# Fanless Embedded Box PCs

## New Generation Fanless Intelligent Systems

- Ultra Small Series
- Slim / Mountable Series
- Multiple I/O Series
- High Performance Series
- Value Series
- Surveillance & In-Vehicle Series


ADVANTECH

*Enabling an Intelligent Planet*

RoHS COMPLIANT 2002/95/EC

Windows® Embedded Gold Partner

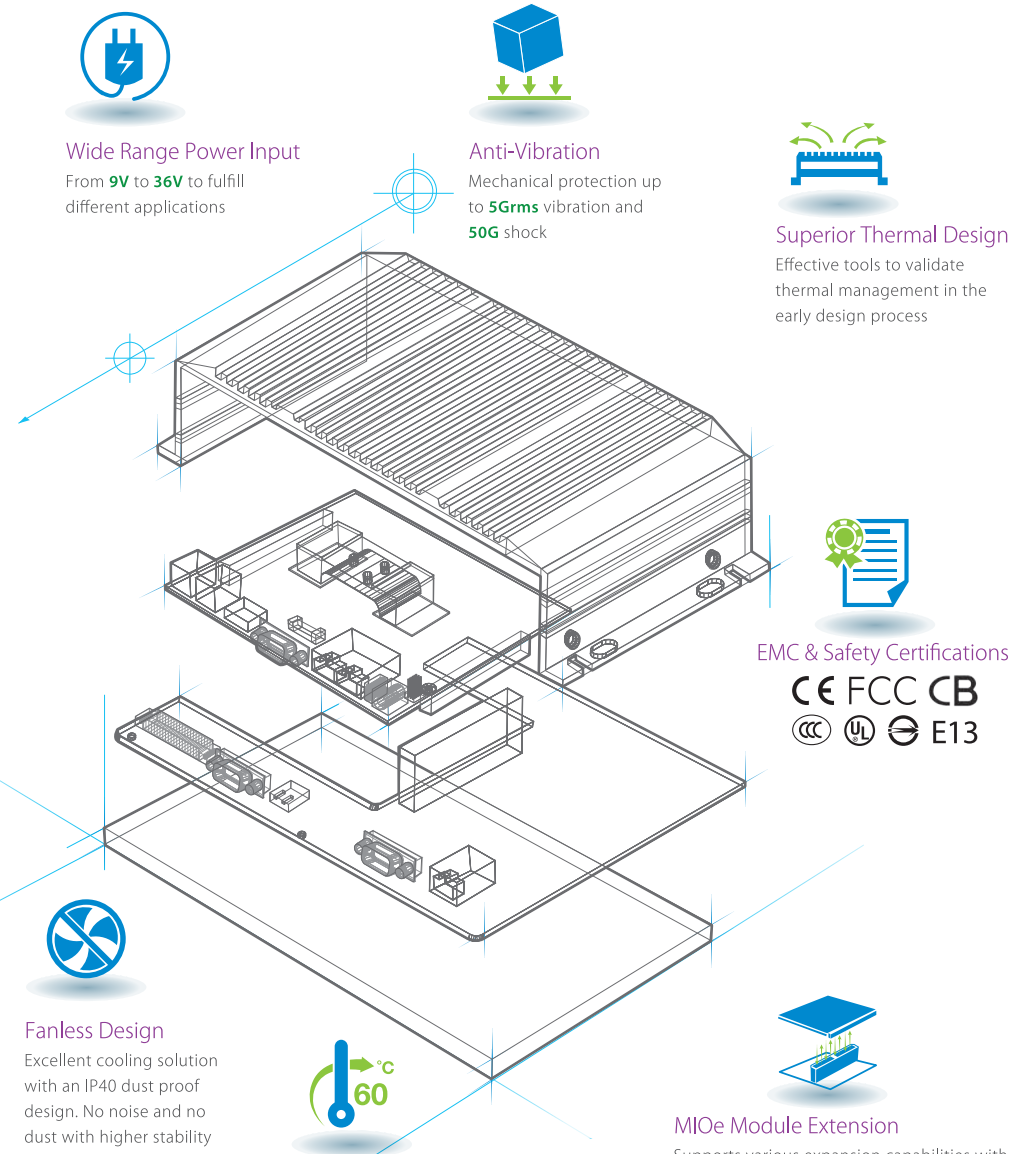
www.advantech.com

# Reliable, Rugged Fanless Design

In today's world industrial computers have a wider range of applications, including those in digital signage, POSs, kiosks, transportation, healthcare, digital surveillance, and other vertical applications. Thus embedded computers featuring compact size, durability, eco-friendliness, and low-noise designs have emerged as new market favorites. Advantech as a leader in providing trusted innovative embedded products and solutions is contributing to this development with the new design concepts into various aspects of the product line, including the appearance, cooling, structural strength, power supply, temperature range, and module expandability. Advantech has designed the new generation Fanless Embedded Box PCs, which highlight these quality features:

- Maximized cooling efficiency keeps key components cool, ensures reliability
- Wide range of power supplies from 9V to 36V fulfills different application requirements
- Wide temperature ranges with certified components
- Diverse expandability options, including multiple MiniPCIe, PCIe, PCI..
- Structural strengthening : vibration level up to 5 Grms and shock up to 50 G
- Slim, compact, with rich I/O for application themes

Advantech aims to give developers convenient, simplified and trusted solutions for embedded applications.



### Wide Range Power Input

From **9V** to **36V** to fulfill different applications

### Anti-Vibration

Mechanical protection up to **5Grms** vibration and **50G** shock

### Superior Thermal Design

Effective tools to validate thermal management in the early design process

### EMC & Safety Certifications

CE FCC CB

E13

### Fanless Design

Excellent cooling solution with an IP40 dust proof design. No noise and no dust with higher stability and outstanding MTBF

### Wide Range Temperature

From **-20°C ~ 60°C** with certified industrial grade components

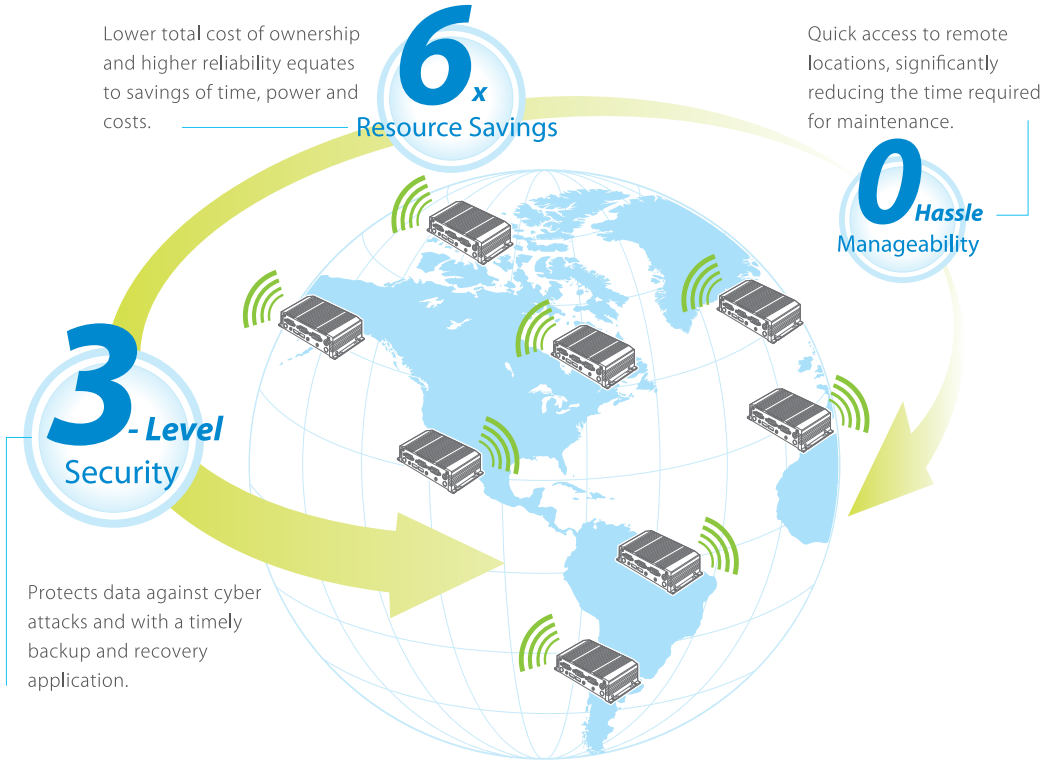
### MIOe Module Extension

Supports various expansion capabilities with I/O, display, communication or customized interfaces. Overall system dimensions can be reduced by 20% to increase additional I/O possibilities

## Table of Contents

# 360° Intelligence *Built-in*

Advantech embedded platforms have long continued to provide all kinds of system and integrated services, and with the cloud computing era will continue to offer more intelligent platforms. This transformation will enable new user experiences, enhanced productivity, better safety, and improved efficiency for embedded applications. Through new ideas and technologies, Advantech creates a series of innovative software services such as SUSIAccess remote device management and iManager intelligent self management to make our systems more manageable, power-saving and secure. This effectively relieves system developers and users of the complexity of device management and maintenance, and simplifies the operation of embedded devices. Entire systems can be managed easily and remotely to save cost. From front end to back end, Advantech leads the industry in new generation intelligent systems.




| Security | Resource Savings | Manageability |
|---|---|---|
| White List Protection | Save Power | Remote Monitoring |
| Backup and Recovery | Save Time | Remote Notification |
| Hardware Security Key | Save Cost | Remote Batch Control |

## SUSIAccess Remote Device Management

McAfee Acronis

All Advantech fanless embedded box PCs will pre-load with SUSIAccess, the remote device management tool. This provides our customers with real-time monitoring, easy access and system protection features that help customers manage multiple clients through a single console for remote device management. Software programs through the industrial cloud respond immediately to any sudden equipment malfunction, initiating realtime equipment maintenance, and enhancing system security protection mechanisms. This significantly improves maintenance efficiency and reduces needs for personnel and time.

