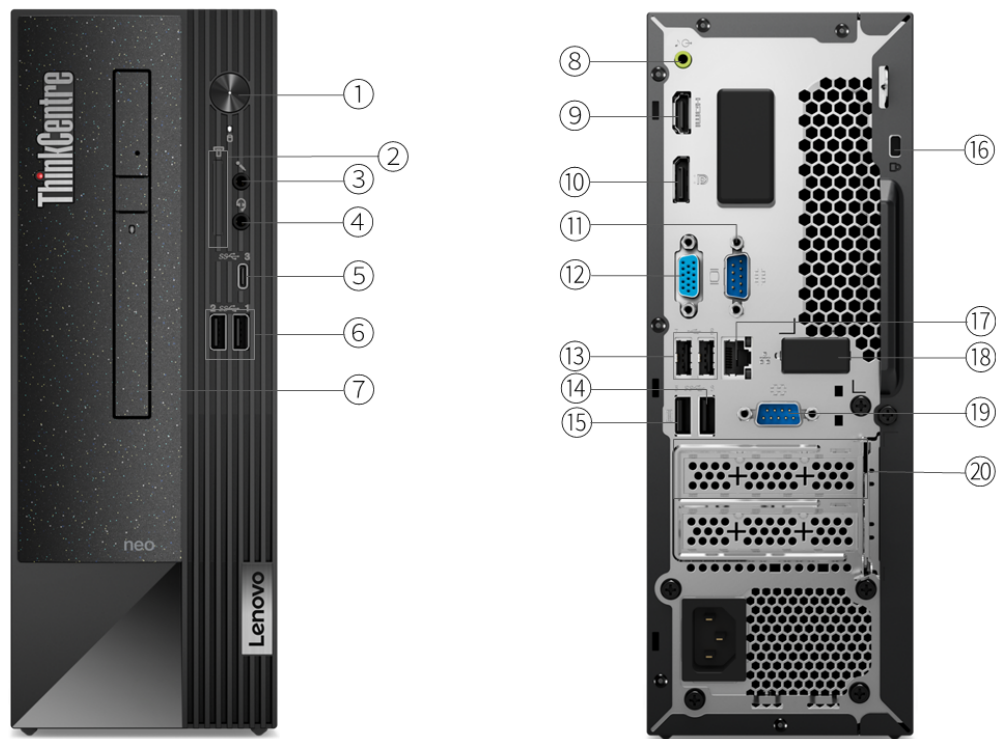


OVERVIEW



|  |                                       |
|--|---------------------------------------|
| 1. Power button                                  | 11. Serial *                          |
| 2. Card reader *                                 | 12. VGA                               |
| 3. Microphone jack (3.5mm)                       | 13. 2x USB 2.0                        |
| 4. Headphone / microphone combo jack (3.5mm)     | 14. 1x USB 3.2 Gen 1                  |
| 5. USB-C 3.2 Gen 1 (data transfer, 15W charging) | 15. 1x USB 3.2 Gen 1 (Smart Power On) |
| 6. 2x USB 3.2 Gen 1                              | 16. Kensington Security Slot          |
| 7. Optical drive *                               | 17. Ethernet (RJ-45)                  |
| 8. Audio line-out (3.5mm)                        | 18. Smart cable clip slots *          |
| 9. HDMI 2.1 TMDS                                 | 19. Serial *                          |
| 10. DisplayPort 1.4                              | 20. Optional ports *                  |

Notes:

- Items with \* are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel® Pentium®, or 12th / 13th Generation Intel® Core™ i3 / i5 / i7 Processor

