LENOVO PSREF
Product Specifications
Reference

OVERVIEW
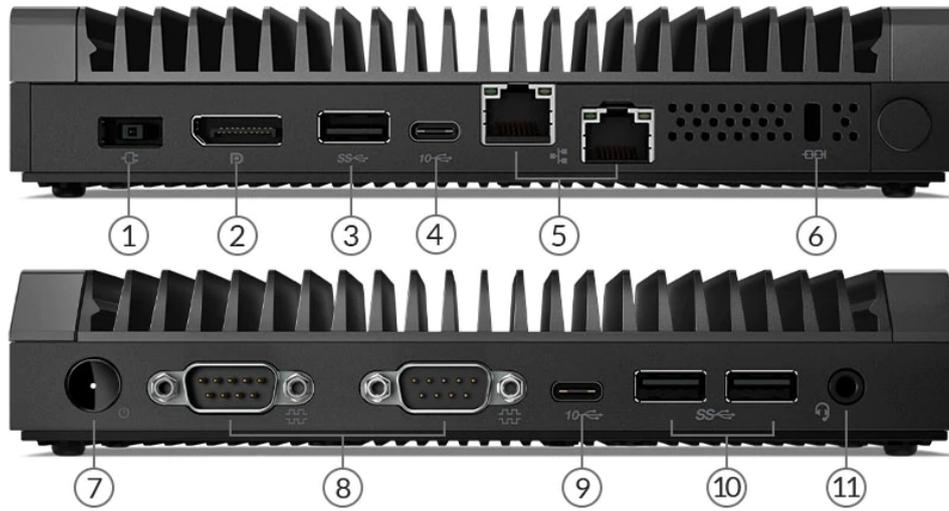

1.	Power connector	7.	Power button
2.	HDMI (for 8145UE models) / DP (for others)	8.	2x Serial (RS232)
3.	USB 3.2 Gen 2 (USB 2.0 for Celeron models)	9.	USB-C 3.2 Gen 2
4.	USB-C 3.2 Gen 2 (display and power-in)	10.	2x USB 3.2 Gen 2
5.	2x Ethernet (1x Ethernet for Celeron)	11.	Headphone / microphone combo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

PERFORMANCE

Processor

Processor Family

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

Processor**[1]

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[2]	4MB	DDR4-2400	Intel® UHD Graphics
Core i3-8145UE	2	4	2.2GHz	3.9GHz[3]	4MB	DDR4-2400	Intel® UHD Graphics 620
Core i5-8365U	4	8	1.6GHz	4.1GHz[4]	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.
[2], [3], [4] Intel® Max Turbo frequency will vary depending on application workload and the hardware and software configurations, see
http://www.intel.com/technology/turboboost/ for more information.

Operating System

Operating System*

- Windows® 10 Pro 64
- Windows® 10 Home 64
- Windows® 10 Home 64 Single Language
- Windows® 10 IoT Enterprise LTSC 2019
- Ubuntu Linux[1]
- FreeDOS
- No preload operating system

Notes:

[1] Some features may not be supported on the system with Linux preload, including but not limited to Intel® RST RAID, Human Presence Detection, etc.

Graphics

Graphics**[1]

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

Notes:

[1] The Intel® UHD Graphics which is integrated in Celeron® 4205U, Core i3-8145U, or Core i5-8365U is not available any more, becasue those CPUs have been aleady 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[1]

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

Memory Slots

Memory soldered to systemboard, no slots

Memory Type[2]

DDR4-2666

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.
[2] Installed memory is actually DDR4-2666 but runs at DDR4-2133 or DDR4-2400 depending on the memory support capability of processor.

Storage

Storage Support[1]

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***

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

RAID

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

Notes:

[1] The max capacity of each disk type is based on the test results with current Lenovo® storage offerings.

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**

Power	Type	Efficiency	Key Features	Dimensions
65W	Adapter	88%	100-240 VAC, wide temperature	129 x 53 x 30 mm, 1800 mm cable
65W	Adapter	88%	-	-
No power supply	-	-	-	-

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 (EOL on Jan, 2023)
- No mouse

Mechanical

Form Factor

Nano (0.55L)

Dimensions (WxDxH)[1]

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[2]

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

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

Onboard Ethernet**

- Gigabit Ethernet, Realtek® RTL8111K, 1x RJ-45, supports Wake-on-LAN
- Two Gigabit Ethernet, Intel® Ethernet Connection I219-LM and Realtek® RTL8111H, 2x 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®**

- Wi-Fi® 5, 802.11ac 1x1 Wi-Fi® + Bluetooth® 5.0, M.2 card
- Realtek® RTL8822CE, Wi-Fi® 5, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth® 5.0, M.2 card
- Intel® Wireless-AC 9462, Wi-Fi® 5, 802.11ac Dual Band 1x1 Wi-Fi® + Bluetooth® 5.0, M.2 card
- Intel® Wireless-AC 9560, Wi-Fi® 5, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth® 5.1, Intel® vPro® technology support, M.2 card
- Intel® Wireless-AC 9560, Wi-Fi® 5, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 card
- No WLAN and Bluetooth®

WWAN

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

Ports[1]

Front Ports

- 1x USB-C® 3.2 Gen 2
- 2x USB 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-C® 3.2 Gen 2 (support display function and power-in [20V and >45W])
- 1x USB 2.0 (for Celeron® models)
- 1x USB 3.2 Gen 2 (for i3 / i5 models only)
- 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;
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.

SECURITY & PRIVACY

Security

Security Chip

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 (EOL on Jan, 2023)
- 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®[1]
- Non-vPro®

Notes:

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

SERVICE

Warranty[1]

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.

ACCESSORIES

Bundled Accessories

Bundled Accessories***

- DP to HDMI® dongle
- DP to VGA dongle
- USB-C® to DP dongle
- USB-C® to HDMI® dongle
- USB-C® to VGA dongle
- None

OPERATING REQUIREMENTS

Operating Environment

Temperature

- 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

- Storage: -40°C (-40°F) to 60°C (140°F)

Relative 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[1]

Green Certifications[2]
- ENERGY STAR® 8.0
- EPEAT™ Silver Registered[3]
- ErP Lot 3
- REACH
- RoHS compliant
- TCO Certified 8.0
- WEEE

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] Energy Star 8.0 and EPEAT™ are not available for the models with I/O box, No OS, or Free DOS.
[3] EPEAT™ is registered where applicable, please visit epeat.net for registration status by country.

Other Certifications

Other Certifications
- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland® Ultra Low Noise

Mil-Spec Test[1]
- 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.

- 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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