## iManager Intelligent Self-Management

To fulfill the ever-changing specialized demands of various industrial applications, Advantech designed an intelligent self-management agent with software control functions and standalone hardware design: iManager, a built-in solution chip, is a perfect solution that provides a standardized API, integrating several unique platform consolidating functions needed by embedded system integrators to help improve consistency, lighten the development effort and speed-up a product's time-to-market.

# Product Series

## Ultra Small Series

Palm Size – 133.8(W) x 43.1(H) x 94.2(D)mm
Green – Ultra low power consumption, minimum 5 Watts
Wide Temperature – -20~60°C operating support
Multi Storage – 2.5" HDD/SSD or mSATA
Expansion – MiniPCIe + SIM for wireless communication, MIOe module
Flexible I/O Design – Leverage MIOe module to differentiate vertical applications
Mounting Solution – Wall, VESA and DIN-Rail kits

**ARK-1122F**
Intel® Atom™ N2800 with Diversity Communications

**ARK-1123H**
Intel® Celeron J1900 with Dual HDMI and Dual GbE

## Slim & Mountable Series

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

**ARK-1504**
Intel® Atom™ Dual Core E3825 / Celeron Quad Core J1900 with flexible mounting

**ARK-1550**
4th Generation Intel® Core i5 4300U / Celeron 2980U with Flexible Mounting

## Multiple I/O Series


Compact Size – 265(W) x 69(H) x 133(D) mm
Platform – Intel® Atom™ to Intel® Core™ i
Wide Temperature – -20~60°C operating support
Wide Range Power – 12V or 12~24V
Rugged Design – 5Grms vibration/ 50G shock
Complete Storage Options – 2.5" HDD/SSD, mSATA, CFast
Expansion – up to 2 MiniPCIe + SIM for wireless communication, MIOe module
Flexible I/O Design – Leverage MIOe module to differentiate vertical applications

**ARK-2150F**
3rd Generation Intel® Core i7 with 4 x GbE and Isolated Digital I/O

**ARK-2120F**
Intel® Atom™ N2600/D2550 with 3xGbE and 6xCOM

## High Performance Series

**High Performance** – Intel® Core™ i Quad Core computing
**Wide Temperature** – -10~60°C with SSD operating support
**Wide Range Power** – 12V or 9~34V input support
**Complete Storage Options** – 2 x 2.5"(removable) HDD/SSD, 2 x mSATA, CFast
**Versatile Expansion** – PCI, PCIe x 1, PCIe x 4, MIOe module, up to 2 MiniPCIe …
**Rugged Design** – 3Grms vibration, 30G shock

**ARK-3500**
3rd Gen. Intel® Core i with 2 Expansion slots

**ARK-3510**
3rd Gen. Intel® Core i with 2 x 2.5" Removable HDD Bays

## Value Series

**Compact Size** – 200(W) x 62(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/SSD, 1 x mSATA
**Expansion** – up to 2 x MiniPCIe slots with 1x SIM holder

**ARK-6322**
Intel Celeron Quad Core J1900 SoC with 6 COM and 8 USB

## Surveillance & In-Vehicle Series


**Outdoor Solution** –In-Vehicle NVR/DVR, Hybrid/Tribrid DVR
**Video Capability** – D1, 720p to 1080p @120FPS
**Secured I/O** – Isolated COM, GPIO and DC input
**Diverse Communications** – GPS, WWAN and WLAN
**Wide Power Range** – 9~36V with vehicle ignition
**Flexible Expansion** – PCIe, MiniPCIe expansion slots
**Rugged Design** – IEC 60721-3-5, EN61373
**Certifications** – E-Mark, EN50155, EN60950, ISO-7637

**ARK-2121V**
Intel® Atom E3825 / Atom E3845 Processor In-Vehicle NVR with 4 PoE

**ARK-2151V**
4th Generation Intel® Core i5 4300U / Celeron 2980U Processor In-Vehicle NVR with 4 PoE

# Ruggedized High-performance Computing Platform for Traffic Surveillance

## Fast and Neat, Secure and Manageable

China

China's prospering economy has driven major population increases in big cities like Beijing and Shanghai, and the attendant increases in vehicular traffic has caused traffic nightmares. Authorities are taking action to deploy traffic monitoring systems to help enforce traffic laws and maintain public safety. These traffic monitoring systems detect traffic violations, retrieve images, recognize vehicle plate numbers, and send the data to traffic authorities' central server for further action. Such outdoor applications require extremely rugged and reliable industrial computers with high-computing power and rich networking connectivity; they are deployed on many main thoroughfares–especially around intersections.

ARK-2150, featuring an Intel® 3rd generation core i7/i3 processor with a fanless design, has joined the team carrying out Beijing's traffic control mission. With its -20 ~ 60° C wide temperature support, up to 4 Gigabit Ethernet ports, rich I/O interfaces and remote management, Advantech is proud to send the ARK-2150 to do battle in challenging environments.

## Requirements

- High performance platform supports image recognition
- -20 ~ 60° C wide-temperature support
- Multiple Gigabit Ethernet ports for IP cameras
- Rugged, fanless system provides high reliability in harsh environments
- Easy maintenance and intelligent remote management

## System

ARK-2150 provides rich I/O interfaces including 4 Gigabit Ethernet ports and 4 serial COM ports (RS-232/422/485). Three of the GbE ports are used to connect up to 3 IP cameras, and the remained GbE port is for communication with the control center. The COM ports are for traffic light connections. For more complex intersections, multiple ARK-2150 units are installed. In all deployments, the ARK-2150 helps to capture images of vehicles running red lights, speeding, or committing other infractions. Images of vehicle plates are scanned, recognized, and the data sent to the control center. The control center can also control and schedule traffic lights via the ARK-2150. 8-channel isolated DIO is also provided to support camera flash when needed.

Remote device management is extremely important for such traffic surveillance applications. ARK-2150 carries embedded Intel® AMT 8.0, Advantech SUSIAccess, and iManager, which provide secure remote management facilities to system administrators . The hardware-based iAMT technology allows for remote system diagnosis and security features including system defense filters and network isolation; SUSIAccess, a software-based remote management software utility developed by Advantech, provides functionalities including remote monitoring and remote KVM, and iManager provides a multi-level watchdog. Remote KVM is a method of controlling multiple computers from a single console. With remote KVM, traffic monitoring system managers can respond to traffic situations in real time, adjusting the software settings of systems from the centralized traffic control room, or from anywhere with a network connection. The multi-level watchdog enables the system to restart an application when the app crashes, or reboot a whole system if an error occurs at the OS level.

For outdoor applications, wide temperature support and fanless design are important in ensuring longevity and reliability. The fanless ARK-2150 supports high-end CPU performance along with temperature support ranging from -20° ~ 60°C; this is rare among small-form-factor systems. It is also seldom that such a small IPC provides such rich I/O interfaces.

## Benefits

ARK-2150, featuring a high computing core, rich, high-speed interfaces, wide temperature support, operational reliability and the latest remote management technologies, is suitable for deployment in traffic surveillance systems. This product exemplifies Advantech's outstanding ability to compact many features into a small fanless system. It is powerful, quick and neat. Advantech's excellence shows not only in outstanding hardware designs but also in software and firmware support. Its proprietary SUSIAccess and iManager intelligent management software utilities are distributed for free in order to facilitate easy management and maximum benefits.

# Delivering Rich Network Support for Bus Arrival Prediction System

## Resource Saving Palm-sized Fanless Intelligent System

China


In the 21st century, the ubiquitous Internet of Things (IoT) technology has already generated many new applications that improve human life, bringing us comforts, convenience, and efficiencies. This real-time bus arrival prediction system is a representative application. The accuracy of a bus arrival prediction system depends on several factors, such as accuracy of the input data, speed of data transfer, data quality control and performance of the prediction scheme. It is usually carried out by thin-client computers and devices hooked to a network with a centralized server. Many of the terminal-end computers are deployed in commercial, industrial, or transportation spaces, indoors or out, and they need to be rugged and durable; smaller form factors and reduced power consumption are desirable, with a view to saving space, cost, and energy.

ARK-1122F, an ultra small fanless embedded box computer, features dual GbE LANs, extensible slots for Wi-Fi and 3G modules and independent dual displays, VGA + HDMI. It is well-suited for signage display, data transfer and real-time bus information.

