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Summary of Changes

This section describes the technical changes made in this edition. This edition might also include minor corrections and editorial changes which are not identified.

June 26, 2019 - Version 544

Additions in this update

► New product(s)
  ThinkPad X1 Yoga (4th Gen)

► New model(s)
  None

► Others
  None

Changes in this update

► None

Withdrawals in this update

► Withdrawn product(s)
  None
## ThinkPad X1 Tablet (3rd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>8-8530U</td>
<td>8</td>
<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td></td>
<td></td>
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<tr>
<td>8-8550U</td>
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<td>8</td>
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<td>4.0 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-8650U</td>
<td>8</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor, supports external digital monitor via USB Type-C

### Chipset

- Intel SoC (System on Chip) platform

### Memory

- 8GB, or 16GB / 2133MHz LPDDR3 / soldered to system board, no sockets

### Display

- 13.0" (330mm) QHD+ (3000x2000), glossy, LED backlight, IPS, anti-fingerprint display with Corning® Gorilla® Glass, WideView (160° viewing), 400 nits, 3:2 aspect ratio, 1200:1 contrast ratio
- Capacitive touch panel, supports ten-finger gesture
  - Optional: Lenovo Pen Pro or Lenovo Active Pen (ThinkPad Pen Pro) for multi-touch display
- Opening angle up to 170 degrees

### Storage

- Some: M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)

### Optical Storage extension

- One MicroSD card reader, in the combo slot with nano-SIM card, support USH-I, microSDHC, microSDXC

### Ethernet

- None

### WLAN

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
  - * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS

### Bluetooth™

- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EMT4755)

### SIM card (opt)

- Nano-SIM card slot, in the combo slot with microSD card reader

### Dimensions

- Tablet only: 11.97" x 8.9" x 0.35", 304.1mm x 226mm x 8.9mm
- Tablet + keyboard: 11.97" x 8.9" x 0.57", 304.1mm x 226mm x 14.4mm

### Weight

- Tablet only: starting at 1.96 lb (0.89kg)
- Tablet + keyboard: starting at 2.8 lb (1.27kg)

### Case color

- Black

### Case material

- Magnesium/Aluminum

### Smart card reader

- None

### Ports

- Two USB 3.1 Type-C Gen 1 / Thunderbolt 3 / Power Delivery 3.0, one Pogo keyboard connector, one Pen holder slot, headphone / microphone combo jack, combo slot of nano-SIM card (WWAN models) and microSD card reader
  - * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Control buttons

- Power button, volume control button, reset switch

### Dock

- Optional: Hybrid dock

### Monitor cable (opt)

- None

### Adapter (optional)

- USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
- USB-C to VGA: Lenovo USB-C to VGA Plus Power Adapter
- USB-C to HDMI: Lenovo USB-C to HDMI Plus Power Adapter

### Camera

- Front camera: 2.0-megapixel, fixed focus
- Rear camera: 8.0-megapixel, auto focus

### Audio support

- Realtek® ALC3278 codec / stereo speakers, 1W x 2 /
  - two microphones, combo audio/microphone jack
  - Optional: IR camera, fixed focus (Not available with NFC)

### Pogo keyboard

- Magnetic attached thin keyboard, with TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch, backlight

### Keyboard color

- Black

### Security

- Kensington lock slot
- Security chip
  - vPro (optional): Intel vPro Technology
- Fingerprint reader
  - Optional: Touch style Fingerpint reader
- NFC (optional): Near Field Communication (Not available with the IR camera)

### Battery

- Integrated Li-Ion 42Wh battery
- MobileMark® 2014: 9.5 hr
  - * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Light sensor

- Ambient Light Sensor

### G-sensor

- 3D accelerometer

### Gyroscope

- 3D gyrometer

### GPS

- GPS function is integrated into WWAN module

### Preload

- Some: Windows 10 Pro 64
- Some: Windows 10 Home 64

### Preload

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-y*r battery depot repair service
  - 3-year/1-y*r battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT® Gold, GREENGUARD, Low Halogen, RoHS

