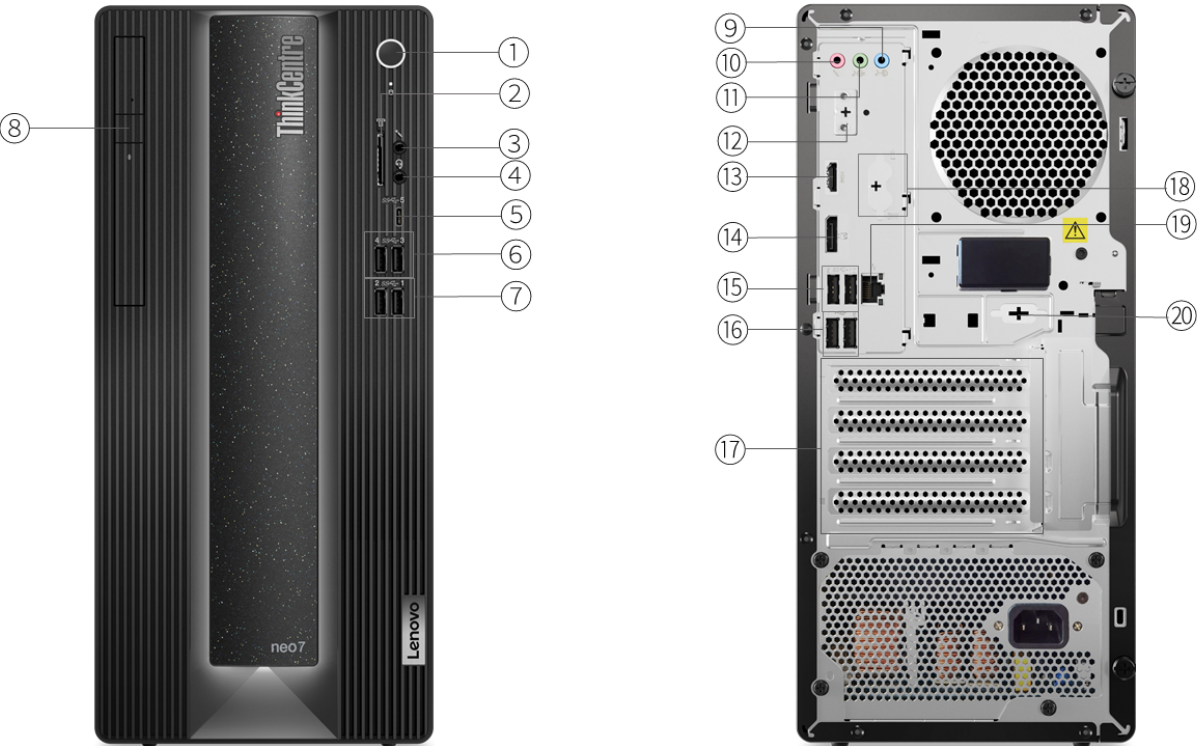


OVERVIEW



1. Power button	11. Line-out (3.5mm)
2. Card reader *	12. Flex IO *
3. Microphone (3.5mm)	13. HDMI 2.1 TMDs
4. Headphone / microphone combo jack (3.5mm)	14. DisplayPort 1.4
5. 1x USB-C 3.2 Gen 2	15. 2x USB 3.1 Gen 1
6. 2x USB 3.2 Gen 1	16. 2x USB 2.0 (one with smart power-on feature)
7. 2x USB 3.2 Gen 2	17. Expansion card *
8. Optical drive *	18. 2x PS/2 ports (keyboard / mouse) *
9. Line-in (3.5mm)	19. Ethernet (RJ-45)
10. Microphone (3.5mm)	20. Serial *

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

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

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-12100	4 (4 P-core + 0 E-core)	8	P-core 3.3GHz	P-core 4.3GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i5-12400	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	DDR5-4800	Intel UHD Graphics 730
Core i5-12400F	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	DDR5-4800	-
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	P-core 4.8GHz / E-core 3.6GHz	25MB	DDR5-4800	Intel UHD Graphics 770
Core i7-12700KF	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	DDR5-4800	-
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	DDR5-4800	Intel UHD Graphics 770
Core i9-12900KF	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	DDR5-4800	-

Operating System

Operating System**

- Windows® 11 Pro 64
- Windows 11 DG Windows 10 Pro 64
- No operating system

Graphics

Graphics***[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 730	Integrated	Shared	1x HDMI® 2.1 TMDS, 1x DP 1.4	4096x2160@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX® 12
Intel UHD graphics 770	Integrated	Shared	1x HDMI 2.1 TMDS, 1x DP 1.4	4096x2160@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX 12
NVIDIA® GeForce RTX™ 3060 Ti	Discrete	8G GDDR6	1x HDMI 2.1, 3x DP 1.4	7680*4320@60Hz(HDMI), 7680x4320@120Hz(DP)	DirectX 12

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*[1]

Supports up to 3 independent displays via onboard ports (HDMI, DisplayPort™, 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^[1]

Up to 128GB DDR5

Memory Slots

Four DDR5 UDIMM slots, dual-channel capable

Memory Type^[2]

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

Memory Protection

Non-ECC

Notes:

1. The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.
2. Installed memory is actually 4800MHz, but may run at 3600MHz, 4000MHz, or 4400MHz depending on the memory support capability of processor