### Requirements

- Wireless connection
- Rich I/O for peripherals integration
- Rugged features for outdoor environment
- Display capability for real-time information updates
- Remote management

### System

Many traffic applications need to communicate with mobile vehicles, and wireless connection becomes an important requirement. ARK-1122F provides rich I/O including 2 GbE ports for cable connection as well as mini-PCIe expansion for wireless 3G/Wi-Fi communications, and supports dual displays (VGA + HDMI), all of which make it well suited for deployment in outdoor information systems such as those for bus arrival prediction. Such a bus arrival prediction system enabled by a small ARK-1122F hidden in the equipment box at each bus stop. Each ARK-1122F can support a VGA display that shows bus arrival information and an HDMI display that displays advertisements or service information. A GPS system installed on each bus reports its position in real time to a central server, which in turn controls the content displayed at the individual bus stops. This application require rugged industrial computers with excellent data handling ability, networking connection capabilities and display support. With its small form factor and modest power requirements, the ARK-1122F is well positioned to fulfill these applications.

### Benefits

Advantech's ARK-1122F, powered by Intel® Atom™ low power processor with higher performance and higher specifications in terms of CPU and memory, network capacity and I/O support, is ideal for bus arrival prediction system . In addition to the benefits of superior hardware, ARK-1122F also preloaded stronger firmware and software support. SUSIAccess, a package of embedded software API and utilities that enable remote management and maintenance. With SUSIAccess, the control center can access remote embedded systems via the Internet, monitor device status, and administer remote diagnosis and trouble shooting. With the intelligent management tools, application systems can be scheduled to shut off during office closed hours to eliminate unnecessary power use.

# Rich-featured System to Carry Fast-chargers for Electric Vehicles

## Powering Up a Greener Future

USA

Growing environmental awareness has resulted in the increasing use of vehicles that are powered by renewable energies or energies which produce less carbon dioxide and other green house gases. Electric vehicles are among them.

Our customer produces fast-chargers for electric cars, and constructs many public power charging stations. These stations are usually outdoor, self-service facilities that are connected and controlled by a networking system. Computers and other appliances for such applications have to be particularly rugged and reliable, with great connectivity and compatibility. That is why Advantech became an important partner in their projects, as it is able to provide all-in-one solutions for the computing platforms needed in such applications, including its ultra-rugged, fanless, embedded box PC, the ARK-2120.

### Requirements

- Wide operating temperature range for outdoor applications
- Rich I/O interface, highly integrated with other appliances and accessories
- Great connectivity with an Ethernet network
- Low power consumption

### System

Our customer provides fast-charging stations with either single or multiple ports. Their chargers are so powerful that a single 15 to 30 minute charge can support over 100 hours of driving, and the transient electric current during a charge is huge. So the computing platforms that support the systems must be accurate and robust.

The application scheme that the customer presented called for each charging port to be controlled by a digital I/O module, with charging data collected by a computer. This computer must provide an selection of interfaces to connect with digital I/O module, display panel, and a remote central server via the Ethernet.

Advantech, with rich product lines, provided all products needed, with an operation platform powered by its fanless, embedded box PC ARK-2120, which supports up to 2 x GbE, 6 x USB and 4 x COMs ports. This was enough connectivity not only to connect with other parts in the system but also allows the customer to add additional functions in the future. And with regard to power consumption, the ARK-2120, running an Intel® Atom™ N2600 or D2550 low-power processor delivers high performance with lower voltage, which makes it a power-saving device particularly suited for these green-hearted applications.

ARK-2120 also features a wide operating temperature range of -20° ~ 60° C, well suited for outdoor applications, where ambient temperatures can vary wildly from summer to winter. This computer system also supports remote functionalities including remote reset, which allows the system administrators to power on/off the system from a remote control center should any of the terminal computers shut down unexpectedly.

### Benefits

Advantech's fanless embedded box PCs such as ARK-2120 are highly suited for such outdoor self-service applications because of their ultra-ruggedness, wide temperature range, rich I/O options, low power consumption and remote maintenance features. The rich I/O design of ARK-2120 allows for great expandability and flexibility for system designers.

Since Advantech supplied all computing and networking appliances and accessories for this fast-charger application, from display panels, digital I/O controllers, data acquisition computers and Ethernet switches to cables and mounting kits, there were absolutely no worries about connectivity or compatibility issues.

There are no worries about maintenance either, as Advantech provides at least 2 years of warranty for its products and 5-7 years of component supply longevity—much longer than what is available with commercial PCs. Advantech, with its vast experience and huge resources, also provides custom services that meet a wide array of customer needs.

# Life Saving In-vehicle Solution for Fire Departments

## Intelligent Transportation

Europe

For firefighters, time is literally a matter of life or death. Fire services need to be able to locate accidents quickly. The faster they respond, the more chance they have of saving lives. In this role, information plays a crucial part—Where is the fire? Where is the access to water? Are there any children or people with disabilities etc? Where are the entrances and exits in the building? Are there any hazardous substances? These are questions that must be answered as soon as possible—often en-route to the fire. To address these questions, a customer in the Netherlands designed an in-vehicle solution for emergency vehicles which would help speed up emergency response times and real-time information sharing. Our customer, based in the Europe, is an expert in mobile computing solutions for warehousing, transport & logistics, and mobile inspection. They developed an in-vehicle solution based on an Advantech in-vehicle PC which provided a solid and stable platform for their fire truck in-vehicle solution.

### Requirements

Due to the shrinking budgets of Fire Departments, Our customer went in search of an inexpensive in-vehicle solution that exceeded the customers spec and improved on safety provisions. Because this solution was designed to save lives, no compromises could be made on quality and reliability. It needed to have massive storage capability and wireless communication capabilities. The new solution needed to deliver exceptional functionality but at a reasonable cost.

### System

For the in-vehicle fire truck data platform, the main computer used was an Advantech ARK-VH200 fanless mobile DVR solution. The ARK-VH200 manages connectivity between the different peripheral devices in the vehicle such as a monitor in the front for driver navigation, and one in the back for the crew. GPS data is used for navigation, and two-way communication is used to communicate via a GSM module with the control center to obtain up-to-the-second information such as building blueprints and safety information. An internal Wi-Fi module was setup for updating all in-vehicle data when they are back in the fire department barracks and for mobile on-site communications. A special roof antenna is connected to the ARK-VH200 so that no interference problems are caused by coverage in and around the different vehicles.

The ARK-VH200 is mainly controlled by a touch screen monitor, which can be either a 12" touch screen monitor (Advantech ITM-5112) or a 15" touch screen monitor (Advantech ITM-5115). It is also possible to have multiple screens connected to ARK-VH200, for example to allow the driver to navigate on a second screen. In this example, the driver can see the navigation data while the other firefighters in the back of the truck are able to receive up to date information about the incident. In addition the driver has a speaker, so they can also navigate using voice commands.

In the most advanced setup, the ARK-VH200 also functions as a gateway, where a Wi-Fi access point can be placed in the fire truck with an Ethernet connection from ARK-VH200. With the help of portable tablets firemen can access information from ARK-VH200 whilst away from the fire truck.

### Benefits

Advantech products have a proven track record for stability and reliability, and with longevity support they are able to provide long-term operation. Our customer's total solution offered top performance for a lower price than other solutions. This makes Our customer more competitive, but also makes sure that even in times where governments need to shrink budgets, frontline fire and emergency services will still be able to perform their crucial work safely and efficiently.

