

# ARK-1250L

## Intel® 11th Gen Core™ i processor with Triple LAN/ Quadruple COM Din-Rail Fanless Box PC

NEW



### Features

- Intel 11th Gen. Core i5/i3
- DIN-Rail system with essential I/O ports on front-side bezel
- 3 x Intel GbE, 4 x RS-232/422/485, 8-bit DIO, optional CANBus
- 3 Expansions: M.2 E-Key 2230, M.2 B-Key 2280, 1 x Full-size mSATA share with mPCIe slot
- Dual independent displays with one 4K HDMI and one VGA
- 3 x USB 3.2 and 3 x USB 2.0
- mSATA and 1 x 2.5" SATA storage device
- 12V ~ 24V wide range power input
- 40 ~ 60 °C extended operating temperature
- Advantech iEdge support
- Qualified for Edge AI SRP of WISE-DeviceOn



WISE-DeviceOn

SUSI API



### Specifications

| Model Name        | ARK-1250L                  |                                                                               |                                   |
|-------------------|----------------------------|-------------------------------------------------------------------------------|-----------------------------------|
| Processor System  | CPU                        | Core i5-1145G7E                                                               | Core i3-1115G4E                   |
|                   | Frequency                  | 1.5GHz turbo boost up to 4.1 GHz                                              | 2.2 GHz turbo boost up to 3.9 GHz |
|                   | Core Number                | 4                                                                             | 2                                 |
|                   | BIOS                       | AMI EFI 256 Mbit                                                              |                                   |
| Memory            | Technology                 | DDR4 3200 MHz                                                                 |                                   |
|                   | Max capacity               | Up to 64 GB with 2 x slots                                                    |                                   |
|                   | Socket                     | 2 x Dual Channel DDR4 3200 MHz 260 pin SO-DIMM (no support ECC)               |                                   |
| Graphics          | Chipset                    | Intel® Iris® Xe graphics                                                      |                                   |
|                   | HDMI                       | Up to 4096 x 2160 @ 60Hz                                                      |                                   |
|                   | VGA                        | Up to 1920 x 1200 @ 60Hz                                                      |                                   |
|                   | Dual Display               | HDMI + VGA                                                                    |                                   |
| Ethernet          | LAN1                       | 10/100/1000/2500 Mbps Intel i225 GbE, support Wake On LAN                     |                                   |
|                   | LAN2                       | 10/100/1000 Mbps Intel i219 GbE, support Wake On LAN                          |                                   |
|                   | LAN3                       | 10/100/1000/2500 Mbps Intel i225 GbE, support Wake On LAN                     |                                   |
| Audio             | Interface                  | Realtek ALC888S, High Definition Audio, Mic-in or Line-out                    |                                   |
|                   | Serial Ports               | 4 x RS-232/422/485 with auto flow control                                     |                                   |
|                   | USB Ports                  | 3 x USB3.2, 3 x USB2.0, 1 x internal USB 2.0 supported by project             |                                   |
| I/O Interface     | GPIO                       | 8-bit Programmable DIO                                                        |                                   |
|                   | CANBus                     | Optional (supported by project)                                               |                                   |
| Expansion         | Mini PCIe                  | 1 x Full-size mPCIe                                                           |                                   |
|                   | M.2                        | 1 x M2. 2230 E key and 1 x M.2 2280 B key with nano SIM holder #1             |                                   |
| Storage           | SSD/HDD                    | 1 x 2.5" SATAIII Drive bay (compatible with 15mm height)                      |                                   |
|                   | mSATA                      | 1 x Full-size mSATA (*share with mPCIe slot)                                  |                                   |
| Other             | WatchDog Timer             | 255 levels timer interval, setup by software                                  |                                   |
|                   | TPM                        | TPM 2.0 (Optional, project supported by AMO-I029)                             |                                   |
| Software Support  | Microsoft Windows          | Windows 10 Enterprise                                                         |                                   |
|                   | Linux                      | Ubuntu 20.04, others by project support                                       |                                   |
| Power Requirement | Power Type                 | ATX/AT                                                                        |                                   |
|                   | Power Input Voltage        | 12 ~ 24 V <sub>DC</sub>                                                       |                                   |
|                   | Power Adaptor              | AC to DC, 90W adaptor by default                                              |                                   |
| Power Consumption | Typical (OS idle mode)     | 19.8W                                                                         | 18W                               |
|                   | Max. (Full loading)        | 35.1W                                                                         | 30.6W                             |
| Mechanical        | Construction               | Aluminum housing                                                              |                                   |
|                   | Mounting                   | DIN-rail/Wall Mount                                                           |                                   |
|                   | Dimensions (W x H x D)     | 60 x 173 x 141 mm (2.36 x 6.73 x 5.55 in)                                     |                                   |
|                   | Weight                     | 1.5KG                                                                         |                                   |
| Environment       | Operating Temperature      | With extended temp. peripherals: -40 ~ 60° C with 0.7m/s air flow             |                                   |
|                   | Storage Temperature        | -40 ~ 85 °C (-40 ~ 185°F)                                                     |                                   |
|                   | Relative Humidity          | 95% @ 40 °C (non-condensing)                                                  |                                   |
|                   | Vibration during Operation | With SSD: 3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount) |                                   |
|                   | Shock during Operation     | With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)   |                                   |
|                   | EMC                        | CE/FCC Class B, CCC                                                           |                                   |
|                   | Safety                     | UL, CB, CCC                                                                   |                                   |

