

Fanless Embedded Box Computers

The Key to Realizing IoT Applications

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



ADVANTECH

Enabling an Intelligent Planet



Windows Embedded

McAfee Acronis

www.advantech.com

Advantech ARK Self-Sensing Fanless Systems

Advantech's ARK fanless embedded systems are self-sensing, intelligent devices that integrate advanced software and hardware technologies, enabling customers to realize IoT applications. These systems are capable of self-management, seamless communication, and self-protection, and can be used to conduct real-time monitoring and controlling of connected peripherals, automatic data collection, and reporting of abnormalities. The "Self-Sensing" capability of ARK systems can be easily initiated in various application environments. The design goals for Advantech ARK systems were to assist users with rapidly implementing IoT applications and maximizing the resulting benefits.





McAfee
Whitelist Protection



Software
Security ID



OpenSSL
Network Security



Event Notification

Self-management

The Advantech ARK series is distinguished from other embedded systems by its self-sensing and management capabilities. This new-generation, fanless, embedded system family is engaged in data computing and is also highly suitable for remote monitoring and control, self-diagnosis and correction, and can automatically send alerts by email or SMS. It monitors its own system status for temperature, voltage, system loading, and networking, as well as the status of connected peripherals.

Seamless Communication

The most important value of IoT lies in the re-utilization of analyzed big data, which helps deal with existing errors and prevents the occurrence of errors in the future; analyzed data helps to predict future behavior modes so as to work out solutions that can be applied now and in the future. Advantech ARK fanless embedded systems integrated software and hardware from the inside out to achieve data acquisition and transmission and big data analytics.

Self-protection

Network security is also an important IoT issue. To deal with this, the ARK self-sensing system provides three layers of protection. The first is McAfee white-list screening, which allows only pre-authorized programs to run in the system, and when countering repetitive attacks by unauthorized programs it issues email or SMS alerts to system administrators. Secondly, it has a built-in software Security ID, which is an encryption lock that prevents copycats so that our customers can safeguard the yields on their self-developed programs; even if a hard disk is stolen, protected programs will not run in other machines. Thirdly, it uses open SSL cryptographic protocols for data transport to ensure security over the internet.



Advanced Design for Diverse IoT Applications

Certified Reliable Design

As a leader in providing trusted innovative embedded products and solutions, Advantech is contributing to this development with new design concepts for various aspects of the product line. Advantech's new generation of fanless embedded systems provides not only performance and connectivity, but also smaller, rugged devices for easy device connection, enabling machine-to-machine communication, and integrating software for remote management and data security. Advantech Fanless Embedded Computer ARK series is aimed at enabling intelligent communications in the IoT while meeting various environmental requirements for industrial needs.

Innovative Software Services

Advantech 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.

Comprehensive Integrated Solutions

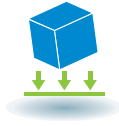


Intelligent Self -Management



Remote Management, Security and Backup/Recovery

Advantech Fanless Embedded Computers ARK series features a ruggedized chassis which is IP40 dustproof, 5G shockproof, 50G fall-proof, and with prolonged MTBF (Mean Time Between Failures). The series has garnered various safety certifications, including CE, FCC, CCC, UL, BSMI and CB, and can therefore be marketed in countries that observe strict safety standards.



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



Wide Range Power Input
From **9V** to **36V** to fulfill different applications



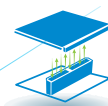
Fanless Design
Excellent cooling solution with an IP40 dust proof design. No noise and no dust with higher stability and outstanding MTBF



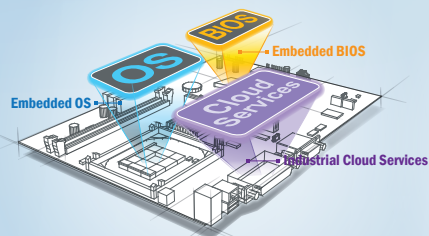
Wide Range Temperature
From **-30°C** ~ **70°C** with certified industrial grade components



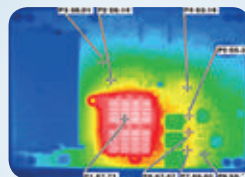
EMC & Safety Certifications



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.



Embedded BIOS services, OS services and API Library



Thermal Simulation



Module Integration



Industrial Display

Product Series



Ultra Small

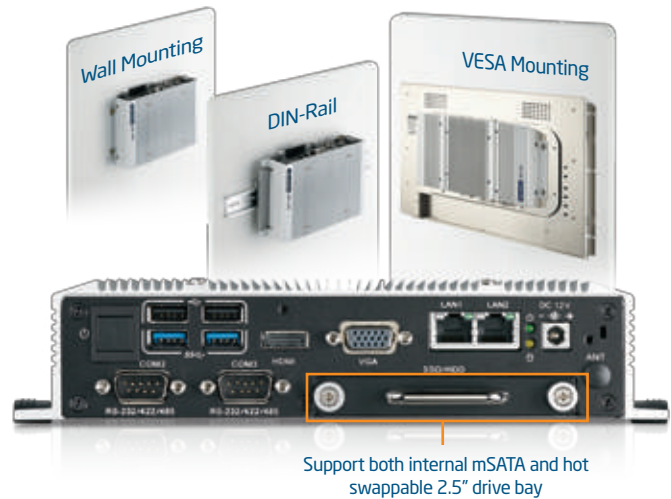
ARK-1100 Series

- Palm Size** - 133.8(w) x 43.1(H) x 94.2(D)mm
- Green** - Ultra low power consumption, minimum 5 Watts
- Wide Temperature** - -30 ~ 70°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

Slim & Mountable

ARK-1500 series

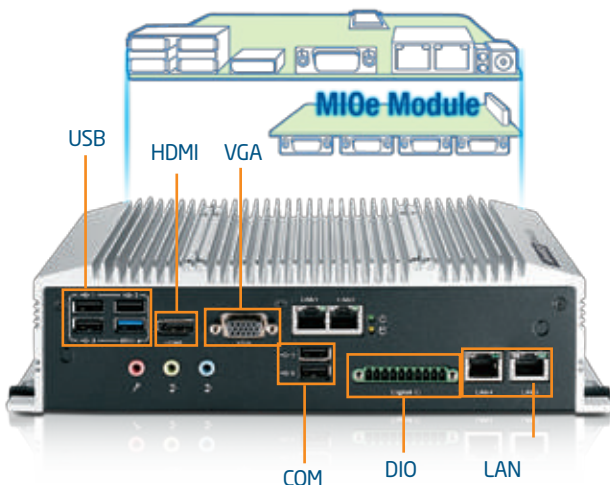
- Ultra Slim** - 223(W) x 46.6(H) x 133(D) mm
- Platform** - Intel® Atom™ to Intel® Core™ i
- Easy Backup** - One removable 2.5" drive bay
- Multiple Display** - VGA, HDMI or optional LVDS
- Expansion** - MiniPCIe for storage or wireless modules
- Mounting Solution** - Wall, VESA and DIN-Rail kits

