

# Fanless Embedded Computers

## ARK IoT-driven Service Innovations

- ✓ Modular Hardware & Software
- ✓ Ultra Rugged Computers
- ✓ WISE-PaaS/EdgeSense & Cloud
- ✓ Application Case Studies



**ADVANTECH**

*Enabling an Intelligent Planet*



IoT Solutions  
Alliance  
Premier



ARK.advantech.com

# ARK IoT-driven Service Innovations

## Fully Modular Hardware & Software for AIoT Applications

Advantech ARK fanless embedded systems are designed to provide rapid configurable modular design for industrial embedded IoT applications. They provide more than just I/O customization services, but also a selection of innovative software packages including Advantech WISE-PaaS, cloud services, and AI analytics suite. You can choose from a flexible range of hardware/software modules directly from Advantech AOnline and WISE-PaaS Marketplace, without concern for long development time, additional NRE, and high unit cost. The mission of ARK IoT-driven services is to help you rapidly implement your IoT applications with maximum benefits.



Surveillance



Automation



### Plug & Play Modular Expansion Accelerates Integration

- iDoor technology enables differentiated I/O port configurations and provides flexible selections for diverse applications
- ARK Plus expands the I/O by attaching additional layers to the base of the ARK system to accommodate more MIOe add-on boards and removable hard disks
- Diverse power modules provide wide voltage support for 12~24V or 9-36Vdc



### Industrial I/O with Isolation Protection

- I/O isolation protects systems and electronic equipment for improved factory automation
- iDoor modules with opto-isolation prevent equipment signal and power transmission lines from being subjected to voltage surges induced by electrostatic discharge, uneven power supply or signal disruption



### Seamless Communication with RF Certified

- Complete solutions from hardware to software, provide a reliable connection to sensors, machines, cloud computing centers, and any devices with networking capability
- MiniPCle or M.2 interface for wireless communication module installation
- FCC and CE RF certification ensures seamless WiFi communication



More...

iRetail

Digital Signage

In-Vehicle

Analytics Services

aws

Computer Vision SDK

Azure

arm PELION

Deep Learning Inference

ADVANTECH  
**WISE-PaaS**  
IoT Edge Intelligence

More...

ARK Plus  
I/O Expansion  
IDor

Ruggedized

Quality Certified

Compact & Slim

WISE-PaaS/VideoCMS

WISE-PaaS/EdgeSense

WISE-PaaS/SignageCMS

WISE-PaaS/EnSaaS

WebAccess/SCADA



# Product Series

## Newly Designed for Modular Systems

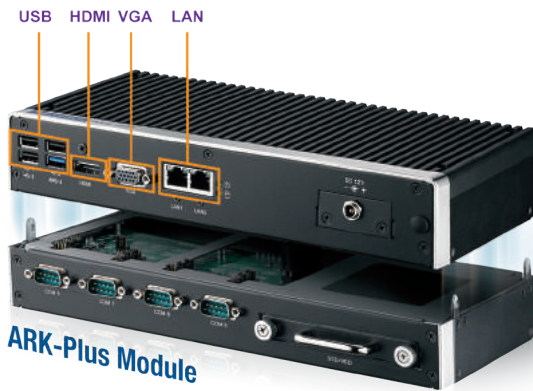
Supports both internal 2.5" drive bay and mSATA



### Ultra Small

#### ARK-1000 Series

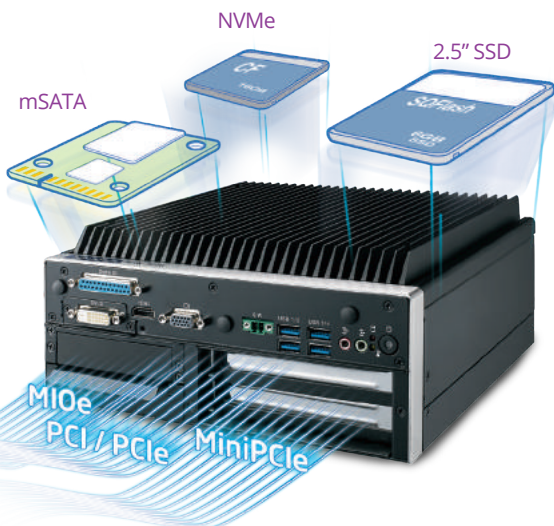
- Palm Size** - 133.8 (W) x 43.1(H) x 94.2(D) mm
- Green** - Ultra low power consumption, minimum 10 Watts
- Wide Temperature** - -30 ~ 70°C operating support
- Multi Storage** - 2.5" HDD/SSD or mSATA
- Expansion** - MiniPCIe/M.2 + SIM for wireless communication
- Mounting Solution** - Wall, VESA and DIN-Rail kits



### Compact Extendible

#### ARK-2000 series

- Compact Size** - 265(W) x 69(H) x 133(D) mm
- Platform** - Intel® Atom® to Intel® Core™ i
- Wide Temperature** - -20~70°C operating support
- Wide Range Power** - 12V or 12~24V or 9~36V
- Rugged Design** - 3Grms vibration/ 30G shock
- Complete Storage Options** - 2.5" HDD/SSD, mSATA
- Expansion** - MiniPCIe/M.2 + SIM for wireless communication, module, and iDoor module compatible



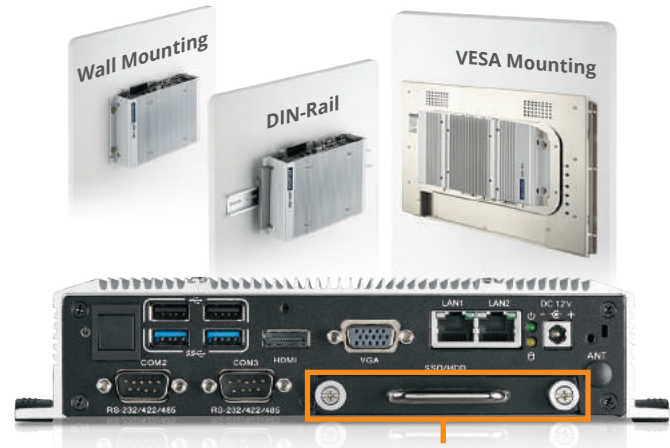
### High Performance/Multi Expansions

#### ARK-3500 series

- Extreme High Performance** - Intel® Core™ i3/i5/i7
- Wide Operating Temperature** - 10~60°C w/ SSD
- Wide Range Power** - 12Vbc or 9-36Vbc design
- Rich Storage** - 2.5" removable HDD/SSD, mSATA and NVMe
- Rich Expansion** - PCI, PCIe/x1/x4/x8/x16, miniPCIe, M.2, display module

## Slim & Mountable ARK-1500 series

- Ultra Slim** - 223(W) x 46.6(H) x 133(D) mm
- Platform** - Intel® Celeron® to Intel® Core™ i
- Easy Backup** - One removable 2.5" drive bay
- Multiple Display** - VGA, HDMI or optional LVDS
- Expansion** - MiniPCIe for storage or wireless modules
- Mounting Solution** - Wall, VESA and DIN-Rail kits



Supports both internal mSATA and hot swappable 2.5" drive bays

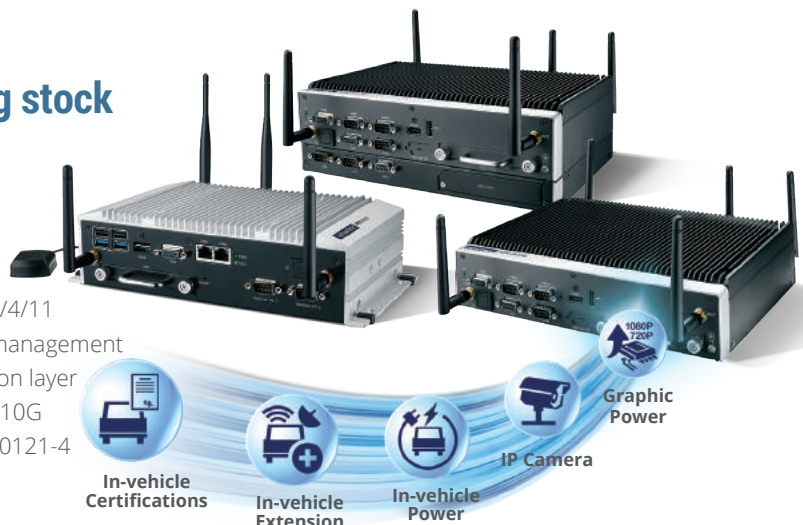
## High Value ARK-6300 Series

- Compact Size** - 200(W) x 64(H) x 200(D)mm
- Platform** - Intel® Atom® to Celeron® series
- Dual display** - VGA + DisplayPort
- Maximize I/O** - Up to 8 x USB and 6 x COM
- Storage** - 1 x 3.5" HDD or 1 x 2.5" HDD, 1 x mSATA
- Expansion** - Up to 2 x MiniPCIe slots, iDoor module compatible



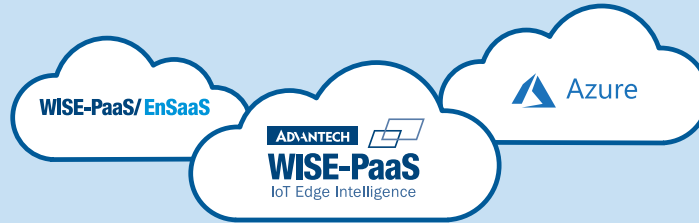
## Surveillance/ In-vehicle/ Rolling stock ARK-S, ARK-V, and ARK-R Series

- Rugged, Mobile NVR Solutions**
- Video Capability** - D1, 720p to 1080p 240fps
- Secured I/O** - Isolated COM, GPIO and DC input
- Diverse Communications** - GPS, 3xMIMO WiFi, LTE Cat3/4/11
- Wide Power Range** - 9~36Vdc with intelligent ignition management
- Flexible Expansion** - mPCIe/M.2 slots and 2nd extension layer
- Rugged Design** - IEC 60721-3-5, IEC 61373, MIL-STD 810G
- Certifications** - E - Mark, EN50155, EN50121-3-2, EN50121-4



# Ultra Rugged Embedded Computers

Empowering In-Vehicle, Railway, and Harsh Environment Applications



## WISE-PaaS/EdgeSense

Edge Intelligence and Sensor Integration



- Location-based remote vehicle diagnostics
- Predictive analytics & vehicle security services
- Vehicle power ignition management & PoE individual control
- Cloud connection for data monitoring

### In-Vehicle

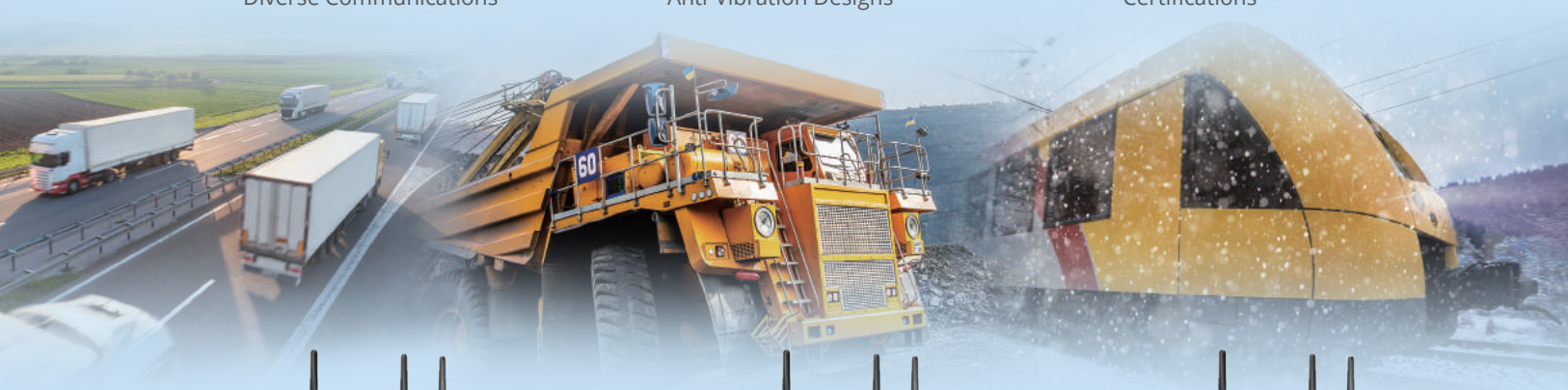
Wide Power Range  
Diverse Communications

### Harsh Environments

Wide-Temp Designs  
Anti-Vibration Designs

### Rolling Stock

Secure I/O  
Certifications



Isolated 9-36VDC  
Power Input

#### ARK-2250V

- Certified for E-Mark, ISO7637-2, IEC 60721-3-5 5M3
- Diverse wireless communication via dual 802.11 ac and LTE Cat.6
- Intelligent on/off system management



Wide Temperature  
up to -20 ~ 70 °C

#### WISE-Agent

- MIL-STD-810G anti-vibration/ shock proof
- TPM 2.0/ECC memory support
- 6th Gen Intel® Core™ i7-6422EQ



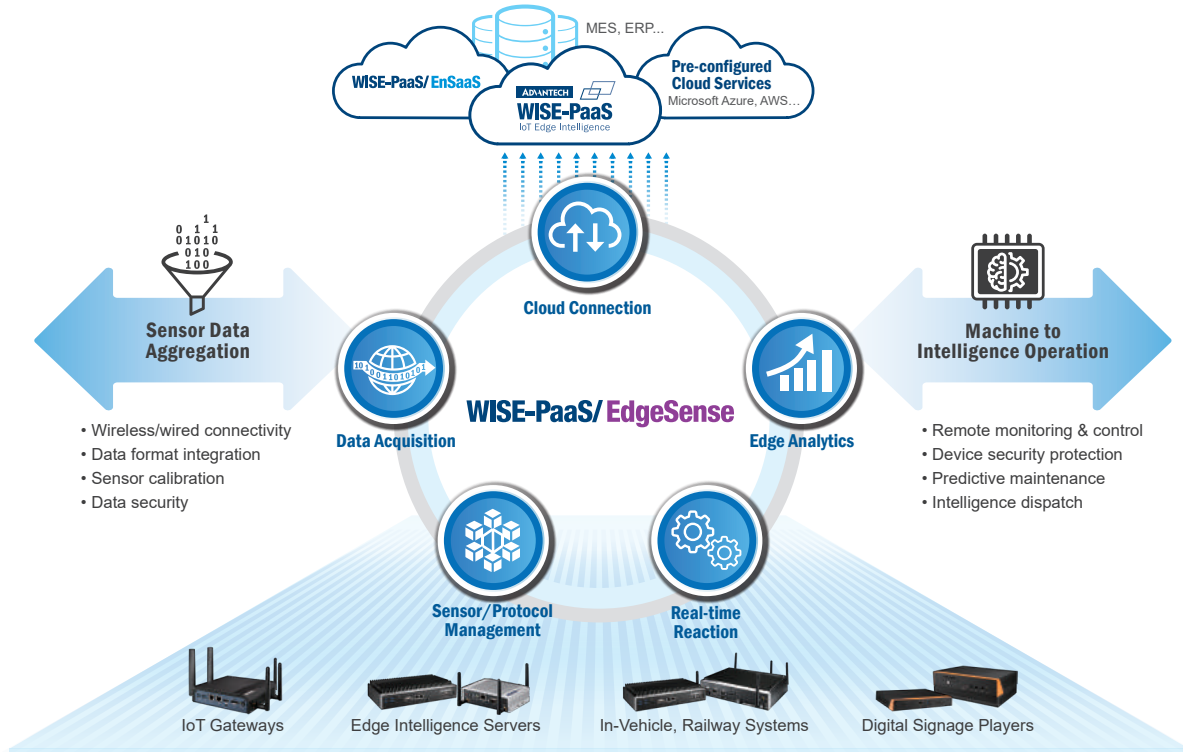
M12 interface for  
security connection

#### WISE-Agent

- EN50155, EN50121 certified railway system
- Extreme - 40~70°C operating temperature
- Solid connection by M12/ threaded connectors

# Enabling IoT Sensing, Edge Intelligence, and Cloud Integration

WISE-PaaS/EdgeSense is an integrated software solution that incorporates sensor data aggregation, over-the-air software-in-time updates, edge analytics, cloud applications, and secure end-to-end data protection for fast and easy real-time device-to-cloud operational intelligence.



## WISE-PaaS/EdgeSense Software



### WISE-Agent

- Open and standard framework
- Default plugin offering for standard protocols
- Software SDK for legacy support



### WISE-PaaS/RMM

- Remote devices/ groups/ map view management
- Data acquisition from devices and equipment
- Quick data visualization



### WISE-PaaS/OTA

- Centralized remote application and firmware updates
- Download and deploy scheduling for planned upgrades
- Support rollbacks



### WISE-PaaS/Security

- Centralized security management
- Flexible security modules
- Threat prevention on potential malware in real-time

## WISE-PaaS Application and Cloud Software



### WebAccess/SCADA

- 100% web-based architecture
- Open database connectivity
- Networking capability
- Supports many protocols



### WebAccess/HMI

- Smart screen management
- Project-based management for multiple applications
- Software support for a range of machines



### WISE-PaaS/VideoSense

- Collects sensor data and performs video analytics
- Data visualization via centralized management
- Video technology application modules

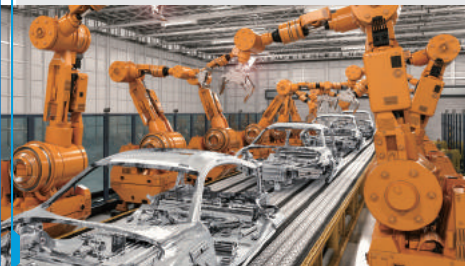


### WISE-PaaS/ EnSaaS

- Connect, monitor, and manage millions of IoT assets
- Managed SQL, NoSQL, and time-series databases
- Visualization dashboard for deriving actionable insights

# Application Case Studies

## Robotic Manufacturing for Automobiles

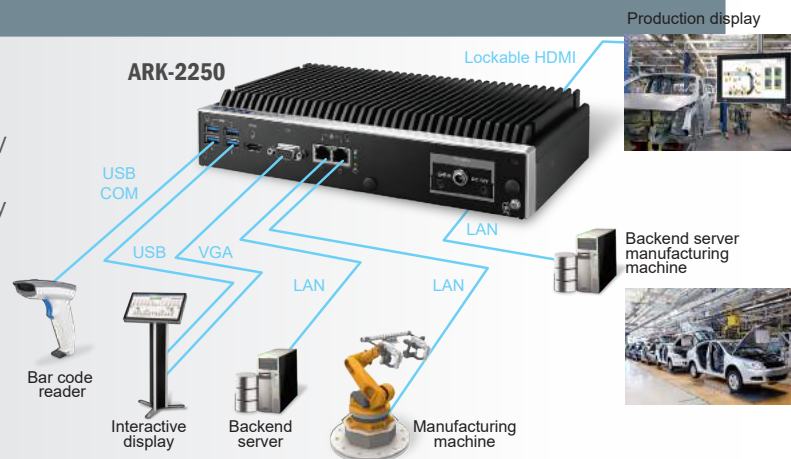


### Application Requirement

Managing automated production lines is a complex operation. A production planning system with precise, computer-controlled processes was necessary to implement high quality, high throughput, flexible production, and seamless integrated processes.

### Winning Factors ARK-2250

- Reliable fanless/wide-voltage/wide-temperature/lockable cables designs.
- 3rd party VGA/HDMI options for versatile display output.
- High computing performance and rich I/O supports data collection and analysis requirements.
- Pre-installed WISE-PaaS/EdgeSense software to enable easy connection and fast deployment.



## Facial Recognition Improves Security



### Application Requirement

To best ensure the smooth flow of foot traffic, our customer needed a system capable of instantly capturing real-time images and performing recognition and verification within a very short period of time. They required a high performance computing platform with superior network connections linking all gates to a centralized management platform.

### Winning Factors ARK-3520

- High computing power and memory for cutting-edge facial recognition applications.
- Multiple I/O support delivers flexibility and expandability.
- Small footprint for limited-space installations in ticket gates.
- Pre-installed IoT software for easy deployment of remote monitoring functions.
- Optionally purchased security software platform provides comprehensive data and system protection.





## Self Loan KIOSKS Smarten up Libraries



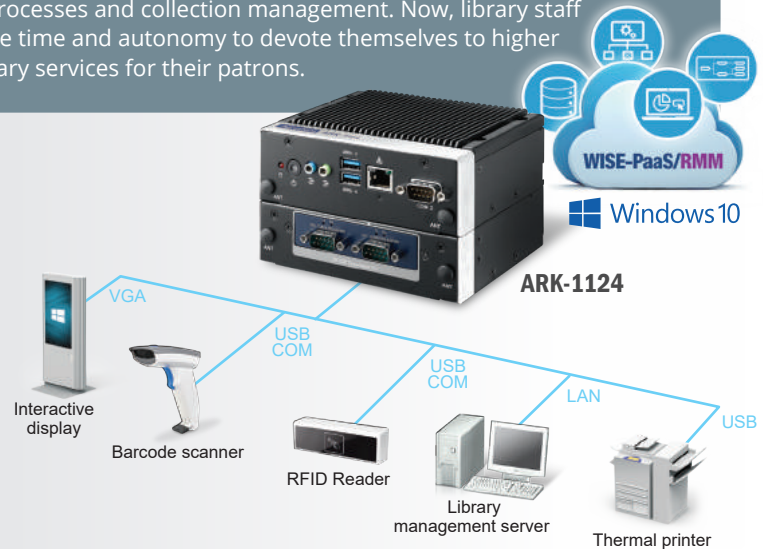
### Application Requirement

Today, many librarians have been freed up from time-consuming repetitive workloads because an increasing number of libraries that are leveraging cutting-edge technology to smarten up their loans/returns processes and collection management. Now, library staff have more time and autonomy to devote themselves to higher value library services for their patrons.

### Winning Factors

#### ARK-1124

- Library automation and intelligence functions reduce manual workload and provide patron convenience through a simplified and efficient borrow/return process.
- Small footprint computer with flexible I/O and unique module expansion design.
- IoT and cloud functions with platform-ready software support shorten development periods, allowing faster time to market.



## Efficient Marine Communication



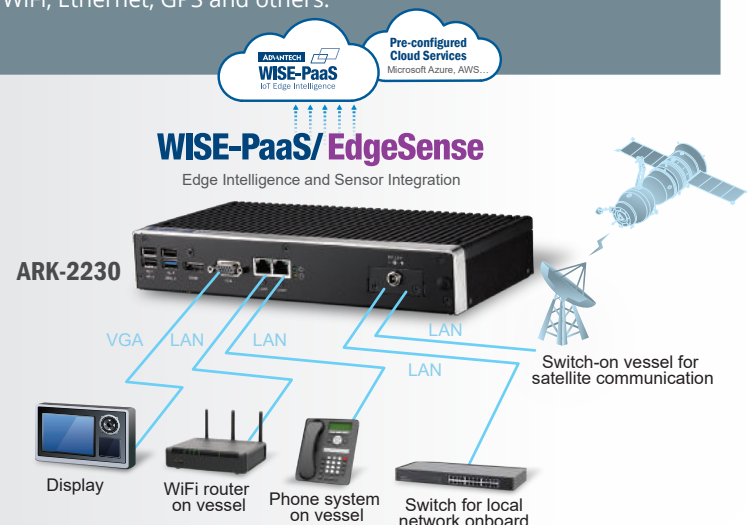
### Application Requirement

Highly turbulent environmental conditions and extreme temperature changes onboard vessels at sea were key concerns for our customer - a vessel communication solutions provider. Multiple interfaces were needed to accommodate the needs of different communication devices including SATCOM, WiFi, Ethernet, GPS and others.

### Winning Factors

#### ARK-2230

- Reliable DC jack designs ensure ruggedness for vessel applications.
- Flexible add-on iDoor modules to augment LAN port support.
- Improve vessel fleet management with faster marine communications combining satellite, WiFi and LAN systems.
- Platform-ready software – WISE-PaaS/ EdgeSense for developing and integrating remote monitoring and control for faster time-to-market.



# Application Case Studies

## Smart Ticketing and Fleet Management



### Application Requirement

In meeting their plans for expansion, our customer required a total solutions package addressing not just on-board ticketing, but also an intelligent fleet management system capable of providing superior customer services, ensuring bus safety, and improving operational efficiency.

### Winning Factors **ARK-2250V**

- High computing power and memory support for fleet tracking and ticketing systems.
- On-board GPS/GNSS module for location detection, enabling map-based fleet tracking.
- Detects fleet movement and deviations from pre-set criteria, including route divergence, speeding, idling, and schedule delays.
- Pre-installed IoT software platform enables fast and easy connection for superior remote monitoring functionality.



## Passenger Information & Entertainment Systems



### Application Requirement

Public transportation - trains, metros, coaches - is essential to modern economies. For service providers, this means passengers are constantly seeking to improve both the efficiency and quality of their travel experience. Our passenger information and entertainment systems provide uninterrupted wireless internet access, allowing customers to enjoy online content and location-based information along their journey.

### Winning Factors **ARK-2250R**

- EN50155, EN50121, IEC61373 certified.
- Up to 8ch x 1080p @30fps IP camera connection for video surveillance.
- Supports dual LTE Cat6 300/50Mbps bandwidth.
- Supports dual 3MIMO WiFi as hot spot point.
- Ultra wide operating temp from -40~70°C.



## Wind Farm Remote Monitoring and Control



### Application Requirement

Our customer hoped to have a data center to integrate all wind farms to establish a centralized remote monitoring control network to oversee the environmental and operational status and to implement statistical analyses on power output and equipment availability, power curtailment rates, power costs, and prices during different working hours.

### Winning Factors

#### EIS-D210

- HQ control room remotely collects and analyzes data.
- Remote monitoring control system provides HQ with operational status of all facilities.
- Preventive maintenance programs reduce maintenance costs and help avoid unexpected shutdowns.
- Complete integration of existing equipment and new devices, allowing increased monitoring expansion of the system in short time.



Corporate Situation Room

### WISE-PaaS/ EdgeSense



## Intelligent Hotel Centralized Management



### Application Requirement

Our customer required the deployment of sensors around critical hotel facilities, including water, power and gas supply equipment, air- conditioners, dehumidifiers and door locks. EIS were also needed to collect sensory data and upload it to the cloud via a local network. Our powerful IoT platform provided connectivity and edge computing capabilities.

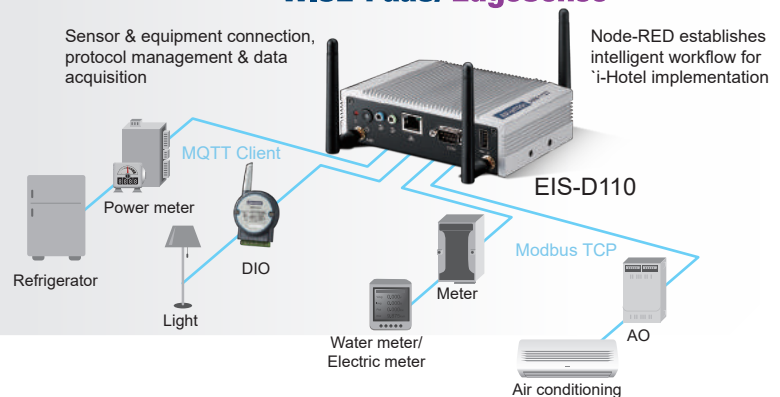
### Winning Factors

#### EIS-D110

- Protocol compatibility connects all types of hotel devices and sensors.
- Pre-integrated Azure Cloud services quickly complete IoT-to-cloud integration.
- Pre-installed IBM Node-RED flow editor easily develops service modules with a convenient graphic flow compiler.
- The WISE-PaaS software package provides a rich bundle of RESTful APIs for SI to quickly develop all kinds of apps capable of running on mobile devices.



### WISE-PaaS/ EdgeSense



# Edge Intelligence Servers

Microsoft Azure



Model Name	EIS-D210	EIS-D150	EIS-D120	EIS-D110	EIS-DK10		
CPU	Intel Celeron N3350	Intel® 6th Gen Core™ i5 6300U	Intel® Celeron® J1900	Intel® Celeron® J1900	Intel® Celeron® J1900		
RAM/Storage	4GB/ 64GB SSD	4GB /64GB SSD	4GB /64GB SSD	4GB /64GB SSD	4GB /64GB SSD		
OS	Win 10 IoT Enterprise	WES7E Win 10 IoT Enterprise	WES7E Win 10 IoT Enterprise	WES7E Win 10 IoT Enterprise	WES7E		
I/O Interface	VGA x1, GbE x2, RS232/422/485 x2, USB 3.0 x4, iDoor	HDMI x1, VGA x1, GbE x2, RS232/422/485x4, iDoor	HDMIx1, VGAx1, GbE x2, RS-232 x2, RS-232/422/485 x2, iDoor.	HDMI x2, GbE x2, RS232/422/485x1	Includes Modbus TCP module, temperature/humidity sensor, LED indicator, fan, and accessories		
Wireless Networking	IEEE 802.11 a/b/g/n Bluetooth 4.1	Optional	Optional	IEEE 802.11 a/b/g/n Bluetooth 4.0 HS	IEEE 802.11 a/b/g/n Bluetooth 4.0 HS		
Dimensions (W x H x D)	133 x 46.4 x 94.2 mm	260 x 54 x 140.2 mm	264.5 x 68.4 x 133.0 mm	133.8 x 43.1 x 94.2 mm	350 x 250 x 175 mm		
Software Package	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>WISE-PaaS/ EdgeSense Software Solution</b>  <b>WISE-PaaS/RMM</b> Remote Monitoring and Management  <b>WISE-PaaS/OTA</b> Remote Software Update  <b>WISE-PaaS/Security</b> Centralize Security Management                 </td> <td style="width: 50%; vertical-align: top;"> <b>Applications Software Solution</b>  <b>WebAccess/SCADA</b> Smart SCADA  <b>WebAccess/HMI</b> Human Machine Interface  <b>WISE-PaaS/SignageCMS</b> Interactive Multimedia                 </td> </tr> </table>					<b>WISE-PaaS/ EdgeSense Software Solution</b> <b>WISE-PaaS/RMM</b> Remote Monitoring and Management <b>WISE-PaaS/OTA</b> Remote Software Update <b>WISE-PaaS/Security</b> Centralize Security Management	<b>Applications Software Solution</b> <b>WebAccess/SCADA</b> Smart SCADA <b>WebAccess/HMI</b> Human Machine Interface <b>WISE-PaaS/SignageCMS</b> Interactive Multimedia
<b>WISE-PaaS/ EdgeSense Software Solution</b> <b>WISE-PaaS/RMM</b> Remote Monitoring and Management <b>WISE-PaaS/OTA</b> Remote Software Update <b>WISE-PaaS/Security</b> Centralize Security Management	<b>Applications Software Solution</b> <b>WebAccess/SCADA</b> Smart SCADA <b>WebAccess/HMI</b> Human Machine Interface <b>WISE-PaaS/SignageCMS</b> Interactive Multimedia						
Cloud Package	Optional	Optional	Optional	Optional	Edge: IoT Hub SDK Cloud: 1 Month Azure VM Solution Package		
Development Tools	Node-RED Data Flow Logic Designer & Dashboard Builder Protocol Plug-in SDK & Configuration Tools						
Ordering Information	EIS-D210U-W1DS641 (Win 10; 2018/ 03)	EIS-D150-W1DS641 (WES7E)  EIS-D150-E1DS641 (Win 10)	EISD120W1DS641-BTO (WES7E)  EISD120E1DS641-BTO (Win 10)	EISD110W1SS641-BTO (WES7E)  EISD110W1SS141-BTO (WES7E/128G SSD)  EISD110E1SS641-BTO (Win 10)	EISDK-ARK1123-BTO (WES7E)		

# Fanless Embedded Computers

## Ultra Small Series



Model Name	ARK-10	ARK-1122H	ARK-1122C
Processor System	CPU	Intel Celeron Processor J1900 Quad Core SoC	Intel Atom N2600
	Frequency	2.0 GHz (Up to 2.41 GHz turbo burst)	1.6 GHz
	Core Number	4	2
	BIOS	AMI EFI 64 Mbit	AMI EFI 16Mbit
	Chipset	-	Intel NM10
Memory	Technology	DDR3L 1333MHz	DDR3 800MHz
	Max. Capacity	8GB (2 GB Memory Built In)	4 GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SODIMM/ 2GB Built-In (ARK-1122HS)
Display	Graphic Engine	DirecX11.1, OGL 11.1 and OGL 3.2	DirecX9 and OGL 3.0
	VGA	1 x VGA, up to 1920 x 1200 at 60Hz	Up to 1920 x 1200
	LCD (TTL/LVDS/eDP)	-	-
	DDI (HDMI/DVI/DisplayPort)	-	Lockable HDMI: 1920 x 1200, lockable supported
	Multiple Display	-	Dual
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe	1 x Half-size Mini PCIe
	SIM Socket	-	-
	PCIe	-	-
	PCI	-	-
	PCIe + PCI	-	-
	ARK Plus	-	-
	iDoor	-	-
Ethernet	Controller	GbE1: Intel i210-IT GbE GbE2: Intel i210-IT GbE	GbE1: Intel 82583V, supports wake on LAN
	Speed	10/100/1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC892
	Connector	2 (Line-in, Line out)	2 (Line-in, Line out)
WatchDog Timer	Yes	Yes	Yes
Storage	SATA	1 x 500GB 2.5" 24x7 SATA HDD Built In	1 x 2.5" SATA HDD bay 1 x 500 GB SATA II HDD Built-In (ARK-1122HS)
	mSATA	1x Half size mSATA	1 x Full Size mSATA
	CompactFlash/Cfast/SD card	-	-
I/O	USB3.0	1	-
	USB2.0	2	4
	GPIO	-	-
	COM Port	2 (2 x RS232/ 422/ 485)	1 (1 x RS-232)
			4 (2 x RS-232, 2 x RS-232/422/485, selected by BIOS)
Power	Power Type	ATX	ATX
	Power Supply Voltage	12 V <sub>DC</sub>	12 V <sub>DC</sub> , ± 10%
	Connector	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle)	5.64W	6.89W
	Power Consumption (Full Load)	14.04W	11.45W
	Power Adaptor	AC to DC, DC12V/3A, 36W	Lockable AC to DC, DC12 V/3 A, 36 W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 50 °C	With standard temperature HDD/SSD/mSATA devices: 0 ~ 40 °C With extended temperature SSD/mSATA devices: -20 ~ 60 °C
	Non-operating Temperature	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration Resistance	0.5Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis	With SSD/mSATA: 3Grms
	Shock Protection	10G, IEC 60068-2-27, half sine, 11 ms duration	With SSD/mSATA: 30G
Physical Characteristics	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm	133.8 x 43.1 x 94.2 mm
	Weight	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)
	Mounting	Wall/VESA/DIN-rail mounting	Optional DIN Rail/ VESA/ Wall mounting
Operating System	Microsoft Windows	Yes (WE7, Windows 7, WE8S, Windows 8)	Yes (Windows 7 Pro 32bit, WE7 32bit, XP Embedded, XP Embedded by project support); WE7E Built-in HS SKU
	Linux	Yes (by Project)	-
APIs	WISE-PaaS/RMM	Yes	Yes
	SUSI API	-	-
	Other	-	McAfee, Acronis
Certification	EMC	CE/FCC Class B, BSMI	CE/FCC Class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI, KC

# Fanless Embedded Computers



Model Name	ARK-1123L	ARK-1123C	ARK-1123H	
Processor System	CPU	Intel® Atom DC E3825	Intel® Atom DC E3825	Intel® Celeron QC J1900
	Frequency	1.33 GHz	1.33 GHz	2.0 GHz
	Core Number	2	2	4
	BIOS	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit
	Chipset	Intel® Atom DC E3825	Intel® Atom DC E3825	Intel® Celeron QC J1900
Memory	Technology	DDR3L 1066MHz	DDR3L 1066MHz	DDR3L 1333MHz
	Max. Capacity	8GB	8GB	8GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Graphic Engine	DirecX11.1, OCL 11.1 and OGL 3.2	DirecX11.1, OCL 11.1 and OGL 3.2	DirecX11.1, OCL 11.1 and OGL 3.2
	VGA	Up to 1920 x 1200	Up to 1920 x 1200	-
	LCD (TTL/LVDS/eDP)	-	-	-
	DDI (HDMI/DVI/DisplayPort)	-	-	2 x lockable HDMI, 1920 x 1080
	Multiple Display	-	-	-
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe
	SIM Socket	-	-	-
	PCIe	-	-	-
	PCI	-	-	-
	PCIe + PCI	-	-	-
	ARK Plus	-	-	-
	iDoor	-	-	-
Ethernet	Controller	GbE 1 : Intel i210 support Wake On LAN	GbE 1 : Intel i210 GbE 2 : Intel i210 All support Wake On LAN	GbE 1 : Intel i210 GbE 2 : Intel i210 All support Wake On LAN
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ACL888S	Realtek ACL888S	Realtek ACL888S
	Connector	2 (Line-in, Line out)	2 (Line-in, Line out)	2 (Line-in, Line out)
WatchDog Timer	Yes	Yes	Yes	
Storage	SATA	1 x 2.5" SATA HDD bay	1 x 2.5" SATA drive bay	1 x 2.5" SATA drive bay
	mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA
	CompactFlash/Cfast/SD card	-	-	-
I/O	USB3.0	1	1	1
	USB2.0	1	2	2
	GPIO	8-bit Programmable DIO	-	-
	COM Port	2 (1 x RS-232, 1 x RS-232/422/485)	2 (2 x RS-232/422/485)	1 (1 x RS-232/422/485)
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	12 V <sub>oc</sub> , ± 10%	12 V <sub>oc</sub> , ± 10%	12 V <sub>oc</sub> , ± 10%
	Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle)	5.28W	5.28W	5.64W
	Power Consumption (Full Load)	8.16W	8.16W	14.04W
	Power Adaptor	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -30~70 °C With standard temperature peripherals: 0 ~ 40 °C	With extend temperature peripherals: -30~70 °C With standard temperature peripherals: 0 ~ 40 °C	With extend temperature peripherals: -20 ~ 60 °C With standard temperature peripherals: 0 ~ 40 °C
	Non-operating Temperature	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms
	Shock Protection	With mSATA/SSD: 30G	With mSATA/SSD: 30G	With mSATA/SSD: 30G
Physical Characteristics	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm	133.8 x 43.1 x 94.2 mm	133.8 x 43.1 x 94.2 mm
	Weight	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting
Operating System	Microsoft Windows	Yes (WES7, Windows 7, WE8S, Windows 8 and Windows 10 (32-bit support by project))	Yes (WES7, Windows 7, WE8S, Windows 8, Windows 10 (32-bit support by project))	Yes (WES7, Windows 7, WE8S, Windows 8 and Windows 10 (32-bit support by project))
	Linux	Yes (Ubuntu 14.04 LTS x64)	Yes (Ubuntu 14.04 LTS x64)	Yes (Ubuntu 14.04 LTS x64)
APIs	WISE-PaaS/RMM	Yes	Yes	Yes
	SUSI API	-	-	-
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI



Model Name	ARK-1124C	ARK-1124U	ARK-1124H	ARK-1220L
Processor System	CPU	Intel Celeron N3350 Dual Core SoC	Intel Celeron N3350 Dual Core SoC	Intel Atom E3940 Quad Core Soc
	Frequency	1.1 GHz, turbo burst 2.4 GHz	1.1GHz, turbo burst 2.4 GHz	1.6 GHz, turbo burst 1.8 GHz
	Core Number	2	2	4
	BIOS	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit
	Chipset	-	-	-
Memory	Technology	DDR3L 1866 MHZ	DDR3L 1866 MHz	DDR3L 1866 Mhz
	Max. Capacity	8GB	8GB	8GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM
Display	Graphic Engine	DirectX 12.0, OpenGL 4.3, OpenCL 2.0	DirectX 12.0, OpenGL 4.3, OpenCL 2.0	DirectX 12.0, OpenGL 4.3, OpenCL 2.0
	VGA	1 x VGA Up to 2048 x 1280	1 x VGA Up to 2048 x 1280	-
	LCD (TTL/LVDS/eDP)	-	-	-
	DDI (HDMI/DW/DisplayPort)	-	-	HDMI1: 3840 x 2160 @ 30Hz HDMI2: 3840 x 2160 @ 30Hz
	Multiple Display	-	-	Dual HDMI Display
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe
	M.2	-	1 x M.2 (2230 E key)	1 x M.2 (2230 E key)
	SIM Socket	-	1	1
	ARK Plus	AMO-1101	AOM-1101	AMO-1101
Ethernet	Controller	GbE: Intel i210	GbE1: Intel i210 GbE2: Intel i210	GbE1: Intel i210 GbE2: Intel i210
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
WatchDog Timer	Connector	2 (Line in, line out)	2 (Line in, line out)	2 (Line out/Mic in)
	Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATAIII HDD bay	1 x 2.5" SATAIII HDD bay	1 x 2.5" SATAIII HDD bay
	mSATA	1x Half size mSATA	-	1x Half size mSATA
	CompactFlash/Cfast/SD card	-	-	-
I/O	USB3.0	2	4	4
	USB2.0	0	0	0
	GPIO	-	-	-
	COM Port	4 (4 x RS232/ 422/ 485)	2 (2 x RS232/ 422/ 485)	1 (1 x RS232/ 422/ 485)
Power	Power Type	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	12 V <sub>DC</sub> (Option 12-24 V <sub>DC</sub> )	12 V <sub>DC</sub> (Option 12-24 V <sub>DC</sub> )	12 ~ 28 V <sub>DC</sub>
	Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle)	5.5W	5W	6.02W
	Power Consumption (Full Load)	18.8W	33.7W	33.7W
	Power Adaptor	AC to DC, DC12V/3A, 36W	AC to DC, DC12V/5A, 60W	AC to DC, DC12V/5A, 60W
Environment	Operating Temperature (air flow 0.7 m/sec)	-20 ~ 60 °C	-20 ~ 60 °C	-20 ~ 60 °C
	Non-operating Temperature	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration Resistance	With SSD: 3 Grms	With SSD: 3 Grms	With SSD: 3 Grms
	Shock Protection	With SSD: 30 G	With SSD: 30 G	With SSD: 30 G
Physical Characteristics	Dimensions (W x H x D)	133 x 46.4 x 94.2 mm	133 x 46.4 x 94.2 mm	133 x 46.4 x 94.2 mm
	Weight	1.1 kg (2.42lb)	1.1 kg (2.42lb)	1.1 kg (2.42lb)
	Mounting	Wall/VESA/DIN-rail mounting (Optional)	Wall/VESA/DIN-rail mounting (Optional)	Wall/VESA/DIN-rail mounting (Optional)
Operating System	Microsoft Windows	Yes (Windows 10)	Yes (Windows 10)	Yes (Windows 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	WISE-PaaS/RMM	Yes	Yes	Yes
	SUSI API	-	-	-
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

# Fanless Embedded Computers

## Slim & Mountable Series Multiple I/O Series



Model Name		ARK-1550	ARK-2120L	ARK-2121L	ARK-2121F	ARK-2150L
Processor System	CPU	Intel® Celeron 2980U Intel® Core i5 4300U	Intel Atom N2600 / Intel Atom D2550	Intel Celeron QC J1900	Intel Celeron QC J1900	3rd Gen <sup>™</sup> Intel Celeron 1047UE / Core i3-3217UE / Core i7-3517UE
	Frequency	1.6 GHz / 1.9 GHz	1.6 GHz / 1.86 GHz	2.0 GHz, turbo boost to 2.4GHz	2.0 GHz, turbo boost to 2.4GHz	1.4GHz / 1.6 GHz/ 1.7 GHz (up to 2.8GHz)
	Core Number	2	2	4	4	2
	BIOS	AMI EFI 128 Mbit	AMI EFI 16Mbit	AMI EFI 64Mbit	AMI EFI 64Mbit	AMI EFI 64Mbit
	Chipset	Intel® Celeron 2980U Intel® Core i5 4300U	Intel Atom N2600/D2550 + Intel NM10	-	-	Intel QM77
Memory	Technology	DDR3L 1333/1600 MHz	DDR3 1066 MHz (D2550), DDR3 800 MHz (N2600)	DDR3L 1333MHz	DDR3L 1333MHz	DDR3 1600MHz/ DDR3L 1333 MHz
	Max. Capacity	8GB	4 GB	8GB	8GB	8 GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Graphic Engine	DirectX11.1, OpenGL 4.0, and OpenCL 1.2	DirectX 9 and OpenGL 3.0 support	DirectX 11.1, OCL 1.2 and OGL 3.2	DirectX 11.1, OCL 1.2 and OGL 3.2	DirectX11, OpenGL 3.1, and Open CL 1.1
	VGA	Up to 1920 x 1200	Up to 1920 x 1200	Up to 2048 x 1152	Up to 2048 x 1152	Up to 2048 x 1536
	LCD (TTL/LVDS/eDP)	LVDS up to 1920 x 1200 (optional)	-	-	-	-
	DDI (HDMI/DVI/DisplayPort)	Lockable HDMI, up to 4096 x 2304 @24Hz	HDMI:1920 x 1200 @ 60Hz	HDMI: 1.4a, 1080P@60Hz	HDMI: 1.4a, 1080P@60Hz optional 2nd HDMI Optional DVI-D	HDMI:1920 x 1200 @ 60Hz
	Multiple Display	Dual	Dual	Dual	Dual	Dual
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe w/ SIM	1 x Full-size Mini PCIe with SIM	1 x Full-size Mini PCIe with SIM	2 x Full-size Mini PCIe (1 with SIM holder)	2 x Full-size Mini PCIe (One supports mSATA & the other with SIM holder) 1 x Half-size Mini PCIe
	SIM Socket	1	1	1	1	1
	ARK Plus	-	-	-	-	-
	iDoor	-	-	Yes	-	-
Ethernet	Controller	GbE 1: Intel i218 GbE 2: Intel i210 All support Wake On LAN	GbE1: Intel 82583V, GbE2: Intel 82583V, All support wake on LAN	GbE1: Intel i210 GbE2: Intel i210 All support wake on LAN	GbE1: Intel i210 GbE2: Intel i210 GbE3: Intel i210(optional) GbE4: i210(EMIO-100E, optional) All support wake on LAN	GbE1: Intel 82579LM, GbE2: Intel 82583V, All support wake on LAN
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
Audio	CODEC	Realtek ALC888S	Realtek ALC892	Realtek ALC888S	Realtek ALC888S	Realtek ALC892
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line out, Mic-in)	3 (Line-in, Line out, Mic-in)	3 (Line-in, Line out, Mic-in)	3 (Line-in, Line out, Mic-in)
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	1 x Hot-Swappable 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay
	mSATA	1 x Full-size mSATA (share with miniPCIe slot)	-	1	1	1 (Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe)
	CompactFlash/Cfast/SD card	-	1 CFast	-	-	-
I/O	USB3.0	2	-	1	1	2
	USB2.0	2	6	3	5 external, 1 internal	4
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO	-	4ch digital input and 4ch digital output with 3kV isolation	8-bit Programmable DIO
	COM Port	3 (1 x RS-232, 2 x RS-232/422/485)	4 (3 x RS232, 1 x RS232/ 422/ 485)	4 (2 x RS232, 2 x RS232/ 422/ 485)	6 (6 x RS232/ 422/ 485)	4 (2 x RS232, 2 x RS232/ 422/ 485)
Power	Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	12 V <sub>DC</sub> , ± 10%	12 V <sub>DC</sub> , ± 10%	9 ~ 36 V <sub>DC</sub>	9 ~ 36 V <sub>DC</sub>	12 V <sub>DC</sub> , ± 10%
	Connector	DC jack with power adaptor locker	Lockable DC Jack	2-pin phoenix head	2-pin phoenix head	Lockable DC Jack
	Power Consumption (Idle)	5.64W (2980U) / 10.56W (4300U)	8.9W	7.3W	8.4W	9.6W
	Power Consumption (Full Load)	15.12W (2980U) / 28.2W (4300U)	11W	13.3W	16.2W	24.96W
	Power Adaptor	AC to DC, DC 12V/5A 60W (optional)	Lockable AC to DC, DC12 V/3 A, 36 W (Optional)	Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional)	Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional)	Lockable AC to DC, DC12 V/5 A, 60 W (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 55 °C With standard temperature peripherals: 0 ~ 40 °C	With extend temperature peripherals: -20 ~ 60 °C With HDD: 0 ~ 45 °C	With extend temperature peripherals: -20 ~ 70 °C With HDD: 0 ~ 45 °C	With extend temperature peripherals: -20 ~ 70 °C With HDD: 0 ~ 45 °C	With extend temperature peripherals: -20 ~ 60 °C With HDD: 0 ~ 45 °C
	Non-operating Temperature	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With mSATA/SSD: 3 Grms	With SSD: 5 Grms	With SSD: 3 Grms	With SSD: 3 Grms	With SSD: 5 Grms
	Shock Protection	With mSATA/SSD: 30G	With SSD: 50 G	With SSD: 30 G	With SSD: 30 G	With SSD: 50 G
Physical Characteristics	Dimensions (W x H x D)	223 x 46.6 x 133.0 mm	264.5 x 69.2 x 133.0 mm	264.5 x 68.4 x 133.0 mm	264.5 x 68.4 x 133.0 mm	264.5 x 75.1 x 133.0 mm
	Weight	1.9 kg (4.18 lbs)	2.3 kg (5.07 lb)	2.3 kg (5.07 lb)	2.3 kg (5.07 lb)	2.3 kg (5.07 lb)
	Mounting	Desk/Wall/VESA/DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
Operating System	Microsoft Windows	Yes (Windows 10, Windows 8, Windows 7, WES8, WES7)	Yes (Windows 7)	Yes (WES7, Windows 7, WES8, Windows 8 and Windows 10 (32-bit support by project))	Yes (WES7, Windows 7, WES8, Windows 8 and Windows 10 (32-bit support by project))	Yes (Windows 7, Windows 7 Embedded, XP Professional, XP Embedded)
	Linux	Yes (by Project)	-	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	WISE-PaaS/RMM	Yes	Yes	Yes	Yes	Yes
	SUSI API	-	Yes	Yes	Yes	Yes
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	Intel AMT 8.0, McAfee, Acronis
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI, KC for ARK-2150L-S7A1E only