#1 SIM holder and M.2 slot are hardware interfaces for wireless communication integration only. System level RF certification is not available.  
M.2 B key requires additional mechanical parts to fix for sizes other than 2280.

ADVANTECH

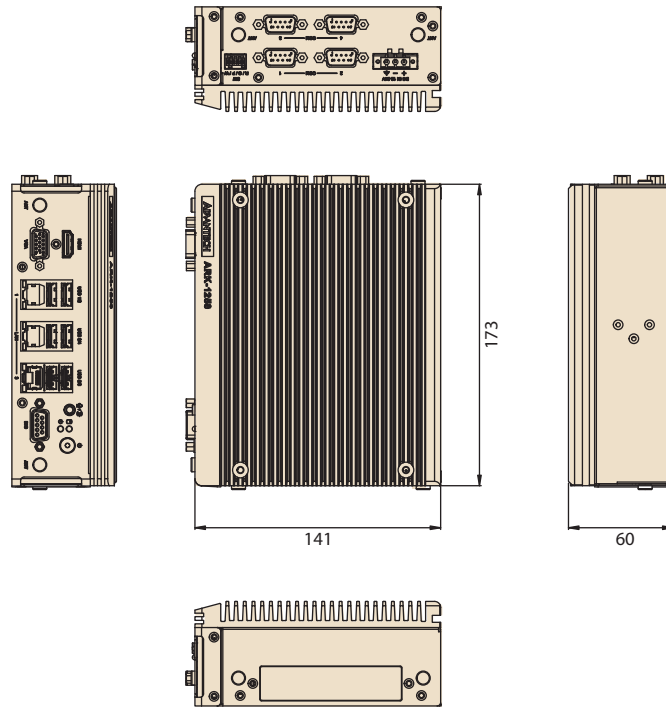
Fanless Embedded Box PCs

All product specifications are subject to change without notice.