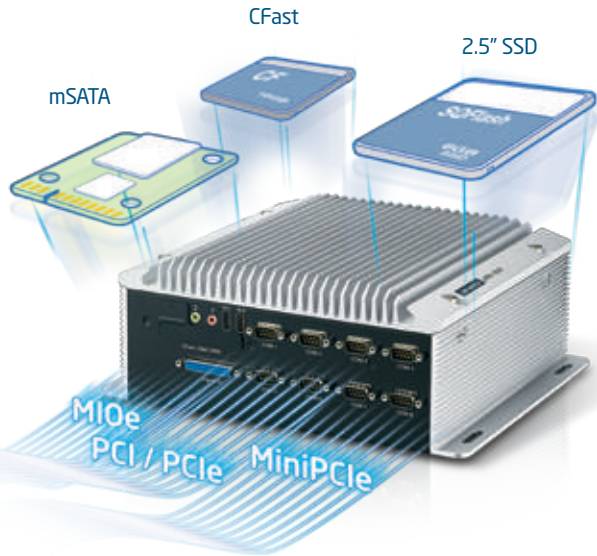


Multiple I/O

ARK-2000 series

- Compact Size** - 265(w) x 69(H) x 133(D) mm
- Platform** - Intel® Atom™ to Intel® Core™ i
- Wide Temperature** - -20~70°C operating support
- Wide Range Power** - 12V or 12~24V or 9~36V
- Rugged Design** - 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





Multi Expansion/ High Performance

ARK-3500 series

- Extreme High Performance** – Intel® Core™ i, up to Quad core i7
- Wide Operating Temperature** – -10~60°C w/ SSD, 0~50°C w/ HDD
- Wide Range Power** – 12V DC or 9~34V DC design
- Rich Storage** – up to 2 x 2.5" (removable) HDD/SSD, 2 x mSATA, CFAST
- Rich Expansion** – PCI, PCIe x 1, PCIe x 4, MIOe module, up to 2 miniPCIe...

High Value ARK-6300 Series

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



Product Series



Surveillance/ In-Vehicle

ARK-S, ARK-V 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, management
- Flexible Expansion** – MiniPCIe expansion slots, CANBus optional
- Rugged Design** – IEC 60721-3-5, EN61373
- Certifications** – E-Mark, EN50155, EN60950, ISO-7637

IoT Application Stories

Smart Production Line

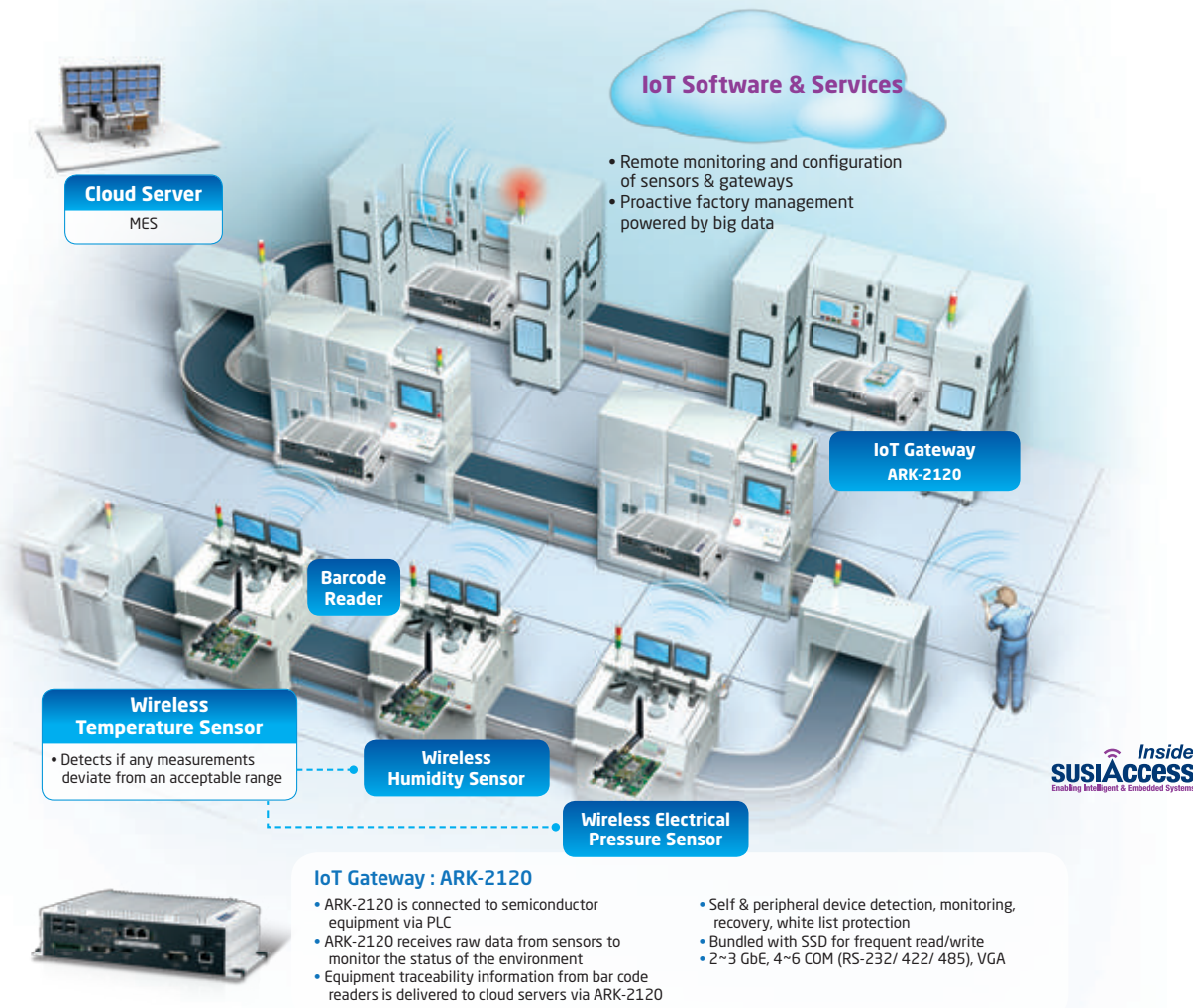
The ARK system self-sensing design, combined with SUSIAccess, the intelligent management utility, and the wireless sensor network modules, gather data from the environment. This makes production more reliable and opens the way for data analysis and further actions, leading to better yield rates, better run rates, reduced total manufacturing costs and higher profits.