---

**Lenovo**

**March 2019**
## ThinkPad L380 Yoga Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-7200U</td>
<td>2</td>
<td>4</td>
<td>2.5 GHz</td>
<td>3.1 GHz</td>
<td>3MB</td>
<td>DDR4-2133</td>
<td>Intel HD Graphics 620</td>
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<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

or 8th Generation Intel Core i5 / i7 Processor

### Graphics

- Intel HD Graphics 620 or Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- Up to 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets
- System clocks down for processors with lower memory controller

### Display

- Some: 13.3" (338mm) FHD (1920x1080), glossy, LED backlight, IPS, 300 nits, 16.9 aspect ratio, 800:1 contrast ratio, 170° viewing angle
- Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture
- Yoga hinge, 360 degree
- Laptop, tent, stand, yoga and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

### Storage

- M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)
- M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe)
- None

### Optane Memory

- None

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable Gen 2

### WLAN + Bluetooth™

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- *Wireless card supports BT4.2 but is limited to BT4.1 by Windows OS

### WWAN

- None

### SIM card

- None

### Bluetooth

- Bluetooth

### WLAN

- WLAN + Bluetooth™

### WWAN

- WWAN

### SIM card

- SIM card

### Dimensions

- WxDxH: 12.67" x 8.82" x 0.74"; 322mm x 224.2mm x 18.8mm

### Weight

- Starting at 3.44 lb / 1.56 kg

### Case color

- Black or Silver

### Case material

- Display cover: Aluminum
- Bottom: GFRP

### Smart card reader

- None

### Media reader

- MicroSD card reader

### Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1, HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### Monitor cable

- (optional)

### Camera

- 720p:
- HD720p resolution, low light sensitive, fixed focus
- IR & 720p:
- IR camera and HD720p camera, fixed focus

### Audio support

- World facing:
- Rear camera, 5MP resolution, auto focus
- HD Audio, Realtek ALC3207 codec, Dolby® Advance / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row, multimedia Fn keys, optional LED backlight
- TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

### Security

- Security chip:
- Intel vPro Technology
- Fingerprint reader:
- Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology

### Battery

- Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- MobileMark® 2014: 12.85 hr

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Preload

- Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPE™ Gold, ENERGY STAR® 6.1; RoHS-compliant

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Lenovo
March 2019
## ThinkPad L390 Yoga Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
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<td>2.1 GHz</td>
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<td>620</td>
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<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Graphics

Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

Intel SoC (System on Chip) platform

### Memory

32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets

### Display

13.3’’ (338mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 72% gamut, 170° viewing angle

### Multi-touch

Capacitive-type multi-touch, AR (anti-reflection), supports 10-finger gesture

### Hinge

Yoga hinge, 360 degree

### Multi-mode

Notebook, stand, tent, tablet

### Pen (optional)

ThinkPad Pen Pro, active pen for multi-touch display, on-board garage

### Storage

One of the following, configurable by model:
- M.2 SSD / SATA 6.0Gb/s
- M.2 (2242) SSD / PCIe NVMe, PCIe 3.0 x 2
- M.2 (2280) SSD / PCIe NVMe, PCIe 3.0 x 4

### Optane™ Memory

None

### Optical

None

### Ethernet

Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via optional ThinkPad Ethernet Extension Cable or Lenovo USB-C to Ethernet Adapter

### WLAN

Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN

None

### Chipset

Intel UHD Graphics in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Monitor cable

(optional)

USB-C to VGA: Lenovo USB-C to VGA Adapter
USB-C to VGA + Power Adapter: Lenovo USB-C to VGA plus Power Adapter
USB-C to HDMI: Lenovo USB-C to HDMI Adapter
USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter
USB-C to DP: Lenovo USB-C to DisplayPort Adapter
USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
USB-C to USB-A: Lenovo USB-C to USB-A Adapter
USB-C to USB-C: Lenovo USB-C to USB-C Cable 2M

