Embedded IoT Solutions
for Medical/ Healthcare

- Intelligent Systems for Outpatient Services
- Medical Diagnosis Equipment
- Healthcare Information Terminals
- Software Administration & Management
- In-Ambulance Computers

Industrial Display

Digital Signage

Edge Intelligence Server

ADVANTECH
WISE-PaaS
Edge Intelligence Platform

In-Vehicle System

Embedded Boards

Wireless Sensor Nodes

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

About Advantech
Embedded IoT Solutions

Worldwide Leader in Embedded Design and Services
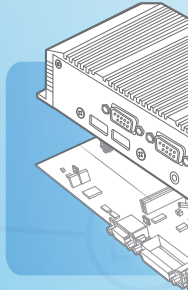
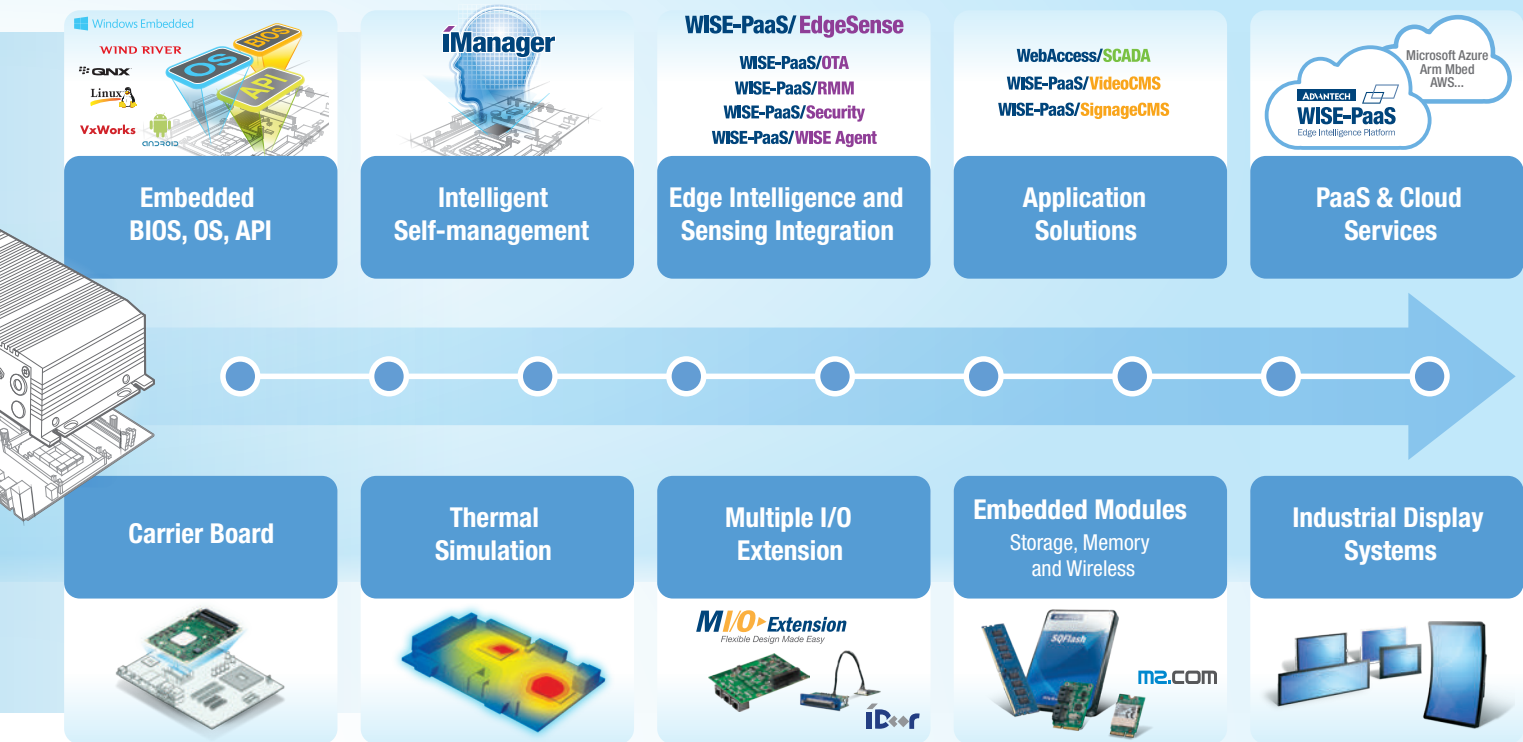## Advantech: Partnering for Smart City & IoT Solutions

Founded in 1983, Advantech is a leader in providing trusted, innovative embedded platforms and services. Advantech offers customer-centric design services and embedded boards and systems with global logistics support. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. Our mission is to enable an intelligent planet and empower the development of smarter working and living. With Advantech, there is no limit to the applications and innovations our products make possible.

World-Class Recognition

Advantech is an authorized alliance partner of both Intel® and Microsoft®. Our customers find the technologies we use inside our products to be widely compatible with other products in the global marketplace. Interbrand, the world renowned brand consulting firm, recognized Advantech as one of the Top 20 Taiwanese Global Brands for many years. Advantech appreciates this recognition of our efforts to build a trusted, global brand; it also symbolizes a promise we give to our business partners, which is to keep building a trustworthy brand that is recognized everywhere and improves the lives of all.

Timely Support at Your Convenience

Advantech has over 20 regional hotlines and offices throughout 23 countries, with over 8,000 employees to provide efficient, professional services for customer care, product selection, technical support, and order handling. Through our call centers and online stores, customers worldwide enjoy the convenience of Advantech's multi-service channels to reduce business turnaround time. Together with the four logistics centers in Taiwan, China, Europe and the United States, our global service network offers an extensive spectrum of services that includes warehousing, logistics, peripheral certification, sourcing & purchasing, and RMA & value-added services, and technical support & training.

WISE-PaaS/EdgeSense

WISE-PaaS/OTA
WISE-PaaS/RMM
WISE-PaaS/Security
WISE-PaaS/WISE Agent

WebAccess/SCADA
WISE-PaaS/VideoCMS
WISE-PaaS/SignageCMS

Microsoft Azure
Arm Mbed
AWS...

WISE-PaaS
Edge Intelligence Platform

Embedded BIOS, OS, API	Intelligent Self-management	Edge Intelligence and Sensing Integration	Application Solutions	PaaS & Cloud Services

Carrier Board	Thermal Simulation	Multiple I/O Extension	Embedded Modules — Storage, Memory and Wireless	Industrial Display Systems

M I/O ▶ Extension
Flexible Design Made Easy

Advantech Embedded IoT

To address the market for IoT applications, Advantech developed a series of integrated IoT solutions and services that accelerate the IoT value chain & ecosystem. Following the WISE- PaaS concept, all embedded solutions will be integrated with all types of wireless data acquisition solutions, WISE-PaaS software for manageability, security functions, and sensor-to-cloud connectivity solutions.

Integrated Embedded Computing Solutions

• Wireless IoT Modules and Sensor Nodes
• Edge Intelligence Solutions
• WISE-PaaS/EdgeSense Software Services
• IoT Cloud Services - Azure/ Arm Mbed/ AWS
• Embedded Board Solutions: COM/ ESBC/ AIMB
• RISC Computing Platforms
• Embedded Systems
• Digital Signage and Industrial Displays
• In-Vehicle & Railway Systems
• Industrial Storage and Memory Solutions
• Embedded Software Solutions

Ecosystem Partnership

Advantech allies with many leading partners in the industry such as Intel, Microsoft, Arm, AMD, Freescale, and TI to provide up-to-date technologies, products, and comprehensive product offerings.

Leading Embedded Technologies

As a pioneer and leader in the embedded market, Advantech keeps researching and developing value-added embedded software services, leading embedded technologies, and innovative form factors.

Dedicated Regional Embedded Service Teams

To meet all the requirements from embedded applications, Advantech devotes regionally-based embedded service teams worldwide to offer dedicated design-in services that enable our customers to reach their customers more quickly.

One-stop Service from Embedded Design-in Service to IoT Integration

Advantech provides a one-stop service model to integrate embedded boards, systems, software, displays, peripherals, as well as IoT cloud service and devices to help customers target their markets.

Embedded IoT Solutions for
Medical/ Healthcare Applications

Healthcare for senior citizens and persons with disabilities will be one of the main issues for smart cities. According to a recent IDC report, healthcare revenue will reach $ 313 million driven by IoT technology in 2018 and the ubiquitous adoption of wireless technology in our personal lives has accelerated the acceptance of remote devices in healthcare. For intelligent, connected medical devices, which provide superior care quality and remote management of clinical information, stable and ruggedized embedded solutions are widely used. System reliability, data accuracy, and security are crucial ingredients to advancing the medical industry in the IoT era.

Source: Worldwide Internet of Things Spending by Vertical Market 2014–2018 Forecast, IDC, June 2014.

Advantech eHealthcare Computing Capability

Embedded Design-In Capability

• Early engagement with Intel, AMD, Qualcomm, NXP, Xinix, Altera Silicon Vendors
• Full range of form factors:
  Mini-ITX, Micro-ATX, Pico-ITX, 3.5" SBC, COM-Express, Q7, SMARC and more.
• Design-To-Order-Services for customization
• System Integration services: ID/mechanical design, thermal simulation, peripheral integration
• RF Wireless connectivity, sensing integration

Medical Design Quality Validation

• ISO Project Management Process (D-001) ISO 13485 Manufacturing Process Control
• IEC 60601 Design Validation
• Signal and power simulation service
• Certification services
• Solid reliable validation
• Signal integration & power measurement
• Functional compatibility test
• Environment & Reliability Test

Embedded BIOS/FW/SW Integration Services

• Fast & security boot, TPM/TCM, Boot Guard, WMI
• iManager Design-In Service
• Medical APIs – Peripherals life cycle prediction, IO access, sensing
• WISE-PaaS/EdgeSense IoT software platform
• Microsoft, WindRiver, Linux, Android OS, Real-Time OS support

Solid Product Lifecycle Control

• 5~15 year longevity support
• Component management control
• Fixed BOM option
• Product revision control
• Component EOL plan
• PCN (product change notice)
• Last-time-buy management
• Extended warranty service
• After-service quality management

Advantech products found throughout the medical industry

- Healthcare Self-service KIOSK
- Ultrasound Systems
- Surgical Imaging
- Diagnostic Equipment

Embedded IoT Solutions

Embedded Design-In Services

Advantech design-in service provides tailor-made systems or boards to meet your specific medical device and computing requirements through advanced, innovative and world leading technologies, diverse levels of customization, flexibility of manufacture, and global technical & logistical support. With strong customization capability and experience in medical grade devices and systems, Advantech not only delivers qualified medical computing products but also act as a strategic and innovative partner for medical customers.

Medical Certificates

Advantech holds the most complete ISO certifications in the IPC industry ensuring our capability to manufacture products from different industries and our commitment to worldwide regulations and standards compliance. Our facilities and products carry at minimum ISO 9001 and 14001 certifications, while others hold additional certifications such as ISO 13485, 17025, TL9000, ISO/TS 16949, OHSAS18001, ROHS and QC080000.

And for the medical field we also hold:

- ISO 13485: Advantech has a ISO 13485 certified factory with design team. The development and manufacturing processes complies with ISO 13485 which provides both transparency and traceability of medical products.
- IEC60601-1: Advantech will work with customers to develop IEC60601-1 standard compliant medical electrical equipment.
- U.S. FDA Registration: Advantech provides development, validation and consulting services of FDA (Food and Drug Administration) approval process for medical devices.

Core Technologies Design-in

Advantech Embedded Computing Group invests in developing vertically-driven, application-specific platforms and service-ready solutions for use in many situations. To meet special requirements, Advantech offers flexible and experienced design capabilities for industrial projects.

Embedded Hardware Capabilities

Various Form Factors of Board Level Products:

Various Form Factors of Board Level Products: Advantech provides a full range of embedded boards in different form factors for integration into a variety of industry chassis.

Embedded System Solutions:

With strong mechanical/thermal support, we develop diversity systems and chassis. We also offer a total display solution from industrial display kits, industrial monitors, to display enhancement solutions in order to meet your specific needs.

Integrated Peripheral Modules:

For value-added peripheral integration, we offer a range of industrial grade peripherals including industrial storages, memory, embedded wireless, and industrial displays.