## Multiple I/O Series

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Model Name		ARK-2150F	ARK-2230L	ARK-2232L	ARK-2250L
Processor System	CPU	3rd Gen <sup>®</sup> Intel Core i7-3517UE	Intel J1900	Intel <sup>®</sup> Atom E3940	Intel i7-6600U Intel i5-6300U Intel i3-6100U
	Frequency	1.7 GHz (up to 2.8GHz)	2.0GHz	1.6 GHz, turbo burst 1.8GHz	2.6/2.4/2.3GHz
	Core Number	2	4	4	2/2/2
	BIOS	AMI EFI 64Mbit	AMI EFI 64Mbit	AMI EFI 64 Mbit	AMI UEFI 128 Mbit
	Chipset	Intel QM77	-	-	-
Memory	Technology	DDR3 1600MHz/DDR3L 1333 MHz	DDR3L 1333MHz	DDR3L 1866MHz	DDR3L 1600MHz
	Max. Capacity	8 GB	8GB	8GB	16GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SO-DIMM	1 x 204-pin SODIMM
Display	Graphic Engine	DirectX11, OpenGL 3.1, and Open CL 1.1	DirectX 11.1, OCL 1.2 and OGL 3.2	DirectX 12.0, OpenGL 4.3, OpenCL 2.0	DirectX 11.3, OpenGL 4.4, and OpenCL 2.1
	VGA	Up to 2048 x 1536	Up to 2048 x 1152	up to 1920x1200	Up to 1920 x 1200
	DDI (HDMI/DVI/DisplayPort)	HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200	HDMI 1.4a for HD video playback, 1080P at 60Hz	HDMI 1.4b for HD video playback, 4096 x 2160 at 60Hz	HDMI 1.4a for HD video playback, 4096 x 2160 @ 24Hz
	Multiple Display	Dual	Dual	Dual	VGA+HDMI (Option triple display)
Expansion Interface	Mini PCIe	2 x Full-size Mini PCIe (Supports mSATA & SIM) 1 x Half-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	2 x Full-size Mini PCIe
	M.2	-	-	1x M.2 2230 E Key	-
	SIM Socket	1	1	1	1
	ARK Plus	-	AMO-2000 series	AMO-2000 series	AMO-2000 series
	i Door	-	Yes	Yes	Yes
Ethernet	Controller	GbE1: Intel 82579LM, GbE 2/ 3/ 4: Intel 82583V All support wake on LAN	GbE1: Intel I-210IT GbE2: Intel I-210IT	GbE 1: Intel i210 GbE 2: Intel i210	GbE1: Intel I219-LM GbE2: Intel I-210IT
	Speed	10/ 100/ 1000 Mbps	10/100/1000 Mbps	10/ 100/ 1000 Mbps	10/100/1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC892	Realtek ALC888	Realtek ALC888	Realtek ALC888
	Connector	3 (Line-in, Line out, Mic-in)	3 (Line-in, Line out, Mic-in)	2 (Line out, Mic-in)	2 (Line-out, Mic-in)
WatchDog Timer	Yes	Yes	Yes	Yes	
Storage	SATA	1 x 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay	1 x 2.5" SATA drive bay	1 x 2.5" SATA HDD bay
	mSATA	1 (Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe)	1	1 x Full size mSATA	1x Full size mSATA
	CompactFlash/Cfast/SD card	-	-	-	-
I/O	USB3.0	3	1	2	4
	USB2.0	3	4	4	2
	GPIO	4ch digital input and 4ch digital output with 2.5KV isolation	1 x 8 bit DIO	1 x 8 bit DIO	1 x 8 bit DIO
	COM Port	4 (4 x RS232/ 422/ 485)	4 (2 x RS232,2 x RS232/422/485)	4 (2 x RS232,2 x RS-232/422/485)	4 (4 x RS232/ 422/ 485)
	Power	Power Type	AT/ATX	AT/ATX	ATX
Power	Power Supply Voltage	12 ~ 24 V <sub>oc</sub>	12 V <sub>oc</sub> (Option 9-36 V <sub>oc</sub> )	12 V <sub>oc</sub> (Option 9-36V)	12 V <sub>oc</sub> (Option 9-36 V <sub>oc</sub> )
	Connector	2-pin phoenix head	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle)	10.3W	7.3W	7.98W	7.96W/ 7.8W/ 6.92W
	Power Consumption (Full Load)	25.7W	13.3W	19.76W	43.28W/ 42.8W/ 41.72W
	Power Adaptor	Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional)	AC to DC, DC12V/5A, 60W (Optional)	AC to DC, DC12V/5A, 60W	AC to DC, DC12V/5A, 60W (Option)
	Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 60 °C With HDD: 0 ~ 45 °C	-20 ~ 60 °C	-20 ~ 60 °C
Physical Characteristics	Non-operating Temperature	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration Resistance	With SSD: 5 Grms	With SSD: 3 Grms	With SSD: 3 Grms	With SSD: 3 Grms
	Shock Protection	With SSD: 50 G	With SSD: 30 G	With SSD: 30 G	With SSD: 30 G
	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm	260 x 44 x 140.2 mm	260 x 44 x 140.2 mm	260 x 54 x 140.2 mm
	Weight	2.8 kg (6.17lb)	2.3 kg (5.07lb)	2.3 kg (5.07lb)	2.3 kg (5.07lb)
Operating System	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/Wall/VESA/DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
	Microsoft Windows	Yes (Windows 7, Windows 7 Embedded, XP Professional, XP Embedded)	Yes (Windows 10, WES8, Windows 8, WES7, Windows 7)	Yes (Windows 10)	Yes (Windows 10, Windows 8.1, WES7, Windows 7)
APIs	Linux	Yes (Ubuntu v12.04/CentOS 6.6)	Yes (by Project)	Yes (by Project)	Yes (by Project)
	WISE-PaaS/RMM	Yes	Yes	Yes	Yes
	SUSI API	Yes	Yes	Yes	Yes
Certification	Other	Intel AMT 8.0, McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	EMC	CE/FCC class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
Safety Certifications	UL, CCC, BSMI, KC	UL, CCC, BSMI, KC	CB, UL, CCC, BSMI	UL, CCC, BSMI	

# Fanless Embedded Computers

## Multi Expansion Series



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Model Name		ARK-3405	ARK-3500	ARK-3510	ARK-3520L	ARK-3520P
Processor System	CPU	Intel Celeron N3160	3rd gen <sup>1</sup> Intel Core i7-3610QE/ i5-3610ME/i3-3120ME/ Celeron 1020E rPGA processor support	3rd gen <sup>1</sup> Intel Core i7-3610QE/ i5-3610ME/i3-3120ME/ Celeron 1020E rPGA processor support	6th gen <sup>1</sup> Intel i7-6820EQ/ i5-6440EQ/i3-6100E	6th gen <sup>1</sup> Intel i7-6820EQ/i5- 6440EQ/i3-6100E
	Frequency	1.6 GHz (Up to 2.24 GHz)	2.3 GHz/2.7 GHz/2.4 GHz/2.2 GHz	2.3 GHz/2.7 GHz/2.4 GHz/2.2 GHz	2.8/2.7/2.7GHz	2.8/2.7/2.7GHz
	Core Number	4	4/2/2/2	4/2/2/2	4/4/2	4/4/2
	BIOS	AMI EFI 64 Mbit BIOS	AMI EFI 64Mbit	AMI EFI 64Mbit	AMI EFI 128 Mbit	AMI EFI 128 Mbit
Memory	Chipset	-	Intel QM77	Intel QM77	Intel QM170	Intel QM170
	Technology	DDR3L 1600MHz	DDR3/DDR3L 1600MHz	DDR3/DDR3L 1600MHz	DDR4 2133MHz	DDR4 2133MHz
	Max. Capacity	8 GB	16GB	16GB	32GB	32GB
Display	Socket	1 x 204-pin SODIMM	2 x 204-pin SODIMM	2x204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
	VGA	1920 x 1200	VGA integrated in DVI-I port	VGA integrated in DVI-I port	1920 x 1200	1920 x 1200
	LCD (TTL/LVDS/eDP)	-	-	-	-	-
	DDI (HDMI/DVI/DisplayPort)	HDMI 1.4b, 2560 x 1600 @ 60Hz; 3840 x 2160 @ 30Hz DVI-D: 1920 x 1200	DVI-I: 1920 x 1200 @ 60 Hz HDMI: HDMI 1.4, 1920 x 1200 @ 60Hz Display port: 2560 x 1600 @ 60Hz (Video only, and only on 3rd gen <sup>1</sup> processor)	DVI-I: 1920 x 1200 @ 60 Hz HDMI: HDMI 1.4, 1920 x 1200 @ 60Hz Display port: 2560 x 1600 @ 60Hz (Video only, and only on 3rd gen <sup>1</sup> processor)	HDMI 1.4b for HD video playback, 3840x2160@30Hz 2nd HDMI :1920 x 1080 (Optional) DVI-D: 4096 x 2160 @ 24Hz (Optional) DP: 4096 x 2304 @ 60Hz (Optional)	HDMI: 1.4b for HD video playback, 3840 x 2160 @ 30Hz 2nd HDMI :1920 x 1080 (Optional) DVI-D: 4096 x 2160 @ 24Hz (Optional) DP: 4096 x 2304 @ 60Hz (Optional)
Multiple Display	Triple Independent Display VGA + HDMI + DVI-D	Triple/Dual	Triple/Dual	Triple / Dual VGA + HDMI + optional 3rd display	Triple / Dual VGA + HDMI + optional 3rd display	
Expansion Interface	Mini PCIe	2 x Full-size Mini PCIe	2 x Full-size Mini PCIe with SIM (share with mSATA)	2 x Full-size Mini PCIe with SIM (share with mSATA)	2 x Full-size Mini PCIe (1 share with mSATA)	2 x Full-size Mini PCIe (1 shared with mSATA)
	SIM socket	1 x SIM socket	2 x SIM socket	2 x SIM socket	1 x SIM socket	1 x SIM socket
	PCIe	2 x PCIe1 (Optional)	1 x PCIe1 + 1 x PCIe4 (ARK-3500F)	-	-	2 x PCIe x 4 (Optional)
	PCI	2 x PCI (Default)	2 x PCI (ARK-3500P)	-	-	2 x PCI (Default)
	PCIe + PCI	1 x PCI + 1 x PCIe x1 (Optional)	-	-	2 x PCI + 1 x PCIe x 4 (Optional)	-
	ARK Plus	-	-	-	-	-
Ethernet	Controller	GbE1: Intel I-210IT GbE2: Intel I-210IT	GbE1: Intel 82579LM GbE2: Intel I-210IT	GbE1: Intel 82579LM GbE2: Intel I-210IT	GbE1: Intel I219-LM GbE2: Intel I-210IT	GbE1: Intel I219-LM GbE2: Intel I-210IT
	Speed	10/100/1000 Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
Audio	CODEC	Realtek ALC892	Realtek ALC892	Realtek ALC892	Realtek ALC888	Realtek ALC888
	Connector	2 (Line out, Mic-in)	2 (Line out, Mic-in)	2 (Line out, Mic-in)	2 (Line out, Mic-in)	2 (Line out, Mic-in)
WatchDog Timer	Yes	Yes	Yes	Yes	Yes	
Storage	SATA	2 x 2.5" SATAIII HDD bay	2 x 2.5" SATAIII HDD bay	2 x 2.5" SATAIII HDD bay	1 x 2.5" SATAIII HDD bay	2 x 2.5" SATAIII HDD bay
	CompactFlash/Cfast/SD card	1 internal SD Card slot	1 CFast	1 CFast	-	-
	mSATA	-	2 (shared with mini-PCIe)	2 (shared with mini-PCIe)	1 (shared with mini-PCIe)	1 (shared with mini-PCIe)
I/O	USB 3.0	3	4	4	6	6
	USB2.0	3 x external, 1 x internal	2	2	2	2
	GPIO	1 x 8 bit DIO	16 bit DIO	-	1 x 16 bit DIO	1 x 16 bit DIO
	COM Port	4 (2 x RS232, 2 x RS232/ 422/ 485)	8 (4 x RS232, 4 x RS232/ 422/ 485)	4 (2 x RS232, 2 x RS232/ 422/ 485)	8 (4 x RS232, 4 x RS232/422/485)	8 (4 x RS232, 4 x RS232/422/485)
Power	Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	9 V <sub>oc</sub> ~ 36 V <sub>oc</sub>	9 V <sub>oc</sub> ~ 34 V <sub>oc</sub>	12 V <sub>oc</sub> ± 10% (optional 9 ~ 34 V <sub>oc</sub> )	12 V <sub>oc</sub> (optional 9 ~ 36 V <sub>oc</sub> )	9 ~ 36 V <sub>oc</sub>
	Connector	4 pin phoenix head	4-pin terminal block	Lockable DC jack	Lockable DC jack	4 pin phoenix head
	Power Consumption (Idle)	9.7W	19.2W/ 16.4W/ 14.8W/ 16.4W	19.2W/ 16.4W/ 14.8W/ 16.4W	11.4W	11.4W
	Power Consumption (Full Load)	22.8W	60W/ 36.5W/ 30W/ 31.8W	60W/ 36.5W/ 30W/ 31.8W	68.4W/ 46.5W/ 42.75W	68.4W/ 46.5W/ 42.75W
Environment	Power Adaptor	AC to DC, DC 12V/7A, 84W (Optional)	Lockable AC to DC DC 12V 120W (Optional)	Lockable AC to DC, DC12V / 7A 84W (Optional)	Lockable AC to DC DC 12V 150W (Optional)	Lockable AC to DC DC 19V 150W (Optional)
	Operating Temperature (air flow 0.7 m/sec)	With extend temp peripherals: -10 ~ 55 °C With 2.5" HDD: 0 ~ 40 °C	With extend temp peripherals: -10 ~ 60 °C With HDD: 0 ~ 40 °C	With extend temp peripherals: -10 ~ 60 °C With HDD: 0 ~ 40 °C	With extend temp peripherals: -20 ~ 60 °C With HDD: 0 ~ 40 °C	With extend temp peripherals: -20 ~ 60 °C With HDD: 0 ~ 40 °C
	Non-operating Temperature	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration Resistance	With SSD: 3 Grms With HDD: 0.3Grms	With SSD: 5 Grms	With SSD : 3Grms	With SSD: 3 Grms	With SSD: 3 Grms
Physical Characteristics	Shock Protection	With SSD: 30 G	With SSD 30G	With SSD 50G	With SSD: 30 G	With SSD: 30 G
	Dimensions (W x H x D)	142.8 x 198 x 215 mm	290 x 110 x 232 mm	290 x 90 x 232 mm	220 x 101 x 233 mm	220 x 101 x 233 mm
	Weight	3.16 kg (6.97lb)	4.8 kg (10.56lb)	4.63 kg	4.8 kg (10.58 lb)	4.4 kg (9.7 lb)
Operating System	Mounting	Wall/Desk mounting	Desk/Wallmounting	Desk/Wallmounting	Desk/Wall mounting	Desk/Wall mounting
	Microsoft Windows	Yes (Windows 10, Windows 8.1, Windows 7, WES8.1 , WES7)	Yes (Windows 8, Windows 7, XP Professional (32bit), XP embedded (32bit))	Yes (Windows 8, Windows 7, XP Professional (32bit), XP embedded (32bit))	Yes (Windows 8.1,Windows 7, Windows 10)	Yes (Windows 8.1,Windows 7, Windows10)
APIs	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)
	WISE-PaaS/RMM	Yes	Yes	Yes	Yes	Yes
	SUSI API	Yes	Yes	Yes	Yes	Yes
Certification	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class A/CCC/BSMI
Safety Certifications	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	LVD, CCC, BSMI, KC	

## High Value Series



**NEW**



**NEW**



Model Name		ARK-3530L	ARK-3530F	ARK-6322
Processor System	CPU	Intel® Xeon E3-1235L V5/6th Gen i7-6700/7th Gen i7-7700/i5-7500/i3-7300	Intel® Xeon E3-1235L V5/6th Gen i7-6700/7th Gen i7-7700/i5-7500/i3-7300	Intel Celeron J1900 SoC
	Frequency	2.0GHz/3.4GHz/3.6GHz/3.4GHz/4.0GHz	2.0GHz/3.4GHz/3.6GHz/3.4GHz/4.0GHz	2.0 GHz, Turbo Boost up to 2.41GHz
	Core Number	4/4/4/4/2	4/4/4/4/2	4
	BIOS	AMI EFI 128 Mbit	AMI EFI 128 Mbit	AMI 16Mbit SPI
Memory	Chipset	-	-	-
	Technology	DDR4 2133MHz (Support ECC/non-ECC)	DDR4 2133MHz (Support ECC/non-ECC)	DDR3L 1333MHz
	Max. Capacity	32GB	32GB	8GB (4GB per SODIMM)
Display	Socket	2 x 204-pin SO-DIMM	2 x 204-pin SO-DIMM	2 x 204-pin SODIMM
	Chipset	Intel® HD Graphics 630	Intel® HD Graphics 630	-
	Graphic Engine	DirectX 12.0, OpenGL 4.4	DirectX 12.0, OpenGL 4.4	-
	VGA	up to 1920x1200	up to 1920x1200	Up to 2048 x 1280
Expansion Interface	Mini PCIe	2 x Full-size Mini PCIe	2 x Full-size Mini PCIe	1 x Full-size Mini PCIe 1 x Half-size Mini PCIe
	M.2	1x M.2 2230 E Key	1x M.2 2230 E Key	-
	SIM socket	1	1	1 x SIM socket
	PCIe	2 PCIex8 (By Option)	2 PCIex8 (By Option)	-
Other	PCI	2 PCI (By Option)	2 PCI (Default)	-
	PCIe + PCI	-	-	-
	i Door	Yes	Yes	Yes
	PoE	-	-	-
Ethernet	Controller	GbE 1: Intel i219 GbE 2: Intel i210	GbE 1: Intel i219 GbE 2/3/4: Intel i210	GbE1: RTL8111E GbE2: RTL8111E
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/100/1000 Mbps
	Audio Interface	HD Audio	HD Audio	HD Audio
Audio	CODEC	Realtek ALC888	Realtek ALC888	Realtek ALC892
	Connector	2 (Line out, Mic-in)	2 (Line out, Mic-in)	1 (Line-out or Mic-in)
Storage	WatchDog Timer	Yes	Yes	Yes
	SATA	2 x 2.5" SATA drive bay (Max 4 by Project)	2 x 2.5" SATA drive bay (Max 4 by Project)	1 x 2.5" or 3.5" SATA HDD bay
	CompactFlash/Cfast/SD card	2 x Full size mSATA	2 x Full size mSATA	-
	mSATA	2 x Full Size mSATA (Share with mini-PCIe slots)	2 x Full Size mSATA (Share with mini-PCIe slots)	1 x Full-size mSATA (shared with mini-PCIe slot)
I/O	USB 3.0	8	8	1
	USB2.0	-	-	7
	GPIO	16 bit by Option	16 bit by Option	-
	LPT	-	-	-
	COM Port	4 (4 x RS-232/422/485)	4 (4 x RS-232/422/485)	5 x RS232, 1 x RS232/422/485
	LAN	-	-	2 x RJ45
Power	Power Type	AT/ATX	AT/ATX	ATX
	Power Supply Voltage	12 V <sub>oc</sub> (Option 9-36V)	9-36 V <sub>oc</sub>	12 V <sub>oc</sub> , ± 10%
	Connector	Lockable DC Jack	Lockable DC Jack	-
	Power Consumption (Idle)	TBD	TBD	15.7W
	Power Consumption (Full Load)	TBD	TBD	24.7W
	Power Adaptor	AC to DC, DC12V/12.5A, 150W	AC to DC, DC12V/12.5A, 150W	AC to DC, DC12V/5A, 60 W (Optional)
Environment	Regulation	-	-	-
	Operating Temperature (air flow 0.7 m/sec)	-20 ~ 60° C (Support up to 6th Gen 65W/7th Gen 51W Processor) -20 ~ 40° C (Support up to 65W processor)	-20 ~ 60° C (Support up to 6th Gen 65W/7th Gen 51W Processor) -20 ~ 40° C (Support up to 65W processor)	With 2.5" HDD : 0~45 °C With 3.5" HDD : 0~40 °C With extended temp peripherals : 0~50 °C
	Non-operating Temperature	-40 ~ 85° C and 40° C @ 95% RH Non-Condensing	-40 ~ 85° C and 40° C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With SSD : 3 Grms	With SSD : 3 Grms	With HDD: 0.5 Grms
Physical Characteristics	Shock Protection	With SSD : 30 G	With SSD : 30 G	With HDD: 10 G
	Dimensions (W x H x D)	105 x 205 x 230 mm	156.5 x 205 x 230 mm	200 x 64 x 200 mm
	Weight	5.1kg (11.24lb)	5.87kg (12.94lb)	2.0 kg (4.4lb)
Operating System	Mounting	Desk mounting	Desk mounting	VESA/Wall mounting (Optional)
	Microsoft Windows	Yes (Windows 10)	Yes (Windows 10)	Yes (Windows 10, Windows 8, Windows 7, WES8, WES7)
APIs	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)
	SUSIAccess	Yes	Yes	Yes
Certification	iManager	Yes	Yes	-
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	EMC	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class A/CCC/BSMI
Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	

# In-vehicle & Railway Systems

**NEW**



Application		Outdoor NVR			In-Vehicle
Model Name		ARK-2121S	ARK-2151S	ARK-2250S	ARK-2121V
Processor System	CPU	Intel Atom E3845	4th Gen Intel® Core i5 4300U	6th Gen Intel Core i5-6442EQ/i7-6822EQ	Intel Atom E3825/E3845
	Frequency	1.91 GHz	1.9 GHz	1.9GHz/2.0GHz	1.33 GHz / 1.91 GHz
	Core Number	4	2	4	2/4
	BIOS	AMI EFI 64 Mbit	AMI EFI 128 Mbit	AMI UEFI 128Mbit	AMI EFI 64 Mbit
Memory	Chipset	Intel Atom QC E3845	4th Gen Intel® Core i5 4300U	QM170	Intel Atom E3825/E3845
	Technology	DDR3L 1333 MHz	DDR3L 1600 MHz	DDR4 2133MHz	DDR3L 1066/1333 MHz
	Max. Capacity	8 GB	8 GB	32G	8 GB
Display	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	2 x 260-pin SODIMM	1 x 204-pin SODIMM
	VGA	1 (up to 1600 x 1200)	1 (up to 1920 x 1200)	-	1 (up to 1600 x 1200)
	LCD (TTL/LVDS/eDP)	LVDS optional	LVDS optional	-	LVDS optional
	DDI (HDMI/DVI/DisplayPort)	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4K at 24 Hz	2 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 1080P
Expansion Interface	Multiple Display	Dual	Dual	Dual	Dual
	Mini PCIe	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders
Other	SIM socket	2	2	2 (accessible)	2
	GPS	-	-	-	Support GPS, GLONASS, GALILEO and OZSS signals
	G-Sensor	-	-	-	Yes
	PoE	4 x 10/100 Mbps PoE	4 x 10/100 Mbps PoE	Optional in 2nd stack: 4/8 x GbE PoE+	4 x 10/100 Mbps PoE (E3845)
Ethernet	CANBus	-	-	optional	optional
	Controller	GbE 1: Intel I210-IT GbE 2: Intel I210-IT	GbE 1: Intel I218 GbE 2: Intel I210-IT	GbE 1: Intel I219 GbE 2: Intel I210	GbE 1: Intel I210-IT GbE 2: Intel I210-IT
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)
	3G Voice	-	-	-	1 x Line-out, 1 x Mic-in
WatchDog Timer	Yes	Yes	Yes	Yes	
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack	1 x 2.5" removable drive bay
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	1	2	3	1
	USB2.0	3	2	-	3
	GPIO	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	4x DI & 4x DO with isolation	6 x DI & 2 x DO with isolation
	COM Port	2 x (RS-232/422/485)	2 x (RS-232/422/485)	3 x RS-232/422/485	2 x RS-232/422/485 + 2 x isolated RS-232/422/485 (E3825)
	LAN	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Power	Power Supply Voltage	9 ~ 36 Vdc w/ isolation	9 ~ 36 Vdc w/ isolation	12 ~ 24 Vdc w/ isolation	9 ~ 36 Vdc w/power ignition management
	Connector	3-pin Phoenix	3-pin Phoenix	5-pin Phoenix	3-pin Phoenix
	Power Adaptor	AC to DC, 19 Vdc, 120W	AC to DC, 19 Vdc, 120W	AC to DC, 24Vdc, 150W	AC to DC, 19 Vdc, 120W
	Regulation	-	-	-	ISO 7637-2 lev.4
Environment	Operating Temperature (air flow 0.7 m/sec)	-30 ~ 60 °C	-20 ~ 60 °C	-20 ~ 70 °C	-30 ~ 70 °C / -30 ~ 60 °C
	Vibration Resistance	3 Grms	3 Grms	MIL-STD 810G, NEMA TS2	IEC 60721-3-5 Class 5M3
	Shock Protection	30 G	30 G	MIL-STD 810G, NEMA TS2	IEC 60721-3-5 Class 5M3
Physical Characteristics	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	264.5 x 75.1 x 133.0 mm	260 x 67 x 160 mm (260 x 93.6 x 160 mm with 2nd stack)	264.5 x 69.2 x 133.0 mm
Operating System	Microsoft Windows	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	SUSIAccess	Yes	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	UL, CCC, BSMI, CB, E-Mark



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Application		In-Vehicle		Rolling Stock	
Model Name		ARK-2151V	ARK-2250V	ARK-2231R	ARK-2250R
Processor System	CPU	4th Gen Intel Celeron 2980U/Core i5-4300U	6th Gen Intel Core i5-6442EQ/i7-6822EQ	Intel Atom E3845	6th Gen Intel Core i5-6442EQ/i7-6822EQ
	Frequency	1.6 GHz / 1.9 GHz	1.9GHz/2.0GHz	1.91GHz	1.9GHz/2.0GHz
	Core Number	2	4	4	4
	BIOS	AMI EFI 128 Mbit	AMI UEFI 128Mbit	AMI EFI 64bit	AMI UEFI 128Mbit
	Chipset	4th Gen Intel Celeron 2980U/Core i5-4300U	QM170	Intel Atom E3845	QM170
Memory	Technology	DDR3L 1333/1600 MHz	DDR4 2133MHz	DDR3L 1333	DDR4 2133MHz
	Max. Capacity	8 GB	32G	8G	32G
	Socket	1 x 204-pin SODIMM	2 x 260-pin SODIMM	1 x 204-pin SODIMM	2 x 260-pin SODIMM
Display	VGA	1 (up to 1920 x 1200)	1 (up to 1920 x 1200)	1 (up to 2560 x 1600)	1 (up to 1920 x 1200)
	LCD (TTL/LVDS/eDP)	LVDS optional	-	-	-
	DDI (HDMI/DVI/DisplayPort)	1 x lockable HDMI, up to 4K at 24 Hz	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 1080P
	Multiple Display	Dual	Dual	Dual	Dual
Expansion Interface	Mini PCIe	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 1 x Full-size Mini PCIe w/SIM holder	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders
	SIM socket	2	2 (accessible)	1 (accessible)	2 (accessible)
Other	GPS	Support GPS, GLONASS, GALILEO and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals
	G-Sensor	Yes	Yes	Yes	Yes
	PoE	4 x 10/100 Mbps PoE (4300U)	Optional in 2nd stack: 4/8 x GbE PoE+	Optional in 2nd stack: 4/8 x GbE PoE+ (M12 D/X-coded)	Optional in 2nd stack: 4/8 x GbE PoE+ (M12 D/X-coded)
	CANBus	optional	optional	optional	optional
Ethernet	Controller	GbE 1: Intel I218 GbE 2: Intel I210-IT	GbE 1: Intel i219 GbE 2: Intel i210	GbE 1: Intel I210-IT GbE 2: Intel I210-IT	GbE 1: Intel i219 GbE 2: Intel i210
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)
	3G Voice	1 x Line-out, 1 x Mic-in	-	-	-
WatchDog Timer		Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	2	3	1	1 (Type A female)
	USB 2.0	2	-	2 (M12 A-Coded)	2 (M12 A-Coded)
	GPIO	6 x DI & 2 x DO with isolation	4x DI & 4x DO with isolation	1 x 8bit DIO	1 x 8bit DIO
	COM Port	2 x RS-232/422/485 + 2 x isolated RS-232/422/485 (2980U)	3 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
	LAN	2 x RJ45	2 x RJ45	2 x M12 X-code	2 x M12 X-code
	Power Supply Voltage	9 ~ 36 V <sub>DC</sub> w/power ignition management	12/24 V <sub>DC</sub> w/power ignition management	24 V <sub>DC</sub> (48 V <sub>DC</sub> , 72 V <sub>DC</sub> , 110 V <sub>DC</sub> optional)	24 V <sub>DC</sub> (48 V <sub>DC</sub> , 72 V <sub>DC</sub> , 110 V <sub>DC</sub> optional)
Power	Connector	3-pin Phoenix	5-pin Phoenix	M12 A-coded	M12 A-coded
	Power Adaptor	AC to DC, 19 V <sub>DC</sub> , 120W	AC to DC, 24V <sub>DC</sub> , 150W	AC to DC, 24V <sub>DC</sub> , 150W	AC to DC, 24V <sub>DC</sub> , 150W
	Regulation	ISO 7637-2 lev.4	ISO 7637-2 Lev.4	EN50155 S2&C1	EN50155 S2&C1
	Operating Temperature (air flow 0.7 m/sec)	-20 ~ 60 °C	-20 ~ 70 °C	-40 ~ 70 °C (EN50155 Tx)	-40 ~ 70 °C (EN50155 OT4)
Environment	Vibration Resistance	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC61373 Category1, Class B	IEC61373 Category1, Class B
	Shock Protection	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC61373 Category1, Class B	IEC61373 Category1, Class B
	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm	260 x 67 x 160 mm (260 x 93.6 x 160 mm with 2nd stack)	260 x 57 x 160 mm (260 x 83.6 x 160 mm with 2nd stack)	260 x 67 x 160 mm (260 x 93.6 x 160 mm with 2nd stack)
Operating System	Microsoft Windows	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (By project)	Yes (By project)
APIs	SUSIAccess	Yes	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC, CCC, BSMI, EN50121-3-2	CE/FCC, CCC, BSMI, EN50121-3-2, EN50121-4
	Safety Certifications	UL, CCC, BSMI, CB, E-Mark	CB, UL, CCC, BSMI, E-Mark	UL, CCC, BSMI, CB, EN50155	UL, CCC, BSMI, CB, EN50155

# EIS-D210

## Wireless Connectivity Edge Intelligence Server



### Features

- Integrated hardware plus software to build up edge-to-cloud applications
- Pre-configured system: Intel® Celeron® N3350/E3940 SoC, Win 10 Ent with 4GB Memory, 64 GB SSD and wireless networking
- Pre-integrated WISE-PaaS Software Package: WISE-PaaS/EdgeSense and WebAccess/SCADA
- Built-in Microsoft Azure IoT Edge and AWS Greengrass for cloud application
- Pre-configured Microsoft Azure service: Device Management Package/ Data Intelligence Package (Optional)
- Pre-configured AWS service: Connect & Collect Package (Optional)
- Comprehensive developer tools and documents: Node-RED data flow logic designer, dashboard builder, protocol plug-in SDK & configuration tools

### Introduction

To fulfill customer requirements in equipment connectivity, data visualization, and predictive maintenance applications, Advantech offers the EIS-D210 Edge Intelligence Server, which is equipped with an Intel® Celeron® Processor N3350/E3940 and comes integrated with AWS Greengrass and Microsoft Azure IoT Edge, thus ensuring that IoT devices can respond quickly to local events, interact with local resources, operate with intermittent connections, and minimize the cost of transmitting IoT data to the cloud. In addition to supporting field protocols (MQTT/OPC/Modbus) for sensor/device data acquisition, the EIS-D210 can be used with the Advantech IoT SDK for wireless sensor (Wi-Fi, Bluetooth, LoRa) data integration. Furthermore, the EIS-D210 comes pre-integrated with Advantech's WISE-PaaS/EdgeSense software solution, allowing users to incorporate sensor data aggregation, edge analytics, and cloud applications for fast and easy real-time operational intelligence. EIS-D210 provides a range of connectivity options with excellent data handling and networking connection capabilities for various IoT applications.

### Solution Block Diagram

#### WISE-PaaS *Built-in*

#### WISE-PaaS/EdgeSense

**Edge Intelligence and Sensing Integration**

**WISE-PaaS/RMM**  
**Remote Monitoring and Management**  
Open & standard IoT device remote monitoring and management platform

**WISE-PaaS/Security**  
**Centralize Security Management**  
Centralize devices, data protection and remote back-up and recovery solution  
(Integration version in WISE-PaaS/RMM)


**WISE-PaaS/OTA**  
**Remote Software Update**  
Remote software update, includes 3rd party software  
(Integration version in WISE-PaaS/RMM)

#### WebAccess

**Application Solutions**


**WebAccess/SCADA**  
**Smart SCADA**  
Data collection and graphical interfaces for supervisory management  
(Limited version with 16 point access ability)

#### WISE-Agent *IoT Connectivity*




**Edge IoT Application Development**  
Open Plug-in SDK and sample code for sensor and data collection and conversion.

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**Data Format Integration**  
Supports ODBC plug-in for database and file type(CSV, MDB) data integration.

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**Industrial Protocol Connectivity**  
Provides standard protocols(Modbus/ OPC/ MQTT) for sensor and devices data collection.

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**I/O and Sensor Compatibility**  
Integration tested with Advantech M2.COM, ADAM and WISE-4000 series.

### Node-RED

*Data Manageability*

**RESTful API**  
GET/PUT/POST/DELETE  
**250+**

**Easy Application Development**  
Overall 250+ RESTful APIs are provided for application developer to access related functionality and IoT data of WISE-PaaS software.

---

**Smart Data Processing**  
Pre-integrated Data Flow Logic Designer Node-RED for data processing and flow control (Sample code included).

---

**Zero Downtime**  
Data cache storage for secured data transfer, retain data when connection is lost; forward it after connection is reestablished.

### Pre-configured Cloud Services

**Device Management Package**

**Big Data Storage**  
1T storage with 99.99 reliability

**Data Reporting**  
Pre-configured with DB and data, 720 hours Power BI usage embedded

**System Deployment**  
4 Core A3 VM for up to 100 devices connection

**Web Services Center**  
Use your existing skills to code in your favorite language

**Connect & Collect Package**

**Data Storage**  
Durable, scalable, and secure storage for data

**Flexible Database**  
The AWS DynamoDB service delivers consistent, single-digit millisecond latency at any scale

**Easy-to-use Business Analytics**  
Build visualizations and get business insights with Amazon QuickSight

**Connect IoT Devices**  
AWS IoT Core lets connected devices interact with cloud applications and other devices

## IoT Development Tools

Node-RED Utility	Pre-integrated logic edit tool Node-RED
Data Collection	Receive Data to Agent and transfer to WISE-PaaS/RMM server
Data Conversion	Conversion data protocol to MQTT with JSON format
Plug-in SDK	Agent and protocol conversion plug-in SDK for developer
GUI Protocol Config Tool (for Modbus)	Provide Modbus GUI for quick configuration
Back-up and System Recovery	Acronis Hot back-up/ Recovery/ Hot-Key recovery
Security	McAfee white list protection
Remote Update (OTA)	Software(Advantech & 3rd party) update
Zero Downtime	Reserve edge data when lost connection and recover it when the connection is back
Light Analytic	Statistics and graphical representation of historical data
Dashboard Builder	Customizable dashboard to display sensor data with text, spark line, gauge, etc. types of widgets

\*\*Support depends on device type, OS and account permission.

## Edge System Specifications

Model Name	EIS-D210W	EIS-D210L
Processor	Intel Celeron N3350 D/C SoC	Intel Atom E3940 Q/C SoC
RF Connectivity	IEEE 802.11 a/b/g/n/ac (2.4 GHz/ 5 GHz) standard with BT4.1	LoRa® Private, Support 915/868MHz
Storage	64G SATA III SSD Built In	
RAM	1 SO-DIMM DDR3L Slot, up to 8GB RAM Built In 4GB Memory	
OS	Windows 10 Enterprise Pre-load	
Protocol	Modbus, ODBC, OPC-UA, SCADA Plug In	
Edge Intelligence	AWS Greengrass, MS Azure IoT Edge	
Display	1 x VGA	2 x HDMI
COM	2 x RS232/422/485, 2 GbE LAN, 4 USB 3.0	1 x RS232/422/485, 2 GbE LAN, 2 USB 3.0
TPM	TPM 2.0 built in	
Power Input	DC 12V with Lockable DC Jack, Optional 12-24V 2-pin Phoenix connector	
Dimension	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")	
Environment Temperature	-20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow	

## Ordering Information

Part Number	CPU	Memory	Storage	OS	Display	GbE	USB 3.0	RS-232/422/485	Audio	RF Controller	Power Input	mSATA	Operating Temperature*
EIS-D210W-E1DS641	Intel N3350 Dual Core SoC	4 GB	64G 2.5" SATAIII SSD	Win 10 Ent	1 x VGA	2	4	2	Line in Line out	Atheros QCA6174A	12 V <sub>DC</sub>	1	-20 ~ 60° C
EIS-D210L-E1DS641	Intel E3940 Quad Core SoC	4 GB	64G 2.5" SATAIII SSD	Win 10 Ent	2 x HDMI	2	2	1	Line in Line out	Semtech SX1276	12 V <sub>DC</sub>	1	-20 ~ 60° C

\* If industrial grade memory and SSD selected.

## Packing List

Item	Description
1	EIS-D210 Edge Computer
2	WISE-PaaS software packages
3	12V/60W AC to DC Adaptor
4	Accessory Package

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm

# EIS-D150

## High-Performance Edge Intelligence Server (EIS)



### Features

- Integrated hardware and software aids edge-to-cloud application development
- Preconfigured system: High-performance computing powered by 6th Generation Intel® Core™ U-series i5, WES7E/Win 10 with 4 GB RAM, 64 GB SSD
- Pre-integrated WISE-PaaS software package: WISE-PaaS/RMM, WISEPaaS/OTA, WISE-PaaS/Security, WebAccess/SCADA, WebAccess/IMM, and WebAccess/HMI
- Preconfigured Microsoft Azure service: Device management package/data intelligence package (optional)
- Comprehensive developer tools and documents: Node-RED dataflow logic designer, dashboard builder, protocol plug-in SDK, and configuration tools

### Introduction


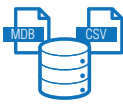


Advantech's EIS-D150 high-performance EIS is a software/hardware integrated solution offering high computing power for IoT and cloud applications. The unit enables data preprocessing in addition to logic and flow control at the edge of networks. The EIS-D150 comes with a ready-to-run system (6th Generation Intel® Core™ U-series i5 platform with WES7E/ WIN10 IoT Enterprise) and WISE-PaaS software. It includes the IoT foundational block WISE-PaaS/RMM, WISEPaaS/OTA, and WISE-PaaS/Security, as well as the vertical applications WebAccess/SCADA, WebAccess/IMM, and WebAccess/HMI. Furthermore, it gives the flexibility to add other software from the WISE-PaaS marketplace. For IoT developers, the EIS-D150 provides WISE-Agent and a protocol plugin SDK for IoT data collection and conversion, as well as a built-in Node-RED for smart data processing and logic flow design. It comes with preconfigured Azure packages from the WISE-PaaS Marketplace for easy and fast cloud connectivity. The EIS-D150 offers a complete solution for IoT data collection and intelligence creation from end devices and edge networks to the cloud. Its high computing power can assist with efficiently managing various types of devices, equipment, and sensors. With this unit, you can accelerate IoT implementation and enable IoT connectivity, data manageability, and analytics in the edge of your network.

### Solution Block Diagram

**WISE-PaaS**  
*Built-in*

<p><b>WISE-PaaS/RMM</b></p> <p><b>Remote Monitoring and Management</b></p> <p>Open standard IoT device monitoring and management platform</p> <hr/> <p><b>WISE-PaaS/Security</b></p> <p><b>Centralized Security Management</b></p> <p>Centralized device management, data protection and remote back-up and recovery solution (Integrated into WISE-PaaS/RMM)</p> <hr/> <p><b>WebAccess/SCADA</b></p> <p><b>Smart SCADA</b></p> <p>Data collection and graphical interfaces for supervisory management (Limited version with 16 point access ability)</p>	<p><b>WISE-PaaS/OTA</b></p> <p><b>Remote Software Update</b></p> <p>Remote software update, includes 3rd party software (Integrated into WISE-PaaS/RMM)</p> <hr/> <p><b>WebAccess/IMM</b></p> <p><b>Interactive Multimedia</b></p> <p>Centralized content editor and dispatch management for interactive multimedia player</p> <hr/> <p><b>WebAccess/HMI</b></p> <p><b>Human Machine Interface</b></p> <p>A stand-alone, machine-level HMI to a distributed visualization solution (Limited version with 16 point access ability)</p>
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**WISE-Agent**  
*IoT Connectivity*

	<p><b>Edge IoT Application Development</b></p> <p>Open Plug-in SDK and sample code for sensor and data collection and conversion.</p>
	<p><b>Data Format Integration</b></p> <p>Supports ODBC plug-in for database and data integration (file types: CSV, MDB).</p>
	<p><b>Industrial Protocol Connectivity</b></p> <p>Provides standard protocols (Modbus/ OPC/ MQTT) for sensor and device data collection.</p>
	<p><b>I/O and Sensor Compatibility</b></p> <p>Integration tested with Advantech M2.COM, ADAM and WISE-4000 series.</p>



### Node-RED

#### Data Manageability

**Easy Application Development**  
Over 250 RESTful APIs, enabling application developers to access related functions and IoT data from WISE-PaaS software

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**Smart Data Processing**  
Pre-integrated Data Flow Logic Designer Node-RED for data processing and flow control (Sample code included).

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**Zero Downtime**  
Data cache storage for secured data transfer, retain data when connection is lost; forward it after connection is reestablished.

### Pre-configured Azure Service Option

**Data Reporting**  
Pre-Configured with DB and data, 720 hours of Power BI usage included

**System Deployment**  
4 Core A3 VM for up to 100 devices connection

---

**Web Service Center**  
Use your existing skills to code in your favorite language

**Big Data Storage**  
1-TB storage with 99.99% reliability

**Device Management Package**

Virtual Machine + WISE-PaaS/RMM  
100 device connections and management ability  
40 WISE-Points/ Month

**Data Intelligence Package**

Virtual Machine Power BI Embedded + Databases Web APPS  
60 WISE-Points/ Month

**Get your service on WISE-PaaS Marketplace**  
Microsoft® Azure Services are available using WISE-Point digital currency, which applies in the WISE-PaaS Marketplace. <http://wise-paas.advantech.com/marketplace/>

## IoT Development Tools

Node-RED Utility	Pre-integrated logic editing tool Node-RED
Data Collection	Receive data from agents and transfer the data to a WISE-PaaS/RMM server
Data Conversion	Convert data protocol to MQTT with JSON format
Plug-in SDK	Agent and protocol conversion plug-in SDK for developers
GUI Protocol Config Tool (for Modbus)	Modbus GUI provided for quick configuration
Backup and System Recovery	Acronis hot backup/recovery/ hot-key recovery
Security	McAfee whitelist protection
Remote Update (OTA)	Software (Advantech and 3rd party) updates
Zero Downtime	Preserve edge data when connections are lost and recover the data once the connections have been restored
Light Analytics	Statistical and graphical representation of historical data
Dashboard Builder	Customizable dashboard with widgets for displaying sensor data in the format of text, sparklines, gauges, and so on

\*\*Support depends on device type, OS and account permission.

## Edge System Specifications

Processor	Intel® Core™ i5 6300U
Memory	4GB DDR3L 1600MHz memory built in (Max Capacity: 16GB / 1600MHz)
Integrated O/S	WES7E/Win 10
Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow 2.5-inch HDD: 0 ~ 45 °C (32 ~ 113 °F) with 0.7m/s air flow
Display	1 x VGA, 1 x HDMI, supports dual display (VGA and HDMI)
I/O Interface	2 x GbE LAN, 2 x USB 2.0, 4 x USB 3.0, 4 x RS-232/422/485, 1 x digital I/O, line out/mic in
Power Input	12 V <sub>dc</sub> (option: 9–36 V)
Storage	64-GB 2.5" SATA III SSD built in
Dimensions (W x H x D)	260 x 54 x 140.2 mm (10.24" x 2.13" x 5.52")

## Ordering Information

Part Number	CPU	Memory	Storage	OS	VGA	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	DIO	Audio	Full-size MiniPCle	Power Input	mSATA	Operating Temperature*
EIS-D150-W1DS641	Intel® Core™ i5 6300U SoC	4 GB	64G 2.5" SATAIII SSD	WES7E	1	1	2	2	4	4	1, 8bit	Line out, mic in	2, 1 with SIM holder	12 V <sub>dc</sub>	1	-20 ~ 60° C
EIS-D150-E1DS641	Intel® Core™ i5 6300U SoC	4 GB	64G 2.5" SATAIII SSD	Win 10	1	1	2	2	4	4	1, 8bit	Line out, mic in	2, 1 with SIM holder	12 V <sub>dc</sub>	1	-20 ~ 60° C

\* If industrial-grade memory and SSD are selected

## Packing List

Item	Description
1	EIS-D150 edge computer
2	WISE-PaaS software packages

## Optional Items

Part Number	Description
96PSA-A60W12W6	AC-to-DC adapter, DC 12 V/5 A 60 W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
AMK-V019E	VESA mount kits
AMK-R005E	DIN rail mount kits

# EIS-D120

## Multiple I/O Edge Intelligence Server



### Features

- Multiple I/O offerings and iDoor technology support
- Integrated hardware plus software helps build up edge-to-cloud applications
- Pre-configured system: Intel® Celeron® J1900 SoC, WES7E/Win 10 with 4GB Memory, 64 GB SSD
- Pre-integrated WISE-PaaS Software Package: WISE-PaaS/RMM, WISEPaaS/OTA, WISE-PaaS/Security, WebAccess/SCADA, WebAccess/IMM and WebAccess/HMI
- Pre-configured Microsoft Azure service: Device Management Package/ Data Intelligence Package (Optional)
- Comprehensive developer tools and documents: Node-RED data flow logic designer, dashboard builder, protocol plug-in SDK & configuration tools

### Introduction





The EIS-D120, a multiple I/O Edge Intelligence Server (EIS), is an integrated software plus hardware solution for IoT and cloud applications. EIS-D120 offers a ready-to-run system (Intel® Celeron® J1900 platform with WES7E/ WIN10 IoT Enterprise) and WISE-PaaS software package, including IoT foundation block WISE-PaaS/RMM, WISEPaaS/OTA, WISE-PaaS/Security and vertical applications: WebAccess/SCADA, WebAccess/IMM, WebAccess/HMI. The user can find more software packages in the Advantech WISE-PaaS Marketplace. For IoT developers, EIS-D120 provides WISE-Agent and a protocol plug-in SDK for IoT data collection and conversion, and built-in Node-RED for smart data processing and logic flow design. It also provides pre-configured Azure packages on WISE-PaaS Marketplace for quick and easy cloud connection. EIS-D120 offers a complete solution for IoT data collection and intelligent solution creation from end device, edge network, to the cloud; multiple I/O interfaces help connect with sensors, devices and other equipment very simply. With it, you can build innovative IoT applications that are easy to integrate.

