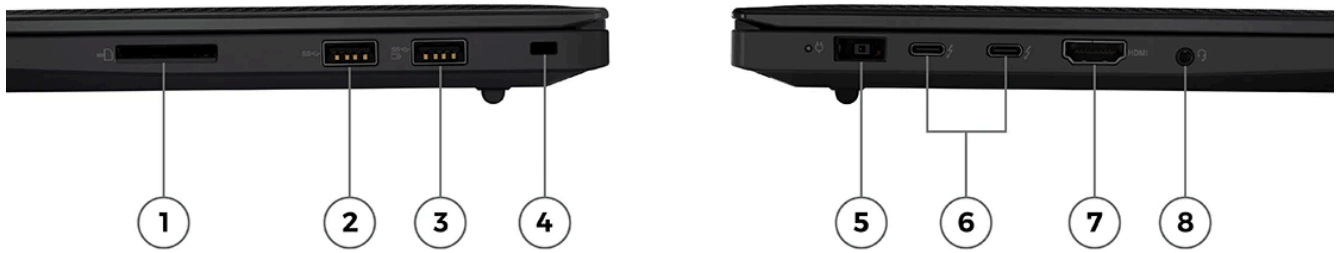


OVERVIEW



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	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	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	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	Intel Iris Xe Graphics

Operating System

Operating System**

- Windows® 11 Pro
- Windows 11 Home
- Windows 11 Home Single Language
- Windows 11 DG Windows 10 Pro 64
- Linux^[1]
- Ubuntu Linux^[2]
- No operating system

Notes:

[1], [2] 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	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]

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

Storage Slot

- Models with RTX 3050 Ti graphics:
Two M.2 2280 PCIe® 4.0 x4 slots
- Models with RTX 3060/3070 Ti/3080 Ti graphics:
One M.2 2280 PCIe 4.0 x4 slot

Storage Type^{**[2]}

Disk Type	Interface	Offering	Security
M.2 2280 SSD ^[3]	PCIe NVMe®, PCIe 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.

[2] Opal capability is not available in RAID mode.

[3] PCIe x4 SSD may be PCIe 3.0x4 or PCIe 4.0x4 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, Dolby® Atmos®

Microphone

Dual-microphone array, far-field, Dolby Voice

Camera

FHD 1080p + IR 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 depending 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]**

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

Notes:

[1] AC adapter offerings depend on the country.

[2] 170W is for RTX 3050 Ti graphics only.

[3] 230W is for RTX 3060/3070 Ti/3080 Ti graphics only.

DESIGN

Display

Display^{[1][2]}**

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°/80°/80°	Refresh rate 60Hz
16"	WQXGA (2560x1600)	None	IPS	500 nits	Anti-glare	16:10	1200:1	100% sRGB	89°/89°/80°/80°	Refresh rate 165Hz, TÜV Low Blue Light Method 2
16"	WQUXGA	None	IPS	600 nits	Anti-glare	16:10	1500:1	100%	85°/85°/85°/85°	Refresh rate

^[3]	(3840x2400)							Adobe® RGB		60Hz, Dolby Vision™, DisplayHDR™ 400, TÜV Low Blue Light Method 2
16" ^[4]	WQUXGA (3840x2400)	Multi-touch	IPS	600 nits	Anti-reflection, Anti-smudge	16:10	1500:1	100% Adobe RGB	85°/85°/85°/85°	Refresh rate 60Hz, Dolby Vision, DisplayHDR 400, TÜV Low Blue Light Method 2

Color Calibration

X-Rite® factory color calibration

Touchscreen

- OGM (One Glass Metal mesh) multi-touch, supports 10-point touch
- Non-touch

Notes:

^[1] California Electronic Waste Recycling Fee

In California USA, 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, please go to <https://www.calrecycle.ca.gov/Electronics/Consumer>.

^[2] IPS (in-plane switching) technology may refer to IPS, PLS, ADS, AHVA, AAS.

^[3], ^[4] 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 (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™

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

Mechanical

Dimensions (WxDxH)^[1]

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

Weight^[2]

Starting at 1.88 kg (4.14 lbs)

Case Color**

- Deep black, paint (WUXGA or WQXGA models)
- Deep black, weave (WQUXGA models)

Case Material

Carbon fiber (top), aluminium (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.

Network

Ethernet

No onboard Ethernet^[1]

WLAN + Bluetooth^[2]

Intel Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1^[3]

WWAN^[4]

- Fibocom FM350-GL, 5G Sub-6 GHz, 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 limitations.

[3] Wi-Fi 6E full features might be limited by country-level restrictions.

Wi-Fi 6E is only enabled on Windows 11 and operates as Wi-Fi 6 with Windows 10.

6GHz Wi-Fi 6E operation is dependent on the support of the operating system, routers/APs/Gateways that support Wi-Fi 6E, and the regional regulatory certifications & spectrum allocation.

[4] 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 2.1, 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;

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.

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 integrated in power button, match-on-chip

BIOS Security

- Power-on password
- Supervisor password
- System management password
- NVMe password
- FIDO (Fast Identity Online) authentication
- 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^[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 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

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

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

CERTIFICATIONS

Green Certifications^[1]

Green Certifications

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Gold Registered^[2]
- ErP Lot 3
- 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

(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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