Enhancing Equipment Effectiveness

The ARK-2120 self-sensing intelligent system is a fanless and low power design, so required maintenance effort is quite low; it is integrated with iManager self perception functions, and also integrated with SUSIAccess remote control management, so the ARK system can do real time self and external customer device status diagnostics, monitoring, repair and notifications. ARK system provides 4~6 serial ports (RS-232/422/485), which can connect with PLC for production line and VGA/LVDS ports as display outputs for HMI terminals. The ARK system can do data analysis directly on raw data from the sensor modules, reducing bandwidth and preserving system records.

Environmental Data Collection

Use of various sensor modules makes it easy to know of any environmental change in humidity, temperature, air quality (e.g.: CO2) or input/output voltage. ARK sends analysis data to the server and confirms if any setting need to be revised or warning event needs to be processed.



Intelligent Highways

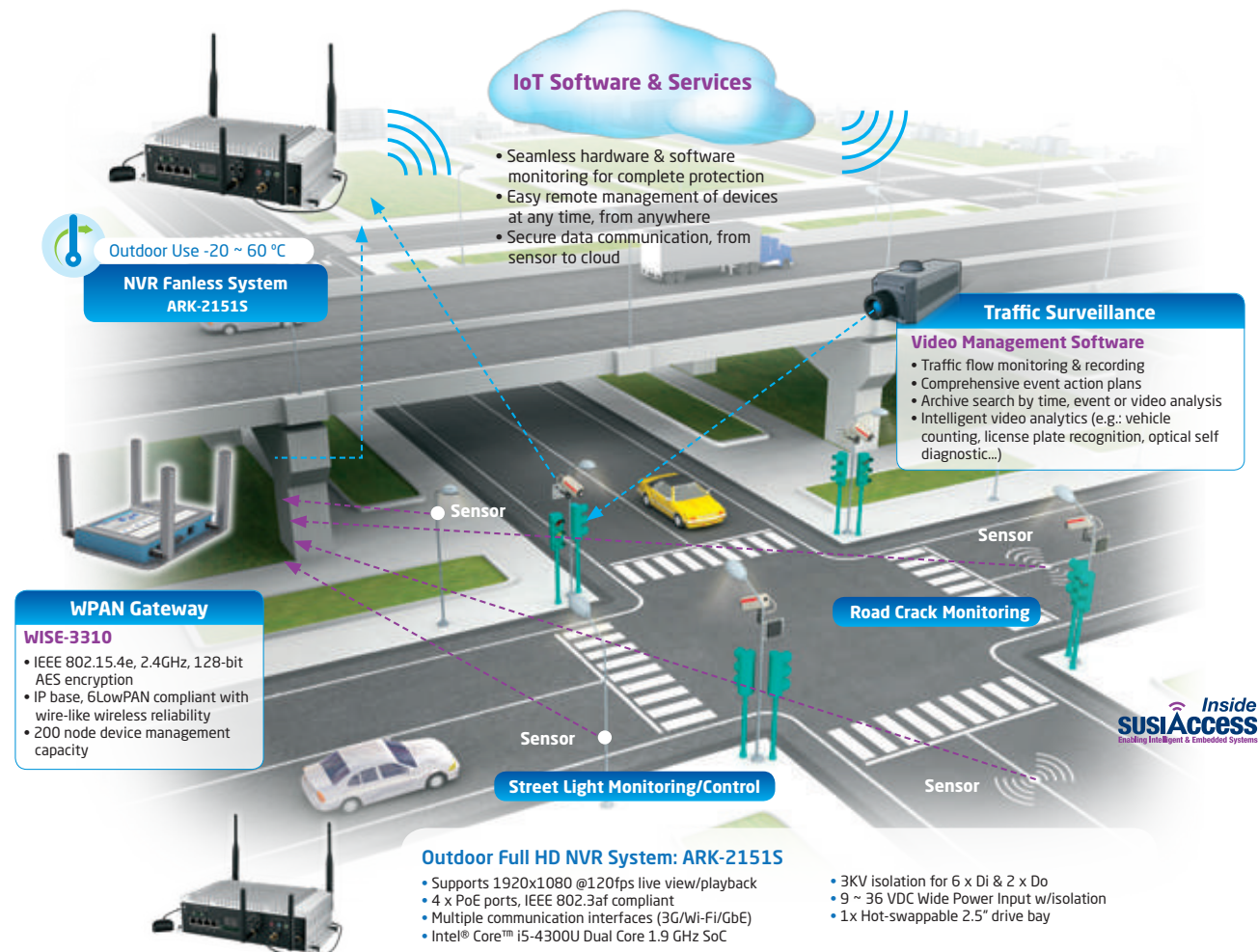
In the past, it was complicated to manage all the devices which were set up for real-time transportation monitoring; most devices came from different vendors and each had its own specific protocol. Once a problem occurred, the system integrator had to take a lot of time to identify where problems were coming from, then solve them step by step. Advantech Intelligent highway management solutions are integrated total solutions that simplify application implementation.

Real-time Traffic Flow Monitoring

ARK-2151S intelligent traffic management system can connect with mainstream Full-HD IP cameras to provide video analysis technologies. ARK-2151S can monitor and calculate traffic flow in real-time and pass the information to the traffic control center through its multi-communication capability (wire or wireless). With integrated, intelligent video analytics software, the system can relieve traffic jams by traffic flow leveling. And the video record can be searched using date-time/event terms.

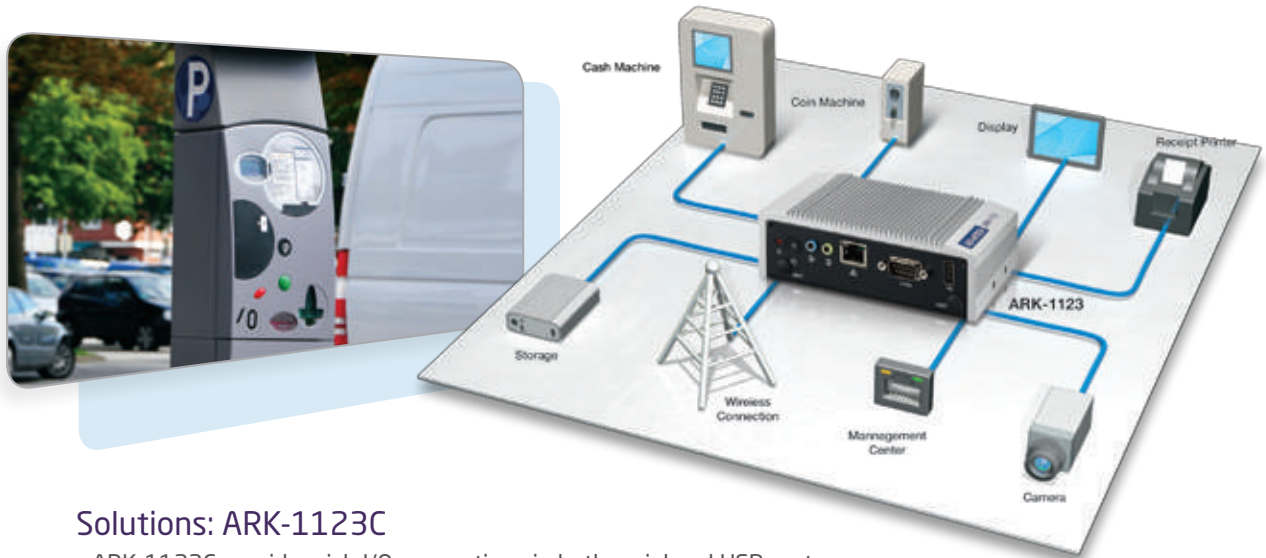
Complete Protection and Secure Data Communication