### Solution Block Diagram

#### WISE-PaaS *Built-in*

<p><b>WISE-PaaS/RMM</b> <b>Remote Monitoring and Management</b> Open standard IoT device monitoring and management platform</p>	<p><b>WISE-PaaS/OTA</b> <b>Remote Software Update</b> Remote software update, includes 3rd party software <small>(Integration version in WISE-PaaS/RMM)</small></p>
<p><b>WISE-PaaS/Security</b> <b>Centralized Security Management</b> Centralized device management, data protection and remote back-up and recovery solution <small>(Integration version in WISE-PaaS/RMM)</small></p>	<p><b>WebAccess/IMM</b> <b>Interactive Multimedia</b> Centralized content editor and dispatch management for interactive multimedia player</p>
<p><b>WebAccess/SCADA</b> <b>Smart SCADA</b> Data collection and graphical interfaces for supervisory management <small>(Limited version with 16 point access ability)</small></p>	<p><b>WebAccess/HMI</b> <b>Human Machine Interface</b> A stand-alone, machine-level HMI to a distributed visualization solution <small>(Limited version with 16 point access ability)</small></p>

#### WISE-Agent *IoT Connectivity*

	<p><b>Edge IoT Application Development</b> Open Plug-in SDK and sample code for sensor and data collection and conversion.</p>
	<p><b>Data Format Integration</b> Supports ODBC plug-in for database and data integration (file types: CSV, MDB).</p>
	<p><b>Industrial Protocol Connectivity</b> Provides standard protocols (Modbus/ OPC/ MQTT) for sensor and device data collection.</p>
	<p><b>I/O and Sensor Compatibility</b> Integration tested with Advantech M2.COM, ADAM and WISE-4000 series.</p>

### Node-RED

*Data Manageability*

**RESTful API**  
GET PUT POST DELETE  
2.5.0+

**Easy Application Development**  
Overall 250+ RESTful APIs are provided so application developers can access related functionality and IoT data of WISE-PaaS software.

---

**Smart Data Processing**  
Pre-integrated Data Flow Logic Designer Node-RED for data processing and flow control (Sample code included).

---

**Zero Downtime**  
Data cache storage for secured data transfer, retain data when connection is lost; forward it after connection is reestablished.

**RE-DEPLOYMENT**

### Pre-configured Azure Service

*Option*

**Data Reporting**  
Pre-Configured with DB and data, 720 hours of Power BI usage included

**Web Services Center**  
Use your existing skills to code in your favorite language

**System Deployment**  
4 Core A3 VM for up to 100 devices connection

**Big Data Storage**  
1T storage with 99.99% reliability

**Device Management Package**

Virtual Machine + WISE-PaaS/RMM  
100 device connections and management ability  
40 WISE-Points/ Month

**Data Intelligence Package**

Virtual Machine + Power BI Embedded + Databases Web APPS  
60 WISE-Points/ Month

**Get your service on WISE-PaaS Marketplace**  
Microsoft® Azure Services are available using WISE-Point digital currency, which applies in the WISE-PaaS Marketplace. <http://wise-paas.advantech.com/marketplace/>

## IoT Development Tools

Node-RED Utility	Pre- integrated logic edit tool Node-RED
Data Collection	Receive Data to Agent and transfer to WISE-PaaS/RMM server
Data Conversion	Conversion data protocol to MQTT with JSON format
Plug-in SDK	Agent and protocol conversion plug-in SDK for developer
GUI Protocol Config Tool (for Modbus)	Provide Modbus GUI for quick configuration
Back-up and System Recovery	Acronis Hot back-up/ Recovery/ Hot-Key recovery
Security	McAfee white list protection
Remote Update (OTA)	Software(Advantech & 3rd party) update
Zero Downtime	Reserve edge data when lost connection and recover it when the connection is back
Light Analytics	Statistics and graphical representation of historical data
Dashboard Builder	Customizable dashboard with widgets to display sensor data with text, spark line, gauge, etc.

\*\*Support depends on device type, OS and account permission.

## Edge System Specifications

Processor	Intel® Celeron® J1900 Quad Core 2.0GHz SoC
Memory	4GB bundled
Integrated O/S	WES7E/Win 10
Operating Temperature	-20 ~ 70° C with industrial grade RAM/SSD
I/O Interface	1 x HDMI, 1 x VGA, 2 x GbE LAN, 3 x USB 2.0, 1 x USB 3.0, 2 x RS-232, 2 x RS-422/485, Mic-in, Line-in, Line-out
Power Input	9 ~ 36 V <sub>DC</sub> in
Storage	64GB 2.5" SATA III SSD bundled
Dimensions	264.5 x 68.4 x 133.0 mm (10.41" x 2.69" x 5.24")

## Ordering Information

Part Number	CPU	Memory	Storage	OS	VGA	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	Power Input	mSATA	Operating Temperature*
EISD120W1DS641-BTO	Intel Celeron J1900 SoC	4 GB	64G 2.5" SATAIII SSD	WES7E	1	1	2	3	1	4	Line-out, Mic-in, Line-in	1, with SIM holder	9-36 V <sub>DC</sub>	1	-20 ~ 70° C
EISD120E1DS641-BTO	Intel Celeron J1900 SoC	4 GB	64G 2.5" SATAIII SSD	Win 10	1	1	2	3	1	4	Line-out, Mic-in, Line-in	1, with SIM holder	9-36 V <sub>DC</sub>	1	-20 ~ 70° C

\* If industrial grade memory and SSD selected.

## Packing List

Item	Description
1	EIS-D120 Edge Computer
2	WISE-PaaS software packages
3	19V/ 65W AC-to-DC Adapter

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm

# EIS-D110

## Entry Level Edge Intelligence Server



### Features

- Integrated hardware plus software to build up edge-to-cloud applications
- Pre-configured system: Intel® Celeron® J1900 SoC, WES7E with 4GB Memory, 64/128 GB SSD and wireless networking
- Pre-integrated WISE-PaaS Software Package: WISE-PaaS/RMM, WISEPaaS/OTA, WISE-PaaS/Security, WebAccess/SCADA, WebAccess/IMM and WebAccess/HMI
- Pre-configured Microsoft Azure service: Device Management Package/ Data Intelligence Package (Optional)
- Comprehensive developer tools and documents: Node-RED data flow logic designer, dashboard builder, protocol plug-in SDK & configuration tools

### Introduction

EIS-D110, entry level Edge Intelligence Server (EIS) is software and hardware integrated solution for IoT and cloud applications. EIS-D110 offers a ready-to-run system (Intel® Celeron® J1900 platform with WES7E) and WISE-PaaS software package, included IoT foundational block WISE-PaaS/RMM, WISEPaaS/OTA, WISE-PaaS/Security and vertical application WebAccess/SCADA, WebAccess/IMM, WebAccess/HMI. User can find more software package in Advantech WISE-PaaS Marketplace. For IoT developers, EIS-D110 provides WISE-Agent and protocol plug-in SDK for IoT data collection and conversion, and built-in Node-RED for smart data processing and logic flow design. It also provides pre-configured Azure packages on WISE-PaaS Marketplace for easy and quickly cloud connection. EIS-D110 offers a complete solution for IoT data collection and intelligence creation from end device, edge network, to the cloud. with it, you can build and land IoT Application with new innovation and easy integration solution.

### Solution Block Diagram

#### WISE-PaaS *Built-in*

<p><b>WISE-PaaS/RMM</b> <b>Remote Monitoring and Management</b></p> <p>Open &amp; standard IoT device remote monitoring and management platform</p>	<p><b>WISE-PaaS/OTA</b> <b>Remote Software Update</b></p> <p>Remote software update, includes 3rd party software <small>(Integration version in WISE-PaaS/RMM)</small></p>
<p><b>WISE-PaaS/Security</b> <b>Centralize Security Management</b></p> <p>Centralize devices, data protection and remote back-up and recovery solution <small>(Integration version in WISE-PaaS/RMM)</small></p>	<p><b>WebAccess/IMM</b> <b>Interactive Multimedia</b></p> <p>Centralized content editor and dispatch management for interactive multimedia player</p>
<p><b>WebAccess/SCADA</b> <b>Smart SCADA</b></p> <p>Data collection and graphical interfaces for supervisory management <small>(Limited version with 16 point access ability)</small></p>	<p><b>WebAccess/HMI</b> <b>Human Machine Interface</b></p> <p>A stand-alone, machine-level HMI to a distributed visualization solution <small>(Limited version with 16 point access ability)</small></p>

#### WISE-Agent *IoT Connectivity*

<p> <b>Edge IoT Application Development</b></p> <p>Open Plug-in SDK and sample code for sensor and data collection and conversion.</p>	
<p> <b>Data Format Integration</b></p> <p>Supports ODBC plug-in for database and file type(CSV, MDB) data integration.</p>	
<p> <b>Industrial Protocol Connectivity</b></p> <p>Provides standard protocols(Modbus/ OPC/ MQTT) for sensor and devices data collection.</p>	
<p> <b>I/O and Sensor Compatibility</b></p> <p>Integration tested with Advantech M2.COM, ADAM and WISE-4000 series.</p>	

### Node-RED

*Data Manageability*

**RESTful API**  
GET PUT POST DELETE  
2.5.0+

**Easy Application Development**  
Overall 250+ RESTful APIs are provided for application developer to access related functionality and IoT data of WISE-PaaS software.

**Smart Data Processing**  
Pre-integrated Data Flow Logic Designer Node-RED for data processing and flow control (Sample code included).

**Zero Downtime**  
Data cache storage for secured data transfer, retain data when connection is lost; forward it after connection is reestablished.

**ZDT**  
RE-DEPLOYMENT

### Pre-configured Azure Service Option

**Data Reporting**  
Pre-Configuration with DB and data, 720 hours Power BI usage embedded

**System Deployment**  
4 Core A3 VM for up to 100 devices connection

**Web Services Center**  
Use your existing skills to code in your favorite language

**Big Data Storage**  
1T storage with 99.99% reliability

**Device Management Package**  
Virtual Machine + WISE-PaaS/RMM  
100 device connections and management ability  
40 WISE-Points/ Month

**Data Intelligence Package**  
Virtual Machine + Power BI Embedded + Databases Web APPS  
60 WISE-Points/ Month

**Get your service on WISE-PaaS Marketplace**  
Microsoft® Azure Services are available using WISE-Point digital currency, which applies in the WISE-PaaS Marketplace. <http://wise-paas.advantech.com/marketplace/>

## IoT Development Tools

Node-RED Utility	Pre- integrated logic edit tool Node-RED
Data Collection	Receive Data to Agent and transfer to WISE-PaaS/RMM server
Data Conversion	Conversion data protocol to MQTT with JSON format
Plug-in SDK	Agent and protocol conversion plug-in SDK for developer
GUI Protocol Config Tool (for Modbus)	Provide Modbus GUI for quick configuration
Back-up and System Recovery	Acronis Hot back-up/ Recovery/ Hot-Key recovery
Security	McAfee white list protection
Remote Update (OTA)	Software(Advantech & 3rd party) update
Zero Downtime	Reserve edge data when lost connection and recover it when the connection is back
Light Analytic	Statistics and graphical representation of historical data
Dashboard Builder	Customizable dashboard to display sensor data with text, spark line, gauge, etc. types of widgets

\*\*Support depends on device type, OS and account permission.

## Edge System Specifications

Processor	Intel® Celeron® J1900 Quad Core 2.0GHz SoC
Memory	4GB bundled
Integrated O/S	WES7E
Operating Temperature	-20 ~ 60° C with industrial grade RAM/SSD
I/O Interface	HDMIx2, GbEx2, RS232/422/485x1, USB 3.0x1, USB 2.0 x2, Line-in, Line-out
Power Input	12VDC in
Wireless Networking	Atheros AR9462 WIFI module bundled (w/ RF certification)
Storage	64/128GB 2.5" SATA III SSD bundled
Dimensions	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")

## Ordering Information

Part Number	CPU	Memory	Storage	OS	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	RF module	Power Input	mSATA	Operating Temperature*
EISD110W1SS641-BT0	Intel Celeron J1900 SoC	4 GB	64G 2.5" SATAIII SSD	WES7E	2	2	2	1	1	Line in Line out	Atheros AR9462	12 V <sub>DC</sub>	1	-20 ~ 60° C
EISD110W1SS141-BT0	Intel Celeron J1900 SoC	4 GB	128G 2.5" SATAIII SSD	WES7E	2	2	2	1	1	Line in Line out	Atheros AR9462	12 V <sub>DC</sub>	1	-20 ~ 60° C
EISD110E1SS641-BT0	Intel Celeron J1900 SoC	4 GB	64G 2.5" SATAIII SSD	Win 10 Ent	2	2	2	1	1	Line in Line out	Atheros AR9462	12 V <sub>DC</sub>	1	-20 ~ 60° C

\* If industrial grade memory and SSD selected.

## Packing List

Item	Description
1	EIS-D110 Edge Computer
2	WISE-PaaS software packages
3	12V/36W AC to DC Adaptor
4	Accessory Package (2 x Wi-Fi Antenna)

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm

# EIS-DK10

## Edge Intelligence Server and Microsoft Azure IoT Starter Kit



\*Color Box is optional parts



### Features

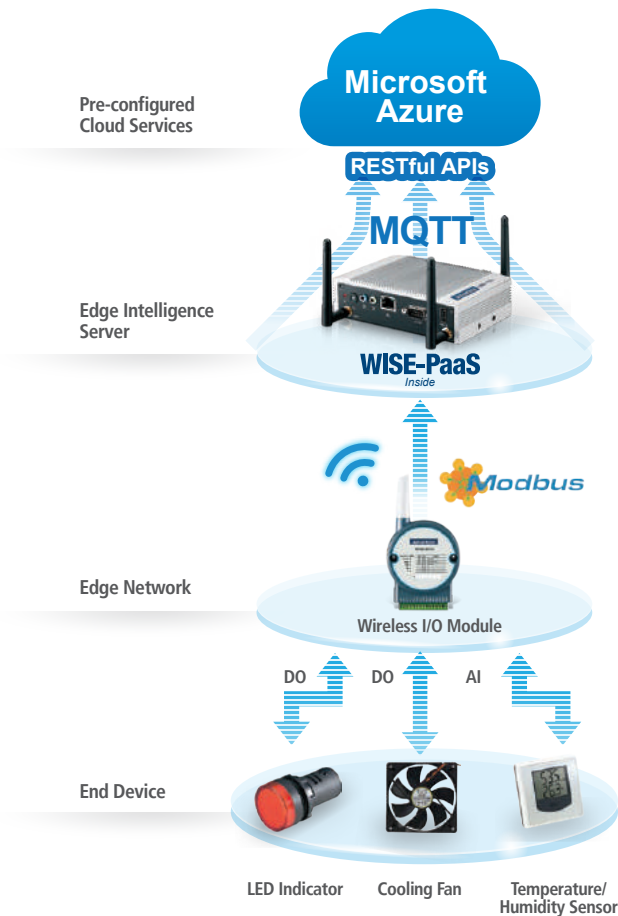
- Provides a complete IoT connection solution from sensor, edge system, to cloud
- Offers an exact user scenario let customer experience IoT application like data collection, data analysis, and decision making
- Pre-integrated Advantech IoT software platform WISE-PaaS for data visualization and Node Red flow template for easy development
- Pre-configured Microsoft Azure service: Device Management Package (optional)
- Includes an edge system, temperature/humidity sensor, Modbus TCP module, LED indicator, fan, and accessories



### Introduction

EIS-DK10 is a starter kit for jumpstarting IoT applications. It offers a complete solution for IoT data collection and intelligence creation from sensor, edge system, to the cloud, and provides clear system architecture based on an exact user case. EIS-DK10 is a plug & play package with short steps from device assembly to system settings that makes it quick and easy to start building applications. The package includes a ready-to-run system (Intel® Celeron® J1900 platform with WES7), built-in a series of WISE-PaaS IoT software packages, wireless I/O module, sensor, and pre-configured Microsoft Azure service. With it, you can build and land IoT Application with new innovation and easy integration solution.

### Application Scenario



### Edge System Specifications



Processor	Intel® Celeron® J1900 Quad Core 2.0GHz SoC
Memory	4GB bundled
Integrated O/S	WES7E
Operating Temperature	-20 ~ 60° C with industrial grade RAM/SSD
I/O Interface	HDMIx2, GbEx2, RS232/422/485x1, USB 3.0x1, USB 2.0 x2, Line-in, Line-out
Power Input	12VDC in
Wireless Networking	Atheros AR9462 WIFI module bundled (w/ RF certification)
Storage	64GB 2.5" SATA III SSD bundled
Dimensions	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")

### I/O Module Specifications



Data Input	Channels	4
	Resolution	16-bit
	Sampling Rate	Analog Input 10Hz (Total); Digital Input 2Hz (Per Channel)
	Accuracy	±0.1% of FSR (Voltage) ±0.2% of FSR (Current)
Analog Input		±150mV, ±500mV, ±1V, ±5V, ±10V, 0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V, 0~20mA, 4~20mA, ±20mA
	Digital Input (Dry Contact)	0: Open, 1: Close
Digital Output	Channels	2 (Open collector to 30 V, 400 mA max. for resistance load)
		Supports High-to-Low and Low-to-High Delay Output
General	WLAN	IEEE 802.11b/g/n 2.4GHz
	Outdoor Range	110 m with line of sight
	Power Input	10 ~ 30 V <sub>DC</sub>
	Supported Protocols	Modbus/TCP

## Software and Cloud Service Offerings

WISE-PaaS Software Package	
WISE-PaaS/RMM	Open & standard IoT data and device remote monitoring and management platform
WISE-PaaS/OTA	Remote software update, include 3rd party software (Integration version in WISE-PaaS/RMM)
WISE-PaaS/Security	Centralize devices, data protection and remote back-up and recovery solution (Integration version in WISE-PaaS/RMM)
WebAccess/SCADA	Data collection and graphical interfaces for supervisory management (Limited version with 16 point access ability)
WebAccess/IMM	Centralize content editor and dispatch management for interactive media player
WebAccess/HMI	A stand-alone, machine-level HMI to a distributed visualization solution (Integration version in WebAccess/SCADA)

**WISE-PaaS**

### Pre-Configured Azure Service (Option)

**Device Management Package (40 WISE-Points/ Month)**  
Pre-integrated WISE-PaaS/RMM Remote Monitoring and Management Software and Microsoft® Azure Virtual Machine to build cloud-based management platform easily and quickly.

**Microsoft® Azure Virtual Machine**

A 3-level virtual machine with 4-core, 7 GM memory and 120 GB storage

+

**WISE-PaaS/RMM**

100 devices connection and management ability

For more services, please visit [WISE-PaaS Marketplace](#)  
Microsoft® Azure Services are available using WISE-Point digital currency, which applies in the WISE-PaaS Marketplace. Customers access the WISE-PaaS Marketplace and choose software packages online with their WISE-Points.

[marketplace.wise-paas.com](http://marketplace.wise-paas.com)

**WISE-Point**

## IoT Development Tools

Node-RED Utility	Pre- integrated logic edit tool Node-RED
Data Collection	Receive Data to Agent and transfer to WISE-PaaS/RMM server
Data Conversion	Conversion data protocol to MQTT with JSON format
Plug-in SDK	Agent and protocol conversion plug-in SDK for developer
GUI Protocol Config Tool (for Modbus)	Provide Modbus GUI for quick configuration
Back-up and System Recovery	Acronis Hot back-up/ Recovery/ Hot-Key recovery
Security	McAfee white list protection
Remote Update (OTA)	Software(Advantech & 3rd party) update
Zero Downtime	Reserve edge data when lost connection and recover it when the connection is back
Light Analytic	Statistics and graphical representation of historical data
Dashboard Builder	Customizable dashboard to display sensor data with text, spark line, gauge, etc. types of widgets

\*\*Support depends on device type, OS and account permission.

## Ordering Information

Part Number	CPU	Memory	Storage	OS	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	RF module	Power Input	mSATA	Operating Temperature*
EISDK-ARK1123-BTO	Intel Celeron J1900 SoC	4 GB	64G 2.5" SATAIII SSD	WES7E	2	2	2	1	1	Line in Line out	Atheros AR9462	12 V <sub>DC</sub>	1	-20 ~ 60° C

\* If industrial grade memory and SSD selected.

## Packing List

Item	Description
1	EIS-D110 Edge System
2	Wireless I/O Module support Modbus TCP protocol
3	Temperature/Humidity Sensor, AI, 0-10V, 12VDC in
4	Wi-Fi module, Atheros AR9462, 802.11 a/b/g/n , 2T2R (preload)
5	12V RED LED Indicator
6	12V Cooling FAN
7	WISE-PaaS software packages
8	12V/36W AC to DC Adaptor
9	Quick Start Guide
10	Accessory Package (Cable Pack, 2 x Wi-Fi Antenna)

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
98R6DK10S00	Color Box of EIS-DK10

# ARK-10

## Intel® Celeron Quad Core J1900 Quad Core SoC with Dual GbE and Dual COM Fanless Box PC



### Features

- Intel® Celeron J1900 Quad Core 2.0 GHz SoC
- 2G DDR3L Memory & 500G 2.5" 24x7 SATA HDD Built In
- 2 x GbE for Multiple Internet Transmission
- 2 x RS-232/422/485 (BIOS selection)
- 1 x Full-Size MiniPCIe (ex. WLAN or WWAN module)
- Optional VESA / DIN Rail / Wall Mounting kits
- Threaded DC jack design
- Supports SUSIAccess and Embedded Software APIs



WISE-PaaS/RMM



CE FCC

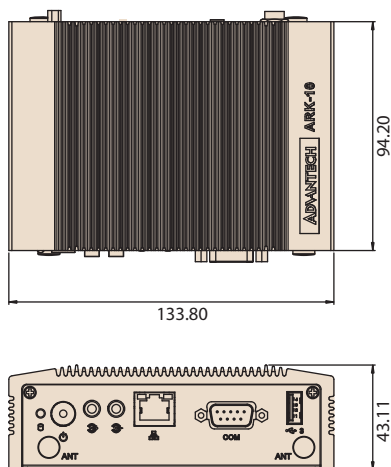


### Specifications

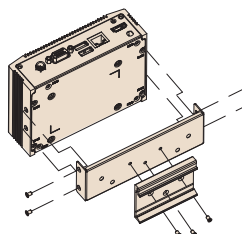
		ARK-10-U0A1E
Processor System	CPU	Intel® Celeron Processor J1900 Quad Core SoC
	Frequency	2.0 GHz (Up to 2.41 GHz w/ burst frequency enabled)
	L2 Cache	2 MB
	BIOS	AMI EFI 64 Mbit (Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project)
Memory	Technology	DDR3L 1333 MHz
	Socket	1 x 204-pin SO-DIMM, 2 GB Memory Built In
Graphics	Chipset	Intel® Atom SoC integrated
	Graphic Engine	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 Encode: H264, MPEG2/4, VC1, WMV9 Decode: H264, MPEG2
	VGA	1 x VGA, support up to 1920 x 1200 at 60Hz
Audio	Main System	ALC-888S, High Definition Audio. Line-out & Line-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
	LAN #2	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
I/O Interface	Serial Ports	2 x RS-232/422/485 (BIOS selectable)
	USB Interface	2 x USB 2.0 & 1 x USB3.0
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Mini PCIe	1 x Full-size Mini PCIe, support WLAN or WWAN module
Storage	2.5" Drive Bay	1 x 500GB 2.5" 24x7 SATA HDD Built In
	mSATA	1x half-size mSATA (Suggest to assembly by CTOS or T-Part due to complex installation)
Software Support	Microsoft Windows	WES7, Windows 7, WE8S, Windows 8 (32-bit support by project)
	Linux	Support (by Project)
Power Requirement	Power Input Voltage	Single 12 V <sub>DC</sub>
	Power Adapter	AC to DC, DC12 V/3 A, 36 W with threaded design
Mechanical	Construction	Aluminum housing
	Mounting	VESA/DIN Rail/Wall Mounting Kits (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
Environment	Operating Temperature	0 ~ 50° 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	0.5Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock During Operation	10G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class A, CCC, BSMI
	Safety	UL, CCC, BSMI, CB



### Dimensions

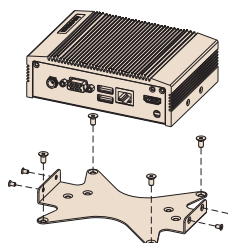


### DIN Rail

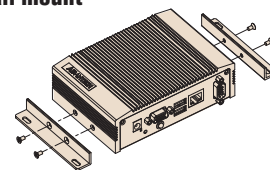


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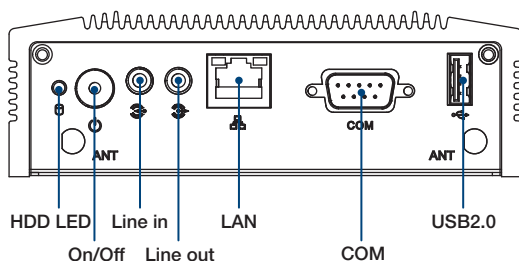
### VESA mount



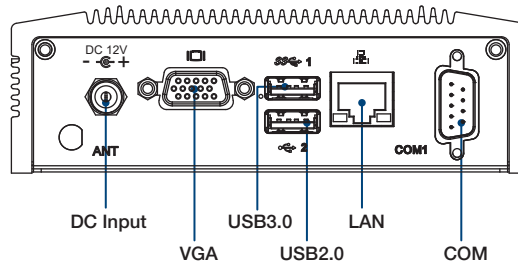
### Wall mount



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	CPU	RAM	VGA	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	MiniPCIe	2.5" HDD bay	mSATA	Operating Temperature
ARK-10-U0A1E	Intel Atom J1900 QC	2GB Built In	1	2	2	1	2	Line in Line out	1 Full-size	1 x 500G 2.5" 24x7 HDD Built In	1 (H/S)	0 ~ 50 °C

## Packing List

Part Number	Description
-	1 x ARK-10 Unit
-	1 x User Manual (Simplified Chinese)
-	1 x AC to DC adapter DC 12V/3A 36W

## Embedded OS (Only available for T-Parts OEM, and CTOS service)

Part Number	Description
2070013062	WE8S 64-bit with EN/JP/TC/SC (OS size around 11G)
2070013368	WE8S 64-bit with EN/JP/TC/SC (OS size around 13G)

\* Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project.

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit

# ARK-1122H

Intel® Atom™ Dual Core N2600 with Independent Dual Displays Fanless Box PC



## Features

- Intel® Atom™ Dual Core N2600, 1.6 GHz
- Palm-size form factor : 133.8(W) x 43.1(H) x 94.2(D) mm
- Supports independent dual displays interfaces : VGA + HDMI
- Supports 1 x GbE and 4 USB 2.0 ports
- Supports 1 x RS-232 and Audio line in / line out
- Supports mSATA and/or 2.5" SATA HDD bay
- Wide operating temperature -20 ~ 60° C support
- Optional VESA / DIN-Rail / Wall mounts
- Lockable DC jack design
- Supports SUSIAccess and Embedded Software APIs



WISE-PaaS/RMM



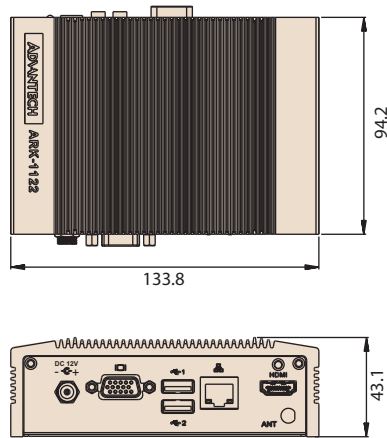
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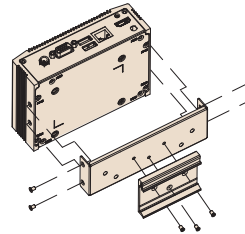
## Specifications

		ARK-1122H-S6A1E
Processor System	CPU	Intel Atom Dual Core N2600 1.6 GHz
	L2 Cache	1MB
	System Chipset	Intel NM10
	BIOS	AMI EFI 16 Mbit
Memory	Technology	DDR3 800 MHz up to 4 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Atom N2600
	Interface	VGA (1920 x 1200) HDMI (1920 x 1200) with lockable design (please choose the lockable HDMI cable)
Ethernet	LAN	1 x 10/100/1000 Mbps Intel 82583V GbE, supports wake on LAN
Audio	Chipset	Realtek ALC892, High Definition Audio (HD)
	Interface	Line-in and Line-out
I/O Interface	Serial Ports	1 x RS-232
	USB Interface	4 x USB ports, USB2.0 Compliant
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Others	1 x half-size Mini PCIe supports WIFI only
Storage	2.5" HDD/SSD	1 x SATA II HDD Bay
	mSATA	1 x full-size Mini PCIe slot, colay with USB signal
Software Support	Microsoft Windows	Windows 7 Pro 32bit, WES7 32bit, XP Embedded (XP Embedded by project support)
	Power Input Voltage	12 V <sub>DC</sub> , ± 10%
Power Requirement	DC Jack Type	Support lockable design
	Power Adaptor	AC to DC, DC12 V/3 A, 36 W with lockable design
Power Consumption	Typical	6.89 W
	Max	11.45 W
Mechanical	Construction	Aluminum housing
	Mounting	Support VESA/DIN Rail/Wall mounting (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
Environmental and Certifications	Operating Temperature	With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C with 0.7 m/s air flow With extended temperature SSD/mSATA devices: -20 ~ 60° C with 0.7 m/s air flow
	Storage Temperature	-40 ~ 85° C
	Relative Humidity	95% @ 40° C (non-condensing)
	Vibration During Operation	With SSD/mSATA: 3Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1hr/axis
	Shock During Operation	With SSD/mSATA: 30Grms, IEC 60068-2-27, half sine, 11ms duration
	EMC	CE/FCC Class A, CCC, BSMI
Safety Certifications	CB, UL, CCC, BSMI	

## Dimensions

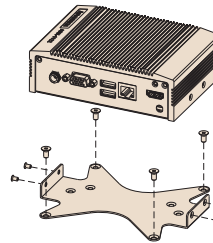


### DIN Rail

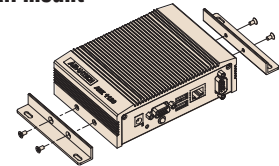


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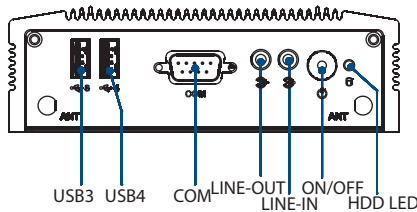
### VESA mount



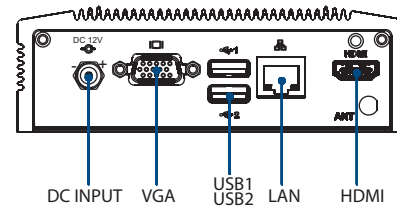
### Wall mount



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	Intel CPU	RAM	VGA	HDMI	Audio	GbE	2.5" HDD bay	mSATA Storage	USB 2.0	RS-232	RS-232/422/485	MiniPCIe	Operating Temp.	OS
ARK-1122H-S6A1E	Atom N2600 1.6GHz	Up to 4GB	1	1	Line in Line out	1	1	1 (F/S)	4	1	N/A	1 Half size	-20 ~ 60° C	-
ARK-1122HS-S6A1E	Atom N2600 1.6GHz	2GB Built in	1	1	Line in Line out	1	500GB HDD built in	1 (F/S)	4	1	N/A	1 Half size	0 ~ 40° C	WES7 Built-in

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

## Packing List

Part Number	Description
-	1 x ARK-1122 unit
-	1 x Driver/Utility CD/Manual
-	1 x Traditional Chinese user manual for CCC
-	1 x China RoHS
96PSA-A36W12W7	1 x AC to DC adapter DC 12V/3A 36W, -20 ~ 60° C

## Embedded OS (Only available for T-Parts OEM, and CTOS service)

Part Number	Description
2070011879	WES7E 32bit for ARK-1122H & ARK-1122F

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit
1700023855-01	1M lockable HDMI cable
1700023856-01	3M lockable HDMI cable

# ARK-1122C

Intel® Atom™ Dual Core N2600 with  
4 COM Port Extendibility Fanless Box PC



## Features

- Intel® Atom™ Dual Core N2600, 1.6 GHz
- Palm-size form factor : 133.8(W) x 43.1(H) x 94.2(D) mm
- Supports 4 x COM ports (2 x RS-232 & 2 x RS-232/422/485, select by BIOS)
- Supports 1 x VGA and 4 x USB 2.0 ports
- Built-in 1 x half size Mini PCIe expansion slot (i.e.: Wi-Fi module)
- Supports mSATA storage (Hard drive bay by request)
- Wide operating temperature -20 ~ 60° C support
- Optional VESA / DIN-Rail / Wall mounts
- Lockable DC jack design
- Supports SUSIAccess and Embedded Software APIs



WISE-PaaS/RMM



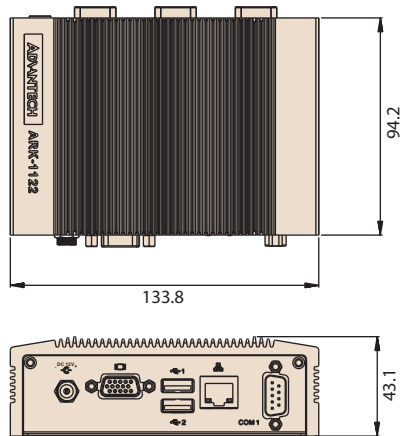
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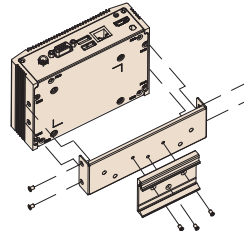
## Specifications

		ARK-1122C-S6A1E
Processor System	CPU	Intel Atom Dual Core N2600 1.6 GHz
	L2 Cache	1MB
	System Chipset	Intel NM10
	BIOS	AMI EFI 16 Mbit
Memory	Technology	DDR3 800 MHz, up to 4 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Atom N2600
	Interface	VGA (1920 x 1200)
Ethernet	LAN	1 x 10/100/1000 Mbps Intel 82583V GbE
I/O Interface	Serial Ports	2 x RS-232, 2 x RS-232/422/485, selected by BIOS
	USB Interface	4 x USB ports, USB2.0 Compliant (Standard) or 2 x USB ports (Option 2.5" drive bay version)
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Others	1 x half-size Mini PCIe supports WIFI only
Storage	2.5" HDD/SSD	1 x SATA II HDD bay (Optional by T-Part)
	mSATA	1 x full-size Mini PCIe slot, colay with USB signal
Software Support	Microsoft Windows	Windows 7 Pro 32bit, WES7 32bit, XP Embedded (XP Embedded by project support)
Power Requirement	Power Input Voltage	12 V <sub>DC</sub> , ± 10%
	DC Jack Type	Support lockable design
	Power Adaptor	AC to DC, DC12 V/3 A, 36 W with lockable design
Power Consumption	Typical	5.4 W
	Max	9.47 W
Mechanical	Construction	Aluminum housing
	Mounting	Support VESA/DIN Rail/Wall mounting (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
Environmental and Certifications	Operating Temperature	With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C with 0.7 m/s air flow With extended temperature SSD/mSATA devices: -20 ~ 60° C with 0.7 m/s air flow
	Storage Temperature	-40 ~ 85° C
	Relative Humidity	95% @ 40° C (non-condensing)
	Vibration During Operation	With SSD/mSATA: 3Grms, IEC 60068-2-27, half sine, 11ms duration
	Shock During Operation	With SSD/mSATA: 30Grms, IEC 60068-2-27, half sine, 11ms duration
	EMC	CE/FCC Class A, CCC, BSMI
Safety Certifications	CB, UL, CCC, BSMI	

## Dimensions

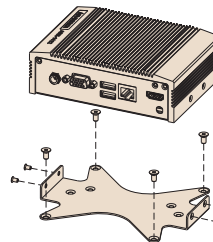


### DIN Rail

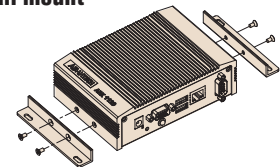


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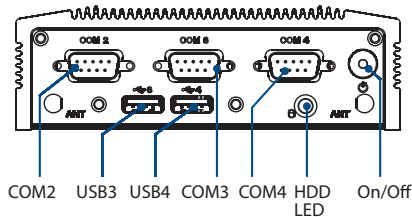
### VESA mount



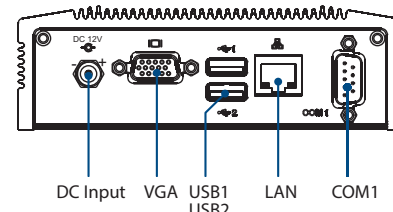
### Wall mount



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	Intel CPU	RAM	VGA	HDMI	Audio	GbE	2.5" HDD bay	mSATA Storage	USB 2.0	RS-232	RS-232/422/485	Others	Operating Temp.
ARK-1122C-S6A1E	Atom N2600 1.6GHz	Up to 4GB	1	N/A	N/A	1	Optional by T-PN	1 (F/S)	4 (Standard) ; 2 (Option 2.5" HDD bay version)	2	2	1x H/S mPCIe (WiFi only)	-20 ~ 60° C

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

## Packing List

Part Number	Description
-	1 x ARK-1122 unit
-	1 x Driver/Utility CD/Manual
-	1 x Traditional Chinese user manual for CCC
-	1 x China RoHS
96PSA-A36W12W7	1 x AC to DC adapter DC 12V/3A 36W, -20 ~ 60° C

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit

## Embedded OS

Part Number	Description
2070011881	WESTE 32bit for ARK-1122C
2070012167	XPE for ARK-1122C

# ARK-1123L

## Intel® Atom E3825 SoC with Dual COM and GPIO Palm-Size Fanless Box PC



### Features

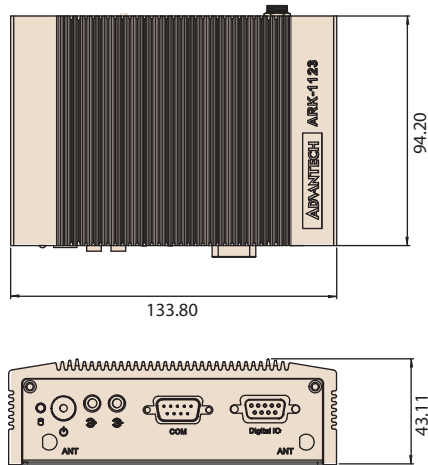
- Intel® Atom™ Processor E3825 Dual Core 1.33 GHz SoC
- 1 x 2.5" SATA HDD/SSD Bay
- 1 x GbE & 1 x VGA & 1 x GPIO
- 1 x RS-232 & 1 x RS-232/422/485
- 1 x Full-Size MiniPCle (ex. WLAN or WWAN module)
- 1 x Half Size MiniPCle (ex. mSATA)
- Optional VESA / DIN Rail / Wall Mounting kits
- Threaded DC jack design
- Supports SUSIAccess and Embedded Software APIs



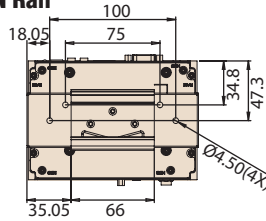
### Specifications

		ARK-1123L-S3A1E
Processor System	CPU	Intel Atom E3825 Dual Core SoC
	Frequency	1.33 GHz
	L2 Cache	1 MB
	BIOS	AMI EFI 64 Mbit (Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project)
Memory	Technology	DDR3L 1066MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® Atom SoC integrated
	Graphic Engine	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 support Encode: H264, MPEG2/4, VC1, WMV9 Decode: H264, MPEG2
	VGA	1 x VGA, support up to 1920 x 1200 at 60Hz
Audio	Main System	ALC-888S, High Definition Audio. Line-out & Line-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
I/O Interface	Serial Ports	1 x RS-232 & 1 x RS-232/422/485 (BIOS selectable)
	USB Interface	1 x USB 2.0 & 1 x USB3.0
Other	Watchdog timer	255-level timer interval, setup by software
	GPIO	8 bit GPIO
Expansion	Mini PCIe	1 x Full-size Mini PCIe, support WLAN or WWAN module
Storage	2.5" Drive Bay	1 x 2.5" SATA HDD Bay (Max Height 9.5mm)
	mSATA	1 x Half-size mSATA
Software Support	Microsoft Windows	WES7, Windows 7, WE8S, Windows 8 and Windows 10 (32-bit support by project)
	Linux	Support (by Project)
Power Requirement	Power Input Voltage	Single 12 V <sub>DC</sub>
	Power Adapter	AC to DC, DC12 V/3 A, 36 W with threaded design
Power Consumption	Typical	5.28W
	Max.	8.16W
Mechanical	Construction	Aluminum housing
	Mounting	VESA/DIN Rail/Wall Mounting Kits (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
	Weight	0.8kg
Environment	Operating Temperature	With extended temperature SSD/mSATA/RAM : -30 ~ 70° C with 0.7m/s air flow With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° 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 mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock During Operation	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class A, CCC, BSMI
	Safety	UL, CCC, BSMI, CB

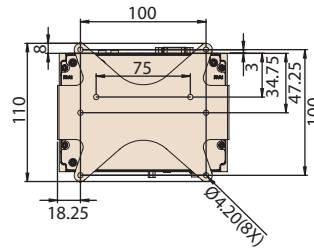
## Dimensions



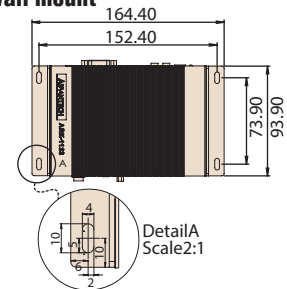
### DIN Rail



### VESA mount

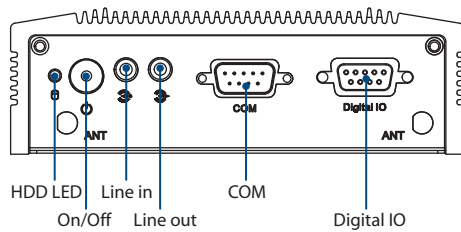


### Wall mount

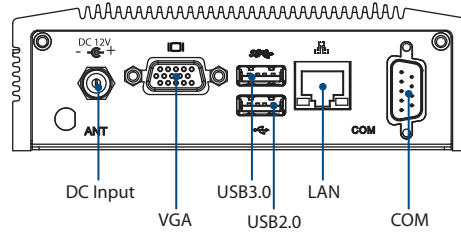


Unit: mm

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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	Intel CPU	RAM	VGA	GbE	USB 2.0	USB 3.0	RS-232	RS-232/422/485	GPIO	Audio	MiniPCle	2.5" HDD bay	mSATA	Operating Temperature
ARK-1123L-S3A1E	Intel Atom E3825	Up to 8GB	1	1	1	1	1	1	1	Line in Line out	1 Full size	1	1 (H/S)	-30 ~ 70° C

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

## Packing List

Part Number	Description
-	1 x ARK-1123L Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A36W12W7	1 x AC to DC adapter DC 12V/3A 36W, -20 ~ 60° C

## Embedded OS (Only available for T-Parts OEM, and CTOS service)

Part Number	Description
2070013031	WE7E 64-bit with EN/JP/TC/SC (OS size around 11G)
2070013369	WE8S 64-bit with EN/JP/TC/SC (OS size around 13G)
2070014790	WIN10 IoT LTSC x64 Eng

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit

# ARK-1123C

## Intel® Atom E3825 SoC with Dual GbE and Dual COM Fanless Box PC



### Features

- Intel® Atom™ E3825 Dual Core 1.33 GHz SoC
- 1 x 2.5" SATA HDD/SSD Bay & 1 x VGA
- 2 x GbE for Multiple Internet Transmission
- 2 x RS-232/422/485 (BIOS selection)
- 1 x Full-Size MiniPCle (ex. WLAN or WWAN module)
- 1 x Half-size mSATA
- Optional VESA / DIN Rail / Wall Mounting kits
- Threaded DC jack design
- Supports SUSIAccess and Embedded Software APIs

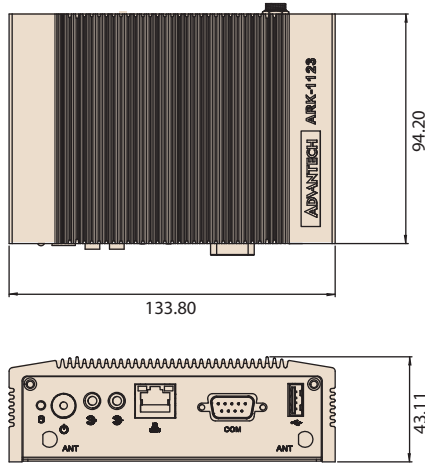


### Specifications

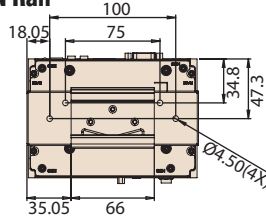
		ARK-1123C-S3A1E
Processor System	CPU	Intel Atom Processor E3825 Dual Core SoC
	Frequency	1.33 GHz
	L2 Cache	1 MB
	BIOS	AMI EFI 64 Mbit (Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project)
Memory	Technology	DDR3L 1066MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® Atom SoC integrated
	Graphic Engine	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 Encode: H264, MPEG2/4, VC1, WMV9 Decode: H264, MPEG2
	VGA	1 x VGA, support up to 1920 x 1200 at 60Hz
Audio	Main System	ALC-888S, High Definition Audio. Line-out & Line-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
	LAN #2	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
I/O Interface	Serial Ports	2 x RS-232/422/485 (BIOS selectable)
	USB Interface	2 x USB 2.0 & 1 x USB3.0
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Mini PCIe	1 x Full-size Mini PCIe, support WLAN or WWAN module
Storage	2.5" Drive Bay	1 x 2.5" SATA HDD Bay (Max Height 9.5mm)
	mSATA	1x Half-size mSATA (Suggest to assembly by CTOS or T-Part due to complex installation)
Software Support	Microsoft Windows	WES7, Windows 7, WE8S, Windows 8, Windows 10 (32-bit support by project)
	Linux	Support (by Project)
Power Requirement	Power Input Voltage	Single 12 V <sub>DC</sub>
	Power Adapter	AC to DC, DC12 V/3 A, 36 W with threaded design
Power Consumption	Typical	5.28W
	Max.	8.16W
Mechanical	Construction	Aluminum housing
	Mounting	VESA/DIN Rail/Wall Mounting Kits (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
	Weight	0.8 kg
Environment	Operating Temperature	With extended temperature SSD/mSATA/RAM: -30 ~ 70° C with 0.7m/s air flow With standard temperature HDD/SSD/mSATA/RAM peripherals: 0 ~ 40° 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 mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock During Operation	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class B, CCC, BSMI
	Safety	UL, CCC, BSMI, CB



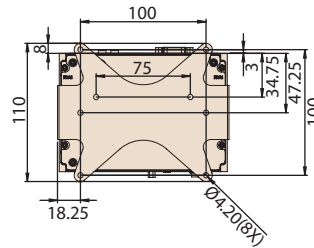
## Dimensions



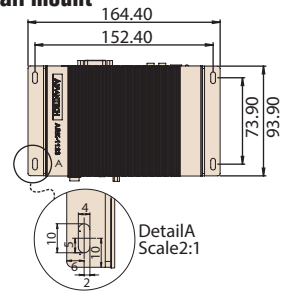
### DIN Rail



### VESA mount

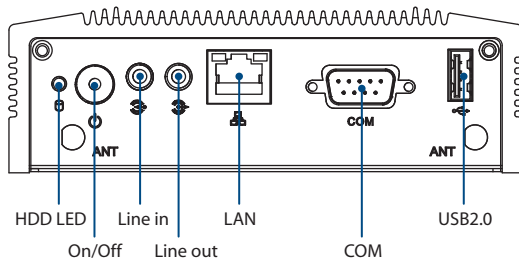


### Wall mount

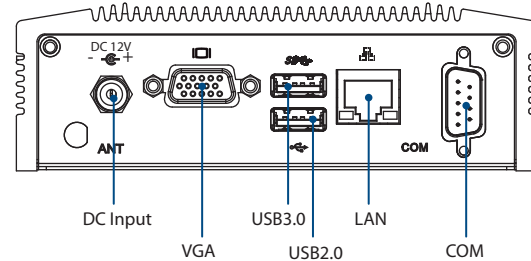


Unit: mm

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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	CPU	RAM	VGA	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	MiniPCIe	2.5" HDD bay	mSATA	Operating Temperature
ARK-1123C-S3A1E	Intel Atom E3825	Up to 8GB	1	2	2	1	2	Line in Line out	1 Full size	1	1 (H/S)	-30 ~ 70° C

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

## Packing List

Part Number	Description
-	1 x ARK-1123C Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A36W12W7	1 x AC to DC adapter DC 12V/3A 36W, -20 ~ 60° C

## Embedded OS (Only available for T-Parts OEM, and CTOS service)

Part Number	Description
2070013032	WE7E 64-bit with EN/JP/TC/SC (OS size around 11G)
2070013370	WE8S 64-bit with EN/JP/TC/SC (OS size around 13G)
2070013712	WE7E 32-bit with EN/JP/TC/SC
2070014791	Win10 IoT Ent LTSB 2016 64bit, EN

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit

# ARK-1123H

Intel® Celeron Quad Core J1900 SoC with Dual HDMI/GbE IoT Fanless BOX PC



## Features

- Intel® Celeron J1900 Quad Core 2.0 GHz SoC
- 1 x 2.5" SATA HDD/SSD Bay
- 2 x GbE for Multiple Internet Transmission
- 2 x Independent HDMI
- 1 x RS-232/422/485 (BIOS selection)
- 1 x Full-Size MiniPCIe (ex. WLAN or WWAN module)
- 1 x Half Size mSATA
- Optional VESA / DIN Rail / Wall Mounting kits
- Threaded DC jack design
- Supports SUSIAccess and Embedded Software APIs
- Support WIFI 802.11 a/b/g/n bundled for IoT Gateway