Full Specturm of x86 & RISC Platforms for Embedded IoT & Verticals

WISE-PaaS Built-in **Workstation & Server-grade** **Smaller Form Factor**

| RTX | SMARC | Qseven | COMe Mini | COMe Compact | COMe Basic | 2.5" SBC | UTX | 3.5" SBC | Mini-ITX | Micro-ATX |
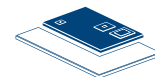
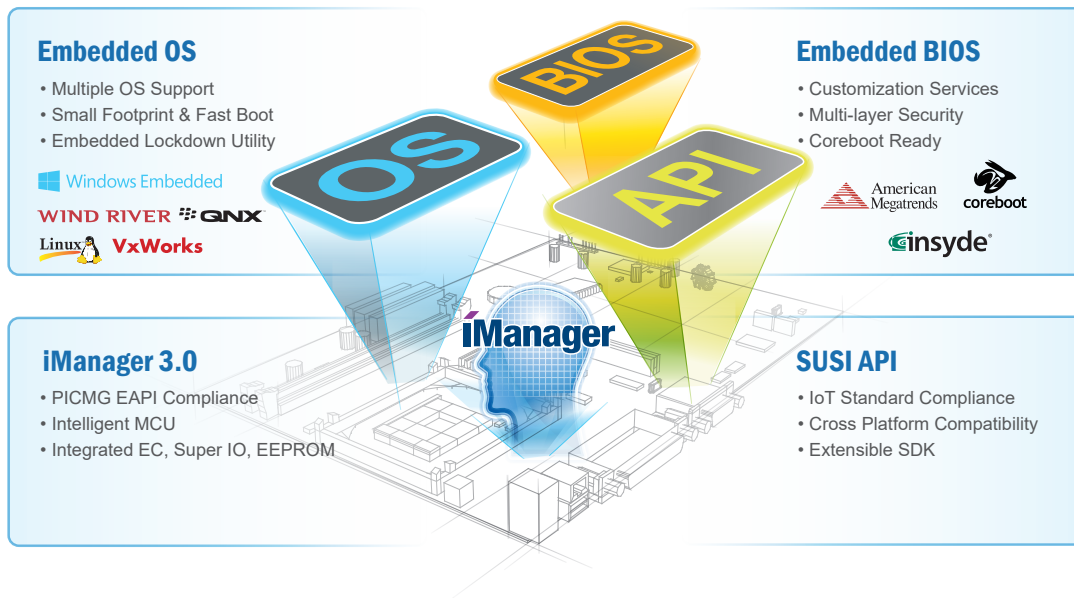## *Embedded Software Capabilities*

Advantech Embedded Software Services includes Embedded BIOS Services, OS Services and Industrial Cloud Services. Embedded Software Services help decrease design effort and project complexity, and accelerate product development.

Embedded OS
- Multiple OS Support
- Small Footprint & Fast Boot
- Embedded Lockdown Utility

  Windows Embedded
  WIND RIVER QNX
  Linux VxWorks

Embedded BIOS
- Customization Services
- Multi-layer Security
- Coreboot Ready

  American Megatrends coreboot
  insyde

iManager 3.0
- PICMG EAPI Compliance
- Intelligent MCU
- Integrated EC, Super IO, EEPROM

SUSI API
- IoT Standard Compliance
- Cross Platform Compatibility
- Extensible SDK

WISE-PaaS/EdgeSense- Edge Intelligence & Sensing Integration

Advantech strives to integrate IoT solutions by providing pre-integrated, pre-validated hardware and software building blocks that ensure secure and seamless data flows from sensors to the cloud. WISE-PaaS/RMM is one of Advantech's IoT software platform services aimed at remote monitoring and management of IoT devices, bridging layers of IoT platform architecture, and anchoring predictive maintenance, big data analysis, and other domain-specific cloud applications.

Remote Device Management
- Remote monitoring and control (Power On/Off, KVM)
- Devices/groups/map view device management

Data Flow Logic Editor
- IBM Node-RED flow design tool
- Drag and drop plug-in nodes
- Integrated WISE-PaaS/RMM function nodes

Data Acquisition
- WISE-Agent dynamic data collection module
- Deployment plug-ins for various usage scenarios

Dashboard Builder
- Supports widgets for Google Maps, Gauge, Sparkline, Progress Bar, etc.
- Multiple data source formats supported

Advantech Global Services

We are located in 23 countries and 95 cities in each major geographical region to have a global reach with local support. We support our services through an extensive global network of offices and an industry-leading eBusiness infrastructure designed to provide responsive service that benefits customers anytime, anywhere.

- Design Centers
- Manufacturing Services
- Global Service Centers
- Worldwide Offices

Intelligent Systems for Outpatient Services

Creating a comfortable, efficient, and interactive healthcare environment is the goal. With expansion flexibility, real-time remote IoT device management, and complete client data protection, Advantech offers cutting-edge intelligent systems for video wall/ eBulletin broadcasting, self check-in services, and queuing systems that allow for effective construction of streamlined outpatient services for hospitals or clinics.

Video Wall Solutions

Embedded Systems

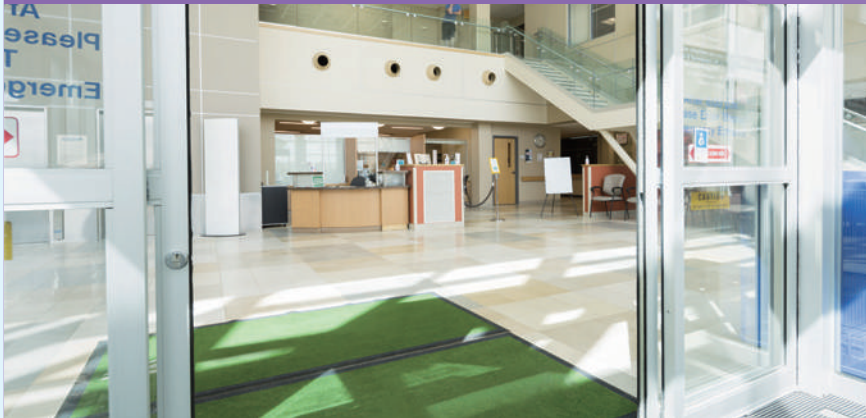3 Display Support
EPC-T1217

4 Display Support
DS-570

6 Display Support
DS-980

Clinic Check-in Systems

Embedded Systems

Ultra-slim Fanless Design
DS-081

Fanless & Rich I/O
ARK-2230

Compact Design
EPC-T2285

Cost -Efficient
EPC-S101

Public Queuing Systems

Embedded Systems

Compact & Fanless
DS-370

ARM-based
UBC-DS31

Fanless & Rich I/O
EPC-T1215

Solution Highlights

- Supports multiple displays
- Compact & fanless design
- Flexibility for expansion
- IoT Software built-in: WISE-PaaS/RMM, WISE-PaaS/OTA, WISE-PaaS/SignageCMS

Embedded Boards

7th Gen Intel Core i
SOM-5898

Intel Atom x7-E3950
AIMB-217

Industrial Display

Digital Signage Displays
**DSD-3000 Series
(32"-55")**

Industrial Stretched
Signage Display
**DSD-5000 Series
(28" & 38")**

Industrial Storage

2.5" SATA-SSD
SQF-S25 830

IoT Device & Content Management

WISE-PaaS/RMM   WISE-PaaS/SignageCMS
McAfee

OS

**Windows Embedded Standard,
Windows 10 IoT**

Embedded Boards

7th Gen Intel Core i
AIMB-285

7th Gen Intel Core i
SOM-6898

Industrial Display

Proflat Monitors
**IDP31-215
(21.5")**

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

IoT Device & Content Management

WISE-PaaS/RMM   WISE-PaaS/OTA
WISE-PaaS/Security

OS

**Windows Embedded
Standard/Compact**

Embedded Boards

Intel Atom E3825
MIO-3260

Intel Celeron
AIMB-215

Intel Atom E3900
SOM-3569

Industrial Display

Open Frame Monitor
**IDS-3221W
(21.5")**

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

IoT Device & Content Management

WISE-PaaS/RMM   WISE-PaaS/SignageCMS
Azure

OS

**Windows Embedded
Standard/Compact**

Medical Diagnosis Equipment

With many years of experience in the medical field, Advantech has worked with many different medical equipment manufactures on medical diagnostic equipment such as ophthalmic OCT systems, computer for endoscopy equipment, host PCs for surgical imaging, HMI for anesthesia machines, controllers for CT/MRI scanners and more.

Ultra Sound

Embedded Boards

SOM-5898 AIMB-585
7th Gen Intel Core i Performance
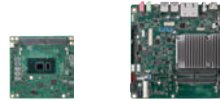
SOM-6898 AIMB-232
7th Gen Intel Core i Low Power

ROM-7421
NXP i.MX6 D/Q Plus

DICOM Compliant LCD
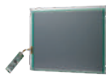
15" XGA Display
IDK-1115MD

19" SXGA Display
IDK-1119MD

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

**Windows Embedded Compact/
Windows Embedded Server**

OCT System

Embedded Boards

SOM-6898   AIMB-275
7th Gen Intel Core i

SOM-6869
Intel Atom E3900

MIO-3260
Intel Atom E3825

AIMB-217
Intel Atom x7-E3950

Industrial Grade Touch Panels

5.7" - 21.5"
IDK-1000 Series

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

Windows Embedded Standard/ Compact

Solution Highlights

· High performance processing　　· Compact & low power design　　· Reliable power & ESD design

MRI/CT Controller

Embedded Boards

Intel Atom E3900	Intel Atom E3900	Intel Atom E3950/E3940/E3930
SOM-6869	**SOM-3569**	**PCM-9366**

Industrial Grade Touch Panel

5.7" - 21.5"
IDK-1000 Series

Industrial Storage

2.5" SATA-SSD
SQF-S25 830

Security

McAfee Embedded Control

OS

Windows Embedded Standard/Compact

Operation Room

Controller for Surgical System

Embedded Boards

NXP ARM Cortex-A9 i.MX6	6th Gen Intel Xeon
ROM-5420	**AIMB-242**

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

QNX

Host PC for Surgical Imaging (OEC C-arm)

Embedded Boards

7th Gen Intel Core i	7th Gen Intel Core i
SOM-5898	**AIMB-275**

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

Windows Embedded Standard/ Compact

Healthcare Information Terminals

To deliver a modern healthcare service, advanced medical equipment is critical during treatment including dialysis machines, bedhead monitors, nursing carts, and automated dispensing machines, which are designed to decrease paper work and ease the workload for doctors and nurses. Embedded devices are required to be extensible, consume minimal power, and have strong graphic support and multiple interfaces to meet all needs.

Dialysis Machine

Bedhead Monitor and Nursing Cart

Automated Dispensing Machine

Solution Highlights

- Small form factor
- Low power design
- Longevity support
- IoT Software built-in: WISE-PaaS/RMM

Embedded Boards

Intel Atom E3900
SOM-3569

Intel Atom E8000
PCM-9310

TI AM3352 Cortex A8
ROM-3310

Intel Atom E3826
AIMB-115

Industrial Grade Touch Panel

5.7" - 21.5"
IDK-1000 Series

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

Windows Embedded Standard/ Compact

Embedded Boards

7th Gen Intel Core i
AIMB-232

7th Gen Intel Core i
SOM-6898

Intel Atom E3900
SOM-7569

Intel Atom E8000
PCM-9310

Intel Atom x7-E3950
AIMB-217

Industrial Grade Touch Panel

5.7" - 21.5"
IDK-1000 Series

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

Windows 10

Embedded Systems

Compact & I/O Expandable
ARK-1124

Embedded Boards

Intel Atom E3900
SOM-3569

Intel Atom E3825
MIO-2263

Intel Atom x7-E3950
AIMB-217

Industrial Grade Touch Panel

15"
IDK-1115P

15"
IDS-3115

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

OS

Windows Embedded Standard

Software Administration & Management

To accurately monitor the status of hospital environments, Advantech provides wireless sensor modules that can detect smoke, monitor air and water quality, humidity, and temperatures. All data will be securely backed up on Embedded Systems so the IT control room can analyze and quickly respond to sudden events.

Nurse Station Whiteboard

IT Control Room

Environment Monitoring System

Solution Highlights

- Remote player/ device management & upgrade
- Secured protection and backup
- Real-time emergency information

- IoT Software built-in: WISE-PaaS/RMM, WISE-PaaS/OTA, WISE-PaaS/SignageCMS, McAfee, Acronis

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Embedded Systems

OPS Design
DS-280

Low Power
EPC-R4760

Fanless Design
EPC-T1217

Industrial Display

Digital Signage Displays
**DSD-3000 Series
(32"-55")**

OS

**Windows Embedded Standard/
Compact/Windows 10**

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

IoT Device & Content Management

WISE-PaaS/RMM   WebAccess/SCADA
WISE-PaaS/SignageCMS

Embedded Systems

6 Display Support
DS-980

OS

**Windows Embedded Standard/
Compact/ Windows Embedded Server**

Industrial Storage

2.5" SATA-SSD
SQF-S25 830

IoT Device & Content Management

WISE-PaaS/RMM   WISE-PaaS/OTA   WISE-PaaS/SignageCMS
McAfee   Acronis

IoT Gateway Solutions

WiFi Network Gateway
WISE-3620

Mesh Network Gateway
WISE-3310

Industrial Storage

2.5" SATA-SSD
SQF-S25 640

Sensor Node Solutions

Low Power Wi-Fi
WISE-1520

Bluetooth
WISE-1530

Smart Mesh
WISE-1540

IoT Cloud Platform

WISE-PaaS/RMM   arm MBED

In-Ambulance Computers

Modern technologies are expanding the ways medical care can be delivered and they bring unparalleled efficiency. This is especially significant for emergency medical services (EMS), where seconds can make the difference between life and death. With the advancements in telecommunication bandwidth and real-time mobile technologies, ambulance-to-hospital emergency care systems can be developed to save even more lives.

Solution Highlights

- Diverse communications
- PoE connection
- Fully rugged design
- IoT Software built-in: WISE-PaaS/RMM, WISE-PaaS/VideoCMS

In-Ambulance Computers

Mobile NVR/DVR Platforms

Intel Atom E3825/E3845
ARK-2121V

4th Gen Intel Core i
ARK-2151V

6th Gen Intel Core i
ARK-2250V

Industrial Display Kit

7" WVGA/WSVGA kit with Touch Solution
IDK-1107WP

Wireless Modules

WiFi Module
EWM-W135H01E

3G Module
EWM-C109F601E

LTE Module
EWM-C117FL01E (USA)

LTE Module
EWM-C117FL02E (EU, APAC)

Industrial Storage

2.5" SATA-SSD
SQF-S25 830

IoT Device Management

WISE-PaaS/RMM   **WISE-PaaS/VideoCMS**

OS

Windows Embedded Standard

Successful Cases

Flexible Modules Enable Real-time Video for Ambulance Telemedicine

Ambulance Telemedicine makes it possible for a physician based at a hospital to treat a patient in an ambulance via video conferencing, they can evaluate the patient's vital signs as detected by in-vehicle sensors and can transmit real-time information to the hospital server in advance.

