# OVERVIEW




| | |
|---|---|
| 1. Headphone / mic combo jack (3.5mm) (Note 2) * | 6. 4x USB 3.2 Gen 1 (Note 2) * |
| 2. HDMI 1.4 | 7. Power button |
| 3. 1x CAN BUS and 1x DIO (4DIx4DO) (Note 2) * | 8. 2x Serial (RS232 / RS422 / RS485) (Note 2) * |
| 4. microSD card slot (Note 2) * | 9. 2x GbE Ethernet (RJ-45, PoE) |
| 5. Micro USB OTG (Note 2) * | 10. Slim Tip AC-in or DC-in, AC is shown (Note 3) * |

Notes:

- Items with * are only available on selected models
- Front ports (audio, microSD card solt, CAN BUS, DIO, micro USB, USB) and rear serial ports are not available for AWS Panorama models (MT 12AE, 12AF, and 12AR)
- Slim Tip AC connector is only for models with AC adapter. Optional DC-in connector is only for 1.6L wide voltage models

# PERFORMANCE

## SOM

**SOM Processor****

- Nvidia Jetson Xavier NX 8GB
  - 6-cores (3x dual-core CPU clusters), ARM v8.2 64-bit, 1.9GHz Max Frequency, 6MB L2 + 4MB L3 Chache
  - 384-core NVIDIA® Volta GPU with 48 Tensor Cores, 1.1GHz Max Frequency
  - 8 GB 128-bit LPDDR4x, 59.7GB/s
  - 16 GB eMMC 5.1
  - 21 TOPS AI Performance
- Nvidia Jetson Xavier NX 16GB
  - 6-cores (3x dual-core CPU clusters), ARM v8.2 64-bit CPU, 1.9GHz Max Frequency, 6MB L2 + 4MB L3 Chache
  - 384-core NVIDIA® Volta GPU with 48 Tensor Cores, 1.1GHz Max Frequency
  - 16 GB 128-bit LPDDR4x, 59.7GB/s
  - 16 GB eMMC 5.1
  - 21 TOPS AI Performance

## Operating System

**Operating System**[1]

- AWS Panorama SKU
  - Linux for Tegra (Ubuntu Desktop 18.04, kernel 4.9, Jetpack v4.4 SDK), with AWS Panorama, OTA
  - Linux for Tegra (Ubuntu Desktop 18.04, kernel 4.9, Jetpack v4.5.1 SDK), with AWS Panorama, OTA, available with OTA patch after December 2022[2]
- Generic SKU
  - Linux for Tegra (Ubuntu Desktop 20.04, kernel 5.10, Jetpack v5.0.2 SDK), with OTA, available after December 2022
  - Linux for Tegra (Ubuntu Desktop 20.04, kernel 5.10, Jetpack v5.1.1 SDK), with OTA, available after September 22nd, 2023

Notes:

[1] Linux for Tegra with AWS Panorama is for SE70 AWS version only, others are for SE70 Generic version.
[2] For AWS Panorama SKU, Jetpack v4.4 version can be update to v4.5.1 via optional OTA.

## Monitor Support

**Monitor Support**

Supports 1 display via onboard HDMI® 1.4

## Chipset

**Chipset**

NVIDIA® Jetson Xavier NX SOM (System on Module)

## Memory

**Max Memory**

- 8GB LPDDR4X memory on SOM, not upgradable (Nvidia Jetson Xavier NX 8GB models)
- 16GB LPDDR4X memory on SOM, not upgradable (Nvidia Jetson Xavier NX 16GB models)

**Memory Type**

128-bit LPDDR4X-1866

## Storage

**Max Storage Support**

Up to two drives, 16GB eMMC 5.1 on SOM + 1x M.2 SSD
• M.2 SSD up to 2TB

**Storage Type*****

| Disk Type | Interface |
|---|---|
| M.2 2230 SSD | PCIe® NVMe®, PCIe® 3.0 |
| M.2 2280 SSD | PCIe® NVMe®, PCIe® 3.0 |

## Power Supply

**Power Supply****

| Power | Type | Efficiency | Key Features | Dimensions |
|---|---|---|---|---|
| 65W | Adapter | 89% | 100-240V, 50/60Hz, wide temperature | 129 x 53 x 30 mm, 1800 mm cable |
| DC-in connector [1] | Connector only | - | 4 pin Phoenix connector, wide voltage 9-48V | - |

Notes:

[1] DC-in connector is EOL

# DESIGN

## Mechanical

**Dimensions (WxDxH)[1]**

| Models | Dimensions |
|---|---|
| 1.6L models | 191 x 128 x 65 mm (7.52 x 5.04 x 2.56 inches) |

**Packaging Dimensions (WxDxH)**

260 x 160 x 260 mm (10.24 x 6.3 x 10.24 inches)

**Weight[2]**

| Models | Weight |
|---|---|
| 1.6L models | 1.857 kg (4.09 lbs) |

**Packaging Weight**

1.6L models: 3.38 kg (7.45 lbs)

**Case Color**

Black

**Mounting*****

- VESA mount support on chassis (75x75mm / 100x100mm), screw kit included
- (Optional) ThinkEdge™ DIN rail mount kits

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

**Ethernet**

Dual Gigabit Ethernet (Intel® Ethernet Controller I210-IT), 2x RJ-45, supports POE (802.3af, PSE 15.4W), supports Wake-on-LAN

**WLAN + Bluetooth®**[1][2]**

- Intel® Wireless-AC 9260, Wi-Fi® 5, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 card
- Intel® Wi-Fi® 6E AX210, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.1, M.2 card
- No WLAN and Bluetooth®

Notes:

[1] Wi-Fi® operation (including Wi-Fi® 6, Wi-Fi® 6E, Wi-Fi® 7, etc.) is subject to the regulatory requirements of each country. Bluetooth® may operate at a lower version than hardware design depending on the factors such as operating system, driver, etc.