WISE-PaaS/RMM

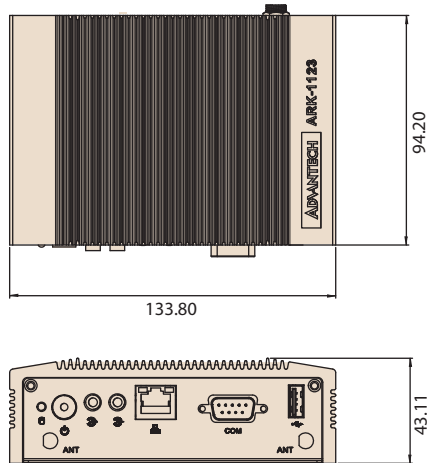


## Specifications

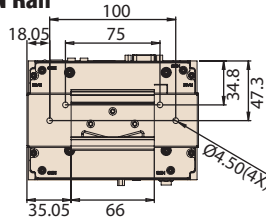
ARK-1123H-U0A1E

Processor System	CPU	Intel® Celeron™ Processor J1900 Quad Core 2.0 GHz SoC
	Frequency	2.0 GHz (Up to 2.41 GHz w/ burst frequency enabled)
	L2 Cache	2 MB
	BIOS	AMI EFI 64 Mbit (Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project)
Memory	Technology	DDR3L 1333MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® Atom SoC integrated
	Graphic Engine	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 Encode: H264, MPEG2/4, VC1, WMV9 Decode: H264, MPEG2
	HDMI	2 x Lockable HDMI connector, support up to 1920 x 1080 at 60Hz (2nd HDMI w/o audio function by Intel limitation)
Audio	Main System	ALC-888S, High Definition Audio. Line-out & Line-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
	LAN #2	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN
I/O Interface	Serial Ports	1 x RS-232/422/485 (BIOS selectable)
	USB Interface	2 x USB 2.0 & 1 x USB3.0
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Mini PCIe	1 x Full-size Mini PCIe, support WLAN or WWAN module
Storage	2.5" Drive Bay	1 x 2.5" SATA HDD Bay (Max Height 9.5mm)
	mSATA	1 x Half-size mPCIe (Suggest to assembly by CTOS or T-Part due to complex installation)
Software Support	Microsoft Windows	WES7, Windows 7, WE8S, Windows 8 and Windows 10 (32-bit support by project)
	Linux	Support (by Project)
Power Requirement	Power Input Voltage	Single 12 V <sub>DC</sub>
	Power Adapter	AC to DC, DC12 V/3 A, 36 W with threaded design
Power Consumption	Typical	5.64W
	Max.	14.04W
Mechanical	Construction	Aluminum housing
	Mounting	VESA/DIN Rail/Wall Mounting Kits (Optional)
	Dimensions (W x H x D)	133.8 x 43.1 x 94.2 mm (5.27" x 1.7" x 3.71")
	Weight	0.8kg
Environment	Operating Temperature	With extended temperature SSD/mSATA/RAM : -20 ~ 60° C with 0.7m/s air flow With standard temperature HDD/SSD/mSATA/RAM peripherals: 0 ~ 40° 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 mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock During Operation	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class B, CCC, BSMI
	Safety	UL, CCC, BSMI, CB

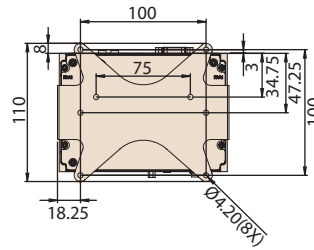
## Dimensions



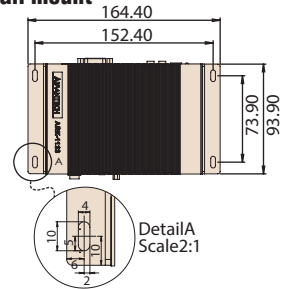
### DIN Rail



### VESA mount

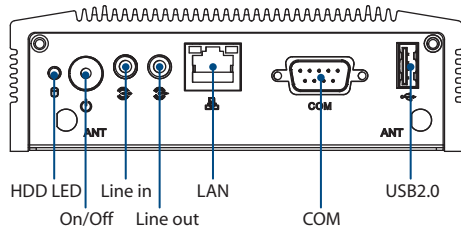


### Wall mount

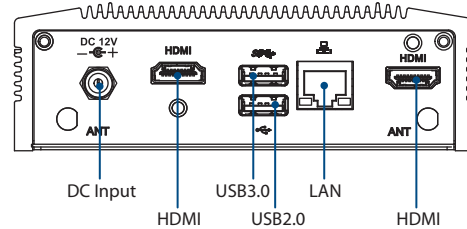


Unit: mm

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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	CPU	RAM	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	MiniPCIe	2.5" HDD bay	mSATA	Operating Temperature
ARK-1123H-U0A1E	Intel Celeron J1900	Up to 8GB	2	2	2	1	1	Line in Line out	1 Full size	1	1 (H/S)	-20 ~ 60° C

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

## Packing List

Part Number	Description
-	1 x ARK-1123H Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A36W12W7	1 x AC to DC adapter DC 12V/3A 36W, -20 ~ 60° C

## Embedded OS (Only available for T-Parts OEM, and CTOS service)

Part Number	Description
2070013033	WE7E 64-bit with EN/JP/TC/SC (OS size around 11G)
2070013371	WE8S 64-bit with EN/JP/TC/SC (OS size around 13G)
2070014792	WIN10 IoT LTSB_x64_Eng
2070014334	Win10 IoT Core_x32 V10.1.10586.0 EN
2070014369	IDP-WR3.1_x64 V1.0.1 EN

## Optional Items

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin PSE Mark 183cm
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
AMK-W001E	ARK-112X series Wall mounting kit
1700023855-01	1M lockable HDMI cable
1700023856-01	3M lockable HDMI cable
AMO-WIFI08E	WIFI802.11a/b/g/n, Atheros AR9462,2T2R

# ARK-1124C

## Intel Celeron N3350 DC SoC With Four Serial Ports Modular Fanless Box PC

**NEW**



### Features

- Intel Celeron N3350 Dual Core SoC
- VGA Display, 4 x RS-232/422/485, 2 x USB3.0
- 1 x full-size miniPCIe for communication module
- 1 x 2.5" SATA III SSD/HDD and 1 x half-size mSATA
- -20 ~ 60 °C extended operating temperature
- 12V lockable DC jack power input
- Optional 12~24V power module (Dual Layer)
- Advantech iDoor module compatible (Dual Layer)
- Advantech WISE-PaaS/RMM support



WISE-PaaS/RMM

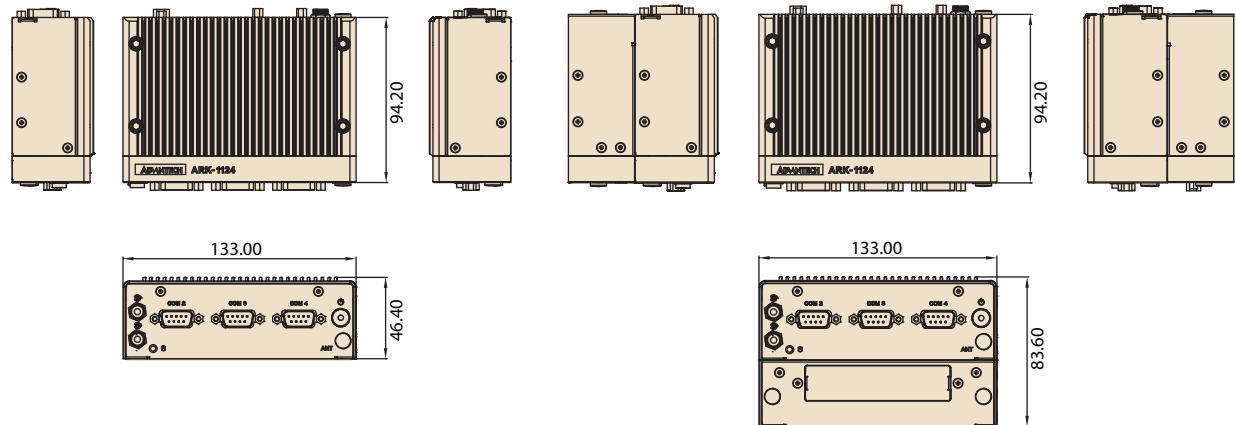


### Specifications

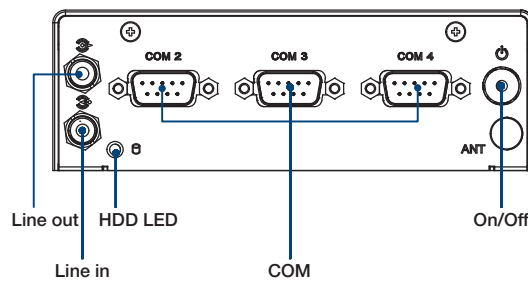
		ARK-1124C-S1A1E
Processor System	CPU	Intel® Celeron® N3350 Dual Core SoC
	Frequency	1.1 GHz, turbo burst 2.4 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI 64 bit
Memory	Technology	DDR3L 1866 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® HD Graphics 500
	Graphic Engine	4K Codec Decode& Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	VGA	Up to 2048 x 1280 @ 60Hz
Ethernet	LAN	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Line-in
IO Interface	Serial Ports	4 x RS-232/422/485 port with auto flow control
	USB Interface	2 x USB 3.0
Other	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x full-size mPCIe for WLAN/WWAN
	iDoor	1, optional (2nd layer)
Storage	SSD/HDD	Supports 1 x 2.5" SATA III Drive Bay (Compatible with 9.5mm height)
	mSATA	1x Half-size mSATA (by CTOS or T-PN)
Software Support	Microsoft Windows	Win 10 IoT Enterprise LTSC
	Linux	Support by project
Power Requirement	Power Type	AT/ATX
	Power Input Voltage	12V <sub>DC</sub> (Optional 12~24V power module)
	Minimum Power Input	12 V, 3 A
	Power Adapter	AC to DC, DC12 V/3 A, 36 W with lockable DC Jack
Power Consumption	Typical	5.5W
	Max.	18.8W
Mechanical	Construction	Aluminum housing
	Mounting	DIN-Rail/Wall/VESA Mounting Kits (Optional)
	Dimensions (W x H x D)	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")
	Weight	0.7 Kg (1.55lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis. With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 1hr/axis
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CB, CCC, BSMI

## Dimensions

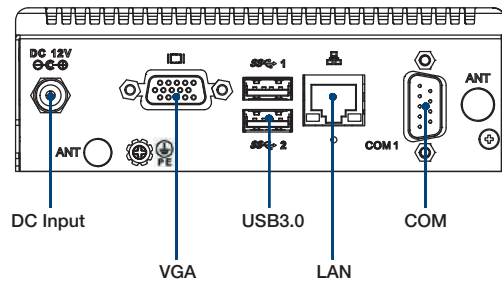
Unit: mm



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	RAM	VGA	GbE	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	mSATA	2.5" SATA III HDD Bay	Power Input	Operating Temp.
ARK-1124C-S1A1E	Intel Celeron N3350 1.1 GHz SoC	Up to 8GB	1	1	2	4	Lin-out, Line-in	1	1 (H/S)	1	12 V <sub>DC</sub>	-20 ~ 60 °C

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

## Packing List

Part Number	Description
-	1 x ARK-1124C Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A36W12W7	A/D 100-240V 36W 12V C6 LOCKABLE DC PLUG
-	LAN clip
-	Wrench for top cover

## Optional Item for Default SKU

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type
170203183C	Power Cable 3-pin 180cm, Europe type
170203180A	Power Cable 3-pin 180cm, UK type
1700008921	Power Cable 3-pin 180cm, PSE type
AMK-W001E	ARK-112X series Wall mounting kit
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit

## Optional Embedded OS

Part Number	Description
2070015307	Win10 IoT Ent LTSB 2016 64bit ENG

# ARK-1124U

## Intel Celeron N3350 DC SoC With Dual LAN/ Four USB 3.0/M.2/TPM IoT Gateway Modular Fanless Box PC

**NEW**



### Features

- Intel Celeron N3350 Dual Core SoC
- VGA Display/2x RS-232/422/485/4x USB 3.0
- 1 x Full-size miniPCIe with SIM holder for communication module
- 1 x M.2 E-key for WIFI module
- -20 ~ 60 °C extended operating temperature
- TPM 2.0 default built-in
- 12V lockable DC jack power input
- Optional 12~24V power module (Dual Layer)
- Advantech iDoor module compatible (Dual Layer)
- Advantech WISE-PaaS/RMM support



WISE-PaaS/RMM

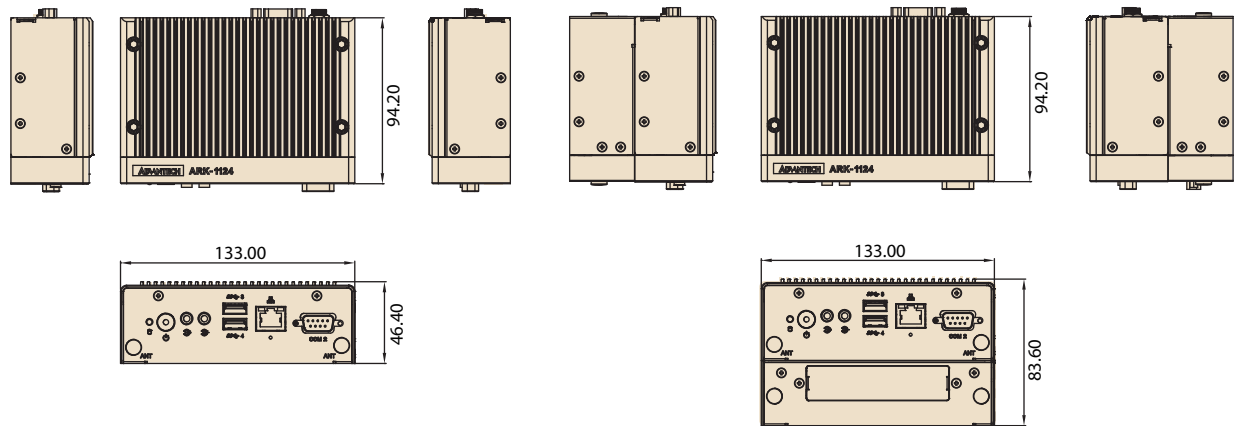


### Specifications

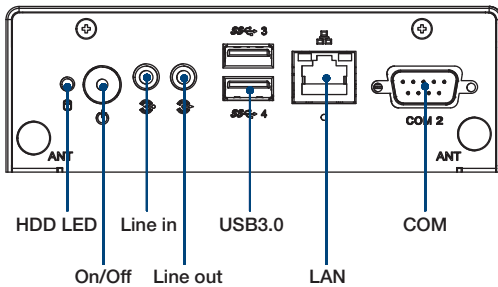
		ARK-1124U-S1A1E
Processor System	CPU	Intel® Celeron® N3350 Dual Core SoC
	Frequency	1.1GHz, turbo burst 2.4 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI 64 bit
Memory	Technology	DDR3L 1866 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® HD Graphics 500
	Graphic Engine	4K Codec Decode & Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	VGA	Up to 2048 x 1280 @ 60Hz
Ethernet	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Line-in
IO Interface	Serial Ports	2 x RS-232/422/485 port with auto flow control
	USB Interface	4 x USB 3.0
Other	Watchdog timer	255 levels timer interval, setup by software
	TPM	Infineon SLB9665XQ 2.0
Expansion	Mini PCIe	1 x full-size mPCIe for WLAN/WWAN with SIM holder
	M.2	1 x M.2 E-key for WIFI (by CTOS or T-PN)
	iDoor	1, optional (2nd layer)
Storage	HDD/SSD	Supports 1 x SATA III Drive Bay (Compatible with 9.5mm height)
Software Support	Microsoft Windows	Win 10 IoT Enterprise LTSB
	Linux	Support by project
Power Requirement	Power Type	AT/ATX
	Power Input Voltage	12V <sub>DC</sub> (Optional 12~24V power module)
	Minimum Power Input	12 V, 5 A
	Power Adapter	AC to DC, DC12 V/5 A, 60 W with lockable DC Jack
Power Consumption	Typical	5W
	Max.	33.7W
Mechanical	Construction	Aluminum housing
	Mounting	DIN-Rail/Wall/VESA Mounting Kits (Optional)
	Dimensions (W x H x D)	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")
	Weight	0.7 Kg (1.55lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CB, CCC, BSMI

## Dimensions

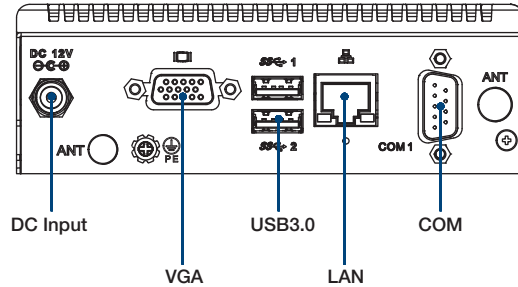
Unit: mm



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	RAM	VGA	GbE	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	M.2	2.5" SATA III HDD Bay	Power Input	Operating Temp.
ARK-1124U-S1A1E	Intel Celeron N3350 1.1 GHz Soc	Up to 8GB	1	2	4	2	Lin-out, Line-in	1	1	1	1	12 V <sub>DC</sub>	-20 ~ 60 °C

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

## Packing List

Part Number	Description
-	1 x ARK-1124U Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A60W12W6	1 x A/D 100-240V 60W 12V C14 LOCKABLE DC PLUG
-	LAN clip
-	Wrench for top cover

## Optional Item for Default SKU

Part Number	Description
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable 3-pin 183cm, PSE type
AMK-W001E	ARK-112X series Wall mounting kit
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit

## Optional Embedded OS

Part Number	Description
2070015302	Win10 IoT Ent LTSB 2016 64bit, ENG

# ARK-1124H

## Intel Atom™ E3940 QC SoC With Dual HDMI/ Dual LAN/ Four USB Modular Fanless Box PC

**NEW**



### Features

- Intel Atom E3940 Quad Core SoC
- Dual HDMI independent display support 4K2K resolution
- 1 x Full-size miniPCIe with SIM holder for communication module
- 1 x M.2 E Key for WIFI module
- 1 x 2.5" SATA III SSD/HDD and 1 x mSATA
- TPM built in for well security
- -20 ~ 60 °C extended operating temperature
- 12V lockable DC jack power input
- Optional 12~24V power module (Dual Layer)
- Advantech iDoor module compatible (Dual Layer)
- Advantech WISE-PaaS/RMM support



WISE-PaaS/RMM



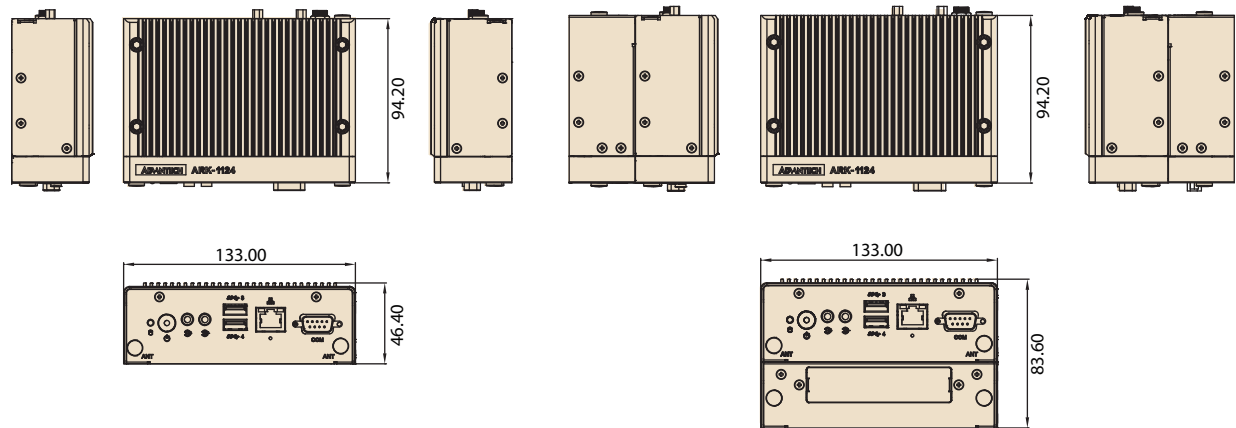
### Specifications

		ARK-1124H-S6A1E
Processor System	CPU	Intel Atom™ E3940 Quad Core Soc
	Frequency	1.6 GHz, turbo burst 1.8 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI 64 bit
Memory	Technology	DDR3L 1866 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® HD Graphics 500
	Graphic Engine	4K Codec Decode& Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	HDMI	HDMI 1.4b 3840 x 2160 @ 30Hz
	Dual Display	Yes, HDMI + HDMI, dual display support 4K2K resolution
Ethernet	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Line-in
IO Interface	Serial Ports	1 x RS-232/422/485 port with auto flow control
	USB Interface	4 x USB 3.0
Other	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x full-size mPCIe for WLAN/WWAN
	M.2	1 x M.2 E-key for WIFI
	iDoor	1, optional (2nd layer)
Storage	SSD/HDD	Supports 1 x 2.5" SATA III Drive Bay (Compatible with 9.5mm height)
	mSATA	1 x Half-size mSATA (by CTOS or T-PN)
Software Support	Microsoft Windows	Windows 10 Enterprise, Windows 10 IoT Core
	Linux	Support by project
Power Requirement	Power Type	AT/ATX
	Power Input Voltage	12V <sub>dc</sub> (Optional 12~24V power module)
	Minimum Power Input	12 V, 5 A
	Power Adapter	AC to DC, DC12 V/5 A, 60 W with lockable DC Jack
Power Consumption	Typical	6.02W
	Max.	33.7W
Mechanical	Construction	Aluminum housing
	Mounting	DIN-Rail/Wall/VESA Mounting Kits (Optional)
	Dimensions (W x H x D)	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")
	Weight	0.7 Kg (1.55lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis. With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL CB, CCC and BSMI

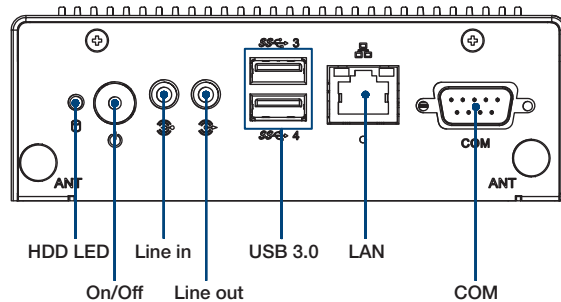


## Dimensions

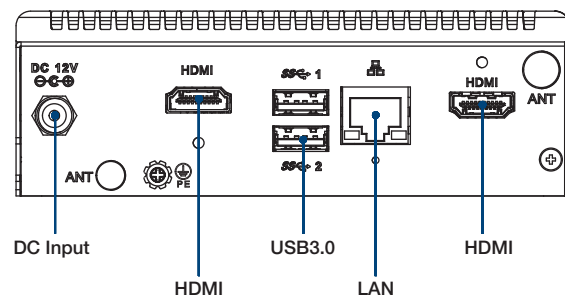
Unit: mm



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	RAM	HDMI	GbE	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	M.2	2.5" SATA III HDD Bay	Power Input	Operating Temp.
ARK-1124H-S6A1E	Intel Atom E3940 1.6 GHz SoC	Up to 8GB	2	2	4	1	Lin-out, Line-in	1	1	1	1	12 V <sub>dc</sub>	-20 ~ 60 °C

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

## Packing List

Part Number	Description
-	1 x ARK-1124H Unit
-	1 x User Manual (Simplified Chinese)
96PSA-A60W12W6	A/D 100-240V 60W 12V C14 LOCKABLE DC PLUG
-	LAN clip
-	Wrench for top cover

## Optional Embedded OS

Part Number	Description
20706WX6ES0016	Win10 IoT LTSC 64bit ENG for ARK-1124H

## Optional Item for Default SKU

Part Number	Description
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable 3-pin 183cm, PSE type
AMK-W001E	ARK-112X series Wall mounting kit
AMK-V003E	ARK-112X series VESA mounting kit
AMK-R001E	ARK-112X series DIN-rail mounting kit
1700023855-01	1M lockable HDMI cable
1700023856-01	3M lockable HDMI cable

# ARK Plus Extended Modules

## ARK-1 124 Dual Layer Expansion Option Items

### Expansion Kit Selection



AMO-1101 and iDoor



AMO-1101 and AMO-P011

### Ordering Information

#### Optional ARK Plus Mechanical Kit

P/N	Description
AMO-1101	Mechanical kit for 2nd layer expansion

#### Optional 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-0201E	Isolated RS-232, 2-Ch, DB9, PCIe Interface
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe Interface
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe Interface
MOS-1121Y-1401E	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-2220-Z1101E	High Speed COM module, 1-Ch, USB Interface

#### Optional 12-24V DC Power module

Part Number	Description
AMO-P011	12-24V DC input power module Operating temp. -20~60 °C
96PSA-A60W12P2-1	AC to DC ADP, 12V/5A 60W (for AMO-P011)
1702002600	Power cord 3-pin 183cm, USA type
1702002605	Power cord 3-pin 183cm, EU type
1702031801	Power cord 3-pin 183cm, UK type
1700000237	Power cable 3-pin 183cm, PSE type

\* For iDoor module expansion, please order AMO-1101 and iDoor P/N

\* For Wide range power module expansion, please order AMO-1101 and AMO-P011

\* For iDoor and wide range power module expansion, please order AMO-1101, iDoor P/N and AMO-P011

\* Dual layer mounting kit is same as single layer

# ARK-1220L

## Intel Celeron N3350 DC/Atom E3940 QC SoC with 4K Dual HDMI/Dual LAN/M.2 DIN-Rail Fanless Box PC

Preliminary



WISE-PaaS/RMM



### Features

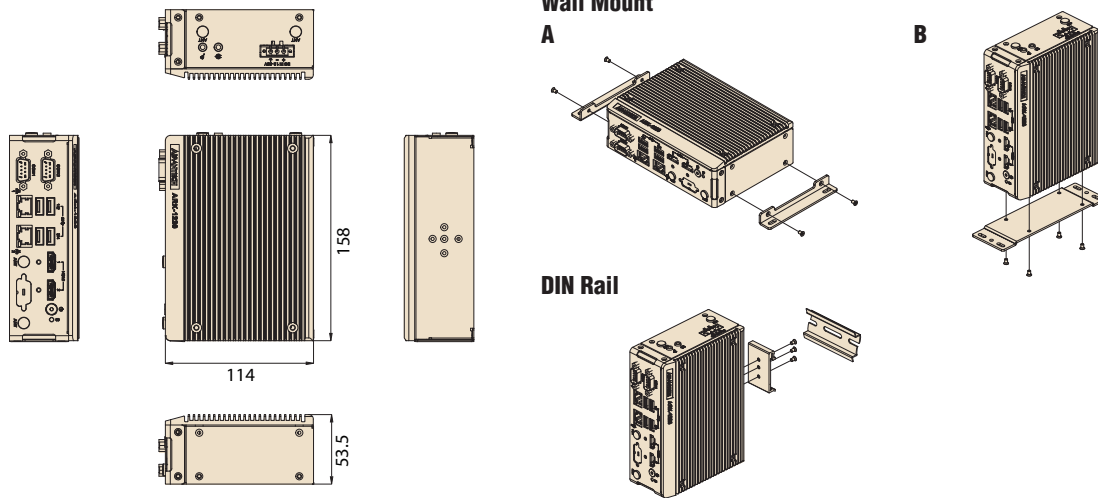
- Intel Celeron N3350/Atom E3940 Dual Core/Quad Core SoC
- Main I/O ports concentrated on front-side bezel
- 2 x Intel GbE and 4 x USB 3.0
- Dual HDMI display up to 4K resolution
- 1 x mPCIe with SIM holder and 1 x M.2 for WIFI
- 1 x 2.5" SATA III SSD and 1 x mSATA
- 12V ~ 28V wide range power input
- 30 ~ 70 °C extended operating temperature
- Advantech WISE-PaaS/RMM support

### Specifications

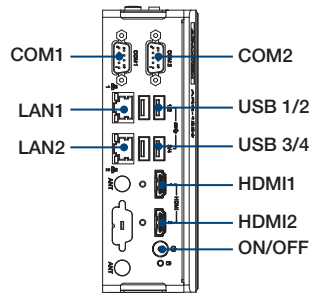
Model Name	ARK-1220L-S1A1E	ARK-1220L-S6A1E
Processor System	CPU	Intel Celeron N3350 Dual Core SoC
	Frequency	1.1GHz, turbo burst 2.4 GHz
	Core Number	2
	BIOS	AMI EFI 64 Mbit
Memory	Technology	DDR3L 1866 Mhz
	Max capacity	8GB
	Socket	2 x 204-pin SO-DIMM, CPU integrated
Graphics	Chipset	Intel HD Graphics 500, CPU integrated
	Graphic Engine	Gen9 Low Power; 18 Execution Units Media Codec Supported: H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG 3D HW Acceleration: OpenGL 4.4, DirectX* 12, OpenCL* 2.0
	HDMI	HDMI1 : 3840 x 2160 @ 30Hz HDMI2 : 3840 x 2160 @ 30Hz
	Dual Display	Yes, HDMI + HDMI
Ethernet	LAN1	10/100/1000 Mbps Intel i210GbE, support Wake On LAN
	LAN2	10/100/1000 Mbps Intel i210GbE, support Wake On LAN
Audio	Interface	Realtek ALC888S, High Definition Audio, Mic-in, Line-out
I/O Interface	Serial Ports	2 x RS-232/422/485 with auto flow control. COM2 with 5V/12V power
	USB Ports	4 x USB 3.0
	GPIO	8-bit Programmable DIO (Optional)
Expansion	Mini PCIe	1 x Full-size Mini PCIe with SIM holder
	M.2	1 x M.2 2230 E key for WIFI module
Storage	SSD/HDD	1 x 2.5" SATAIII Drive bay (compatible with 15mm height)
	mSATA	1 x Full-size mSATA (share with miniPCIe slot)
Other	WatchDog Timer	255 levels timer interval, setup by software
	TPM	SLB9665XQ2.0 FW5.62 (By T-PN, MOQ 30pcs)
Software Support	Microsoft Windows	Windows 10 Enterprise
	Linux	Support by project
Power Requirement	Power Type	ATX/AT
	Power Input Voltage	12 ~ 28 V <sub>DC</sub>
	Minimum Power Input	12V, 5A
Power Consumption	Power Adaptor	AC to DC, DC 12V/5A, 60W (Optional)
	Typical	TBC
Mechanical	Max.	TBC
	Construction	Aluminum housing
Environment	Mounting	DIN-rail/Wall Mount
	Dimensions (W x H x D)	158 x 53.5 x 114 mm (6.22" x 2.11" x 4.49")
	Weight	1.2 kg (2.65lb)
	Operating Temperature	With extended temp. peripherals: -30 ~ 70 °C (-22 ~ 140°F) w/ turbo burst off with 0.7 m/s air flow With 2.5 inch hard disk: 0 ~ 40 °C (32 ~ 104°F) with 0.7 m/s air flow)
Environment	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
	Shock during Operation	With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CB, CCC and BSMI

## Dimensions

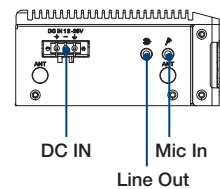
Unit: mm



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



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



## Ordering Information

Part No.	CPU	RAM	HDMI	GbE	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	M.2	2.5" SATA III HDD Bay	Power Input	Operating Temp.
ARK-1220L-S1A1E	Intel Celeron N3350 1.1 GHz SoC	Up to 8GB	2	2	4	2	Mic-in, Line-out	1	1	1	1	12-28 V <sub>DC</sub>	-30 ~ 70 °C
ARK-1220L-S6A1E	Intel Atom E3940 1.6 GHz SoC												

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

## Packing List

Part Number	Description
-	1 x ARK-1220L Unit
-	1 x User Manual (Simplified Chinese)
-	2 x LAN Clips
-	Wrench for top cover

## Optional Item for Default SKU

Part Number	Description
TBC	AC to DC Adaptor, 12V/5A 60W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable 3-pin 183cm, PSE type
	ARK-112X series Wall mounting kit
	ARK-112X series DIN-rail mounting kit
1700023855-01	1M lockable HDMI cable
1700023856-01	3M lockable HDMI cable

## Optional Embedded OS

Part Number	Description
TBC	WIN10 IoT Ent LTSB 64bit, EN

# ARK-1550

## Intel® 4<sup>th</sup> Generation Core i5 4300U/ Celeron 2980U SoC Slim and Panel Mountable Fanless Box PC



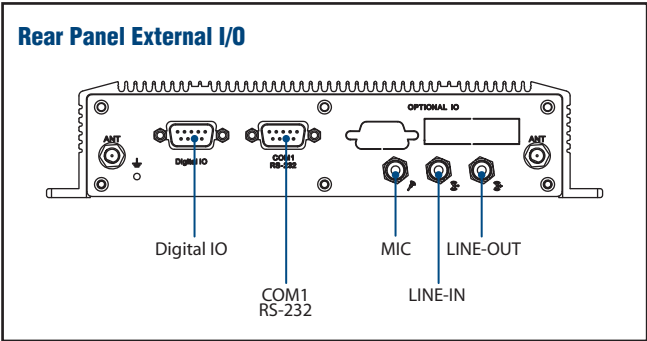
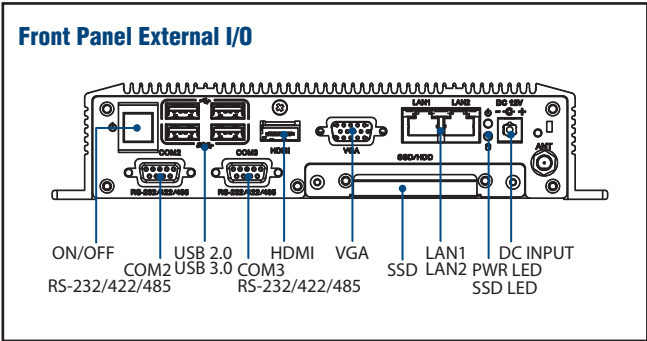
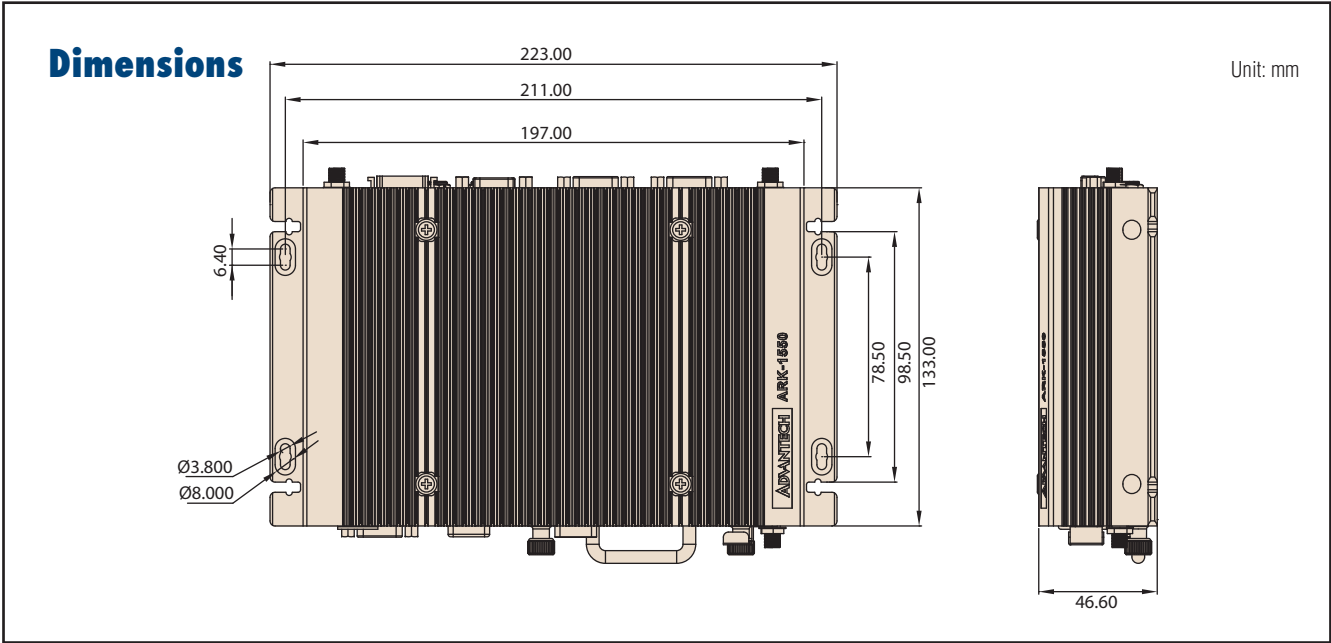
WISE-PaaS/RMM iManager    

### Features

- Intel® Dual Core Celeron 2980U 1.6 GHz / Core i5 4300U 1.9 GHz SoC
- One Hot Swappable 2.5" SATA HDD Bay and mSATA slot
- Triple Independent Displays by VGA + HDMI + LVDS (LVDS option)
- Optional VESA / DIN Rail Mounting kits
- Supports 2 x Intel GbE and 1 x GPIO
- Built-in 1 x full size MiniPCIe
- Lockable DC jack design
- Supports iManager, SUSIAccess and Embedded Software APIs
- Support Intel Turbo Boost Technology 2.0 in Core i5 4300U

### Specifications

		ARK-1550-S6A1E	ARK-1550-S9A1E
Processor System	CPU	Intel Celeron 2980U Dual Core	Intel i5-4300U Dual Core
	Frequency	1.6 GHz	1.9 GHz (Up to 2.9 GHz w/ Turbo Boost 2.0 enabled)
	L3 Cache	2 MB	3 MB
	BIOS	AMI EFI 128 Mbit	
Memory	Technology	DDR3L 1333 MHz	DDR3L 1600 MHz
	Max. Capacity	8 GB	
	Socket	1 x 204-pin SO-DIMM	
Graphics	Chipset	Intel HD Graphics	Intel GT2-4400 Graphics
	Graphic Engine	DirectX11.1, OpenGL 4.0, and OpenCL 1.2	
	VGA	Full AVC/VC1/MPEG2 HW Decode	
	HDMI	Up to 1920 x 1200 at 60 Hz	
	LVDS (Option)	Lockable HDMI connector, up to 4096 x 2304 at 24 Hz (Lockable HDMI cable optional)	Dual channel 24-bit LVDS, max resolution up to 1920 x 1200 with 60Hz (Support by T-Part or CTOS)
Audio	Main System	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in	
Ethernet	LAN #1	10/100/1000 Mbps Intel I218 GbE, support Wake on LAN	
	LAN #2	10/100/1000 Mbps Intel I210 GbE, support Wake on LAN	
I/O Interface	Serial Ports	1 x RS-232 & 2 x RS-232/422/485 (BIOS selectable)	
	USB Interface	2 x USB 2.0 & 2 x USB3.0	
	GPIO	8 bit GPIO	
Other	Watchdog timer	255-level timer interval, setup by software	
Expansion	Mini PCIe	1 x Full-size Mini PCIe, support mSATA storage or WWAN module	
Storage	2.5" Drive Bay	1 x Hot Swappable 2.5" SATA drive bay (Max Height 9.5 mm)	
	mSATA	Leverage MiniPCIe #1 slot	
Software Support	Microsoft Windows	Windows 10, Windows 8, Windows 7, WES8, WES7	
	Linux	Support (by Project)	
Power Requirement	Power Type	ATX/AT	
	Power Input Voltage	12 V <sub>DC</sub>	
	Minimum Power Input	12V, 5A	
	Power Adaptor	AD to DC, DC 12V/5A, 60W (Optional)	
Power Consumption	Typical	5.64W	10.56W
	Max.	15.12W	28.2W
Mechanical	Construction	Aluminum housing	
	Mounting	Desk/Wall Mounting (Standard), VESA & DIN-Rail Mounting Kit (Optional)	
	Dimensions (W x H x D)	223 x 46.6 x 133.0 mm (8.69" x 1.81" x 5.18")	
Environment	Operating Temperature	With extended temperature SSD/mSATA/RAM :-20 ~ 55° C with 0.7m/s air flow	
	Storage Temperature	With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C with 0.7m/s air flow	
	Relative Humidity	-40 ~ 85° C (-40 ~ 185° F)	
	Vibration During Operation	95% @ 40° C (non-condensing)	
	Shock During Operation	With mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis	
Regulation	EMC	CE/FCC Class A, CCC, BSMI	
	Safety	UL, CCC, BSMI, CB	



## Ordering Information

Part Number	Intel CPU	RAM	VGA	HDMI	GbE	USB 2.0	USB 3.0	GPIO	RS-232	RS-232/422/485	Audio	MiniPCIe	2.5" HDD bay	mSATA	Operating Temperature
ARK-1550-S6A1E	Intel Celeron 2980U 1.6GHz	Up to 8GB	1	1	2	2	2	1	1	2	Line in Line out Mic in	1 Full size w/SIM	1	1	-20 ~ 55° C
ARK-1550-S9A1E	Intel Core i5 4300U 1.9GHz														

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

## Packing List

Part Number	Description
-	1 x ARK-1550 Unit
-	1 x User Manual (Simplified Chinese)
-	1 x Power bracket

## Embedded OS

Part Number	Description
2070012825	WE7E 64bit with EN/JP/TC/SC (OS size around 11G)
2070012882	WE8S 64bit with EN/JP/TC/SC (OS size around 13G)
2070014895	Win10 IoT Ent (Value) 64bit Eng

## Optional Items

Part Number	Description
96PSA-A60W12R1-1	AC-to-DC Adapter, DC 12V/5A 60W, with DC Jack Plug, 0 ~ 40° C for Home and Office Use
96PSA-A84W12V1	AC-to-DC Adapter, DC 12V/7A 84W, with DC Jack Plug, 0 ~ 70° C for Wide Temperature Use
1702002600	Power cable 3-pin 183 cm, USA type
1702002605	Power cable 3-pin 183 cm, Europe type
1702031801	Power cable 3-pin 183 cm, UK type
1700000237	Power cable 3-pin 183 cm, PSE type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit
AMO-I014E	LVDS Module w/ cables. (Support by T-Part or CTOS)
1700023855-01	1M lockable HDMI cable
1700023856-01	3M lockable HDMI cable

# ARK-2120L

## Intel® Atom™ Dual Core N2600/D2550 with Multiple I/Os Fanless Box PC



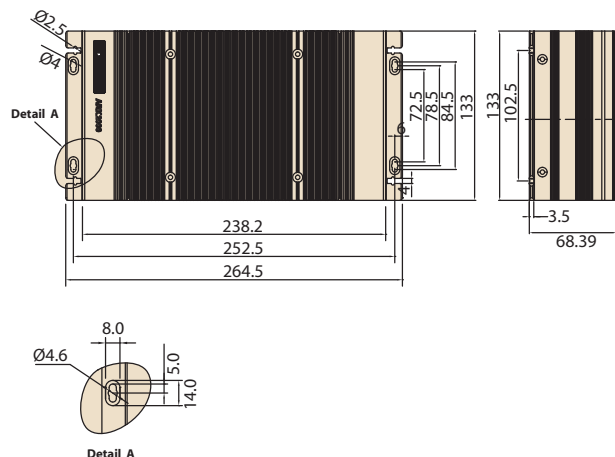
### Features

- Intel® Atom™ Dual Core N2600 1.6 GHz/D2550 1.86 GHz, DDR3 memory supports up to 4 GB
- VGA and HDMI dual independent display, supports DirectX 9
- Mini PCIe expansion with SIM holder for communication module, i.e. HSDPA, WLAN
- Supports up to 2 Intel GbE, 6 x USB 2.0 and 4 x COMs ports
- Supports external CFast socket and 1 x 2.5" SATA HDD Bay
- Lockable DC jack design
- Supports iManager, SUSIAccess and Embedded Software APIs

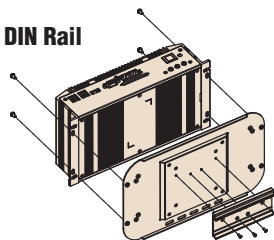
### Specifications

		ARK-2120L-S6A1E	ARK-2120L-S8A1E
Processor System	CPU	Intel Atom N2600	Intel Atom D2550
	Frequency	1.6 GHz (Dual Core)	1.86 GHz (Dual Core)
	L2 Cache	1 MB	1MB
	System Chipset	Intel Atom N2600/D2550 + Intel NM10	
	BIOS	AMI EFI 16Mbit	
Memory	Technology	DDR3 1066 MHz (D2550), DDR3 800 MHz (N2600)	
	Max. Capacity	4 GB	
	Socket	1 x 204-pin SO-DIMM	
Graphics	Chipset	Intel Atom N2600/D2550	
	Graphic Engine	DirectX 9 and OpenGL3.0 support Hardware decode H/W acceleration: MPEG2 H/W Decode/Acceleration: H.264/VC1/WMV9	
	VGA	Up to 1920 x 1200	
	HDMI	Supports 1920 x 1200, Max data rate: up to 1.65 Gb/s, Supports HDMI v1.3 Up to 1080p support	
	Dual Display	Yes, VGA + HDMI	
Ethernet	LAN1	10/100/1000 Mbps Intel 82583V GbE, support Wake On Lan	
	LAN2	10/100/1000 Mbps Intel 82583V GbE, support Wake On Lan	
Audio	Interface	Realtek ALC892, High Definition Audio. Line-out, Mic-in, Line-in	
IO Interface	Serial Ports	3 x RS-232 ports, 1 x RS-232/422/485 port with auto flow control	
	USB Interface	6 x USB ports, USB 2.0 Compliant	
Other	Digital IO	8-bits	
	Watchdog timer	255 levels timer interval, setup by software	
Expansion	Mini PCIe	1 x full size Mini PCIe with SIM holder	
Storage	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 300 MB/s)	
	SSD	Supports one external CFast socket	
Software Support	Microsoft Windows	Windows 7 32bit, Windows 7 Embedded 32bit (XP Professional & XP Embedded support by project)	
Power Requirement	Power Type	AT/ATX	
	Power Input Voltage	12 V <sub>DC</sub> , ± 10%	
	Minimum Power Input	12 V, 1.5 A	
	Power Adapter	AC to DC, DC12 V/3 A, 36 W (Optional)	
Power Consumption	Typical	8.9 Watt (with Intel Atom D2550 at 1.8 GHz)	
	Max.	11 Watt (with Intel Atom D2550 at 1.8 GHz)	
Mechanical	Construction	Aluminum housing	
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting	
	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm (10.41" x 2.72" x 5.24")	
	Weight	2.3 kg (5.07 lb)	
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60° C (-4 ~ 140° F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) 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: 5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.	
	Shock During Operation	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration	
	EMC	CE/FCC Class A, CCC, BSMI	
	Safety Certifications	UL, CCC, BSMI	

## Dimensions

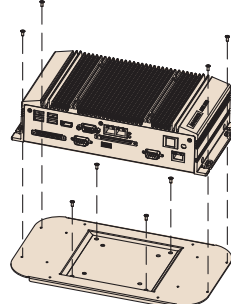


### DIN Rail

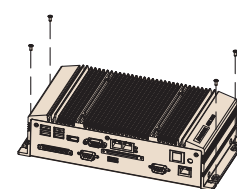


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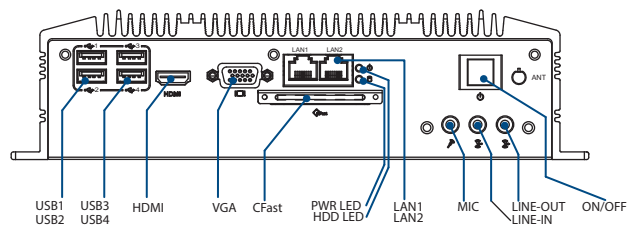
### VESA mount



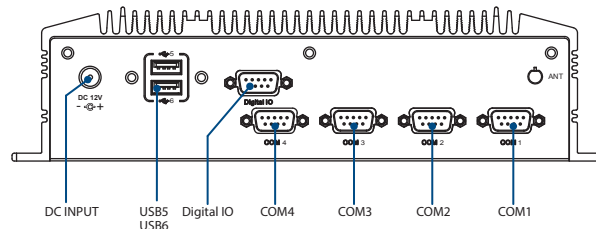
### Wall mount



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI/DP	GbE	USB 2.0	RS-232	RS-232/422/485	DIO	Audio	Full-size MiniPCIe	SIM	CFast	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2120L-S6A1E	Intel Atom N2600 1.6 GHz	Yes	Yes	2	6	3	1	8-bits	Lin-out, Line-in, MIC	1	1	1	1	DC 12V Lockable DC Jack	-20 ~ 60° C
ARK-2120L-S8A1E	Intel Atom D2550 1.86 GHz	Yes	Yes	2	6	3	1	8-bits	Lin-out, Line-in, MIC	1	1	1	1	DC 12V Lockable DC Jack	-20 ~ 60° C

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

## Packing List

Part Number	Description
-	1 x ARK-2120 Unit
-	1 x Utility CD
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1700020143	1 x Cable for RS-422/485 mode of COM2

## Embedded OS

Part Number	Description
2070011953	Image WES7E SP1 x32 ENG/GER/JPN/CT

## Optional Items

Part Number	Description
96PSA-A36W12W7	AC-to-DC Adapter, DC 12V/3A 36W, 0 ~ 40° C for Home and Office Use
96PSA-A60W12W6	AC-to-DC Adapter, DC 12V/5A 60W, -20 ~ +70° C
1700001524	Power cable 3-pin 180cm, USA type, for 96PSA-A36W12W7
170203180A	Power cable 3-pin 180cm, UK type, for 96PSA-A36W12W7
170203183C	Power cable 3-pin 180cm, Europe type for 96PSA-A36W12W7
1702002600	Power cable 3-pin 180cm, USA type, for 96PSA-A60W12W6
1702002605	Power cable 3-pin 180cm, EU type, for 96PSA-A60W12W6
1702031801	Power cable 3-pin 180cm, UK type, for 96PSA-A60W12W6
1700008921	Power cable 3-pin 180cm, PSE for 96PSA-A36W12W7
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit



# ARK-2121L

## Intel® Celeron® Quad Core J1900 SoC with Multiple I/Os Fanless Box PC



### Features

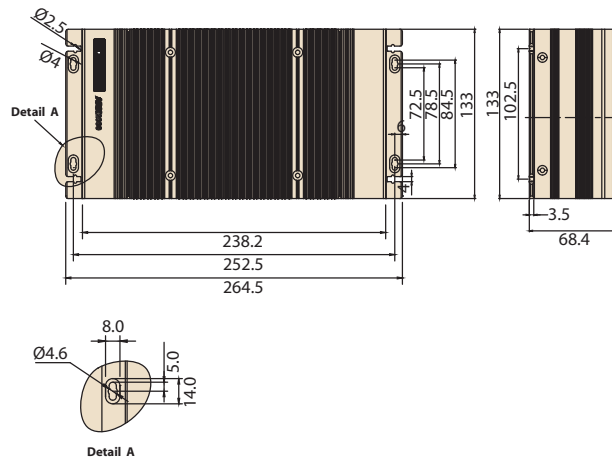
- Intel® Celeron® J1900 Quad Core 2.0 GHz SoC with Turbo boost support
- VGA and HDMI dual independent display
- 9 ~ 36 V<sub>DC</sub> wide range power input
- -20 ~ 70° C extend temperature operating
- Mini PCIe expansion with SIM holder for communication module
- mSATA and 1 x 2.5" SATA storage device
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering

### Specifications

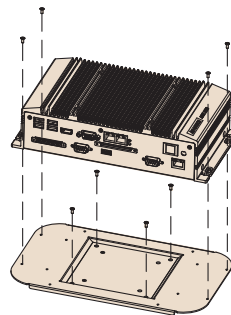
		ARK-2121L-U0A1E
Processor System	CPU	Intel Celeron Processor J1900 Quad Core SoC
	Frequency	2.0 GHz, turbo boost up to 2.42 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI
Memory	Technology	DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core
	Graphic Engine	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2
	VGA	Up to 2048 x 1152 @ 60Hz
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz
	DisplayPort*	Up to 2048 x 1152 at 60Hz (by project only)
Ethernet	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in, Line-in
IO Interface	Serial Ports	2 x RS-232 ports, 2 x RS-232/422/485 port with auto flow control
	USB Interface	1 x USB 3.0, 3 x USB 2.0
Other	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x full size Mini PCIe with SIM holder
Storage	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 300 MB/s)
	SSD	1 x full size mSATA socket, with USB signal co-lay
Software Support	Microsoft Windows	WES8, Windows 8, WES7, Windows 7
	Linux	Support by project
Power Requirement	Power Type	ATX
	Power Input Voltage	9 ~ 36 V <sub>DC</sub>
	Minimum Power Input	12 V, 1.5 A
Power Consumption	Power Adapter	AC to DC, DC19 V/3.42 A, 65 W (Optional)
	Typical	7.3W
Mechanical	Max.	13.3W
	Construction	Aluminum housing
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	264.5 x 68.4 x 133.0 mm (10.41" x 2.69" x 5.24")
	Weight	2.3 kg (5.07 lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 70° C (-4 ~ 158° F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class A, CCC, BSMI
	Safety Certifications	UL, CCC, BSMI

\* DisplayPort is supported by project only.