Storage

Storage Support^{[1][2]}

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

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

Storage Type^{***}

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

RAID

RAID 0/1 support

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 1.5Gb/s, slim (9.0mm)
- DVD burner (DVD±RW), SATA 1.5Gb/s, 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® ALC623-CG codec

Speakers

- Single speaker, 2W x1
- No speakers

Power Supply

Power Supply

Power	Type	Efficiency	Key Features
750W	Fixed	92%	100-240V, autosensing

DESIGN

Input Device

Keyboard**

- Euterpe Wireless Keyboard, grey
- Lenovo Calliope Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Fingerprint Mouse (USB connector), black
- Euterpe Wireless Mouse, grey
- No mouse

Mechanical

Form Factor

Tower (17L)

Dimensions (WxDxH)

376 x 170 x 297.85 mm (14.8x 6.7 x 11.73 inches)

Packaging Dimensions (WxDxH)

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

Weight

Around 7.5kg (16.53 lbs)

Packaging Weight

All models: 10.5 kg (23.14 lbs)

Case Color

Raven black

Bays

- 1x 3.5" disk bay
- 1x 3.5" disk bay (optional)
- 1x slim ODD bay

Expansion Slots

- One PCIe 3.0 x1
- One PCIe 4.0 x16 (x4 signal)
- One PCIe 4.0 x16, full-height, lenght<249mm
- Three M.2 slots (one for WLAN, two for SSD)

Cooling System (Fan & Cooler)**

- (Optional) 1x front system fan, 1x rear system fan
- (Optional) 1x rear system fan
- (Optional) 1x front system fan

CONNECTIVITY

Network

Onboard Ethernet

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

Optional Ethernet**

- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, supports Wake-on-LAN
- Gigabit Ethernet, Realtek RTL8168H, 1x RJ-45, supports Wake-on-LAN
- No optional Ethernet

WLAN + Bluetooth®[1]**

- AMD RZ616, Wi-Fi® 6E, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 Card
- Realtek RTL8822BE, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.1, M.2 card
- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, 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, 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^[1]**Front Ports**

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

Optional Front Ports

1x card reader

Rear Ports^[2]

- 2x USB 2.0 (one with smart power-on feature)
- 2x USB 3.2 Gen 1
- 1x HDMI 2.1 TMDS
- 1x DisplayPort 1.4
- 1x Ethernet (RJ-45)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x microphone (3.5mm)

Optional Rear Ports***

- 1x HDMI 2.1 TMDS (Flex IO)
- 1x VGA (Flex IO)
- 1x DP 1.2 (Flex IO)
- 1x USB-C 3.2 Gen 1 (Flex IO)
- 1x USB-C 3.2 Gen 2x2 (via USB-C expansion card, PCIe x4)
- 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 1GbE RJ-45, via BN8E88
- 1x 1GbE RJ-45, via RGL8168H
- 1x 2.5GbE RJ-45, via RTL8125BGS
- 1x 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

- HDMI 1.4 to HDMI 1.4 cable (1.5m)
- HDMI 1.4 to VGA dongle
- DP 1.4 to HDMI 2.1 TMDS dongle
- DP 1.4 to dual DP 1.4 dongle
- DP 1.2 to VGA dongle
- Smart Cable (USB Type A-C)
- DP 1.2 to DVI dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Smart Cable Clip
- Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

Fingerprint Reader***

- Touch style fingerprint reader on mouse
- Touch style fingerprint reader on power button
- No fingerprint reader

BIOS Security

- Administrator password
- Secure Wipe
- Power-on password
- Hard disk password
- Cover presence switch
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)

MANAGEABILITY

System Management

System Management^[1]

- Intel vPro Essentials
- Non-vPro

Notes:

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

SERVICE

Warranty

Base Warranty**^[1]

- 1-year depot service
- 1-year limited onsite service

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Storage: -40°C (-40°F) to 60°C (140°F)
- Operating: 0°C (32°F) to 35°C (95°F)

Humidity

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

Altitude

- Operating: -15.2 m (-50 ft) to 3048 m (10,000 ft)
- Storage: -15.2 m (-50 ft) to 10668 m (35,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- RoHS / WEEE / REACH

Other Certifications

Other Certifications

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

- 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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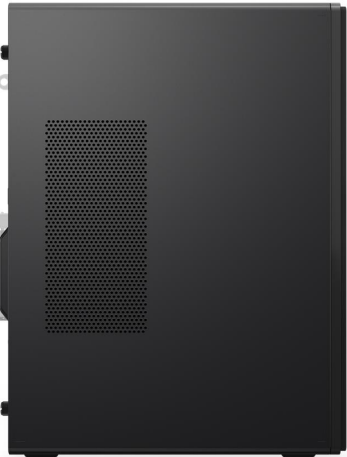
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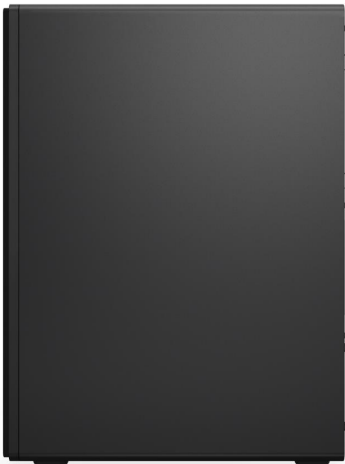
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