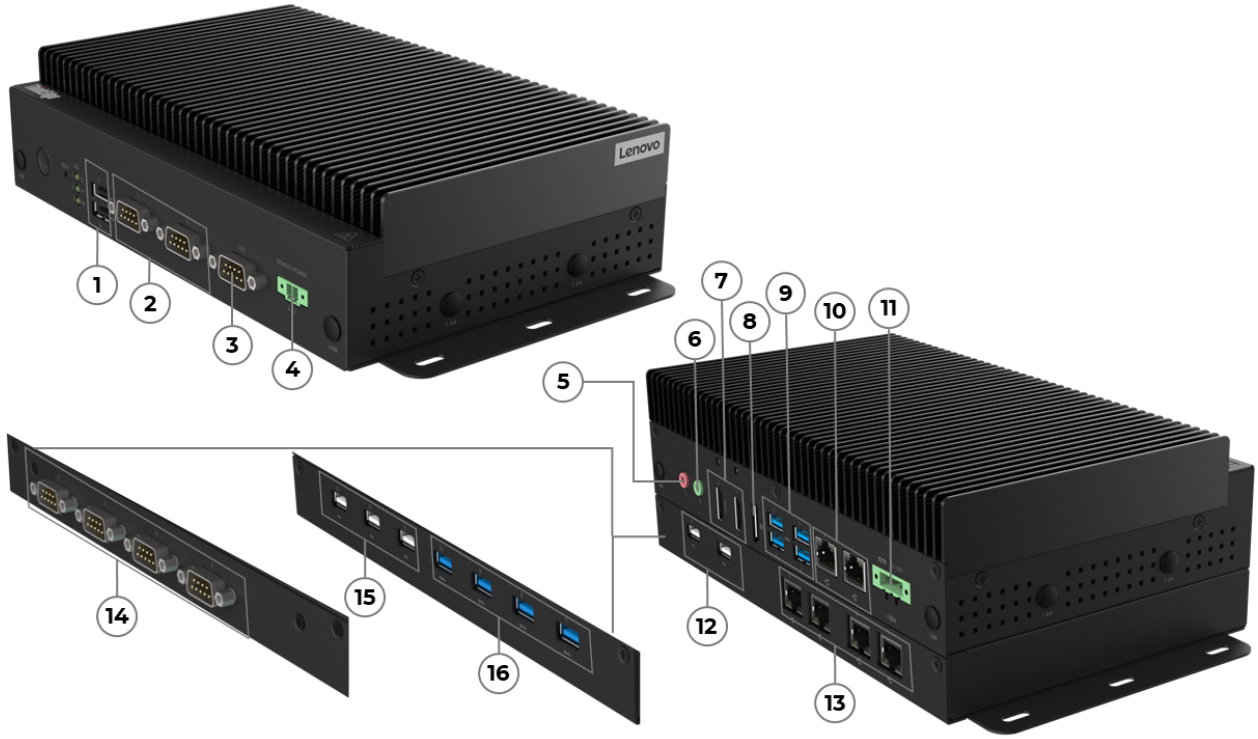
## OVERVIEW




| | |
|---|---|
| 1. 2x USB-A (Hi-Speed USB / USB 2.0) | 9. 4x USB-A (USB 5Gbps / USB 3.2 Gen 1) |
| 2. 2x serial (RS232/RS422/RS485) | 10. 2x 2.5GbE Ethernet (RJ-45) |
| 3. 1x DIO (4DI / 4DO) | 11. 1x WDC in 12~36V |
| 4. 1x Remote power switch | 12. 2x USB-A (Hi-Speed USB / USB 2.0) * |
| 5. 1x line-out (3.5mm) | 13. 4x GbE Ethernet (RJ-45) * |
| 6. 1x microphone-in (3.5mm) | 14. 4x serial (RS232 / RS422 / RS485) * |
| 7. 2x HDMI 2.1 TMDS | 15. 3x USB-A (Hi-Speed USB / USB 2.0) * |
| 8. 1x DisplayPort++ | 16. 4x USB-A 3.2 (USB 5Gbps / USB 3.2 Gen 1) * |

Notes:

- Items with * are only available on selected models

# PERFORMANCE

## Processor

### Processor Family

- Intel® H Series Core Ultra 5 / 7 Processor (Series 2)
- Intel® H Series Core Ultra 5 Processor (Series 1)