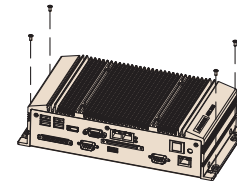
## Dimensions



### VESA mount

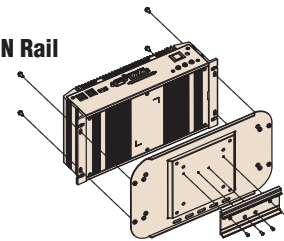


### Wall mount

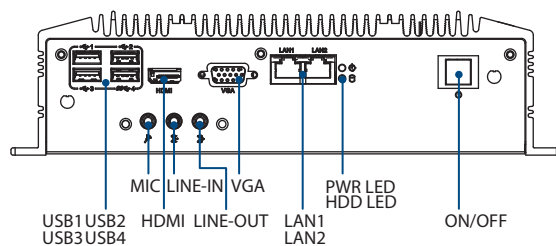


Unit: mm

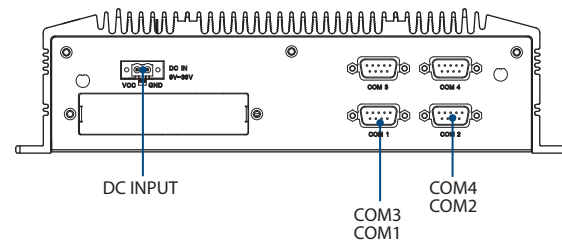
### DIN Rail



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI/DP*	GbE	USB 2.0	USB 3.0	RS-232	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	mSATA	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2121L-U0A1E	Intel Celeron J1900 2.0GHz	Yes	Yes	2	3	1	2	2	Lin-out, Line-in, MIC	1	1	1	1	9 ~ 36 V <sub>DC</sub>	-20 ~ 70° C

Note: Memory, storage and operating system bundled by request.  
\*DP is support by project only.

## Packing List

Part Number	Description
-	1 x ARK-2121 Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1700009001	1x 2-pin Phoenix to DC-Jack power cable

## Embedded OS

Part Number	Description
2070013061	WES7E 64bit ENG/T-CH/S-CH/JP
2070013167	WES8E 64bit ENG/T-CH/S-CH/JP

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS (1420036591)

## Optional Items

Part Number	Description
96PSA-A65W19P2-2	AC-to-DC Adapter, DC 19V/3.42A 65W, 0 ~ 40° C for Home and Office Use
1700001524	Power cable 3-pin 183cm, USA type
170203183C	Power cable 3-pin 183cm, EU type
170203180A	Power cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

## Optional MOS modules

Part Number	Description
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F.
MOS-2220-Z1101E	High Speed Serial COM module, 1-Ch, USB I/F.
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F.
MOS-1120Y-0201E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1401E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F

# ARK-2121F

## Intel® Celeron® Quad Core J1900 SoC with Multiple I/Os Fanless Box PC



### Features

- Intel® Celeron® J1900 Quad Core 2.0 GHz SoC with Turbo boost support
- VGA and HDMI dual independent display
- 6 x COM, 6 x USB, isolated DIO
- 9 ~ 36 V<sub>DC</sub> wide range power input
- 20 ~ 70° C extend temperature operating
- Mini PCIe expansion with SIM holder for communication module
- mSATA and 1 x 2.5" SATA storage device
- Optional DVI/2nd HDMI/4x GbE by project support
- Internal USB for security dongle



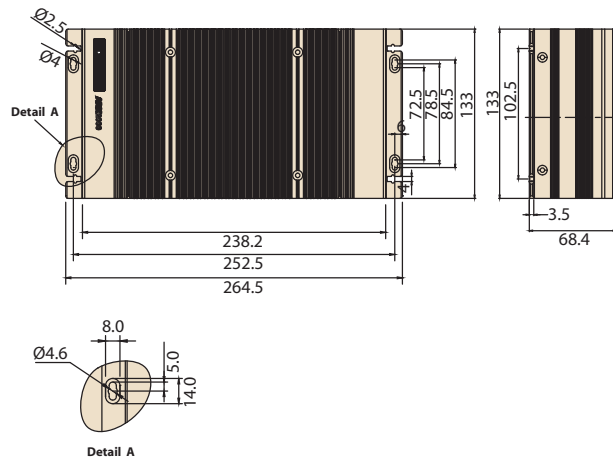
### Specifications

		ARK-2121F-U0A1E
Processor System	CPU	Intel Celeron Processor J1900 Quad Core SoC
	Frequency	2.0 GHz, turbo boost up to 2.42 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI
Memory	Technology	DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core
	Graphic Engine	DirectX 11.1, OCL 1.2, OGL 3.2
		Encode: H.264, MPEG2/4, VC1, WMV9
		Decode: H.264, MPEG2
	VGA	Up to 2048 x 1152 @ 60Hz
	HDMI	1 HDMI port (default), HDMI 1.4a for HD video playback, 1080P at 60Hz (2nd HDMI support by project only)
DisplayPort*	Up to 2560 x 1600 at 60Hz (by Project only)	
Ethernet	DVI-D	Up to 1920 x 1200 at 60Hz (by Project only)
	Dual Display	Yes, VGA + HDMI
Ethernet	LAN1/LAN2	10/100/1000Mbps Intel i210 GbE, support Wake On LAN, optional LAN3/LAN4 support by project
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in, Line-in
	Serial Ports	6 x RS-232/422/485 with auto flow control
IO Interface	USB Interface	1 x USB 3.0, 5 x USB 2.0, 1 x internal USB 2.0 for security dongle
	PS/2	Yes (by project only)
Other	Watchdog timer	255 levels timer interval, setup by software
	Digital I/O	4ch digital input and 4ch digital output with 3kV isolation
Expansion	Mini PCIe	2 x full size Mini PCIe (1 with SIM holder)
	Storage	HDD
mSATA		1 x full size mSATA socket, with USB signal co-layer
Software Support	Microsoft Windows	WES8, Windows 8, WES7, Windows 7
	Linux	Support by project
Power Requirement	Power Type	ATX
	Power Input Voltage	9 ~ 36 V <sub>DC</sub>
	Minimum Power Input	12 V, 1.5 A
Power Consumption	Power Adapter	AC to DC, DC19 V/3.42 A, 65 W (Optional)
	Typical	8.4W
Max.	16.2W	
Mechanical	Construction	Aluminum housing
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	264.5 x 68.4 x 133.0 mm (10.41" x 2.69" x 5.24")
	Weight	2.3 kg (5.07 lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 70° C (-4 ~ 158° F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class A, CCC, BSMI
	Safety Certifications	UL, CB, CCC, BSMI

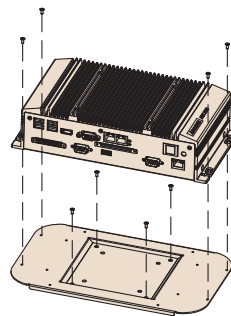
\* DisplayPort is supported by project only.

## Dimensions

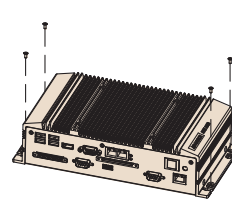
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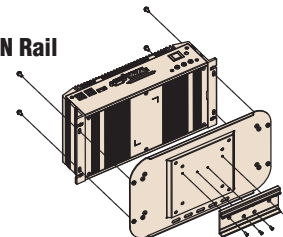
VESA mount



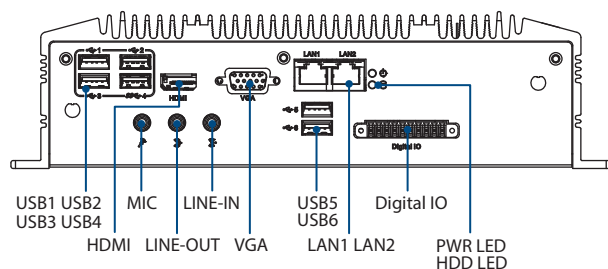
Wall mount



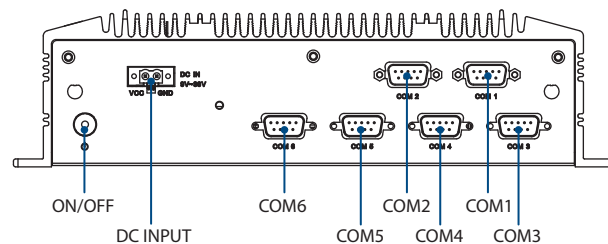
DIN Rail



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI/DP*	GbE	USB 2.0	USB 3.0	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	mSATA	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2121F-U0A1E	Intel Celeron J1900 2.0GHz	Yes	Yes	2	5	1	6	Lin-out, Line-in, MIC	2	1	1	1	9 ~ 36 V <sub>DC</sub>	-20 ~ 70° C

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

\*DP is support by project only.

## Packing List

Part Number	Description
-	1 x ARK-2121 Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1700009001	1x 2-pin Phoenix to DC-Jack power cable
1960069484N000	2 x LAN clip

## Embedded OS

Part Number	Description
2070013717	WES7E 64bit ENG/JP/TC/SC
2070013716	WES8E 64bit ENG/JP/TC/SC

## Optional Items

Part Number	Description
96PSA-A65W19P2-2	AC-to-DC Adapter, DC 19V/3.42A 65W, 0 ~ 40° C for Home and Office Use
1700001524	Power cable 3-pin 183cm, USA type
170203183C	Power cable 3-pin 183cm, EU type
170203180A	Power cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit
1652003235	10pin DIO Plug in block

# ARK-2150L

## 3rd Generation Intel® Core™ i3/i7 with Dual Independent Display Fanless Box PC



### Features

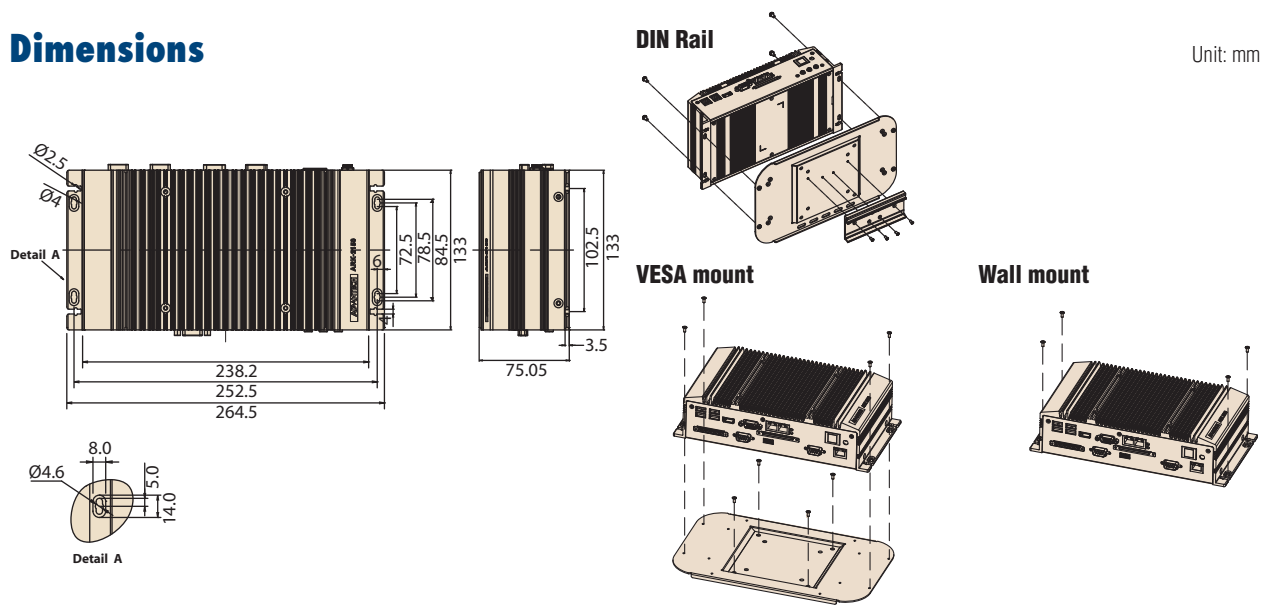
- Intel® Core i7, i3 and Celeron processors + Intel QM77 PCH
- 1 x DDR3/DDR3L, SO-DIMM support up to 8 GB
- DirectX11, OpenGL3.1, OpenCL1.1, dual independent display: VGA + HDMI/DisplayPort\*
- Supports Intel AMT8.0,
- Supports up to 2 x GbE, 2 x USB 3.0, 4 x USB 2.0 and 4 x COMs ports
- Supports 1 x internal mSATA socket and 1 x 2.5" SATA HDD Bay
- Lockable DC jack design
- Supports iManager, SUSIAccess and Embedded Software APIs

### Specifications

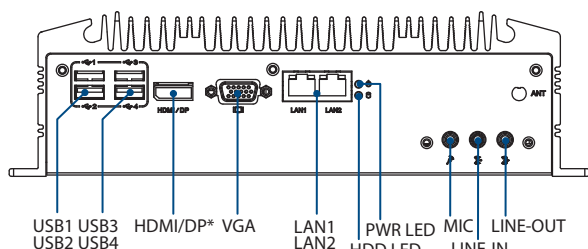
		ARK-2150L-S4A1E	ARK-2150L-S6A1E	ARK-2150L-S7A1E
Processor System	CPU	Intel Celeron 1047UE	Intel ULV Core i3 3217UE	Intel ULV Core i7 3517UE
	Frequency	Dual Core 1.4 GHz	Dual Core 1.6 GHz	Dual Core 1.7 GHz (Max Turbo Frequency 2.8 GHz)
	L3 Cache	2 MB	3 MB	4 MB
	System Chipset	Intel QM77		
	BIOS	AMI EFI 64Mbit		
Memory	Technology	DDR3 1600MHz, DDR3L 1333 MHz		
	Max. Capacity	8 GB		
	Socket	1 x 204-pin SO-DIMM		
Graphics	Chipset	Intel QM77 Integrated GFX Gen 7		
	Graphic Engine	DirectX11, OpenGL 3.1, and Open CL 11 Hardware decode acceleration: AVC/H.264, M PEG-2, VC-1		
	VGA	Integrated 340.4MHz RAMDAC, Max resolution up to 2048 x 1536 @ 75Hz		
	HDMI/DP*	Supports HDMI 1.4 for HD Video playback (no hotplug support) Max resolution up to 2560 x 1600 @ 60Hz on DisplayPort*, Max resolution up to 1920 x 1200 @ 60Hz on HDMI		
	Dual Display	Yes, VGA + HDMI or VGA + DisplayPort*		
Ethernet	LAN1	10/100/1000 Mbps Intel 82579LM GbE, support Wake On Lan		
	LAN2	10/100/1000 Mbps Intel 82583V GbE, support Wake On Lan		
Audio	Interface	Realtek ALC892, High Definition Audio. Line-out, Mic-in, Line-in		
I/O Interface	Serial Ports	2 x RS-232 ports, 2 x RS-232/422/485 port with auto flow control		
	USB Interface	2 x USB 3.0 ports and 4 x USB 2.0 ports		
Other	Digital I/O	8-bits programmable general purpose input/output		
	Watchdog timer	255 levels timer interval, setup by software		
Expansion	Mini PCIe	2 x Full-size Mini PCIe (One supports mSATA & the other with SIM holder) 1 x Half-size Mini PCIe		
	HDD	Supports one SATA 2.5" SATA HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 600 MB/s)		
Storage	SSD	Supports one internal mSATA socket		
	Microsoft Windows	Windows 7, Windows 7 Embedded, XP Professional, XP Embedded		
Software Support	Linux	Ubuntu 12.04		
	Power Type	AT/ATX		
Power Requirement	Power Input Voltage	12 V <sub>DC</sub> , ± 10%		
	Minimum Power Input	12 V, 4 A		
	Power Adapter	AC to DC, DC12 V/5 A, 60 W (Optional)		
Power Consumption	Typical	9.6 Watt (with Intel Core i7 3517UE CPU and 2 GB memory)		
	Max.	24.96 Watt (with Intel Core i7 3517UE CPU and 2 GB memory)		
Mechanical	Construction	Aluminum housing		
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting		
	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm (10.41" x 2.96" x 5.24")		
	Weight	2.3 kg (5.07 lb)		
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60° C (-4 ~ 140° F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) 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: 5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.		
	Shock During Operation	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration		
	EMC	CE/FCC Class A, CCC, BSMI		
	Safety Certifications	UL, CCC, BSMI		

\*DisplayPort function is supported by project (no hotplug support)

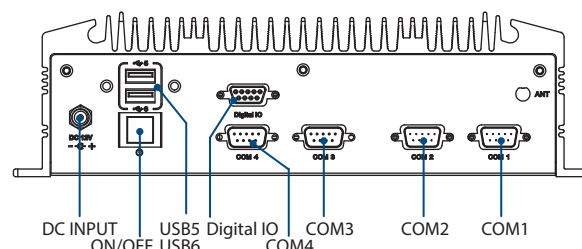
## Dimensions



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	RAM	VGA	HDMI/DP*	GbE	USB 3.0	USB 2.0	RS-232	RS-232/422/485	DIO	Half-size Mini PCIe	Full-size Mini PCIe	SIM	2.5" SATAIII HDD Bay	Power Input	Operation Temp.	OS
ARK-2150L-S4A1E	Intel Celeron 1.4GHz 1047UE	upto 8GB	Yes	Yes	2	2	4	2	2	8-bits	1	2	1	1	DC 12V Lockable DC Jack	-20 ~ 60° C	-
ARK-2150L-S6A1E	Intel Core i3 ULV 1.6GHz 3217UE	upto 8GB	Yes	Yes	2	2	4	2	2	8-bits	1	2	1	1	DC 12V Lockable DC Jack	-20 ~ 60° C	-
ARK-2150L-S7A1E	Intel Core i7 ULV 1.7GHz 3517UE	upto 8GB	Yes	Yes	2	2	4	2	2	8-bits	1	2	1	1	DC 12V Lockable DC Jack	-20 ~ 60° C	-
ARK-2150LS-S7A1E	Intel Core i7 ULV 1.7GHz 3517UE	4GB built in	Yes	Yes	2	2	4	2	2	8-bits	1	2	1	500GB HDD built in	DC 12V 1757004339-01 bundled	0 ~ 45° C	WES7E 64 bit built-in ENG/JP/TC/SC

Note: Memory, storage and operating system bundled by request.  
\*DP function is supported by project.

## Packing List

Part Number	Description
-	1 x ARK-2150 Unit
-	1 x Utility CD
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS

## Embedded OS

Part Number	Description
2070011831	Image WES7E SP1 x32 ENG/JP/TC/SC
2070011830	Image WES2009 V4.2 multi 24 language

## Optional Items

Part Number	Description
96PSA-A60W12W6	AC to DC Adaptor, DC 12V/5A 60W, with lock
1702002600	Power cable 3-pin 180cm, USA type
1702031801	Power cable 3-pin 180cm, UK type
1702002605	Power cable 3-pin 180cm, EU type
1700000237	Power cable 3-pin 180cm, with PSE
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

# ARK-2150F

## 3rd Generation Intel® Core™ i7 with 4 x GbE, Isolated DIO & wide range power Fanless Box PC



### Features

- Intel® Core™ i7 processors + Intel QM77 PCH
- 1 x DDR3/DDR3L SO-DIMM, support up to 8 GB
- DirectX11, OpenGL3.1, OpenCL1.1
- Supports Intel AMT8.0
- Supports 4 x Intel GbE
- Support 4ch digital input and 4ch digital output with 2.5KV isolation
- Supports 3 x USB 3.0, 3 x USB 2.0, 4 COMs ports
- Supports 1 x internal mSATA socket and 1 x 2.5" SATA HDD Bay
- 12~24V wide range DC input with lockable connector
- Supports iManager, SUSIAccess and Embedded Software APIs

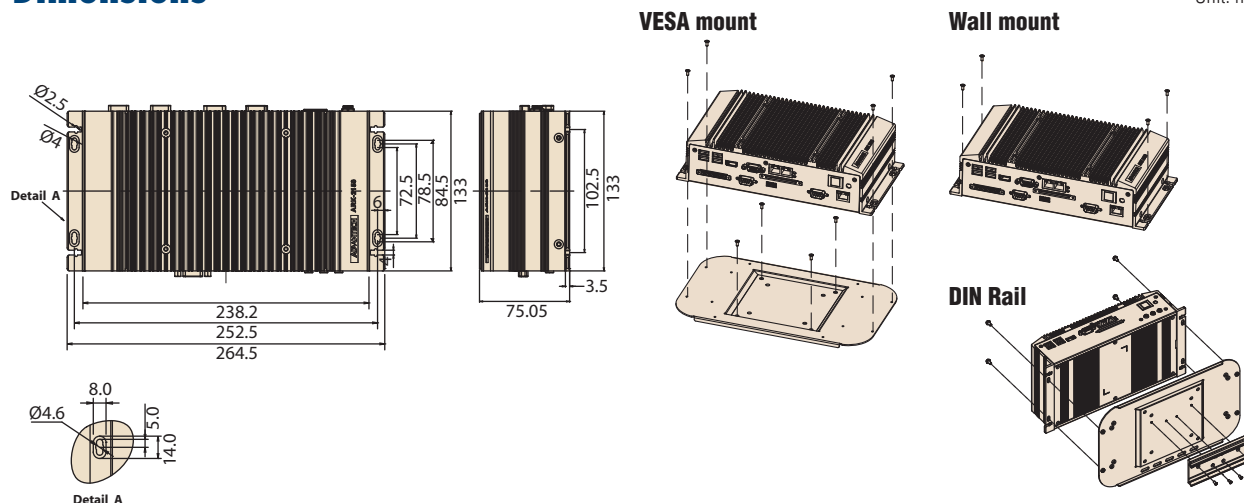
### Specifications

		ARK-2150F-S7A1E
Processor System	CPU	Intel ULV Core i7 3517UE
	Frequency	Dual Core 1.7 GHz (Max Turbo Frequency 2.8 GHz)
	L3 Cache	4 MB
	System Chipset	Intel QM77
	BIOS	AMI EFI 64Mbit
Memory	Technology	DDR3 1600MHz, DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel QM77 Integrated GFX Gen 7
	Graphic Engine	DirectX11, OpenGL 3.1, and Open CL 11 Hardware decode acceleration: AVC/H.264, M PEG-2, VC-1
	VGA	Integrated 340.4MHz RAMDAC, Max resolution up to 2048 x 1536 @ 75Hz
	HDMI/DP*	Supports HDMI 1.4 for HD Video playback (no hotplug support) Max resolution up to 2560 x 1600 @ 60Hz on DisplayPort*, Max resolution up to 1920 x 1200 @ 60Hz on HDMI
	DVI-D	Max resolution up to 1920 x 1200
	Dual independent display	Yes, VGA+HDMI/DisplayPort*, VGA+HDMI/DVI-D, VGA+DVI-D, HDMI/DisplayPort*+DVI-D
Ethernet	LAN1	10/100/1000 Mbps Intel 82579LM GbE, support Wake On Lan
	LAN2/LAN3/LAN4	10/100/1000 Mbps Intel 82583V GbE
Audio	Interface	Realtek ALC892, High Definition Audio. Line-out, Mic-in, Line-in
I/O Interface	Serial Ports	4 x RS-232/422/485 port with auto flow control
	USB Interface	3 x USB 3.0 ports and 3 x USB 2.0 ports
Other	Digital I/O	4ch digital input and 4ch digital output with 2.5KV isolation
	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	2 x Full-size Mini PCIe (Supports mSATA & SIM) 1 x Half-size Mini PCIe
	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 600 MB/s)
Storage	SSD	Supports one internal mSATA socket
	Microsoft Windows	Windows 7, Windows 7 Embedded, XP Professional, XP Embedded
Software Support	Linux	Ubuntu 12.04
	Power Type	AT/ATX
Power Requirement	Power Input Voltage	12 ~ 24 V <sub>DC</sub>
	Minimum Power Input	12 V ~ 24 V, 4.0 A ~ 2 A
	Power Adapter	AC to DC, DC 19V/3.42A 65W (Optional)
Power Consumption	Typical	10.3 Watt
	Max.	25.7 Watt
Mechanical	Construction	Aluminum housing
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm (10.41" x 2.96" x 5.24")
	Weight	2.8kg (6.17lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60° C (-4 ~ 140° F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) 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: 5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class A, CCC, BSMI
	Safety Certifications	UL, CCC, BSMI

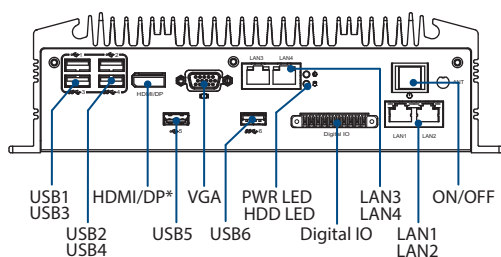
\*DisplayPort function is supported by project (no hotplug support).

## Dimensions

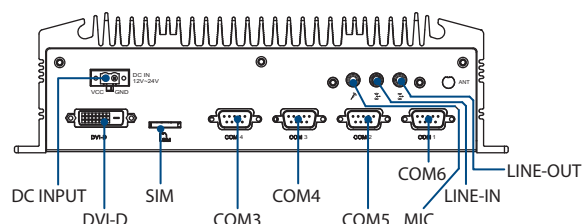
Unit: mm



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI/DP*	DVI-D	GbE	USB 3.0	USB 2.0	RS-232/422/485	DIO	Audio	Half-size Mini PCIe	Full-size Mini PCIe	SIM	2.5" SATAII HDD Bay	Power Input	Operation Temp.
ARK-2150F-S7A1E	Intel Core i7 ULV 1.7GHz 3517UE	Yes	Yes	Yes	4	3	3	4	4ch DI and 4ch DO with 2.5KV isolation	Line-out, Line-in, MIC	1	2	1	1	DC 12-24V 2-pin phoenix head	-20 ~ 60° C

Note: Memory, storage and operating system bundled by request.  
\*DP is supported by project.

## Packing List

Part Number	Description
-	1 x ARK-2150 Unit
-	1 x Utility CD
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1700009001	1 x 2-pin Phoenix to DC-Jack power cable

## Embedded OS

Part Number	Description
2070011831	Image WES7E SP1 x32 ENG/JP/TC/SC
2070011830	Image WES2009 V4.2 multi 24 language

## Optional Items

Part Number	Description
96PSA-A65W19P2-1	AC-to-DC Adapter, DC19 V/3.42 A 65 W, with Phoenix Power Plug, 0 ~ 40° C for Home and Office Use
XARK-9NA0904747	AC-to-DC Adapter, DC 19V/4.73A 90W, -20 ~ +70° C
1700001524	Power cable 3-pin 180cm, USA type
170203183C	Power cable 3-pin 180cm, EU type
170203180A	Power cable 3-pin 180cm, UK type
1700008921	Power cable 3-pin 180 cm, PSE type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit



# ARK-2230L

## Intel® Celeron® Quad Core J1900 SoC Modular Fanless Box PC



\*Dual Layer model is ARK-2230 with ARK Plus module



### Features

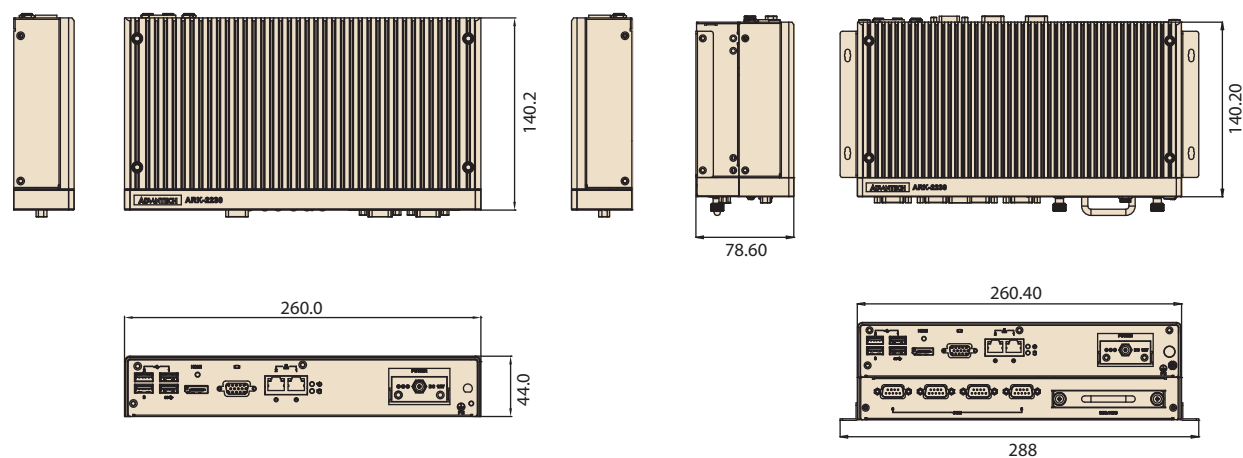
- Intel® Celeron® J1900 Quad Core 2.0 GHz SoC
- VGA and HDMI dual independent display
- 12V lockable DC jack power input
- 9-36V power module compatible with all-in-one ordering
- -20 ~ 60 °C extend temperature operating
- Mini PCIe expansion with SIM holder for communication module
- mSATA and 1 x 2.5" SATA storage device
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering
- Advantech MIOe module compatible with all in one ordering (2 Layers)

### Specifications

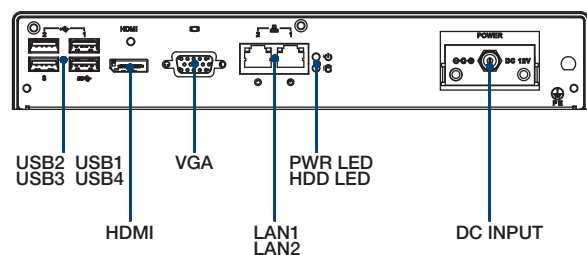
		ARK-2230L-U0A1E
Processor System	CPU	Intel Celeron Processor J1900 Quad Core SoC
	Frequency	2.0 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI
Memory	Technology	DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core
	Graphic Engine	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2
	VGA	Up to 2048 x 1152 @ 60Hz
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz
	Dual Display	Yes, VGA + HDMI
Ethernet	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in, Line-in
IO Interface	Serial Ports	2 x RS-232 ports, 2 x RS-232/422/485 port with auto flow control
	Digital I/O	8bit programmable general purpose input/output
	USB Interface	1 x USB 3.0, 4 x USB 2.0
Other	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x full size Mini PCIe with SIM holder
Storage	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 300 MB/s)
	SSD	1 x full size mSATA socket, with USB signal co-lay
Software Support	Microsoft Windows	Windows 10, WES8, Windows 8, WES7, Windows 7
	Linux	Support by project
Power Requirement	Power Type	ATX
	Power Input Voltage	12V <sub>DC</sub> (9-36V as option)
	Minimum Power Input	12 V, 1.5 A
	Power Adapter	AC to DC, DC12V/5A, 60W (Optional)
Power Consumption	Typical	7.3W
	Max.	13.3W
Mechanical	Construction	Aluminum housing
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	260 x 44 x 140.2 mm (10.24" x 1.73" x 5.52")
	Weight	2.3 kg (5.07 lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CCC, BSMI

## Dimensions

Unit: mm

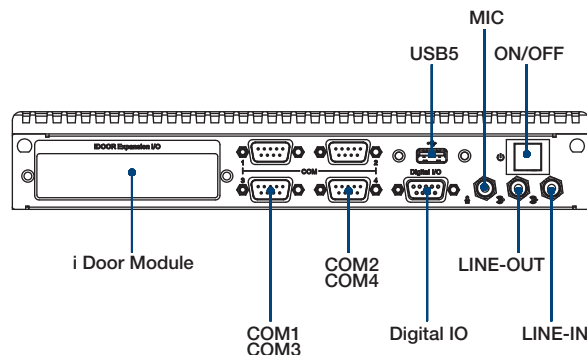


### Front Panel External I/O Mechanical Layout/Drawing



\*Power Input module by option

### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 2.0	USB 3.0	RS-232	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	mSATA	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2230L-U0A1E	Intel Celeron J1900 2.0GHz	Yes	Yes	2	4	1	2	2	Lin-out, Line-in, MIC	1	1	1	1	12 V <sub>DC</sub>	-20 ~ 60 °C

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

## Packing List

Part Number	Description
ARK-2230L-U0A1E	1 x ARK-2230L Unit
2006K22310	1 x User Manual (Simplified Chinese)
2026K22300	1 x China RoHS
1960071555N001	Wall mounting kit

# ARK-2232L

## Intel® Atom® E3940 SoC Modular Fanless Box PC

Preliminary



\*Dual Layer model is ARK-2232 with ARK Plus module

### Features

- Intel Atom E3940 Quad Core Soc
- VGA and HDMI dual independent display
- 12V lockable DC jack power input
- 9-36V power module compatible with all-in-one ordering
- -20 ~ 60 °C extend temperature operating
- Mini PCIe expansion with SIM holder for communication module
- mSATA and 1 x 2.5" SATA storage device
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering
- Advantech MIOe module compatible with all in one ordering (2 Layers)

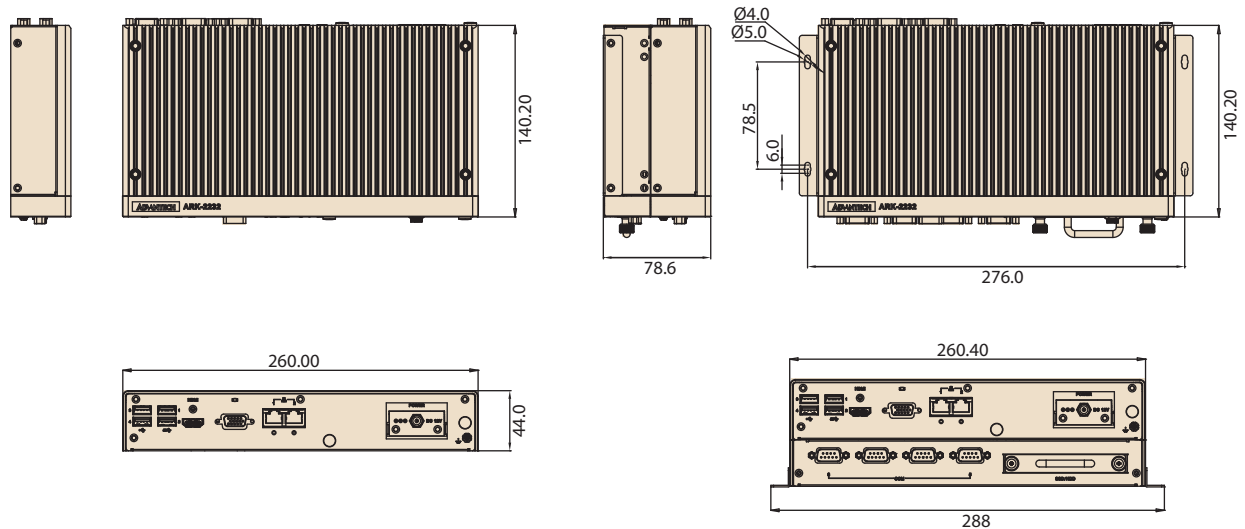


### Specifications

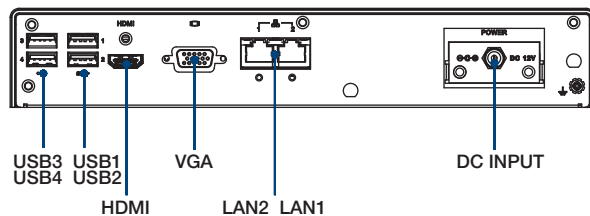
		ARK-2232L-S6A1
Processor System	CPU	Intel Atom E3940 Quad Core Soc
	Frequency	1.6 GHz, turbo burst 1.8 GHz
	L2 Cache	2MB
	BIOS	AMI EFI 64 bit
Memory	Technology	DDR3L 1866 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel HD Graphics 500
	Graphic Engine	4K Codec Decode& Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	VGA	Up to 1920 x 1200 @ 60Hz
	HDMI	HDMI 1.4b for HD video playback, 4096 x 2160 at 60Hz
	Dual Display	Yes, VGA + HDMI
Ethernet	LAN1	10/100/1000 Mbps Intel i210-IT GbE, support Wake On Lan
	LAN2	10/100/1000 Mbps Intel i210-IT GbE, support Wake On Lan
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in
IO Interface	Serial Ports	2 x RS-232 ports, 2 x RS-232/422/485 port with auto flow control
	Digital I/O	8bit programmable general purpose input/output
	USB Interface	2 x USB 3.0, 4 x USB 2.0
Other	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x full size Mini PCIe with SIM holder
	M.2	1 x M.2 2230 E Key
Storage	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 300 MB/s)
	mSATA	1 x full size mSATA socket (share with miniPCIe)
Software Support	Microsoft Windows	Windows 10
	Linux	Support by project
Power Requirement	Power Type	ATX
	Power Input Voltage	12V <sub>DC</sub> (9-36V as option)
	Minimum Power Input	12 V, 1.5 A
	Power Adapter	AC to DC, DC12V/5A, 60W (Optional)
Power Consumption (CPU/Memory only)	Typical	7.98
	Max.	19.76
Mechanical	Construction	Aluminum housing
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	260 x 44 x 140.2 mm (10.24" x 1.73" x 5.52")
	Weight	2.3 kg (5.07 lb)
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CB, CCC, BSMI

## Dimensions

Unit: mm

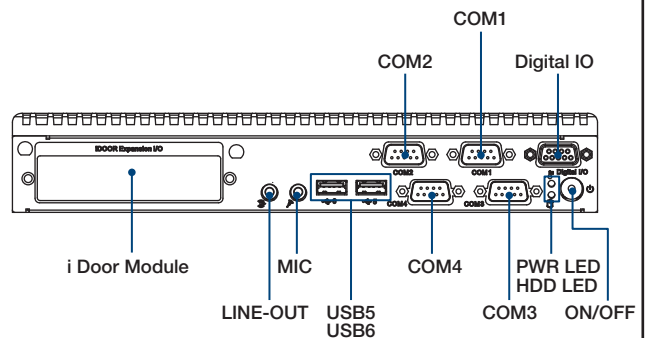


### Front Panel External I/O Mechanical Layout/Drawing



\*Power Input module by option

### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 2.0	USB 3.0	RS-232	RS-232/422/485	Audio	Full-size MiniPCIe	SIM	mSATA	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2232L-S6A1	Intel Atom E3940 1.6 GHz SoC	Yes	Yes	2	4	2	2	2	Lin-out, MIC	1	1	1	1	12 V <sub>DC</sub>	-20 ~ 60 °C

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

## Packing List

Part Number	Description
-	1 x ARK-2232L Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1960071555N001	Wall mounting kit

## ARK-2232 Default SKU Option Items

### Optional Embedded OS

Part Number	Description
TBC	Win10Ent 64bit 10MUI

### Optional Item for Default SKU

Part Number	Description
96PSA-A60W12W6	AC-to-DC Adapter, DC12V/5A 60W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
AMK-R005E	DIN Rail mount kits
AMK-V019E	VESA mount kits

## ARK-2232 Single Layer Expansion Option Items

### 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	Gigabit LAN Ethernet module, mPCIe, RJ45 2-Ch, PCIe I/F
MOS-2220-Z1101E	High Speed Serial COM module, 1-Ch, USB I/F

\*Please noted ARK-2232L can support only 1 iDoor for single layer.

### Optional 9-36V DC Power module

Part Number	Description
MIOE-PWR2-00A1E	9-36V DC input power module
96PSA-A65W19P2-1	AC-to-DC Adapter, DC19V/3.42A 65W (for MIOe-PWR2)
96PSA-A65W19P2-2	AC-to-DC Adapter, DC19V/3.42A 65W (for MIOe-PWR2)
1700001524	Power cable 3-pin 183cm, USA type (for MIOe-PWR2)
170203183C	Power cable 3-pin 183cm, EU type (for MIOe-PWR2)
170203180A	Power cable 3-pin 183cm, UK type (for MIOe-PWR2)

## ARK-2232 Dual Layer Expansion Option Items

### Optional modules for ARK Plus Expansion

Part Number	Description
AMO-2201E (2 <sup>nd</sup> Layer)	4 x RS232/422/485 + removable 2.5" drive
AMO-2202E	4 10/100/1000BaseT(X)PoE
AMO-2203E (2 <sup>nd</sup> Layer)	2-Port isolated CAN-Bus
AMO-2204E (2 <sup>nd</sup> Layer)	3-port GbE + iDoor (2nd iDoor support USB I/F only)

# ARK-2250L

## Intel 6th Generation Core™ i3/i5/i7 Modular Fanless Box PC



### Features

- Intel 6th Gen Intel® Core™ U-series (i3/i5/i7)
- VGA and HDMI dual display, option 3rd display for triple display
- 12V lockable DC jack power input
- 9-36V optional power module compatible with all-in-one ordering
- -20 ~ 60 °C extend temperature operating
- 2 x full size mPCIe expansion for WIFI/Cellular communication module
- 1 x full size mSATA and 1 x 2.5" SATA storage device
- Advantech iDoor module compatible
- Advantech ARK Plus module support by dual layer configurations

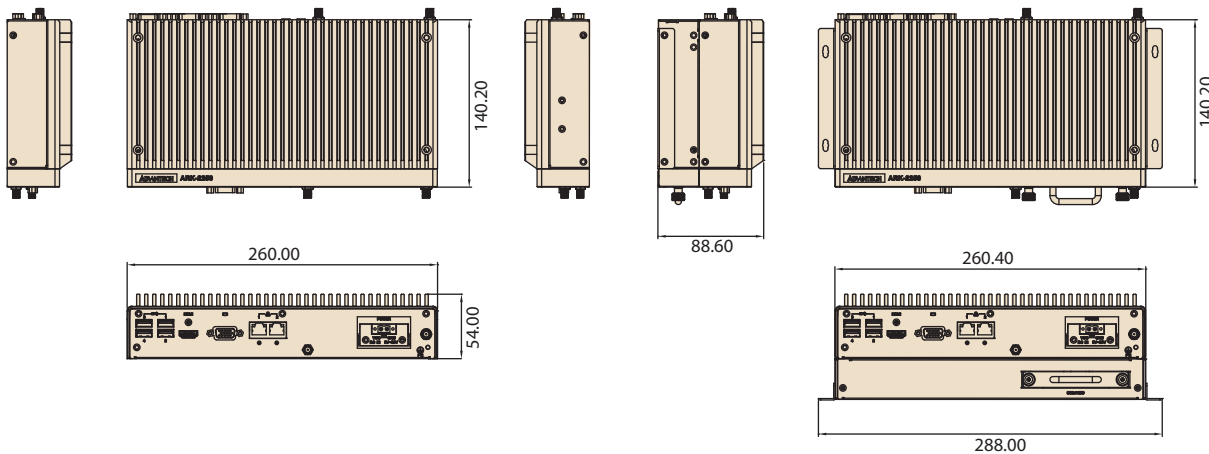


### Specifications

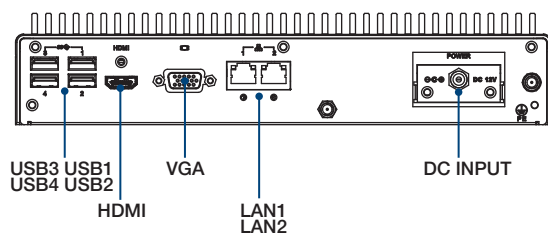
Processor System	CPU	Intel Core i7 6600U	Intel Core i5 6300U (Support by T-PN)	Intel Core i3 6100U
	Base Frequency	2.6 GHz (Dual-Core)	2.4 GHz (Dual-Core)	2.3 GHz (Dual Core)
	L3 Cache	4MB	3MB	3MB
	BIOS	AMI UEFI 128 Mbit		
Memory	Technology	DDR3L 1600 MHz		
	Max. Capacity	16 GB		
	Socket	1 x 204-pin SO-DIMM		
Graphics	Controller	Intel HD Graphics 520		
	Graphic Engine	DirectX 11.3, OpenGL 4.4, and OpenCL 2.1 Full AVC/VC1/MPEG2 HW Decode		
	VGA	Up to 1920 x 1200 @ 60Hz (No hotplug support)		
	HDMI	HDMI 1.4a for HD video playback, 4096 x 2160 @ 24Hz		
	Dual Display	Yes, VGA + HDMI		
	Optional display Module	HDMI, DP and DVI-D (DVI-D only for China)		
Triple Display	VGA+HDMI+Optional display module			
Ethernet	LAN1	10/100/1000 Mbps Intel i219 GbE, support Wake On Lan		
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan		
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in		
IO Interface	Serial Ports	4 x RS-232/422/485 port with auto flow control		
	USB Interface	4 x USB 3.0, 2 x USB 2.0		
	DIO	8bit		
Other	Watchdog timer	255 levels timer interval, setup by software		
Expansion	Mini PCIe	2 x full size Mini PCIe with (CN15 with SIM holder)		
	iDoor	1 set (option)		
Storage	HDD	Supports one SATA 2.5" HDD Bay (Compatible with 12.5mm height HDD) (Max. Data Transfer Rate 300 MB/s)		
	SSD	1 x full size mSATA socket (CN15, shared with mPCIe)		
Software Support	Microsoft Windows	Windows 10, Windows 8.1, WES7, Windows 7		
	Linux	Support by project		
Power Requirement	Power Type	ATX		
	Power Input Voltage	12V <sub>DC</sub> (9-36V as option)		
	Minimum Power Input	12 V, 5 A		
	Power Adapter	AC to DC, DC12V/5A, 60W (Option)		
Power Consumption	Typical	7.96 Watt	7.8 Watt	6.92 Watt
	Max.	43.28 Watt	42.8 Watt	41.72 Watt
Mechanical	Construction	Aluminum housing		
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting		
	Dimensions (W x H x D)	260 x 54 x 140.2 mm (10.24" x 2.13" x 5.52")		
	Weight	2.3 kg (5.07 lb)		
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 45 °C (32 ~ 113 °F) 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, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.		
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration		
	EMC	CE/FCC Class B, CCC, BSMI		
	Safety Certifications	UL, CCC, BSMI		

## Dimensions

Unit: mm

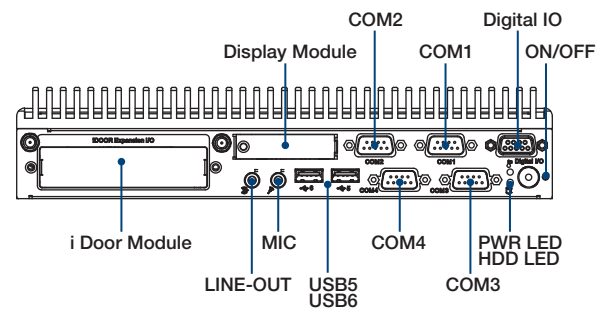


### Front Panel External I/O Mechanical Layout/Drawing



\*Power Input module by option

### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 2.0	USB 3.0	RS-232/422/485	DIO	Audio	Full-size MiniPCle	SIM	mSATA	2.5" SATA II HDD Bay	Power Input	Operating Temp.
ARK-2250L-U6A1E	Intel Core i7-6600U	Yes	Yes	2	2	4	4	1	Lin-out, Mic-in	2	1	1	1	12 V <sub>DC</sub>	-20 ~ 60 °C
ARK-2250L-U3A1E	Intel Core i3-6100U	Yes	Yes	2	2	4	4	1	Lin-out, Mic-in	2	1	1	1	12 V <sub>DC</sub>	-20 ~ 60 °C

Note: Memory, storage and operating system bundled by request.  
 \* i5-6300U is supported by T-PN, MOQ 30pcs.

