | SATA 6Gb/s | 7.2K | - |
| M.2 2280 SSD | PCIe® NVMe®, PCIe® 4.0 x4 Performance | - | Opal 2.0 |
| M.2 2280 SSD | PCIe® NVMe®, PCIe® 4.0 x4 Value | - | Opal 2.0 |

**RAID**

RAID 0/1 support (RAID preset only available via special bid models)

Notes:

[1] The max capacity of each disk type is based on the test results with current Lenovo® storage offerings.

## Removable Storage

**Optical****

- DVD-ROM, SATA connector, slim (9.0mm)
- DVD burner (DVD±RW), SATA connector, slim (9.0mm)
- None

**Card Reader**

- 3-in-1 card reader (SD, SDHC, SDXC)
- No card reader

## Multi-Media

**Audio Chip**

High Definition (HD) Audio, Realtek® ALC897Q-CG codec

**Speakers**

Single speaker, 2W x1

## Power Supply

**Power Supply****

| Power | Type | Efficiency | Key Features |
|---|---|---|---|
| 260W | Fixed | 90% | 100-240V, 50-60Hz |
| 300W | Fixed | 90% | 100-240V, 50-60Hz |
| 500W | Fixed | 92% | 100-240V, 50-60Hz |

# DESIGN

## Input Device

**Keyboard****

- Lenovo® Calliope Keyboard (USB connector), black
- Lenovo® Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo® Traditional Keyboard (USB connector), black
- No keyboard

**Mouse****

- Lenovo® Calliope Mouse (USB connector), black
- Lenovo® Calliope Wireless Mouse (2.4GHz via USB receiver), black
- No mouse

## Mechanical

**Form Factor**

Tower (17L)

**Dimensions (WxDxH)[1]**

170 x 298 x 376 mm (6.7 x 11.7 x 14.8 inches)

**Packaging Dimensions (WxDxH)**

275 x 395 x 540 mm (10.8 x 15.6 x 21.4 inches)

**Weight**[2]

Around 6.5 kg (14.3 lbs)

**Packaging Weight**

9.8 kg (21.61 lbs)

**Case Color**

Black

**Bays**

- 1x 2.5" disk bay (bay comes with disk)
- 1x 3.5" disk bay
- 1x 3.5" disk bay (optional, or bay comes with disk)
- 1x slim ODD bay

**Expansion Slots**

- One PCIe® 4.0 x16 (x4 signal), full-height, length ≤ 205mm, height ≤ 114.55mm
- One PCIe® 4.0 x16, full-height, length ≤ 268.5mm, height ≤ 114.55mm
- One PCIe® 3.0 x1, full-height, length ≤ 205mm, height ≤ 114.55mm
- Three M.2 slots (one for WLAN, two for SSD)

**EOU**

Toolless cover, disk, optical, extension card assembly / removal

**Stand**

No stand

**Others**

- (Optional) Dust filter
- Supports Smart Power On

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**

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

**Optional Ethernet**

- 2.5 Gigabit Ethernet, Realtek® RTL8125BGS, 1x RJ-45, PCIe® x1
- No optional Ethernet

**WLAN + Bluetooth®****

- Realtek® Wi-Fi® 6 RTL8852BE, 802.11ax Dual Band 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 card[1]
- Intel® Wi-Fi® 6 AX201, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 Card[2]
- Intel® Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1, Intel® vPro® technology support, M.2 Card[3]
- No WLAN and Bluetooth®

Notes:

[1], [2], [3] Bluetooth® 5.2 is hardware ready but may run at a lower version due to OS limitations.

## Ports[1]

**Front Ports**

- 1x USB-C® 3.2 Gen 2 (support data transfer and 15W charging)
- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

### Optional Front Ports

1x card reader

### Rear Ports[2]

- 4x USB 3.2 Gen 1
- 1x HDMI® 2.1 TMDS
- 2x DisplayPort™ 1.4a (HBR2, DSC)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

### Optional Rear Ports***

- 1x USB-C® 3.2 Gen 1 with DisplayPort™ function and 5V@3A charging (Flex IO)
- 1x HDMI® 2.1 TMDS (Flex IO)
- 1x DP 1.2 (Flex IO)
- 1x VGA (Flex IO)
- 1x USB-C® 3.2 Gen 2x2 (support data transfer, via USB-C® expansion card, PCIe® x4)
- 2x USB-C® 3.2 Gen 2 (support data transfer, via 2-port USB-C® expansion card, PCIe® x4)
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe® x1)
- 2x USB 2.0 (via 2-port adapter)
- 1x parallel
- 1x serial
- 1x 2nd serial

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

### Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

### Fingerprint Reader

No fingerprint reader

### BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement
- Self-healing BIOS (Level 2)
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)

# MANAGEABILITY

## System Management

### System Management

- Intel® vPro® Enterprise[1]
- Non-vPro®

Notes:

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

# SERVICE

## Warranty[1]

### Base Warranty**

- 1-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.

# ACCESSORIES

## Bundled Accessories

### Bundled Accessories***

- DP to DVI dongle
- DP to HDMI® dongle
- DP to VGA dongle
- HDMI® to VGA dongle
- Smart Cable (USB-A to USB-C®)
- None

# OPERATING REQUIREMENTS

## Operating Environment

### Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

### Relative Humidity

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

### Altitude

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

# CERTIFICATIONS

## Green Certifications[1]

### Green Certifications

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Silver Registered[2]
- (Optional) EPEAT™ Gold Registered[3]
- 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. For ESG & regulatory compliance documents, please visit https://compliance.lenovo.com.
[2], [3] EPEAT™ is registered where applicable, please visit epeat.net for registration status by country.

## Other Certifications

### Other Certifications

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland® Ultra Low Noise

### Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation, Contamination by Fluids, Salt Fog)

- 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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