Challenges
An ambulance-based telemedicine system requires a high-performance IPC that can receive medical imaging and vital signs data from vehicle-based equipment, support wireless communication (Wi-Fi/3G/4G/others) for streaming data, and most importantly, implement video data processing that enables real-time video conferencing.

Solutions
For this ambulance application, Advantech suggested the use of an Advantech ARK- 2250L modular fanless computers combined with a MOS-4140H video iDoor module that provided an HDMI interface that allows the system to fetch data from a video camera to enable video conferencing with multiple displays onboard the vehicle.

- Optional I/O modules and ARK Plus expansion modules
- Reliable fanless/wide-voltage/wide-temperature/ lockable DC jack designs
- High-end computing and powerful video interface
- WISE-PaaS and SDK software tools for easier development and fast time-to-market

WISE-PaaS
Edge Intelligence Platform

ARK-2250L

MOS-4140H

Compact Design for Longevity Medical Device Development

With a growing ageing population, concerns are increasing about the number unexpected medical events and the quality of long-term care for patients, as well as assistance for medical professionals to perform efficiently. A wide range of medical devices from nursing carts to ultrasound machines are needed to help medical professionals provide timely and accurate diagnosis and care.

WISE-PaaS
Edge Intelligence Platform

ROM-7420

Challenges
More and more countries are expanding healthcare in their social welfare system boosted by the advancement of medical technologies like point-of-care diagnostics, robotics and pharmaceuticals. And as more and more countries face issues of an aging society, advanced medical technology can help fulfill the huge demands that are expected.

Solutions
Advantech introduces ROM-7420, a cost-effective Computer-on-Module (COM) based on advanced ARM technology and the open standard Qseven COM form factor which is compact in size and completely fanless. ROM-7420 have longevity support of up to 15 years so it's easy for them to become the computing core of a DNA analyzer or an ultrasound scanner.

- DDR3 1 GB/2 GB; 4 GB e.MMC Flash Memory
- Rich I/O for data transition
- Embedded Console Linux, Yocto Linux and Android

Successful Cases

Quality design for lightweight and durable mobile Nursing Cart

Nursing carts are lightweight and durable mobile trolleys for storing and transporting medication, and used by medical practitioners for emergency medical supplies, medication dispensing, and nursing education. The carts are designed to enhance patient care, as well as decrease paper work and ease the workload for nurses and other healthcare professionals.

Challenges

One of our medical field customers based in Europe wanted to enhance their nursing carts' reliability and quality for data processing and delivery. As the nursing carts needed to transfer critical data back to nursing stations instantly, WiFi signal strength and reliability was crucial. The customer was looking for a control board with high CPU computing and graphic performance, plus multiple extensions for WiFi/3G modules.

Solutions

AIMB-232 is equipped with an Intel Mobile UTL i3/i5/i7 processor, providing 3 independent displays up to 4K at 60Hz resolution. With 2 miniPCIe expansion slots onboard for WiFi/3G/LTE and storage, it was flexible enough for the customer's purposes. Advantech's WiFi or industrial grade mSATA/ SSD modules completed the configuration. The AIMB-232 THIN Mini- ITX motherboard has a 40-45% height reduced low profile I/O design and a compliant thermal solution, making ideal for portable medical applications in space restricted environments. AIMB-232 is tested and certified to ESD level 4, which provides the highest ESD protection to avoid surge damage.

- The latest Intel 7th & 6th generation Core™/Celeron ULT processors
- THIN mITX (under 22mm height)
- 2 Full-size miniPCIe expansion supported
- Triple display supports: HDMI, DP, LVDS/eDP
- ESD Level 4 protection

WISE-PaaS
Edge Intelligence Platform

AIMB-232

Ultra Slim Modular Panel PC for Medical Diagnostics

Surface area and pore size distribution analyzers offer a complete solution for determining the surfaces of solid materials and utilizing the well-established gas adsorption technique for measuring surface areas and porosity of solids. They are widely used in the medical field and provide single and multi-point surface area analysis, as well as multi-gas and full absorption capability.

Challenges

A surface area and pore size distribution analyzer needs to be a complete solution for reliable long term use. It needs to have a high MTBF and longevity support to ensure a long product life time, and an interactive interface is necessary to provide accurate control and ease of operation.

Solutions

Advantech provided this customer with an ultra slim modular panel PC solution which included ARK-1122—a slim embedded fanless system, and IDS-3115, a 15" open frame touch monitor powered with an Intel Atom N2600 processor. This combination fulfilled both computing and display needs and allowed the customer to build their system with flexibility in mind.

WISE-PaaS
Edge Intelligence Platform

- Palm-size form factor
- Friendly I/O ports and extension capability for peripherals.
- Wide operating temperature -20°C ~ 60°C support
- Supports WISE-PaaS/RMM and Embedded Software APIs

ARK-1122

- 15" 1024 x 768 XGA LCD panel with LED backlight
- 5-wire resistive touchscreen solution
- -20°C ~ 60°C operating temperature support
- Dual signal interface with VGA and DVI
- Combo touch interface of RS-232 and USB

IDS-3115

Highly Reliable & Rich Expansion Design for Nerve Monitor

A nerve integrity monitor is widely used in various procedures to transform laryngeal muscle activity into audible and visual electromyographic (EMG) signals. It enables surgeons to identify, confirm, and monitor motor nerve functions to help reduce the risk of nerve damage during surgical procedures.

Challenges

The challenge of this project comes from its small size and low power requirements, but still needing sufficient I/O interface variety and connectivity. Due to the mobility and stability requirements that call for multiple power delivery methods like battery and UPS, Pico-ITX was deemed the perfect, smallest, embedded form-factor with Intel Atom based Duo Core, or Quad Core processor for a balance of performance and power consumption. Furthermore, in hospital environments, it's very important for safety to protect both people and machines, and that includes a specific I/O isolation design.

Solutions

A Chinese medical equipment company was looking for a small size x86 SBC to integrate. Advantech offered their MIO-3360 2.5" Pico-ITX (MI/O-Ultra) Single Board Computer (SBC) based on the Intel Apollo Lake platform which satisfied all requirements and helped the customer meet their targets. MIO-3360 is designed on the small embedded Pico-ITX form-factor of only 100 x 72mm. Unlike a traditional coastline SBC design, all I/O interfaces are implemented as pin types making it flexible to place I/O anywhere in the chassis though cables or I/O boards. This kind of design also benefits from separating the computing unit and I/O board, so the customer can design isolation and safety requirements to meet their specific certifications. To achieve the fastest, real-time, most reliable performance, MIO-3360 provides a Yocto BSP for testing purposes.

MIO-3360

- Intel Pentium N4200, Celeron N3350, Atom E3900 series
- DDR3L-1866 up to 8GB
- 48b LVDS, VGA, DP optional
- mini-PCIe/mSATA, MIOe: PCIex4, onboard eMMC
- Windows 10, Linux, Yocto BSP support
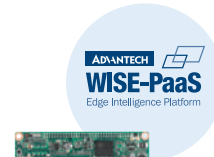
New Thermal Solution Empowers Ultrasound Devices

The design of ultrasound machines requires high-speed main boards with multi-bus signal acquisition channels that have to comply with the many regulations in the medical field. Most importantly, devices must work at normal temperatures to provide reliable operations.

SOM-5898

Challenges

Medical devices require high-performance boards which generate heat and cause thermal dissipation issues. This problem occurs when an integrated GPU design is used for HD output with a high performance CPU which generates substantial heat.

Solutions

Advantech SOM-5898 module is based on a COM Express Basic, Type 6 form factor which can provide high-performance signal processing and fully meets the design requirements for ultrasound devices. SOM-5898 has high processing performance and rich expansion interface features which help developers achieve flexible design requirements.

- 7th Gen Intel Core i7/i5/i3/Celeron + PCH QM175/CM238
- Dual channel DDR4 2400, Max 32GB (ECC optional)
- Supports three independent symmetrical displays (up to 4K)
- Flexible I/O support: Gen3 PEG and PCIe, USB3.0 and SATA3
- Supports iManager, WISE-PaaS/RMM and Embedded Software APIs

Embedded Boards

Industrial Motherboards

NEW NEW NEW

Mini-ITX

Model Name		AIMB-115	AIMB-215 B1	AIMB-217	AIMB-232	AIMB-242
Form Factor		UTX MB	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	Mini-ITX
Processor System	CPU	Intel ATOM E3826/ E3815	Intel Celeron J1900 / N2930 / N2807	Intel Pentium N4200/ Celeron N3350/ Atom x7-E3950	Intel core i7-6600u /i5-6300u / i3-6100u/celeron 3955u Intel core i7-7600u/i5-7300u/ i3-7100u/celereon 3965u	Intel core i7-6820EQ/ core i7-6822EQ/core i5-6440EQ/ Xeon E3-1515M v5
	Socket	FCBGA	FCBGA	FCBGA	BGA1356	BGA 1440
	Max. Speed	DC1.46GHz/ SC1.46GHz	QC 2.0 / 1.83 GHz; DC 1.58 GHz	QC 1.1/DC 1.1/QC 1.6 GHz	2.6GHz/2.4GHz/ 2.3Ghz/2Ghz	2.8GHz/2.0GHz/2.7GHz/2.8GHz
	TDP	7W/5W	10 / 7.5 / 4.3 W	6 W/6 W/12 W	15W/15W/15W/15W	45W/25W/45W/45W
	Front Side Bus	533/400MHz	-	-	-	-
	L2 Cache	1 MB	2 MB / 2 MB / 1 MB	2MB	-	-
	L3 Cache	-	-	-	4 MB/3 MB/3 MB/2 MB	8MB/8MB/6MB/8MB
	Chipset	-	-	-	-	Intel QM170/CM236
	BIOS	AMI EFI 16 Mbit, SPI	AMI EFI 16 Mbit, SPI	AMI EFI 128 Mbit, SPI	AMI uEFI 16 Mbit, SPI	AMI EFI 128 Mbit, SPI
Expansion Slot	M.2	-	-	1 (E Key)	-	1 (B Key)
	Mini PCIe	2	2	1	2	2
	PCIe	-	PCIE x1, 1 slot	PCIE x1, 1 slot	-	PCIe x16, 1 slot
Memory	Technology	Dual channel DDR3L 1333 MHz SDRAM	Dual / Dual / Single channel DDR3L 1333 MHz SDRAM	Dual channel DDR3L 1866 MHz SDRAM	Dual Channel DDR4 2133 MHz SDRAM	Dual channel DDR4 2133 MHz SDRAM
	Max. Capacity	8 GB	8 / 8 / 4 GB	8GB/ up to 8GB per DIMM	16GB	32GB/ up to 16GB per DIMM
	Socket	2 x 204-pin SODIMM	2 / 2 / 1 x 204-pin SODIMM	2 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics 520	Intel® HD Graphics 530/Intel® Iris™ Pro Graphics P580
	LCD	Dual channel 48-bit LVDS	Dual channel 48-bit LVDS	Dual channel 48-bit LVDS	Dual channel 48-bit LVDS	Dual channel 48-bit LVDS
	HDMI	2	-	1	1	1 (HDMI 2.0)
	DVI	-	-	-	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i210AT LAN2: Realtek RTL8111G	LAN1:Realtek RTL8111E LAN2:Realtek RTL8111E	LAN1: Realtek 8111G LAN2:Realtek 8111G	LAN1: Intel PHY i219-LM LAN2: Intel i211	LAN1: Intel PHY i219-LM LAN2: Intel i211AT (WG2: i210)
	Connector	RJ-45 x 2	RJ-45 x2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM		Yes	optional	Optional	Optional	Optional
SATA	Max Data Transfer Rate	300 MB/s	300 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	1	2	2	2	2
	eSATA/mSATA	-/1	-/1	-/1	-/1	-/1
Rear I/O	VGA/DVI/HDMI/DP	-/-/2/-	1/-/-/1	1/-/1/1	-/-/1/1	-/-/1/2
	Ethernet	2	2	2	2	2
	USB	3 (1 x USB 3.0; 2 x USB 2.0)	4 (1 x USB 3.0/3 x USB 2.0)	4 (USB 3.0)	4 (USB 3.0) 1 (USB 2.0)	8 (USB 3.0)
	Audio	Line-out	Line-out	Line-out	Mic-in, Line-out	Mic-in, Line-in, Line-out
	Serial	-	-	-	-	1
	PS/2	-	-	-	-	-
	DC Jack	1	1	1	1	-
Internal Connector	LVDS & Inverter	1	1	1	1	1
	DVI	-	-	-	-	-
	USB	-	4 (USB 2.0)	8 (USB 2.0), USB9/10/11/12 is optional	2 (USB 2.0) 2 (USB 3.0)	1 (USB 2.0)
	Serial	2 (1 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	2 (RS-232)	1 (RS-232/422/485)
	Parallel	-	-	-	-	-
	SATA	1	2	2	2	2
	CompactFlash	-	-	-	-/-	-/-
	GPIO	-	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO

