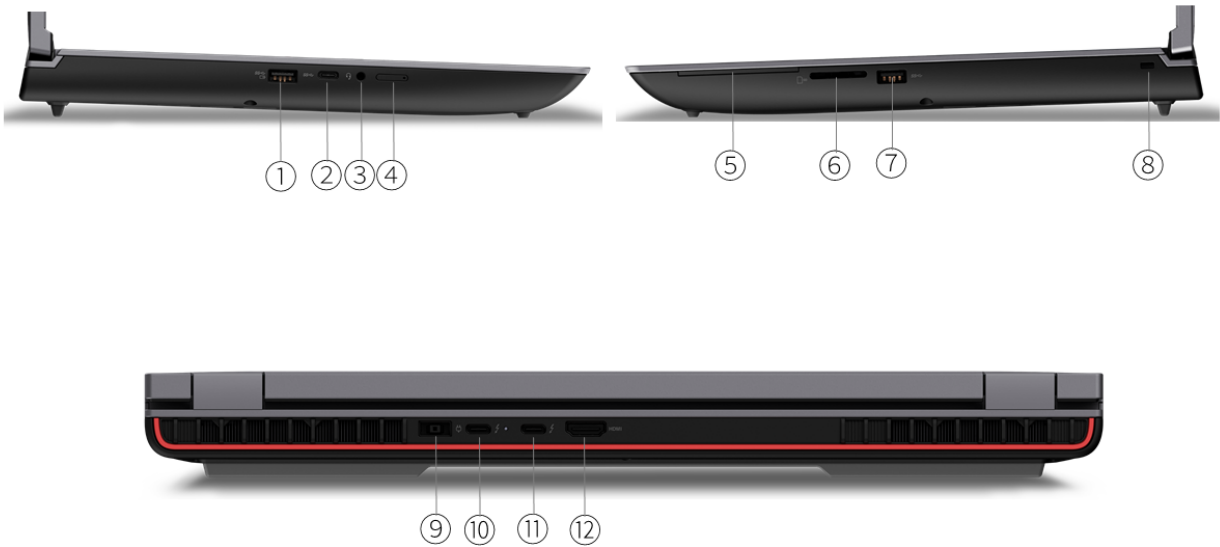


OVERVIEW



1. USB 3.2 Gen 1 (one Always On)	7. USB 3.2 Gen 1
2. USB-C 3.2 Gen 2	8. Kensington Nano Security Slot
3. Headphone / microphone combo jack (3.5mm)	9. Power connector
4. Nano-SIM card slot *	10. Thunderbolt 4
5. Smart card reader *	11. Thunderbolt 4
6. SD Express 7.0 card reader	12. HDMI

- Notes:
- Items with * are only available on selected models

PERFORMANCE

Processor

Processor Family

12th Generation HX series Intel® Core™ i5 / i7 / i9 processor, supports up to 16 cores, up to 5.0GHz

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Processor Graphics
Core i9-12950HX	16 (8 P-core + 8 E-core)	24	P-core 2.3GHz / E-core 1.7GHz	P-core 5.0GHz / E-core 3.6GHz	30MB	Intel UHD Graphics
Core i7-12850HX	16 (8 P-core + 8 E-core)	24	P-core 2.1GHz / E-core 1.5GHz	P-core 4.8GHz / E-core 3.4GHz	25MB	Intel UHD Graphics
Core i5-12600HX	12 (4 P-core + 8 E-core)	16	P-core 2.5GHz / E-core 1.8GHz	P-core 4.6GHz / E-core 3.3GHz	18MB	Intel UHD Graphics
Core i7-12800HX	16 (8 P-core + 8 E-core)	24	P-core 2.0GHz / E-core 1.5GHz	P-core 4.8GHz / E-core 3.4GHz	25MB	Intel UHD Graphics
Core i9-12900HX	16 (8 P-core + 8 E-core)	24	P-core 2.3GHz / E-core 1.7GHz	P-core 5.0GHz / E-core 3.6GHz	30MB	Intel UHD Graphics

Operating System

Operating System**[1]

- Windows® 11 Pro
- Windows 11 Home
- Windows 11 Home Single Language
- Windows 11 DG Windows 10 Pro 64
- Fedora Linux
- Ubuntu Linux LTS
- Ubuntu Linux with Data Science Preload
- Red Hat Enterprise Linux 8.6 (certified only, available in late 2022, for detailed and latest information, please visit [Red Hat Certified Hardware](#))

Notes:

1. Some features may not be supported on the system with Linux preload, including but not limited to Intel RST RAID, MIPI computer vision camera, WWAN, Human Presence Detection, etc.