## Packing List

Part Number	Description
-	1 x ARK-2250L Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
-	2 x Wall mounting bracket
-	2 x LAN Clip

## ARK-2250 Expansion Option Items

### Optional Embedded OS

Part Number	Description
2070014952	WES7E 64bit ENG/T-CH/S-CH/JP (17.8 GB)
2070014959	Win Emb 8.1_64bit US/DE/ES/FR/JP/KR/LT/RU/CN/TW (21 GB)
2070014941	WIN10 IoT LTSB 64bit_EN for ARK-2250L-U6A1E (15.5GB)
2070014942	WIN10 IoT LTSB 64bit_EN for ARK-2250L-U3A1E (15.5GB)

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS

### Optional Item for Default SKU

Part Number	Description
96PSA-A60W12W6	AC-to-DC Adapter, DC12V/5A 60W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
AMK-V019E	VESA mount kits
AMK-R005E	DIN Rail mount kits

### 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-0201E	Isolated RS-232, 2-Ch, DB9, PCIe Interface
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe Interface
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe Interface
MOS-1121Y-1401E	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

### Optional 9-36V DC Power module

Part Number	Description
MIOE-PWR2-00A1E	9-36V DC input power module
96PSA-A65W19P2-1	AC-to-DC Adapter, DC19V/3.42A 65W (for MIOE-PWR2)
96PSA-A65W19P2-2	AC-to-DC Adapter, DC19V/3.42A 65W (for MIOE-PWR2)
1700001524	Power cable 3-pin 183cm, USA type (for MIOE-PWR2)
170203183C	Power cable 3-pin 183cm, EU type (for MIOE-PWR2)
170203180A	Power cable 3-pin 183cm, UK type (for MIOE-PWR2)

### Optional Display Module

Part Number	Description
AMO-D001E	DVI-D module (China only)
AMO-D002E	DP module
AMO-D003E	HDMI module

## ARK-2250 Dual Layer Expansion Option Items

### Optional modules for ARK Plus Expansion

Part Number	Description
AMO-2201E (2 <sup>nd</sup> Layer)	4 x RS232/422/485 + removable 2.5" drive
AMO-2203E (2 <sup>nd</sup> Layer)	2-Port isolated CAN-Bus
AMO-2204E (2 <sup>nd</sup> Layer)	3-port GbE + iDoor (2nd iDoor support USB I/F only)



# ARK Plus Extended Modules

## AMO-2201E

4 x RS232/422/485 + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
Ports	4 x RS232/422/485 (set up by jumper)
Others	Removable 2.5" drive bay
Mechanical	
Dimension	260 x 34.6 x 140.2 mm (10.24" x 1.36" x 5.52")
Environment	
Operating Temp	0 ~ 40 °C

### Ordering Information

P/N	Description
AMO-2201E	4 x RS232/422/485 + removable 2.5" drive bay

## AMO-2203E

2-Port isolated CAN-Bus



### Specifications

General	
Bus interface	MIOe
Ports	2 x DB9 isolated CAN-Bus
Communications	
Signal Support	CAN_H, CAN_L
Protocol	CAN 2.0 A/B
Data Transfer Rate	Programmable up to 1Mbps
CAN Frequency	16MHz
Protection	
Isolation Protection	2,500 V <sub>DC</sub>
Mechanical	
Dimension	260 x 34.6 x 140.2 mm (10.24" x 1.36" x 5.52")
Environment	
Operating Temp	0 ~ 40 °C

### Ordering Information

P/N	Description
AMO-2203E	2-Port isolated CAN-Bus

## AMO-2204E

3-Port GbE + iDoor



### Specifications

General	
Bus interface	MIOe
Ports	3 x RJ45 10/100/1000 Mbps ports
Chipset	Intel 82583V Gigabit Ethernet Controller
Other	1 x iDoor
Mechanical	
Dimension	260 x 34.6 x 140.2 mm (10.24" x 1.36" x 5.52")
Environment	
Operating Temp	0 ~ 40 °C

### Ordering Information

P/N	Description
AMO-2204E	3-Port GbE + iDoor

# ARK-3405

## Intel® Celeron™ N3160 Fanless Embedded Box PC with Rich Expansion and Dual Removable 2.5" HDD Drive Bays



### Features

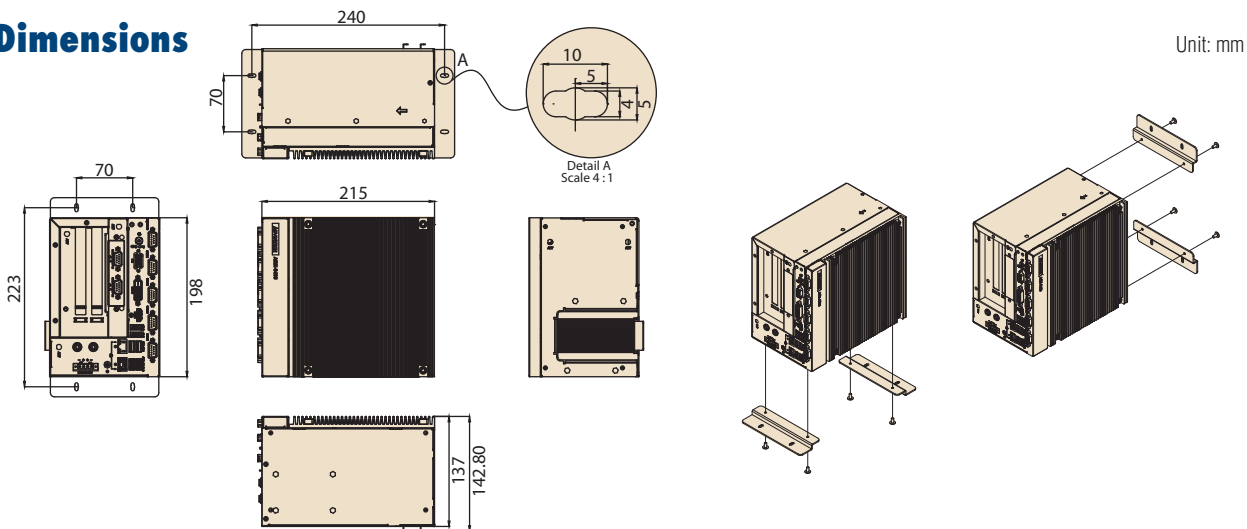
- Intel® Celeron™ N3160 Quad Core 2.24GHz SoC with Turbo boost Support
- Supports VGA /DVI-D/HDMI triple independent display
- Support 2 GbE, 3 USB 3.0, 3 USB 2.0, 1 DIO, audio and 4 COM ports
- Two removable 2.5" SATA HDD drive bays
- Flexible Expansion via PCI/PCIe x1
- Support 2 Mini PCIe with 1 SIM holder for communication module
- Wide range power input 9-36V
- Advantech iDoor module compatible



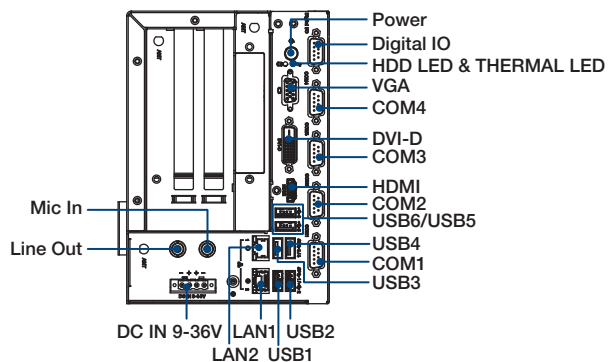
### Specifications

Processor System	CPU	Intel Celeron N3160 processor
	Max. speed	1.6GHz, Turbo boost up to 2.24GHz
	BIOS	AMI EFI 64 Mbit BIOS
Memory	Technology	DDR3L 1600MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel HD 8 Gen Integrated Graphic Engine
	Interface	VGA: Up to 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz HDMI: 2560 x 1600 @ 60Hz; 3840 x 2160 @ 30Hz
	Triple Display	VGA + DVI-D + HDMI
Ethernet	LAN 1	10/100/1000 Mbps Intel i210 Ethernet controller, support Wake on LAN
	LAN 2	10/100/1000 Mbps Intel i210 Ethernet controller, support Wake on LAN
Audio	Interface	Realtek ALC892: Mic-in and Line-Out
IO interface	Serial Interface	2 x RS-232, 2 x RS-232/422/485 w/ auto flow control (Default) ; COM 4 support 5V/12V power supply (by jumper) Additional 2 x RS-232 ports support by cable and bracket (Optional by project support)
	USB Interface	3 x USB 2.0 + 3 x USB 3.0, 1 x internal USB2.0
	Digital I/O	8-bit digital IO
	P/S2	1 x PS/2 port support by cable and bracket (Optional by project support)
Other	Watchdog Timer	255-level timer interval, setup by software
	TPM	TPM 2.0 (Optional by project support)
Expansion	Add-on Card Slot	2 Slots PCI (default) 1 Slot PCI and 1 Slot PCIe x1 (Optional: AMO-R020E); 2 Slots PCIe x1 (Optional: AMO-R019E); Maximum card size of 180mm (L) x 110mm (H) Maximum power consumption 10w for each slot
	Mini PCIe	2 x Full-size Mini PCIe ( 1 Mini PCIe with SIM holder)
Storage	HDD/SSD	Two 2.5" SATA removable HDD Bays with maximum device height 12.5mm
	SD	1 internal SD Card slot support
Software Support	Microsoft Windows	Windows 10, Windows 8.1, Windows 7, WES8.1 , WES7
	Linux	Support by project
Power Requirement	Power Type	AT/ATX
	Power Input Voltage	9 V <sub>DC</sub> ~ 36 V <sub>DC</sub>
	Power Adapter	AC to DC, DC12V/7A, 84W (Optional)
Power Consumption	Typical	9.7W
	Max.	22.8W
Mechanical	Construction	Aluminum housing
	Mounting	Desk/wall-mounting
	Dimensions (W x H x D)	142.8 x 198 x 215 mm (5.63" x 7.79" x 8.46")
	Weight	3.16 kg (6.97 lb)
Environment	Operating Temperature	With extended temperature peripherals: -10 ~ 55 °C (-14 ~ 131 °F) with 0.7m/s air flow With 2.5-inch hard disk 0 ~ 40 °C (32 ~ 104 °F) with 0.7m/s air flow
	Storage Temperature	-40 ~ 85° C (-40 ~ 185°F)
	Relative Humidity	95% @ 40° C (non-condensing)
	Vibration Loading During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI

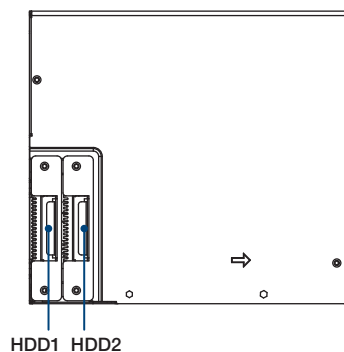
## Dimensions



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



## Side Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	DDR3L	VGA	DVI-D	HDMI	RS-232	RS-232/422/485	DIO	USB 3.0	USB 2.0	MiniPCIe	SIM	Expansion	iDoor
ARK-3405R-S6A1E	N3160	up to 8GB	1	1	1	2	2	8-bit	3	3	2	1	2 x PCI	1

## Packing List

Part Number	Description
-	1 x China RoHS for ARK-3405
-	1 x User Manual (Simplified Chinese)
2190000902	1 x CARDBOARD-WARRANTY
1652003234	1 x 4-pin PLUG-IN BLOCK
1990021361N000	2 x HDD Thermal-Pad
1960069484N000	2 x LAN Clip Bracket
1960073853N001	2 x Mounting Bracket
1990027474N000	1 x CPU Thermal-Pad
9680015173	1 x L type Wrench for top cover

## Option Item Information

Part Number	Description
AMO-R019E	2x PCIe1x riser card
AMO-R020E	1x PCI + 1x PCIe1x riser card
96PSA-A84W12P4	AC to DC Adaptor, DC12V/7A, 84W, 0 - 40° C
1702002600	Power Cord, 3-Pin 183cm, USA type
1702002605	Power Cord, 3-Pin 183cm, EU type
1702031801	Power Cord, 3-Pin 183cm, UK type
1700000237	Power Cord, 3-Pin 183cm, PSE type

## Embedded OS

Part Number	Description
2070014220	WES7E 64bit ENG/CHT/CHS/JPN
2070014248	WES8.1E 64bit ENG/CHT/CHS/JPN
2070014270	Win 10 Enterprise 64bit with EN/JP/TC/SC

## Optional MOS modules for iDoor Expansion

Part Number	Description
MOS-1120Y-0201E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1401E	Non-Isolated RS-232, 4-Ch, DB9, PCIe I/F
MOS-1121Y-1401E	Non-Isolated RS-422/485, 4-Ch, DB9, PCIe I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F
MOS-2220-Z1101E	High Speed Serial COM module, 1-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F

# ARK-3500

3rd Gen. Intel® Core™ i3/ i5/ i7 with 2 Expansion slots and wide range power Fanless Box PC



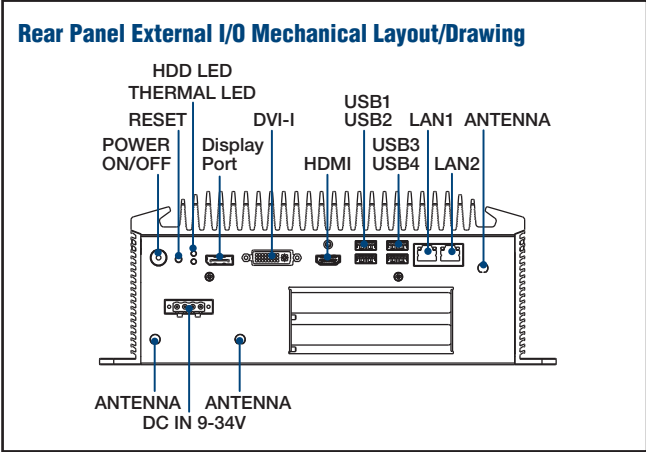
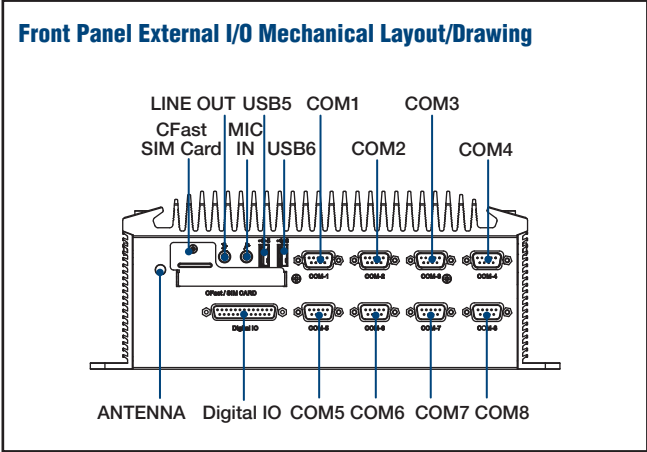
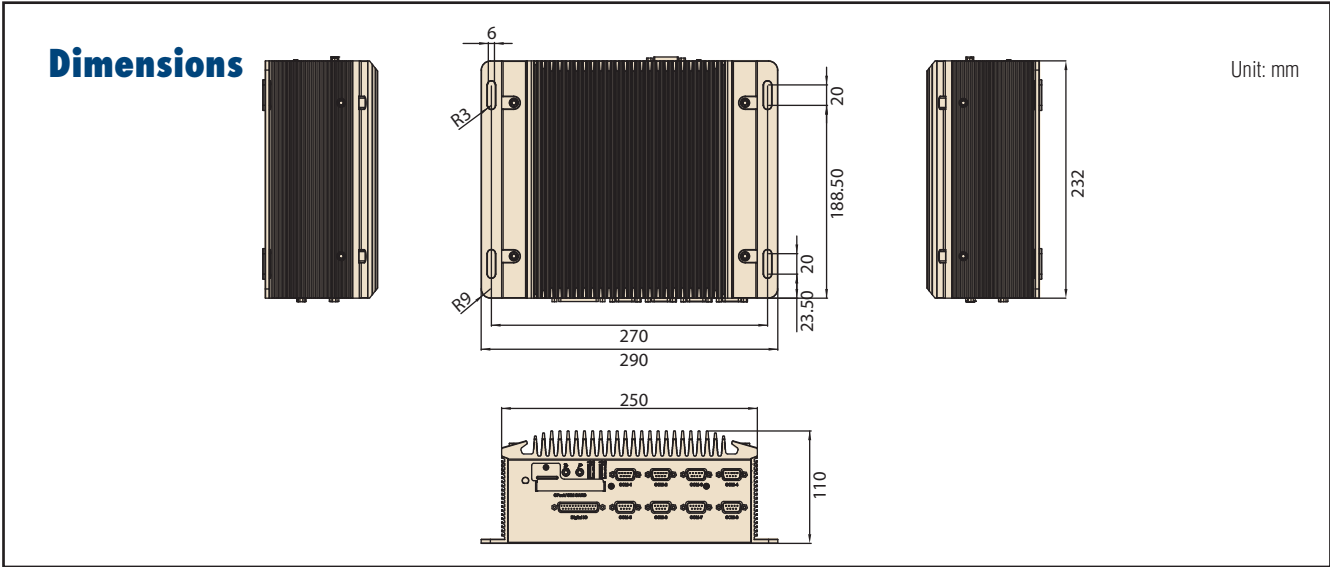
## Features

- Supports Intel® Core™ i3/i5/i7 mobile processor(rPGA) + Intel QM77 PCH
- Triple independent display with 3rd gen Core i processor : DVI + HDMI + DisplayPort
- DDR3/DDR3L SO-DIMM memory support up to 16 GB
- 2 expansion slots with vary interface: PCI, PCIe x 1 & PCIe x 4
- 2 x miniPCIe slots with SIM card holders
- 9-34V wide range lockable DC jack design
- Versatile I/Os including 4 x high speed USB 3.0 and 8 x COM ports
- Flexible Storage Support including 2x mSATA, 1x CFast and 2x 2.5" SATA HDD/ SSD bays
- Supports iManager, WISE-PasS/RMM and Embedded Software APIs



## Specifications

Processor System	CPU (rPGA)	Intel Core i7-3610QM	Intel Core i5-3610ME	Intel Core i3-3120ME	Celeron 1020E
	Frequency	2.3 GHz (Quad Core)	2.7 GHz (Dual Core)	2.4 GHz (Dual Core)	2.2 GHz (Dual Core)
	L3 Cache	6 MB	3 MB	3 MB	2 MB
	Watts	45W	35W	35W	35W
	System Chipset	Intel QM77			
Memory	BIOS	AMI EFI 64Mbit			
	Technology	DDR3/DDR3L 1600MHz			
	Max. Capacity	16 GB			
Graphics	Socket	2 x 204-pin SO-DIMM			
	Chipset	Intel QM77 Integrated GFX Gen 7			
	Graphic Engine	DirectX11, OpenGL 3.1, and Open CL 11; Hardware decode acceleration: AVC/H.264, MPEG-2, VC-1			
	CRT	VGA integrated in DVI-I port			
	DVI-I	1920 x 1200 @ 60 Hz			
	HDMI	Support HDMI 1.4, 1920 x 1200 @ 60 Hz			
	Display port	2560 x 1600 @ 60Hz (Video only, and only support on 3rd generation processor)			
Ethernet	LAN1	VGA+DVI, VGA+HDMI, VGA+DP, DVI+HDMI, DVI+DP, HDMI+DP			VGA+DVI, DVI+HDMI, VGA+HDMI
	LAN2	DVI-D + HDMI + DisplayPort (Main display)			N/A
Audio	LAN1	10/100/1000 Mbps Intel 82579LM GbE, support Wake On Lan			
	LAN2	10/100/1000 Mbps Intel I-210IT GbE, support Wake On Lan			
I/O Interface	Interface	Realtek ALC892, High Definition Audio, Line-out, Mic-in			
	Serial Port	4 x RS-232 ports, 4 x RS-232/422/485 port with auto flow control			
	USB	4 x USB 3.0 ports (USB1,2,3,4); 2 x USB 2.0 ports (USB5,6)			
	DIO	16 bit DIO			
Expansions	Watchdog Timer	255-level timer interval , setup by software			
	Mini PCIe	2 x Full-size Mini PCIe with SIM holder (Supports mSATA)			
	Add-on Card Slot	ARK-3500P-00A1E : 2 x PCI; Maximum card size: 110 mm (H) x 180 mm (L) ARK-3500F-00A1E : PCIe x 1 + PCIe x 4; Maximum card size: 110 mm (H) x 180 mm (L) Suggest maximum power consumption 10w for each slot			
Storage	HDD	Two 2.5" SATA HDD Bays with maximum device height 9.5mm, SATA III, Gen 3 Support (Max. Data Transfer Rate 600 MB/s), Support SATA RAID 0, 1			
	Solid State Disk	1 x CFast Card slot			
Software Support	Microsoft Windows	Windows 8 , Windows 7, XP Professional (32bit), XP Embedded (32bit)			
	Linux	Ubuntu 12.04			
Power Requirements	Power Type	AT/ATX			
	Power Input Voltage	9 ~ 34 V <sub>oc</sub>			
	Power Adapter	AC to DC, DC 12V , 120W (Optional)			
Power Consumption	Typical	19.2W	16.4W	14.8W	16.4W
	Max.	60W	36.5W	30W	31.8W
Mechanical	Construction	Aluminum housing			
	Mounting	Desk/wall-mounting			
	Dimensions (W x H x D)	290 x 110 x 232mm (11.4" x 4.33" x 9.13")			
	Weight	4.8 kg			
	Operating Temperature	with extended temp peripherals: -10 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40° C with 0.7m/s air flow			
Environment	Storage Temperature	-40 ~ 85° C			
	Relative Humidity	95% @ 40° C (non-condensing)			
	Vibration During Operation	With SSD: 5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.			
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration			
	EMC	CE/FCC Class A, CCC, BSMI			
	Safety	CB, UL, CCC, BSMI			



## Ordering Information

Part No.	CPU	DDR3	DP	HDMI	DVI-I	RS-232/422/485	RS-232	USB 3.0	USB 2.0	MiniPCIe	SIM	DC input	Expansion
ARK-3500P-00A1E	PGA Socket Type	up to 16 GB	1	1	1	4	4	4	2	2	2	9 ~ 34 V	2 x PCI
ARK-3500F-00A1E	PGA Socket Type	up to 16 GB	1	1	1	4	4	4	2	2	2	9 ~ 34 V	1 x PCIe x 1 1 x PCIe x 4

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

## Packing List

Part Number	Description
1654009744	DVI-I to VGA adaptor
968EMLSAP2	SUSI CD
-	User Manual (Simplified Chinese)
-	China RoHS for ARK-3500 Electronic Pollution 1st
1652003234	4 pin DC in terminal block
1930001241	HDD screws
2190000902	CARDBOARD-WARRANTY REV. A2

## Embedded OS

Part Number	Description
2070012570	WES2009 32bit 24MUI
2070012650	WES7E 32bit ENG/CHT/CHS/JPN
2070012706	WES7E 64bit ENG/CHT/CHS/JPN
2070014612	WES7P 32bit ENG/CHT/CHS/JPN
2070012628	WES7P 64bit ENG/CHT/CHS/JPN
2070013970	WES7E 32bit ENG/CHT/CHS/JPN (RAID)
2070013971	WES7E 64bit ENG/CHT/CHS/JPN (RAID)

## Optional Items

Part Number	Description
96PSA-A150W19P4-1	AC-to-DC Adaptor, DC 19V, 150W, -20 ~ 70° C
1702002600	Power cable 3-pin 180cm, USA type
1702031801	Power cable 3-pin 180cm, UK type
1702002605	Power cable 3-pin 180cm, EU type
1700000237	Power cable 3-pin 180cm, with PSE
96MPI7M-2.3-6M9T	CORE 2.3G 6M 988P 4CORE I7-3610QE(G)
96MPI5-2.7-3M9T	CORE 2.7G 3M 988P 2CORE I5-3610ME(G)
96MPI3M-2.4-3M9T	CORE 2.4G 3M 988P 2CORE I3-3120ME(G)
96MPCM-2.2-2M9T	CELERON M 2.2G 2M 988P 2CORE I020E(G)
	CORE 2.9G 4M 988P 2CORE I7-3520M

# ARK-3510

3rd Gen. Intel® Core™ i3/ i5/ i7 with  
2 x 2.5" Removable HDD Bays Fanless Box PC



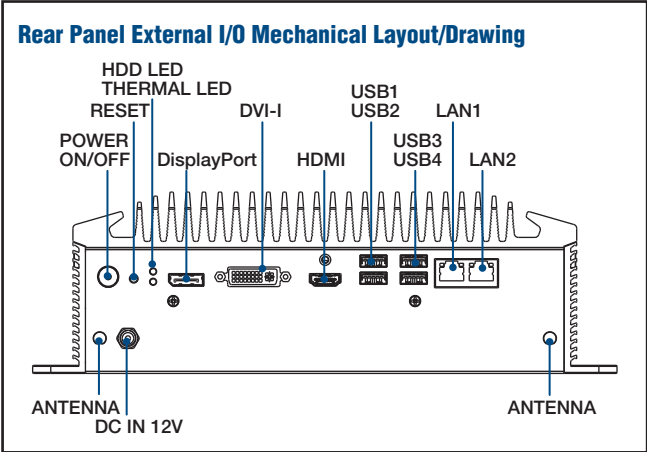
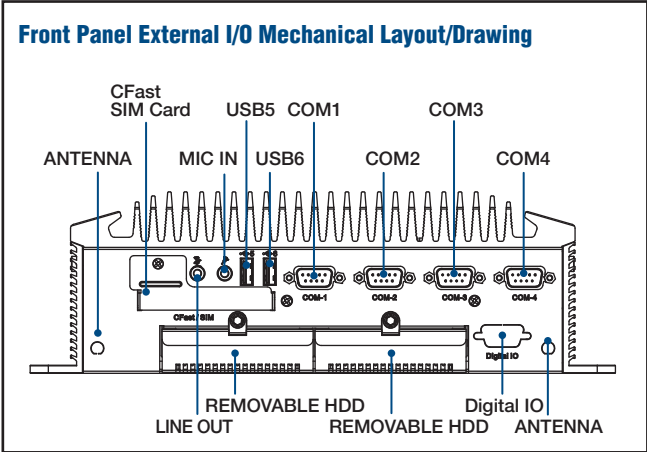
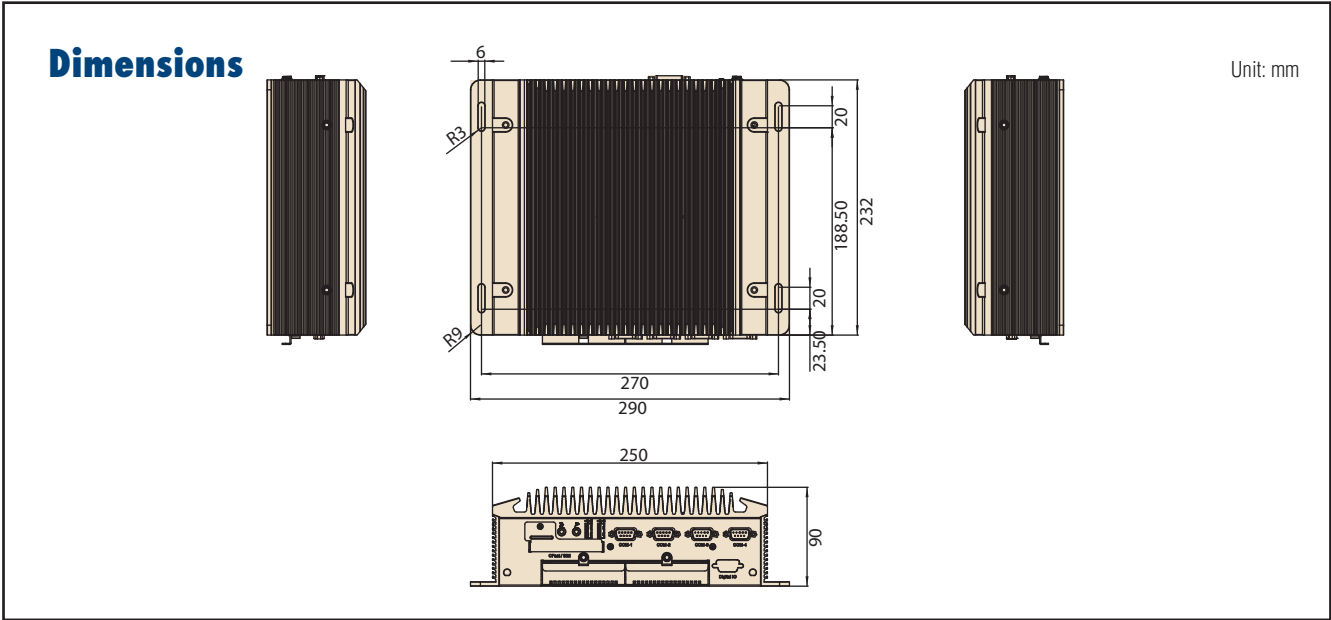
## Features

- Supports Intel® Core™ i3/i5/i7 mobile processor(rPGA) + Intel QM77 PCH
- Triple independent display with 3rd gen Core I processor : DVI + HDMI + DisplayPort
- DDR3/DDR3L SO-DIMM memory support up to 16 GB
- Supports 2 x 2.5" removable SATAIII drive bays
- 2 x miniPCIe cards with SIM card holders
- Versatile I/Os including 4 x high speed USB 3.0 and 4 x COM ports
- Lockable 12V DC jack design
- Supports iManager, WISE-PaaS/RMM and Embedded Software APIs



## Specifications

Processor System	CPU (rPGA)	Intel Core i7-3610QE	Intel Core i5-3610ME	Intel Core i3-3120ME	Celeron 1020E
	Frequency	2.3 GHz (Quad Core)	2.7 GHz (Dual Core)	2.4 GHz (Dual Core)	2.2 GHz (Dual Core)
	L3 Cache	6 MB	3 MB	3 MB	2 MB
	Watts	45W	35W	35W	35W
	System Chipset	Intel QM77			
Memory	BIOS	AMI EFI 64Mbit			
	Technology	DDR3/DDR3L 1600 MHz			
	Max. Capacity	16 GB			
Graphics	Socket	2 x 204-pin SO-DIMM			
	Chipset	Intel QM77 Integrated GFX Gen 7			
	Graphic Engine	DirectX11, OpenGL 3.1, and Open CL 11; Hardware decode acceleration: AVC/H.264, MPEG-2, VC-1			
	CRT	VGA integrated in DVI-I port			
	DVI-I	1920 x 1200 @ 60 Hz			
	HDMI	Support HDMI 1.4, 1920 x 1200 @ 60Hz			
	Display port	2560 x 1600 @ 60Hz (Video only, and only support on 3rd generation processor)			
Other	Dual Display	VGA+DVI, VGA+HDMI, VGA+DP, DVI+HDMI, DVI+DP, HDMI+DP			VGA+DVI, DVI+HDMI, VGA+HDMI
	Triple Display	DVI-D + HDMI + DisplayPort(Main Display)			N/A
	Watchdog Timer	255-level timer interval, setup by software			
Ethernet	LAN1	10/100/1000 Mbps Intel 82579LM GbE, support Wake On Lan			
	LAN2	10/100/1000 Mbps Intel I-210IT GbE, support Wake On Lan			
Audio	Interface	Realtek ALC892, High Definition Audio. Line-out, Mic-in			
I/O Interface	Serial Port	2 x RS-232 ports, 2 x RS-232/422/485 port with auto flow control			
	USB	4 x USB 3.0 ports (USB1,2,3,4) and 2 x USB 2.0 ports (USB5,6)			
Expansion	Mini PCIe	2 x Full-size Mini PCIe with SIM holder (Supports mSATA)			
Storage	HDD	Two 2.5" SATA removable HDD Bays with maximum device height 9.5mm, SATA III, Gen 3 Support (Max. Data Transfer Rate 600 MB/s), Support SATA RAID 0, 1			
	Solid State Disk	1 x CFast Card			
Software Support	Microsoft Windows	Windows 8, Windows 7, XP Professional (32bit), XP Embedded (32bit)			
	Linux	Ubuntu 12.04			
Power Requirements	Power Type	AT/ATX			
	Power Input Voltage	12 V <sub>DC</sub> , ± 10% (9 ~ 34 V <sub>DC</sub> support by request)			
	Power Adapter	AC to DC, DC12V / 7A, 84 W (Optional)			
Power Consumption	Typical	19.2W	16.4W	14.8W	16.4W
	Max.	60W	36.5W	30W	31.8W
		Max. : test with 100% CPU loading and HDD R/W access only.			
Mechanical	Construction	Aluminum housing			
	Mounting	Desk/wall-mounting			
	Dimensions (W x H x D)	290 x 90 x 232 mm (11.4" x 3.54" x 9.13")			
	Weight	4.63kg			
Environment	Operating Temperature	with extended temp peripherals: -10 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40° C with 0.7m/s air flow			
	Storage temperature	-40 ~ 85° C			
	Relative Humidity	95% @ 40° C (non-condensing)			
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.			
	Shock During Operation	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration			
	EMC	CE/FCC Class A, CCC, BSMI			
	Safety	CB, UL, CCC, BSMI			



## Ordering Information

Part No.	CPU	DDR3	DP	HDMI	DVI-I	RS-232/422/485	RS-232	USB 3.0	USB 2.0	MiniPCle	SIM	DC input	Expansion
ARK-3510L-00A1E	PGA Socket Type	up to 16 GB	1	1	1	2	2	4	2	2	2	12V	MIOe

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

## Packing List

Part Number	Description
1654009744	DVI-I to VGA adaptor
968EMLSAP2	SUSI CD
2006351010	User Manual (Simplified Chinese)
-	China RoHS for ARK-3510 Electronic Pollution 1st
2190000902	CARDBOARD-WARRANTY REV. A2

## Embedded OS

Part Number	Description
2070012634	WES2009 32bit 10MUI
2070012650	WES7E 32bit ENG/CHT/CHS/JPN
2070012706	WES7E 64bit ENG/CHT/CHS/JPN
2070014612	WES7P 32bit ENG/CHT/CHS/JPN
2070012627	WES7P 64bit ENG/CHT/CHS/JPN

## Optional Items

Part Number	Description
96PSA-A84W12W6-1	AC-to-DC Adapter, DC 12V/7A 84W, 0~40° C for Home and Office Use
96PSA-A150W12W7	AC-to-DC Adaptor, DC 12V, -20 ~ 70° C
1702002600	Power cable 3-pin 180cm, USA type
1702031801	Power cable 3-pin 180cm, Uk type
1702002605	Power cable 3-pin 180cm, EU type
170000237	Power cable 3-pin 180cm, with PSE
96MPI7M-2.3-6M9T	CORE 2.3G 6M 988P 4CORE I7-3610QE(G)
96MPI5-2.7-3M9T	CORE 2.7G 3M 988P 2CORE I5-3610ME(G)
96MPI3M-2.4-3M9T	CORE 2.4G 3M 988P 2CORE I3-3120ME(G)
96MPCM-2.2-2M9T	CELERON M 2.2G 2M 988P 2CORE 1020E(G)

# ARK-3520L

## 6th Gen. Intel® Core™ i3/ i5/ i7 Modular Expansion Fanless Box PC

**NEW**



### Features

- 6th Gen. Intel® Core™ i3/i5/i7 mobile processor (BGA)
- Triple independent display: VGA + HDMI + Optional Display
- DDR4 SO-DIMM memory support up to 32 GB
- Option 9-36V power module compatible with all-in-one ordering
- Optional modular design for 2.5" hard drive bays : internal /removable (support up to 2 sets)
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering
- Advantech ARK Plus AMO-3xxx series module compatible



WISE-PaaS/RMM iManager



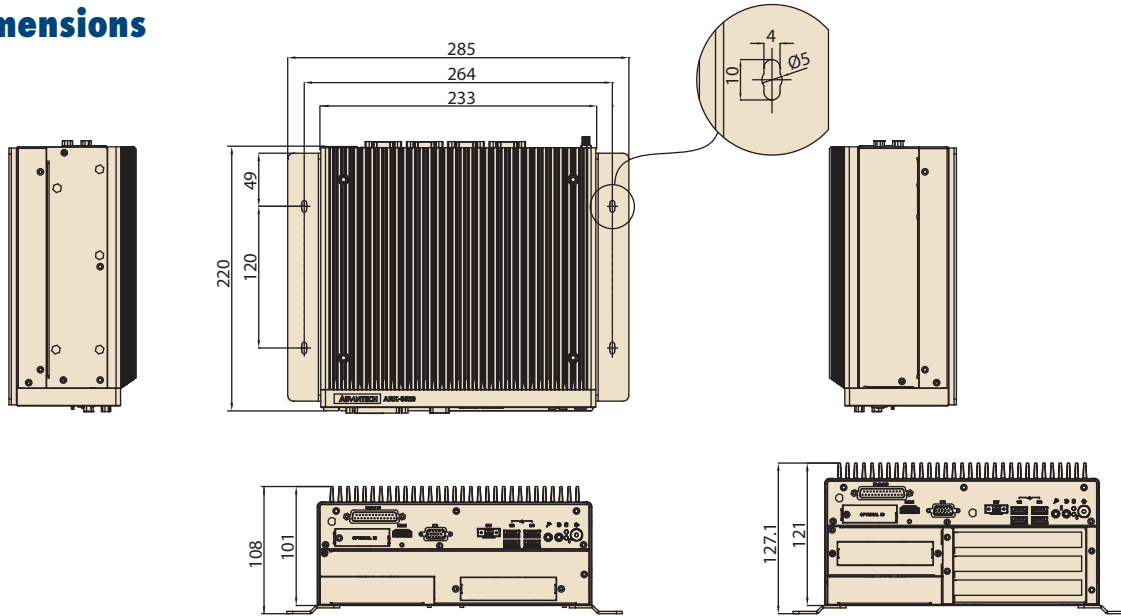
### Specifications

Processor System	CPU	Intel Core i7-6820EQ	Intel Core i5-6440EQ	Intel Core i3-6100E (support by T-P/N)
	Frequency	2.8 GHz (Quad Core)	2.7 GHz (Quad Core)	2.7 GHz (Dual Core)
	L3 Cache	8 MB	6 MB	3 MB
	Watts	45W	45W	35W
	System Chipset	Intel QM170		
Memory	BIOS	AMI EFI 128Mbit		
	Technology	DDR4 2133 MHz		
	Max. Capacity	32 GB		
Graphics	Socket	2 x 260-pin SO-DIMM		
	Chipset	Intel QM170 Integrated GFX Gen 9		
	Graphic Engine	Direct x 12, OpenGL 4.4		
	VGA	1920x1200@ 60Hz		
	HDMI	1 HDMI port, HDMI 1.4b for HD video playback, 3840x2160@30Hz		
	Optional 3rd Display module	DVI-D / DP / HDMI Display Port		
	Triple Display	VGA+HDMI + 3rd display module		
Ethernet	LAN1	10/100/1000 Mbps Intel I219-LM GbE, support Wake On Lan		
	LAN2	10/100/1000 Mbps Intel I210 GbE, support Wake On Lan		
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in		
Others	Watch dog Timer	255-level timer interval, setup by software		
	TPM	TPM 2.0 (Optional by project support)		
I/O Interface	Serial Port	4 x RS-232 ports, 4 x RS-232/422/485 port with auto flow control; COM 1,2 support 5V/12V power supply (by jumper)		
	USB	6 x USB 3.0 ports; 2 x USB 2.0 ports		
	DIO	16 bit DIO		
	P/S2	1 Port support by cable and bracket (Optional)		
	Parallel Port	D-sub 25pin connector (Optional)		
Expansions	Mini PCIe	2 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder)		
	M.2	1 x E key for WiFi		
	i Door	1 set (Optional)		
Storage	ARK Plus	AMO-3501E 3 Slot Riser Card for 2x PCI+1xPCIx4		
	HDD	1 x 2.5" SATAIII HDD Bay with Max Height 15mm, (1 internal 2.5" HDD Bay with one optional removable HDD Bay)		
	mSATA	1 x mSATA socket (Share 1 Mini PCIe)		
Software Support	Microsoft Windows	Windows 10, Windows 8.1, Windows 7		
	Linux	By Project Support		
Power Requirements	Power Type	AT/ATX		
	Power Input Voltage	12V (9-36V as optional)		
	Power Adapter	AC to DC, 150W (Optional)		
Power Consumption	Typical	11.4W		
	Max.	68.4W	46.5W	42.75W
Mechanical	Construction	Aluminum housing		
	Mounting	Desk/wall-mounting		
	Dimensions (W x H x D)	220 x 101 x 233 mm (8.66" x 3.98" x 9.17")		
	Weight	4.8 kg (10.58 lb)		
Environment	Operating Temperature	with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40° C with 0.7m/s air flow		
	Storage Temperature	-40 ~ 85° C		
	Relative Humidity	95% @ 40° C (non-condensing)		
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.		
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration		
	EMC	CE/FCC Class B, CCC, BSMI		
Safety	CB, UL, CCC, BSMI			

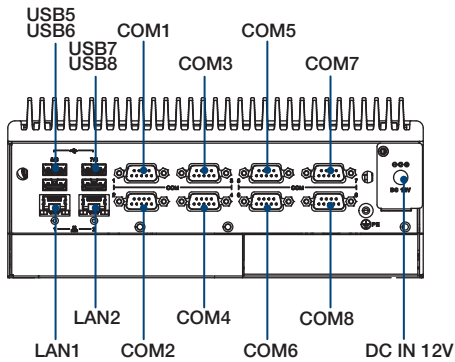


### Dimensions

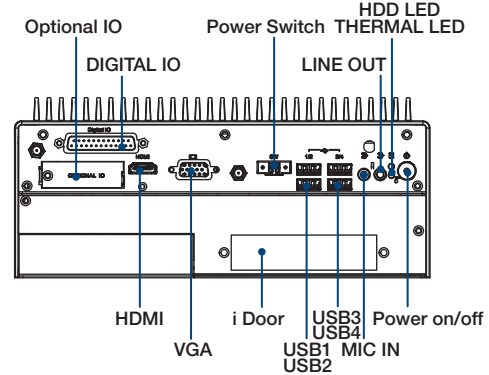
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### Front Panel External I/O Mechanical Layout/Drawing



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	DDR4	VGA	HDMI	Option 3rd display module	RS-232/422/485	RS-232	USB 3.0	USB 2.0	MiniPCIe	SIM	DC input	Expansion
ARK-3520L-U8A1E	i7-6820EQ	up to 32G	1	1	1	4	4	6	2	2	1	12V	Optional
ARK-3520L-U7A1E	i5-6440EQ	up to 32G	1	1	1	4	4	6	2	2	1	12V	Optional

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

\* ARK-3520L i3-6100E support by T-PN with MOQ 30pcs

## Packing List

Part Number	Description
-	ARK-3520 Unit
-	User Manual (Simplified Chinese)
-	China RoHS
-	2pin power switch terminal block
1960075470N031	2 x mounting bracket

## Embedded OS

Part Number	Description
2070014628	WES7E 64bit EN/JP/TC/SC
2070014627	WE8.1 64bit IndustryPro EN/JP/TC/SC
2070014899	Win10 Ent X64 (High End) for i7-6820EQ
2070014898	Win10 Ent X64 (Value) for i5-6440EQ

## ARK-3520 Default SKU Option Items

### Optional Item for Default SKU

Part Number	Description
XARK-DPS-150AB-15	AC-to-DC Adapter, DC12V 150W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable, 3-Pin 183cm, PSE type

### Optional MOS modules for iDoor Expansion

Part Number	Description
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F.
MOS-2220-Z1101E	High Speed Com USB module, 2-Ch, PCIe I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F.
MOS-1120Y-0201E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1401E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F

\*Please noted ARK-3520 can support only 1 iDoor.