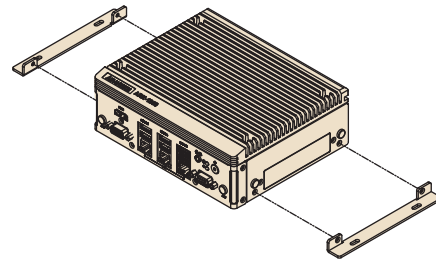
Last updated: 29-Dec-2022

## Dimensions

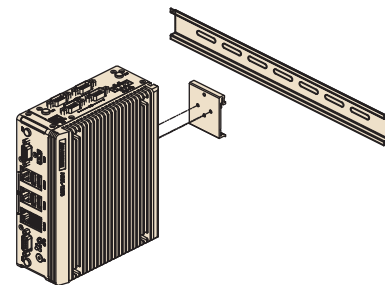
Unit: mm



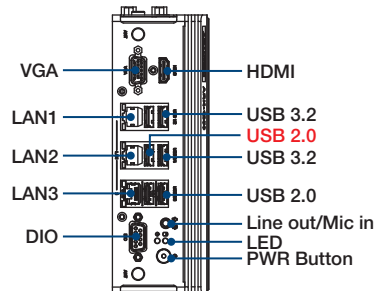
Wall Mount



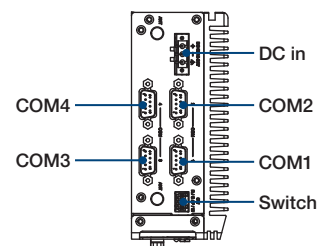
DIN Rail



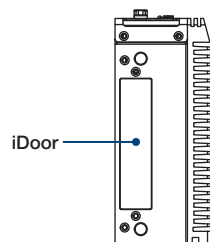
Front Panel External I/O Mechanical Layout/Drawing



Top Panel External I/O Mechanical Layout/Drawing



Bottom View External I/O Mechanical Layout/Drawing



## Ordering Information

| Part No.       | CPU                   | RAM         | HDMI | VGA | GbE | USB 3.2 | USB 2.0 | RS-232/422/485 | Audio              | Full-size MiniPCIe | SIM | M.2 | 2.5" SATA III HDD Bay | mSATA               | Power Input           | Operating Temp. |
|----------------|-----------------------|-------------|------|-----|-----|---------|---------|----------------|--------------------|--------------------|-----|-----|-----------------------|---------------------|-----------------------|-----------------|
| ARK-1250L-U2A1 | Intel Core i3-1115G4E | Up to 64 GB | 1    | 1   | 3   | 3       | 3       | 4              | Mic in or Line out | 1                  | 1   | 2   | 1                     | 1 (shared w/ mPCIe) | 12-24 V <sub>DC</sub> | -40 ~ 60 °C     |
| ARK-1250L-S5A1 | Intel Core i5-1145G7E | Up to 64 GB | 1    | 1   | 3   | 3       | 3       | 4              | Mic in or Line out | 1                  | 1   | 2   | 1                     | 1 (shared w/ mPCIe) | 12-24 V <sub>DC</sub> | -40 ~ 60 °C     |

Note: Memory, storage and operating system bundled by request.

## Packing List

| Part Number    | Description                          |
|----------------|--------------------------------------|
| -              | 1 x ARK-1250L Unit                   |
| -              | 1 x User Manual (Simplified Chinese) |
| -              | Wrench for top cover                 |
| XARK-ADP-90MDH | AC to DC adaptor , 19V/90W           |
| 1950016395T101 | 1 x DIN-rail bracket                 |
| 1652004519     | 1 x 3-pin plug-in block for power in |
| 1652007880-01  | 1 x 4-pin terminal block for switch  |

## Embedded OS

| Part Number    | Description                            |
|----------------|----------------------------------------|
| 20706WX9VS0158 | Win10 IoT Ent 2019 LTSC 64bit, English |
| 20706U20DS0042 | img Ubuntu 20.4 ARK-1250L 64b 2004 ENU |

