## OVERVIEW

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Power connector</td>
</tr>
<tr>
<td>2.</td>
<td>HDMI (for 8145UE models) / DP (for others)</td>
</tr>
<tr>
<td>3.</td>
<td>USB 3.2 Gen 2 (USB 2.0 for Celeron models)</td>
</tr>
<tr>
<td>4.</td>
<td>USB-C 3.2 Gen 2 (display and power-in)</td>
</tr>
<tr>
<td>5.</td>
<td>2x Ethernet (1x Ethernet for Celeron)</td>
</tr>
<tr>
<td>6.</td>
<td>Kensington Security Slot</td>
</tr>
<tr>
<td>7.</td>
<td>Power button</td>
</tr>
<tr>
<td>8.</td>
<td>2x Serial (RS232)</td>
</tr>
<tr>
<td>9.</td>
<td>USB-C 3.2 Gen 2</td>
</tr>
<tr>
<td>10.</td>
<td>2x USB 3.2 Gen 2</td>
</tr>
<tr>
<td>11.</td>
<td>Headphone / microphone combo jack (3.5mm)</td>
</tr>
</tbody>
</table>
**PERFORMANCE**

**Processor**

**Processor Family**
Intel® Celeron® or 8th Generation Intel Core™ i3 / i5 Processor

<table>
<thead>
<tr>
<th>Processor Name</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency</th>
<th>Max Frequency</th>
<th>Cache</th>
<th>Memory Support</th>
<th>Processor Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron 4205U</td>
<td>2</td>
<td>2</td>
<td>1.8GHz</td>
<td>-</td>
<td>2MB</td>
<td>DDR4-2133</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i3-8145U</td>
<td>2</td>
<td>4</td>
<td>2.1GHz</td>
<td>3.9GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics</td>
</tr>
<tr>
<td>Core i3-8145UE</td>
<td>2</td>
<td>4</td>
<td>2.2GHz</td>
<td>3.9GHz</td>
<td>4MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics 620</td>
</tr>
<tr>
<td>Core i5-8365U</td>
<td>4</td>
<td>8</td>
<td>1.6GHz</td>
<td>4.1GHz</td>
<td>6MB</td>
<td>DDR4-2400</td>
<td>Intel UHD Graphics</td>
</tr>
</tbody>
</table>

**Operating System**

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

**Graphics**

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Type</th>
<th>Memory</th>
<th>Connector</th>
<th>Max Resolution</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel UHD Graphics 620</td>
<td>Integrated</td>
<td>Shared</td>
<td>1x HDMI®, 1 USB-C</td>
<td>4096x2304@60Hz(USB-C)</td>
<td>DirectX® 12</td>
</tr>
<tr>
<td>Intel UHD graphics</td>
<td>Integrated</td>
<td>Shared</td>
<td>1x DP, 1x USB-C</td>
<td>4096x2304@60Hz(DP), 4096x2304@60Hz(USB-C)</td>
<td>DirectX 12</td>
</tr>
</tbody>
</table>

Notes:
1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

**Monitor Support**

**Monitor Support**
Supports up to 2 independent displays via onboard ports (DisplayPort™ and USB-C, 8145UE models support HDMI and USB-C)

**Chipset**

**Chipset**
Intel SoC (System on Chip) platform

**Memory**

**Max Memory**
- 4GB soldered memory, not upgradable
- 8GB soldered memory, not upgradable

**Memory Slots**
Memory soldered to systemboard, no slots

**Memory Type**
DDR4-2666

**Memory Protection**
Non-ECC
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.
2. Installed memory is actually 2666MHz, but runs at 2133MHz or 2400MHz depending on the memory support capability of processor.

Storage
Storage Support
Up to two drives, 2x M.2 SSD
• M.2 SSD up to 1TB each
• Optional Intel Optane™ Memory Integrated with SSD, M.2

Storage Type

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Interface</th>
<th>RPM</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 2242 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M.2 2280 SSD</td>
<td>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>Opal</td>
</tr>
<tr>
<td>Intel Optane Memory with Solid State Storage, M.2 2280</td>
<td>PCIe NVMe, PCIe 3.0 x4</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

RAID
RAID 0/1 support for M.2 SSDs (RAID preset only available via special bid model)

Removable Storage
Optical
None

Card Reader
No card reader

Multi-Media
Audio Chip
High Definition (HD) Audio, Realtek® ALC233VB codec

Speakers
Single speaker, 1W x1

Power Supply

<table>
<thead>
<tr>
<th>Power</th>
<th>Type</th>
<th>Efficiency</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>65W</td>
<td>Adapter</td>
<td>88%</td>
<td>Autosensing, wide temperature</td>
</tr>
<tr>
<td>65W</td>
<td>Adapter</td>
<td>88%</td>
<td>-</td>
</tr>
<tr>
<td>No power supply</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

DESIGN

Input Device
Keyboard
• Lenovo Calliope Keyboard (USB connector), black
• Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
• Lenovo Traditional Keyboard (USB connector), black
• No keyboard

