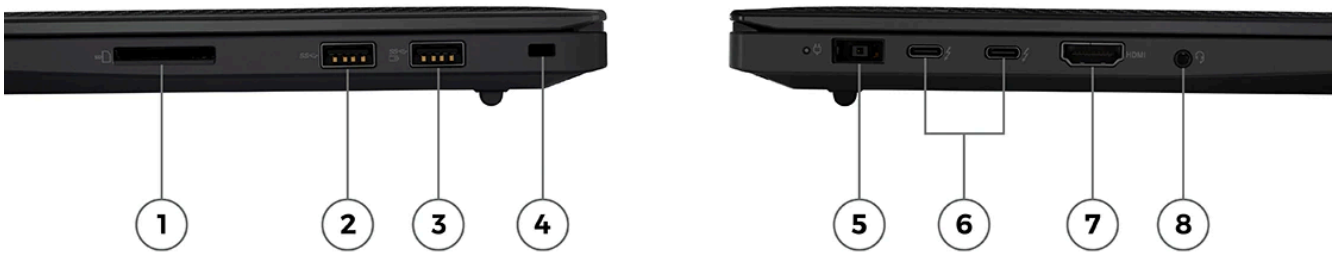
OVERVIEW



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
- Ubuntu Linux[1]
- Linux[2]
- No preload 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 Thunderbolt™ and HDMI®);
Supports up to 4 independent displays in discrete mode (native display and 3 external monitors via Thunderbolt™ and HDMI®)
• Thunderbolt™ supports up to 5K@60Hz
• HDMI® supports up to 8K@60Hz[2]

Notes:

[1] Refresh rates >60hz also supported, however max resolution will be limited.
[2] 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.

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

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

Storage Type***[2]

Disk Type	Interface	Offering	Security
M.2 2280 SSD	PCIe® NVMe®, PCIe® 4.0 x4 Performance	512GB / 1TB / 2TB / 4TB	Opal 2.0
M.2 2280 SSD	PCIe® NVMe®, PCIe® x4[3]	256GB / 512GB / 1TB	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.
[2] Opal capability is not available in RAID mode.
[3] PCIe® x4 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]

Size	Resolution	Touch	Type	Brightness	Surface	Aspect Ratio	Contrast Ratio	Color Gamut	Refresh Rate	Viewing Angle (L/R/U/D)	Key Features
16″	WUXGA (1920x1200)	None	IPS	300nits	Anti-glare	16:10	1200:1	100% sRGB	60Hz	89°/89°/80°/80°	-
16″	WQXGA (2560x1600)	None	IPS	500nits	Anti-glare	16:10	1200:1	100% sRGB	165Hz	89°/89°/80°/80°	TÜV Low Blue Light (Hardware Solution)
16″	WQUXGA (3840x2400)	None	IPS	600nits	Anti-glare	16:10	1500:1	100% Adobe® RGB	60Hz	85°/85°/85°/85°	DisplayHDR™ 400, Dolby Vision®, TÜV Low Blue

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

Color Calibration

X-Rite® factory color calibration

Touchscreen

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

Notes:

[1] IPS (in-plane switching) technology may refer to IPS, PLS, ADS, AHVA, AAS.
[2], [3] 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.

CONNECTIVITY

Network

Ethernet

No onboard Ethernet[1]

WLAN + Bluetooth®[2]

Intel® Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1 (Bluetooth® 5.2 hardware ready)[3]

WWAN[4]

- Fibocom FM350-GL, 5G Sub-6 GHz, M.2 Card, with embedded eSIM functionality
- No support

SIM Card

No physical SIM card inbox

NFC

- Near Field Communication
- No support

Notes:

[1] Ethernet support via optional Lenovo® USB-C® to Ethernet Adapter.
[2] Bluetooth® may operate at a lower version than hardware design depending on the factors such as operating system, driver, etc.
[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 SD Express 7.0 card reader
- 1x Power connector

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

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified, FIPS 140-2 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

- Certificate based BIOS authentication
- FIDO (Fast Identity Online) authentication
- NVMe® password
- Power-on password
- Self-healing BIOS
- Supervisor password
- System management password

Other Security

- IR camera for Windows® Hello (facial recognition)
- Camera privacy shutter
- 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

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

ACCESSORIES

Bundled Accessories

Bundled Accessories**[1]

- Lenovo® HDMI® to VGA Monitor Adapter
- Lenovo® USB-C® to DisplayPort™ Adapter
- Lenovo® USB-C® to Ethernet Adapter (1Gbps)
- Lenovo® USB-C® to Ethernet Adapter (2.5Gbps)
- Lenovo® USB-C® to VGA Adapter
- None

Notes:

[1] For more compatible accessory solutions, please visit Accessories for ThinkPad® X1 Extreme Gen 5.

OPERATING REQUIREMENTS

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)

Relative 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).

ENVIRONMENTAL

Sustainability

Material

30% PCC recycled plastic used in speaker enclosure
30% PCC recycled plastic used in the 90Wh battery frame
Low-temperature solder
90% recycled and/or sustainable packaging

CERTIFICATIONS

Green Certifications[1]

Green Certifications[2]

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

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] EPEAT™ registration and ENERGY STAR® certification are dependent on system OS. Please visit epeat.net and energystar.gov for more information.
[3] EPEAT™ is registered where applicable, please visit 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 (Hardware Solution)

- 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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