ARK-2151S can be connected with several sensors, such as surface crack sensors, light sensors, etc. With a surface crack sensor connected, the ARK-2151S can gather road surface health monitoring data 24/7, allowing the traffic control center to plan prevention in advance. With a connected light sensor, ARK-2151S can efficiently control road lighting depending on ambient luminance, providing safer driving and more efficient energy use. ARK-2151S has built-in IoT software services: SUSIAccess provides seamless hardware & software monitoring for complete protection and secure data communication, preserving a reliable record, yet reducing bandwidth.



Application-focused Diagrams

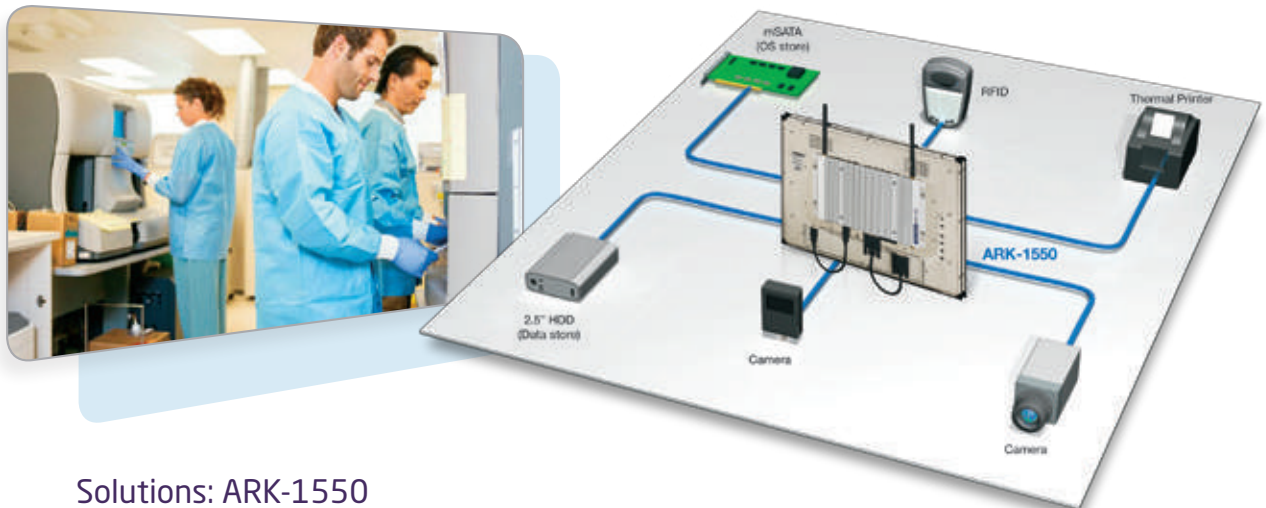
Rich Peripheral Connections for Parking Lot Kiosk



Solutions: ARK-1123C

- ARK-1123C provides rich I/O connections in both serial and USB ports (2 x COM + 3 x USB)
- Featured with VGA output to support a kiosk display that shows parking info
- Ultra-rugged and reliable with wide temperature support of -30 ~ 70°C, and featuring a metal chassis with special anti-corrosion treatment
- Dual storage support : 2.5" drive bay and/or half size mSATA

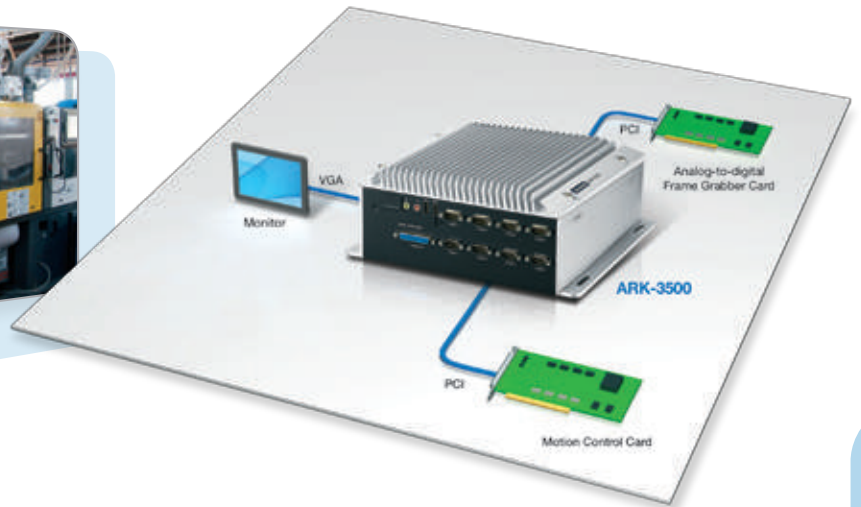
Ultra Slim Modular Panel PC for Medical Device



Solutions: ARK-1550

- Off the shelf modularized panel PC solution, for easy and reliable implementation
- Intel® 4th generation Core™ i5 processor, providing sufficient computing power for data collection/analysis
- Open frame monitor with 250-nit display to provide good visibility in indoor environments
- 5-wire resistive touch solution to provide quicker touch response and high durability of 10 million touches
- Friendly I/O ports and extension capability for peripherals
- Ready-to-use software platform to remote manage devices in a simple yet powerful way