Mini-ITX

Model Name		AIMB-275	AIMB-285
Form Factor		Mini-ITX	Mini-ITX
Processor System	CPU	Intel 7th & 6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel 7th & 6th Gen Core i7/ i5/ i3/ Pentium/Celeron
	Socket	LGA1151	LGA1151
	Max. Speed	3.6/3.3/2.4/3.4/3.2/ 2.8/2.6 GHz	3.6/3.3/2.4/3.4/3.2/ 2.8/2.6 GHz
	TDP	65W/54W/ 51W/ 35W	65W/54W/ 51W/ 35W
	Front Side Bus	-	-
	L2 Cache	-	-
	L3 Cache	8 MB/6 MB/4 MB/3 MB/2 MB	8 MB/6 MB/4 MB/3 MB/2 MB
	Chipset	Intel Q170/H110	Intel H110
	BIOS	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI
Expansion Slot	M.2	1 (B Key)	-
	Mini PCIe	1	2
	PCIe	PCIe x16, 1 slot	PCIe x 4
Memory	Technology	Dual Channel DDR4 2133/ 2400 MHz SDRAM	Dual Channel DDR4 2133/ 2400 MHz SDRAM
	Max. Capacity	32GB	32GB
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel® HD Graphics	Intel® HD Graphics
	LCD	Dual channel 48-bit LVDS	Dual channel 48-bit LVDS
	HDMI	1(HDMI 2.0)	1
	DVI	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel PHY i219-LM LAN2: Intel i211	LAN1: Realtek 8111G LAN2:Realtek 8111G
	Connector	RJ-45 x 2	RJ-45 x 2
TPM		Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s
	Channel	3	3
	eSATA/mSATA	-/1	-/1
Rear I/O	VGA/DVI/HDMI/DP	1/-/1/1	-/-/1/1
	Ethernet	2	2
	USB	4 (USB 3.0)	4 (USB 3.0)
	Audio	Mic-in, Line-out, Line-in	Mic-in, Line-out
	Serial	1 (RS-232)	-
	PS/2	-	-
	DC Jack	-	1
Internal Connector	LVDS & Inverter	1	1
	DVI	-	-
	USB	6 (2 USB 3.0, 4 USB 2.0)	4 (USB 2.0)
	Serial	1 (RS-232/422/485)	2 (1 x RS-232; 1 x RS-232/422/485
	Parallel	-	-
	SATA	3	3
	CompactFlash/ eMMC	-/-	-/-
	GPIO	8-bit GPIO	8-bit GPIO

MicroATX

Model Name		AIMB-585
Form Factor		Micro-ATX
Processor System	CPU	Intel Xeon/ 6th & 7th Gen Core i7/ i5/ i3/ Pentium/Celeron
	Socket	LGA1151
	max. speed	3.6/3.3/2.4/3.4/3.2/2.8/2.6 GHz
	TDP	80W / 65W / 51W / 35W
	L2 cache	-
	L3 cache	8 MB/6 MB/4 MB/ 3 MB/2 MB
	Chipset	Intel Q170/C236/H110
	BIOS	AMI EFI 128 Mbits,SPI
Expansion Slot	PCI	-
	PCIe x16	1
	PCIex8	1(L sku: 0)
	PCIe x4	1(L sku: 0)
	PCIe x1	1(L sku: 2)
Memory	Technology	Dual channel DDR4 2133/ 2400 MHz SDRAM
	Max. Capacity	64GB
	Socket	4x288- pin DIMM
Graphics	Controller	intel HD
	VRAM	Shared system memory up to 1 GB
	VGA	1 (onboard)
	LCD	-
	DVI-D	1
	HDMI	1
	DP/eDP	1/1
	Dual Display	DP++ + HDMI, DP++ + DVI-D, DP++ + eDP/ VGA, HDMI + DVI-D, HDMI + eDP/ VGA, eDP, VGA + DVI-D
	Triple Display	eDP/ VGA + DP++ + HDMI, eDP/ VGA + HDMI + DVI-D, DP++ + eDP/ VGA + DVI-D, DVI-D + DP++ + HDMI
Ethernet	Interface	10/100/1000 Mbps
	Controller	LAN1: Intel I219LM LAN2: Intel I211AT(WG2: I210)
	Connector	RJ-45 x2
TPM		Optional
SATA	Max Data Transfer	600 MB/s
	Channel	4 (SW RAID)
	eSATA/mSATA	-/1
EIDE	Mode	-
	Channel	-
I/O Interface	VGA	1 (on board, option)
	USB	2 (USB 2.0), 12 (USB 3.0)
	Serial	6 (5 x RS-232; 1 x RS-232/422/485)
	Parellel	-
	SIM Card Holder	-
	PS/2	1(onboard)
	Ethernet (GbE)	2
	IEEE 1394	-
	Audio	Mic-in, Line-out
	GPIO	16-bit

Single Board Computers

NEW

3.5" Single Board Computers

MI/O Extension 2.5" Pico-ITX

Model Name		PCM-9366	PCM-9310
Form Factor		3.5" SBC	3.5" SBC
Processor System	CPU	Intel Atom E3950/E3940/E3930, Intel Pentium N4200	Intel® Atom E8000, Intel Celeron N3160/N3060
	CPU TDP	6W/6W	6W/ 4.5W
	Frequency	2.5GHz/2.4GHz	1.6 GHz
	Core Number	4/1	4/ 2
	L2 Cache	2MB	2/ 1 MB
	BIOS	AMI EFI 16Mbit	AMI UEFI BIOS at 64 Mb
	Chipset	-	-
Memory	Technology	DDR3L-1866MHz	DDR3L-1600MHz
	Max. Capacity	8GB	8 GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM
	Onboard Memory	-	-
Display	Controller	Intel Gen9 graphic engine	Intel Celeron N3160/N3060
	Graphic Memory	Share with system memory up to 1792MB	-
	VGA	up to 1920x1200	1920 x 1200 at 60Hz
	LCD (TTL/LVDS/eDP)	up to 1920x1200	LVDS: Single/dual-ch 18/24bit up to 1920 x 1200 at 60Hz eDP: eDP 1.3 up to 2560x1440 (Optional)
	DDI (HDMI/DVI/DisplayPort)	HDMI 1.4a for HD video playback, 1080P at 60Hz	HDMI: 1.4b up to 2560x 1600 at 60Hz
	Multiple Display	VGA + LVDS * eDP + HDMI	VGA + HDMI + LVDS/eDP
Expansion Interface	Mini PCIe	1 x Full size	2x Full-size
	LPC	-	-
	SIM Socket	1	-
	SMBus	1	1 (shared with I2C)
	I2C Bus	1 (Shares with SMBus pin)	1 (shared with SMBus)
	PC/104	-	-
	PCI-104	-	-
	MIO-160	-	-
Ethernet	Controller	GbE1: Intel i210 GbE2: Intel i210	GbE1/2: RTL8111E
	Speed	10/100/1000Mbps	10/100/1000 Mbps
	Connector	RJ45 x 2	RJ45 x 2
Audio	Audio Interface	High Definition Audio	HD Audio
	CODEC	Realtek	Realtek
	Amplifier		-
	Connector	Line-in, Line-out, Mic-in	Line-in, line-out, mic-in
WatchDog Timer		-	-
Storage	SATA	1* SATAIII (Max. Data Transfer Rate up to 6.0 Gb/s)	1x SATAIII (up to 600 MB/s), 1x SATA II (optional, up to 300 MB/s)
	mSATA	1 x Full size	1x Full-size (support Mini PCIe by request)
	IDE	-	-
	CompactFlash	-	-
	Floppy	-	-
I/O	USB3.0	2	-
	USB2.0	4	4
	GPIO	16-bit general purpose input/output	8-bit GPIO
	LPT	-	-
	COM Port	2xRS-232, 2xRS-232/422/485 with RS-485 auto flow control	4 (2x RS-232, 2x RS 232/422/485)
	PS/2 KB/Mouse	-	-
	Reset Button	1	-
	Smart Fan	-	-
Power	Power Type	AT/ATX	Single 12V DC power input
	Power Supply Voltage	9-36V DC power input	12V ± 10%
	Connector	2x2P phenix power connector	ATX 2x2P (DC Jack Optional)
	Power Consumption (Idle)	N4200: 0.4A @ 12V (4.80W) N3350: 0.4A @ 12V (4.80W)	N31501.03A @ 12 V (12.27 W) N3060 0.85A @12 V (10.20 W) E8000 0.85A @ 12 V (10.20W)
	Power Consumption (Full Load)	N4200: 1.26A @ 12V (15.12W) N3350: 1.29 @ 12V (15.48W)	N3150 0.58 A @ 12 V (7.05 W) N3060 0.38 A @ 12 V (4.55 W) E8000 0.58A @ 12V (6.95W)
	Battery	Lithium 3 V / 210 mAH	Lithium 3V/ 210 mAH
Environment	Operational Temperature	(Operational humidity: 40 °C @ 95% RH Non-Condensing)	0~60 °C (32~140 °F) (Operational humidity: 40 °C @95% RH non-condensing)
Physical Characteristics	Dimensions (L x W x H)	146 x 102 mm (5.7" x 4")	146 x 102mm
	Construction	-	Aluminum with fanless design
Operating System	Microsoft Windows	Yes	Yes
	Linux	Yes	Yes
	SUSIAccess	Yes	Yes
	iManager	Yes	Yes
Certification	EMC	CE, FCC	CE, FCC

Model Name		MIO-2263	MIO-3260	MIO-3360
Form Factor		2.5" MI/O-Ultra (Pico-ITX)	2.5" MI/O-Ultra (Pico-ITX)	2.5" MI/O-Ultra (Pico-ITX)
Processor System	CPU	Intel Atom E3825/ Intel Celeron J1900	Intel Atom E3825/ Intel Celeron N2930	Intel® Pentium N4200/ Intel® Celeron N3350
	CPU TDP	6W/ 10W	6W/ 7.5W	6W
	Frequency	1.33 GHz/ 2.0(Turbo: 2.42) GHz	1.33 GHz/ 1.83(Turbo: 2.16) GHz	2.5GHz/2.4GHz
	Core Number	2/ 4	2/ 4	4/ 2
	L2 Cache	1 MB/ 2 MB	1 MB/ 2 MB	2MB
	L3 Cache	-	-	-
	BIOS	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit
	Chipset	-	-	-
Memory	Technology	DDR3L 1066/ 1333 MHz	DDR3L 1066/ 1333 MHz	DDR3L-1866MHz
	Max. Capacity	8 GB	8 GB	8 GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Controller	Intel Gen7 graphic engine	Intel Gen7 graphic engine	Intel Gen9 graphic engine
	Graphic Memory	Share with system memory up to 384 MB	Share with system memory up to 384 MB	Share with system memory up to 1792MB
	VGA	Up to 2560 x 1600 at 60Hz	Up to 2560 x 1600 at 60Hz	up to 1920x1200 at 60Hz
	LCD (TTL/LVDS/eDP)	LVDS 18/24-bit, up to 1440 x 900 at 60 Hz	LVDS 18/24-bit, up to 1440 x 900 at 60 Hz	48-bit, up to 1920 x 1200 at 60Hz
	DDI (HDMI/DVI/DisplayPort)	HDMI 1.4a 1920x1200 at 60 Hz/ 24bpp	-	DP (3840x2160@60Hz)/ HDMI 1.4b(3840x2160@30Hz)
	Multiple Display	VGA+LVDS, HDMI+LVDS	LVDS+VGA, LVDS+DP/HDMI, VGA+DP/HDMI	VGA+LVDS+MIOe
	Triple Display	-	-	-
Expansion Interface	Mini PCIe	1 x Half size	1 x Full-size	1 x Full-size
	SIM Socket	-	-	-
	SMBus	1	1 (from 64pin connector B)	1 (from 64pin connector B)
	I2C	-	1 (from 64pin connector B)	1 (from 64pin connector B)
	MIOe	2 x USB2.0, 2 PCIe x1, LPC, HD Audio line-out, DP or HDMI supported by request, 5 Vsb/12 Vsb power	SMBus, USB3.0, LPC, 2 x PCIe x1, Line out, DisplayPort/ HDMI*, +5 Vsb/+12 Vsb power, Power On, Reset	SMBus, USB3.0, LPC, 4 x PCIe x1, Line out, DisplayPort/ HDMI*, +5 Vsb/+12 Vsb power, Power On, Reset
	64-pin connector A	-	12V DC input, Inverter, VGA, 2 x USB2.0, 1GbE	12V DC input, Inverter, VGA, 2 x USB2.0
	64-pin connector B	-	SMBus, I2C, Power/Reset button, HDD/Power LED, 2 x USB2.0, 8-bit GPIO, HD Audio Line-in, Line out,Mic-in, 2 x RS-232/422/485	SMBus, I2C, 2 x USB2.0, 8-bit GPIO, HD Audio, Line-in, Line out, Mic-in, 2 x RS-232/422/485
Ethernet	Controller	Intel i210	Intel i210	Intel i210
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	Connector	RJ45	from 64pin connector A	from 64pin connector A
Audio	Audio Interface	High Definition Audio	High Definition Audio	High Definition Audio
	CODEC	Realtek ALC888S	Realtek	Realtek
	Amplifier	Optional via MIOe	Optional via MIOe	Optional via MIOe
	Connector	Line-in, Line-out	Line-in, Line out, Mic-in (from 64pin connector B)	Line-in, Line out, Mic-in (from 64pin connector B)
WatchDog Timer		255 levels timer interval, programmable by software	255 levels timer interval, programmable by software	255 levels timer interval, programmable by software
Storage	SATA	1, up to 3Gb/s (300 MB/s)	1, up to 3Gb/s (300 MB/s)	1, up to 6Gb/s (600 MB/s)
	mSATA	1	1 (Integrates USB signal, supports either mSATA or USB interface module)	1 (Integrates USB signal, supports either mSATA or USB interface module)
	CompactFlash	-	-	-
I/O	USB3.0	-	1 (from MIOe)	1 (from MIOe)
	USB2.0	3(1 from rear, 2 from internal)	4 (from internal)	4 (from internal)
	GPIO	8-bit general purpose input/output	8-bit GPIO (from 64-pin connector B)	8-bit GPIO (from 64-pin connector B)
	COM Port	1 x RS-232, 1 x RS-232/422/485 with RS-485 Auto-flow control	2 RS-232/422/485 (form 64-pin connector B)	2 RS-232/422/485 (form 64-pin connector B)
	Reset Button	1	1	1
	Fan	-	-	-
Power	Power Type	Single 12V DC power input	Single 12V DC power input	Single 12V DC power input
	Power Supply Voltage	single 12V input, ±10%	single 12V input, ±10%	single 12V input, ±10%
	Connector	ATX 1x2p, DC Jack (optional)	From 64pin connector A	From 64pin connector A
	Power Consumption (Idle)	J1900: 10.59W E3825: 7.08W	E3835: 4.47W N2930: 5.08W	N4200: 4.49W
	Power Consumption (Full Load)	J1900: 12.48W E3825: 9.12W	N2930: 5.08W, E3835: 7.13W, N2930: 9.73W	N4200: 17.38W
	Battery	Lithium 3 V/ 210 mA	Lithium 3 V/ 210 mA	Lithium 3 V / 210 mAH
Environment	Operational Temperature	0 ~ 60° C (32 ~ 140° F)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95 RH Non-Condensing)	0 ~ 60° C (32 ~ 140° F) (Operational humidity: 40° C @ 95% RH Non-Condensing)
Physical Characteristics	Dimensions (L x W x H)	100 x 72 mm (3.9" x 2.8")	100 x 72 mm (3.9" x 2.8")	100 x 72 mm (3.9" x 2.8")
Operating System	Microsoft Windows	Yes	Yes	Yes
	Linux	Yes	Yes	Yes
	SUSIAccess/ WISE-PaaS/RMM	Yes	Yes	Yes
	iManager	-	-	-
Certification	EMC	CE, FCC	CE, FCC	CE, FCC