### Processor**

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Processor Graphics | NPU | Overall TOPS |
|---|---|---|---|---|---|---|---|---|
| Core Ultra 5 125H | 14 (4 P-core + 8 E-core + 2 LP E-core) | 18 | P-core 1.2GHz / E-core 700MHz / LP E-core 700MHz | P-core 4.5GHz / E-core 3.6GHz / LP E-core 2.5GHz | 18MB Intel® Smart Cache | Intel® Arc™ Graphics, up to 18 TOPS | Intel® AI Boost, up to 11 TOPS | Up to 33 TOPS |
| Core Ultra 5 235H | 14 (4 P-core + 8 E-core + 2 LP E-core) | 14 | P-core 2.4GHz / E-core 1.8GHz / LP E-core 700MHz | P-core 5.0GHz / E-core 4.4GHz / LP E-core 2.5GHz | 18MB Intel® Smart Cache | Intel® Arc™ 140T GPU, up to 74 TOPS | Intel® AI Boost, up to 13 TOPS | Up to 94 TOPS |
| Core Ultra 7 265H | 16 (6 P-core + 8 E-core + 2 LP E-core) | 16 | P-core 2.2GHz / E-core 1.7GHz / LP E-core 700MHz | P-core 5.3GHz / E-core 4.5GHz / LP E-core 2.5GHz | 24MB Intel® Smart Cache | Intel® Arc™ 140T GPU, up to 75 TOPS | Intel® AI Boost, up to 13 TOPS | Up to 97 TOPS |

## Operating System

### Operating System**

- Windows® 11 IoT Enterprise LTSC 2024
- Ubuntu (Server) 26.04 LTS 64 Bit (kernel 7.0)
- Ubuntu Core 26 64 Bit (kernel 7.0)
- IGEL Linux OS12
- No preload operating system

## Graphics

### Graphics**

| Graphics | Type | Memory | Max Resolution | Connector | Key Features |
|---|---|---|---|---|---|
| Integrated Intel® Arc™ Graphics | Integrated | Shared | 4096x2304@60Hz(HDMI®), 4096x2304@60Hz(DP) | 2x HDMI® TMDS, 1x DP++ | DirectX® 12.2 |
| Intel® Arc™ 140T GPU | Integrated | Shared | 4096x2304@60Hz(HDMI®), 4096x2304@60Hz(DP) | 2x HDMI® TMDS, 1x DP++ | DirectX® 12.2 |

## Monitor Support

### Monitor Support

Supports up to 3 independent displays via onboard ports (2x HDMI®, 1x DP++)

## Chipset

### Chipset

Intel® SoC (System on Chip) platform

## Memory

### Max Memory

- Wide Temperature (-20~60°C): Up to 64GB DDR5-5600 SODIMM
- Standard Temperature (0~50°C): Up to 96GB DDR5-5600 SODIMM

### Memory Slots

Two DDR5 SODIMM slots, dual-channel capable

### Memory Type**

- DDR5-5600 SODIMM

- DDR5-5600 SODIMM, wide temperature

## Storage

**Max Storage Support**[1]

- Wide Temperature (-20~60°C):
  Up to two drives, 1x M.2 SATA SSD + 1x M.2 SSD
  - M.2 2280 SSD up to 1TB each
  - M.2 2242 SATA SSD up to 1TB each
- Standard Temperature (0~50°C):
  Up to two drives, 1x M.2 SATA SSD + 1x M.2 SSD
  - M.2 2280 SSD up to 2TB each
  - M.2 2242 SATA SSD up to 1TB each

**Storage Type*****

| Disk Type | Interface | Security |
|---|---|---|
| M.2 2230 SSD | PCIe® NVMe®, PCIe® 3.0 | - |
| M.2 2242 SSD, wide temperature | SATA 6Gb/s | - |
| M.2 2242 SSD | SATA 6Gb/s | - |
| M.2 2280 SSD, wide temperature | PCIe® NVMe®, PCIe® 4.0 x4 | - |
| M.2 2280 SSD | PCIe® NVMe®, PCIe® 4.0 x4 | Opal 2.0 |
| M.2 2280 SSD | PCIe® NVMe®, PCIe® 5.0 x4 Performance | Opal 2.0 |

Notes:

[1] The storage capacity supported is based on the test results with current Lenovo® storage offerings.

## Multi-Media

**Audio Chip**

High Definition (HD) Audio, Realtek® ALC888S-VD2-GR codec

## Power Supply

**Power Supply****

| Power | Type | Efficiency | Key Features |
|---|---|---|---|
| 150W | Adapter | 89% | 150W, for operating temperature 0~40°C<br>120W, for operating temperature 0~50°C<br>100W, for operating temperature -20~60°C |
| 170W | Adapter | 90% | 100V - 240V |
| No power adapter | - | - | - |

# DESIGN

## Mechanical

**Dimensions (WxDxH)**[1]

| Models | Dimensions |
|---|---|
| Models without I/O Expansion Module | 240 x 150 x 59 mm (9.45 x 5.91 x 2.32 inches) |
| Models with I/O Expansion Module | 240 x 150 x 85 mm (9.45 x 5.91 x 3.35 inches) |

**Packaging Dimensions (WxDxH)****

- Models with I/O Expansion Module: 415 x 372 x 175 mm (16.34 x 14.65 x 6.89 inches)
- Models without I/O Expansion Module: 425 x 375 x 125 mm (16.73 x 14.76 x 4.92 inches)

**Weight**[2]

| Models | Weight |
|---|---|
| Models with I/O expansion module | Around 2.8 kg (6.17 lbs) |
| Models without I/O expansion module | Around 2.4 kg (5.29 lbs) |

**Packaging Weight****

- Models with I/O Expansion Module: 4.4 kg (9.7 lbs)
- Models without I/O Expansion Module: Around 3.7 kg (8.16 lbs)

**Case Color**

Black

**Expansion Slots**

Three M.2 slots (Key E for WLAN, Key M for PCIe® 4.0 x4 NVMe® SSD, Key B for SATA SSD)[3]

**Mounting****

- Default with wall mount
- 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.

