

PERFORMANCE

Processor

Processor Family

9th Generation Intel® Core™ i5 / i7 / i9 Processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i5-9300H	4	8	2.4GHz	4.1GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400H	4	8	2.5GHz	4.3GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9750H	6	12	2.6GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9850H	6	12	2.6GHz	4.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i9-9880H	8	16	2.3GHz	4.8GHz	16MB	DDR4-2666	Intel UHD Graphics 630

Operating System

Operating System

- Windows® 10 Pro 64
- Windows 10 Home 64
- Linux
- Ubuntu Linux
- No operating system

Graphics

Graphics

Graphics	Type	Memory	Key Features
Intel UHD Graphics 630	Integrated	Shared	DirectX® 12
NVIDIA® GeForce GTX 1650 Max-Q	Discrete	4GB GDDR5	DirectX 12

Monitor Support

Monitor Support

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

- HDMI supports up to 4K@60Hz
- Thunderbolt supports up to 5K@60Hz

Chipset

Chipset

Intel CM246 chipset

Memory

Max Memory^[1]

Up to 64GB DDR4-2666

Memory Slots

Two DDR4 SO-DIMM slots, dual-channel capable

Memory Type

DDR4-2666

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]

Up to two drives, 2x M.2 2280 SSD

- M.2 2280 SSD up to 2TB

ThinkPad X1 Extreme (2nd Gen)

- RAID 0/1 support

Storage Type

Disk Type	Interface	RPM	Security
M.2 2280 SSD	PCIe® NVMe®, PCIe 3.0 x4	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	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.

Removable Storage

Optical

None

Card Reader

SD card reader, supports UHS-II SD card

Multi-Media

Audio Chip

High Definition (HD) Audio, Synaptic® CX11880 codec

Speakers

Stereo speakers, 2W x2, Dolby® Atmos®

Microphone^[1]

- Dual array microphone with 360° noise-cancelling, far-field
- No microphone

Camera^[2]

- HD 720p, with ThinkShutter, fixed focus
- IR & HD 720p hybrid, with ThinkShutter, fixed focus
- No camera

Notes:

1. No microphone is for special bid only.
2. No camera is for special bid only.

Battery

Battery

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

Max Battery Life^[1]

MobileMark® 2014: 14 hr

Notes:

1. All battery life claims are approximate maximum and based on results using the MobileMark 2014, MobileMark 2018, JEITA 2.0, continuous 1080p video playback (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 and usage, software use, wireless functionality, power management settings, and screen brightness. The maximum capacity of the battery will decrease with time and use.

Power Adapter

Power Adapter^{[1][2]}

- 135W slim tip (2-pin) AC adapter
- 135W slim tip (3-pin) AC adapter

Notes:

1. AC adapter offerings depend on the country.
2. 170W for i9-10885H model only.

DESIGN

Display

Display^{[1][2]}

Size	Resolution	Touch	Type	Brightness	Surface	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Key Features
15.6"	FHD (1920x1080)	None	IPS	300 nits	Anti-glare	16:9	700:1	72% NTSC	170°	-
15.6"	FHD (1920x1080)	None	IPS	500 nits	Anti-glare	16:9	1200:1	72% NTSC	170°	Dolby Vision™, HDR
15.6"	UHD (3840x2160)	None	IPS	500 nits	Anti-glare	16:9	1200:1	100% Adobe® RGB	170°	Dolby Vision, HDR
15.6"	UHD (3840x2160)	Multi-touch	OLED	SDR 400nits, HDR 500nits (peak)	Anti-reflection Anti-smudge	16:9	100000:1	100% DCI-P3	170°	Dolby Vision, HDR

Color Calibration

- X-Rite® Pantone® factory color calibration (UHD display)
- No 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. For non-OLED display, HDR is only supported under hybrid mode.

Input Device

Pen^[1]

- Lenovo Pen Pro (for multi-touch display)
- No pen (pen sold separately)
- No support (non-touch display doesn't support pen input)

Keyboard

6-row, spill-resistant, multimedia Fn keys

Keyboard Backlight

LED backlight

UltraNav™

TrackPoint® pointing device and glass surface multi-touch touchpad

Notes:

1. Bundled Lenovo Pen Pro is only available for special bid models.

Mechanical^[1]

Dimensions (WxDxH)

Models	Dimensions
Non-touch models	361.8 x 245.7 x 18.4 mm (14.24 x 9.67 x 0.72 inches)
Touch models	361.8 x 245.7 x 18.7 mm (14.24 x 9.67 x 0.74 inches)

Weight

Models	Weight

Non-touch models	1.7 kg (3.75 lbs)
Touch models	1.8 kg (3.97 lbs)

Case Color

- Black, paint
- Black, weave

Case Material

CFRP + GFRP hybrid (top), aluminium alloy (bottom)

Notes:

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

CONNECTIVITY**Network****Ethernet**

- Gigabit Ethernet, Intel Ethernet Connection I219-V (non-vPro models), RJ45 via optional ThinkPad® Ethernet Extension Cable
- Gigabit Ethernet, Intel Ethernet Connection I219-LM (vPro models), RJ45 via optional ThinkPad Ethernet Extension Cable

WLAN + Bluetooth^{[1][2]}

- Intel Wi-Fi® 6 AX200, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
- No WLAN and Bluetooth

WWAN

No support

SIM Card

No SIM card inbox

NFC

No support

Notes:

1. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitation
2. Wi-Fi 6 full features might be limited by country-level restrictions.

Ports^[1]**Standard Ports^{[1][2]}**

- 1x USB 3.1 Gen 1
- 1x USB 3.1 Gen 1 (Always On)
- 2x USB-C® 3.1 Gen 2 / Thunderbolt 3 (support data transfer, Power Delivery and DisplayPort™ 1.2)
- 1x HDMI 2.0
- 1x SD card reader
- 1x Ethernet extension connector
- 1x Headphone / microphone combo jack (3.5mm)
- 1x Power connector

Optional Ports

1x Smart card reader

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
2. Power Delivery only supports power-out for charging peripherals.

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® Security Slot™

Smart Card Reader

- Smart card reader
- No smart card reader

Fingerprint Reader

Touch style fingerprint reader on keyboard bezel, match-on-chip

BIOS Security

- Power-on password
- Supervisor password
- Hard disk password
- Self-healing BIOS

Other Security

- (Optional) ThinkShutter camera cover
- (Optional) IR camera for Windows Hello

MANAGEABILITY

System Management

System Management

- Intel vPro
- None

SERVICE

Warranty

Base Warranty^[1]

- 1-year depot service
- 1-year courier with 2-year system board service (Korea only)
- 3-year (1-yr battery) depot service
- 3-year (1-yr battery) limited onsite service

Notes:

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

ACCESSORIES

Bundled Accessories

Bundled Accessories

- ThinkPad Ethernet Extension Cable
- None

CERTIFICATIONS

Green Certifications

Green Certifications

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

Other Certifications

Mil-Spec Test

MIL-STD-810G military test passed

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