Computer On Modules

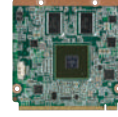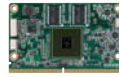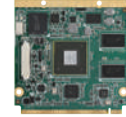| Model Name		SOM-5898	SOM-6898	SOM-6869	SOM-7569	SOM-3569
Form Factor		COM Express Basic	COM Express Compact	COM Express Compact	COM Express Mini	Qseven
Pin-out Type		COM R2.1 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R2.1 Type 10	QSeven 2.1
Processor System	CPU	7th Gen. Intel Core i7/i5/i3/Xeon	i7-7600U/i5-7300U/i3-7100U/Celeron3965U	Intel® Atom™ E3900 & Pentium® and Celeron® N Series Processors	Intel® Atom™ E3900 & Pentium® and Celeron® N Series Processors	Intel® Atom™ E3900 & Pentium® and Celeron® N Series Processors
	Base Frequency	3.0 - 2.1GHz	2.8 - 2.2GHz	1.6/1.6/1.3/1.1/1.1GHz	1.6/1.3/1.1GHz	1.6 - 1.1GHz
	Processor Core	4/2	2	4/4/2/4/2	4/2	4/2
	LLC	8/6/3MB	4/3/2 MB	2MB	2MB	2MB
	CPU TDP	45/35/25W	15W	12/9.5/6.5/6/6W	12/9/6W	6/9/12W
	Chipset	Intel QM175/CM238	Integrated PCH-LP	-	Integrated in CPU	-
Memory	Technology	DDR4 1866/2133/2400MHz	DDR4 2133	DDR3L 1866	One channel DDR3L 1866 MT/s	LPDDR4-2400
	ECC Support	non-ECC and ECC (Xeon SKU Only)	-	B1 version only	Support by default	-
	Max. Capacity	32GB	32GB	8GB	8GB	Up to 8GB
	Socket	2 x 260P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	Onboard DDR	Onboard
Graphics	Controller	Intel® HD Graphics	Intel® HD Graphics 620/610	Intel HD Graphics	Intel HD Graphics	Intel® HD Graphics
	Max. Frequency	1.05GHz ~ 350MHz	1.1GHz - 300MHz	550 - 750MHz	550-750MHz	550-750MHz
	VGA	1	1	1	-	-
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit BOM optional eDP	LVDS 2-CH 18/24-bit BOM optional eDP	LVDS 2-CH 18/24-bit BOM optional eDP	LVDS: Single-channel 18/24-bit, up to 1366 x 768 eDP: Up to 4096×2160 @ 60 Hz	Dual Channel 18/24-bit LVDS, up to 1920 x 1200
	DDI (HDMI/DVI/DisplayPort)	2 BOM optional 3	2 (DDI2 for option)	1 BOM optional 2	HDMI 1.4b: Upto 3840 x 2160 @ 30 Hz DP 1.2: Upto 4096×160 @ 60 Hz	1 DDI port supports HDMI/DP HDMI 1.4b: up to 3840 x 2160 @ 30Hz DP 1.2: up to 4096 x 2160 @ 60Hz
	SDVO	-	-	-	-	-
	TV-out	-	-	-	-	-
	Multiple Displays	Dual/Triple	Dual/Triple	Triple	Dual	Dual Display
Expansion	PCIe x16	1 (x16, x8, x4)	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x1	8 (x4, x2, x1)	4PClex1, 1PClex4; 5PClex1 (Optional)	4 (Optional 5)	4 PClex1, 1PClex4 (optional)	4 PClex1
	PCI Masters	-	-	-	-	-
	ISA Bus	-	-	-	-	-
	LPC	1	1 (24MHz)	1	Yes	1
Serial Bus	SMBus	1	1	1	Yes	1
	I2C Bus	1	1	1	Yes	1
	CAN Bus	1 (optional)	-	1 Optional	Optional	1
Ethernet	Controller	Intel I219LM	Intel I219LM	Intel I210	Intel I210IT/I210AT	Intel I210IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
I/O	SATA	4	2 (3 for optioanl)	2	2 Ports, Support Gen 1(1.5 Gb/s) or Gen2 (3 Gb/s) and Gen3.1 (6Gb/s)	2 Ports, Support Gen3.1 (6Gb/s) and Gen2 (3 Gb/s) or Gen 1(1.5 Gb/s)
	PATA Channel	-	-	-	-	-
	USB3.0	4	4	2	2	1 Port (up to 2 Ports by BOM option)
	USB2.0	8	8	8	8	8 Ports
	Audio	HD Audio	HD Audio	HD Audio	Intel® HD Audio	HD Audio
	SPI Bus	1	1	-	Yes	Support SPI BIOS EEPROM
	GPIO	8	8	-	8-bit GPIO	-
	SDIO (GPIO pin shared)	-	-	-	Optional	Support SD 3.0
	Watchdog	1	1	1	65536 level, 0 ~ 65535 sec	65536 level, 0 ~ 65535 sec
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 Ports (2-Wire)	4-wire COM 2 Ports; optional mux with GPIO 8-bit
	LPT/FDD	-	-	-	-	-
	PS/2	-	-	-	-	-
	IR	-	-	-	-	-
	Onboard Storage	-	eMMC (optional)	-	Up to 64GB eMMC 5.0 interface	eMMC5.0, 4GB to 64GB
	TPM	TPM 2.0	TPM2.0	TPM2.0	TPM2.0 (B1 version only)	Yes
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX, AT	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 8.5-20V VSB: 4.75-5.25V RTC Battery: 2.0-3.3V	Vin: 4.75-20V, VSB: 4.75-5.25V RTC Battery: 2.0-3.3V	Vin: 4.75-20V, VSB: 4.75-5.25V RTC Battery: 2.0-3.3V	Vin: 4.75-20V, VSB: 4.75-5.25V RTC Battery: 2.0-3.3V	Vin: 5V±5%, VSB: 5V±5%, RTC Battery: 2.0-3.3V
	Power Consumption Max. (burn-in)	48.05 W	21.69W	14.76W (N4200)	12.886 W (N4200), 11.999 W (N3350)	11.73 W (N4200)
	Power Consumption Idle	6.8W	3.28W	4.46W (N4200)	2.555 W (N4200), 2.783 W (N3350)	4.43 W (N4200)
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp. (Optional)	-40 ~85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~85 °C (-40 ~ 185 °F)	-40 ~85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	125 x 95mm (4.92" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	84 x 55 mm (3.3" x 2.17")	70 x 70 mm (2.75" x 2.75")

Embedded Boards

RISC Computing Solutions

Computer-on-Modules

NEW

NEW

Model Name		ROM-3310	ROM-5420 B1	ROM-7420	ROM-7421
Form Factor		RTX V2.0	SMARC V1.1	Qseven V1.2	Qseven V2.0
Processor System	CPU	TI AM3352 Cortex-A8 1 GHz	NXP ARM Cortex-A9 i.MX6 1 GHz	NXP ARM Cortex-A9 i.MX6 1 GHz	NXP ARM Cortex-A9 i.MX6 Plus 1 GHz
Memory	Technology	DDR3 800 MHz	DDR3 1066 MHz	DDR3 1066 MHz	DDR3 1066 MHz
	Capacity	On-board DDR3 512 MB	On-board DDR3 1 GB	On-board DDR3 1 GB	On-board DDR3 1 GB/ 2 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	-	1 Single 24-bit LVDS, 1366 x 768 at 60Hz	2 24-bit LVDS, 1366 x 768 for 1ch; 1920x1080 for 2ch at 60Hz	2 24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz
	HDMI	-	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz
	Parallel RGB	1 24-bit TTL, 1366 x 768 at 60Hz	1 24-bit TTL, 1920 x 1200 at 60Hz	-	-
	VGA	-	-	1920x1080 at 60Hz	-
	Graphics Engine	Direct3D Mobile, OGL-ES 1.1 and 2.0,OpenVG 1.0, and OpenMax	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	2 IPUs. OpenGL ES 3.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	-	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	TI AM3352 Integrated RGMII	NXP i.MX6 integrated RGMII	NXP i.MX6 integrated RGMII	NXP i.MX6 Plus integrated RGMII
	Speed	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
RTC		Yes	Yes	Yes	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s	256-level timer interval, from 0 ~ 128 sec	256-level timer interval, from 0 ~ 128 sec	1~6553s, default 60s, power on/off 1s
I/O	PCIe	-	1 PCIe x 1	1 PCIe x 1	1 PCIe x 1
	SATA	-	1 SATA II	1 SATA II	1 SATA II
	USB	1 USB 2.0, 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG	4 USB 2.0 (1 USB OTG)
	Audio	I2S	I2S	I2S	I2S
	SPDIF	-	1	-	-
	SDIO	1	1	1	1
	Serial Port	4 UART (1 x 4 wire, 3 x 2 wire w/ 3.3V)	4 UART (2 x 2 wire, 2 x 4 wire w/ 3.3V)	4 UART (4 x 2 wire w/ 3.3V)	2 UART (2 x 4 wire w/ 3.3V)
	SPI	1	4	1	1
	CAN	2 x CAN bus 2.0 A/B	2 x CAN bus 2.0 A/B	2 x CAN bus 2.0 A/B	1 x CAN bus 2.0 A/B
	GPIO	10	12	8	8
	I2C	1	5	3	2
	Camera Input	-	1 MIPI v1.0, 4 x Lane	-	-
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	PWM	-	-	-	-
Power	Power Supply Voltage	5 ~ 24 V	3 ~ 5.25 V	5 V	5V
	Power Consumption	2.11W (Max)	3.4W (Max)	3.4W (Max)	4W (Max)
Environment	Operational Temperature	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	0~60 °C / -40~85 °C
	Operating Humidity	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing	5%~95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	68 x 68 mm	82 x 50 mm	70 x 70 mm	70 x 70 mm
Operating System		Linux	Linux Android	Linux Android	Linux Andorid
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Embedded Systems

