

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



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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



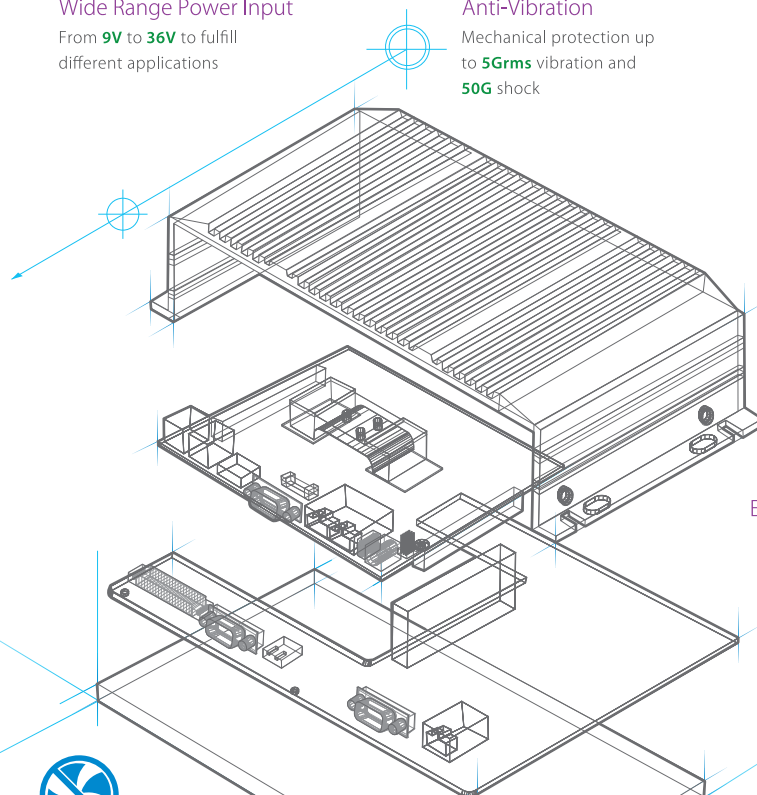
Superior Thermal Design

Effective tools to validate thermal management in the early design process



EMC & Safety Certifications

CE FCC CB
CCC UL 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

Overview

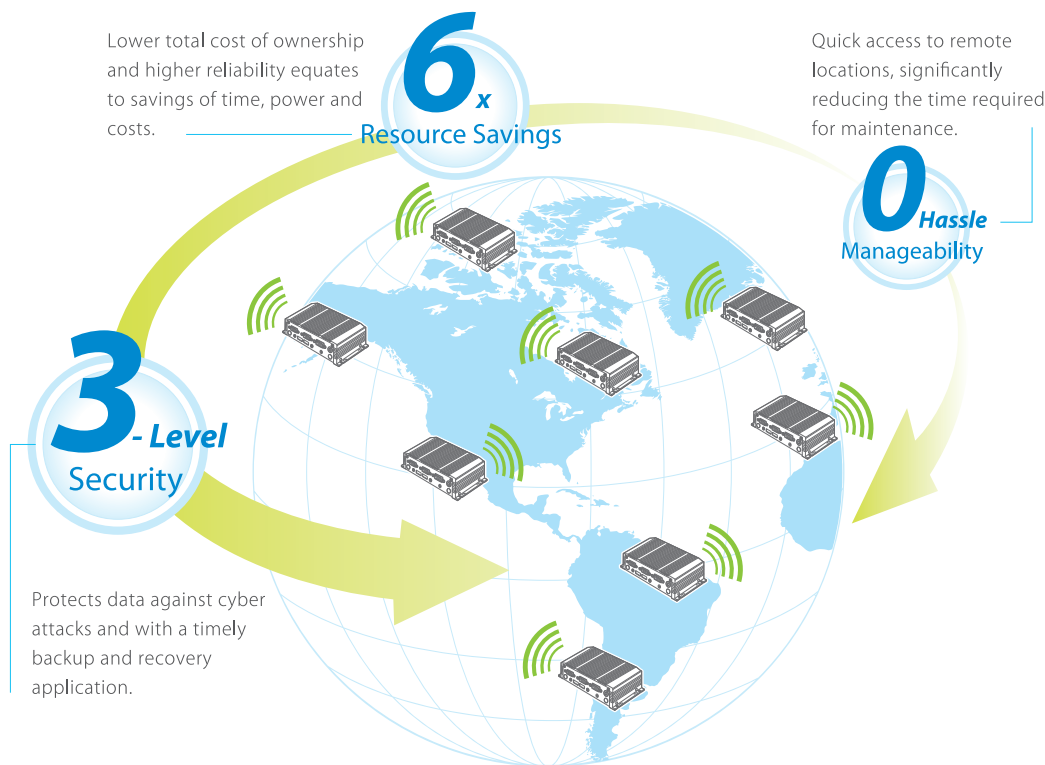
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360° Intelligence

