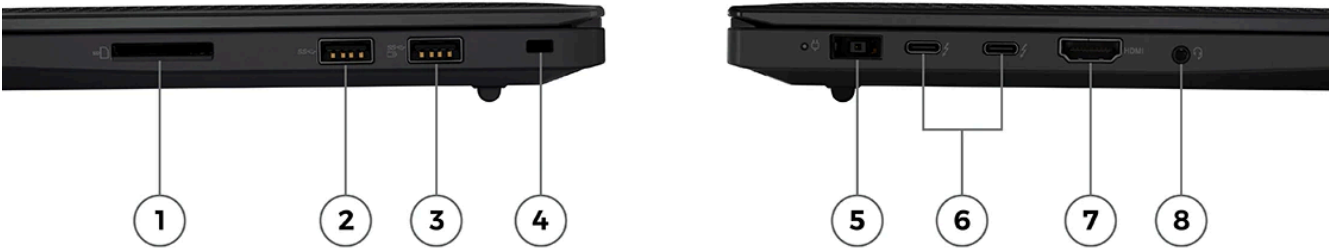


OVERVIEW



1. SD Express 7.0 card reader	5. Power connector
2. USB 3.2 Gen 1	6. 2x Thunderbolt 4
3. USB 3.2 Gen 1 (Always On)	7. HDMI
4. Kensington Nano Security Slot	8. Headphone / microphone combo jack (3.5mm)

- Notes:
- Optional nano-SIM card slot on the right side (not shown on the sample product above)

PERFORMANCE

Processor

Processor Family

12th Generation Intel® Core™ i7 / i9 processor

Processor**

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

Operating System

Operating System**

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 Home 64 Single Language
- Windows 11 DG Windows 10 Pro 64
- Linux
- Ubuntu Linux
- No operating system

Graphics

Graphics**

Graphics	Type	Memory	Key Features
NVIDIA® GeForce RTX™ 3050 Ti Laptop GPU	Discrete	4GB GDDR6	DirectX® 12
NVIDIA GeForce RTX 3060 Laptop GPU	Discrete	6GB GDDR6	DirectX 12
NVIDIA GeForce RTX 3070 Ti Laptop GPU	Discrete	8GB GDDR6	DirectX 12
NVIDIA GeForce RTX 3080 Ti Laptop GPU	Discrete	16GB GDDR6	DirectX 12

Monitor Support

Monitor Support^[1]

Supports up to 5 independent displays in hybrid mode (native display and 4 external monitors via HDMI® and Thunderbolt™);

Supports up to 4 independent displays in discrete mode (native display and 3 external monitors via HDMI and Thunderbolt)

- HDMI supports up to 8K@60Hz
- Thunderbolt supports up to 5K@60Hz

Notes:

1. Refresh rates >60hz also supported, however max resolution will be limited.
- 8K resolution support needs 2 display pipes. That is, simultaneous display number will “-1” when 8K resolution displayed.

Chipset

Chipset

Intel SoC (System on Chip) platform

Memory

Max Memory^[1]

Up to 64GB DDR5-4800

Memory Slots

Two DDR5 SO-DIMM slots, dual-channel capable

Memory Type

DDR5-4800

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^[1]

- Model with RTX 3050 Ti graphics: up to two drives, 2x M.2 SSD
 - M.2 2280 SSD up to 4TB
 - RAID 0/1 support
- Model with RTX 3060/3070 Ti/3080 Ti graphics: one drive, up to 4TB M.2 2280 SSD

Storage Slot

- Model with RTX 3050 Ti graphics:
Two M.2 2280 PCIe® Gen 4x4 slots, supports M.2 2280 SSD
- Model with RTX 3060/3070 Ti/3080 Ti graphics:
One M.2 2280 PCIe Gen 4x4 slot, supports M.2 2280 SSD

Storage Type^{***[2]}

Disk Type	Interface	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

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 3.0x4 or PCIe 4.0x4 as substitution.
Opal capability is not available in RAID mode.

Removable Storage

Optical

None

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® Audio™ Premium

Microphone

Dual array microphone, far-field, Dolby Voice

Camera

IR & FHD 1080p hybrid, with privacy shutter, fixed focus

Battery

Battery

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

Battery Life^[1]

Configuration 1 (max battery life)
MobileMark® 2018: up to 11.0 hr with 907 performance score @200nits
MobileMark 25: up to 9.8 hr with 627 performance score @250nits

JEITA 2.0: up to 22.0 hr @150nits
Local video playback: up to 15.3 hr @150nits

Alternate configuration 2
MobileMark 2018: up to 10.4 hr with 945 performance score @200nits
MobileMark 25: up to 9.7 hr with 632 performance score @250nits
JEITA 2.0: up to 19.3 hr @150nits
Local video playback: up to 14.5 hr @150nits

Alternate configuration 3
MobileMark 2018: up to 6.7 hr with 861 performance score @200nits
MobileMark 25: up to 5.8 hr with 556 performance score @250nits
JEITA 2.0: up to 12.5 hr @150nits
Local video playback: up to 10.3 hr @150nits

Notes:

1. Configuration 1 (max battery life): WUXGA (non-touch), Intel i7-12700H, 16GB DDR5, NVIDIA GeForce RTX 3050 Ti, Win 10, 90Wh battery, best power efficiency power mode
Alternate configuration 2: WUXGA (non-touch), Intel i7-12800H, 32GB DDR5, NVIDIA GeForce RTX 3050 Ti, Win 10, 90Wh battery, best power efficiency power mode
Alternate configuration 3: WQUXGA (touch), Intel i7-12900H, 64GB DDR5, NVIDIA GeForce RTX 3080 Ti, Win 10, 90Wh battery, best power efficiency power mode

All battery life claims are approximate maximum and based on results using [MobileMark 2018](#), [MobileMark 25](#), JEITA 2.0, continuous 1080p local video playback (using default Media Player in Fullscreen mode with 150nits brightness and default volume level), or Google Power Load Test (PLT) battery-life benchmark tests.
Actual battery life will vary and depends on many factors such as product configuration, software, wireless functionality, power management settings, and screen brightness.
The maximum capacity of the battery will decrease with time, ambient temperature and use.
Refer to [Microsoft® link](#) for more information about the Windows Performance power slider.

Power Adapter

- Power Adapter**[1][2]
- 170W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz
 - 230W slim tip (3-pin) AC adapter, 100-240V, 50-60Hz
 - No power adapter

Notes:

1. AC adapter offerings depend on the country.
2. 170W for RTX 3050 Ti graphics and 230W for RTX 3060/3070 Ti/3080 Ti graphics.

DESIGN

Display

Display**[1][2]

Size	Resolution	Touch	Type	Brightness	Surface	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Key Features
16.0"	WUXGA (1920x1200)	None	IPS	300 nits	Anti-glare	16:10	1200:1	100% sRGB	178°	-
16.0"	WQXGA (2560x1600)	None	IPS	500 nits	Anti-glare	16:10	1200:1	100% sRGB	178°	Refresh rate 165Hz, TÜV Low Blue Light Method 2
16.0"	WQUXGA (3840x2400)	None	IPS	600 nits	Anti-glare	16:10	1500:1	100% Adobe® RGB	170°	Dolby Vision™, DisplayHDR™ 400, TÜV Low Blue Light Method 2
16.0"	WQUXGA (3840x2400)	Multi-touch	IPS	600 nits	Anti-reflection, Anti-smudge	16:10	1500:1	100% Adobe RGB	170°	Dolby Vision, DisplayHDR 400, TÜV Low Blue Light Method 2

Color Calibration

X-Rite® Pantone® factory color calibration

Touchscreen

- Capacitive-type 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>
2. Dolby Vision and DisplayHDR 400 are only supported under hybrid graphics mode.

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 (pen sold 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™

TrackPoint® pointing device and glass surface multi-touch touchpad, 67.7 x 115 mm (2.67 x 4.53 inches)

Mechanical^[1]

Dimensions (WxDxH)

359.5 x 253.8 x 17.9 mm (14.15 x 9.99 x 0.7 inches)

Weight

Starting at 1.88 kg (4.14 lbs)

Case Color**

- Black, paint (WUXGA or WQXGA models)
- Black, weave (WQUXGA models)

Case Material

Carbon fiber (top), aluminium (bottom)

Notes:

1. The system dimensions and weight vary depending on configurations.

CONNECTIVITY

Network

Ethernet^[1]

No Ethernet

WLAN + Bluetooth®^[2]

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

WWAN^[3]

- 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 Lenovo USB-C® to Ethernet Adapter
2. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitation
3. WWAN is only available on the models with RTX 3050 Ti graphics.

Ports^[1]**Standard Ports**

- 1x USB 3.2 Gen 1
- 1x USB 3.2 Gen 1 (Always On)
- 2x Thunderbolt 4 / USB4® 40Gbps (support data transfer, Power Delivery 3.0 and DisplayPort™ 1.4)
- 1x HDMI, up to 8K/60Hz
- 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 / USB-C.

For more compatible docking solutions, please visit [Docking for ThinkPad® X1 Extreme Gen 5](#)

Monitor Cable**Monitor Cable*****

- 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

No smart card reader

Fingerprint Reader

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

BIOS Security

- Power-on password
- Supervisor password
- System management password
- NVMe password
- USB FIDO (Fast Identity Online) device integration
- Certificate based BIOS authentication
- Firmware Resiliency 3.0

Other Security

- Camera privacy shutter
- IR camera for Windows Hello
- Glance by Mirametrix®
- Tile ready

MANAGEABILITY

System Management

System Management

- Intel vPro Enterprise
- Non-vPro

SERVICE

Warranty

Base Warranty**^[1]

- 1-year depot service
- 1-year depot with 2-year system board service (Korea only)
- 1-year limited onsite service
- 3-year (1-yr battery) depot service
- 3-year (1-yr battery) limited onsite service
- No base warranty

Notes:

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

ENVIRONMENTAL

Sustainability

Material

30% PCC recycled plastic used in speaker enclosure

30% PCC recycled plastic used in the 90Wh battery

Low-temperature solder

90% recycled and/or sustainable packaging

Operating Environment

Temperature^[1]

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage and transportation in original shipping package: -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
- None

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Gold
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 9.0
- RoHS compliant

Other Certifications

Mil-Spec Test

MIL-STD-810H military test passed

Other Certifications

(Optional) TÜV Rheinland® Low Blue Light Method 2

- 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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