Processor\*\*

| Processor Name      | Cores                    | Threads | Base Frequency                | Max Frequency  | Cache | Processor Graphics      |
|---------------------|--------------------------|---------|-------------------------------|--|-------|-------------------------|
| Celeron® G6900      | 2                        | 2       | 3.4GHz                        | -  | 4MB   | Intel® UHD Graphics 710 |
| 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 <sup>[1]</sup>   | 12MB  | Intel® UHD Graphics 730 |
| Core i3-12300       | 4 (4 P-core + 0 E-core)  | 8       | P-core 3.5GHz                 | P-core 4.4GHz <sup>[2]</sup>   | 12MB  | Intel® UHD Graphics 730 |
| Core i5-12400       | 6 (6 P-core + 0 E-core)  | 12      | P-core 2.5GHz                 | P-core 4.4GHz <sup>[3]</sup>   | 18MB  | Intel® UHD Graphics 730 |
| Core i5-12500       | 6 (6 P-core + 0 E-core)  | 12      | P-core 3.0GHz                 | P-core 4.6GHz <sup>[4]</sup>   | 18MB  | Intel® UHD Graphics 770 |
| Core i5-12600       | 6 (6 P-core + 0 E-core)  | 12      | P-core 3.3GHz                 | P-core 4.8GHz <sup>[5]</sup>   | 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 <sup>[6]</sup>  | 25MB  | Intel® UHD Graphics 770 |
| Core i3-13100       | 4 (4 P-core + 0 E-core)  | 8       | P-core 3.4GHz                 | P-core 4.5GHz <sup>[7]</sup>   | 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 <sup>[8]</sup>                           | 20MB  | 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 <sup>[9]</sup>                           | 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 <sup>[10]</sup>                          | 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 <sup>[11]</sup> | 30MB  | Intel® UHD Graphics 770 |

Notes:

[1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11] 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
- Ubuntu Linux<sup>[1]</sup>
- 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

\*\*[]

| Graphics                | Type       | Memory | Max Resolution   | Connector                                    | Key Features   |
|-------------------------|------------|--------|--|--|----------------|
| Intel® UHD graphics 710 | Integrated | Shared | 3840×2160@60Hz(HDMI®),<br>1920x1200@60Hz(VGA),<br>4096x2304@60Hz(DP) | 1x HDMI® 2.1 TMDS, 1x<br>VGA, 1x DP 1.4 HBR2 | DirectX®<br>12 |
| Intel® UHD graphics 730 | Integrated | Shared | 3840×2160@60Hz(HDMI®),<br>1920x1200@60Hz(VGA),<br>4096x2304@60Hz(DP) | 1x HDMI® 2.1 TMDS, 1x<br>VGA, 1x DP 1.4 HBR2 | DirectX®<br>12 |
| Intel® UHD graphics 770 | Integrated | Shared | 3840×2160@60Hz(HDMI®),<br>1920x1200@60Hz(VGA),<br>4096x2304@60Hz(DP) | 1x HDMI® 2.1 TMDS, 1x<br>VGA, 1x DP 1.4 HBR2 | DirectX®<br>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).

## Monitor Support

### Monitor Support

Supports up to 3 independent displays via (HDMI®, DP and VGA)

## Chipset

### Chipset

Intel® B660 chipset

## Memory

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

Up to 64GB DDR4-3200

### Memory Slots

Two DDR4 UDIMM slots, dual-channel capable

### Memory Type

DDR4-3200

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.

## Storage

### Storage Support<sup>[1]</sup>

Up to two drives, 1x 3.5" HDD + 1x M.2 SSD

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

### Storage Type<sup>\*\*\*</sup>

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

Notes:

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

## Removable Storage

### Optical<sup>\*\*</sup>

- DVD-ROM, SATA 1.5Gb/s, slim (9.0mm)
- DVD burner (DVD±RW), SATA connector, slim (9.0mm)

- None

Card Reader

- 7-in-1 card reader (SD, SDHC, SDXC, MMC, MS, MS-Pro, XD)
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623-CG codec

Speakers

- No speakers
- Single speaker, 1W x1

Power Supply

Power Supply\*\*

| Power | Type  | Efficiency | Key Features                        |
|-------|-------|------------|-------------------------------------|
| 180W  | Fixed | 85%        | Autosensing                         |
| 260W  | Fixed | 90%        | Autosensing, 80 PLUS Gold qualified |