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



White List Protection



Backup and Recovery



Hardware Security Key

Resource Savings



Save Power



Save Time



Save Cost

Manageability



Remote Monitoring



Remote Notification



Remote Batch Control



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.



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** – MiniPCle + 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** – MiniPCle 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 MiniPCle + 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 MiniPCle ...
- 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 MiniPCle 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, MiniPCle 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.

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.

ARK-2150, featuring an Intel® 3rd generation core i7/i3 processor with a fanless design, has joined the

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 a 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

Model Name		ARK-1120L ARK-1120LX	ARK-1120F	ARK-1122H 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 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, 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	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 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 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) 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, 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
Environment	Power Adaptor	AC to DC, DC12 V/3 A, 36 W	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	Lockable AC to DC, DC12 V/3 A, 36 W
	Operating Temperature (air flow 0.7 m/sec)	0 ~ 40° C	0 ~ 40° C	With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C With extended temperature SSD/mSATA devices: -20 ~ 60° C	With standard temperature HDD/SSD/mSATA devices: 0 ~ 40° C With extended temperature SSD/mSATA devices: -20 ~ 60° C	With standard temperature mSATA devices: 0 ~ 40° C With extended temperature 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	-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: 3Grms	With CompactFlash disk: 3Grms	With SSD/mSATA: 3Grms	With SSD/mSATA: 3Grms	With mSATA: 3Grms
	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/ 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 Intel® Celeron QC J1900	Intel® Celeron 2980U 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 Intel® Celeron QC J1900	Intel® Celeron 2980U 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 LVDS up to WXGA 1366 x 768 (Integrated in I-Panel Link)	LVDS (optional)	LVDS (optional)
1 x lockable HDMI, up to 1080p	1 x lockable HDMI, up to 1080p	2 x lockable HDMI, up to 1080p	-	1 x lockable HDMI, up to 1080p	1 x lockable HDMI, up to 1080p
-	-	-	Dual	Dual	Dual
1 x Half-size Mini PCIe 1 x Full-size Mini PCIe	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe	1 x full-size Mini PCIe	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe w/ SIM	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe w/ SIM
-	-	-	-	1	1
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	GbE1 : Intel 82567V, GbE2 : Intel 82583V, All support Wake on LAN	GbE 1 : Intel i210 GbE 2 : Intel i210 All support Wake On LAN	GbE 1 : Intel i218 GbE 2 : Intel i210 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 & 1 x RS-232/422/485)	2 (2 x RS-232/422/485)	1 (1 x RS-232/422/485)	2 (1 x RS232, 1 x RS232/422/485)	3 (1 x RS-232, 2 x RS-232/422/485)	3 (1 x RS-232, 2 x RS-232/422/485)
ATX	ATX	ATX	AT/ATX	ATX/AT	ATX/AT
12 Vbc, ± 10%	12 Vbc, ± 10%	12 Vbc, ± 10%	12 Vbc, ± 10%	12 Vbc, ± 10%	12 Vbc, ± 10%
Threaded DC Jack	Threaded DC Jack	Threaded DC Jack	DC jack with power adaptor locker	DC jack with power adaptor locker	DC jack with power adaptor locker
TBD	TBD	TBD	10.92W (D425) / 11.88W (D525)	TBD	TBD
TBD	TBD	TBD	13.08W (D425) / 16.44W (D525)	TBD	TBD
Lockable AC to DC, DC 12V/3 A, 36 W	Lockable AC to DC, DC 12V/3 A, 36 W	Lockable AC to DC, DC 12V/3 A, 36 W	AC to DC, DC 12V/5A 60W (optional)	AC to DC, DC 12V/5A 60W (optional)	AC to DC, DC 12V/5A 60W (optional)
With extend temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C	With extend temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C	With extend temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C	With extended temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0~40°C	With extend temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0~40°C	With extend temperature peripherals: -20 ~ 55° C With standard temperature peripherals: 0~40°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 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
With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms	With Compact Flash/SSD: 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/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall 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)
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, 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
Expansion Interface	Multiple Display	Dual	Dual
	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
Environment	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)
	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
Physical Characteristics	Shock Protection	With SSD: 50 G	With SSD: 50 G
	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
Operating System	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
	Microsoft Windows	Yes (XP, XPE for project support)	Yes (XP, XPE for project support)
APIs	Linux	Yes (Ubuntu 12.04 ,Fedora 16)	Yes (Ubuntu 12.04 ,Fedora 16)
	SUSIAccess	Yes	Yes
	iManager	Yes	Yes
Certification	Other	McAfee, Acronis	McAfee, Acronis
	EMC	CE, FCC, CCC, BSMI	CE, FCC, CCC, BSMI
	Safety Certifications	UL, CCC, BSMI	UL, CCC, BSMI