[2] Intel® Wi-Fi® 6E AX210 can only support up to Wi-Fi® 6 on ThinkEdge™ SE70, Wi-Fi® 6E is not supported due to OS limitation.

## Ports[1]

### Front Ports[2]

- 1x USB On-The-Go (OTG), USB 2.0 Micro-B, for flashing image only
- 4x USB 3.2 Gen 1 (4 ports share 5Gbps bandwidth)
- 1x 4-channel DIO (4DI / 4DO)
- 1x CAN BUS
- 1x HDMI® 1.4
- 1x headphone / microphone combo jack (3.5mm)
- 1x microSD card slot

### Rear Ports[3]

- 1x Slim Tip power connector (for Non-wide temperature models 12NH/12NJ/12NQ/12NR)
- 2x GbE Ethernet (RJ-45), supports POE (802.3af, PSE 15.4W)
- 2x Serial (RS232 / RS422 / RS485, SDK selectable)

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.
Thunderbolt™ 5: 80 Gbit/s (bidirectional), up to 120 Gbit/s in bandwidth boost mode for video-intensive applications.
[2] Digital Input:
-- Channels: 4
-- Input type: NPN, PNP
-- Dry contact: - Logic 0: Open - Logic 1: Close to GND
-- Wet contact (from external power supply): - Logic 0: 0V to 3V - Logic 1: 10V to 50V
Digital Output:
-- Channels: 4
-- Output type: NPN
-- Voltage: 5V to 30V from external power supply
-- Current: 500mA / Channel at 25°C, 300mA / Channel at 60°C.
[3] DC-in connector is EOL.
Slim Tip connector / DC-in connector are mutually exclusive; DC-in connector is only available on 1.6L DC-in models; 2x Serial ports are not available for AWS Panorama models (MT 12AE, 12AF, and 12AR).

# SECURITY & PRIVACY

## Security

### Physical Locks

Kensington® MicroSaver® lock Slot

# SERVICE

## Warranty[1]

### Base Warranty**

- 1-year courier or carry-in service
- 3-year courier or carry-in 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://support.lenovo.com/warrantylookup/warrantypolicy.

# ACCESSORIES

## Bundled Accessories

**Bundled Accessories**

IP51 dust cover kits

# OPERATING REQUIREMENTS

## Operating Environment

**Temperature**

- Operating: IEC60068-2-1 Test A: Cold, IEC 60068-2-2 Test B: Dry heat, -20°C (-4°F) to 60°C (140°F), with airflow 0.7m/s (for 1.6L models)
- Storage: IEC60068-2-1 Test A: Cold, IEC 60068-2-2 Test B: Dry heat, -40°C (-40°F) to 85°C (185°F)

**Relative Humidity**

- Relative humidity operating: IEC 60068-2-66 Damp heat, steady state 95%@40°C non-condensing
- Relative humidity storage: IEC 60068-2-66 Damp heat, steady state 90%@60°C

**Shock Protection**

IEC 60068-2-27, shock, operating, 30G / 11ms, half sine

**Vibration Protection**

IEC 60068-2-64, Vibration, Operating, 3Grms, random, 5 ~ 500Hz, 1hr/axis

**MTBF Prediction**

MTBF @60°C / @40°C

**HALT**

HALT testing methodology, LOL / UOL depends on real test result

**Ingress Protection**[1]

IP51

**Flowing Mixed Gas Corrosion**

IEC 60068-2-60, 25°C/75%RH Gas concentration: H2S/0.01ppm, SO2/0.2ppm, NO2/0.2ppm, Cl2/0.01ppm, 21days

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Notes:

[1] Need optional IP51 Dust cover kits.

# CERTIFICATIONS

## Green Certifications

**Green Certifications**

- CEL
- JEL
- Low Halogen
- REACH
- RoHS compliant
- WEEE

## Other Certifications

**EMC**

- FCC for USA
- IC for Canada
- RCM for Australia / New Zealand
- VCCI for Japan
- BSMI for Taiwan
- CCC for China
- CE for Europe
- KCC for Korea

**Safety**

- Ukrsepro for Ukraine
- CM for Morocco

- CB for WW
- CCC for China
- CE LVD for Europe
- BIS for India
- EAC for Russia/Belarus/Kazakhstan/Armenia/Kyrgyzstan
- GS for Germany
- KEBS for Kenya
- KUCAS for Kuwait
- KVALITET for Serbia
- NOM-019 for Mexico
- NRTL (UL/cUL or cTUVus or ETL, cETL) for USA / Canada
- PSB for Singapore
- S mark for Argentina
- SABS for South Africa
- SIRC for Saudi Arabia
- SONCAP for Nigeria
- STZ for Uzbekistan
- TPBY for Belarus
- UKCA for United Kingdom

**RF**

- UKCA for United Kingdom
- WPC for India
- SRRC for China (upcoming)
- SUBTEL for Chile (upcoming)
- TELEC/JATE for Japan
- IC for Canada
- KCC for Korea
- NBTC for Thailand
- NCC for Taiwan
- NOM-208 for Mexico
- NTC for Philippines
- SDPPI for Indonesia
- SIRIM for Malaysia
- ANRT for Morocco
- CE-RED for Europe
- FCC for USA

**Other Certifications**

- AWS IoT Greengrass for generic version only
- AWS Panorama for AWS version only
- Microsoft® Azure for generic version only

- Feature with ** means that only one option listed under the feature can be configured on selected models. Please refer to the model configuration for specific information.
- Feature with *** means that one or more options listed under the feature can be configured on selected models. Please refer to the model configuration for specific information.
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