# Ultra Small and Slim Series

## Selection Guide



NEW

NEW

NEW


| Model Name | | ARK-1120L<br>ARK-1120LX | ARK-1120F | ARK-1122H<br>ARK-1122HS | ARK-1122C | ARK-1122F |
|---|---|---|---|---|---|---|
| Processor System | CPU | Intel Atom N455 | Intel Atom N455 | Intel Atom N2600 | Intel Atom N2600 | Intel Atom N2800 |
| | Frequency | 1.66 GHz | 1.66 GHz | 1.6 GHz | 1.6 GHz | 1.86 GHz |
| | Core Number | 1 | 1 | 2 | 2 | 2 |
| | BIOS | AMI EFI 16Mbit | AMI EFI 16Mbit | AMI EFI 16Mbit | AMI EFI 16Mbit | AMI EFI 16Mbit |
| | Chipset | Intel ICH8-M | Intel ICH8-M | Intel NM10 | Intel NM10 | Intel NM10 |
| Memory | Technology | DDR3 667MHZ | DDR3 667MHZ | DDR3 800MHz | DDR3 800MHz | DDR3 1066MHz |
| | Max. Capacity | 2 GB | 2 GB | 4 GB | 4 GB | 4 GB |
| | Socket | 1 x 204-pin SODIMM/ 2 GB Built-In (LX SKU) | 1 x 204-pin SODIMM | 1 x 204-pin SODIMM/ 2GB Built-In (HS SKU) | 1 x 204-pin SODIMM | 1 x 204-pin SODIMM |
| Display | VGA | Up to 1600 x 1200 | Up to 1600 x 1200 | Up to 1920 x 1200 | Up to 1920 x 1200 | Up to 1920 x 1200 |
| | LCD (TTL/LVDS/eDP) | - | - | - | - | - |
| | DDI (HDMI/DVI/ DisplayPort) | - | - | Lockable HDMI: 1920 x 1200, lockable supported | - | Lockable HDMI: 1920 x 1200, lockable supported |
| | Multiple Display | - | - | Dual | - | Dual |
| Expansion Interface | Mini PCIe | 1 x half-size Mini PCIe | 1 x half-size Mini PCIe | 1 x half-size Mini PCIe | 1 x half-size Mini PCIe | 1 x half-size Mini PCIe<br>1 x full-size Mini PCIe w/ SIM Holder |
| | SIM Socket | - | - | - | - | 1 |
| Ethernet | Controller | GbE1: Intel 82567V, support wake on LAN | GbE1 : Intel 82567V, support wake on LAN | GbE1: Intel 82583V, support wake on LAN | GbE1: Intel 82583V, support wake on LAN | GbE1: Intel 82583V,<br>GbE2: Intel 82583V,<br>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 | Audio Interface | HD Audio | - | HD Audio | - | HD Audio |
| | CODEC | Realtek ALC892 | - | Realtek ALC892 | - | Realtek ALC892 |
| | Connector | 2 (Line-in, Line out) | - | 2 (Line-in, Line out) | - | 2 (Line-in, Line out) |
| WatchDog Timer | | Yes | Yes | Yes | Yes | Yes |
| Storage | SATA | 1 x 2.5" SATA HDD bay<br>1 x 320 GB SATA II HDD Built-In (LX SKU) | 1 x 2.5" SATA HDD bay | 1 x 2.5" SATA HDD bay<br>1 x 500 GB SATA II HDD Built-In (HS SKU) | 1 x 2.5" SATA HDD bay (Optional by T-PN) | - |
| | mSATA | - | - | Support 1 x Full Size mSATA | Support 1 x Full Size mSATA | Support 1 x Full Size mSATA |
| | CompactFlash/ CFast | CompactFlash Type I/II | CompactFlash Type I/II | - | - | - |
| I/O | USB3.0 | - | - | - | - | - |
| | USB2.0 | 4 | 2 | 4 | 4 (Standard)<br>or 2 (Option 2.5" drive bay version) | 3 |
| | GPIO | - | - | - | - | - |
| | COM Port | 2 (2 x RS-232) | 2 x RS-232, 2 x RS-232/422/485 (by BIOS setting) | 1 (1 x RS-232) | 4 (2 x RS-232,<br>2 x RS-232/422/485, selected by BIOS) | 1 (1 x RS-232) |
| Power | Power Type | ATX | ATX | ATX | ATX | ATX |
| | Power Supply Voltage | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% |
| | Connector | DC jack with power adaptor locker | DC jack with power adaptor locker | Threaded DC Jack | Threaded DC Jack | Threaded DC Jack |
| | Power Consumption (Idle) | 9.12W | 9.12W | 6.89W | 5.4W | 7.84W |
| | Power Consumption (Full Load) | 10.8W | 10.8W | 11.45W | 9.47W | 13.15W |
| | Power Adaptor | AC to DC,<br>DC12 V/3 A, 36 W | AC to DC,<br>DC12 V/3 A, 36 W | Lockable AC to DC,<br>DC12 V/3 A, 36 W | Lockable AC to DC,<br>DC12 V/3 A, 36 W | Lockable AC to DC,<br>DC12 V/3 A, 36 W |
| Environment | Operating Temperature (air flow 0.7 m/sec) | 0 ~ 40° C | 0 ~ 40° C | With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C<br>With extended temperature SSD/mSATA devices: -20 ~ 60° C | With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C<br>With extended temperature SSD/mSATA devices: -20 ~ 60° C | With standard temperature mSATA devices: 0 ~ 40° C<br>With extended temperature mSATA devices: -20 ~ 60° C |
| | Non-operating Temperature | -40~ 85° C and 95% @ 40° C<br>Non-Condensing | -40~ 85° C and 95% @ 40° C<br>Non-Condensing | -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 CompactFlash disk: 3Grm | With CompactFlash disk: 3Grm | With SSD/mSATA: 3Grm | With SSD/mSATA: 3Grm | With mSATA: 3Grm |
| | Shock Protection | With CompactFlash disk: 30G | With CompactFlash disk: 30G | With SSD/mSATA: 30G | With SSD/mSATA: 30G | With 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 | 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) | 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 | Optional DIN Rail/ VESA/ Wall mounting | Optional DIN Rail/ VESA/ Wall mounting |
| Operating System | Microsoft Windows | Yes/<br>WES2009 Built-In (LX SKU) | Yes | Yes (XP, XPE by project support)/ WES 7 Built-In (HS SKU) | Yes (XP, XPE by project support) | Yes (XP, XPE by project support) |
| | Linux | Yes (Ubuntu v10.04.1) | Yes (Ubuntu v10.04.1) | Yes (Ubuntu 12.04, Fedora 16) | Yes (Ubuntu 12.04, Fedora 16) | Yes (Ubuntu 12.04 ,Fedora 16) |
| APIs | SUSIAccess | Yes | Yes | Yes | Yes | Yes |
| | iManager | - | - | - | - | - |
| | Other | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | 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 | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB |

| Coming soon | Coming soon | Coming soon | | Coming soon | Coming soon |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

| ARK-1123L | ARK-1123C | ARK-1123H | ARK-1503 | ARK-1504 | ARK-1550 |
|---|---|---|---|---|---|
| Intel® Atom DC E3825 | Intel® Atom DC E3825 | Intel® Celeron QC J1900 | Intel Atom D425/D525 | Intel® Atom DC E3825<br>Intel® Celeron QC J1900 | Intel® Celeron 2980U<br>Intel® Core i5 4300U |
| 1.33GHz | 1.33GHz | 2.0GHz | 1.8 GHz | 1.33 GHz / 2.0 GHz | 1.6GHz / 1.9GHz |
| 2 | 2 | 4 | 1/2 | 2 / 4 | 2 |
| AMI EFI 64 Mbit | AMI EFI 64 Mbit | AMI EFI 64 Mbit | AMI EFI 16Mbit | AMI EFI 64 Mbit | AMI EFI 128 Mbit |
| Intel® Atom DC E3825 | Intel® Atom DC E3825 | Intel® Celeron QC J1900 | Intel ICH8-M | Intel® Atom DC E3825<br>Intel® Celeron QC J1900 | Intel® Celeron 2980U<br>Intel® Core i5 4300U |
| DDR3L 1066MHz | DDR3L 1066MHz | DDR3L 1333MHz | DDR3 1066/1333MHz | DDR3L 1066/1333 MHz | DDR3L 1333/1600 MHz |
| 8GB | 8GB | 8GB | 4 GB | 8GB | 8GB |
| 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM |
| - | - | - | Up to 2048 x 1536 | 1 (up to 1600 x 1200) | 1 (up to 1920 x 1200) |
| - | - | - | LVDS: Single channel 24-bit<br>LVDS up to WXGA 1366 x 768<br>(Integrated in I-Panel Link) | LVDS (optional) | LVDS (optional) |
| 1 x lockable HDMI,<br>up to 1080p | 1 x lockable HDMI,<br>up to 1080p | 2 x lockable HDMI,<br>up to 1080p | - | 1 x lockable HDMI,<br>up to 1080p | 1 x lockable HDMI,<br>up to 1080p |
| - | - | - | Dual | Dual | Dual |
| 1 x Half-size Mini PCIe<br>1 x Full-size Mini PCIe | 1 x Half-size Mini PCIe<br>1 x Full-size Mini PCIe | 1 x Half-size Mini PCIe<br>1 x Full-size Mini PCIe | 1 x full-size Mini PCIe | 1 x Full-size Mini PCIe<br>1 x Full-size Mini PCIe w/ SIM | 1 x Half-size Mini PCIe<br>1 x Full-size Mini PCIe w/ SIM |
| - | - | - | - | 1 | 1 |
| GbE 1 : Intel i210<br>support Wake On LAN | GbE 1 : Intel i210<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE 1 : Intel i210<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE1 : Intel 82567V,<br>GbE2 : Intel 82583V,<br>All support wake on LAN | GbE 1 : Intel i210<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE 1 : Intel i218<br>GbE 2 : Intel i210<br>All support Wake On LAN |
| 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps |
| HD Audio | HD Audio | HD Audio | HD Audio | HD Audio | HD Audio |
| ALC-888S-VD2-GR | ALC-888S-VD2-GR | ALC-888S-VD2-GR | Realtek ALC892 | ALC-888S | Realtek ALC888S |
| 2 (Line-in, Line out) | 2 (Line-in, Line out) | 2 (Line-in, Line out) | 1 (Line-out) | 3 (Line-in, Line-out, Mic-in) | 3 (Line-in, Line-out, Mic-in) |
| Yes | Yes | Yes | Yes | Yes | Yes |
| 1 x 2.5" SATA HDD bay | 1 x 2.5" SATA drive bay | 1 x 2.5" SATA drive bay | 1 x 2.5" SATA HDD bay | 1 x 2.5" SATA HDD bay | 1 x 2.5" SATA HDD bay |
| 1 x Half-Size mSATA | 1 x Half-Size mSATA | 1 x Half-Size mSATA | - | 1 x Full-size mSATA | 1 x Full-size mSATA |
| - | - | - | CompactFlash Type I/II | - | - |
| 1 | 1 | 1 | - | 1 | 2 |
| 1 | 2 | 2 | 4 | 3 | 2 |
| 8-bit Programmable DIO | - | - | 8-bit Programmable DIO | 8-bit Programmable DIO | 8-bit Programmable DIO |
| 2 (1 x RS-232 &<br>1 x RS-232/422/485) | 2 (2 x RS-232/422/485) | 1 (1 x RS-232/422/485) | 2 (1 x RS232,<br>1 x RS232/422/485) | 3 (1 x RS-232,<br>2 x RS-232/422/485) | 3 (1 x RS-232,<br>2 x RS-232/422/485) |
| ATX | ATX | ATX | AT/ATX | ATX/AT | ATX/AT |
| 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% | 12 $V_{DC}$, ± 10% |
| Threaded DC Jack | Threaded DC Jack | Threaded DC Jack | DC jack with power<br>adaptor locker | DC jack with power<br>adaptor locker | DC jack with power<br>adaptor locker |
| TBD | TBD | TBD | 10.92W (D425) /<br>11.88W (D525) | TBD | TBD |
| TBD | TBD | TBD | 13.08W (D425) /<br>16.44W (D525) | TBD | TBD |
| Lockable AC to DC,<br>DC12 V/3 A, 36 W | Lockable AC to DC,<br>DC12 V/3 A, 36 W | Lockable AC to DC,<br>DC12 V/3 A, 36 W | AC to DC,<br>DC 12V/5A 60W (optional) | AC to DC,<br>DC 12V/5A 60W (optional) | AC to DC,<br>DC 12V/5A 60W (optional) |
| With extend temperature<br>peripherals: -20 ~ 60° C<br>With standard temperature<br>peripherals: 0 ~ 40° C | With extend temperature<br>peripherals: -20 ~ 60° C<br>With standard temperature<br>peripherals: 0 ~ 40° C | With extend temperature<br>peripherals: -20 ~ 60° C<br>With standard temperature<br>peripherals: 0 ~ 40° C | With extended temperature<br>peripherals: -20 ~ 60° C<br>With standard temperature<br>peripherals: 0~40°C | With extend temperature<br>peripherals: -20 ~ 60° C<br>With standard temperature<br>peripherals: 0~40°C | With extend temperature<br>peripherals: -20 ~ 55° C<br>With standard temperature<br>peripherals: 0~40°C |
| -40 ~ 85° C and 40° C @ 95%<br>RH Non-Condensing | -40 ~ 85° C and 40° C @ 95%<br>RH Non-Condensing | -40 ~ 85° C and 40° C @ 95%<br>RH Non-Condensing | -40~ 85° C and 95% @<br>40° C Non-Condensing | -40 ~ 85° C and 40° C @ 95%<br>RH Non-Condensing | -40 ~ 85° C and 40° C @ 95%<br>RH Non-Condensing |
| With mSATA/SSD : 3 Grms | With mSATA/SSD : 3 Grms | With mSATA/SSD : 3 Grms | With Compact Flash/SSD:<br>5 Grms | With mSATA/SSD : 5 Grms | With mSATA/SSD : 5 Grms |
| With mSATA/SSD: 30 G | With mSATA/SSD: 30 G | With mSATA/SSD: 30 G | With Compact Flash/SSD: 50G | With mSATA/SSD: 50 G | With mSATA/SSD: 50 G |
| 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 | 230.6 x 44.4 x 133.0 mm | 223 x 46.6 x 133.0 mm | 223 x 46.6 x 133.0 mm |
| 1.2 kg (2.65 lb) | 1.2 kg (2.65 lb) | 1.2 kg (2.65 lb) | 1.9 kg (4.18 lbs) | 1.9 kg (4.18 lbs) | 1.9 kg (4.18 lbs) |
| Optional DIN Rail/ VESA/<br>Wall mounting | Optional DIN Rail/ VESA/<br>Wall mounting | Optional DIN Rail/ VESA/<br>Wall mounting | Wall Mounting (Standard) /<br>VESA & DIN-Rail Mounting Kit<br>(Optional) | Wall Mounting (Standard) /<br>VESA & DIN-Rail Mounting Kit<br>(Optional) | Wall Mounting (Standard) /<br>VESA & DIN-Rail Mounting Kit<br>(Optional) |
| Yes (Windows 7, Windows 8) | Yes (Windows 7, Windows 8) | Yes (Windows 7, Windows 8) | Yes | Yes (Windows 7, Windows 8) | Yes (Windows 7, Windows 8) |
| Yes (by Project) | Yes (by Project) | Yes (by Project) | Yes (Ubuntu v10.04.1) | Yes (by Project) | Yes (by Project) |
| Yes | Yes | Yes | Yes | Yes | Yes |
| - | - | - | - | - | - |
| McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis |
| CE/FCC Class A, CCC, BSMI | CE/FCC Class A, CCC, BSMI | CE/FCC Class A, CCC, BSMI | CE/FCC Class A, BSMI, CCC,<br>KCC | CE/FCC Class A, CCC, BSMI | CE/FCC Class A, CCC, BSMI |
| UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB |

# Multiple I/O Series

## Selection Guide

| Model Name | | ARK-2120L | ARK-2120F |
|---|---|---|---|
| Processor System | CPU | Intel Atom N2600 / Intel Atom D2550 | Intel Atom N2600 / Intel Atom D2550 |
| | Frequency | 1.6 GHz / 1.86 GHz | 1.6 GHz / 1.86 GHz |
| | Core Number | 2 | 2 |
| | BIOS | AMI EFI 16Mbit | AMI EFI 16Mbit |
| | Chipset | Intel NM10 | Intel NM10 |
| Memory | Technology | DDR3 800MHz | DDR3 800MHz / 1066MHz |
| | Max. Capacity | 4 GB | 4 GB |
| | Socket | 1 x 204-pin SODIMM | 1 x 204-pin SODIMM |
| Display | Graphic Engine | DirectX 9 and OpenGL 3.0 support | DirectX 9 and OpenGL 3.0 support |
| | VGA | Up to 1920 x 1200 | Up to 1920 x 1200 |
| | LCD (TTL/LVDS/eDP) | - | LVDS: Dual channel 48-bit up to 2560 x 1600 |
| | DDI (HDMI/DVI/DisplayPort) | HDMI:1920 x 1200 @ 60Hz | HDMI:1920 x 1200 @ 60Hz |
| | Multiple Display | Dual | Dual |
| Expansion Interface | Mini PCIe | 1 | 1 |
| | SIM Socket | 1 | 1 |
| Ethernet | Controller | GbE1: Intel 82583V, GbE2: Intel 82583V, All support wake on LAN | GbE1: Intel 82583V, GbE2: Intel 82583V, GbE3: Intel 82583V, All support wake on LAN |
| | Speed | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps |
| Audio | Audio Interface | HD Audio | HD Audio |
| | CODEC | Realtek ALC892 | Realtek ALC892 |
| | Connector | 1 (Line-in, Line out, Mic-in) | 1 (Line-in, Line out, Mic-in) |
| WatchDog Timer | | Yes | Yes |
| Storage | SATA | 1 x 2.5" SATAII HDD bay | 1 x 2.5" SATAII HDD bay |
| | mSATA | - | - |
| | CompactFlash/ CFast | 1 CFast | 1 CFast |
| I/O | USB3.0 | - | - |
| | USB2.0 | 6 | 5 |
| | GPIO | 8-bit Programmable DIO | 8-bit Programmable DIO |
| | LPT | - | - |
| | COM Port | 4 (3 x RS232, 1 x RS232/ 422/ 485) | 6 (2 x RS232, 4 x RS232/ 422/ 485) |
| Power | Power Type | ATX, AT | ATX, AT |
| | Power Supply Voltage | 12 $V_{DC}$, ± 10% | 12 ~ 24 $V_{DC}$ |
| | Connector | Lockable DC Jack | 2-pin phoenix head |
| | Power Consumption (Idle) | 8.9W | 9.2W |
| | Power Consumption (Full Load) | 11W | 11.59W |
| | Power Adaptor | Lockable AC to DC, DC12 V/3 A, 36 W (Optional) | Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional) |
| Environment | Operating Temperature (air flow 0.7 m/sec) | With extend temperature peripherals: -20 ~ 60° 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 |
| | Vibration Resistance | With SSD: 5 Grms | With SSD: 5 Grms |
| | Shock Protection | With SSD: 50 G | With SSD: 50 G |
| Physical Characteristics | Dimensions (W x H x D) | 264.5 x 68.4 x 133.0 mm | 264.5 x 68.4 x 133.0 mm |
| | Weight | 2.3 kg (5.07 lb) | 2.5 kg (5.51 lb) |
| | Construction | Aluminum/Iron | Aluminum/Iron |
| | Mounting | Desk/ Wall/ VESA/ DIN-Rail mounting | Desk/ Wall/ VESA/ DIN-Rail mounting |
| Operating System | Microsoft Windows | Yes (XP, XPE for project support) | Yes (XP, XPE for project support) |
| | Linux | Yes (Ubuntu 12.04 ,Fedora 16) | Yes (Ubuntu 12.04 ,Fedora 16) |
| APIs | SUSIAccess | Yes | Yes |
| | iManager | Yes | Yes |
| | Other | McAfee, Acronis | McAfee, Acronis |
| Certification | EMC | CE, FCC, CCC, BSMI | CE, FCC, CCC, BSMI |
| | Safety Certifications | UL, CCC, BSMI | UL, CCC, BSMI |