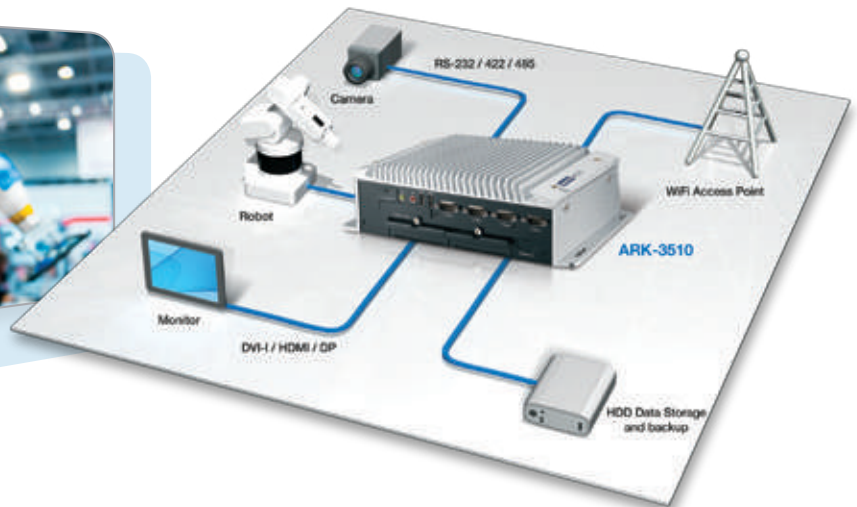
Multiple Expansion for Machine Automation



Solutions: ARK-3500

- High performance up to Core™ i7 45W rPGA processor for analysis
- 2 PCI versatile expansion slots for plug-in cards
- Fanless design avoids contaminants in fabrication cleanroom
- In total, supports 8 COM ports, and 4 ports with RS-485 autoflow control

Factory Automation

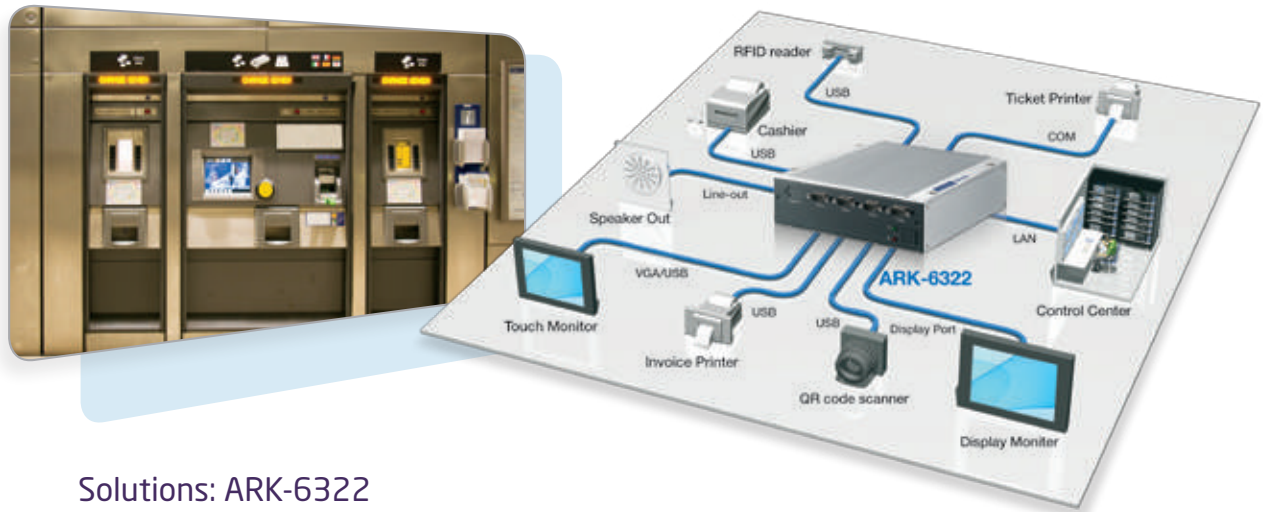


Solutions: ARK-3510

- Rich I/O for different device connections: up to 8 COM ports, or 5 GigaLAN ports
- Multiple storage for data collecting and backup: HDD / SSD / CFAST / mSATA
- Internet / Intranet / Extranet support: by Ethernet RJ45 / 3G / Wi-Fi

Application-focused Diagrams

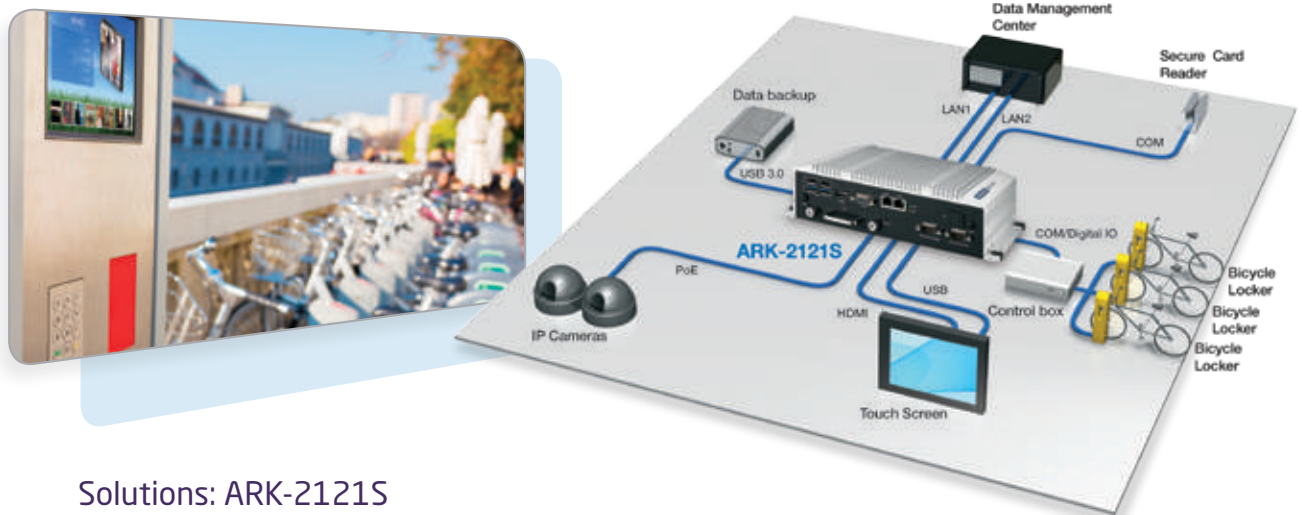
Ticket Vending Machine



Solutions: ARK-6322

- Dual display and rich complement of I/O interfaces
- Integrates LCD display, touch monitor, bill identification equipment and coin charger
- Efficient remote network management with SUSIAccess remote device software inside

