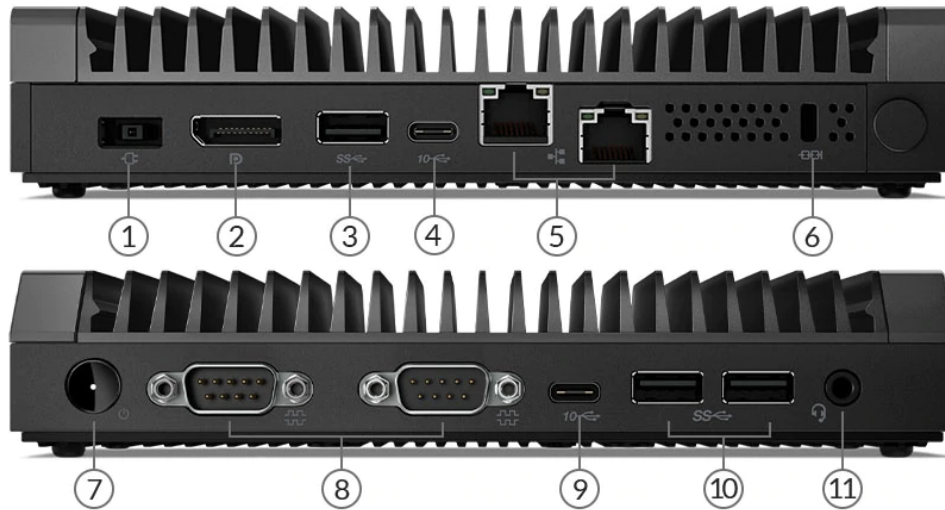


## OVERVIEW



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

## PERFORMANCE

### Processor

#### Processor Family

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

#### Processor\*\*<sup>[1]</sup>

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron 4205U	2	2	1.8GHz	-	2MB	DDR4-2133	Intel UHD Graphics
Celeron 4305UE	2	2	2.0GHz	-	2MB	DDR4-2133	Intel UHD Graphics 610
Core i3-8145U	2	4	2.1GHz	3.9GHz	4MB	DDR4-2400	Intel UHD Graphics
Core i3-8145UE	2	4	2.2GHz	3.9GHz	4MB	DDR4-2400	Intel UHD Graphics 620
Core i5-8365U	4	8	1.6GHz	4.1GHz	6MB	DDR4-2400	Intel UHD Graphics

#### Notes:

1. Celeron 4205U, Core i3-8145U and Core i5-8365U have been already end of life and not available any more

### Operating System

#### Operating System\*\*

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

### Graphics

#### Graphics\*\*<sup>[1][2]</sup>

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics	Integrated	Shared	1x DP, 1x USB-C®	4096x2304@60Hz(DP), 4096x2304@60Hz(USB-C)	DirectX® 12
Intel UHD Graphics 610	Integrated	Shared	1x DP, 1 USB-C	4096x2304@60Hz(DP); 4096x2304@60Hz(USB-C)	DirectX 12
Intel UHD Graphics 620	Integrated	Shared	1x HDMI®, 1 USB-C	4096x2304@60Hz(USB-C)	DirectX 12

#### Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)
2. The Intel UHD Graphics which is integrated in Celeron 4205U, Core i3-8145U, or Core i5-8365U is not available any more, because those CPUs have been already end of life

### 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<sup>[1]</sup>

# ThinkCentre M90n-1 Nano IoT

- 4GB soldered memory, not upgradable
- 8GB soldered memory, not upgradable

## Memory Slots

Memory soldered to systemboard, no slots

## Memory Type<sup>[2]</sup>

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.
2. Installed memory is actually 2666MHz, but runs at 2133MHz or 2400MHz depending on the memory support capability of processor.

## Storage

### Storage Support<sup>[1]</sup>

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<sup>\*\*\*</sup>

Disk Type	Interface	RPM	Security
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
Intel Optane Memory with Solid State Storage, M.2 2280	PCIe NVMe, PCIe 3.0 x4	-	-

## RAID

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

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

No card reader

## Multi-Media

### Audio Chip

High Definition (HD) Audio, Realtek® ALC233VB codec

### Speakers

Single speaker, 1W x1

## Power Supply

### Power Supply<sup>\*\*</sup>

Power	Type	Efficiency	Key Features
65W	Adapter	88%	Autosensing, wide temperature
65W	Adapter	88%	-
No power supply	-	-	-

## DESIGN

## Input Device

### Keyboard<sup>\*\*</sup>

# ThinkCentre M90n-1 Nano IoT

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

## 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)

Models	Dimensions
Nano only	179 x 88 x 34.5 mm (7.05 x 3.46 x 1.36 inches)
Nano with IO box	179 x 88 x 61.3 mm (7.05 x 3.46 x 2.41 inches)

### Packaging Dimensions (WxDxH)

490 x 125 x 255 mm (19.29 x 4.92 x 10.04 inches)

### Weight

Models	Weight
Nano only	Around 0.72 kg (1.58 lbs)
Nano with IO box	Around 1.2 kg (2.65 lbs)

### Packaging Weight

0.83 kg (1.83 lbs)

### 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\*\*

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

#### Optional Ethernet

# ThinkCentre M90n-1 Nano IoT

No optional Ethernet

## WLAN + Bluetooth®\*\*<sup>[1]</sup>

- 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
- Intel Wireless-AC 9462, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.0, M.2 card
- 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
- No WLAN and Bluetooth

## WWAN

- Intel XMM 7360, 4G CAT9, M.2 Card
- No support

## Notes:

1. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitation

## Ports<sup>[1]</sup>

### 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<sup>[2]</sup>

- 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™ 3/4: 40 Gbit/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 VGA dongle
- DP to HDMI 1.4 dongle
- No monitor cable

## SECURITY & PRIVACY

### Security

#### Security Chip

# ThinkCentre M90n-1 Nano IoT

Discrete TPM 2.0, TCG certified

## Physical Locks

Kensington® Security Slot™, 3 x 7 mm

## 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<sup>[1]</sup>

- Intel vPro
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.

## SERVICE

### Warranty<sup>[1]</sup>

#### Base Warranty\*\*

- 1-year limited onsite service
- 3-year 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

### 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: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

## CERTIFICATIONS

## Green Certifications

### Green Certifications<sup>[1]</sup>

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

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#### 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

### Mil-Spec Test<sup>[1]</sup>

- 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

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#### Notes:

1. Not for the models with I/O box

- 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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