### Optional 9-36V DC Power Module

Part Number	Description
AMO-P010E	9-36V DC input power module for ARK-3520
96PSA-A150W19P4-1	AC-to-DC Adapter, DC19V 150W, 0 ~ 40° C (for AMO-P010E)
96PSA-A220W24P4-1	AC to DC adapter, DC 24V 220W, -20 ~ 60° C (For AMO-P010E)
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type

## ARK-3520L Optional HDD expansion Kit (Support up to 2 sets)

Part Number	Description
AMK-A0022E	1 x internal HDD Kit (Max Height 15mm)
AMK-A0023E	1 x removable HDD Kit (Max Height 15mm)

### Optional Display Module

Part Number	Description
AMO-D001E	DVI-D module (China only)
AMO-D002E	DP module
AMO-D003E	HDMI module

## ARK Plus Extended Modules

### AMO-3501E

3 Slots Riser Card Expansion Module: 2 x PCI +1x PCIe4

#### Specifications

General	
Add on card support	3 Slot for 2xPCI+1xPCIex4 Max Card size: 110 mm(H) x 180 mm (L) Max Power consumption: 10W for each slot
HDD/SSD	NA
Mechanical	
System Dimension	220 x 121 x 230 mm

#### Ordering Information

P/N	Description
AMO-3501E	3 Slot Riser Card (2xPCI+1xPCIex4)

### AMO-3502E

2 Slots Riser Card Expansion Module: 2 x PCI

#### Specifications

General	
Add on card support	2 Slot for 2xPCI Max Card size: 110 mm(H) x 180 mm (L) Max Power consumption: 10W for each slot
HDD/SSD	NA
Mechanical	
System Dimension	220 x 101 x 230 mm

#### Ordering Information

P/N	Description
AMO-3502E	2 Slot Riser Card (2xPCI)

### AMO-3503E

2 Slots Riser Card Expansion Module: 2 x PCIe4

#### Specifications

General	
Add on card support	2 Slot for 2xPCIex4 Max Card size: 110 mm(H) x 180 mm (L) Max Power consumption: 10W for each slot
HDD/SSD	NA
Mechanical	
System Dimension	220 x 101 x 230 mm

#### Ordering Information

P/N	Description
AMO-3503E	2 Slot Riser Card (2xPCIex4)

# ARK-3520P

## 6th Gen. Intel® Core™ i3/ i5/ i7 with Expansion slots and wide range power Fanless Box PC

NEW



### Features

- Intel® Core™ i3/i5/i7 processor (BGA)
- Triple independent display: VGA + HDMI + Option Display
- DDR4 SO-DIMM memory up to 32 GB
- Flexible Expansion via PCI/PCIe4
- 9-36V wide range Power input
- Versatile I/Os including 6 x high speed USB 3.0 and 8 x COM ports
- 2 Removable 2.5" HDD drive bay
- Advantech iDoor module compatible



WISE-PaaS/RMM iManager



FCC



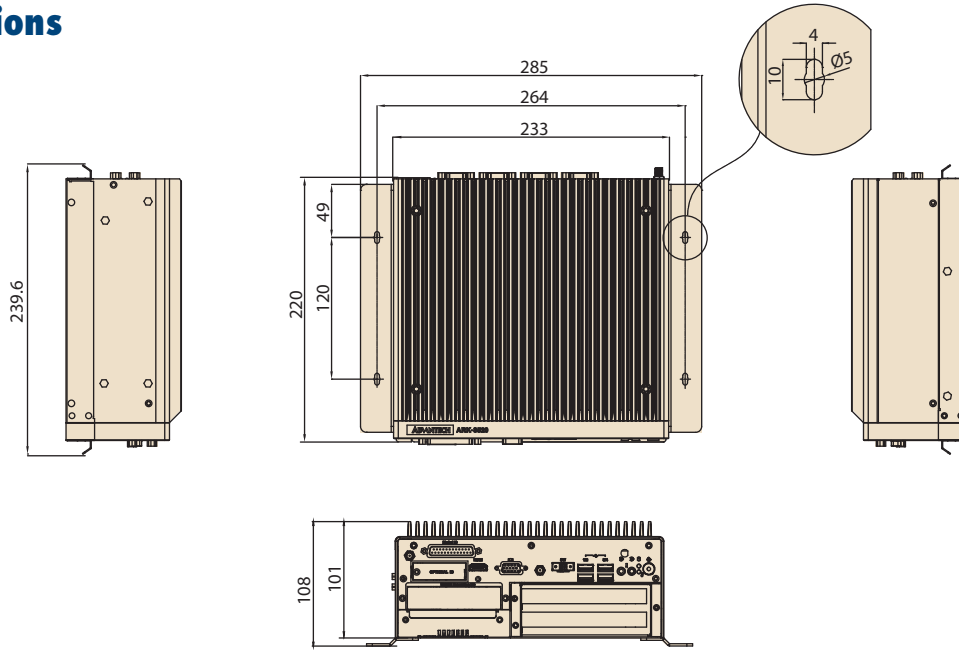
### Specifications

Processor System	CPU	Intel Core i7-6820EQ	Intel Core i5-6440EQ	Intel Core i3-6100E (support by T-P/N)
	Frequency	2.8 GHz (Quad Core)	2.7 GHz (Quad Core)	2.7 GHz (Dual Core)
	L3 Cache	8 MB	6 MB	3 MB
	Watts	45W	45W	35W
	System Chipset	Intel QM170		
Memory	BIOS	AMI EFI 128Mbit		
	Technology	DDR4 2133 MHz		
	Max. Capacity	32 GB		
	Socket	2 x 260-pin SO-DIMM		
	Graphics	Chipset	Intel QM170 Integrated GFX Gen 9	
Graphic Engine		Direct x 12, OpenGL 4.4 HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8. HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9		
VGA		1920x1200@60Hz		
HDMI		1 HDMI port, HDMI 1.4b for HD video playback, 3840x2160@30Hz		
Optional 3rd Display module		DVI-D / DP / HDMI Display Port		
Ethernet	LAN1	10/100/1000 Mbps Intel I219-LM GbE, support Wake On Lan		
	LAN2	10/100/1000 Mbps Intel I210 GbE, support Wake On Lan		
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in		
Others	Watch dog Timer	255-level timer interval, setup by software		
	TPM	TPM 2.0 (Optional by project support)		
I/O Interface	Serial Port	4 x RS-232 ports, 4 x RS-232/422/485 port with auto flow control; COM 1,2 support 5V/12V power supply (by jumper)		
	USB	6 x USB 3.0 ports; 2 x USB 2.0 ports		
	DIO	16 bit DIO		
	P/S2	1 Port support by cable and bracket (Optional)		
	Parallel Port	D-sub 25pin connector (Optional)		
Expansions	Mini PCIe	2 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder)		
	M.2	1 x E key for WiFi		
	i Door	1 set (Optional)		
Storage	Add-on Card Slot	2 Slots PCI (Default) Maximum card size: 110 mm (H) x 180 mm(L) 2 Slots PCIe x 4 (Optional) Maximum card size: 110 mm (H) x 180 mm(L) Suggest maximum power consumption 10W for each slot		
	HDD	Two removable 2.5" SATA HDD Bays with maximum device height 15mm, SATA III, Gen 3, Support SATA RAID 0, 1		
Software Support	mSATA	1x mSATA socket (Share 1 Mini PCIe)		
	Microsoft Windows	Windows 10, Windows 8.1, Windows 7		
Power Requirements	Linux	By Project Support		
	Power Type	AT/ATX		
	Power Input Voltage	9 ~ 36 V <sub>DC</sub>		
Power Consumption	Power Adapter	AC to DC, 150W (Optional)		
	Typical	11.4W		
Mechanical	Max.	68.4W	46.5W	42.75W
	Construction	Aluminum housing		
	Mounting	Desk/wall-mounting		
	Dimensions (W x H x D)	220 x 101 x 233 mm (8.66" x 3.98" x 9.17")		
	Weight	4.4 kg (9.7 lb)		
Environment	Operating Temperature	with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40° C with 0.7m/s air flow		
	Storage Temperature	-40 ~ 85° C		
	Relative Humidity	95% @ 40° C (non-condensing)		
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.		
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration		
	EMC	CE/FCC Class A, CCC, BSMI		
	Safety	LVD, CCC, BSMI		

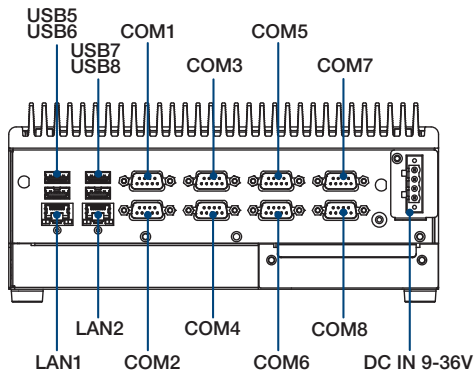
\* By Project Support

**Dimensions**

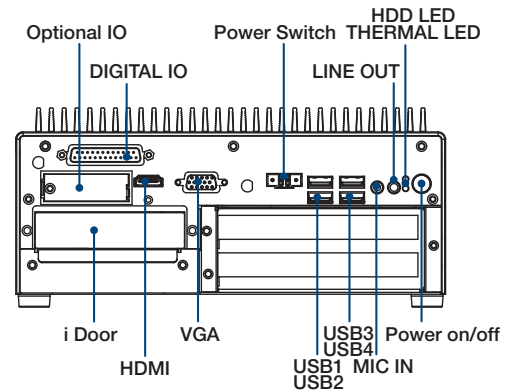
Unit: mm



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



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



**Ordering Information**

Part No.	CPU	DDR4	VGA	HDMI	Option 3rd display module	RS-232/422/485	RS-232	USB 3.0	USB 2.0	MiniPCIe	SIM	DC input	Expansion
ARK-3520P-U8A1E	i7-6820EQ	up to 32G	1	1	1	4	4	6	2	2	1	9 - 36 V	2 x PCI
ARK-3520P-U7A1E	i5-6440EQ	up to 32G	1	1	1	4	4	6	2	2	1	9 - 36 V	2 x PCI

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

\* ARK-3520P i3-6100E support by T-PN with MOQ 30pcs

**Packing List**

Part Number	Description
-	ARK-3520 Unit
-	User Manual (Simplified Chinese)
-	China RoHS
1652003234	4 pin DC in terminal block
-	2 pin power switch terminal block
1960075470N031	2 x mounting bracket

**Embedded OS**

Part Number	Description
2070014628	WES7E 64bit EN/JP/TC/SC
2070014627	WE8.1 64bit IndustryPro EN/JP/TC/SC
2070014899	Win10 Ent X64 (High End) for i7-6820EQ
2070014898	Win10 Ent X64 (Value) for i5-6440EQ

## ARK-3520 Default SKU Option Items

### Optional Item for Default SKU

Part Number	Description
96PSA-A150W19P4-1	AC-to-DC Adapter, DC19V 150W, 0 ~ 40° C for Home and Office Use
96PSA-A220W24P4-1	AC to DC Adapter, DC 24V 220W, -20 ~ 60° C
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable, 3-Pin 183cm, PSE type

### Optional MOS modules for iDoor Expansion

Part Number	Description
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F.
MOS-2220-Z1101E	High Speed Serial COM module, 1-ch, USB I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F.
MOS-1120Y-0201E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1401E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F

\*Please noted ARK-3520 can support only 1 iDoor.

### Optional Display Module

Part Number	Description
AMO-D001E	DVI-D module (China only)
AMO-D002E	DP module
AMO-D003E	HDMI module (China only)

### Optional Riser Expansion

Part Number	Description
AMO-R022E	2 x PCIe x 4

# ARK-3530L

## Intel®Xeon® E3 / Core™ i3/i5/i7 LGA1151 Modular Expansion Fanless Box PC

Preliminary



### Features

- Support Intel® Xeon® / 6th & 7th Gen. Core™ i3/i5/i7 processor
- Triple independent display: VGA + HDMI + Optional Display
- DDR4 SO-DIMM memory support up to 32 GB
- Option 9-36V power module compatible with all-in-one ordering
- Optional modular design for 2.5" hard drive bays: internal /removable (support up to 4 sets)
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering
- Advantech ARK Plus AMO-3xxx series module compatible

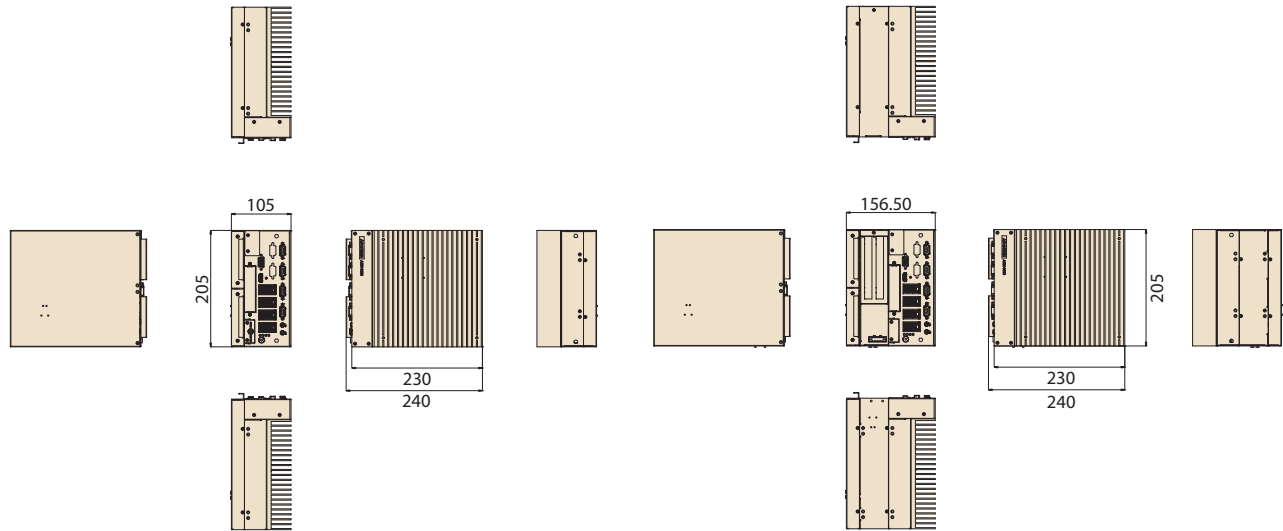


### Specifications

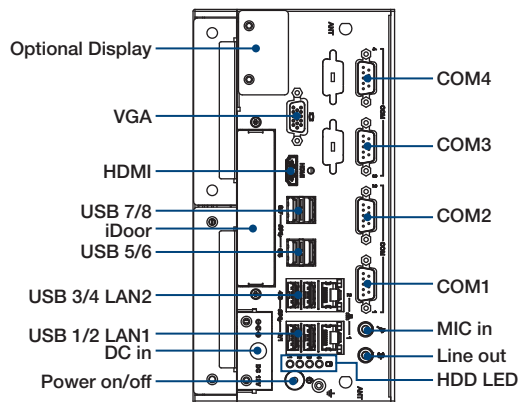
		E3-1235L V5	i7-7700/i7-6700	i5-7500	i3-7300
Processor System	CPU	E3-1235L V5	i7-7700/i7-6700	i5-7500	i3-7300
	Frequency	2.0GHz	3.6GHz/3.4GHz	3.4GHz	4.0GHz
	L3 Cache	8MB	8MB	6MB	4MB
	TDP	25W	65W	65W	51W
	Chipset	C236			
	BIOS	AMI EFI 127Mbit			
Memory	Technology	DDR4 2133 MHz			
	Max. Capacity	32 GB			
	Socket	2 x 260-pin SO-DIMM			
Graphics	Chipset	Intel® HD Graphics 630			
	Graphic Engine	Direct x 12, OpenGL 4.4 HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8. HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9			
	VGA	1920x1200@ 60Hz			
	HDMI	1 HDMI port, HDMI 2.0 for HD video playback, 3840x2160@30Hz			
	Optional 3rd Display module	DVI-D / DP / HDMI Display Port			
	Triple Display	VGA+HDMI + 3rd display module			
Ethernet	LAN1	10/100/1000 Mbps Intel I219-LM GbE, support Wake On Lan			
	LAN2	10/100/1000 Mbps Intel I210 GbE, support Wake On Lan			
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in			
Others	Watch dog Timer	255-level timer interval, setup by software			
	TPM	TPM 2.0 (Optional by project support)			
I/O Interface	Serial Port	4 x RS-232/422/485 port with auto flow control; COM 1 support 5V/12V power supply (by jumper)			
	USB	8 x USB 3.0 ports			
	P/S2	1 Port support by cable and bracket (Optional)			
	Optional I/O	16bit DIO or 2 x RS-232 ports			
Expansions	Mini PCIe	2 x Full-size Mini PCIe (2 x support mSATA, 1 x support SIM holder)			
	M.2	1 x E key for WiFi			
	i Door	1 set (Optional)			
	ARK Plus	AMO-3504E 2 slot Riser card for 2 x PCI, AMO-3505E 2 slot Riser card for 2 x PCIe8			
Storage	HDD	2 x 2.5" SATAIII HDD Bay with Max Height 15mm (Support Up to 4 x 2.5" SATAIII HDD Bay by Project)			
	mSATA	2 x mSATA socket (Share with Mini PCIe)			
Software Support	Microsoft Windows	Windows 10			
	Linux	By Project Support			
Power Requirements	Power Type	AT/ATX			
	Power Input Voltage	12V (9-36V as optional)			
	Power Adapter	AC to DC, 150W (Optional)			
Power Consumption	Typical	TBD			
	Max.	TBD			
Mechanical	Construction	Aluminum housing			
	Mounting	Desk mounting			
	Dimensions (W x H x D)	105 x 205 x 230 mm (4.13" x 8.07" x 9.06")			
	Weight	TBD			
Environment	Operating Temperature	25W/35W/65W (only 6th Gen) Processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow 25W/35W/51W/65W processor with HDD: 0 ~ 40° C with 0.7m/s air flow			
	Storage Temperature	-40 ~ 85° C			
	Relative Humidity	95% @ 40° C (non-condensing)			
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.			
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration			
	EMC	CE/FCC Class B, CCC, BSMI			
	Safety	CB, UL, CCC, BSMI			

## Dimensions

Unit: mm



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



## Ordering Information

Part No.	CPU	DDR4	VGA	HDMI	Option 3rd display module	RS-232/422/485	USB 3.0	MiniPCIe	SIM	M.2	DC Input	Expansion
ARK-3530L-00A1E	LGA1151 Socket Type	Up to 32GB	1	1	1	4	8	2	1	1	12V	Optional

Note: CPU/Memory/Storage and operating system bundled by request.

## Packing List

Part Number	Description
-	ARK-3530L Unit
-	User Manual (Simplified Chinese)
-	China RoHS

## Embedded OS

Part Number	Description
TBD	TBD

## ARK-3530 Default SKU Option Items

### Optional Item for Default SKU

Part Number	Description
XARK-DPS-150AB-15	AC-to-DC Adapter, DC12V 150W
96PSA-A150W12W7	AC-to-DC Adapter, DC12V 150W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable, 3-Pin 183cm, PSE type

### Optional MOS modules for iDoor Expansion

Part Number	Description
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F.
MOS-2220-Z1101E	High Speed Com USB module, 2-Ch, PCIe I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F.
MOS-1120Y-0202E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0202E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1402E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1402E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F
MOS-2120-Z1201	Dual Intel I210 GbE LAN iDoor, 2-Ch, PCIe I/F

\*Please noted ARK-3530L can support only 1 iDoor.

### Optional 9-36V DC Power Module

Part Number	Description
AMO-P010E	9-36V DC input power module for ARK-3530L
96PSA-A150W19P4-1	AC-to-DC Adapter, DC19V 150W, 0 ~ 40° C (for AMO-P010E)
96PSA-A220W24P4-1	AC to DC adapter, DC 24V 220W, -20 ~ 60° C (For AMO-P010E)
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type

## ARK-3530L Optional HDD expansion Kit (Support up to 2 sets)

Part Number	Description
-	1 x internal HDD Kit (Max Height 15mm)

### Optional Display Module

Part Number	Description
AMO-D001E	DVI-D module
AMO-D002E	DP module
AMO-D003E	HDMI module

## ARK Plus Extended Modules

### AMO-3505E

#### 2 Slots Riser Card Expansion Module: 2 x PCI

#### Specifications

General	
Add on card support	2 Slot for 2xPCI Max Card size: 110 mm(H) x 180 mm (L) Max Power consumption: 10W for each slot
HDD/SSD	NA
Mechanical	
System Dimension	155 x 205 x 230 mm

#### Ordering Information

P/N	Description
AMO-3505E	2 Slot Riser Card (2xPCI)

### AMO-3506E

#### 2 Slots Riser Card Expansion Module: 2 x PCIe8

#### Specifications

General	
Add on card support	2 Slot for 2 x PCIe8 Max Card size: 110 mm(H) x 180 mm (L) Max Power consumption: 10W for each slot
HDD/SSD	NA
Mechanical	
System Dimension	155 x 205 x 230 mm

#### Ordering Information

P/N	Description
AMO-3506E	2 Slot Riser Card (2 x PCIe8)



# ARK-3530F

## Intel®Xeon® E3 / Core™ i3/i5/i7 LGA1151 Modular Expansion Fanless Box PC

Preliminary



### Features

- Support Intel® Xeon® / 6th & 7th Gen. Core™ i3/i5/i7 processor
- Triple independent display: VGA + HDMI + Optional Display
- DDR4 SO-DIMM memory support up to 32 GB
- 9-36V power module compatible with all-in-one ordering
- Optional modular design for 2.5" hard drive bays: internal /removable (support up to 4 sets)
- Advantech iDoor module compatible
- Advantech EMIO miniPCIe module compatible with all-in-one ordering

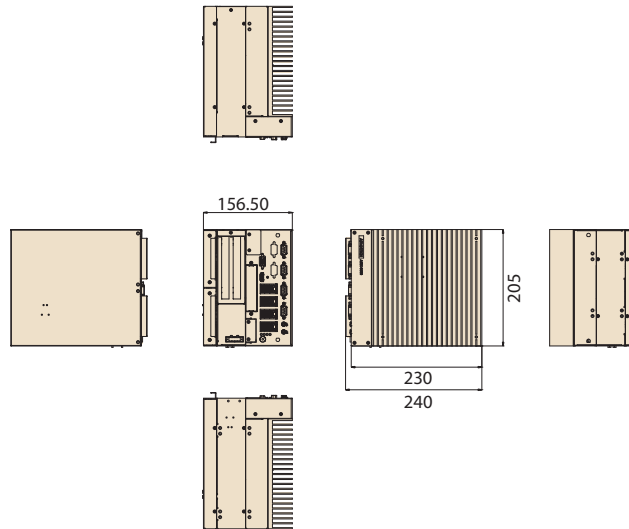


### Specifications

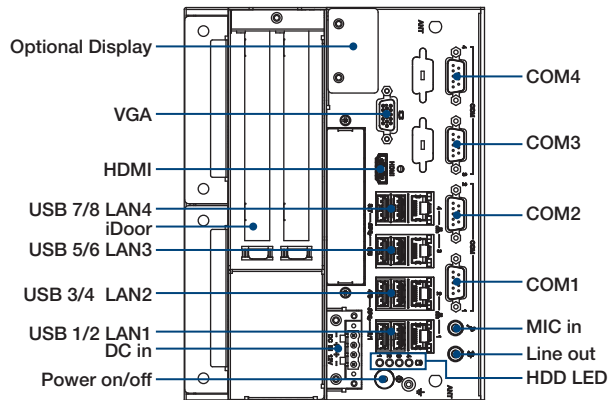
		E3-1235L V5	i7-7700/i7-6700	i5-7500	i3-7300
Processor System	CPU	E3-1235L V5	i7-7700/i7-6700	i5-7500	i3-7300
	Frequency	2.0GHz	3.6GHz/3.4GHz	3.4GHz	4.0GHz
	L3 Cache	8MB	8MB	6MB	4MB
	TDP	25W	65W	65W	51W
	Chipset	C236			
	BIOS	AMI EFI 127Mbit			
Memory	Technology	DDR4 2133 MHz			
	Max. Capacity	32 GB			
	Socket	2 x 260-pin SO-DIMM			
Graphics	Chipset	Intel® HD Graphics 630			
	Graphic Engine	Direct x 12, OpenGL 4.4 HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8. HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9			
	VGA	1920x1200@ 60Hz			
	HDMI	1 HDMI port, HDMI 2.0 for HD video playback, 3840x2160@30Hz			
	Optional 3rd Display module	DVI-D / DP / HDMI Display Port			
	Triple Display	VGA+HDMI + 3rd display module			
Ethernet	LAN1	10/100/1000 Mbps Intel I219-LM GbE, support Wake On Lan			
	LAN2, 3, 4	10/100/1000 Mbps Intel I210 GbE, support Wake On Lan			
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in			
Others	Watch dog Timer	255-level timer interval, setup by software			
	TPM	TPM 2.0 (Optional by project support)			
I/O Interface	Serial Port	4 x RS-232/422/485 port with auto flow control; COM 1 support 5V/12V power supply (by jumper)			
	USB	8 x USB 3.0 ports			
	P/S2	1 Port support by cable and bracket (Optional)			
	Optional I/O	16bit DIO or 2 x RS-232 ports			
Expansions	Mini PCIe	2 x Full-size Mini PCIe (2 x support mSATA, 1 x support SIM holder)			
	M.2	1 x E key for WiFi			
	i Door	1 set (Optional) Maximum card size 110mm (H) x 180mm (L) Suggest maximum power consumption 10W for each slot			
	Add-on Card Slot	2 Slots PCI (Default) 2 Slots PCIe8 (Option AMO-R026) 1 Slots PCIe16 (Support by project)			
Storage	HDD	2 x 2.5" SATAIII HDD Bay with Max Height 15mm (Support Up to 4 x 2.5" SATAIII HDD Bay by Project)			
	mSATA	2 x mSATA socket (Share with Mini PCIe)			
Software Support	Microsoft Windows	Windows 10, Windows 8.1, Windows 7			
	Linux	By Project Support			
Power Requirements	Power Type	AT/ATX			
	Power Input Voltage	9-36V			
	Power Adapter	AC to DC, 150W (Optional)			
Power Consumption	Typical	TBD			
	Max.	TBD			
Mechanical	Construction	Aluminum housing			
	Mounting	Desk mounting			
	Dimensions (W x H x D)	156.5 x 205 x 230 mm (6.16" x 8.07" x 9.06")			
	Weight	TBD			
Environment	Operating Temperature	25W/35W/65W(only 6th Gen) Processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow			
	Storage Temperature	25W/35W/51W/65W processor with HDD: 0 ~ 40° C with 0.7m/s air flow -40 ~ 85° C			
	Relative Humidity	95% @ 40° C (non-condensing)			
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.			
	Shock During Operation	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration			
	EMC	CE/FCC Class B, CCC, BSMI			
	Safety	CB, UL, CCC, BSMI			

## Dimensions

Unit: mm



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



## Ordering Information

Part No.	CPU	DDR4	VGA	HDMI	Option 3rd display module	RS-232/422/485	USB 3.0	MiniPCIe	SIM	M.2	DC Input	Expansion
ARK-3530F-00A1E	LGA1151 Socket Type	Up to 32GB	1	1	1	4	8	2	1	1	9-36V	2 x PCI

Note: CPU/Memory/Storage and operating system bundled by request.

## Packing List

Part Number	Description
-	ARK-3530F Unit
-	User Manual (Simplified Chinese)
-	China RoHS

## Embedded OS

Part Number	Description
TBD	TBD

## ARK-3530 Default SKU Option Items

### Optional Item for Default SKU

Part Number	Description
96PSA-A150W19P4-1	AC-to-DC Adapter, DC19V 150W, 0 ~ 40 °C
96PSA-A220W24P4-1	AC to DC adapter, DC 24V 220W, -20 ~ 60 °C
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable, 3-Pin 183cm, PSE type

### Optional MOS modules for iDoor Expansion

Part Number	Description
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F.
MOS-2220-Z1101E	High Speed Com USB module, 2-Ch, PCIe I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F.
MOS-1120Y-0202E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0202E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1402E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1402E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F
MOS-2110Z-1201E	USB module, 2-Ch, PCIe I/F
MOS-2120-Z1201	Dual Intel I210 GbE LAN iDoor, 2-Ch, PCIe I/F

\*Please noted ARK-3530F can support only 1 iDoor.

## ARK-3530F Optional HDD expansion Kit (Support up to 2 sets)

Part Number	Description
-	1 x internal HDD Kit (Max Height 15mm)

### Optional Display Module

Part Number	Description
AMO-D001E	DVI-D module
AMO-D002E	DP module
AMO-D003E	HDMI module

### Optional Riser Expansion

Part Number	Description
AMO-R026	2 x PCIe x8

# ARK-6322

Intel Celeron Quad Core J1900 SoC  
with 6 COM and 8 USB Fanless Box PC



## Features

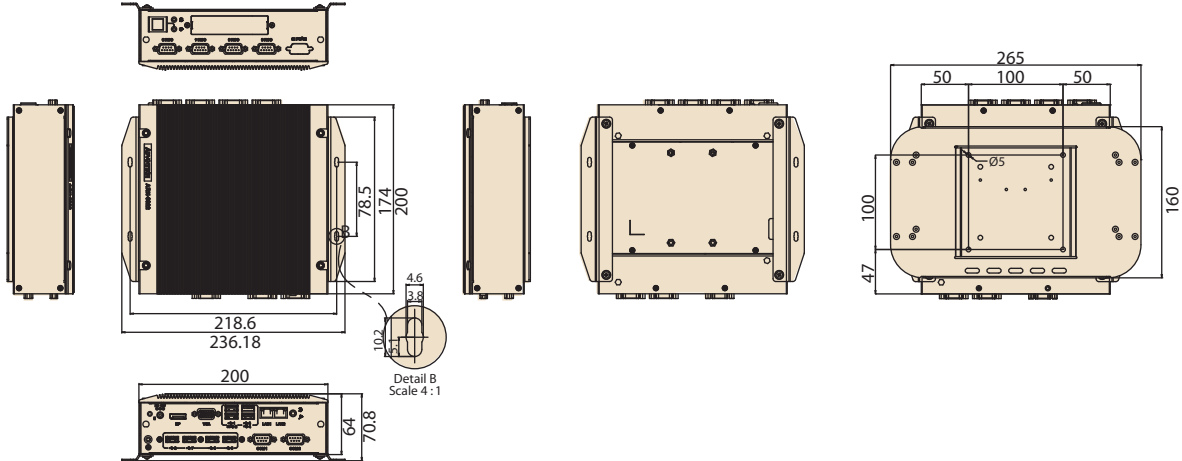
- Intel Celeron Quad Core J1900 2.0GHz SoC
- DDR3L 1333 MHz SO-DIMM memory support up to 8GB
- Dual display : VGA + DisplayPort
- Support 1 x 3.5" or 2.5" SATA HDD Bay and mSATA
- Multiple I/O: 1 x USB 3.0, 7 x USB 2.0, 2 x LAN and 6 x COM
- Support 1 x Full-size and 1 x half-size MiniPCIe
- Lockable DC jack design
- Optional iDoor Modules
- Optional VESA / Wall Mounting kits
- Supports SUSIAccess and Embedded Software APIs

## Specifications

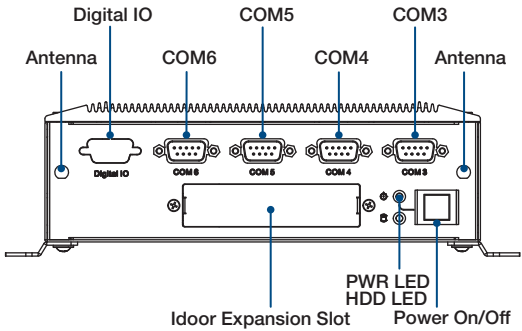
Processor System	CPU	Intel Celeron Processor J1900 Quad Core
	Max. Speed	2.0 GHz, Turbo Boost up to 2.41GHz
	L2 Cache	2 MB
	BIOS	AMI 16 Mbit SPI (Default BIOS is supported for 64-bit OS installation, BIOS for 32-bit OS is supported by project)
Memory	Technology	Dual channel DDR3L 1333MHz SDRAM
	Max. Capacity	8 GB, 4 GB per SO-DIMM
	Socket	2 x 204-pin SO-DIMM
Graphics	Controller	Intel Gen 7 Graphics Engines and media encode/decode engine; GPU Frequency: 688 MHz
	VRAM	Shared system memory up to 224 MB SDRAM
	VGA	Supports up to 2048 x 1280
	Display port	Supports resolution up to 2560 x 1600
	Dual Display	VGA+DP
Ethernet	LAN1	10/100/1000 Mbps Realtek 8111E GbE
	LAN2	10/100/1000 Mbps Realtek 8111E GbE
Audio	Interface	Realtek ALC892, High Definition Audio, Line-out or Mic-in
I/O Interface	Serial Port	5 x RS-232 ports, 1 x RS-232/422/485 with auto flow control (COM3)
	USB	1 x USB 3.0 port and 7 x USB 2.0 ports
Other	Watchdog timer	255-level timer interval, setup by software
	Digital I/O	8-bit programmable (Reserved)
Expansion	Mini PCIe1	1 x Full-size Mini PCIe, supports mSATA module and WWAN module
	Mini PCIe2	1 x Half-size Mini PCIe, supports WLAN module
Storage	HDD	1 x SATA HDD Bay for 2.5" or 3.5" device with maximum height 26.1mm
	Solid State Disk	1 x mSATA share with mini-PCIe slot
Software Support	Microsoft Windows	Windows 10, Windows 8, Windows 7, WES8, WES7
	Linux	Support (by project)
Power Requirements	Power Type	ATX mode
	Power Input Voltage	12 V <sub>DC</sub> , ± 10%
	Power Adapter	AC to DC, DC12V / 5A, 60W (Optional)
Power Consumption	Typical	15.7 W
	Maximum	24.7 W
Mechanical	Construction	Aluminum housing
	Mounting	Wall mounting kit (optional), VESA mounting kit (optional)
	Dimensions (W x H x D)	200 x 64 x 200 mm
	Weight	2.0 kg
Environment	Operating Temperature	With extended temperature peripherals/SSD: 0 ~ 50° C (32 ~ 122° F) with 0.7 m/s air flow With 3.5-inch hard disk 0 ~ 40° C (32 ~ 104° F) with 0.7 m/s air flow; With 2.5-inch hard disk 0 ~ 45° C (32 ~ 112° F) with 0.7 m/s air flow
	Storage temperature	-40 ~ 85° C (-40 ~ 185° F)
	Relative Humidity	95% @ 40° C (non-condensing)
	Vibration During Operation	With HDD: 0.5 Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock During Operation	With HDD: 10 G, IEC 60068-2-27, half sine, 11 ms duration
	EMC	CE/FCC Class A, CCC, BSMI
	Safety	CB, UL, CCC, BSMI

Dimensions

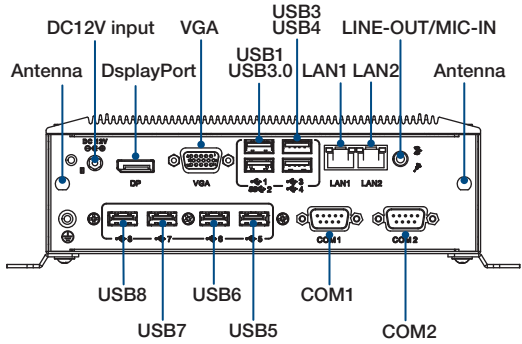
Unit: mm



Front Panel External I/O Mechanical Layout/Drawing



Rear Panel External I/O Mechanical Layout/Drawing



Ordering Information

Part No.	CPU	DDR3	VGA	DP	RS-232/422/485	RS-232	USB 3.0	USB 2.0	MiniPCIe*	HDD Bay	GPIO**	DC input
ARK-6322-Q0A1E	Intel Celeron J1900 2.0GHz	Up to 8 GB	1	1	1	5	1	7	2	1 x 3.5" or 2.5"	1	12V

\*Full-size Mini PCIe co-lay with mSATA.  
 \*\* Reserved 8-bits DIO  
 Note: Memory, storage and operating system bundled by request.

Packing List

Part Number	Description
1960065854N001	1x bracket for idoor module
-	1x Power bracket
2006632201	1x User Manual (Simplified Chinese)
2026632200	1x China RoHS for ARK-6322 Electronic Pollution 1st
2190000902	1x CARDBOARD-WARRANTY REV. A2

Embedded OS

Part Number	Description
2070013367	WE8S V6.5.2 EN/SC/TC/JP
2070013550	WES7E V5.6.8 EN/SC/TC/JP
2070014897	Win 10 IoT Ent (Value) 64bit Eng

Note: Default BIOS is for 64bit OS support only. For 32bit OS, please update BIOS. (P/N:1420036912)

Optional Items

Part Number	Description
96PSA-A60W12R1-1	AC-to-DC Adapter, DC 12V/5A 60W, with DC Jack Plug, 0 ~ 40° C for Home and Office Use
1702002600	Power cable 3-pin 183 cm, USA type
1702002605	Power cable 3-pin 183 cm, Europe type
1702031801	Power cable 3-pin 183 cm, UK type
1700000237	Power cable 3-pin 183 cm, PSE type
AMK-V008E	VESA mounting kit
AMK-W002E	Wall mounting kit
1700024047-01	F Cable 2*5P-2.0/D-SUB 9P(F) 15CM, GPIO cable
MOS-2230-Z1201E	CANBus module, 2-Ch, USB I/F
MOS-2220-X1101E	Parallel LPT module, 1-Ch, USB I/F
MOS-2220-Z1101E	High Speed Serial COM module, 1-Ch, USB I/F
MOS-2120-Z1101E	Giga LAN Ethernet module, 1-Ch, PCIe I/F
MOS-1120Y-0201E	Isolated RS-232, 2-Ch, DB9, PCIe I/F
MOS-1121Y-0201E	Isolated RS-422/485, 2-Ch, DB9, PCIe I/F
MOS-1120Y-1401E	Non-Isolated RS-232, DB37, 4-Ch, PCIe I/F
MOS-1121Y-1401E	Non-Isolated RS-422/485, DB37, 4-Ch, PCIe I/F
MOS-1130Y-0201E	Isolated CANBus, 2-Ch, DB9, PCIe I/F
MOS-1110Y-0101E	Isolated 16 DI/8 DO, 1-Ch, DB37, PCIe I/F

# ARK-2121S

## Outdoor NVR w/4 PoE Ports Intel® Atom E3845 SoC Fanless Box PC



### Features

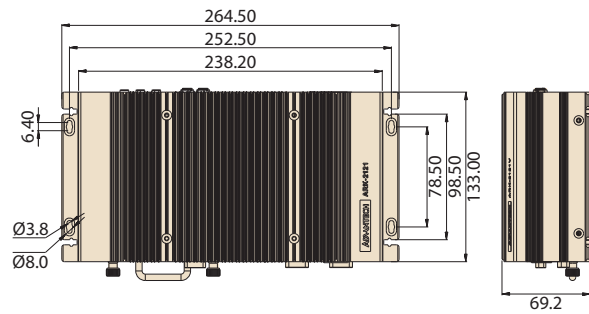
- Intel® Atom E3845 Quad Core 1.91 GHz SoC
- 4 PoE Ports to Support Mainstream IP Cameras
- 3KV isolation for 6 x Di & 2 x Do
- Diversity Communication Abilities, ex. WWAN, WLAN
- 9 ~ 36 V<sub>DC</sub>\* Wide Power Input w/isolation
- 1 x Removable 2.5" drive bay
- Supports iManager, SUSIAccess and Embedded Software APIs
- Up to -40 ~ 70° C wide temperature support (by project)

### Specifications

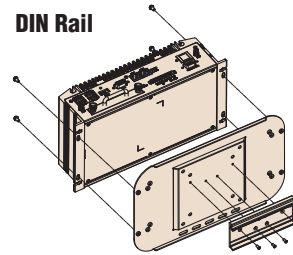
		ARK-2121S-S9A1E
Processor System	CPU	Intel Atom E3845 QC SoC
	Frequency	1.91 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI 64 Mbit
Memory	Technology	DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel Gen7 Graphics
	Graphic Engine	DirectX11, OpenGL3.2, OpenCL1.1
	VGA	Full HW acceleration, decode: H.264, MPEG2/4, VC-1, WMV9. Encode: H.264, MPEG2
	HDMI	Up to 2560 x 1600 @ 60Hz Lockable HDMI connector, up to 1080p
Audio	Main System	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I210-IT GbE, support Wake on LAN
	LAN #2	10/100/1000 Mbps Intel I210-IT GbE, support Wake on LAN
I/O Interface	Power over Ethernet, PoE	4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 (7Watt) - 2ports full-load, IEEE802.3af Class 3 (15.4Watt)
	Serial Ports	2 x RS-232/422/485 ports (support auto flow control, BIOS selectable)
	GPIO	6 x DI & 2 x DO w/ 3KV isolation Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>
	USB	3 x USB 2.0 & 1 x USB3.0
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Mini PCIe #1	Full-size Mini PCIe, support mSATA
	Mini PCIe #2	Full-size Mini PCIe, support WLAN module
	Mini PCIe #3/4	2 x Full-size Mini PCIe w/SIM holders, support WWAN module. (USB interface)
Storage	2.5" Drive Bay	1 x removable 2.5" drive bay (Max 9.5mm height)
	mSATA	Leverage MiniPCIe #1 slot
Software Support	Microsoft Windows	WES8, WES7, Windows 8, Windows 7
	Linux	Support by project
Power Requirement	Power Type	ATX/AT
	Power Input Voltage*	9 ~ 36 V <sub>DC</sub> w/ isolation
	Isolation	1.5KV Isolated
Mechanical	Construction	Aluminum housing, Silver
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm (10.41" x 2.72" x 5.24")
Environment	Operating Temperature	With extended temperature peripherals: -30 ~ 60° C with 0.7m/s air flow (standard), -40 ~ 70° C with 0.7m/s air flow (by project) With standard temperature peripherals: 0 ~ 45° 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 mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock During Operation	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class A, CCC, BSMI
	Safety	CB, UL, CCC, BSMI

\* Power Input Constraint at low voltage: 9~10.9V.

## Dimensions

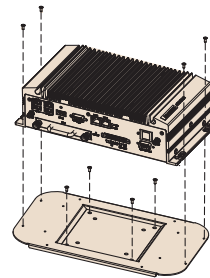


### DIN Rail

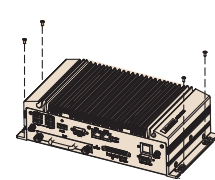


Unit: mm

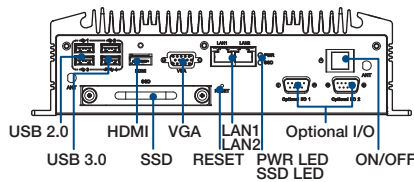
### VESA mount



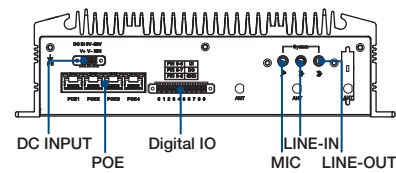
### Wall mount



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	Intel CPU	RAM	2.5" Drive	mSATA	Display	GbE	PoE	USB	DIO	RS-232/422/485	MiniPCle	SIM Holder	Power Input	Operating Temperature
ARK-2121S-S9A1E	Intel Atom E3845 QC 1.91 GHz	Up to 8GB	1	1	1 x HDMI 1 x VGA	2	4	3 x USB2.0 1 x USB3.0	6Di 2Do	2	4 x Full Size	2	9 ~ 36 V <sub>DC</sub>	-30 ~ 60° C

## Packing List

Part Number	Description
-	1 x ARK-2121 Unit
-	1 x Driver/Utility CD/Manual
-	1 x User Manual (Simplified Chinese)
1652000049	3-pole phoenix power block 3.81mm
1652003235	10-Pin DIO plug in block

## Optional Items

Part Number	Description
96PSA-A120W19T2	AC-to-DC Adapter
1702002600	Power Cable 3-pin 180cm, USA type
1702002605-02	Power Cable 3-pin 183cm, Europe type
1700018704	Power Cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

## Embedded OS

Part Number	Description
2070013559	WES7 E OS image
2070013598	WE8S OS image
2070014587	IDP 3.1 x64 OS image

\*Default BIOS is supported for 64-bit OS installation, BIOS 32-bit OS is supported by project

# ARK-2151S

## Outdoor Full HD NVR w/4 PoE Ports 4th Gen. Intel Core i5 4300U SoC Fan- less Box PC



### Features

- Intel® Core i5-4300U Dual Core 1.9 GHz SoC
- 4 PoE Ports to Support Mainstream IP Cameras
- Diversity Communication Abilities, ex. WWAN, WLAN
- 3KV isolation for 6 x Di & 2 x Do
- 9 ~ 36 V<sub>DC</sub>\* Wide Power Input w/isolation
- 1 x Removable 2.5" drive bay
- Supports iManager, SUSIAccess and Embedded Software APIs

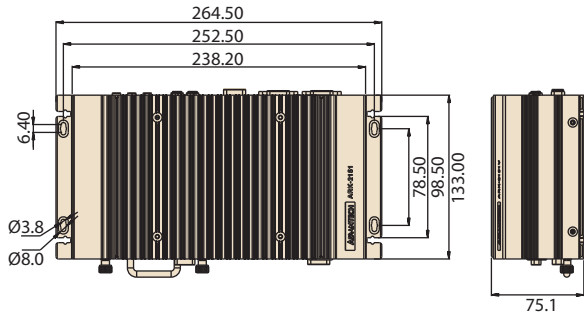
### Specifications

		ARK-2151S-S9A1E
Processor System	CPU	Intel i5-4300U
	Frequency	1.9 GHz
	L3 Cache	3 MB
	BIOS	AMI EFI 128 Mbit
Memory	Technology	DDR3L 1600 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	GT2-4400 Graphics
	Graphic Engine	DirectX11.1, OpenGL 4.0, and OpenCL 1.2 Full AVC/VC1/MPEG2 HW Decode
	VGA	Up to 1920 x 1200 with 60 Hz, 154 MHz pixel clock rate
	HDMI	Lockable HDMI connector, up to 4K at 24 Hz
Audio	Main System	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in
Ethernet	LAN #1	10/100/1000 Mbps Intel I218 GbE, support Wake on LAN
	LAN #2	10/100/1000 Mbps Intel I210-IT, support Wake on LAN
I/O Interface	Power over Ethernet, PoE	4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 (7Watt) - 2ports full-load, IEEE802.3af Class 3 (15.4Watt)
	Serial Ports	2 x RS-232/422/485 ports (support auto flow control, BIOS selectable)
	USB Interface	2 x USB 2.0 & 2 x USB3.0
	GPIO	6 x DI & 2 x DO w/ 3KV isolation Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>
Other	Watchdog timer	255-level timer interval, setup by software
Expansion	Mini PCIe #1	Full-size Mini PCIe, support mSATA
	Mini PCIe #2	Half-size Mini PCIe, support WLAN module
	Mini PCIe #3/4	2 x Full-size Mini PCIe w/SIM holders, support WWAN module. (USB interface)
Storage	2.5" Drive Bay	1 x removable 2.5" drive bay (Max 9.5mm height)
	mSATA	Leverage MiniPCIe #1 slot
Software Support	Microsoft Windows	WES8, WES7, Windows 8, Windows 7
	Linux	Support by project
Power Requirement	Power Type	ATX/AT
	Power Input Voltage*	9 ~ 36 V <sub>DC</sub> w/ isolation
	Isolation	1.5 KV Isolated
Mechanical	Construction	Aluminum housing, Silver
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting
	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm (10.41" x 2.96" x 5.24")
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 60° C with 0.7m/s air flow With standard temperature peripherals: 0 ~ 45° 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 mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock During Operation	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
Regulation	EMC	CE/FCC Class A, CCC, BSMI
	Safety	CB, UL, CCC, BSMI

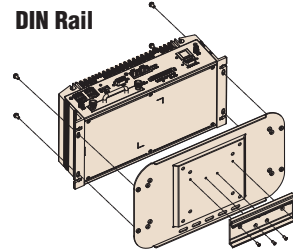
\* Power Input Constraint at low voltage: 9~10.9V



## Dimensions

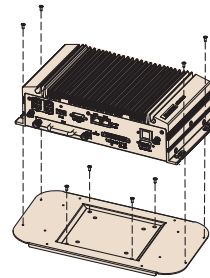


### DIN Rail

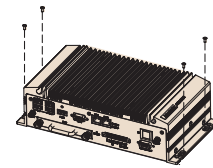


Unit: mm

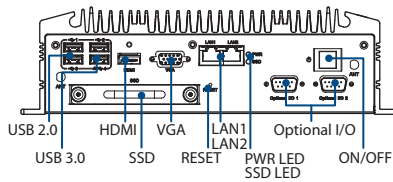
### VESA mount



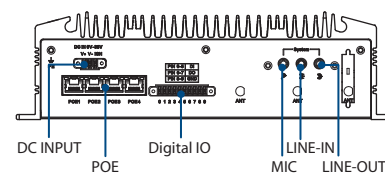
### Wall mount



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part Number	Intel CPU	RAM	2.5" Drive	mSATA	Display	GbE	PoE	USB	DIO	RS-232/422/485	MiniPCle	SIM Holder	Power Input	Operating Temperature
ARK-2151S-S9A1E	Intel i5-4300U DC 1.9 GHz	Up to 8GB	1	1	1 x HDMI 1 x VGA	2	4	2 x USB2.0 2 x USB3.0	6Di 2Do	2	3 x Full Size 1 x Half Size	2	9 ~ 36 V <sub>DC</sub>	-20 ~ 60° C

## Packing List

Part Number	Description
-	1 x ARK-2151 Unit
-	1 x Driver/Utility CD/Manual
-	1 x User Manual (Simplified Chinese)
1652000049	3-pole phoenix power block 3.81mm
1652003235	10-Pin DIO plug in block

## Optional Items

Part Number	Description
96PSA-A120W19T2	AC-to-DC Adapter
1702002600	Power Cable 3-pin 180cm, USA type
1702002605-02	Power Cable 3-pin 183cm, Europe type
1700018704	Power Cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

## Embedded OS

Part Number	Description
2070013568	WES7 E OS image
2070013600	WE8S OS image
2070014995	Win10 IoT Enterprise OS image (US, 64bit)

\*Default BIOS is supported for 64-bit OS installation, BIOS 32-bit OS is supported by project

# ARK-2250S

6th Gen Intel Core i7-6822EQ QC/i5-6442EQ QC  
Rugged FullHD NVR



## Features

- Intel i7-6822EQ QC/ Intel i5-6442EQ QC SoC
- Extreme graphic performance, support up to 1080p 240fps video encode&decode
- Stackable extension design, option extension kit for applications
- Isolated 12 ~ 24V<sub>DC</sub> wide-range power input
- Built-in G-Sensor for tamper protection
- Option GPS for GIS application
- Diversity Communication Extensible, ex. WLAN, WWAN
- Anti-vibration & shock proof, certified by MIL-STD-810G
- Wide operating temperature support, up to -20 ~ 70 °C
- Certified for general standard, CE, FCC, CB, UL, CCC and BSMI
- Built-in Advantech remote management software WISE-PaaS/RMM