NEW

NEW

| ARK-2150L | ARK-2150F | ARK-3360L | ARK-3360F |
|---|---|---|---|
| 3rd Gen' Intel Celeron 1047UE / Core i3-3217UE / Core i7-3517UE | 3rd Gen' Intel Core i7-3517UE | Intel Atom N450/D510 | Intel Atom N450/D510 |
| 1.4GHz / 1.6 GHz/ 1.7 GHz (up to 2.8GHz) | 1.7 GHz (up to 2.8GHz) | 1.66 GHz | 1.66 GHz |
| 2 | 2 | 2 | 2 |
| AMI EFI 64Mbit | AMI EFI 64Mbit | AMI EFI 16Mbit | AMI EFI 16Mbit |
| Intel QM77 | Intel QM77 | Intel ICH8-M | Intel ICH8-M |
| DDR3 1600MHz, DDR3L 1333 MHz | DDR3 1600MHz, DDR3L 1333 MHz | DDR2 667MHz | DDR2 667MHz |
| 8 GB | 8 GB | 2 GB | 2 GB |
| 1 x 204-pin SODIMM | 1 x 204-pin SODIMM | 1 x 200-pin SODIMM | 1 x 200-pin SODIMM |
| DirectX11, OpenGL 3.1, and Open CL 11 | DirectX11, OpenGL 3.1, and Open CL 11 | DirectX 9 and MPEG2 HW Decode | DirectX 9 and MPEG2 HW Decode |
| Up to 2048 x 1536 | Up to 2048 x 1536 | Up to 2048 x 1563 | Up to 2048 x 1563 |
| - | - | - | - |
| HDMI:1920 x 1200 @ 60Hz | HDMI:1920 x 1200 @ 60Hz<br>DVI-D: 1920 x 1200 | - | - |
| Dual | Dual | - | - |
| 3 | 3 | 1 | 1 |
| 1 | 1 | - | - |
| GbE1: Intel 82579LM,<br>GbE2: Intel 82583V,<br>All support wake on LAN | GbE1: Intel 82579LM,<br>GbE 2/ 3/ 4: Intel 82583V<br>All support wake on LAN | GbE1: Intel 82567V,<br>GbE2: Intel 82583V,<br>All support wake on LAN | GbE1: Intel 82567V,<br>GbE2: Intel 82583V,<br>GbE3: Intel 82541PI,<br>All support wake on LAN |
| 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps | 10/ 100/ 1000 Mbps |
| HD Audio | HD Audio | HD Audio | HD Audio |
| Realtek ALC892 | Realtek ALC892 | Realtek ALC886 | Realtek ALC886 |
| 1 (Line-in, Line out, Mic-in) | 1 (Line-in, Line out, Mic-in) | 1 (Line-in, Line out, Mic-in) | 1 (Line-in, Line out, Mic-in) |
| Yes | Yes | Yes | Yes |
| 1 x 2.5" SATAIII HDD bay<br>(Max. Data Transfer Rate 600 MB/s) | 1 x 2.5" SATAIII HDD bay<br>(Max. Data Transfer Rate 600 MB/s) | 1 x 2.5" SATAII HDD bay<br>(Max. Data Transfer Rate 300 MB/s) | 1 x 2.5" SATAII HDD bay<br>(Max. Data Transfer Rate 300 MB/s) |
| 1 (Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe) | 1 (Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe) | - | - |
| - | - | 1 CompactFlash | 1 CompactFlash |
| 2 | 3 | - | - |
| 4 | 3 | 6 | 6 |
| 8-bit Programmable DIO | 4ch digital input and 4ch digital output with 2.5KV isolation | 8-bit Programmable DIO | 8-bit Programmable DIO |
| - | - | - | - |
| 4 (2 x RS232, 2 x RS232/ 422/ 485) | 4 (4 x RS232/ 422/ 485) | 4 (3 x RS232, 1 x RS232/422/485) | 6 (1 x RS232, 3 x RS232/ 422/ 485,<br>2 x RS-422/ 485 with 7.5KV isolation) |
| ATX, AT | ATX, AT | ATX, AT | ATX, AT |
| 12 $V_{DC}$, ± 10% | 12 ~ 24 $V_{DC}$ | 12 $V_{DC}$ | 12 ~ 24 $V_{DC}$ |
| Lockable DC Jack | 2-pin phoenix head | DC Jack | 2-pin phoenix head |
| 9.6W | 10.3W | 11W | 12.12W |
| 24.98W | 25.7W | 15W | 14.96W |
| Lockable AC to DC, DC12 V/5 A, 60 W (Optional) | Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional) | ACto DC, DC12V/3A, 36W (Optional) | Lockable AC to DC, DC19 V/3.42 A, 65 W (Optional) |
| With extend temperature peripherals:<br>-20 ~ 60° C<br>With HDD: 0 ~ 45° C | With extend temperature peripherals:<br>-20 ~ 60° C<br>With HDD: 0 ~ 45° C | With extend temperature peripherals:<br>-20 ~ 60° C<br>With HDD: 0 ~ 45° C | With extend temperature peripherals:<br>-20 ~ 60° C<br>With HDD: 0 ~ 45° C |
| -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 |
| With SSD: 5 Grms | With SSD: 5 Grms | With SSD: 5 Grms<br>With HDD: 1 Grms | With SSD: 5 Grms<br>With HDD: 1 Grms |
| With SSD: 50 G | With SSD: 50 G | With SSD: 50 G<br>With HDD: 20 G | With SSD: 50 G<br>With HDD: 20 G |
| 264.5 x 75.1 x 133.0 mm | 264.5 x 75.1 x 133.0 mm | 264.5 x 69.2 x 137.25 mm | 264.5 x 69.2 x 137.25 mm |
| 2.3 kg (5.07 lb) | 2.8kg (6.17lb) | 2 kg (4.4 lb) | 2 kg (4.4 lb) |
| Aluminum/Iron | Aluminum/Iron | Aluminum/Iron | Aluminum/Iron |
| Desk/ Wall/ VESA/ DIN-Rail mounting | Desk/ Wall/ VESA/ DIN-Rail mounting | Desk/ Wall/ VESA/ DIN-Rail mounting | Desk/ Wall/ VESA/ DIN-Rail mounting |
| Yes | Yes | Yes | Yes |
| Yes (Ubuntu v12.04/CentOS 6.6) | Yes (Ubuntu v12.04/CentOS 6.6) | Yes (Ubuntu v10.04.1) | Yes (Ubuntu v10.04.1) |
| Yes | Yes | Yes | Yes |
| Yes | Yes | - | - |
| Intel AMT 8.0, McAfee, Acronis | Intel AMT 8.0, McAfee, Acronis | McAfee, Acronis | McAfee, Acronis |
| CE, FCC, CCC, BSMI | CE, FCC, CCC, BSMI | CE, FCC, CCC, BSMI, KC | CE, FCC, CCC, BSMI, KC |
| UL, CCC, BSMI | UL, CCC, BSMI | UL, CCC, BSMI, KC | UL, CCC, BSMI, KC |