### Camera

720p: HD720p resolution, low light sensitive, fixed focus
IR & 720p: IR camera and HD720p camera, fixed focus (black model only)
World facing: 5MP resolution, auto focus
(mutually exclusive with fingerprint reader)

### Audio support

HD Audio, Realtek ALC3287 codec, Dolby Audio™ Premium / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

### Keyboard

6-row, spill-resistant, multimedia Fn keys, optional LED backlight
TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch

### Security

Power-on password, hard disk password, supervisor password, security keyhole
Discrete TPM 2.0, TCG Certified

### Security chip

vPro: None
Fingerprint reader: Optional: Touch style fingerprint reader on the palm rest
(mutually exclusive with World facing camera)

### NFC (optional)

Near Field Communication

### Battery

Integrated Li-Ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

### Max battery life

MobileMark® 2014: 12.17 hr

### AC adapter

45W or 65W USB Type-C AC adapter

### Preload

Windows® 10 Home 64 or Windows 10 Pro 64

### Limited warranty

One of the following, configurable by model:
- 1-year depot repair service
- 3-year/1-yr battery depot repair service
- 3-year/1-yr battery limited onsite service

### MIL-Spec test

MIL-STD-810G military testing

### Environment

ENERGY STAR® 7.0; RoHS-compliant

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Lenovo

March 2019
## ThinkPad X1 Yoga (3rd Gen) Platform Specifications

### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8250U</td>
<td>4</td>
<td>8</td>
<td>1.6 GHz</td>
<td>3.4 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
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<td>i5-8350U</td>
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<td>8</td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8550U</td>
<td>4</td>
<td>8</td>
<td>1.8 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>LPDDR3-2133</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor
- Supports external digital monitor via HDMI or USB Type-C
- Supports three independent displays
- Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 8GB or 16GB / 2133MHz LPDDR3 / soldered to systemboard, no sockets

### Display

- 14.0" (355mm) FHD (1920x1080), LED backlight, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle, IPS
- 14.0" (355mm) HDR WQHD (2560x1440), LED backlight, 300 nits, 16:9 aspect ratio, 72% gamut, 170° viewing angle, IPS
- 14.0" (355mm) HDR WQHD (2560x1440) with Dolby Vision™, LED backlight, 500 nits, 16:9 aspect ratio, 1500:1 contrast ratio, 100% gamut, 170° viewing angle, IPS
- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture, reduces overall display brightness by 10%

### Hinge

- Yoga hinge, 360 degree

### Optical

- None

### Ethernet

- Native Intel Ethernet Connection WGI219-LM (vPro)

### WLAN

- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS
- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### WWAN (optional)

- Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card

### SIM card (optional)

- Nano-SIM card slot, optional Verizon LTE (US)/SIM card

### Dimensions

- **WxDxH:** 13.11" x 9.02" x 0.67"; 333mm x 229mm x 17.05mm
- **Weight:** Starting at 3.08 lb (1.4kg)
- **Case color:** Black or silver
- **Case material:** Display cover: Carbon-Fiber and Glass-Fiber hybrid; Bottom: magnesium-PPS hybrid

### Smart card reader

- None

### Media reader

- MicroSD card reader, supports UHS-II

### Ports

- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3, HDMI 1.4, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader
- * Depending on many factors, actual data transfer speed may be lower than theoretical speed

### WiGig dock

- None

### Monitor cable (optional)

- HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
- USB-C to VGA: Lenovo USB-C to VGA Adapter
- USB-C to DP: Lenovo USB-C to DisplayPort Adapter

### Camera (optional)

- One of the following, configurable by model:
  - 720p: HD720p camera with ThinkShutter camera privacy, fixed focus
  - 1080p: HD camera, fixed focus
- * WWAN models and HDR panel models can not support IR camera

### Audio support

- HD Audio, Realtek® ALC3286 codec, Dolby® Audio™ Premium / stereo speakers, 1W x 2 / dual array microphone, headphone / microphone combo jack