DESIGN

Input Device

Keyboard\*\*

- Lenovo® Calliope Keyboard (USB connector), black
- Lenovo® Traditional Keyboard (USB connector), black
- No keyboard

Mouse

- Lenovo® Calliope Mouse (USB connector), black
- No mouse

Mechanical

Form Factor

SFF (7.4L)

Dimensions (WxDxH)<sup>[1]</sup>

100 x 308 x 274.8 mm (3.9 x 12.1 x 10.8 inches)

Packaging Dimensions (WxDxH)

195 x 390 x 500 mm (7.7 x 15.4 x 19.7 inches)

Weight<sup>[2]</sup>

Around 4.5 kg (9.9 lbs)

Packaging Weight

Around 6.35 kg (14 lbs)

Case Color

Raven black

Bays

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

Expansion Slots

- One PCIe® 4.0 x16, low-profile (length < 167.65mm, height < 68.90mm)
- One PCIe® 3.0 x1, low-profile (length < 167.65mm, height < 68.90mm)
- Two M.2 slots (one for WLAN, one for SSD)

Stand

- Vertical stand
- No stand

Others

(Optional) Smart Cable (USB-A to USB-C®)

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

#### WLAN + Bluetooth®\*\*

- Realtek® Wi-Fi® 6 RTL8852BE, 802.11ax Dual Band 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 card
- Intel® Wi-Fi® 6 AX201, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1 (Bluetooth® 5.2 hardware ready), M.2 Card<sup>[1]</sup>
- Intel® Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1 (Bluetooth® 5.3 hardware ready), M.2 Card<sup>[2]</sup>
- No WLAN and Bluetooth®

#### Onboard Ethernet

Gigabit Ethernet, Realtek® RTL8111HN, 1x RJ-45, supports Wake-on-LAN

Notes:

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

[2] Bluetooth® 5.3 is hardware ready but may run at a lower version due to OS limitations.

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

#### Front Ports

- 1x USB-C® 3.2 Gen 1 (support data transfer and 5V@3A charging)
- 2x USB 3.2 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

#### Optional Front Ports

1x card reader

#### Rear Ports

- 2x USB 2.0
- 2x USB 3.2 Gen 1 (one supports Smart Power On)
- 1x HDMI® 2.1 TMDS
- 1x DisplayPort™ 1.4
- 1x VGA
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

#### Optional Rear Ports\*\*\*

- 2x USB 2.0
- 1x parallel
- 1x serial
- 1x 2nd serial
- 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.

## SECURITY & PRIVACY

## Security

### Security Chip

Discrete TPM 2.0, TCG certified

### Physical Locks

- (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

- Hard disk password
- Power-on password
- Supervisor password
- Cover presence switch
- Individual USB port disablement
- Intel® BIOS guard
- Secure wipe
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- More BIOS security features, please visit [BIOS Simulator](#)<sup>[1]</sup>

Notes:

[1] The BIOS simulator is just for reference. Default settings and some options may vary depending on the hardware, operating system and BIOS version.

## MANAGEABILITY

### System Management

#### System Management

Non-vPro®

## SERVICE

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

#### Base Warranty\*\*

- 1-year courier or carry-in service
- 1-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://support.lenovo.com/warrantylookup/warrantypolicy>.

## ACCESSORIES

### Bundled Accessories

#### Bundled Accessories

- DP to DVI dongle
- DP to Dual DP dongle
- DP to HDMI® dongle
- DP to VGA dongle

- HDMI® to HDMI® dongle
- HDMI® to VGA dongle
- 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<sup>[1]</sup>

#### Green Certifications

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Silver Registered<sup>[2]</sup>
- (Optional) EPEAT™ Gold Registered<sup>[3]</sup>
- ErP Lot 3
- RoHS compliant
- TCO Certified

#### 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](https://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 option listed under the feature can be configured on selected models. Please refer to the model configuration for specific information.
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