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ARK-2150L	ARK-2150F	ARK-3360L	ARK-3360F
3rd Gen [®] Intel Celeron 1047UE / Core i3-3217UE / Core i7-3517UE 1.4GHz / 1.6 GHz / 1.7 GHz (up to 2.8GHz)	3rd Gen [®] Intel Core i7-3517UE 1.7 GHz (up to 2.8GHz)	Intel Atom N450/D510 1.66 GHz	Intel Atom N450/D510 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 8 GB	DDR3 1600MHz, DDR3L 1333 MHz 8 GB	DDR2 667MHz 2 GB	DDR2 667MHz 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 1.1	DirectX11, OpenGL 3.1, and Open CL 1.1	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 DVI-D: 1920 x 1200	-	-
Dual	Dual	-	-
3	3	1	1
1	1	-	-
GbE1: Intel 82579LM, GbE2: Intel 82583V, All support wake on LAN	GbE1: Intel 82579LM, GbE 2/ 3/ 4: Intel 82583V All support wake on LAN	GbE1: Intel 82567V, GbE2: Intel 82583V, All support wake on LAN	GbE1: Intel 82567V, GbE2: Intel 82583V, GbE3: Intel 82541PI, All support wake on LAN
10/ 100/ 1000 Mbps HD Audio	10/ 100/ 1000 Mbps HD Audio	10/ 100/ 1000 Mbps HD Audio	10/ 100/ 1000 Mbps 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 (Max. Data Transfer Rate 600 MB/s)	1 x 2.5" SATAIII HDD bay (Max. Data Transfer Rate 600 MB/s)	1 x 2.5" SATAII HDD bay (Max. Data Transfer Rate 300 MB/s)	1 x 2.5" SATAII HDD bay (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, 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: -20 ~ 60° C With HDD: 0 ~ 45° C	With extend temperature peripherals: -20 ~ 60° C With HDD: 0 ~ 45° C	With extend temperature peripherals: -20 ~ 60° C With HDD: 0 ~ 45° C	With extend temperature peripherals: -20 ~ 60° C 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 With HDD: 1 Grms	With SSD: 5 Grms With HDD: 1 Grms
With SSD: 50 G	With SSD: 50 G	With SSD: 50 G With HDD: 20 G	With SSD: 50 G 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 CE, FCC, CCC, BSMI UL, CCC, BSMI	Intel AMT 8.0, McAfee, Acronis CE, FCC, CCC, BSMI UL, CCC, BSMI	McAfee, Acronis CE, FCC, CCC, BSMI, KC UL, CCC, BSMI, KC	McAfee, Acronis CE, FCC, CCC, BSMI, KC UL, CCC, BSMI, KC

