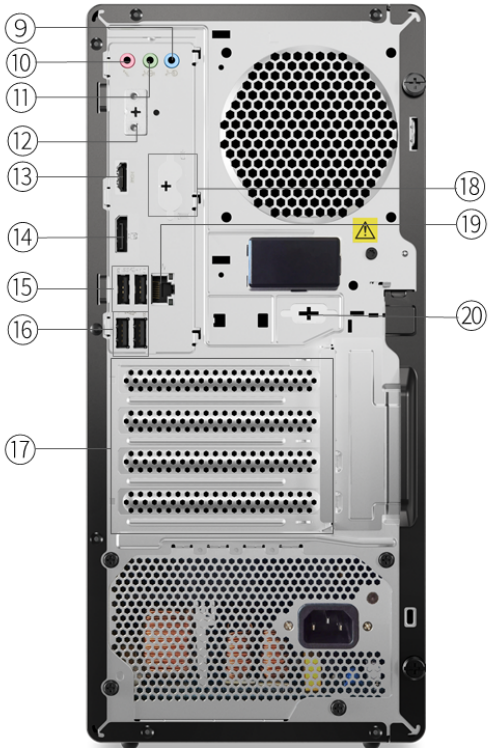
OVERVIEW



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:

- Items with * are only available on selected models
- Onboard video ports are only available for the models with integrated graphics

PERFORMANCE

Processor

Processor Family

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

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Processor Graphics
Core™ i3-12100	4 (4 P-core + 0 E-core)	8	P-core 3.3GHz	P-core 4.3GHz[1]	12MB	Intel® UHD Graphics 730
Core™ i5-12400	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz[2]	18MB	Intel® UHD Graphics 730
Core™ i5-12400F	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz[3]	18MB	-
Core™ i5-12500	6 (6 P-core + 0 E-core)	12	P-core 3.0GHz	P-core 4.6GHz[4]	18MB	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[5]	25MB	Intel® UHD Graphics 770
Core™ i7-12700KF	12 (8 P-core + 4 E-core)	20	P-core 3.6GHz / E-core 2.7GHz	Max Turbo up to 5.0GHz / P-core 4.9GHz / E-core 3.8GHz[6]	25MB	-
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[7]	30MB	Intel® UHD Graphics 770
Core™ i9-12900KF	16 (8 P-core + 8 E-core)	24	P-core 3.2GHz / E-core 2.4GHz	Max Turbo up to 5.2GHz / P-core 5.1GHz / E-core 3.9GHz[8]	30MB	-

Notes:

[1], [2], [3], [4], [5], [6], [7], [8] 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 DG Windows® 10 Pro 64
- No preload 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	4096x2304@60Hz(HDMI®), 4096x2304@60Hz(DP)	DirectX® 12
AMD Radeon™ RX 6500XT[2]	Discrete	4GB GDDR6	1x HDMI® 2.1, 1x DP 1.4	7680x4320@60Hz(HDMI®), 7680x4320@60Hz(DP)	DirectX® 12
NVIDIA® GeForce RTX™ 3050[3]	Discrete	8GB GDDR6	1x HDMI® 2.1 FRL, 3x DP 1.4a	7680x4320@60Hz(HDMI®), 7680x4320@120Hz(DP)	DirectX® 12, OpenGL 4.6
NVIDIA® GeForce RTX™ 3060 Ti[4]	Discrete	8G GDDR6	1x HDMI® 2.1, 3x DP 1.4	7680x4320@60Hz(HDMI®), 7680x4320@120Hz(DP)	DirectX® 12

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], [4] The onboard video ports HDMI® and DisplayPort™ are disabled on the models with discrete graphics.
[3] The onboard video ports HDMI® and DisplayPort™ are disabled on the models with discrete graphics. 7680x4320@120Hz(DP) requires two DisplayPort™ 1.4a links and DSC compression.

Monitor Support

Monitor Support

Supports up to 3 independent displays via onboard ports (HDMI®, DisplayPort™, and 1x optional Flex IO), more displays support via discrete 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.
[2] Installed memory is actually DDR5-4800, but may run at DDR5-3600, DDR5-4000, or DDR5-4400 depending on the memory support capability of processor.

Storage

Storage Support[1]

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	-	Opal 2.0
M.2 2280 SSD	PCIe® NVMe®, PCIe® 4.0 x4	-	Opal 2.0

RAID

RAID 0/1 support

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 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

- No speakers
- Single speaker, 2W x1

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
- Euterpe Wireless Mouse, grey
- No mouse

Mechanical

Form Factor

Tower (17L)

Dimensions (WxDxH)[1]

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[2]

Around 7.5 kg (16.53 lbs)

Packaging Weight

Around 10.5 kg (23.15 lbs)

Case Color

Raven black

Bays

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

Expansion Slots

- One PCIe® 4.0 x16 (x4 signal)
- One PCIe® 4.0 x16, full-height, lenght<249mm
- One PCIe® 3.0 x1
- 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

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-V, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

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

WLAN + Bluetooth®**

- 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, Intel® vPro® technology support, M.2 card
- 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]
- AMD Wi-Fi® 6E RZ616, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 Card[3]
- Intel® Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 Card[4]
- No WLAN and Bluetooth®

Notes:

[1], [2], [3], [4] 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
- 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][3]

- 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 USB-C® 3.2 Gen 1 (Flex IO)
- 1x HDMI® 2.1 TMDS (Flex IO)
- 1x DP 1.4 (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)
- 1x 1GbE RJ-45, via BN8E88
- 1x 1GbE RJ-45, via RGL8168H
- 1x 2.5GbE RJ-45, via RTL8125BGS
- 1x parallel
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe® x1)
- 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;
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.

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

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

(Optional) Smart Cable Clip

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader integrated in 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

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

Notes:

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

SERVICE

Warranty[1]

Base Warranty**

- 1-year courier or carry-in service
- 1-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)

Relative 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)

ACCESSORIES

Bundled Accessories

Bundled Accessories

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

CERTIFICATIONS

Green Certifications[1]

Green Certifications

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Silver Registered[2]
- ErP Lot 3
- RoHS / WEEE / REACH

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

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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