# High Performance and Value Series

## Selection Guide

NEW NEW Coming soon





| Model Name | | ARK-3440 A2 | ARK-3500 | ARK-3510 | ARK-6320 | ARK-6322 |
|---|---|---|---|---|---|---|
| Processor System | CPU | Intel Core i7 610E/i5 520E/ i3 330E | 3rd gen' Intel Core i7-3610QE/ i5-3610ME/i3-3120ME/ Celeron 1020E rPGA processor support | 3rd gen' Intel Core i7-3610QE/ i5-3610ME/i3-3120ME/ Celeron 1020E rPGA processor support | Intel Atom Processor D510/ D525 | Intel Celeron Quad Core J1900 SoC |
| | Frequency | 2.53GHz/2.4GHz/2.13GHz | 2.3 GHz/2.7 GHz/2.4 GHZ/2.2 GHz | 2.3 GHz/2.7 GHz/2.4 GHZ/2.2 GHz | 1.66 GHz/1.8 GHz | 2.0 GHz |
| | Core Number | 2 | 4/2/2/2 | 4/2/2/2 | 2 | 4 |
| | BIOS | AMI SPI 16Mbit | AMI EFI 64Mbit | AMI EFI 64Mbit | AMI 16 Mbit SPI | AMI 16Mbit SPI |
| | Chipset | Intel QM57 | Intel QM77 | Intel QM77 | ICH8M | - |
| Memory | Technology | DDR3 1066/1333 | DDR3/DDR3L 1600MHz | DDR3/DDR3L 1600MHz | DDR2 667MHz / DDR3 800MHz | DDR3 1333MHz SDRAM |
| | Max. Capacity | 8GB | 16GB | 16GB | 2GB / 4GB | 8GB |
| | Socket | 2x204-pin SODIMM | 2x204-pin SODIMM | 2x204-pin SODIMM | 1 x 200-pin SODIMM / 2 x 204-pin SODIMM | 2 x 204pin SODIMM |
| Display | VGA | up to 2048x1536 | VGA integrated in DVI-I port | VGA integrated in DVI-I port | Supports up to SXGA 2046 x 1536 @ 60Hz | Support up to SXGA 1920 x 1200 @ 60 MHz |
| | LCD (TTL/LVDS/eDP) | LVDS: 24 bit up to 1920x1200(optional) | - | - | LVDS : Single channel 18-bit and up to WXGA 1366 x 768 (Optional) | - |
| | DDI (HDMI/DVI/ DisplayPort) | HDMI: HDMI 1.3 up to 2560x 1600p75 DVI-D: up to 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' 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' processor) | DVI-D:1600 x 1200 | DisplayPort : DP++1.2, resolution up to 2560 x 1600 x 24bpp @ 60Hz |
| | Multiple Display | Dual | Triple/Dual | Triple/Dual | Dual | Dual |
| Expansion Interface | PCI Express x 4 | 1 (optional) | 1 slot, ARK-3500F | - | - | - |
| | PCI Express x 1 | 1 (default)/2/- | 1 slot, ARK-3500F | - | - | - |
| | Mini PCIe | 2 | 2 (share with mSATA), with SIM | 2 (share with mSATA), with SIM | - | 2 (1 full size, 1 half size) |
| | PCI | 1(default)/2/NA | 2 slots, ARK-3500P | - | - | - |
| Ethernet | Controller | GbE1: Intel 82577LM GbE2: Intel 82583V | GbE1: Intel 82579LM GbE2 : Intel I-210IT | GbE1: Intel 82579LM GbE2 : Intel I-210IT | GbE1: Intel 82567V; GbE2: Intel 82583V | GbE1: RTL8111E GbE2: RTL8111E |
| | Speed | 10/100/1000Mbps | 10/100/1000Mbps | 10/100/1000Mbps | 10/100/1000 Mbps | 10/100/1000 Mbps |
| Audio | Audio Interface | HD Audio | HD Audio | HD Audio | HD Audio | HD Audio |
| | CODEC | Realtek ALC888 | Realtek ALC892 | Realtek ALC892 | Realtek ALC892 | Realtek ALC892 |
| | Connector | 1 (Line-in, Line out, Mic-in) | Line out, Mic in | Line out, Mic in | 3 (Mic-In, Line-In, Line-Out) | 1 (Line out) |
| WatchDog Timer | | - | Yes | Yes | Yes | Yes |
| Storage | SATA | 2 x 2.5" SATAII HDD bay | 2 x 2.5" SATAIII HDD bay | 2 x 2.5" SATAIII HDD bay | 1 x 2.5" SATA HDD bay | 1 x 2.5" or 3.5" SATA HDD bay |
| | CompactFlash/ CFast | 1 CompactFlash | 1 CFast | 1 CFast | 1 CompactFlash type I/II socket (on the solder side of the motherboard) | - |
| | mSATA | - | 2 (Share with mini-PCIe) | 2 (Share with mini-PCIe) | - | 1 (Share with mini-PCIe) |
| I/O | USB 3.0 | - | 4 | 4 | - | 1 |
| | USB2.0 | 6 | 2 | 2 | 8 | 7 |
| | LPT | 1 (optional) | - | - | - | - |
| | COM Port | 2 (2 x RS232, 1 x RS232/ 422/ 485) | 4 x RS232, 4 x RS232/422/485 | 2 x RS-232, 2 x RS-232/422/485 | 5 x RS232, 1 x RS232/ 422/485 | 5 x RS-232 1 x RS232/422/485 |
| Power | Power Type | ATX, AT | ATX, AT | ATX, AT | ATX | ATX |
| | Power Supply Voltage | 9 Vdc ~ 34 Vdc | 9 Vdc ~ 34 Vdc | 12 Vdc, ± 10% (optional 9 ~ 34 Vdc) | 12 Vdc, ± 10% | 12 Vdc, ± 10% |
| | Connector | 4pin terminal block | 4pin terminal block | Lockable DC jack | - | - |
| | Power Consumption (Idle) | 17.1W | 14.8W | 14.8W | 23W | TBD |
| | Power Consumption (Full Load) | 51W | 60W (w/o add on card) | 60W | 37W | TBD |
| | Power Adaptor | Optional | 120W (optional) | Lockable AC to DC, 84W (Optional) | AC to DC, DC12V/5A, 60 W (Optional) | AC to DC, DC12V/5A, 60 W (Optional) |
| Environment | Operating Temperature (air flow 0.7 m/sec) | With extend temperature peripherals: -10 ~ 55° C With HDD: 0 ~ 45° C | With SSD: -10 ~ 60° C With HDD: 0 ~ 40° C | With SSD: -10 ~ 60° C With HDD: 0 ~ 40° C | 0 ~ 40° C (32 ~ 104° F) | 0 ~ 40° C (32 ~ 104° F) |
| | 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 | -40~ 85° C |
| | Vibration Resistance | With SSD: 5 Grms With HDD: 1 Grms | With SSD: 5 Grms With HDD: 1 Grms | With SSD : 3Grms With HDD : 1 Grms | 0.5 Grm | TBD |
| | Shock Protection | With SSD: 50 G With HDD: 20 G | With HDD: 20G | With HDD: 20G | 20G | TBD |
| Physical Characteristics | Dimensions (W x H x D) | 220 x 117 x 200 mm | 290 x 110 x 232 mm | 290 x 90 x 232 mm | 200 x 73 x 200 mm | 200 x 62 x 200 mm |
| | Weight | 4kg (8.8lb) | 4.8kg (10.56lb) | 4.53kg (10lb) | 4.14 kg (8.8 lb) | 4.14 kg (8.8 lb) |
| | Mounting | Desk/ Wallmounting | Desk/Wallmounting | Desk/Wallmounting | Desk (Optional) | Desk (Optional) |
| Operating System | Microsoft Windows | Yes | Yes | Yes | Yes | Yes |
| | Linux | Yes | Yes | Yes | Yes | Yes |
| APIs | SUSIAccess | Yes (don't support HW monitor) | Yes | Yes | Yes | Yes |
| | iManager | - | - | - | Yes | Yes |
| | Other | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis | McAfee, Acronis |
| Certification | EMC | CE, FCC, CCC, BSMI, KC | CE, FCC, CCC, BSMI | CE, FCC, CCC, BSMI | CE/FCC/CCC/BSMI | CE/FCC/CCC/BSMI |
| | Safety Certifications | UL, CCC, BSMI, KC | UL, CCC, BSMI | UL, CCC, BSMI | CCC/BSMI | CCC/BSMI |

