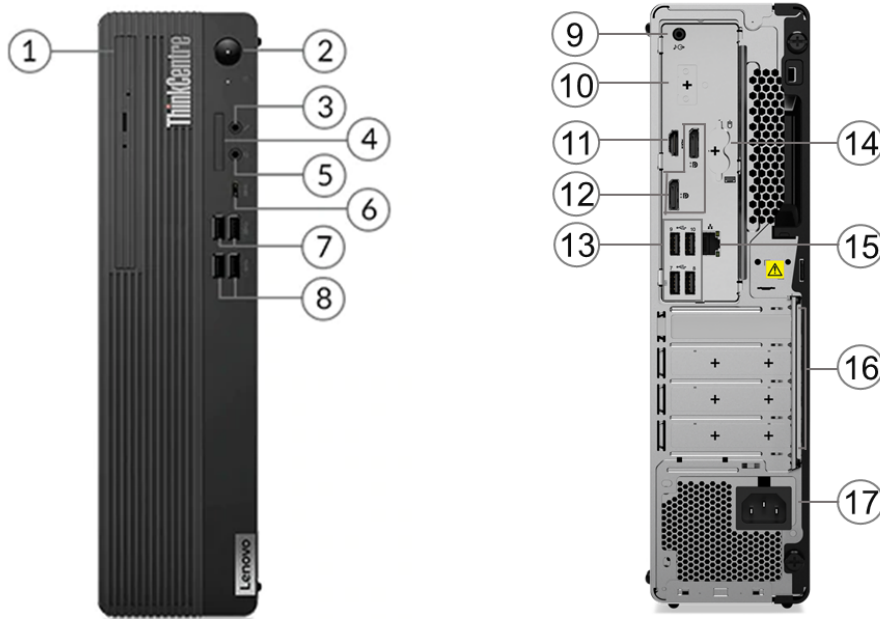


**OVERVIEW**



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

Notes:

- Ports 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

Intel® Pentium®, or 12th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

#### Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Processor Graphics
Pentium Gold G7400	2	4	3.7GHz	-	6MB	Intel UHD Graphics 710
Core i3-12100	4 (4 P-core + 0 E-core)	8	P-core 3.3GHz	P-core 4.3GHz	12MB	Intel UHD Graphics 730
Core i3-12300	4 (4 P-core + 0 E-core)	8	P-core 3.5GHz	P-core 4.4GHz	12MB	Intel UHD Graphics 730
Core i5-12600	6 (6 P-core + 0 E-core)	12	P-core 3.3GHz	P-core 4.8GHz	18MB	Intel UHD Graphics 770
Core i5-12400	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	Intel UHD Graphics 730
Core i5-12400F	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	-
Core i5-12500	6 (6 P-core + 0 E-core)	12	P-core 3.0GHz	P-core 4.6GHz	18MB	Intel UHD Graphics 770
Core i5-12600K	10 (6 P-core + 4 E-core)	16	P-core 3.7GHz / E-core 2.8GHz	P-core 4.9GHz / E-core 3.6GHz	20MB	Intel UHD Graphics 770
Core i7-12700	12 (8 P-core + 4 E-core)	20	P-core 2.1GHz / E-core 1.6GHz	P-core 4.8GHz / E-core 3.6GHz	25MB	Intel UHD Graphics 770
Core i7-12700F	12 (8 P-core + 4 E-core)	20	P-core 2.1GHz / E-core 1.6GHz	P-core 4.8GHz / E-core 3.6GHz	25MB	-
Core i7-12700K	12 (8 P-core + 4 E-core)	20	P-core 3.6GHz / E-core 2.7GHz	P-core 4.9GHz / E-core 3.8GHz	25MB	Intel UHD Graphics 770
Core i9-12900	16 (8 P-core + 8 E-core)	24	P-core 2.4GHz / E-core 1.8GHz	P-core 5.0GHz / E-core 3.8GHz	30MB	Intel UHD Graphics 770
Core i9-12900F	16 (8 P-core + 8 E-core)	24	P-core 2.4GHz / E-core 1.8GHz	P-core 5.0GHz / E-core 3.8GHz	30MB	-
Core i9-12900K	16 (8 P-core + 8 E-core)	24	P-core 3.2GHz / E-core 2.4GHz	P-core 5.1GHz / E-core 3.9GHz	30MB	Intel UHD Graphics 770

### Operating System

#### Operating System

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 DG Windows 10 Pro 64
- Windows 10 IoT Enterprise LTSC 2021
- Ubuntu Linux
- No operating system

### Graphics

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

Graphics	Type	Memory	Boost Clock	TGP	Connector	Max Resolution	Key Features	Remark
Intel UHD graphics 710	Integrated	Shared	-	-	2x DP 1.4 HBR2, 1x HDMI® 2.1 TMDS, 1x Flex IO (VGA / DP 1.2 /	4096x2304@60hz(DP), 4096x2160@60Hz[HDMI / Flex IO(HDMI) / Flex IO(DP)], 3840x2160@60Hz[Flex IO(USB-C)],	DirectX® 12	-