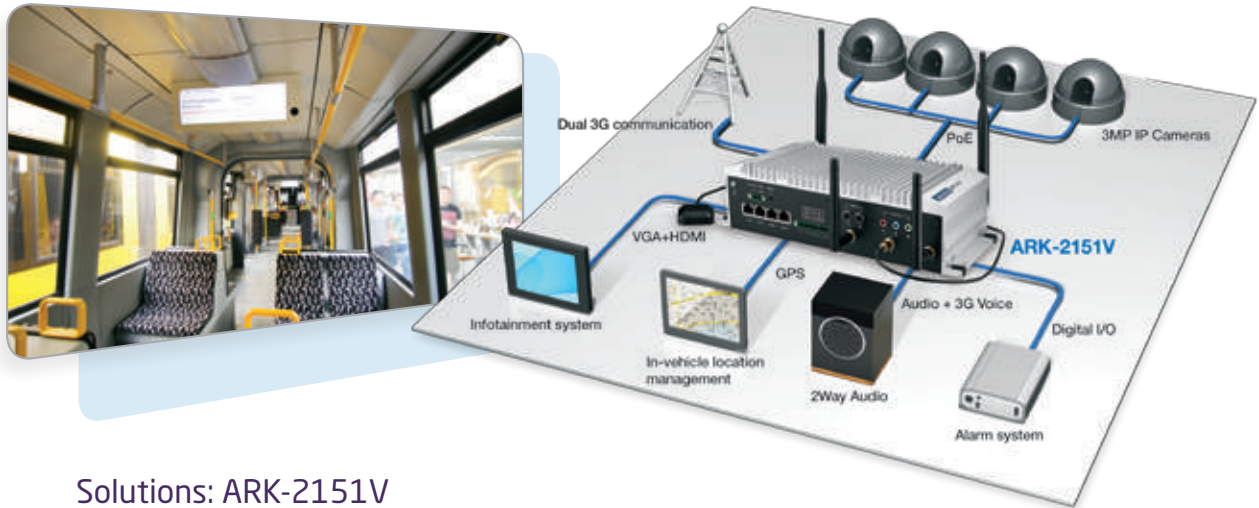
Public Bicycle Rental System



Solutions: ARK-2121S

- Supports up to 1280 x 720 @120fps live view/playback
- Isolated COM/Digital IO ports to control bicycle locking system
- USB3.0 high speed interface for local data backup
- Connects with an interactive monitor through HDMI & USB interface
- Identification recognition system by proximity card reader

MRT In-Car Video Surveillance System



Solutions: ARK-2151V

- Supports up to 1920x1080 @120fps live view/playback
- Excellent computing performance for multiple video analysis (e.g.: facial recognition)
- Isolated protection for sensitive interfaces (e.g.: Power, PoE, DIO)
- E-Mark, IEC-60721-3-5 5M3 and ISO-7637 certified
- Ease video backup through a hot-swappable drive bay

Electronic Bus Fare Collection System



Solutions: ARK-2121V

- Supports up to 1280x720 @120fps live view/playback
- USB ports for connecting fare card readers and an RS-232 COM port for LED indicator display
- In-vehicle power supply compatible with intelligent power ignition management
- Mobile communications based on 3.5G
- On-board GPS for bus tracking, G-sensor for driving behavior record

Product Selection

► Ultra Small Series



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
Memory	Chipset	Intel ICH8-M	Intel ICH8-M	Intel NM10	Intel NM10	Intel NM10
	Technology	DDR3 667MHZ	DDR3 667MHZ	DDR3 800MHZ	DDR3 800MHZ	DDR3 1066MHZ
	Max. Capacity	2 GB	2 GB	4 GB	4 GB	4 GB
Display	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
	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
Expansion Interface	Multiple Display	-	-	Dual	-	Dual
	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
Ethernet	SIM Socket	-	-	-	-	1
	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
Audio	Speed	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
	CODEC	Realtek ALC892	-	Realtek ALC892	-	Realtek ALC892
WatchDog Timer	Connector	2 (Line-in, Line out)	-	2 (Line-in, Line out)	-	2 (Line-in, Line out)
		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	Lockable DC Jack	Lockable DC Jack	Lockable 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	-	-	-	-	-
Certification	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class 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

► Slim & Mountable Series



ARK-1123L	ARK-1123C	ARK-1123H	ARK-1503	ARK-1550
Intel® Atom DC E3825	Intel® Atom DC E3825	Intel® Celeron QC J1900	Intel Atom D425/D525	Intel® Celeron 2980U Intel® Core i5 4300U
1.33 GHz	1.33 GHz	2.0 GHz, turbo boost to 2.4GHz 2.0 GHz, burst to 2.4GHz	1.8 GHz	1.6 GHz / 1.9 GHz, turbo boost to 2.9GHz
2	2	4	1/2	2
AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 16Mbit	AMI EFI 128 Mbit
Intel® Atom DC E3825	Intel® Atom DC E3825	Intel® Celeron QC J1900	Intel ICH8-M	Intel® Celeron 2980U Intel® Core i5 4300U
DDR3L 1066MHz 8GB	DDR3L 1066MHz 8GB	DDR3L 1333MHz 8GB	DDR3 1066/1333MHz 4 GB	DDR3L 1333/1600MHz 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
Up to 1920 x 1200	Up to 1920 x 1200	-	Up to 2048 x 1536	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)
-	-	2 x lockable HDMI, up to 1920 x 1080	-	1 x lockable HDMI, up to 4096 x 2304 at 24 Hz
-	-	-	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 Half-size Mini PCIe 1 x Full-size Mini PCIe w/ SIM
-	-	-	-	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 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
HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
Realtek ACL888S	Realtek ACL888S	Realtek ACL888S	Realtek ALC892	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)
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 drive bay	1 x 2.5" Hot-swappable SATA drive bay
1 x Half-Size mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA	-	1 x Full-size mSATA
-	-	-	CompactFlash Type I/II	-
1	1	1	-	2
1	2	2	4	2
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)
ATX	ATX	ATX	AT/ATX	ATX/AT
12 V _{oc} , ± 10%	12 V _{oc} , ± 10%	12 V _{oc} , ± 10%	12 V _{oc} , ± 10%	12 V _{oc} , ± 10%
Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	DC jack with power adaptor locker	DC jack with power adaptor locker
5.28W	5.28W	5.64W	10.92W (D425) / 11.88W (D525)	10.56W(Core i5)/ 5.64W(Celeron)
10.26W	10.26W	14.04W	13.08W (D425) / 16.44W (D525)	28.2W(Core i5)/ 15.12W(Celeron)
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	AC to DC, DC 12V/5A 60W (optional)	AC to DC, DC 12V/5A 60W (optional)
With extend temperature peripherals: -30~70° C With standard temperature peripherals: 0 ~ 40° C	With extend temperature peripherals: -30~70° C With standard temperature peripherals: 0 ~ 40° C	With extend temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C	With extended 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
With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms	With mSATA/SSD : 3 Grms	With Compact Flash/SSD: 5 Grms	With mSATA/SSD : 3 Grms
With mSATA/SSD: 30 G	With mSATA/SSD: 30 G	With mSATA/SSD: 30 G	With Compact Flash/SSD: 50G	With mSATA/SSD: 30G
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
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)
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)
Yes (Windows 7, Windows 8)	Yes (Windows 7, Windows 8)	Yes (Windows 7, Windows 8)	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	Yes	Yes	Yes	Yes
-	-	-	-	-
McAfee, Acronis CE/FCC Class A, CCC, BSMI	McAfee, Acronis CE/FCC Class A, CCC, BSMI	McAfee, Acronis CE/FCC Class A, CCC, BSMI	McAfee, Acronis CE/FCC Class A, BSMI, CCC, KCC	McAfee, Acronis 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