### Keyboard

- 6-row wave keyboard (rise & fall), spill-resistant, multimedia Fn keys, LED backlight

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Security chip
- * Intel vPro Technology
- UltraNav™
- TrackPoint® pointing device and 3+2 buttons multi-touch clickpad

### Battery

- Integrated Li-Ion 54Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
- * Battery life varies significantly with settings, usage, & other factors

### AC adapter

- 45W or 65W USB Type-C AC adapter

### Light sensor

- Ambient Light Sensor

### G-sensor

- 3D accelerometer

### Gyroscope

- 3D gyrometer

### GPS

- GPS function is integrated into WWAN module

### Preload

- Windows 10 Pro 64

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

### Environmental

- EPEAT™ Gold; ENERGY STAR®; RoHS-compliant

---

**Lenovo**

March 2019
**ThinkPad X1 Yoga (4th Gen) Platform Specifications**

<table>
<thead>
<tr>
<th>Processor</th>
<th>8th Generation Intel® Core™ i5 / i7 Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Number</td>
<td># of Cores</td>
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<tr>
<td>i5-8265U</td>
<td>2</td>
</tr>
<tr>
<td>i5-8365U</td>
<td>2</td>
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<tr>
<td>i7-8565U</td>
<td>4</td>
</tr>
<tr>
<td>i7-8665U</td>
<td>4</td>
</tr>
</tbody>
</table>

**Graphics**
- Intel UHD Graphics 620 in processor;
- supports external digital monitor via HDMI or USB Type-C / Thunderbolt;
- supports three independent displays;
- Max resolution: 5120x2880 @60 Hz (USB Type-C): 4096x2160 @24 Hz (HDMI)

**Chipset**
- Intel SoC (System on Chip) platform
- 8GB or 16GB / 2133MHz LPDDR3 / soldered to system board, no sockets

**Display**
- **Size**: 14.0”
- **Resolution**: WQHD (2560x1440)
- **Type**: IPS Glossy
- **Brightness**: 380 nits
- **Aspect Ratio**: 16:9
- **Contrast Ratio**: 800:1
- **Color Gamut**: 72%
- **Viewing Angle**: 170°

**Multi-touch**
- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

**Hinge**
- Yoga hinge, 360 degree

**Convert-mode**
- Laptop, tent, stand, and tablet

**Pen**
- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

**Storage**
- **One of the following, configurable by model:**
  - M.2 2280 SSD / PCIe NVMe / M.2 3.0 x 4
  - Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

**Optane™ Memory**
- Intel Optane Memory H10

**Optical**
- Ethernet: Native Intel Ethernet Connection I219-LM (vPro) or I219-V (vPro-vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

**WLAN**
- Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card

**Bluetooth™**
- Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN [optional]**
- **One of the following, configurable by model:**
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L860-GL, MIMO 2x2, M.2 card

**SIM card [opt]**
- Nano-SIM card slot, optional Verizon LTE (US) SIM card

**Dimensions**
- WxDxH: 12.71” x 8.58” x 0.61”
- Starting at 2.99 lb (1.36kg)

**Case color**
- Iron Gray

**Case material**
- Display cover: Aluminum; Bottom: Magnesium

**Smart card reader**
- None

**Media reader**
- None

**Ports**
- Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, side docking connector, security keyhole

**Monitor cable**
- *Depending on many factors, actual data transfer speed may be lower than theoretical speed*

**Bundled Accy**
- Lenovo HDMI to VGA Monitor Adapter

**Camera (optional)**
- One of the following, configurable by model:
  - HD720p camera with ThinkShutter camera privacy, fixed focus
  - IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus

**Audio support**
- HD Audio, Realtek® ALC1012L codec, Stereo speakers, 2W x 2, 0.8W x 2, Dolby® Audio™ Atmos / Quad array far-field microphone, headphone / microphone combo jack

