

# ARK-1251

## Intel® Core Ultra U series processor with Triple LAN/ Quadruple COM Din-Rail Fanless Box PC

Preliminary



### Features

- Intel® Core Ultra 5/Ultra 7 Processor
- DDR5-5600 SO-DIMM memory support up 96G
- M.2 E Key, B Key and M Key for storage and wireless module installation
- Up to 3 x GbE, 4 x serial ports, 8-bit DIO, optional CANBus
- TPM on board for system security
- Dual displays with 1 x 8K HDMI + 1 x 4K DP
- 2 x USB 3.2 and 4 x USB 2.0
- 12V ~ 28V wide range power input
- -20 ~ 60 °C extended operating temperature
- DIN-Rail system with essential I/O ports on front-side bezel



WISE-DeviceOn SUSI API



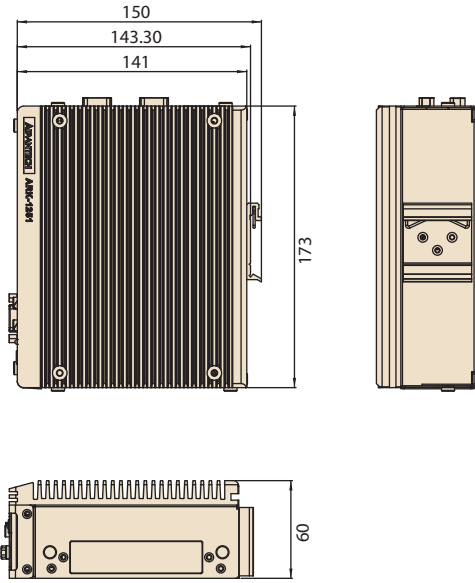
### Specifications

Model Name	ARK-1251		
Processor System	CPU	Core Ultra 7-155U	Core Ultra 5-125U
	Frequency	1.7Ghz turbo boost up to 4.8Ghz	1.3Ghz turbo boost up to 4.3Ghz
	Core Number	12	12
	BIOS	AMI EFI 256 Mbit	
Memory	Technology	DDR5 5600 MHz	
	Max capacity	Up to 96 GB with 2 x slots	
	Socket	2 x Channel DDR5 5600 MHz 262 pin SO-DIMM (no support ECC)	
Graphics	Chipset	Intel® Graphics Xe LPG	
	HDMI	Up to 7680x4320@60Hz	
	DP	Up to 7680x4320@60Hz	
	Dual Display	HDMI + DP	
Ethernet	LAN1	10/100/1000/2500 Mbps Intel i226-LM GbE, support Wake On LAN	
	LAN2	10/100/1000/2500 Mbps Intel i226-LM GbE, support Wake On LAN	
	LAN3	10/100/1000 Mbps Intel i210 GbE, support Wake On LAN	
Audio	Interface	Realtek ALC888S, Mic-in and Line-out	
I/O Interface	Serial Ports	2x RS-232/422/485, with auto flow control 2 x422/485, with auto flow control	
	USB Ports	2 x USB3.2, 4 x USB2.0	
	GPIO	8-bit Programmable DIO	
	CANBus	Optional (replacing GPIO)	
Expansion	M.2	1x M.2 2230 E key (NVMe, PCIe x2), 1x M.2 2280 B key with nano SIM holder (NVMe/SATA, PCIe x2), 1x M.2 2280 M key (NVMe, PCIe x4)	
		Storage	NVMe
Other	WatchDog Timer	255 levels timer interval, setup by software	
	TPM	NPCT764AABYX FW7.2.3.1	
Software Support	Microsoft Windows	Windows 10 Enterprise, Windows 11 Enterprise	
	Linux	Ubuntu 24.04, others by project support	
Power Requirement	Power Type	ATX/AT	
	Power Input Voltage	12-28 VDC	
Power Consumption	Typical (OS idle mode)	TBD	TBD
	Max. (Full loading)	TBD	TBD
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	TBD	
Environment	Operating Temperature	With extended temp. peripherals: -20 ~ 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, UKCA, BSMI	
	Safety	UL, CB, CCC, UKCA	