Fanless Embedded Computers

Multiple I/O Series

NEW *NEW* *NEW*

Model Name		ARK-1122H ARK-1122HS	ARK-1122C	ARK-1124U	ARK-2230L	ARK-2250L
Processor System	CPU	Intel Atom N2600	Intel Atom N2600	Intel Celeron N3350 Dual Core SoC	Intel J1900	Intel i7-6600U Intel i5-6300U Intel i3-6100U
	Frequency	1.6 GHz	1.6 GHz	1.1GHz, turbo burst 2.4 GHz	2.0GHz	2.6/2.4/2.3GHz
	Core Number	2	2	2	4	2/2/2
	BIOS	AMI EFI 16Mbit	AMI EFI 16Mbit	AMI EFI 64 Mbit	AMI EFI 64Mbit	AMI UEFI 128 Mbit
	Chipset	Intel NM10	Intel NM10	-	-	-
Memory	Technology	DDR3 800MHz	DDR3 800MHz	DDR3L 1866 MHz	DDR3L 1333MHz	DDR3L 1600MHz
	Max. Capacity	4 GB	4 GB	8GB	8GB	16GB
	Socket	1 x 204-pin SODIMM/ 2GB Built-In (HS SKU)	1 x 204-pin SODIMM	1 x 204-pin SO-DIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Graphic Engine			-	DirectX 11.1, OCL 1.2 and OGL 3.2	DirectX 11.3, OpenGL 4.4, and OpenCL 2.1
	VGA	Up to 1920 x 1200	Up to 1920 x 1200	1 x VGA Up to 2048 x 1280	Up to 2048 x 1152	Up to 1920 x 1200
	LCD (TTL/LVDS/eDP)	-	-	-	-	-
	DDI (HDMI/DVI/ DisplayPort)	Lockable HDMI: 1920 x 1200, lockable supported	-	-	HDMI 1.4a for HD video playback, 1080P at 60Hz	HDMI 1.4a for HD video playback, 4096 x 2160 @ 24Hz
	Multiple Display	Dual	-	-	Dual	VGA+HDMI (Option triple display)
Expansion Interface	Mini PCIe	1 x Half-size Mini PCIe	1 x Half-size Mini PCIe	1 x Full-size Mini PCIe 1 x M.2 E Key	1 x Full-size Mini PCIe	2 x Full-size Mini PCIe
	SIM Socket	-	-	1	1	1
	ARK Plus	-	-	AMO-110	AMO-2000 series	AMO-2000 series
	iDoor	-	-	Yes	Yes	Yes
Ethernet	Controller	GbE1: Intel 82583V, support wake on LAN	GbE1: Intel 82583V, support wake on LAN	GbE1: Intel i210 GbE GbE2: Intel i210 GbE	GbE1: Intel I-210IT GbE2: Intel I-210IT	GbE1: Intel I219-LM GbE2: Intel I-210IT
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Audio	Audio Interface	HD Audio	-	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC892	-	Realtek ALC888S	Realtek ALC888	Realtek ALC888
	Connector	2 (Line-in, Line out)	-	2 (Line in, line out)	3 (Line-in, Line out, Mic-in)	2 (Line-out, Mic-in)
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	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)	1 x 2.5" SATAIII HDD bay	1 x 2.5" SATA HDD bay	1 x 2.5" SATA HDD bay
	mSATA	1 x Full Size mSATA	1 x Full Size mSATA	-	1	1x Full size mSATA
	CompactFlash/Cfast/ SD card	-	-	-	-	-
I/O	USB3.0	-	-	4	1	4
	USB2.0	4	4 (Standard)or 2 (Option 2.5" drive bay version)	0	4	2
	GPIO	-	-	-	1 x 8 bit DIO	1 x 8 bit DIO
	COM Port	1 (1 x RS-232)	4 (2 x RS-232, 2 x RS-232/ 422/485, selected by BIOS)	2 (2 x RS232/ 422/ 485)	4 (2 x RS232,2 x RS232/422/485)	4 (4 x RS232/ 422/ 485)
Power	Power Type	ATX	ATX	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	12 VDC, ± 10%	12 VDC, ± 10%	12 VDC (Option 12-24 VDC)	12 VDC (Option 9-36 VDC)	12 VDC (Option 9-36 VDC)
	Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle)	6.89W	5.4W	5W	7.3W	7.96W/ 7.8W/ 6.92W
	Power Consumption (Full Load)	11.45W	9.47W	33.7W	13.3W	43.28W/ 42.8W/ 41.72W
	Power Adaptor	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W	AC to DC, DC12V/5A, 60W	AC to DC, DC12V/5A, 60W (Optional)	AC to DC, DC12V/5A, 60W (Option)
Environment	Operating Temperature (air flow 0.7 m/sec)	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	-20 ~ 60 °C	-20 ~ 60 °C	-20 ~ 60 °C
	Non-operating Temperature	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing	-40~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration Resistance	With SSD/mSATA: 3Grms	With SSD/mSATA: 3Grm	With SSD: 3 Grms	With SSD: 3 Grms	With SSD: 3 Grms
	Shock Protection	With SSD/mSATA: 30G	With SSD/mSATA: 30G	With SSD: 30 G	With SSD: 30 G	With SSD: 30 G
Physical Characteristics	Dimensions (WxHxD)	133.8 x 43.1 x 94.2 mm	133.8 x 43.1 x 94.2 mm	133 x 46.4 x 94.2 mm	260 x 44 x 140.2 mm	260 x 54 x 140.2 mm
	Weight	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)	1.1 kg (2.42lb)	2.3 kg (5.07lb)	2.3 kg (5.07lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Wall/VESA/DIN-rail mounting (Optional)	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
Operating System	Microsoft Windows	Yes (Windows 7 Pro 32bit, WES7 32bit, XP Embedded, XP Embedded by project support); WES7E Built-In HS SKU	Yes (Windows 7 Pro 32bit, WES7 32bit, XP Embedded (XP Embedded by project support)	Yes (Windows 10)	Yes (Windows 10, WES8, Windows 8, WES7, Windows 7)	Yes (Windows 10, Windows 8.1, WES7, Windows 7)
	Linux	NA	NA	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	WISE-PaaS/RMM	Yes	Yes	Yes	Yes	Yes
	SUSI API	-	-	-	Yes	Yes
	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 B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI, KC	CB, UL, CCC, BSMI	UL, CCC, BSMI, KC	UL, CCC, BSMI

Embedded Systems

Fanless Embedded Computers

NEW

Model Name		ARK-2121V	ARK-2151V	ARK-2250V
Processor System	CPU	Intel Atom E3825/E3845	4th Gen Intel Celeron 2980U/Core i5-4300U	6th Gen Intel Core i5-6442EQ/i7-6822EQ
	Frequency	1.33 GHz / 1.91 GHz	1.6 GHz / 1.9 GHz	1.9GHz/2.0GHz
	Core Number	2/4	2	4
	BIOS	AMI EFI 64 Mbit	AMI EFI 128 Mbit	AMI UEFI 128Mbit
	Chipset	Intel Atom E3825/E3845	4th Gen Intel Celeron 2980U/Core i5-4300U	QM170
Memory	Technology	DDR3L 1066/1333 MHz	DDR3L 1333/1600 MHz	DDR4 2133MHz
	Max. Capacity	8 GB	8 GB	32G
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	2 x 260-pin SODIMM
Display	VGA	1 (up to 1600 x 1200)	1 (up to 1920 x 1200)	1 (up to 1920 x 1200)
	LCD (TTL/LVDS/eDP)	LVDS optional	LVDS optional	-
	DDI (HDMI/DVI/DisplayPort)	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4K at 24 Hz	1 x lockable HDMI, up to 1080P
	Multiple Display	Dual	Dual	Dual
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders
	SIM socket	2	2	2 (accessible)
Other	GPS	Support GPS, GLONASS, GALILEO and QZSS signals	Support GPS, GLONASS, GALILEO and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals
	G-Sensor	Yes	Yes	Yes
	PoE	4 x 10/100 Mbps PoE (E3845)	4 x 10/100 Mbps PoE (4300U)	Optional in 2nd stack: 4/8 x GbE PoE+
	CANBus	optional	optional	optional
Ethernet	Controller	GbE 1 : Intel I210-IT GbE 2 : Intel I210-IT	GbE 1 : Intel I218 GbE 2 : Intel I210-IT	GbE 1 : Intel I210-IT GbE 2 : Intel I219
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)
	3G Voice	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	-
WatchDog Timer		Yes	Yes	Yes
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in 2nd stack
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	1	2	3
	USB2.0	3	2	-
	GPIO	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	4x DI & 4x DO with isolation
	COM Port	2 x RS-232/422/485 + 2 x isolated RS-232/422/485 (E3825)	2 x RS-232/422/485 + 2 x isolated RS-232/422/485 (2980U)	3 x RS-232/422/485
	LAN	2 x RJ45	2 x RJ45	2 x RJ45
Power	Power Supply Voltage	9 ~ 36 VDC w/power ignition management	9 ~ 36 VDC w/power ignition management	12/24 VDC w/power ignition management
	Connector	3-pin Phoenix	3-pin Phoenix	5-pin Phoenix
	Power Adaptor	AC to DC, 19 VDC, 120W	AC to DC, 19 VDC, 120W	AC to DC, 24Vdc, 150W
	Regulation	ISO 7637-2 lev.4	ISO 7637-2 lev.4	ISO 7637-2 Lev.4
Environment	Operating Temperature (air flow 0.7 m/sec)	-30~70 °C / -30~60 °C	-20~60 °C	-20~60 °C
	Vibration Resistance	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G
	Shock Protection	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G
Physical Characteristics	Dimensions (W x H x D)	264.5 x 69.2 x 133.0 mm	264.5 x 75.1 x 133.0 mm	260 x 67 x 160 mm (260 x 93.6 x 160 mm with 2nd stack)
Operating System	Microsoft Windows	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)	Yes (Win7, 8, 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	SUSIAccess	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	UL, CCC, BSMI, CB, E-Mark	UL, CCC, BSMI, CB, E-Mark	CB, UL, CCC, BSMI, E-Mark

Embedded PCs

NEW

Model Name		EPC-R4760	EPC-S101	EPC-T1215	EPC-T1217	EPC-T2285
Barebone system	Description	ARM based Fan-less Barebone System	Fanless barebone w/ memory adoption	Fan-base / Fanless barebone, w/ adapter, w/o HDD, memory	Fanless barebone, w/ adapter, w/o SSD, memory	Fan-base barebone, w/ adapter, w/o HDD, memory
Processor System	Compatible Motherboard	RSB-4760	PCM-9310	AIMB-215D-S6B1E	AIMB-217D-S6A1E	AIMB-285G2-00A1E
	Thermal solution	Fanless	Fanless	1x chassis fan (4cm/23.8CFM)/ Fanless	Fan-less	2x chassis fan (4cm/23.8CFM)
	CPU	Qualcomm Snapdragon™ 410 APQ8016 ARM Cortex-A53 1.2 GHz	Intel Celeron N3160/N3060, Atom x5-E8000	Intel® Bay Trail Quad core Celeron™ J1900 (on board)	Intel Pentium N4200 (on board)	Intel® 6th Gen Core™ i processor (LGA1151)
	BIOS	Advantech boot loader	AMI UEFI 64Mb SPI	AMI 16 Mbit SPI	AMI 128 Mbit SPI	AMI EFI 128 Mbit, SPI
Memory	Socket	On-board	1 x 204-pin SODIMM	2 x 204 PIN DDR3 SODIMM (Non-ECC)	2 x 204-pin SO-DIMM (Non-ECC)	2 x 260 PIN DDR4 SO-DIMM (Non-ECC)
	Technology	DDR3L 1066MHz	DDR3L-1600	DDR3L 1066/1333 MHz SDRAM	Dual channel DDR3L 1866 MHz SDRAM	Dual Channel DDR4 2133 MHz SDRAM
	Max. Capacity	1GB	Default 2GB adopted, up to 8GB	8 GB/up to 4 GB per SODIMM	8 GB/8 GB per SO-DIMM	32 GB/up to 16 GB per SODIMM
Graphics	Chipset integrated	Adreno™ 306 GPU	Intel Gen8LP	Integrated Intel HD Graphics	Intel Gen 9 Graphics Engines and media encode/decode engine	Intel® HD Graphics, Supports OpenGL 5.x, DirectX12, OpenCL 2.X
Storage	2.5" HDD bay	8GB eMMC NAND Flash for O.S. 4MB SPI NOR Flash for ADV.	Room for 1 x 2.5" SSD, max. 9.5mm height	1 (support 2.5" HDD/SSD, max 9.5 mm height)	1 (support 2.5" SSD, max 9.5 mm height)	1 (support 2.5" HDD/SSD, max 9.5 mm height)
	mSATA Slot	-	Full size SATAIII (opt. mPCIe)	1 (share w/ full size Mini-PCIe slot)	1 (share w/ full size Mini-PCIe slot)	1+1 (Full-size, Half-size)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	Microchip LAN7500	LAN1: Realtek RTL8111E LAN2: Realtek RTL8111E	LAN1: Realtek RTL8111E LAN2: Realtek 8111G	LAN1: Realtek 8111G LAN2: Realtek 8111G	LAN1: Realtek RTL8111G LAN2: Realtek RTL8111G
	Connector	RJ45	RJ-45 x 2	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)
Audio	Codec	PM8916	Realtek ALC892	Realtek ALC892, High Definition Audio (HD)	Realtek ALC888S, High Definition Audio (HD)	Realtek ALC892, High Definition Audio (HD)
Internal expansion Slot	Mini-PCIe	1 x Full-size	Full size PCIe Gen2 (opt. 2 slots)	1+1 (Full-size, Half-size)	1 (Full-size)	1+1 (Full-size, Half-size)
	M.2	1 x M.2 Key E slot	1	-	1 x M.2 Key E slot (2230)	-
	SIM slot	1	1	1	1	1
	SD slot	1 x SD slot	-	-	-	-
Front Panel	DP++	-	-	-	-	-
	DP/HDMI	1 x HDMI	HDMI 1.4b up to 2560 x 1600	-	-	-
	VGA	-	1	-	-	-
	DVI	-	-	-	-	-
	COM	1 x 4 wires RS-232/422/485	-	5 (RS-232)	5 (4 x RS-232, 1 x RS232/422/485, 1 support 5V/12V)	2 (1x RS-232/422/485, 1 x RS-232/422/485 with 5V/12V)
	LAN	1	2	-	-	-
	USB	2 USB 2.0	4 (USB2.0 x 2, USB3.0 x 2)	4 (USB2.0)	4 (USB2.0; optional)	4 (USB2.0)
	Audio Jack	-	-	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In)
	Antenna (optional)	2 x antenna hole	up to 1	up to 2	up to 2	up to 2
Rear Panel/ Side Panel	DP++	-	-	1	-	1
	DP/HDMI	-	-	-	1/1	1 (HDMI 1.4)
	VGA	-	-	1	1	-
	DVI	-	-	-	-	-
	COM	-	4 (2 x RS-232, 2 x RS-232/422/485)	1 (RS-232)	1 (RS232)	-
	LAN	-	-	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)
	USB	2 USB 2.0	2 (USB2.0)	1 (USB3.0); 3 (USB2.0)	4 (USB3.0)	4 (USB3.0)
	Audio Jack	-	Line-in, Line-out, Mic-in	1 (Line-Out)	1 (line out)	2 (Line-Out, Mic-in)
	GPIO	-	8-bit	8 bit	8 bit	8 bit
	Antenna (optional)	3 x antenna hole	up to 1	up to 2	up to 2	up to 2
Miscellaneous	LED Indicators	2 (Power LED, WLAN LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)
	Switch	NA	1 (Power Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)
	Circular Cutouts	-	1	-	-	1(Reserved for LVDS cable)
Mounting		Wall mount	Desk mount, VESA mount, DIN rail	Wall mount, VESA mount, Rack mount ,DIN rail	Wall mount, VESA mount, Rack mount ,DIN rail	Wall mount, VESA mount, Rack mount,DIN rail
Power Requirements	Power Voltage	9-36V	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Power Input Type (Inlet)	DC-in	Phoenix DC plug-in	2.5Ø DC jack	2.5Ø DC jack	2.5Ø DC jack
	Consumption	TBD	4.5W (idle with Celeron N3060)	10.17W (idle with Intel Celeron J1900)	TBD	TBD
Environment	Operating Temperature	0 ~ 40 °C	0 ~ 50 °C (32 ~ 122 °F)	Fan-base: 0 ~ 50 °C (32 ~ 122 °F) Fanless: 0 ~ 40 °C (32 ~ 104 °F)	Fanless: 0~45 °C	HDD: 0 ~ 45 °C (32 ~ 113 °F) SSD: 0 ~ 50 °C (32 ~ 122 °F)
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	Humidity	5 ~ 95% Relative Humidity, non-condensing	Operating: 40 °C @ 95% RH, non-condensing Storage: 60 °C @ 95% RH, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 3.0Grms IEC60068-2-6 sinusoidal 2.0G	1 Grms (HDD x 1); 3 Grms (SSD x 1)	3 Grms (SSD x 1)	1 Grms (HDD x 1); 3 Grms (SSD x 1)
	Shock	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 30G/11ms	-	-	-
Certification		CE/FCC Class B CB/UL/CCC/BSMI	CE/FCC Class B CB/UL/CCC/BSMI	CE, FCC, CCC	CE, FCC	CE/FCC/CCC
Physical Characteristics	Dimensions (W x H x D)	188 x 150 x 39 mm	188 x 39 x 150 mm	250 x 43 x 210 mm (9.84" x 1.69" x 8.27")	250 x 43 x 210 mm (9.84" x 1.69" x 8.27")	250 x 44.2 x 225 mm (9.84" x 1.74" x 8.85")
	Weight	1.2KG	0.95kg	3.1kg	3.1kg	3.68kg