**Keyboard**
- 6-row, spill-resistant, multimedia Fn keys, LED backlight

**UltraNav™**
- TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad

**Security**
- Security chip
- System Mgt
- Fingerprint reader
- Touch style match on chip fingerprint reader on the palm rest

**Battery**
- Integrated Li-Ion 51Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter

**Max battery life**
- MobileMark® 2014: 18.1 hrs

**GPS**
- GPS function is integrated into WWAN module

**Preload**
- One of the following, configurable by model:
  - Windows® 10 Pro 64
  - Windows 10 Home 64

**Limited warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

**Mil-Spec test**
- MIL-STD-810G military testing

**Environment**
- EPEAT™ Bronze; ENERGY STAR® 7.1; RoHS-compliant

Lenovo June 2019
<table>
<thead>
<tr>
<th>Processor</th>
<th>Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3-8350U</td>
<td>4</td>
<td>4</td>
<td></td>
<td>1.7 GHz</td>
<td>3.6 GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i5-8350U</td>
<td>4</td>
<td>8</td>
<td></td>
<td>1.7 GHz</td>
<td>4.0 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8650U</td>
<td>4</td>
<td>8</td>
<td></td>
<td>1.9 GHz</td>
<td>4.2 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

**Graphics**
- Intel UHD Graphics 620 in processor only; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30Hz (HDMI)

**Chipset Memory**
- Intel SoC (System on Chip) platform
- Supports 8GB or 16GB / 2400MHz DDR4 / soldered to systemboard, no sockets
- System clocks down for processors with lower memory controller

**Display**
- 13.3” (337.8mm) FHD (1920x1080), LED backlight, IPS
- 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle
- Capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge), supports 10-finger gesture

**Hinge Convert-mode Pen**
- Yoga hinge, 360 degree
- Laptop, tent, stand, yoga and tablet
- ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

**Storage**
- M.2 SSD / SATA 6.0Gb/s (e.g. xxxG SSD)
- Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxG SSD PCIe NVMe)
- None

**Optical Optane Memory**
- None

**Ethernet**
- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)
- via optional ThinkPad Ethernet Extension Cable

**WLAN**
- Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
- * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS
- Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter

**Bluetooth™**
- Integrated Mobile Broadband 4G LTE
- Intel XMM™ 7626 (Fibocom L830-EB), M.2 card (EMEA only)
- Nano-SIM card slot

**WWAN (optional)**
- Optional: Mobile Broadband 4G LTE, SIM card (opt)

**Dimensions**
- WxDxH: 12.34” x 8.75” x 0.72”; 313.5mm x 222.2mm x 18.2mm

**Weight**
- Starting at 3.17 lb (1.43kg)

**Case color**
- Black or silver

**Case Material**
- Carbon-Fiber Hybrid

**Smart card reader**
- Optional: Smart card reader (mutually exclusive with NFC)

**Media reader**
- Ports
- Smart card reader
- SD card reader (mutually exclusive with NFC)

**WiGig dock**
- Monitor cable (optional)
- None

**Audio support**
- HD Audio, Conexant CX11771 codec / stereo speakers, 2W x 2 / dual array microphone, headphone / microphone combo jack