## Optional Items

| Part Number       | Description                                               |
|-------------------|-----------------------------------------------------------|
| 96PSA-A120W24T2-4 | AC to DC adaptor, 24V/120W                                |
| 1700001524        | Power Cable 3-pin 180cm, USA type (for XARK-ADP-90MDH)    |
| 170203183C        | Power Cable 3-pin 180cm, Europe type (for XARK-ADP-90MDH) |
| 170203180A        | Power Cable 3-pin 180cm, UK type (for XARK-ADP-90MDH)     |
| 1700008921        | Power Cable 3-pin PSE Mark 183cm (for XARK-ADP-90MDH)     |
| 1702002600        | Power cable 3-pin 183cm, USA type (for 96PSA-A120W24T2-3) |
| 1702002605        | Power cable 3-pin 183cm, EU type (for 96PSA-A120W24T2-3)  |
| 1702031801        | Power cable 3-pin 183cm, UK type (for 96PSA-A120W24T2-3)  |
| 1700000237        | Power cable 3-pin 183cm, PSE type (for 96PSA-A120W24T2-3) |
| 1700024369-01     | 1M HDMI cable                                             |
| 1700031560-01     | 1.8M HDMI cable                                           |
| AMK-W006          | ARK-1250 wall mount kit                                   |
| 1700030518-01     | CANBus Cable (replacing GPIO)                             |

Note

Please update BIOS to Advantech part number 1420056685 when using the optional CANBus cable 1700030518-01.

### Optional MOS modules for iDoor Expansion

| Part Number     | Description                                         |
|-----------------|-----------------------------------------------------|
| MOS-2230-Z1201E | CANBus module, 2-Ch, USB Interface                  |
| MOS-2220-X1101E | Parallel LPT module, 1-Ch, USB Interface            |
| MOS-2110Z-1201E | USB module, 2-Ch, PCIe Interface                    |
| MOS-2120-Z1101E | Giga LAN Ethernet module, 1-Ch, PCIe Interface      |
| MOS-1120Y-0202E | Isolated RS-232, 2-Ch, DB9, PCIe Interface          |
| MOS-1121Y-0202E | Isolated RS-422/485, 2-Ch, DB9, PCIe Interface      |
| MOS-1120Y-1402E | Non-Isolated RS-232, DB37, 4-Ch, PCIe Interface     |
| MOS-1121Y-1402E | Non-Isolated RS-422/485, DB37, 4-Ch, PCIe Interface |
| MOS-1130Y-0201E | Isolated CANBus, 2-Ch, DB9, PCIe Interface          |
| MOS-1110Y-0101E | Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe Interface     |
| MOS-2120-Z1201  | GigaLAN Ethernet module, mPCIe, RJ45 2-Ch, PCIe I/F |
| MOS-2220-Z1101E | High Speed Serial COM module, 1-Ch, USB Interface   |
| AMO-I032        | Expansion kit M.2 B key for mPCIe idoor             |

Note

- Need to order AMO-I032 together with MOS modules

- mPCIe and M.2 E Key cannot be used when adding any MOS module due to mechanical interference

# WISE-DeviceOn

## Edge AI OTA and Container Management

### WISE-DeviceOn End-to-End Solution for Edge AI

Even if all datasets, algorithms, trainings, UI/UX, and more are functioning, how can you easily deploy an AI application to hundreds, or thousands, of inference devices in production? How can you efficiently manage AI models (software updates, CI/CD), in addition to all remote, hardware devices, such as sensors?



### Solution Advantages



#### Performance Booster

- Inference optimization
- Open Neural Network Compiler (ONNC)
- Save over 45% DRAM consumption



#### Fleet Management

- Remote batch control for power management, reboot, terminal and screenshot
- Real-time monitoring, diagnostics and notification
- Over 10,000 devices around the globe



#### Container and OTA

- Streamlined deployment process
- Docker container management
- Software OTA (over-the-air) updates



#### AI Security

- AI containers deployed via Azure Container Registry and Harbor
- Secured data connection (TLS/SSL)
- Integrity protection based on digital signature

👉 Find More Information about [WISE-DeviceOn End-to-End Solution for Edge AI](#)