Graphics

Graphics

Graphics	Type	Memory	TGP	Key Features
Intel UHD Graphics	Integrated	Shared	Share CPU TDP	DirectX® 12.1
Intel Arc™ Pro A30M Graphics	Discrete	4GB GDDR6	35W	DirectX 12 Ultimate, Deep Link technologies
NVIDIA® RTX A1000 Laptop GPU	Discrete	4GB GDDR6	60W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A2000 8GB Laptop GPU	Discrete	8GB GDDR6	60W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A3000 12GB Laptop GPU	Discrete	12GB GDDR6 ECC	115W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A4500 Laptop GPU	Discrete	16GB GDDR6 ECC	115W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A5500 Laptop GPU	Discrete	16GB GDDR6 ECC	115W	Dynamic Boost 2.0, DirectX 12

Monitor Support

Monitor Support

Supports up to 5 independent displays (native display and 4 external monitors via HDMI®, USB-C® and Thunderbolt™)

- HDMI supports up to 3840x2160@60Hz on integrated or Arc graphics models; 7680x4320@60Hz on NVIDIA graphics models
- USB-C supports up to 5120x3200@60Hz
- Thunderbolt supports up to 5120x3200@60Hz

Chipset

Chipset

Intel WM690 chipset

Memory

Max Memory^[1]

Up to 128GB (4x 32GB DDR5 SO-DIMM)

Memory Slots

Four DDR5 SO-DIMM slots, dual-channel capable

Memory Type^{**[2]}

- DDR5-4800 ECC
- DDR5-4800 non-ECC

Memory Protection

ECC on models with ECC DIMMs and ECC capable processor (i5-12600HX / i7-12850HX / i9-12950HX)

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. System comes with DDR5-4800 memory and will run at DDR5-4000 and DDR5-3600 due to platform limitation:
4x 32GB configuration runs at DDR5-3600, other configurations run at DDR5-4000.

Storage

Storage Support^[1]

Up to two drives, 2x M.2 SSD

- M.2 2280 SSD up to 8TB, 4TB each
- RAID 0/1 support

Storage Slot

Two M.2 2280 PCIe® 4.0 x4 slots

Storage Type

Disk Type	Interface	RPM	Offering	Security
M.2 2280 SSD	PCIe NVMe®, PCIe 4.0 x4	-	256GB / 512GB / 1TB	Opal 2.0
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4 Performance	-	512GB / 1TB / 2TB / 4TB	Opal 2.0

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.

Removable Storage

Card Reader

SD Express 7.0 card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC3306 codec

Speakers

Stereo speakers, 2W x2, Dolby® Atmos®

Microphone

- Dual-microphone array, far-field, Dolby Voice
- No microphone

Camera**

- FHD 1080p, with privacy shutter, fixed focus
- FHD 1080p + IR, with privacy shutter, fixed focus
- No camera

Battery

Battery

Integrated Li-Polymer 94Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 230W AC adapter

Power Adapter

Power Adapter**[1]

- 170W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz
- 230W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz

Notes:

- AC adapter offerings depend on the country.

DESIGN

Display

Display**[1]

Size	Resolution	Touch	Type	Brightness	Surface	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle (L/R/U/D)	Key Features
16"	WUXGA (1920x1200)	None	IPS	300 nits	Anti-glare	16:10	1200:1	100% sRGB	89°/89°/89°/89°	Low Blue Light, X-Rite® Pantone® Factory Color Calibration, 83.4% screen to body ratio, DC dimming
16"	WQXGA (2560x1600)	None	IPS	400 nits	Anti-glare	16:10	1200:1	100% sRGB	85°/85°/85°/85°	Low Blue Light, X-Rite Pantone Factory Color Calibration, 83.4% screen to body ratio, DC dimming
16"	WQUXGA (3840x2400)	None	IPS	600 nits	Anti-glare	16:10	1500:1	100% Adobe® RGB	89°/89°/89°/89°	Low Blue Light, Dolby Vision™, DisplayHDR™ 400, X-Rite Pantone Factory Color Calibration, 83.4% screen to body ratio, DC dimming
16"	WQUXGA (3840x2400)	Multi-touch	OLED	400 nits	Anti-reflection,	16:10	100,000:1	100% DCI-P3	87.5°/87.5°/87.5°/87.5°	Low Blue Light, Dolby

					Anti-smudge					Vision, HDR 500 True Black, X-Rite Pantone Factory Color Calibration, 83.4% screen to body ratio
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Color Calibration

X-Rite Pantone factory color calibration

Touchscreen

- OGM multi-touch, supports 10-point touch
- Non-touch

Notes:

1. California Electronic Waste Recycling Fee
In California, per state law, Lenovo charges an electronic waste recycling fee on this covered device at the time of sale of the product. For more information, go to <https://www.calrecycle.ca.gov/Electronics/Consumer>

Input Device

Pen

- Lenovo Precision Pen 2 with built-in rechargeable battery, 4096 levels of pressure sensitivity, tilt detection, supports WGP, AES 2.0 and MPP 2.0 protocols. For more information, please read [Lenovo Precision Pen 2](#)
- No pen (purchase separately)
- No support