**Keyboard**
- UltraNav™
- 6-row, spill-resistant, multimedia Fn keys, LED backlight

**Security**
- TrackPoint® pointing device and 3+2 buttons Mylar surface multi-touch click pad

**Fingerprint reader**
- Optional: Touch style match on chip fingerprint reader on the palm rest

**Battery Life**
- Optional: MobileMark® 2014: 13.6 hr

**AC adapter**
- 45W or 65W AC adapter (slim tip), 45W or 65W USB Type-C AC adapter

**Light sensor**
- Ambient Light Sensor
- 3D accelerometer and 3D magnetometer

**G-sensor/ eComPass**
- 3D compass

**Gyroscope**
- 3D gyrometer

**Preload**
- Some: Windows 10 Home 64
- Some: Windows 10 Pro 64

**Limited warranty**
- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service

**MI-Spec test**
- MIL-STD-810G military testing

**Environment**
- EPEAT™ Gold, ENERGY STAR®; RoHS-compliant

March 2019
### Processor

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Max Turbo Frequency</th>
<th>Cache</th>
<th>Memory Types</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>i5-8265U</td>
<td>4</td>
<td>8</td>
<td>1.67 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
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<tr>
<td>i5-8565U</td>
<td>4</td>
<td>8</td>
<td>1.67 GHz</td>
<td>4.1 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>i7-8565U</td>
<td>4</td>
<td>8</td>
<td>1.80 GHz</td>
<td>4.6 GHz</td>
<td>8MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
</tbody>
</table>

### Graphics

- Intel UHD Graphics 620 in processor only:
- Supports external digital monitor via HDMI or USB Type-C;
- Supports three independent displays;
- Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI)

### Chipset

- Intel SoC (System on Chip) platform
- 8GB or 16GB / 2400MHz DDR4 / soldered to system board, no sockets
- Integrated memory is actually 2666MHz but run at 2400MHz due to Intel limitation

### Display

- 13.3” (337.8mm) FHD (1920x1080), LED backlight, IPS, Glossy, 300 nits, 16:9 aspect ratio, 800:1 contrast ratio, Color Gamut 72%, 170° viewing angle, capacitive-type multi-touch, AR (anti-reflection), AS (anti-smudge)
- Supports 10-finger gesture

### Multi-touch

- Hinge: Yoga hinge, 360 degree
- Convert-mode Pen: Laptop, tent, stand and tablet
- Pen: ThinkPad Pen Pro, active pen for multi-touch display, on-board rechargeable

### Storage

- M.2 2280 SSD / PCie NVMe, PCIe 3.0 x 4
- M.2 2242 SSD / PCie NVMe, PCIe 3.0 x 2
- Intel Optane Memory H10 with Solid State Storage, M.2 2280, PCIe NVMe 3.0 x 4

### Optane™

- Optional: Intel Optane memory or Intel Optane Memory H10

### Ethernet

- Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Adapter Gen 2

### WLAN

- One of the following, configurable by model:
  - Intel Wireless-AC 8560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0
  - Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0
  - Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter

### Bluetooth™

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card
  - For non-WWAN model, it means the model is NOT WWAN upgradable

### WWAN (optional)

- One of the following, configurable by model:
  - Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only)
  - Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card

### Media reader

- MicroSD card reader, in the combo slot with nano-SIM card
  - Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and Display Port), one USB 3.1 Type-C Gen 2 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole

### Monitor cable

- Depending on many factors, actual data transfer speed may be lower than theoretical speed
- Optional: Intel vPro Technology
- Intel Wi-Fi 6 AX200, Wi-Fi 2x2 802.11ax + Bluetooth 5.0

### Bundled Accy

- One of the following, configurable by model:
  - IR camera and HD720p camera, with ThinkShutter camera privacy, fixed focus
  - HD Audio, Realtek ALC3287 codec / stereo speakers, 2x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack

### Security

- Power-on password, hard disk password, supervisor password, security keyhole
- Discrete TPM 2.0, TCG Certified
- Intel vPro Technology
- Finger Print Reader Touch style match on chip fingerprint reader on the palm rest
- NFC (optional)
- Near Field Communication

### Battery

- Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
- 65W USB Type-C AC adapter
- 45W or 65W USB Type-C AC adapter
- Battery life: 14.5 hours
- MobileMark® 2014: 14.5 hrs

### Preload

- Windows® 10 Home 64 or Windows 10 Pro 64
- Light sensor: None
- G-sensor: 3D accelerometer
- Gyroscope: 3D gyrometer

### Limited warranty

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year/1-yr battery depot repair service
  - 3-year/1-yr battery limited onsite service

### Mil-Spec test

- MIL-STD-810G military testing

### Environment

- EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

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ThinkPad X390 Yoga Platform Specifications