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Embedded Systems

Digital Signage Solutions

Ultra Slim Series   Multi-Display Series   OPS Series

Model Name		DS-370	DS-081	DS-570	DS-980	DS-280
Processor System	CPU	Intel Celeron J1900	Intel Core i5-6300U Intel Core i5-6200U Intel Core i3-6100U	Intel Celeron J1900	Intel Core i7-6700TE Intel Core i5-6500TE Intel Core i3-6100TE	Intel Core i7-6822EQ Intel Core i5-7442EQ Intel Core i5-6442EQ Intel Core i3-7102EQ Intel Core i3-6102EQ
	BIOS	AMI uEFI 64 Mbit	AMI uEFI 128 Mbit	AMI uEFI 64 Mbit	AMI uEFI 128 Mbit	AMI uEFI 128 Mbit
	Chipset	Integrated in CPU	Integrated in CPU	Integrated in CPU	Intel Q170	Intel QM170
Memory	Technology	DDR3L 1333MHz	DDR4 2133MHz	DDR3L 1333MHz	DDR4 2133MHz	DDR4 2133MHz
	Max. Capacity	8GB (4GB per SODIMM)	32GB (16GB per SO-DIMM)	8GB (4GB per SODIMM)	32GB (16GB per SODIMM)	32GB (16GB per SODIMM)
	Socket	2 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Display	Controller	CPU Integrated	CPU Integrated	NVIDIA GeForce GT730M	CPU Integrated	CPU Integrated
	Graphic Engine	Intel HD Graphics	Intel HD Graphics 520	-	Intel HD Graphics 530	Intel HD Graphics 630/530
	Graphic Memory	Shared system memory	Shared system memory	1 GB (On board memory)	Shared system memory	Shared system memory
	Multiple Display	Dual	Dual	Four	Triple+ (up to six with graphic card)	Triple
	Interface	HDMI x 1, DP+ + x1, VGA x1	HDMI 1.4 x 2	HDMI 1.4 x 2, DP++ x 1, VGA x 1	HDMI 2.0 x 1, HDMI 1.4 x2	JAE TX25 80-pin x 1, HDMI 2.0 x1, DP x1
	Max. Resolution	2048 x 1280 @ 60Hz	4096 x 2304 @ 24Hz	3840 x 2160 @ 30Hz	4096 x 2160 @ 60Hz	4096 x 2304 @ 60Hz
Expansion Interface	M.2	-	-	-	1 (2230 E key)	-
	Mini PCIe	2	1	2	1	1
	PCIe x16	-	-	-	1	-
Ethernet	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Audio	Connector	2 (SPDIF/ Line-out, Mic-in), supports Jack Sense	1 (SPDIF/ Line-out/ Mic-in), supports Jack Sense	2 (SPDIF/ Line-out, Mic-in), supports Jack Sense	2 (SPDIF/ Line-out, Mic-in), supports Jack Sense	1 (Line-out), supports Jack Sense
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5"SATA II HDD/SSD	1 x 2.5" SATA III HDD/SSD	1 x 2.5" SATA II HDD/ SSD	1 x 2.5" SATA III HDD/ SSD (top); 1 x 2.5" SATA III SSD (bottom), supports RAID 0/1	1 x 2.5" SATA III HDD/ SSD
	mSATA	Yes, colay Mini PCIe	Yes, colay Mini PCIe	Yes, colay Mini PCIe	Yes, colay Mini PCIe	Yes, colay Mini PCIe
I/O	USB3.0	1	4	1	4	3
	USB2.0	3	-	3	2	-
	COM Port	2 (RS-232)	1 x RS-232	2 (RS-232) or 1 (RS-232/422/485) + 1 (RS-232) (by option)	1 (RS-232)/ 2 (RS-485 & 422 with extension cable)	-
Power	Power Supply	DC 19V input	DC 19V input	DC 19V input	DC 12V input	DC 12V-19V input (via OPS connector)
Environment	Operational Temperature	0 ~ 40°C (32 ~ 104 °F) (w / HDD) 0 ~ 50°C (32 ~ 122 °F) (w/SSD), with 0.7m/s air flow	0 ~ 40°C (32 ~ 104°F) (w / HDD) with 0.7m/s air flow	0 ~ 40°C (32 ~ 104 °F) (w/ HDD) 0 ~ 65°C (32 ~149°F) (w/ SSD) with 0.7m/s air flow	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~104°F) (w/ HDD); 0 ~ 50°C (32 ~122°F) (w/ SSD)
Physical Characteristics	Dimensions (L x W x H)	204 x 118.2 x 44.2 mm	180 x 190 x 19 mm	220 x 150 x 44.2 mm	267.6 x 205 x 88 mm	200 x 119 x 30 mm
Operating System		Microsoft Windows, Linux (Option)	Microsoft Windows, Linux (Option)	Microsoft Windows, Linux (Option)	Microsoft Windows, Linux (Option)	Microsoft Windows, Linux (Option)
Certifications	EMC	CE, FCC Class B, CCC, C-Tick, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI
	Safety	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI, LVD	UL, CB, CCC, BSMI	UL, CB, CCC

WISE-PaaS/SignageCMS
Multimedia Management Software

Media Type	Image, Video, Scrolling Text, Bulletin Board, Time, Flash, PowerPoint, Webpage
Program Management	Customize Program Layouts, Program Preview, Urgent Cast
Output	HD/Full HD Output, Portrait/Landscape Display, Multi-screen Output, Audio Output
Schedule Management	Daily/Weekly/Monthly Schedule, Appointment Dispatch, Dispatch Records
Remote Player Management	Unlimited Multipoint Dispatching, Player Group Setting Remote Power on/off (Intel AMT), Remote Software Upgrade, Auto Shutdown Setting, Hardware Monitoring, Software Monitoring, Screenshot Real-time Monitoring
System Management	Authorization Setting, Simultaneous Editing, System backup/ Recovery, Resume Download, Differential Download, App Monitoring
Operating System	Server: Windows 7 or above Windows Server 2008 or above Client: Windows 7 (Embedded/POSReady)

RISC Computing Solutions

Box Computers

Model Name		UBC-220	UBC-330	UBC-DS31
Processor System	CPU	NXP ARM Cortex-A9 i.MX6 1 GHz	TI AM3352 Cortex-A8 1 GHz	NXP ARM Cortex-A9 i.MX6 1 GHz
Memory	Technology	DDR3 800 MHz	DDR3 800 MHz	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB	On board DDR3 512 MB	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 24-bit LVDS, 1366 x768 at 60Hz	-	-
	HDMI	1920 x 1080 at 60Hz	-	1920 x 1080 at 60Hz
	VGA	-	-	1920 x 1080 at 60Hz
	Graphics Engine	1 IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	-	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263,MJPEG BP	-	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP Encoder: MPEG-4 SP, H.264 BP, H.263
Ethernet	Chipset	NXP i.MX6 integrated RGMII	TI AM3352 Integrated RGMII	NXP i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
WatchDog Timer		1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	256-level timer interval from 0~128 sec
I/O	USB	1 USB 2.0 Host	1 USB 2.0 Host	1 USB 2.0 Host
	Audio	-	-	1 x Line-out
	SDIO	1 x SD slot	1 x SD slot	1 x SD slot
	Serial Port	1 x 4 wire RS-232	1 x 4 wire RS-232/422/485 4 x 2 wire RS-232 w/ ESD protection	1 x 4 wire RS-232
	GPIO	-	4 GPI/ 4 GPO w/ isolation	-
	CANBus	-	1	-
	I2C	-	1	-
	Button	-	1 x Reset button	1 x Reset button
Indicator	LED	1 Green LED for system power 1 Green LED for user define	1 Green LED for system power 1 Green LED for RF status	1 Green LED for system power 1 Green LED for RF status
Expansion	Mini PCIe	2x mini PCIe slot	1x mini PCIe slot (Only USB Signal)	1x mini PCIe slot
	SD Socket	1x SD slot	1 x SD slot	1 x SD slot
	SIM	1x SIM slot	-	1x SIM slot
	Antenna Hole	1 x Antenna hole	1 x Aetenna hole	1x Antenna hole
	Others	1x Internal antenna support	-	-
Power	Power Supply Voltage	12V	12 V , 19 V , 24 V	12 V
	Power Type	DC-in	DC-in	DC-in
	Power Consumption	4.4W (Max)	3.3W (Max)	3.8W (Max)
Environment	Operational Temperature	0 ~ 60 °C	0~60°C	0 ~ 40 °C
	Operating Humidity	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D x H)	120 x 89 x 30 mm	191 x 129 x 30 mm with metal plate 166 x 117 x 30 mm without metal plate	191 x 129 x 30 mm with metal plate 166 x 117 x 30 mm without metal plate
	Mounting	Wall mount, DIN rail, VESA 75/100 by option	Wall mount, VESA 75/100, Flexible mount with two screw holes on the metal plate	Wall mount, VESA 75/100, Flexible mount with two screw holes on the metal plate
	Weight	215g	265g	265g
Operating System		Linux Android	Linux	SUSIAccess for Signage
Certifications		CCC/CE/FCC/VCCI	CCC / CE / FCC Class B	CCC / CE / FCC Class B