Mouse
• Lenovo Calliope Mouse (USB connector), black
• Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
• Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
• No mouse

Mechanical

Form Factor
Nano (0.55L)

**Dimensions (WxDxH)**

<table>
<thead>
<tr>
<th>Models</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nano only</td>
<td>179 x 88 x 34.5 mm (7.05 x 3.46 x 1.36 inches)</td>
</tr>
<tr>
<td>Nano with IO box</td>
<td>179 x 88 x 61.3 mm (7.05 x 3.46 x 2.41 inches)</td>
</tr>
</tbody>
</table>

**Weight**

<table>
<thead>
<tr>
<th>Models</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nano only</td>
<td>0.72 kg (1.58 lbs)</td>
</tr>
<tr>
<td>Nano with IO box</td>
<td>1.2 kg (2.65 lbs)</td>
</tr>
</tbody>
</table>

**Case Color**

Iron grey (top cover), black (mid bezel), black (bottom cover)

**Bays**

No bays

**Expansion Slots**

Three M.2 slots (one for WLAN, two for SSD)

**Stand**

No stand

**IO Box**

- IO box: 2x serial (RS232 / RS422 / RS485, SDK selectable) and 2x Ethernet (RJ-45, Realtek RTL8153B, gigabit Ethernet) on front, 1x DIO (4DI / 4DO), 1x USB-C (connect to Nano) and 1x DC-in connector (9V - 36V) on rear
- No IO box

**Mounting**

- VESA mount bracket kit with adapter holder, supports VESA mount 75mm and 100mm
- VESA mount bracket kit, supports VESA mount 75mm and 100mm
- DIN rail mount bracket kit
- None

**CONNECTIVITY**

**Network**

**Onboard Ethernet**

- Two gigabit Ethernet, Intel Ethernet Connection I219-LM and Realtek RTL8111H, 2x RJ45, supports Wake-on-LAN
- One gigabit Ethernet, Realtek RTL8111K, 1x RJ-45, supports Wake-on-LAN
- Two gigabit Ethernet, Realtek RTL8111K and RTL8111H, 2x RJ-45, supports Wake-on-LAN

**Optional Ethernet**

No optional Ethernet

**WLAN + Bluetooth®**

- 802.11ac 1x1 Wi-Fi® + Bluetooth 5.0, M.2 card
- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9462, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, Intel vPro technology support, M.2 card
- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- No WLAN and Bluetooth

**Ports**

**Front Ports**

- 2x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)
- 2x serial (RS-232)

**Optional Front Ports**

- 2x gigabit Ethernet (RJ-45) on SE30 IO box
- 2x serial (RS232 / RS422 / RS485, SDK selectable) on SE30 IO box
Rear Ports

- 1x USB 2.0 (for Celeron models)
- 1x USB 3.2 Gen 2 (for i3 / i5 models only)
- 1x USB-C 3.2 Gen 2 (support display function and power-in [20V and >45W])
- 1x HDMI (for 8145UE models)
- 1x DisplayPort (for 4205U / 4305UE / 8145U / 8365U models)
- 1x Ethernet (RJ-45, for Celeron models)
- 2x Ethernet (RJ-45, for i3 / i5 models)

Optional Rear Ports

- 1x DC-in 3pin Phoenix connector on SE30 IO box
- 1x DIO (4DI / 4DO) on SE30 IO box

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: 40 Gbit/s;
   - FireWire 400: 400 Mbit/s;
   - FireWire 800: 800 Mbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable
- USB-C to DP dongle
- USB-C to HDMI dongle
- USB-C to VGA dongle
- DP to HDMI 1.4 dongle
- DP to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip
Discrete TPM 2.0, TCG certified

Physical Locks
Kensington® Security Slot

Chassis Intrusion Switch
Chassis intrusion switch

Fingerprint Reader
- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security
- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Individual USB port disablement

MANAGEABILITY

System Management

System Management
- Intel vPro Technology, DASH
SERVIC

Warranty

Base Warranty
- 1-year limited onsite service
- 3-year limited onsite service
- No base warranty

ENVIRONMENTAL

Operating Environment

Temperature
- Storage: -40°C (-40°F) to 60°C (140°F)
- Operating:
  - From 0°C (32°F) to 50°C (122°F): for the machine types of 11AK, 11AL, 11AM, 11AS, 11J3, 11J4, 11J7, and 11J8
  - From 0°C (32°F) to 35°C (95°F): for the machine types of 11AH and 11AJ

Humidity
- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude
- Operating: -15.2 m (-50 ft) to 3048 m (10,000 ft)
- Storage: -15.2 m (-50 ft) to 12192 m (40,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications
- EPEAT™ Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant
- REACH
- WEEE

Notes:
1. Energy Star 8.0 and EPEAT not for the models with I/O box

Other Certifications

Other Certifications
- (Optional) TÜV Rheinland Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise
- None

Mil-Spec Test
- MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)
- None

Notes:
1. Not for the models with I/O box