[3] Gen 5 SSD on M.2 PCIe® 4.0 slot will run on PCIe® 4.0 protocols.

# CONNECTIVITY

## Network

**Ethernet**

Dual 2.5GbE, Intel® Ethernet Controller I226-IT, 2x RJ-45, supports Wake-on-LAN

**WLAN + Bluetooth®[1]**

- Intel® Wi-Fi® 6E AX210, 802.11ax 2x2 Wi-Fi® + Bluetooth® 5.3, 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.

## Ports[1]

**Front Ports**

- 2x USB-A (Hi-Speed USB / USB 2.0)
- 1x remote power switch
- 1x DIO (4DI / 4DO)
- 2x serial (RS232 / RS422 / RS485, BIOS & hardware jumper selectable)

**Rear Ports**

- 4x USB-A (USB 5Gbps / USB 3.2 Gen 1)
- 2x HDMI® 2.1 TMDS
- 1x Dual-Mode DisplayPort™ (DP++)
- 1x 12-36V WDC-in
- 1x line-out (3.5mm)
- 1x microphone-in (3.5mm)
- 2x 2.5GbE Ethernet (RJ-45)

**Optional Rear Ports****

- 4x 1GbE RJ-45 + 2x USB-A (Hi-Speed USB / USB 2.0)
- 4x 1GbE RJ-45, with POE function + 2x USB-A (Hi-Speed USB / USB 2.0)
- 4x USB-A (USB 5Gbps / USB 3.2 Gen 1) + 3x USB-A (Hi-Speed USB / USB 2.0)
- 4x serial (RS232 / RS422 / RS485)
- None

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.

# SECURITY & PRIVACY

## Security

**Security Chip**

Discrete TPM 2.0, TCG certified

**BIOS Security**

- Administrator password
- Hard disk password
- Secure boot
- More BIOS security features, please visit BIOS Simulator

# SERVICE

## Warranty[1]

**Base Warranty****

- 1-year courier or carry-in service
- 1-year limited onsite service
- 3-year limited onsite service

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****

- IP50 dust shield 3.1L
- IP50 dust shield 2.1L
- None

# OPERATING REQUIREMENTS

## Operating Environment

**Temperature**

- Operating: IEC60068-2-1 Test Ab: Cold, IEC 60068-2-2 Test Bb: Dry heat, 0°C (32°F) to 50°C (122°F) with 0.7m/s air flow
- Operating: IEC60068-2-1 Test Ab: Cold, IEC 60068-2-2 Test Bb: Dry heat, -20°C (-4°F) to 60°C (140°F) with 0.7m/s air flow
- Storage: IEC60068-2-3 Test Ca: Damp heat, steady state, -30°C (-22°F) to 70°C (158°F)

**Relative Humidity**

Relative humidity operating: IEC 60068-2-78 Test:Cab Damp heat, steady state 95%@40°C non-condensing

**Shock Protection**

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

**Vibration Protection**

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

**MTBF Prediction**

MTBF @60°C

**Ingress Protection**

IP50 standard[1]

Notes:

[1] To support IP50, IP50 dust cover kits are needed.

# CERTIFICATIONS

## Green Certifications

**Green Certifications**

- GREENGUARD®
- REACH
- RoHS compliant
- TED (The ECO-declaration)
- WEEE

## Other Certifications

**EMC**

- EMC CE / FCC Class A
- FCC for USA
- CE for Europe
- IC for Canada
- RCM for Australia / New Zealand
- VCCI for Japan
- BSMI for Taiwan
- KCC for Korea

**Safety**

- CB for WW
- NRTL (ETL, cETL) for USA / Canada
- EAC for Kazakhstan/Armenia/Kyrgyzstan
- Ukrsepro for Ukraine
- GS for Germany
- KUCAS for Kuwait
- KVALITET for Serbia
- NOM-019 for Mexico
- SABS for South Africa

**RF**

- CE for Europe
- SRRC for China
- SUBTEL for Chile
- UKCA for United Kingdom
- WPC for India
- NOM-208 for Mexico
- NTC for Philippines
- SDPPI for Indonesia
- SIRIM for Malaysia
- ANRT for Morocco

**Other Certifications**

- AWS IoT Greengrass Certified
- IGEL Certified
- Red Hat Enterprise Linux Certified
- Ubuntu Core Certified
- Ubuntu Server Certified

**Mil-Spec Test**

MIL-STD-810H military test passed (Low Pressure [Altitude] 500.6, High Temperature 501.7, Low Temperature 502.7, Temperature Shock 503.7, Humidity 507.6, Sand and Dust 510.7, Vibration 514.8, Shock 516.8, Fungus 508.8, Solar Radiation 505.7)

- 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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