					HDMI 2.1 TMDS / USB-C®)	2048x1536@50Hz[Flex IO(VGA)]		
Intel UHD graphics 730	Integrated	Shared	-	-	2x DP 1.4 HBR2, 1x HDMI 2.1 TMDS, 1x Flex IO (VGA / DP 1.2 / HDMI 2.1 TMDS / USB-C)	4096x2304@60hz(DP), 4096x2160@60Hz[HDMI / Flex IO(HDMI) / Flex IO(DP)], 3840x2160@60Hz[Flex IO(USB-C)], 2048x1536@50Hz[Flex IO(VGA)]	DirectX 12	-
Intel UHD graphics 770	Integrated	Shared	-	-	2x DP 1.4 HBR2, 1x HDMI 2.1 TMDS, 1x Flex IO (VGA / DP 1.2 / HDMI 2.1 TMDS / USB-C)	4096x2304@60hz(DP), 4096x2160@60Hz[HDMI / Flex IO(HDMI) / Flex IO(DP)], 3840x2160@60Hz[Flex IO(USB-C)], 2048x1536@50Hz[Flex IO(VGA)]	DirectX 12	-
AMD Radeon™ RX 6400	Discrete	4GB GDDR6	-	-	1x HDMI 2.1, 1x DP 1.4	7680x4320@60Hz(HDMI), 7680x4320@60Hz(DP)	DirectX 12, OpenGL 4.6	-

**Notes:**

- The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

**Monitor Support****Monitor Support<sup>[1]</sup>**

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:**

- Onboard video ports are only available for the models with integrated graphics

**Chipset****Chipset**

Intel Q670 chipset

**Memory****Max Memory<sup>[1]</sup>**

Up to 128GB DDR5

**Memory Slots**

Four DDR5 UDIMM slots, dual-channel capable

**Memory Type<sup>[2]</sup>**

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

**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.
- Installed memory is actually 4800MHz, but may run at 3600MHz, 4000MHz, or 4400MHz depending on the memory support capability of processor

**Storage****Storage Support<sup>[1][2]</sup>**

Up to four drives, 1x 2.5"/3.5" HDD + 1x 2.5" HDD + 2x M.2 SSD

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

**Storage Type**

Disk Type	Interface	RPM	Offering	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	-	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x4	-	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-	Opal2
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4 Value	-	-	Opal2
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4 Performance	-	-	Opal2

**RAID**

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

**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. The max capacity of SSD/HDD is based on the test results with current Lenovo SSD/HDD offerings. The system may support more capacity as the technology develops.

**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, 1W x1

**Power Supply****Power Supply**

Power	Type	Efficiency	Key Features
260W	Fixed	90%	100-240V, 50-60Hz
310W	Fixed	92%	100-240V, 50-60Hz
380W	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 Keyboard (PS/2 connector), 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
- Lenovo Mouse (PS/2 connector), black (only available via special bid)
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

## Mechanical

### Form Factor

SFF (8.2L)

### Dimensions (WxDxH)

92.5 x 297.7 x 339.5 mm (3.6 x 11.7 x 13.4 inches)

### Packaging Dimensions (WxDxH)

195 x 395 x 530 mm (7.68 x 15.55 x 20.87 inches)

### Weight

Around 5.3 kg (11.7 lbs)

### Packaging Weight

7.6 kg (16.76 lbs)

### Case Color

Black

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

- 1x 2.5" disk bay
- 1x 3.5" disk bay
- 1x slim ODD bay

### Expansion Slots

- One PCIe 4.0 x16, low-profile, length ≤ 155mm, height ≤ 70mm
- One PCIe 4.0 x16 (x4 signal), low-profile, length ≤ 155mm, height ≤ 70mm
- Two PCIe 3.0 x1, low-profile, length ≤ 155mm, height ≤ 70mm
- Three M.2 slots (one for WLAN, two for SSD)

### EOU

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

### Stand

- Vertical stand
- No stand

### Others

- (Optional) Dust filter
- (Optional) Smart Cable (USB-A to USB-C)
- Supports Smart Power On

### Notes:

1. 2.5" HDD tray is optional, or comes with 2.5 HDD. 3.5" bay supports 2.5" / 3.5" HDD, 3.5" to 2.5 converter comes with 2nd 2.5" HDD.

## CONNECTIVITY

### Network

#### Onboard Ethernet

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

#### Optional Ethernet

- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- No optional Ethernet

#### WLAN + Bluetooth<sup>[1]</sup>

- AMD RZ616, Wi-Fi® 6E, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 Card
- Realtek Wi-Fi 6 RTL8852BE, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 card
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2, M.2 Card
- Intel Wi-Fi 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2, Intel vPro technology support, 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

- 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<sup>[2]</sup>

- 4x USB 3.2 Gen 1
- 1x HDMI 2.1 TMDS
- 2x DisplayPort™ 1.4
- 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 VGA (Flex IO)
- 1x DP 1.2 (Flex IO)
- 1x USB-C 3.2 Gen 2x2 (via USB-C expansion card, PCIe x4)
- 2x USB 2.0 (via 2-port adapter)
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- 1x serial
- 1x 2nd serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2
- None

### 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

## Monitor Cable

### Monitor Cable

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI dongle
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- No monitor cable

## SECURITY & PRIVACY

### Security

#### Security Chip

Discrete TPM 2.0, TCG 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

- Touch style fingerprint reader on mouse
- No fingerprint reader

#### BIOS Security

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

## MANAGEABILITY

### System Management

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

- Intel vPro Enterprise
- Non-vPro

#### Notes:

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

## SERVICE

### Warranty

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

- 1-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: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

#### 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

## Green Certifications

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- (Optional) ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 9.0
- RoHS compliant

## Other Certifications

### Other Certifications

(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)

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