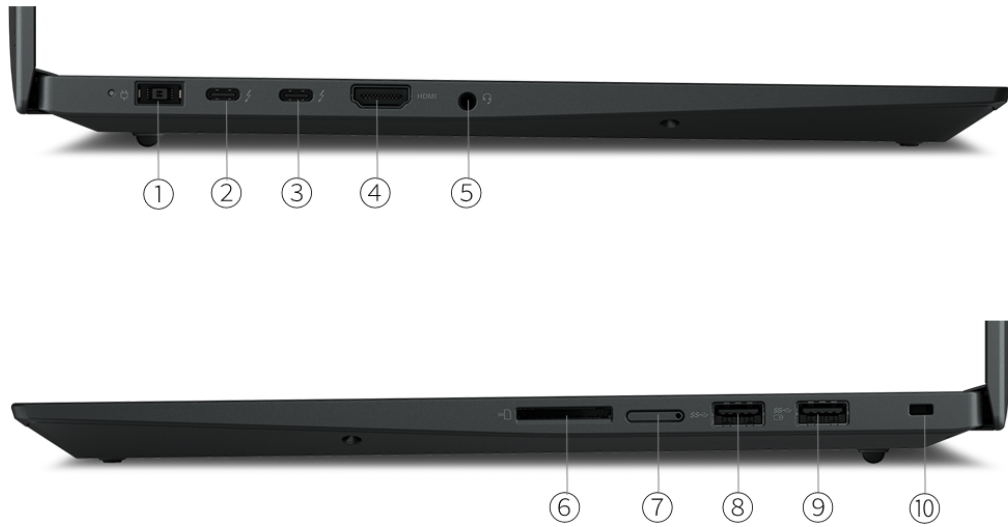


## OVERVIEW



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

Notes:

- Ports with \* are only available on selected models

## PERFORMANCE

### Processor

#### Processor Family

12th Generation H series Intel® Core™ i7 / i9 processor, supports processors up to 14 cores; up to 5.0 GHz; up to 45W TDP

#### Processor\*\*<sup>[1]</sup>

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i7-12700H	14 (6 P-core + 8 E-core)	20	P-core 2.3GHz / E-core 1.7GHz	P-core 4.7GHz / E-core 3.5GHz	24MB	DDR5-4800	Intel Iris® Xe Graphics
Core i7-12800H	14 (6 P-core + 8 E-core)	20	P-core 2.4GHz / E-core 1.8GHz	P-core 4.8GHz / E-core 3.7GHz	24MB	DDR5-4800	Intel Iris Xe Graphics
Core i9-12900H	14 (6 P-core + 8 E-core)	20	P-core 2.5GHz / E-core 1.8GHz	P-core 5.0GHz / E-core 3.8GHz	24MB	DDR5-4800	Intel Iris Xe Graphics

#### Notes:

1. Intel Iris Xe Graphics capability requires system to be configured with dual-channel memory. On the system with single-channel memory, Intel Iris Xe Graphics will function as Intel UHD Graphics.

### Operating System

#### Operating System

- Windows® 11 Pro
- Windows 11 Home
- Windows 11 Home Single Language
- Windows 11 DG Windows 10 Pro 64
- Fedora Linux
- Ubuntu Linux LTS
- Red Hat Enterprise Linux 8.6 (certified only, available in late 2022, for detailed and latest information, please visit [Red Hat Certified Hardware](#))
- No operating system

### Graphics

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

Graphics	Type	Memory	TGP	Key Features
Intel Iris Xe Graphics	Integrated	Shared	Share CPU TDP	DirectX® 12.1
NVIDIA® GeForce RTX™ 3070 Ti Laptop GPU	Discrete	8GB GDDR6	80W	Resizable BAR, Dynamic Boost 2.0, VR ready, DirectX 12
NVIDIA GeForce RTX 3080 Ti Laptop GPU	Discrete	16GB GDDR6	80W	Resizable BAR, Dynamic Boost 2.0, VR ready, DirectX 12
NVIDIA RTX A1000 Laptop GPU	Discrete	4GB GDDR6	35W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A2000 8GB Laptop GPU	Discrete	8GB GDDR6	35W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A3000 12 GB Laptop GPU	Discrete	12GB GDDR6 ECC	80W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A4500 Laptop GPU	Discrete	16GB GDDR6 ECC	80W	Dynamic Boost 2.0, DirectX 12
NVIDIA RTX A5500 Laptop GPU	Discrete	16GB GDDR6 ECC	80W	Dynamic Boost 2.0, DirectX 12

#### Notes:

1. Intel Iris Xe Graphics capability requires system to be configured with dual-channel memory. On the system with single-channel memory, Intel Iris Xe Graphics will function as Intel UHD graphics.  
Vapor Chamber cooling is available only with NV RTX A3000 /A4500 / A5500 and GeForce RTX 3070 / 3080 GPUs.