Product Selection

► Multiple I/O Series



Model Name		ARK-2120L	ARK-2120F	ARK-2121L	ARK-2121F
Processor System	CPU	Intel Atom N2600 / Intel Atom D2550	Intel Atom D2550	Intel Celeron QC J1900	Intel Celeron QC J1900
	Frequency	1.6 GHz / 1.86 GHz	1.86 GHz	2.0 GHz, turbo boost to 2.4GHz	2.0 GHz, turbo boost to 2.4GHz
	Core Number	2	2	4	4
	BIOS	AMI EFI 16Mbit	AMI EFI 16Mbit	AMI 16Mbit SPI	AMI 16Mbit SPI
Memory	Chipset	Intel NM10	Intel NM10	-	-
	Technology	DDR3 800MHz	DDR3 800MHz	DDR3L 1333MHz	DDR3L 1333MHz
	Max. Capacity	4 GB	4 GB	8GB	8GB
Display	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204pin SODIMM	1 x 204pin SODIMM
	Graphic Engine	DirectX 9 and OpenGL 3.0 support	DirectX 9 and OpenGL 3.0 support	up to 2048 x 1152	up to 2048 x 1152
	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	HDMI: 1.4a, 1080P@60Hz	HDMI: 1.4a, 1080P@60Hz optional 2nd HDMI Optional DVI-D
	DDI (HDMI/DVI/DisplayPort)	HDMI:1920 x 1200 @ 60Hz	HDMI:1920 x 1200 @ 60Hz	Dual	Dual
Expansion Interface	Multiple Display	Dual	Dual	1	2
	Mini PCIe	1	1	1	1
Ethernet	SIM Socket	1	1	Yes	Yes
	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	GbE1: Intel i210 GbE2: Intel i210 All support wake on LAN	GbE1: Intel i210 GbE2: Intel i210 GbE3: Intel i210(optional) GbE4: i210(EMIO-100E, optional) All support wake on LAN
Audio	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC892	Realtek ALC892	Realtek ALC888S	Realtek ALC888S
WatchDog Timer	Connector	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	
Storage	SATA	1 x 2.5" SATAII HDD bay	1 x 2.5" SATAII HDD bay	1 x 2.5" SATAII HDD bay	1 x 2.5" SATAII HDD bay
	mSATA	-	-	-	-
	CompactFlash/ CFast	1 CFast	1 CFast	1	1
I/O	USB3.0	-	-	1	1
	USB2.0	6	5	3	5 x external, 1 x internal
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO	-	8-bit Programmable DIO, with 2.5kV isolation
	LPT	-	-	-	-
Power	COM Port	4 (3 x RS232, 1 x RS232/ 422/ 485)	6 (2 x RS232, 4 x RS232/ 422/ 485)	2x RS232, 2x RS232/422/485	6 x RS232/422/485
	Power Type	ATX, AT	ATX, AT	ATX	ATX
	Power Supply Voltage	12 V _{DC} , ± 10%	12 ~ 24 V _{DC}	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}
	Connector	Lockable DC Jack	2-pin phoenix head	2-pin phoenix head	2-pin phoenix head
	Power Consumption (Idle)	8.9W	9.2W	7.2W	TBD
Environment	Power Consumption (Full Load)	11W	11.59W	13.3W	TBD
	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)	Lockable AC to DC, DC19 V/3.42 A, 65 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	With extend temperature peripherals: -20 ~ 70° C With HDD: 0 ~ 45° C	With extend temperature peripherals: -20 ~ 70° C With HDD: 0 ~ 45° C
	Non-operating Temperature	-40~ 85° C and 40° C @ 95% RH Non-Condensing	-40~ 85° C and 40° C @ 95% RH Non-Condensing	-40~ 85° C and 40° C @ 95% RH Non-Condensing	-40~ 85° C and 40° C @ 95% RH Non-Condensing
Physical Characteristics	Vibration Resistance	With SSD: 5 Grms	With SSD: 5 Grms	With SSD: 5 Grms	With SSD: 5 Grms
	Shock Protection	With SSD: 50 G	With SSD: 50 G	With SSD: 50 G	With SSD: 50 G
	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	264.5 x 69.2 x 133.0 mm	264.5 x 69.2 x 133.0 mm	264.5 x 69.2 x 133.0 mm
	Weight	2.3 kg (5.07 lb)	2.5 kg (5.51 lb)	2.3 kg (5.07 lb)	2.5 kg (5.07 lb)
Operating System	Construction	Aluminum/Iron	Aluminum/Iron	Aluminum/Iron	Aluminum/Iron
	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
APIs	Microsoft Windows	Yes (XP, XPE for project support)	Yes (XP, XPE for project support)	WIN7, WIN8	WIN7, WIN8
	Linux	Yes (Ubuntu 12.04 ,Fedora 16)	Yes (Ubuntu 12.04 ,Fedora 16)	TBD	TBD
Certification	SUSIAccess	Yes	Yes	Yes	Yes
	iManager	Yes	Yes	Yes	Yes
Safety Certifications	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	EMC	CE, FCC, CCC, BSMI	CE, FCC, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI



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 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, GbE2/ 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	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 (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 _{oc} , ± 10%	12 ~ 24 V _{oc}	12 V _{oc}	12 ~ 24 V _{oc}
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, DC12V/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	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