# Surveillance & In-Vehicle Series

## Selection Guide

| | | Coming soon | Coming soon | Coming soon | Coming soon | |
|---|---|---|---|---|---|---|
| | |  |  |  |  |  |
| Model Name | | ARK-2121S | ARK-2151S | ARK-2121V | ARK-2151V | ARK-VH200 |
| Processor System | CPU | Intel® Atom QC E3845 | 4th Gen Intel® Core i5 4300U | Intel® Atom DC E3825<br>Intel® Atom QC E3845 | 4th Gen Intel® Celeron 2980U<br>4th Gen Intel® Core i5 4300U | Intel Atom™ D510 |
| | Frequency | 1.91GHz | 1.9 GHz | 1.33 GHz / 1.91 GHz | 1.6 GHz / 1.9 GHz | 1.66 GHz |
| | Core Number | 4 | 2 | 2 / 4 | 2 | 2 |
| | BIOS | AMI EFI 64 Mbit | AMI EFI 128 Mbit | AMI EFI 64 Mbit | AMI EFI 128 Mbit | AMI EFI 16Mbit |
| | Chipset | Intel® Atom QC E3845 | 4th Gen Intel® Core i5 4300U | Intel® Atom DC E3825<br>Intel® Atom QC E3845 | 4th Gen Intel® Celeron 2980U<br>4th Gen Intel® Core i5 4300U | Intel™ ICH8-M |
| Memory | Technology | DDR3L 1333 MHz | DDR3L 1600 MHz | DDR3L 1066/1333 MHz | DDR3L 1333/1600 MHz | DDR2 667MHz |
| | Max. Capacity | 8 GB | 8 GB | 8GB | 8GB | 2 GB |
| | Socket | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 204-pin SO-DIMM | 1 x 200-pin SODIMM |
| Display | Graphic Memory | Intel Gen 7 Graphics Engines | GT3 Graphics, Generation 7.5 graphics core architecture | Intel Gen 7 Graphics Engines | GT3 Graphics, Generation 7.5 graphics core architecture | - |
| | VGA | 1 (up to 1600 x 1200) | 1 (up to 1920 x 1200) | 1 (up to 1600 x 1200) | 1 (up to 1920 x 1200) | 1 |
| | LCD (TTL/LVDS/eDP) | - | - | - | - | LVDS |
| | DDI (HDMI/DVI/ DisplayPort) | 1 x lockable HDMI, up to 1900 x 1200 | 1 x lockable HDMI, up to 1900 x 1200 | 1 x lockable HDMI, up to 1900 x 1200 | 1 x lockable HDMI, up to 1900 x 1200 | - |
| | Multiple Display | Dual | Dual | Dual | Dual | - |
| Expansion Interface | Mini PCIe | 1 x Full-size Mini PCIe (mSATA)<br>1 x Full-size Mini PCIe (WLAN)<br>2 x Full-size Mini PCIe w/ SIM holders (WWAN) | 1 x Half-size Mini PCIe (WLAN)<br>1 x Full-size Mini PCIe (mSATA)<br>2 x Full-size Mini PCIe w/ SIM holders (WWAN) | 1 x Full-size Mini PCIe (mSATA)<br>1 x Full-size Mini PCIe (WLAN)<br>2 x Full-size Mini PCIe w/ SIM holders (WWAN) | 1 x Half-size Mini PCIe (WLAN)<br>1 x Full-size Mini PCIe (mSATA)<br>2 x Full-size Mini PCIe w/ SIM holders (WWAN) | 2 x Full-Size |
| | SIM Socket | 2 | 2 | 2 | 2 | 1 |
| Ethernet | Controller | GbE 1 : Intel i210<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE 1 : Intel i218<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE 1 : Intel i210<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE 1 : Intel I218<br>GbE 2 : Intel i210<br>All support Wake On LAN | GbE1: Intel 82574L,<br>GbE2: Intel 82574L,<br>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 | Audio Interface | HD Audio | HD Audio | HD Audio | HD Audio | HD Audio |
| | CODEC | Realtek ALC888S | Realtek ALC888S | Realtek ALC888S | Realtek ALC888S | Realtek ALC888 |
| | 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) | 2 (Line out, Mic-in) |
| | Cellular Voice | - | - | Support WWAN voice function, Line-out,Mic-in | Support WWAN voice function, Line-out,Mic-in | - |
| WatchDog Timer | | Yes | 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 HDD bay | 1 x 2.5" SATA HDD bay | 1 x 2.5" SATA HDD bay |
| | CompactFlash/ CFast | - | - | - | - | CompactFlash Type I/II |
| | mSATA | 1 x Full-size mSATA | 1 x Full-size mSATA | 1 x Full-size mSATA | 1 x Full-size mSATA | - |
| I/O | USB3.0 | 1 | 2 | 1 | 2 | - |
| | USB2.0 | 3 | 2 | 3 | 2 | 4 |
| | COM Port | 2 (2 x RS-232/422/485) | 2 (2 x RS-232/422/485) | Up to 4 (2 x RS-232 & 2 x RS-232/422/485) | Up to 4 (2 x RS-232 & )2 x RS-232/422/485) | 2 (2 x RS232, 1 x RS232/ 422/ 485 optional) |
| | GPIO | 6 x DI & 2 x DO | 6 x DI & 2 x DO | 6 x DI & 2 x DO | 6 x DI & 2 x DO | Yes |
| | Video Input | - | - | - | - | 4CH Video Inputs, BNC |
| | Optional COM or CANBus | - | - | 2 x RS-232 or 2 x CANBus 2.0A/B | 2 x RS-232 or 2 x CANBus 2.0A/B | - |
| Other | GPS | - | - | On board high sensitivity GPS | On board high sensitivity GPS | On board GPS |
| | G-Sensor | - | - | Yes | Yes | - |
| | PoE | 4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 - 2ports full-load, IEEE802.3af Class 3 | 4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 - 2ports full-load, IEEE802.3af Class 3 | 4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 - 2ports full-load, IEEE802.3af Class 3 | 4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 - 2ports full-load, IEEE802.3af Class 3 | - |
| Power | Power Type | ATX/AT | ATX/AT | ATX/AT | ATX/AT | ATX, AT |
| | Power Supply Voltage | 9 ~ 36VDC w/ isolation | 9 ~ 36VDC w/ isolation | PC Mode: 9 ~ 36 $V_{DC}$<br>VH Mode: 12 V battery (11 ~ 16 $V_{DC}$), 24 V battery (22 ~ 32 $V_{DC}$) | PC Mode: 9 ~ 36 $V_{DC}$<br>VH Mode: 12 V battery (11 ~ 16 $V_{DC}$), 24 V battery (22 ~ 32 $V_{DC}$) | 9 VDC ~ 32 $V_{DC}$ (for In Vehicle) |
| | Power Consumption (Idle) | TBD | TBD | TBD | TBD | 19W |
| | Power Consumption (Full Load) | TBD | TBD | TBD | TBD | 22W |
| | Power Adaptor | AC-to-DC Adapter, with Phoenix Power Plug (Optional) | AC-to-DC Adapter, with Phoenix Power Plug (Optional) | AC-to-DC Adapter, with Phoenix Power Plug (Optional) | AC-to-DC Adapter, with Phoenix Power Plug (Optional) | AC to DC, DC19 V/ 3.42 A, 65 W (Optional) |
| Environment | Operating Temperature (air flow 0.7 m/sec) | With extended temperature SSD/ mSATA/RAM :-20 ~ 60° C<br>With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C | With extended temperature SSD/ mSATA/RAM :-20 ~ 60° C<br>With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C | With extended temperature SSD/mSATA/RAM :-20 ~ 60° C<br>With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C | With extended temperature SSD/mSATA/RAM :-20 ~ 60° C<br>With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C | -20 ~ 60° C (operating humidity: 40° C @ 95% RH Non-Condensing) |
| | 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 : 5 Grms | With mSATA/SSD : 5 Grms | With mSATA/SSD: IEC 60721-3-5 Class 5M3 | With mSATA/SSD: IEC 60721-3-5 Class 5M3 | With CF/SSD : 5 Grms<br>With HDD : 1 Grms |
| | Shock protection | With mSATA/SSD: 50 G | With mSATA/SSD: 50 G | With mSATA/SSD: IEC 60721-3-5 Class 5M3 | With mSATA/SSD: IEC 60721-3-5 Class 5M3 | With CF/SSD : 50 G<br>With HDD : 20 G |
| 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 | 264.5 x 69.2 x 133.0 mm | 264.5 x 75.1 x 133.0 mm | 260 x 77 x 134 mm |
| | Weight | 2.3 kg (5.07 lb) | 2.5 kg (4.18 lbs) | 2.3 kg (5.07 lb) | 2.5 kg (4.18 lbs) | 3 kg (6.6 lb) |
| | Mounting | Wall Mounting (Standard) / VESA & DIN-Rail Mounting Kit (Optional) | Wall Mounting (Standard) / VESA & DIN-Rail Mounting Kit (Optional) | Wall Mounting (Standard) / VESA & DIN-Rail Mounting Kit (Optional) | Wall Mounting (Standard) / VESA & DIN-Rail Mounting Kit (Optional) | Desk/ wall mounting |
| Operating System | Microsoft Windows | Yes (Windows 7, Windows 8) | YYes (Windows 7, Windows 8) | Yes (Windows 7, Windows 8) | Yes (Windows 7, Windows 8) | Yes |
| | Linux | Yes (by Project) | Yes (by Project) | Yes (by Project) | Yes (by Project) | Yes (Ubuntu v10.04.1) |
| APIs | SUSIAccess | Yes | Yes | Yes | Yes | Yes |
| | iManager | Yes | Yes | Yes | Yes | - |
| 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 |
| | Safety Certifications | UL, CCC, BSMI, CB | UL, CCC, BSMI, CB | UL, CCC, BSMI, E13 | UL, CCC, BSMI, E13 | UL, CCC, E13 |

# Advantech Global Services and Support

Industrial grade products at competitive cost


Strict revision control and design reliability

Global logistics and RMA services with local support


Product longevity up to 3-5 years and superior warranty/service options


Customized embedded OS and BIOS services

Partnership with multiple software companies

## Regional Service & Customization Centers

**China**
Kunshan
86-512-5777-5666

**Taiwan**
Taipei
886-2-2792-7818

**Netherlands**
Eindhoven
31-40-267-7000

**Poland**
Warsaw
48-22-33-23-740 / 741

**USA**
Milpitas, CA
1-408-519-3898

## Worldwide Offices

### Greater China

| | |
|---|---|
| ***China*** | 800-810-0345 |
| Beijing | 86-10-6298-4346 |
| Shanghai | 86-21-3632-1616 |
| Shenzhen | 86-755-8212-4222 |
| Chengdu | 86-28-8545-0198 |
| Hong Kong | 852-2720-5118 |
| ***Taiwan*** | 0800-777-111 |
| Rueiguang | 886-2-2792-7818 |
| Yang Guang | 886-2-2792-7818 |
| Xindian | 886-2-2218-4567 |
| Taichung | 886-4-2378-6250 |
| Kaohsiung | 886-7-229-3600 |

### *Asia Pacific*

| | |
|---|---|
| ***Japan*** | 0800-500-1055 |
| Tokyo | 81-3-6802-1021 |
| Osaka | 81-6-6267-1887 |
| ***Korea*** | 080-363-9494 |
| Seoul | 82-2-3663-9494 |
| ***Singapore*** | |
| Singapore | 65-6442-1000 |
| ***Malaysia*** | 1800-88-1809 |
| Kuala Lumpur | 60-3-7724-3555 |
| Penang | 60-4-397-3788 |
| | 60-4-397-4188 |
| ***Indonesia*** | |
| Jakarta | 62-21-769-0525 |
| ***Thailand*** | |
| Bangkok | 66-2-248-3140 |
| ***India*** | 1800-425-5070 |
| Bangalore | 91-80-25450206 |
| ***Australia*** | 1300-308-531 |
| Melbourne | 61-3-9797-0100 |
| Sydney | 61-2-9476-9300 |

### *Europe*

| | |
|---|---|
| ***Europe*** | 00800-2426-8080 |
| ***Germany*** | |
| Münich | 49-89-12599-0 |
| Hilden | 49-2103-97-885-0 |
| ***France*** | |
| Paris | 33-1-4119-4666 |
| ***Italy*** | |
| Milano | 39-02-9544-961 |
| ***Benelux & Nordics*** | |
| Breda | 31-76-5233-100 |
| ***UK*** | |
| Reading | 44-0118-929-4540 |
| ***Poland*** | |
| Warsaw | 48-22-33-23-740/741 |
| ***Russia*** | 8-800-555-01-50 |
| Moscow | 7-495-232-1692 |

### *Americas*

| | |
|---|---|
| ***North America*** | 1-800-866-6008 |
| | 1-888-576-9668 |
| Cincinnati | 1-513-742-8895 |
| Milpitas | 1-408-519-3898 |
| Irvine | 1-949-420-2500 |
| ***South America*** | |
| Mexico | 52-55-6275-2777 |
| ***Brazil*** | 0800-770-5355 |
| São Paulo | 55-11-5592-5355 |

ADVANTECH

*Enabling an Intelligent Planet*

www.advantech.com



8600000070