Product Specifications Reference (PSREF)

Lenovo

April 2019
### ThinkPad Yoga 11e (5th Gen) Platform Specifications

**Processor**

<table>
<thead>
<tr>
<th>Processor Number</th>
<th># of Cores</th>
<th># of Threads</th>
<th>Base Frequency</th>
<th>Burst Frequency</th>
<th>Cache</th>
<th>Memory Controller</th>
<th>Processor Graphics</th>
<th>Processor Graph- ics</th>
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<td>2</td>
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<td>LPDDR3-1866</td>
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<td>5-7Y54</td>
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<td>4</td>
<td>1.2 GHz</td>
<td>3.2 GHz</td>
<td>4MB</td>
<td></td>
<td>615</td>
<td></td>
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<tr>
<td>Cel N4100</td>
<td>2</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.4 GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Pen N5000</td>
<td>2</td>
<td>4</td>
<td>1.1 GHz</td>
<td>2.7 GHz</td>
<td>4MB</td>
<td></td>
<td>600</td>
<td></td>
</tr>
</tbody>
</table>

**Graphics**

- Intel HD Graphics 615, Intel UHD Graphics 600 or 605 in processor,
- supports external digital monitor via HDMI or USB Type-C;
- supports dual independent display;
- Max resolution: 3840 x 2160 @ 60Hz (USB Type-C); 4096 x 2160 @ 30Hz (HDMI)

**Chipset**

- Intel SoC (System on Chip) platform

**Memory**

- 4GB or 8GB / 1866MHz LPDDR3 or 2400MHz DDR4 / soldered to systemboard, no sockets

**Display**

- 11.6” (295mm) HD (1366 x 768), anti-glare, LED backlight, IPS
- 250 nits, 16:9 aspect ratio, 800:1 contrast ratio, 170° viewing angle
- Yoga hinge, 360 degree
- Convertible mode: Laptop, tent, stand and tablet
- Some: Active pen, batteries required, on-board garage

**Storage**

- eMMC flash memory on board or M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s

**Optical**

- None

**Ethernet**

- Realtek RTL8111GUS-CG Gigabit Network Connection

**WLAN**

- One of the following, configurable by model:
  - Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card
  - Bluetooth wireless, integrated in Wi-Fi + Bluetooth combo adapter

**WWAN**

- None

**Dimensions**

- WxDxH: 11.81” x 8.27” x 0.89”; 300mm x 210mm x 22.5mm

**Weight**

- from 3.4 lb (1.54kg)

**Case color**

- Black

**Case material**

- Display cover: PC/ABS+GF; Bottom: PC/ABS plastic

**Media reader**

- MicroSD card reader
- Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1, HDMI1.4, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole

**Camera**

- One of the following, configurable by model:
  - 720p: HD720p resolution, low light sensitive, fixed focus
  - World facing: Rear camera, SMP resolution, auto focus

**Audio support**

- HD Audio, Realtek ALC3287 codec Dolby Audio / stereo speakers, 2W x 2 / monaural microphone, headphone / microphone combo jack

**Camera**

- One of the following, configurable by model:

**Security chip**

- Power-on password, hard disk password, supervisor password, security keyhole

**AC adapter**

- 45W or 65W slim tip AC adapter or USB Type-C AC adapter

**Preload**

| Some: Windows 10 Home 64 | Some: Windows 10 Pro 64 |

**Battery**

- Integrated Li-Ion 42Wh battery

**Max battery life**

- MobileMark 2014: 12 hr

**Bluetooth**

- One of the following, configurable by model:
  - 1-year depot repair service
  - 3-year depot repair service

**Warranty**

- MIL-STD-810G military testing

**Environment**

- EPEAT Gold; ENERGY STAR 6.1; RoHS-compliant

**Lenovo**

March 2019
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Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

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**Carry-in or Mail-in Service:** Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

**Depot or Courier Service:** Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Expedited Depot:** Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

**Onsite / In-home Service:** Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.


Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.


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