Keyboard

6-row, spill-resistant, multimedia Fn keys with Unified Communications controls, numeric keypad

Keyboard Backlight

LED backlight

UltraNav™

3-button TrackPoint® pointing device and glass-like Mylar® surface multi-touch touchpad, 67.6 x 115 mm (2.66 x 4.53 inches)

Mechanical

Dimensions (WxDxH)^[1]

364 x 266 x 30.23 mm (14.3 x 10.5 x 1.2 inches)

Weight^[2]

Starting at 2.95 kg (6.5 lbs)

Case Color

Storm grey (top), villi black (bottom)

Case Material

AL5052 (97.25% aluminium, 2.5% magnesium, and 0.25% chromium; Top), PPS + 50% GF (Bottom)

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

Ethernet^[1]

No onboard Ethernet

WLAN + Bluetooth®^[2]

- Intel Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1
- No WLAN and Bluetooth

WWAN**

- Wireless WAN upgradable to 4G (with antenna ready)
- Fibocom L860-GL-16, 4G LTE CAT16, MIMO 4x4, M.2 card
- No support

SIM Card

- Gemalto eSIM card (physical)
- No SIM card inbox

NFC

- Near Field Communication
- No support

Notes:

1. Ethernet support via optional docking or Lenovo USB-C to Ethernet Adapter.
2. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitations.

Ports^[1]**Standard Ports**

- Models with NVIDIA graphics: 1x HDMI, up to 8K/60Hz
- Models with integrated or Intel Arc graphics: 1x HDMI, up to 4K/60Hz
- 2x USB 3.2 Gen 1 (one Always On)
- 1x USB-C 3.2 Gen 2 (support data transfer, Power Delivery 3.0 and DisplayPort™ 1.4)
- 2x Thunderbolt 4 / USB4® 40Gbps (support data transfer, Power Delivery 3.0 and DisplayPort 1.4)
- 1x Headphone / microphone combo jack (3.5mm)
- 1x SD Express 7.0 card reader

Optional Ports

- 1x Smart card reader
- 1x Nano-SIM card slot (WWAN support models)

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

Docking**Docking**

Various docking solutions supported via Thunderbolt or USB-C.

For more compatible docking solutions, please visit [Docking for ThinkPad® P16 Gen 1](#)

Monitor Cable**Monitor Cable**

- (Optional) Lenovo USB-C to DisplayPort Adapter
- (Optional) Lenovo HDMI to VGA Monitor Adapter
- (Optional) Lenovo USB-C to VGA Adapter
- Lenovo HDMI to VGA Monitor Adapter
- Lenovo USB-C to VGA Adapter
- Lenovo USB-C to DisplayPort Adapter
- No monitor cable

SECURITY & PRIVACY**Security****Security Chip**

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Nano Security Slot™, 2.5 x 6 mm

Smart Card Reader

- Smart card reader
- No smart card reader

Fingerprint Reader

Touch style fingerprint reader integrated in power button, match-on-chip

BIOS Security

- Power-on password
- Supervisor password
- NVMe password
- Self-healing BIOS

Other Security

- (Optional) Camera privacy shutter
- Bottom cover tamper detection
- (Optional) IR camera for Windows Hello

MANAGEABILITY

System Management

System Management

- Intel vPro® Enterprise
- Non-vPro

SERVICE

Warranty^[1]

Base Warranty**

- 1-year courier or carry-in service
- 1-year courier or carry-in with 2-year system board service (Korea only)
- 1-year limited onsite service
- 3-year (1-yr battery) courier or carry-in service
- 3-year (1-yr battery) 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^[1]

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage and transportation in original shipping packaging: -20°C (-4°F) to 60°C (140°F)
- Storage without package: 5°C (41°F) to 43°C (109°F)

Humidity

- Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)
- Storage and transportation: 5% to 95% at wet-bulb temperature 27°C (81°F)

Altitude

Maximum altitude (without pressurization): 3048 m (10,000 ft)

Notes:

1. When you charge the battery, its temperature must be no lower than 10°C (50°F).

ACCESSORIES

Bundled Accessories

Bundled Accessories

- Lenovo USB-C to Ethernet Adapter (1Gbps)
- Lenovo USB-C to Ethernet Adapter (2.5Gbps)
- None

CERTIFICATIONS

Green Certifications^[1]

Green Certifications^[2]

- EPEAT™ Gold
- ENERGY STAR® 8.0
- TCO Certified 9.0
- RoHS compliant

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 <https://www.epeat.net> for registration status by country.

Other Certifications

Mil-Spec Test

MIL-STD-810H military test passed

Other Certifications

TÜV Rheinland® Low Blue Light

ISV Certifications

ISV Certifications

Please visit [ISV certifications for Lenovo Workstations](#)

- Feature with ** means that only one offering listed under the feature is configured on selected models.
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