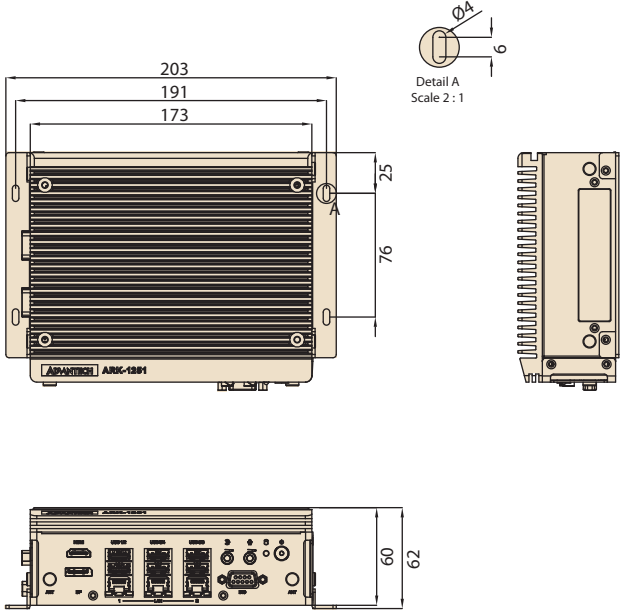
**Dimensions**

Unit: mm

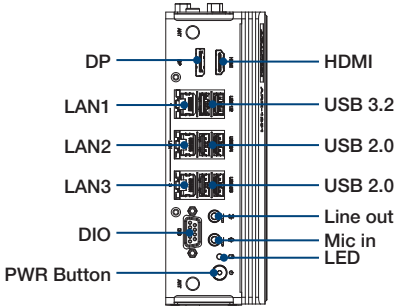
**DIN Rail**



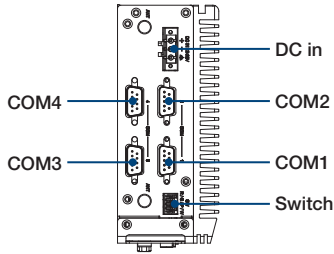
**Wall Mount**



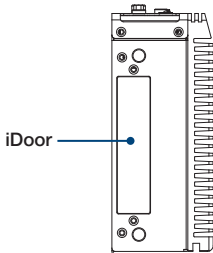
**Front Panel External I/O Mechanical Layout/Drawing**



**Top Panel External I/O Mechanical Layout/Drawing**



**Bottom View External I/O Mechanical Layout/Drawing**



## Ordering Information

Part No.	CPU	RAM	HDMI	DP	LAN	COM	USB	M.2 B	M.2 E	M.2 M	Audio	SIM	Option Module	Made in
ARK-1251-S3A1	Core Ultra 5 125U	2 socket (up to 96G)	1	1	3	4	2 x USB 3.2 4 x USB 2.0	1	1	1	Mic in and Line out	1	5G/WiFi/iDoor/ Innodisk	China
ARK-1251-S7A1	Core Ultra 7 155U	2 socket (up to 96G)	1	1	3	4	2 x USB 3.2 4 x USB 2.0	1	1	1	Mic in and Line out	1	5G/WiFi/iDoor/ Innodisk	China
ARK-1251-S3A1U	Core Ultra 5 125U	2 socket (up to 96G)	1	1	3	4	2 x USB 3.2 4 x USB 2.0	1	1	1	Mic in and Line out	1	5G/WiFi/iDoor/ Innodisk	Taiwan
ARK-1251-S7A1U	Core Ultra 7 155U	2 socket (up to 96G)	1	1	3	4	2 x USB 3.2 4 x USB 2.0	1	1	1	Mic in and Line out	1	5G/WiFi/iDoor/ Innodisk	Taiwan

## Packing List

Part Number	Description
-	1 x ARK-1251 Unit
-	1 x User Manual (Simplified Chinese)
-	Wrench for top cover
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
TBD	Win 10 IoT Ent 2021 LTSC
TBD	Win 11 GAVL 64b 22H2 ENU
TBD	Ubuntu

## Optional Items

Part Number	Description
XARK-ADP-90MDH	AC to DC adaptor, 19V/90W
1700001524	Power cable 3-pin 183cm, USA type
170203183C	Power cable 3-pin 183cm, EU type
170203180A	Power cable 3-pin 183cm, UK type
1700008921	Power cable 3-pin 183cm, PSE type
1700024849-01	Power cable 3-pin 180cm, Taiwan type
1700030518-01	CANBus Cable (replacing GPIO)
1700024369-01	1M HDMI cable
1700031560-01	1.8M HDMI cable
1700023855-11	1M lockable HDMI cable
AMK-W006	ARK-1250 wall mount kit
AMK-V023E	ARK-1250 VESA mount kit

Note: Please note that the AMK-V023E needs to be used in conjunction with the AMK-W006.

## Optional MOS modules for iDoor

Part Number	Description
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F,
MOS-1130Y-0202	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2120-Z1201	Dual Intel I210 GbE LAN iDoor, 2-Ch, PCIe I/F
MOS-1120Y-0202E	Isolated RS-232, 2-Ports, DB9, PCIe I/F
MOS-1120Y-1402E	Non-Isolated RS-232, 4-Ports, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F
AMO-I032	Expansion kit M.2 B key for mPCIe iDoor

Note

- Need to order AMO-I032 together with MOS modules
- M.2 E Key cannot be used when adding any MOS module due to mechanical interference