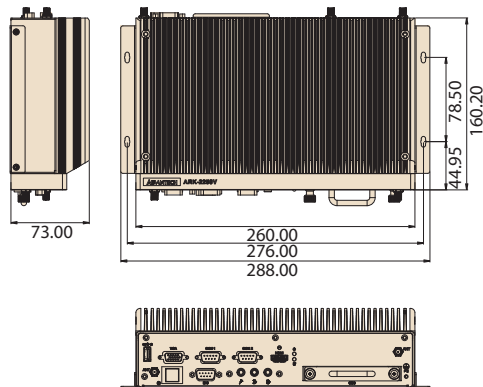
## Specifications

		ARK-2250S-U0A1E	ARK-2250S-S9A1E
Processor System	CPU	Intel i7-6822EQ QC SoC	Intel i5-6442EQ QC SoC
	Frequency	2.0GHz	1.9GHz
	Cache	8 MB	6 MB
	BIOS	AMI EFI	
Memory	Technology	DDR4 2133MHz	
	Max. Capacity	32G	
	Socket	2 x 260-pin SO-DIMM	
Graphics	Chipset	QM170	
	Graphic Engine	DirectX 11.3, OGL 4.4, OCL 2.1	
		Encode: H.264, MPEG2/4, VC1, WMV9	
		Decode: H.264, MPEG2	
		EHVC: H.265	
	VGA	Up to 1920 x 1200 @ 60Hz	
HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz		
Ethernet	Dual Display	Yes, VGA + HDMI	
	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan	
Audio	LAN2	10/100/1000 Mbps Intel i219 GbE, support Wake On Lan	
	Interface	Realtek ALC888S, High Definition Audio, Line-out, Mic-in, Line-in	
IO Interface	Serial Ports	3 x RS-232/422/485 port with auto flow control	
	USB Interface	3 x USB3.0 Type A	
	GPIO	4 x DI & 4 x DO w/ 1.5KV isolation, Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel, On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>	
	CANBus	Optional	
Other	Watchdog timer	255 levels timer interval, setup by software	
	GPS (Option)	On board standalone GPS, support GPS, GLONASS, BeiDou and QZSS signals (Option)	
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ±16g	
Expansion	Mini PCIe	#1, Full-size Mini PCIe (SATA/PCIe/USB) w/external SIM socket	
		#2, Full-size Mini PCIe (PCIe/USB) w/external SIM socket	
		#3, M.2 2230 E key	
Storage	SSD/HDD	1 x 2.5" SATA drive bay	
	mSATA	1 x full size mSATA socket (Mini PCIe #1)	
Software Support	Microsoft Windows	Win7, WES7, Win8, WSE8, Win10	
	Linux	Support by project	
Power Requirement	Power Type	ATX	
	Power Input Voltage	12-24V <sub>DC</sub> w/isolation	
	Isolation	1.5 KV	
Power Consumption	Typical	TBD	
	Max.	TBD	
Mechanical	Construction	Aluminum housing	
	Mounting	Wall mounting kit	
	Dimensions (W x H x D)	260 x 73 x 160.2mm	
	Weight	3.2 Kg	
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 70 °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	MIL-STD-810G, Method 514.6	
	Shock During Operation	MIL-STD-810G, Method 516.6	
	EMC	CE, FCC Class B, CCC, BSMI	
	Safety Certifications	UL, CCC, BSMI, CB	

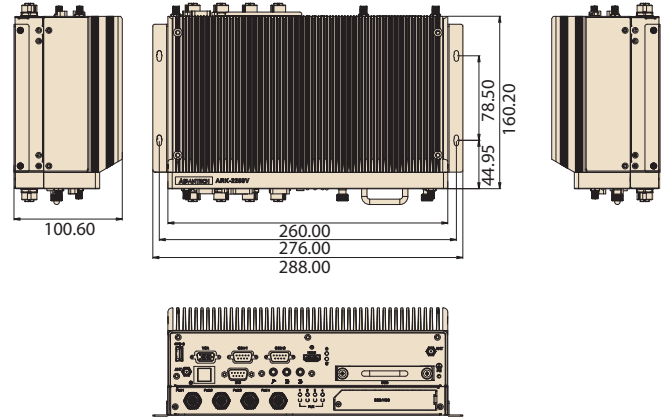
## Dimensions

Unit: mm

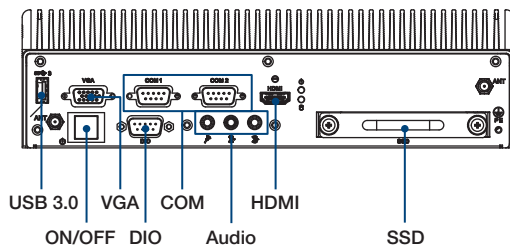
ARK-2250S



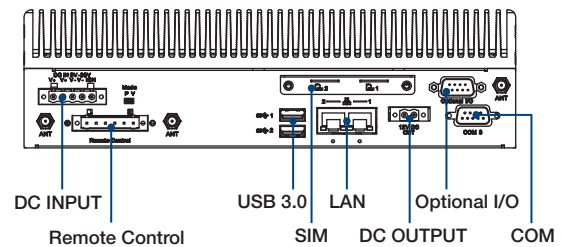
ARK-2250S+AMK-R100E



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 3.0	DIO	RS-232/422/485	Audio	MiniPCIe	M.2	SIM	mSATA	2.5" SATA Drive Bay	Operating Temp.
ARK-2250S-U0A1E	Intel Core i7-6822EQ QC	1	1	2	3	4Di, 4Do	3	Lin-out, Line-in, MIC	2	1	2	1	1	-20 ~ 70 °C
ARK-2250S-S9A1E	Intel Core i5-6442EQ QC	1	1	2	3	4Di, 4Do	3	Lin-out, Line-in, MIC	2	1	2	1	1	-20 ~ 70 °C

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

## Packing List

Part Number	Description
-	1 x ARK-2250S Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS

## Optional Embedded OS

Part Number	Description
TBD	WES7E 64bit ENG/T-CH/S-CH/JP
TBD	WES8E 64bit ENG/T-CH/S-CH/JP

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS

## Optional Item for Default SKU

Part Number	Description
TBD	AC-to-DC Adapter, DC24V/150W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type

# ARK-R Extended Modules

## ARK-2250S+AMK-R100E

Extra 8 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R100E	8 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250S+AMK-R102E

Extra 4 x Isolated RS-232/422/485+ removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
COM	4 x Isolated RS-232/422/485
DIO	16bit Isolated DIO
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R102E	4 x COM port, 1 x DIO, 1 x removable 2.5" drive bay

## ARK-2250S+AMK-R104E

Extra 8 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R104E	8 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

## ARK-2250S+AMK-R101E

Extra 4 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R101E	4 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250S+AMK-R103E

Extra 2 x Isolated RS-232/422/485 + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
COM	2 x Isolated RS-232/422/485
DIO	16bit Isolated DIO
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R103E	2 x COM port, 1 x DIO, 1 x removable 2.5" drive bay

## ARK-2250S+AMK-R105E

Extra 4 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R105E	4 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

# ARK-2121V

## In-Vehicle NVR w/4 PoE Ports Intel® Atom E3825 / Atom E3845 SoC Fanless Box PC



### Features

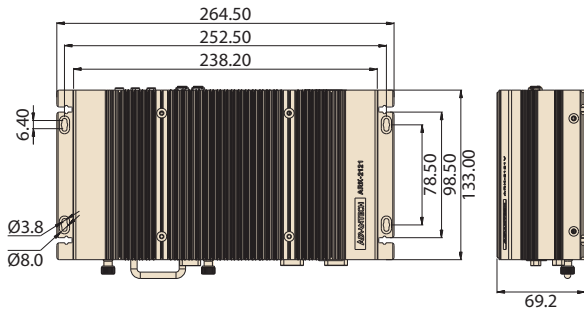
- Intel® Atom E3825 Dual Core 1.33 GHz & E3845 Quad Core 1.91 GHz SoC
- 4 PoE Ports to Support Mainstream IP Cameras
- Isolated COM ports and DIO
- Diversity Communication Abilities, ex. WWAN, WLAN
- Built-in GPS and G-Sensor for GIS application
- Intelligent Vehicle Power Ignition
- 9 ~ 36 V<sub>DC</sub>\* Wide Power Input w/isolation
- 1 x Removable 2.5" drive bay
- Supports iManager, SUSIAccess and Embedded Software APIs
- Up to -40 ~ 70° C wide temperature support (by project)

### Specifications

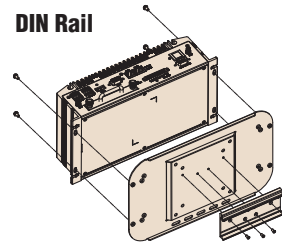
		ARK-2121V-S9A1E	ARK-2121V-S3A1E
Processor System	CPU	Intel Atom E3845 QC SoC	Intel Atom E3825 DC SoC
	Frequency	1.91 GHz	1.33 GHz
	L2 Cache	2 MB	1 MB
	BIOS	AMI EFI 64 Mbit	
Memory	Technology	DDR3L 1333 MHz	DDR3L 1066 MHz
	Max. Capacity	8 GB	
	Socket	1 x 204-pin SO-DIMM	
Graphics	Chipset	Intel Gen7 Graphics	
	Graphic Engine	DirectX11, OpenGL3.2, OpenCL1.1	
	VGA	Full HW acceleration, decode: H.264, MPEG2/4, VC-1, WMV9. Encode: H.264, MPEG2	
	HDMI	Up to 2560 x 1600 @ 60Hz Lockable HDMI connector, up to 1080p	
Audio	Main System	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in	
Ethernet	LAN #1	10/100/1000 Mbps Intel I210-IT GbE, support Wake on LAN	
	LAN #2	10/100/1000 Mbps Intel I210-IT GbE, support Wake on LAN	
I/O Interface	Power over Ethernet, PoE	4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 (7Watt) - 2ports full-load, IEEE802.3af Class 3 (15.4Watt)	N/A
	Serial Ports	2x non-isolated RS-232/422/485 with auto flow control	2x isolated RS-232/422/485 with auto flow control (3KV isolation) 2x non-isolated RS-232/422/485 with auto flow control
	CANBus	Option, 2ch CANBus 2.0A/B (1xCOM will be replaced)	
	GPIO	6 x DI & 2 x DO w/ 3KV isolation Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>	
	USB	3 x USB 2.0 & 1 x USB3.0	
Other	GPS	On board standalone GPS, support GPS, GLONASS and QZSS signals	
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ± 16g	
	Watchdog timer	255-level timer interval, setup by software	
Expansion	Mini PCIe #1	Full-size Mini PCIe (USB, SATA interface)	
	Mini PCIe #2	Full-size Mini PCIe w/SIM holder (PCIe, USB interface)	
	Mini PCIe #3/4	2 x Full-size Mini PCIe w/SIM holders (USB interface)	
Storage	2.5" Drive Bay	1 x removable 2.5" drive bay (Standard 9.5mm height, 15mm height support by project)	
	mSATA	Leverage MiniPCIe #1 slot	
Software Support	Microsoft Windows	WES8, WES7, Windows 8, Windows 7	
	Linux	Support by project	
Power Requirement	Power Type	ATX/AT	
	Power Input Voltage*	9 ~ 36 V <sub>DC</sub> w/isolation	
	Vehicle Power Ignition	Selectable boot-up & shut-down voltage, on/off delay time	
	Power Consumption	16W (Typical), 66W (Max)	16W (Typical), 36W (Max)
Mechanical	Isolation	1.5KV Isolated	
	Construction	Aluminum housing, Silver	
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting	
Environment	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	
	Operating Temperature	With extended temperature peripherals: -30 ~ 60° C with 0.7m/s air flow (standard) -40 ~ 70° C with 0.7m/s air flow (by project)	With extended temperature peripherals: -30 ~ 70° C with 0.7m/s air flow (standard) -40 ~ 70° C with 0.7m/s air flow (by project)
		With standard temperature peripherals: 0 ~ 45° C with 0.7m/s air flow	With standard temperature peripherals: 0 ~ 45° C with 0.7m/s air flow
	Storage Temperature	-40 ~ 85° C (-40~185° F)	
	Relative Humidity	95% @ 40° C (non-condensing)	
	Vibration/Shock	With mSATA/SSD: IEC 60721-3-5 Class 5M3	
Regulation	EMC	CE/FCC Class A, CCC, BSMI	
	Safety	UL, CCC, BSMI, E-Mark (E13)	
	In-Vehicle Power	ISO7637-2 Lev.4	

\* Power Input Constraint at low voltage: 9~10.9V.

## Dimensions

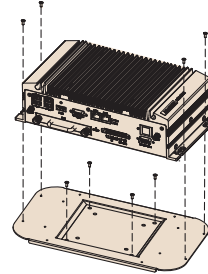


### DIN Rail

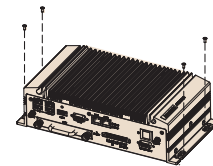


Unit: mm

### VESA mount

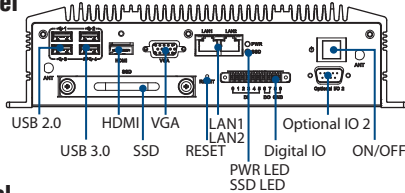


### Wall mount

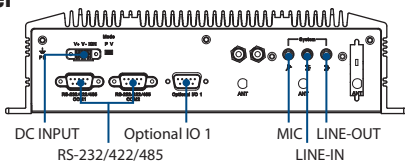


### ARK-2121V-S3A1E External I/O Mechanical Layout/Drawing

#### Front Panel

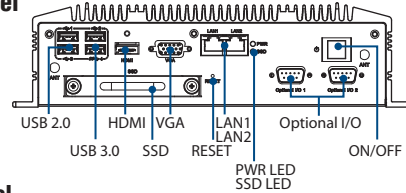


#### Rear Panel

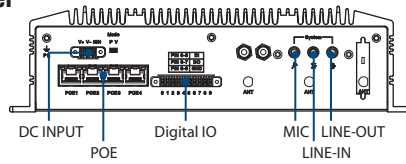


### ARK-2121V-S9A1E External I/O Mechanical Layout/Drawing

#### Front Panel



#### Rear Panel



## Ordering Information

Part Number	Intel CPU	RAM	2.5" Drive	mSATA	Display	GbE	PoE	USB	DIO	RS-232/422/485	MiniPCIe	SIM Holder	Power Input	Operating Temperature
ARK-2121V-S3A1E	Intel Atom E3825 DC 1.33 GHz	Up to 8GB	1	1	1 x HDMI 1 x VGA	2	N/A	3 x USB2.0 1 x USB3.0	6Di 2Do	4	4 x Full Size	3	9 - 36 Vdc	-30 - 70° C
ARK-2121V-S9A1E	Intel Atom E3845 QC 1.91 GHz						4			2				-30 - 60° C

## Packing List

Part Number	Description
-	1 x ARK-2121 Unit
-	1 x Driver/Utility CD/Manual
-	1 x User Manual (Simplified Chinese)
1652000049	3-pole phoenix power block 3.81mm
1750001782	1 x GPS antenna Active with 5M SMA cable
1652003235	10-Pin DIO plug in block

## Optional Items

Part Number	Description
96PSA-A120W19T2	AC-to-DC Adapter
1702002600	Power Cable 3-pin 180cm, USA type
1702002605-02	Power Cable 3-pin 183cm, Europe type
1700018704	Power Cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

## Embedded OS

Part Number	Description
2070013555	ARK-2121V-S3A1E WES7 E OS image
2070013559	ARK-2121V-S9A1E WES7 E OS image
2070013597	ARK-2121V-S3A1E WE8S OS image
2070013598	ARK-2121V-S9A1E WE8S OS image
2070014590	ARK-2121V-S3A1E IDP 3.1 x64 OS image
2070014979	ARK-2121V WES7 P OS image (10MUI, 64bit)
20706WX6ES0002	ARK-2121V Win10 IoT Enterprise OS image (US, 64bit)

\*Default BIOS is supported for 64-bit OS installation, BIOS 32-bit OS is supported by project

# ARK-2151V

## In-Vehicle Full HD NVR w/4 PoE Ports 4th Gen. Intel® Core i5 4300U / Celeron 2980U SoC Fanless Box PC



### Features

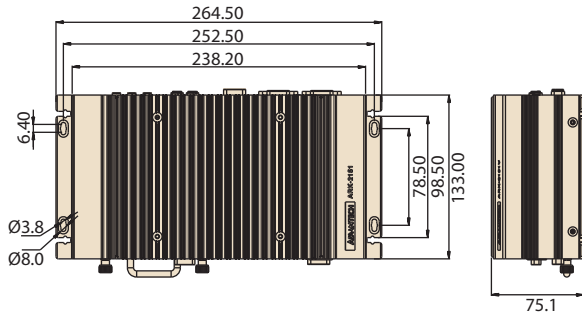
- Intel® Celeron 2980U 1.6GHz / Core i5-4300U 1.9 GHz SoC
- 4 PoE Ports to Support Mainstream IP Cameras
- Diversity Communication Abilities, ex. WWAN, WLAN
- Built-in GPS and G-Sensor for GIS application
- Intelligent Vehicle Power Ignition
- 9 ~ 36 V<sub>DC</sub>\* Wide Power Input w/isolation
- 1 x Removable 2.5" drive bay
- Supports iManager, SUSIAccess and Embedded Software APIs

### Specifications

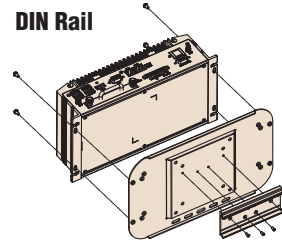
		ARK-2151V-S6A1E	ARK-2151V-S9A1E
Processor System	CPU	Intel Celeron 2980U Dual Core	Intel i5-4300U Dual Core
	Frequency	1.6 GHz	1.9 GHz
	L3 Cache	2 MB	3 MB
	BIOS	AMI EFI 128 Mbit	
Memory	Technology	DDR3L 1333 MHz	DDR3L 1600 MHz
	Max. Capacity	8 GB	
	Socket	1 x 204-pin SO-DIMM	
Graphics	Chipset	HD Graphics	GT2-4400 Graphics
	Graphic Engine	DirectX11.1, OpenGL 4.0, and OpenCL 1.2	
	VGA	Full AVC/VC1/MPEG2 HW Decode	
	HDMI	Up to 1920 x 1200 with 60 Hz, 154 MHz pixel clock rate Lockable HDMI connector, up to 4K at 24 Hz	
Audio	Main System	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in	
Ethernet	LAN #1	10/100/1000 Mbps Intel I218 GbE, support Wake on LAN	
	LAN #2	10/100/1000 Mbps Intel I210-IT, support Wake on LAN	
I/O Interface	Power over Ethernet, PoE	N/A	4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 (7Watt) - 2ports full-load, IEEE802.3af Class 3 (15.4Watt)
	Serial Ports	2x isolated RS-232/422/485 with auto flow control (3KV isolation) 2x non-isolated RS-232/422/485 with auto flow control	2x non-isolated RS-232/422/485 with auto flow control
	CANBus	Option, 2ch CANBus 2.0A/B (1xCOM will be replaced)	
	USB Interface	2 x USB 2.0 & 2 x USB3.0 6 x DI & 2 x DO w/ 3KV isolation Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>	
	GPIO	On board standalone GPS, support GPS, GLONASS and QZSS signals On board high resolution G-Sensor, up to 13-bit resolution at ±16g 255-level timer interval, setup by software	
Other	GPS	On board standalone GPS, support GPS, GLONASS and QZSS signals	
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ±16g	
Expansion	Watchdog timer	255-level timer interval, setup by software	
	Mini PCIe #1	Full-size Mini PCIe w/SIM holder (PCIe, USB, SATA interface)	
	Mini PCIe #2	Half-size Mini PCIe (PCIe interface)	
Storage	Mini PCIe #3/4	2 x Full-size Mini PCIe w/SIM holders (USB interface)	
	2.5" Drive Bay	1 x removable 2.5" drive bay (Standard 9.5mm height, 15mm height support by project)	
Software Support	mSATA	Leverage MiniPCIe #1 slot	
	Microsoft Windows	WES8, WES7, Windows 8, Windows 7	
Power Requirement	Linux	Support by project	
	Power Type	ATX/AT	
	Power Input Voltage*	9 ~ 36 V <sub>DC</sub> w/isolation	
	Vehicle Power Ignition	Selectable boot-up & shut-down voltage, on/off delay time	
	Power Consumption	26W (Typical), 46W (Max)	26W (Typical), 76W (Max)
Mechanical	Isolation	1.5 KV Isolated	
	Construction	Aluminum housing, Silver	
	Mounting	Din-Rail mounting, Desk/wall-mounting, VESA mounting	
Environment	Dimensions (W x H x D)	264.5 x 75.1 x 133.0 mm (10.41" x 2.96" x 5.24")	
	Operating Temperature	With extended temperature peripherals: -20 ~ 60° C with 0.7m/s air flow With standard temperature peripherals: 0 ~ 45° C with 0.7m/s air flow	
	Storage Temperature	-40 ~ 85° C (-40-185° F)	
	Relative Humidity	95% @ 40° C (non-condensing)	
	Vibration/Shock	With mSATA/SSD: IEC 60721-3-5 Class 5M3	
Regulation	EMC	CE/FCC Class A, CCC, BSMI	
	Safety	UL, CCC, BSMI, E-Mark (E13)	
	In-Vehicle Power	ISO7637-2 Lev.4	

\* Power Input Constraint at low voltage: 9-10.9V.

## Dimensions

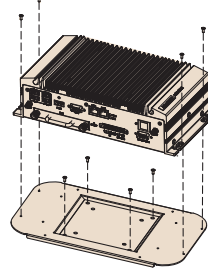


### DIN Rail

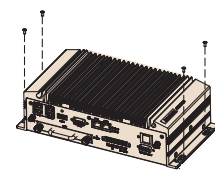


Unit: mm

### VESA mount

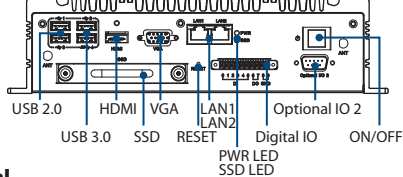


### Wall mount

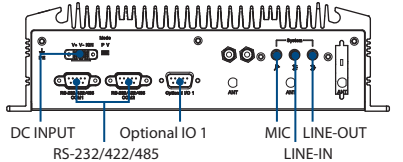


## ARK-2151V-S6A1E External I/O Mechanical Layout/Drawing

### Front Panel

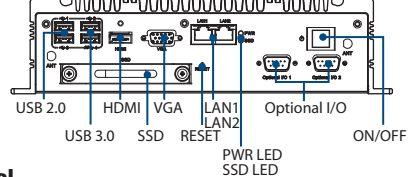


### Rear Panel

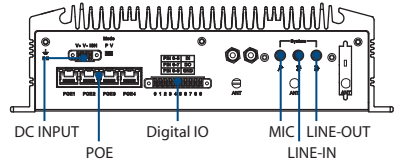


## ARK-2151V-S9A1E External I/O Mechanical Layout/Drawing

### Front Panel



### Rear Panel



## Ordering Information

Part Number	Intel CPU	RAM	2.5" Drive	mSATA	Display	GbE	PoE	USB	DIO	COM	MiniPCIe	SIM Holder	Power Input	Operating Temperature
ARK-2151V-S6A1E	Intel Celeron 2980U 1.6 GHz	Up to 8GB	1	1	1 x HDMI 1 x VGA	2	N/A	2 x USB2.0 2 x USB3.0	6Di 2Do	4	3 x Full Size 1 x Half Size	3	9 ~ 36 V <sub>DC</sub>	-20 ~ 60° C
ARK-2151V-S9A1E	Intel i5-4300U 1.9 GHz						4			2				

## Packing List

Part Number	Description
-	1 x ARK-2151 Unit
-	1 x Driver/Utility CD/Manual
-	1 x User Manual (Simplified Chinese)
1652000049	3-pole phoenix power block 3.81mm
1750001782	1 x GPS antenna Active with 5M SMA cable
1652003235	10-Pin DIO plug in block

## Optional Items

Part Number	Description
96PSA-A120W19T2	AC-to-DC Adapter
1702002600	Power Cable 3-pin 180cm, USA type
1702002605-02	Power Cable 3-pin 183cm, Europe type
1700018704	Power Cable 3-pin 183cm, UK type
AMK-V004E	VESA mounting kit
AMK-R004E	DIN-rail mounting kit

## Embedded OS

Part Number	Description
2070013560	ARK-2151V-S6A1E WES7 E OS image
2070013568	ARK-2151V-S9A1E WES7 E OS image
2070013599	ARK-2151V-S6A1E WE8S OS image
2070013600	ARK-2151V-S9A1E WE8S OS image
2070014978	ARK-2151V WES7 P OS image (10MUI, 64bit)
2070014995	ARK-2151V Win10 IoT Enterprise OS image (US, 64bit)

\*Default BIOS is supported for 64-bit OS installation, BIOS 32-bit OS is supported by project



# ARK-2250V

6th Gen Intel Core i7-6822EQ QC/i5-6442EQ QC  
In-vehicle Fanless System



## Features

- Intel i7-6822EQ QC/ Intel i5-6442EQ QC SoC
- Support TPM2.0
- Stackable extension design, option extension kit for applications
- Support 12/24V<sub>DC</sub> vehicle power input with E-Mark certification
- Built-in Vehicle Power Ignition Management
- Built-in GPS and G-Sensor for GIS application
- Diversity Communication Extensible, ex. WLAN, WWAN
- Certified for EMARK, ISO7637-2, IEC 60721-3-5 5M3
- Built-in Advantech remote management software WISE-PaaS/RMM



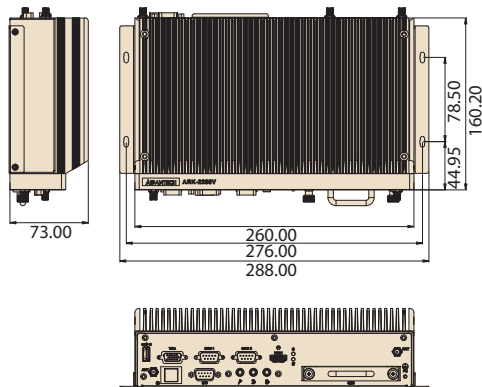
## Specifications

		ARK-2250V-U0A1E	ARK-2250V-S9A1E
Processor System	CPU	Intel i7-6822EQ QC SoC	Intel i5-6442EQ QC SoC
	Frequency	2.0GHz	1.9GHz
	Cache	8 MB	6 MB
	BIOS	AMI EFI	
Memory	Technology	DDR4 2133MHz	
	Max. Capacity	32G	
	Socket	2 x 260-pin SO-DIMM	
Graphics	Chipset	QM170	
	Graphic Engine	DirectX 11.3, OGL 4.4, OCL 2.1 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2 EHVC: H.265	
	VGA	Up to 1920 x 1200 @ 60Hz	
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz	
	Dual Display	VGA + HDMI (Std.) or Dual HDMI (by project)	
Ethernet	LAN1	10/100/1000 Mbps Intel i219 GbE, support Wake On Lan	
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan	
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in, Line-in	
IO Interface	Serial Ports	3 x RS-232/422/485 port with auto flow control	
	USB Interface	3 x USB3.0 Type A	
	GPIO	4 x DI & 4 x DO w/ 1.5KV isolation, Input Voltage: 0 to 30 V <sub>DC</sub> , Output Current: Max. 500 mA per channel, On-state Voltage: 24 V <sub>DC</sub> nominal, open collector to 30 V <sub>DC</sub>	
	CANBus	Optional	
Other	Watchdog timer	255 levels timer interval, setup by software	
	TPM	TPM2.0 (Infineon SLB9665)	
	GPS	On board standalone GPS, support GPS, GLONASS, BeiDou and QZSS signals	
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ±16g	
Expansion	Mini PCIe	#1, Full-size Mini PCIe (SATA/PCIe/USB) w/external SIM socket #2, Full-size Mini PCIe (PCIe/USB) w/external SIM socket #3, M.2 2230 E key	
	SSD/HDD	1 x 2.5" SATA drive bay	
	mSATA	1 x full size mSATA socket (Mini PCIe #1)	
Software Support	Microsoft Windows	Win7, WES7, Win8, WSE8, Win10	
	Linux	Support by project	
Power Requirement	Power Type	ATX	
	Power Input Voltage	12/24V <sub>DC</sub> with E-Mark certification	
	Vehicle Power Ignition	Selectable boot-up & shut-down voltage, on/off delay time	
Power Consumption	Isolation	1.5 KV	
	Typical	TBD	
	Max.	TBD	
Mechanical	Construction	Aluminum housing	
	Mounting	Wall mounting kit	
	Dimensions (W x H x D)	260 x 73 x 160.2mm	
	Weight	3.2 Kg	
Environment	Operating Temperature	With extended temperature peripherals: -20 ~ 70° 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	IEC 60721-3-5 5M3, MIL-STD 810G	
	Shock During Operation	IEC 60721-3-5 5M3, MIL-STD 810G	
	EMC	CE, FCC Class B, CCC, BSMI	
	Safety Certifications	UL, CCC, BSMI, CB, EMARK	

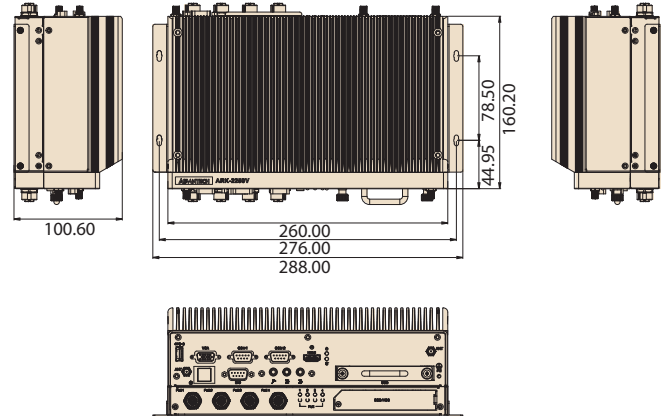
## Dimensions

Unit: mm

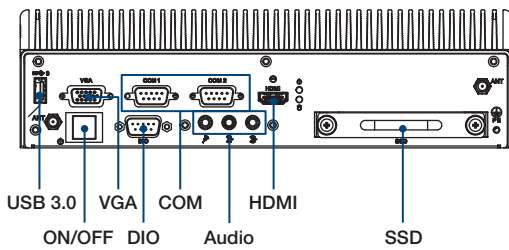
ARK-2250V



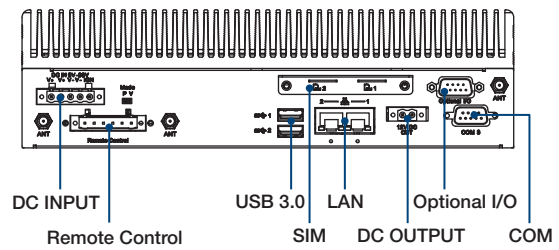
ARK-2250V+AMK-R100E



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 3.0	DIO	RS-232/422/485	Audio	MiniPCIe	M.2	SIM	mSATA	2.5" SATA Drive Bay	Operating Temp.
ARK-2250V-U0A1E	Intel Core i7-6822EQ QC	1	1	2	3	4Di, 4Do	3	Lin-out, Line-in, MIC	2	1	2	1	1	-20 ~ 70 °C
ARK-2250V-S9A1E	Intel Core i5-6442EQ QC	1	1	2	3	4Di, 4Do	3	Lin-out, Line-in, MIC	2	1	2	1	1	-20 ~ 70 °C

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

## Packing List

Part Number	Description
-	1 x ARK-2250V Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1750006432	1 x GPS Antenna 5000mm
1960071555N011	2 x Wall Mounting Brackets

## Optional Embedded OS

Part Number	Description
TBD	WES7E 64bit ENG/T-CH/S-CH/JP
TBD	WES8E 64bit ENG/T-CH/S-CH/JP

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS

## Optional Item for Default SKU

Part Number	Description
96PSA-A150W24T2	AC-to-DC Adapter, DC24V/150W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type

# ARK-R Extended Modules

## ARK-2250V+AMK-R100E

Extra 8 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R100E	8 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250V+AMK-R101E

Extra 4 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R101E	4 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250V+AMK-R104E

Extra 8 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R104E	8 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

## ARK-2250V+AMK-R105E

Extra 4 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R105E	4 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

# ARK-2231R

## EN50155 Intel® Atom E3845 SoC Rolling Stock Fanless System



### Features

- Intel® E3845 Quad Core 1.91 GHz SoC
- Stackable extension design, option extension kit for applications
- DC 24V EN50155 S2/C1 compliant, DC 48/72/110V options
- -40 ~ 70 °C wide temperature support with EN50155 TX compliant
- Solid connection for LAN/USB/Audio/COM and power input
- Anti-vibration/shock proof, IEC61373 Category1, ClassB
- Built-in Advantech remote management software WISE-PaaS/RMM

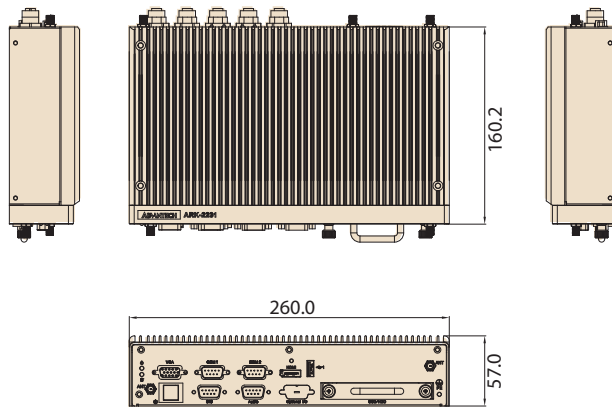


### Specifications

		ARK-2231R-S9A1E
Processor System	CPU	Intel® E3845 Quad Core
	Frequency	1.91 GHz
	L2 Cache	2 MB
	BIOS	AMI EFI
Memory	Technology	DDR3L 1333 MHz
	Max. Capacity	8 GB
	Socket	1 x 204-pin SO-DIMM
Graphics	Chipset	Intel® Gen7 Graphics
	Graphic Engine	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2
	VGA	Up to 2560 x 1600 @ 60Hz
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz
	Dual Display	Yes, VGA + HDMI
Ethernet	LAN1	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan, M12 X-Coded
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan, M12 X-Coded
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in, Line-in
IO Interface	Serial Ports	2 x RS-232/422/485 port with auto flow control
	USB Interface	1 x USB2.0/3.0 M12, 1 x USB2.0 M12 A-Coded, 1 x USB2.0 Type A
	GPIO	1x 8bit DIO
Other	GPS	On board standalone GPS, support GPS, GLONASS, GALILEO, BeiDou and QZSS signals
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ± 16g
	Watchdog timer	255 levels timer interval, setup by software
Expansion	Mini PCIe	1 x Full-size Mini PCIe (SATA/PCIe/USB)
		1 x Full-size Mini PCIe (PCIe/USB)
		1 x Full-size Mini PCIe (USB) w/Accessible SIM socket
Storage	SSD/HDD	1 x 2.5" SATA drive bay
	mSATA	1 x full size mSATA socket
Software Support	Microsoft Windows	Win7, WES7, Win8, WSE8, Win10
	Linux	Support by project
Power Requirement	Power Type	ATX
	Power Input Voltage	DC 24V - Standard DC 48/72/110V - Options
	Regulation	EN50155 S2/C1 Compliant
	Power Adapter	24V/ 150W (Option)
Power Consumption	Typical	18W
	Max.	45W
Mechanical	Construction	Aluminum housing
	Mounting	Wall / VESA / DIN-Rail Kit options
	Dimensions (W x H x D)	260 x 57 x 160.2 mm
	Weight	2.3 kg (5.07 lb)
Environment	Operating Temperature	With extended temperature peripherals: -40 ~ 70 °C EN50155 TX
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
	Relative Humidity	95% @ 40 °C (non-condensing)
	Vibration During Operation	IEC61373 Category1, Class B
	Shock During Operation	IEC61373 Category1, Class B
	EMC	CE/FCC Class B, CCC, BSMI, EN50155
Safety Certifications	UL, CCC, BSMI, CB, EN50155	

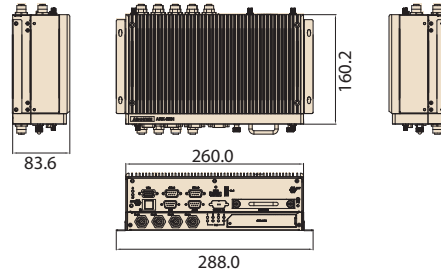
## Dimensions

### ARK-2231R

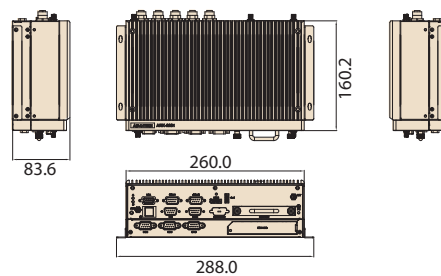


### ARK-2231R+AMK-R100E

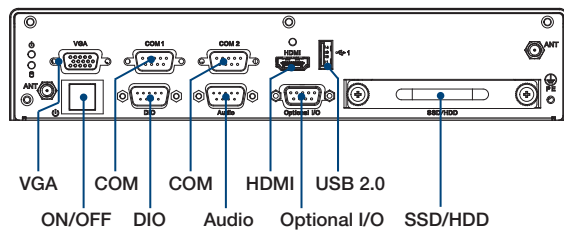
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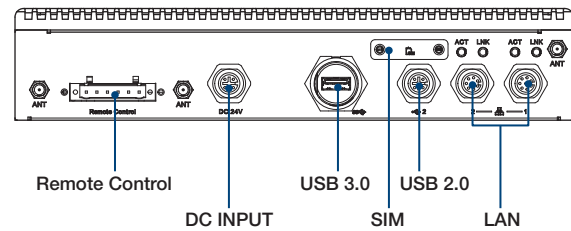
### ARK-2231R+AMK-R102E



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



## Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	RAM	Display	GbE	USB 2.0	USB 3.0	DIO	RS-232/422/485	Audio	Full-size MiniPCle	SIM	mSATA	2.5" SATA II Drive Bay	Power Input	Operating Temp.
ARK-2231R-S9A1E	Intel® Atom E3845 DC 1.91GHz	Up to 8G	1 x HDMI 1 x VGA	2	2	1	8 bit	2	Lin-out, Line-in, MIC	3	1	1	1	24 V <sub>DC</sub>	-40 ~ 70 °C

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

## Packing List

Part Number	Description
ARK-2231R-S9A1E	1 x ARK-2231R Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1750006432	1 x GPS antenna 5000mm AG1575-0250SM-UL
1960071555N011	2 x Wall mounting brackets for ARK-2231R

## Optional Embedded OS

Part Number	Description
2070015162	WES7E 64bit ENG/T-CH/S-CH/JP
TBD	WES8E 64bit ENG/T-CH/S-CH/JP

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS

## Optional Item for Default SKU

Part Number	Description
XARK-FSP180-AAAN2	AC-to-DC Adapter, DC24V/150W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type

# ARK-R Extended Modules

## ARK-2231R+AMK-R100E

Extra 8 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
PoE	8 x 10/100/1000Base T(X) PoE+, 802.3at compliant, Total: 60W
PoE Connector	M12 X-coded, 8PIN
Drive bay	1 x Removable 2.5" drive bay
Power Consumption	75W (Max)
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R100E	8 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2231R+AMK-R101E

Extra 4 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
PoE	4 x 10/100/1000Base T(X) PoE+, 802.3at compliant, Total: 60W
PoE Connector	M12 X-coded, 8PIN
Drive bay	1 x Removable 2.5" drive bay
Power Consumption	75W (Max)
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R101E	4 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2231R+AMK-R104E

Extra 8 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
PoE	8 x 10/100 Base T(X) PoE+, 802.3at compliant, Total: 60W
PoE Connector	M12 D-coded, 4PIN
Drive bay	1 x Removable 2.5" drive bay
Power Consumption	75W (Max)
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R104E	8 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

## ARK-2231R+AMK-R105E

Extra 4 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
PoE	4 x 10/100 Base T(X) PoE+, 802.3at compliant, Total: 60W
PoE Connector	M12 D-coded, 4PIN
Drive bay	1 x Removable 2.5" drive bay
Power Consumption	75W (Max)
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R105E	4 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

# ARK-2250R

6th Gen Intel Core i7-6822EQ QC/i5-6442EQ QC  
Rolling Stock Fanless System



## Features

- Intel i7-6822EQ QC/ Intel i5-6442EQ QC SoC
- Support TPM2.0
- Stackable extension design, option extension kit for applications
- DC 24V EN50155 S2/C1 compliant, DC 48/72/110V options
- Supports intelligent boot-up & shutdown timing management
- 40 ~ 70 °C wide temperature support with EN50155 TX compliant
- Railway EMC comply with EN50121-3-2, EN50121-4
- Solid connection for LAN/USB/Audio/COM and power input
- Anti-vibration/shock proof, IEC 61373 Category1, ClassB
- Built-in Advantech remote management software WISE-PaaS/RMM



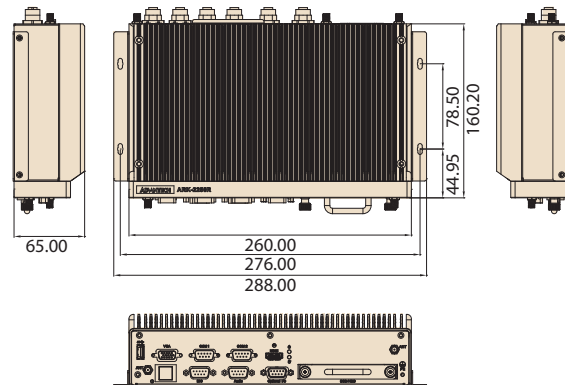
## Specifications

		ARK-2250R-U0A1E	ARK-2250R-S9A1E
Processor System	CPU	Intel i7-6822EQ QC SoC	Intel i5-6442EQ QC SoC
	Frequency	2.0GHz	1.9GHz
	Cache	8 MB	6 MB
	BIOS	AMI EFI	
Memory	Technology	DDR4 2133MHz	
	Max. Capacity	32G	
	Socket	2 x 260-pin SO-DIMM	
Graphics	Chipset	QM170	
	Graphic Engine	DirectX 11.3, OGL 4.4, OCL 2.1 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2 EHVC: H.265	
	VGA	Up to 1920 x 1200 @ 60Hz	
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz	
	Dual Display	Dual HDMI (Std.) or VGA + HDMI (by project)	
	Ethernet	LAN1	10/100/1000 Mbps Intel i219 GbE, support Wake On Lan, M12 X-Coded
	LAN2	10/100/1000 Mbps Intel i210 GbE, support Wake On Lan, M12 X-Coded	
Audio	Interface	Realtek ALC888S, High Definition Audio. Line-out, Mic-in, Line-in	
IO Interface	Serial Ports	3 x RS-232/422/485 port with auto flow control	
	USB Interface	2 x USB2.0 A-Coded, 1x USB3.0 Type A	
	GPIO	8bit Programmable DI/DO	
Other	Watchdog timer	255 levels timer interval, setup by software	
	TPM	TPM2.0 (Infineon SLB9665)	
	GPS	On board standalone GPS, support GPS, GLONASS, BeiDou and QZSS signals	
	G-Sensor	On board high resolution G-Sensor, up to 13-bit resolution at ±16g	
Expansion	Mini PCIe	#1, Full-size Mini PCIe (SATA/PCIe/USB) w/external SIM socket #2, Full-size Mini PCIe (PCIe/USB) w/external SIM socket #3, M.2 2230 E key	
Storage	SSD/HDD	1 x 2.5" SATA drive bay	
	mSATA	1 x full size mSATA socket (Mini PCIe #1)	
Software Support	Microsoft Windows	Win7, WES7, Win8, WSE8, Win10	
	Linux	Support by project	
Power Requirement	Power Type	ATX	
	Power Input Voltage	DC 24V - Standard DC 48/72/110V - Options	
	Regulation	EN50155 S2/C1 Compliant	
	Intelligent Ignition Management	Selectable boot-up & shut-down timer	
	Connector	M12 A-Coded (5Pin)	
Power Consumption	Power Adapter	24V/ 180W (Option)	
	Typical	TBD	
	Max.	TBD	
Mechanical	Construction	Aluminum housing	
	Mounting	Wall mounting kit	
	Dimensions (W x H x D)	260 x 73 x 160.2mm	
	Weight	3.2 Kg	
Environment	Operating Temperature	With extended temperature peripherals: -40 ~ 70 °C EN50155 TX	
	Storage Temperature	- 40 ~ 85 °C (-40 ~ 185 °F)	
	Relative Humidity	95% @ 40 °C (non-condensing)	
	Vibration During Operation	IEC61373 Category1, Class B	
	Shock During Operation	IEC61373 Category1, Class B	
	EMC	CE/FCC Class B, CCC, BSMI, EN50121-3-2, EN50121-4	
	Safety Certifications	UL, CCC, BSMI, CB, EN50155	

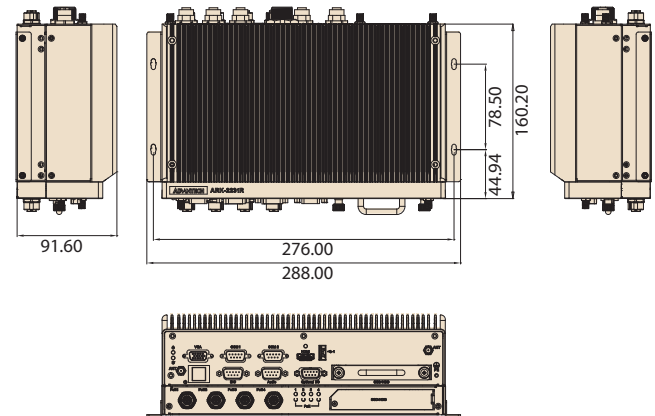
## Dimensions

Unit: mm

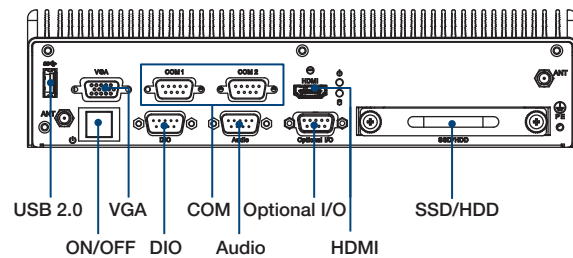
ARK-2250R



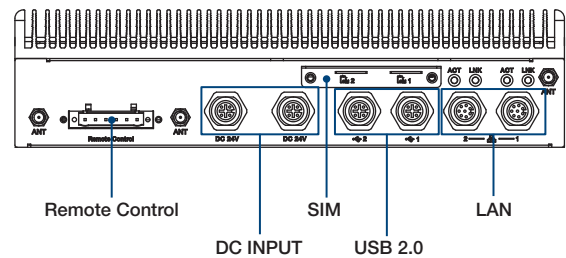
ARK-2250R+AMK-R100E



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



### Rear Panel External I/O Mechanical Layout/Drawing



## Ordering Information

Part No.	CPU	VGA	HDMI	GbE	USB 2.0	USB 3.0	DIO	RS-232/422/485	Audio	MiniPCIe	M.2	SIM	2.5" SATA Drive Bay	Operating Temp.
ARK-2250R-U0A1E	Intel Core i7-6822EQ QC	0	2	2	2	1	8 bit	3	Lin-out, Line-in, MIC	2	1	2	1	-40 ~ 70 °C
ARK-2250R-S9A1E	Intel Core i5-6442EQ QC	0	2	2	2	1	8 bit	3	Lin-out, Line-in, MIC	2	1	2	1	-40 ~ 70 °C

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

## Packing List

Part Number	Description
-	1 x ARK-2250R Unit
-	1 x User Manual (Simplified Chinese)
-	1 x China RoHS
1750006432	1 x GPS Antenna 5000mm
1960071555N011	2 x Wall Mounting Brackets
1652001524	1 x Terminal Block 6P 5.00mm

## Optional Embedded OS

Part Number	Description
TBD	WES7E 64bit ENG/T-CH/S-CH/JP
TBD	WES8E 64bit ENG/T-CH/S-CH/JP

Note: Default BIOS is for 64bit OS support only. 32bit OS will need to update BIOS

## Optional Item for Default SKU

Part Number	Description
XARK-FSP180-AAAN2	AC-to-DC Adapter, DC24V/180W
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type



# ARK-R Extended Modules

## ARK-2250R+AMK-R100E

Extra 8 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R100E	8 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250R+AMK-R101E

Extra 4 x GbE PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100/1000Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 160.2
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R101E	4 x GbE PoE M12 X-coded, 1 x removable 2.5" drive bay

## ARK-2250R+AMK-R104E

Extra 8 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	8 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R104E	8 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay

## ARK-2250R+AMK-R105E

Extra 4 x 10/100 Mbps PoE + removable 2.5" drive bay



### Specifications

General	
Bus interface	MIOe
PoE	4 x 10/100 Base T(X) PoE, 802.3at compliant
Drive bay	1 x Removable 2.5" drive bay
Mechanical	
Dimension	260 x 26.5 x 140
Environment	
Operating temperature	-40 ~ 70 °C, EN50155 TX
Shock/Vibration	IEC61373 Category1, Class B

### Ordering Information

P/N	Description
AMK-R105E	4 x 10/100 Mbps PoE M12 D-Coded, 1 x removable 2.5" drive bay





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