High Performance and Value Series

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Selection Guide

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 ¹ Intel Core i7-3610QE/ i5-3610ME/i3-3120ME/ Celeron 1020E rPGA processor support	3rd gen ¹ 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 ¹ 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 ¹ 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 Vbc ~ 34 Vbc	9 Vbc ~ 34 Vbc	12 Vbc, ± 10% (optional 9 ~ 34 Vbc)	12 Vbc, ± 10%	12 Vbc, ± 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, DC:12V/5A, 60 W (Optional)	AC to DC, DC:12V/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

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Selection Guide

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 Intel® Atom QC E3845	4th Gen Intel® Celeron 2980U 4th Gen Intel® Core i5 4300U	Intel Atom™ D510
	Frequency	1.91GHz	1.9 GHz	1.33 GHz / 1.9 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
Memory	Chipset	Intel® Atom QC E3845	4th Gen Intel® Core i5 4300U	Intel® Atom DC E3825 Intel® Atom QC E3845	4th Gen Intel® Celeron 2980U 4th Gen Intel® Core i5 4300U	Intel™ ICH8-M
	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
Display	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
	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
Expansion Interface	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	-
	Mini PCIe	1 x Full-size Mini PCIe (mSATA) 1 x Full-size Mini PCIe (WLAN) 2 x Full-size Mini PCIe w/ SIM holders (WWAN)	1 x Half-size Mini PCIe (WLAN) 1 x Full-size Mini PCIe (mSATA) 2 x Full-size Mini PCIe w/ SIM holders (WWAN)	1 x Full-size Mini PCIe (mSATA) 1 x Full-size Mini PCIe (WLAN) 2 x Full-size Mini PCIe w/ SIM holders (WWAN)	1 x Half-size Mini PCIe (WLAN) 1 x Full-size Mini PCIe (mSATA) 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 GbE 2 : Intel i210	GbE 1 : Intel i218 GbE 2 : Intel i210	GbE 1 : Intel i210 GbE 2 : Intel i210	GbE 1 : Intel i218 GbE 2 : Intel i210	GbE1: Intel 82574L, GbE2: Intel 82574L,
	Speed	All support Wake On LAN 10/ 100/ 1000 Mbps	All support Wake On LAN 10/ 100/ 1000 Mbps	All support Wake On LAN 10/ 100/ 1000 Mbps	All support Wake On LAN 10/ 100/ 1000 Mbps	All support wake on LAN 10/ 100/ 1000 Mbps
	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
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} VH Mode: 12 V battery (11 ~ 16 V _{DC}), 24 V battery (22 ~ 32 V _{DC})	PC Mode: 9 ~ 36 V _{DC} 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
Environment	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)
	Operating Temperature (air flow 0.7 m/sec)	With extended temperature SSD/ mSATA/RAM :-20 ~ 60° C With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C	With extended temperature SSD/ mSATA/RAM :-20 ~ 60° C With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C	With extended temperature SSD/mSATA/RAM :-20 ~ 60° C With standard temperature HDD/SSD/mSATA/RAM peripherals:0 ~ 40° C	With extended temperature SSD/mSATA/RAM :-20 ~ 60° C 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 With HDD : 1 Grms With CF/SSD : 50 G With HDD : 20 G
Physical Characteristics	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 With HDD : 20 G
	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)
Operating System	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
	Microsoft Windows	Yes (Windows 7, Windows 8)	Yes (Windows 7, Windows 8)	Yes (Windows 7, Windows 8)	Yes (Windows 7, Windows 8)	Yes
APIs	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (Ubuntu v10.04.1)
	SUSI/Access	Yes	Yes	Yes	Yes	Yes
Certification	iManager	Yes	Yes	Yes	Yes	-
	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

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