## Monitor Support

### Monitor Support

Supports up to 4 independent displays (native display and 3 external monitors via HDMI® and Thunderbolt™)

- HDMI supports up to 3840x2160@60Hz on Intel Iris Xe models; 7680x4320@60Hz on discrete NVIDIA graphics models
- Thunderbolt supports up to 5120x3200@60Hz

## Chipset

### Chipset

Intel SoC (System on Chip) platform

## Memory

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

Up to 64GB DDR5-4800

### Memory Slots

Two DDR5 SO-DIMM slots, dual-channel capable

### Memory Type

DDR5-4800 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.

## Storage

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

- Models with integrated graphics or NVIDIA RTX A1000/A2000: up to two drives, 2x M.2 SSD
  - M.2 2280 SSD up to 8TB, 4TB each
  - RAID 0/1 support
- Models with NVIDIA GeForce/RTX A3000/A4500/A5500: one drive, up to 4TB M.2 2280 SSD

### Storage Slot

- Models with Intel integrated graphics or NVIDIA RTX A1000/A2000: two M.2 2280 PCIe® 4.0 x4 slots
- Models with NVIDIA GeForce/RTX A3000/A4500/A5500: one M.2 2280 PCIe 4.0 x4 slot

### Storage Type<sup>[2]</sup>

Disk Type	Interface	RPM	Offering	Security
M.2 2280 SSD	PCIe NVMe®, PCIe 4.0 x4 Performance	-	512GB / 1TB / 2TB / 4TB	Opal2
M.2 2280 SSD	PCIe NVMe, PCIe x4	-	256GB / 512GB / 1TB	Opal2

### RAID

- RAID 0/1 support (for models with integrated graphics or NVIDIA RTX A1000/A2000)
- No 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. PCIe x4 SSD may be PCIe 3.0 x4 or PCIe 4.0 x4 as substitution.

## 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, optimized with Dolby® Atmos®

### Microphone

Dual-microphone array, far-field, Dolby Voice

**Camera\*\***

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

**Battery**

**Battery**

Integrated Li-Polymer 90Wh battery, supports Rapid Charge (charge up to 80% in 1hr)

**Power Adapter**

**Power Adapter\*\*[1]**

- 135W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz
- 170W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz
- 230W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz

Notes:

1. 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	Key Features
16"	WUXGA (1920x1200)	None	IPS	300 nits	Anti-glare	16:10	1200:1	100% sRGB	178°	Low Blue Light, X-Rite® Pantone® Factory Color Calibration, 86.42% screen to body ratio, DC dimming
16"	WQXGA (2560x1600)	None	IPS	500 nits	Anti-glare	16:10	1200:1	100% sRGB	178°	X-Rite Pantone Factory Color Calibration, 165Hz, Low blue light, 86.42% screen to body ratio, DC dimming
16"	WQUXGA (3840x2400)	None	IPS	600 nits	Anti-glare	16:10	1500:1	100% Adobe® RGB	170°	X-Rite Pantone Factory Color Calibration, Low blue light, Dolby Vision™, DisplayHDR™ 400, 86.08% screen to body ratio, DC dimming
16"	WQUXGA (3840x2400)	Multi-touch	IPS	600 nits	Anti-reflection, Anti-smudge	16:10	1500:1	100% Adobe RGB	170°	X-Rite Pantone Factory Color Calibration, Low blue light, Dolby Vision, DisplayHDR 400, 86.08% screen to body ratio, DC dimming

**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 (non-touch display doesn't support pen input)

### Keyboard

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

### Keyboard Backlight

LED backlight

### UltraNav™

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

## Mechanical

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

Models	Dimensions
Touch models	359.5 x 253.8 x 18.2 mm (14.15 x 9.99 x 0.72 inches)
Non-touch models	359.5 x 253.8 x 17.7 mm (14.15 x 9.99 x 0.7 inches)

### Weight<sup>[2]</sup>

Models	Weight
Non-touch models	1.81 kg (3.99 lbs)
Touch models	1.86 kg (4.1 lbs)

### Case Color\*\*

- Black
- 37-degree twill CF weave

### Case Material\*\*

- CFRP / GFRP (top), aluminium (bottom)
- CFRP / GFRP hybrid (top), aluminium (bottom)

### Notes:

1. The system dimensions 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<sup>[1]</sup>

No onboard Ethernet

#### WLAN + Bluetooth<sup>[2]</sup>

Intel Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1

#### WWAN

- Fibocom FM350-GL 5G NR module, M.2 Card, with embedded eSIM functionality
- No support

#### SIM Card

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 limitation

**Ports<sup>[1]</sup>****Standard Ports**

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

**Optional Ports**

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® P1 Gen 5](#)

**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
- 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**

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
- (Optional) IR camera for Windows Hello

**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\*\*

- 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
- No base warranty

## ENVIRONMENTAL

### Sustainability

#### Material

Low-temperature solder  
90% recycled and/or sustainable packaging

### Operating Environment

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

- 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

#### Green Certifications

- EPEAT™ Gold
- ENERGY STAR® 8.0

- RoHS compliant

## 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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