Product Selection

▶ Multi Expansion Series

▶ High Value Series

NEW



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 QC J1900
	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, turbo boost up to 2.41 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 ICH8M	AMI 16Mbit SPI
	Chipset	Intel QM57	Intel QM77	Intel QM77	-	-
Memory	Technology	DDR3 1066/1333	DDR3/DDR3L 1600MHz	DDR3/DDR3L 1600MHz	DDR2 667MHz / DDR3 800MHz	DDR3L 1333MHz
	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 204-pin SO-DIMM
Display	VGA	up to 2048x1536	VGA integrated in DVI-I port	VGA integrated in DVI-I port	Supports up to SXGA 2048 x 1536 @ 60Hz	Up to 2560 x 1600
	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(option)/-	1 slot, ARK-3500F	-	-	-
	Mini PCIe	2	2 (share with mSATA), with SIM	2 (share with mSATA), with SIM	-	2 (1xfull-size supports mSATA, 1 x half-size)
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 or Mic-in)
WatchDog Timer	-	Yes	Yes	Yes	Yes	Yes
Storage	SATA	2 x 2.5" SATAIII HDD bay	2 x 2.5" SATAIII HDD bay	2 x 2.5" SATAIII HDD bay	1 x 2.5" SATA HDD bay 1 CompactFlash type I/II socket (on the solder side of the motherboard)	1 x 2.5" or 3.5" SATAIII HDD bay
	CompactFlash/ CFast	1 CompactFlash	1 CFast	1 CFast	-	-
	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 Type	ATX, AT	ATX, AT	ATX, AT	ATX	ATX
Power	Power Supply Voltage	9 V _{DC} ~ 34 V _{DC}	9 V _{DC} ~ 34 V _{DC}	12 V _{DC} , ± 10% (optional 9 ~ 34 V _{DC})	12 V _{DC} , ± 10%	12 V _{DC} , ± 10%
	Connector	4pin terminal block	4pin terminal block	Lockable DC jack	-	-
	Power Consumption (Idle)	38W	14.8W	14.8W	23W	15.7W
	Power Consumption (Full Load)	53W	60W (w/o add on card)	60W	37W	24.7W
	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)	With 2.5" HDD: 0~45° C With 3.5" HDD: 0~40° C
	Non-operating Temperature	-40~ 85° C and 40° C @ 95% RH Non-Condensing With SSD: 5 Grms With HDD: 1 Grms	-40~ 85° C and 40° C @ 95% RH Non-Condensing With SSD: 5 Grms With HDD: 1 Grms	-40~ 85° C and 40° C @ 95% RH Non-Condensing With SSD : 3Grms With HDD : 1 Grms	-40~ 85° C and 40° C @ 95% RH Non-Condensing 0.5 Grm	-40~ 85° C and 40° C @ 95% RH Non-Condensing 0.5 Grm
	Vibration Resistance	With SSD: 50 G With HDD: 20 G	With HDD: 20G	With HDD: 20G	20G	10G
	Shock Protection	With SSD: 50 G With HDD: 20 G	With HDD: 20G	With HDD: 20G	20G	10G
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 64 x 200 mm
	Weight	4kg (8.8lb)	4.8kg (10.56lb)	4.53kg (10lb)	4.14 kg (8.8 lb)	2.0 kg (4.4lb)
Operating System	Mounting	Desk/ Wallmounting	Desk/Wallmounting	Desk/Wallmounting	Desk (Optional)	VESA/Wall mounting
	Microsoft Windows	Yes	Yes	Yes	Yes	Yes
APIs	Linux	Yes	Yes	Yes	Yes	Yes
	SUSIAccess	Yes (don't support HW monitor)	Yes	Yes	Yes	Yes
Certification	iManager	-	Yes	Yes	-	-
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
	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	UL/CCC/BSMI	UL/CCC/BSMI	

► In-Vehicle & Surveillance Series



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	1.91 GHz	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
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
Display	Max. Capacity	8 GB	8 GB	8GB	2 GB	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
	Graphic Memory	Intel Gen 7 Graphics Engines	GT2-4400 Graphics	Intel Gen 7 Graphics Engines	HD Graphics / GT2-4400 Graphics	-
	VGA	1 (up to 2560 x 1600)	1 (up to 1920 x 1200)	1 (up to 2560 x 1600)	1 (up to 1920 x 1200)	1
	LCD (TTL/LVDS/eDP)	LVDS(Optional)	LVDS(Optional)	LVDS(Optional)	LVDS(Optional)	LVDS
Expansion Interface	DDI (HDMI/DVI/DisplayPort)	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4096 x 2304 at 24 Hz	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4096 x 2304 at 24 Hz	-
	Multiple Display	Dual	Dual	Dual	Dual	-
Ethernet	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
Audio	Controller	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT All support Wake On LAN	GbE 1 : Intel I218 GbE 2 : Intel I210-IT All support Wake On LAN	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT All support Wake On LAN	GbE 1 : Intel I218 GbE 2 : Intel I210-IT All support Wake On LAN	GbE1: Intel 82574L, GbE2: Intel 82574L, 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
WatchDog Timer	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	-
Storage	Yes	Yes	Yes	Yes	Yes	
	SATA	1x 2.5" Hot-swappable drive bay	1x 2.5" Hot-swappable drive bay	1x 2.5" Hot-swappable drive bay	1x 2.5" Hot-swappable drive bay	1 x 2.5" SATA HDD bay
I/O	CompactFlash/ CFast mSATA	-	-	-	-	CompactFlash Type I/II
	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)	2 (2 x RS-232/422/485)	2 (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	485
	Video Input	-	-	-	-	4CH Video Inputs, BNC
	Optional COM or CANBus	-	-	2x RS-232/422/485 or 2 x CANbus 2.0 A/B(S3 SKU)	2x RS-232/422/485 or 2 x CANbus 2.0 A/B(S6 SKU)	-
Other	GPS	-	-	On board standalone GPS, support GPS, GLONASS, GALILEO and OZSS signals	On board standalone GPS, support GPS, GLONASS, GALILEO and OZSS signals	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 (S9 SKU)	4 x 10/100 Mbps - 4ports full-load, IEEE802.3af Class 2 - 2ports full-load, IEEE802.3af Class 3 (S9 SKU)	-
Power	Power Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT	ATX, AT
	Power Supply Voltage	9 ~ 36VDC w/ isolation	9 ~ 36VDC w/ isolation	9~36VDC ignition management	9~36VDC ignition management	9 VDC ~ 32 V _{oc} (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, DC19 Power Plug (Optional)	AC-to-DC Adapter, DC19 Power Plug (Optional)	AC-to-DC Adapter, Phoenix Power Plug (Optional)	AC-to-DC Adapter, 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 : -30 ~ 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 : -30 ~ 60° C(S9 SKU) / -30~70 (S3 SKU) 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 : 3 Grms	With mSATA/SSD : 3 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
	Shock protection	With mSATA/SSD: 30 G	With mSATA/SSD: 30 G	With mSATA/SSD: IEC 60721-3-5 Class 5M3	With mSATA/SSD: IEC 60721-3-5 Class 5M3	
Physical Characteristics	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	264.5 x 75.1 x 133.0 mm	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)
	SUSIAccess iManager	Yes	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, CB, E13	UL, CCC, BSMI, CB, E13	UL, CCC, E13
In-Vehicle Power			ISO 7637-2 lev.4	ISO 7637-2 lev.4		

for Targeted Applications

Slim/Mountable Series

- Slim & Display Mountable
- Multiple COM, USB, LAN
- Wide Temperature
- Multiple Display Interface



Ultra Small Series

- Palm Size
- Ultra Low Power, Minimum 5 Watts
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- Wall/VESA/DIN-Rail Mounting



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India
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Germany
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