Embedded Systems

Wireless IoT Sensor Nodes and Gateways

Wireless IoT Gateways

Model Name		WISE-3310	WISE-3620
Process System	CPU	NXP ARM Cortex-A9 i.MX6 Dual 1 GHz	Qualcomm ARM Cortex-A7 Quard 716MHz
	DRAM	1GB DDR3	256MB DDR3L
	Flash	4GB eMMC	128MB
I/O Interface	Serial Port	1 x RS-232 (CTS, RTX,Tx,Rx)	1 x RS-232/422/485 (DB9 Male)
	USB	-	1 x USB 3.0
	LAN	1 x 10/100/1000Mbps	1 x LAN 10/100/1000Mbps 1 x WAN 10/100/1000Mbps
	Antenna Port	4 (1 for 100-node SKU, 2 for 200-node SKU, 2 optional for Wi-Fi)	4 (2 for Wi-Fi, 2 optional for 3G/LTE)
Wireless	Standard	IEEE 802.15.4e	IEEE 802.11a/b/g/n/ac
	Frequency Band	2.4000~2.4835 GHz	2.4GHz/5GHz
	Data Rate	250 kbps	11n 2x2 40MHz max: 300Mbps 11ac 2x2 80MHz max: 866.7Mbps Support MU-MIMO
	Support Nodes	100 / 200	200
	Expansion	1 x half size mini PCIe slot for Wi-Fi	2 x full size mini PCIe slots for 3G/LTE Dual microSIM slots
Platform	OS	Linux	OpenWRT Linux
Indicator and Button	LED	2 for WSN status, 1 Yellow LED for WSN1 1 Green LED for WSN2	1 Power 1 USB 1 2.4G Wi-Fi status 1 5G Wi-Fi status 1 WWAN status
	Button	1 x Reset button	1 x Reset button
	Switch	1 x Power Switch	-
	SD Socket	1 x SD slot	1 x microSD slot
Mechanical	Dimensions	180mm x 114mm x 31mm	188mm x 150mm x 39mm
	Mounting	Metal bracket wall mount	Metal bracket wall mount
Environmental	Operating Temperature	0 ~ 40 °C	-20 ~ 70 °C
Power	DC-input	DC-input 9~ 24V	DC-input 9~ 24V
	Power Consumption	3.96W (Max)	16W (Max)
Certifications		CE/FCC/VCCI/NCC	CE/FCC/IC/TELEC/SRRC/NCC

M2.COM IoT Sensor Node Modules

Model Name	WISE-1520	WISE-1530	WISE-1540
Form Factor	M.2 TYPE 2230-D3-E	M.2 TYPE 2230-D3-E	M.2 TYPE 2230-D3-E
Standard	IEEE 802.11 b/g/n	IEEE 802.11 b/g/n Bluetooth 4.1	IEEE 802.15.4e
MCU	ARM Cortex-M4 Processor	ARM Cortex-M4 Processor	ARM Cortex-M4 Processor
Memory	RAM 256KB Flash 1024KB	RAM 256KB Flash 1024KB	RAM 64KB Flash 256KB
Wireless Frequency	2.412~2.472 GHz	2.400~2.484 GHz for Wi-Fi 2.400~2.4835 GHz for BLE	2.4000~2.4835 GHz
Topology	Star network	Star network	Self-Healing Mesh Network
Transmit Power	17 dBm at 1 DSSS 17.25 dBm at 11 CCK 13.5 dBm at 54 OFDM	Typ. 14 dBm ± 2 at 802.11b CCK Mode 1M Typ. 12 dBm ± 2 at 802.11g OFDM Mode 54M Typ. 12 dBm ± 2at 802.11n OFDM Mode MCS0 Max 10 dBm ± 2 for BLE	Up to +8 dBm
Receiver Sensitivity	-94.7 dBm at 1 DSSS -87 dBm at 11 CCK -73 dBm at 54 OFDM	Typ. -95 dBm at 1 Mbps Typ. -75 dBm at 54 Mbps Typ. -89 dBm at MCS0 Typ. -89 dBm for BLE	Up to -93 dBm
Data Rate	UDP:16Mbps TCP: 13Mbps	Up to 65 Mbps	250 kbps
I/O Interface	1 UART (4-wire, support RTC/CTS) 1 I²C 2 GPIO 2 PWM 1 SPI 2 ADC (1 for VCC voltage detect)	1 UART (2-wire, support RTS/CTS) 1 I²C 1 I²S 2 GPIO 1 SPI 4 ADC	1 UART (4-wire, support RTC/CTS) 1 I²C 8 GPIO 1 PWM 1 SPI 4 ADC 1 USB (device only)
Power Requirement	3.3V	3.3V	3.3V
Operating Temperature	-20 ~ 70 °C	-20 ~ 70 °C	-40 ~ 85 °C
Dimension	22 x 30 mm	22 x 30 mm	22 x 30 mm
Operating System	TI RTOS	ThreadX mbed OS	mbed OS
Certifications	CE/FCC/TELEC	CE/FCC/IC/TELEC/SRRC/NCC	CE/FCC/IC/TELEC/SRRC/RCM/NCC

Embedded Peripherals

Industrial Displays

	Model	IDP31-215W	IDS-3115	IDS-3221W	
LCD Display	Screen Size	21.5"	15"	21.5"	
	Resolution	1920 x 1080 (FHD)	1024 x 768 (XGA)	1920 x 1080 (FHD)	
	Colors	16.7M	16.2M	16.7M	
	Viewing Angle (H/V°)	178/178	160/140	178/178	
	Contrast Ratio	1000:1	700:1	1000:1	
	Response Time (ms)	5	25	5	
	Brightness (cd/m^2)	250	400	250	
	Backlight Type	LED	LED	LED	
	Backlight Life	30,000	50,000	30,000	
	Dimensions (mm) (without touch)	520.98 x 314.99 x 42.6	362 x 288 x 32.8	551 x 341.6 x 51.7	
Environment	Operating Temperature (°C)	0~45	-20~60	0~45	
	Storage Temperature (°C)	-20~60	-30~70	-20~60	
	Humidity (non-condensing)	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	
Touchscreen (Optional)	Type	P-cap	5-Wire Resistive	5-Wire Resistive	P-cap
	Transparency	86%	80%	80%	87%
	Surface Hardness	6H	3H	3H	7H
System	I/O Ports	HDMI x 1, VGA x 1; DVI x 1; 12 VDC Jack x 1; USB x 1 (USB is reserved for the connection to enable touch usage only)	VGA x 1; DVI x 1; 12 VDC Jack x 1; USB x 1; RS-232 x 1 (USB & RS-232 are reserved for the connection to enable touch usage only	VGA x 1; DVI x 1; 12 VJack x 1; USB x 1; RS-232 x 1 (USB & RS-232 are reserved for the connection to enable touch usage only)	
	OSD	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, Source Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, SourceMenu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, SourceMenu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust	
	Power	60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output	60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output	60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output	

Embedded Peripherals

Industrial Displays

		IDK-1107			IDK-1115		IDK-1119
LCD Display	Size	7"			15"		19"
	Resolution	800 x 480 (WVGA)	1024 x 600 (WSVGA)	1024 x 600 (WSVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)
	Brightness (cd/m2)	400	400	500	400	400	350
	Colors	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	16.7M
	Viewing Angle (H/V°)	160/160	150/145	140/120	160/140	160/140	170/160
	Contrast Ratio	750:1	700:1	600:1	700:1	700:1	1000:1
	ResponseTime (ms)	30	25	16	16	16	5
	Touchscreen	4-Wire Resistive	4-Wire Resistive	P-cap	5-Wire Resistive	P-cap	5-Wire Resistive
	Signal Interface	LVDS	LVDS	LVDS	LVDS	LVDS	2 Channel LVDS
	Backlight Type	LED	LED	LED	LED	LED	LED
	Backlight Life (hrs)	50,000	50,000	50,000	50,000	50,000	50,000
	Power Consumption (W)	3.7	4.7	3.56	10.6	10.6	20.55
	Dimensions (mm)	170 x 111 x 8	166 x104 x 7	165 x 104 x 10	327 x 254 x 12	327 x 254 x 12	396 x 324 x 18
	Weight (g)	165	139	160	1084	1084	1670
Touchscreen	Durability (touches)	1 million	1 million	50 million ~	10 million	50 million ~	10 million
	Surface Hardness	3H	3H	Mohs 5H	3H	Mohs 5H	3H
	Transparency	82.50%	82.50%	90%	80%	91%	80%
Environment	Operating Temperature (°C)	-5 ~ 60	-20 ~ 70	-20 ~ 70	-20 ~ 70	-20 ~ 70	0 ~ 50

		DSD-3032	DSD-3055	DSD-5028	DSD-5038
LCD Display	Size	32"	55"	28"	38"
	Resolution	1920 x 1080	1920 x 1080	1920 x 358	1920 x 538
	Colors	16.7 M	1073M	16.7M	16.7M
	Viewing Angle (H/V°)	178/178	178/178	178/178	176/176
	Contrast Ratio	3000:1	4000:1	3000:1	4000:1
	Response Time (ms)	8	6.5	6.5	9.5
	Brightness	500	450	700	800
	Backlight Type	LED	LED	LED	LED
	Backlight Life (hrs)	50,000	50,000	50,000	50,000
	Dimensions (mm)	743.6 x 438.11 x 73	1238.6 x 709.4 x 72.5	736.6x 167.3 x 44.35	980.9 x 303.2 x 44.35
	Weight (kg)	14	31	3	6.4
Touchscreen (Optional)	Type	Optical Touch	Optical Touch	N/A	N/A
	Durability	10 million touches	10 million touches	N/A	N/A
	Surface Hardness	7H	7H	N/A	N/A
	Transparency	92%	92%	N/A	N/A
Environment	Temperature (Operating)	5 ~ 45 °C	5 ~ 45 °C	0 ~ 45 °C	0 ~ 45 °C
	Temperature (Storage)	-20 ~ 55 °C	-20 ~ 55 °C	-10 ~ 60 °C	-10 ~ 60 °C
	Humidity	20 ~ 80 % RH	20 ~ 80 % RH	20 ~ 80 % RH	20 ~ 80 % RH
System	I/O Ports	HDMI/VGA/ DisplayPort	HDMI/VGA/ DisplayPort	VGA/DVI	VGA/DVI
	OSD control	RS-232/RS-485/ Remote	RS-232/RS-485/ Remote	RS-232	RS-232
	Power Consumption (W)	80	145	40	76

Embedded IoT Wireless Modules

wifi

Model Name	EWM-W135H/F
Form Factor	Full/Half size Mini PCIe Card
Wireless Standard	802.11 a/b/g/n
Chipset	Atheros AR9382
Signal Protocol	PCIe Differential
Antenna	2 x U.FL connectors
Operating Voltage	DC 3.3V ± 5%
Temperature Range	-10 ~ 70 °C (Operating)
Dimensions(L x W x H)	26.65 x 29.85 x 3.25 mm
Security	64/128/152-bit WEP, WPA, WPA2, 802.1x, TKIP and AES
SISO/MIMO	2T x 2R
Data Rate	300Mbps
Bluetooth	
O.S Supported	Win 7/ 8/ 8.1
Host connector type	PCIe Mini card

3G

Model Name	EWM-C109F601E
Radio Technology	HSPA
Downlink/ Uplink	7.2 Mbps/ 5.76 Mbps
Frequency Band	6-band UMTS/HSPA network, 800/850/900/1700/1900/2100 MHz
Main Chipset	u-blox LISA-U200
Operating Temperature	-40 to +85 °C
size	Full-size Mini PCIe
SIM slot	With SIM card slot

4G LTE CAT4/CAT6
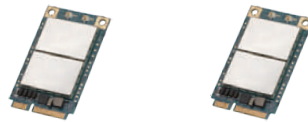
Model Name	EWM-C117FL01E	EWM-C117FL02E
Form Factor	Full SizeMini PCIe Card	Full SizeMini PCIe Card
Radio Technology	LTE CAT4	LTE CAT4
Downlink/ Uplink	FDD LTE Max150Mbps(DL) / 50Mbps(UL)	FDD LTEMax150Mbps(DL) / 50Mbps(UL)
Frequency Band	4G LTE bands 2 / 4 / 5 / 7 / 17, 3G bands 1/2/4/5/8, GPRS band 850 / 900 / 1800 / 1900	4G LTE bands 1 / 3 / 5 / 7 / 8 / 20, 3G bands 1/2/5/8, GPRS: 850/ 900/1800/1900MHz
Main Chipset	u-blox TOBY-L200	u-blox TOBY-L200
Operating Temperature	-40 ~ +85 °C (Operating)	-40 ~ +85 °C (Operating)
Signal protocol	USB 2.0	USB 2.0
support area	US	EU/APAC

Extreme Performance / Embedded

Model Name	SQF-S25, 830 series	SQF-S25, 640 series
Form factor	2.5" SATA SSD	2.5" SATA SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	7 + 15 pin SATA
Flash Type	SLC / Ultra MLC / MLC / 3D V-NAND	SLC / Ultra MLC / MLC / 3D V-NAND
Maximum Power Consumption	1,000 mA	530 mA
Capacity	64GB ~ 2TB	16GB ~ 512GB
Maimum Read / Write Performance (MB/s)	Sequential: 550 / 530 Random IOPS@4K: 100K / 100K	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C
SQFlash Utility	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

Embedded Peripherals

Industrial Memory Modules

Embedded DRAM Modules

SQRAM offers comprehensive product line included Unbuffered DIMM, SODIMM for Industrial applications, also verified by different CPU family and Advantech platforms to enhance extreme compatibility. We provide reliable industrial quality by strictly burn-in program with 100% screen test before shipment. Lifetime warranty and fixed BOM is necessary part for SQRAM.

SODIMM   **UDIMM**

Model	SQR-SD4N	SQR-SD4M	SQR-SD3N	SQR-SD3M	SQR-UD4N	SQR-UD4M	SQR-UD3N	SQR-UD3M
Interface	DDR4	DDR4	DDR3L	DDR3L	DDR4	DDR4	DDR3L	DDR3L
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	UDIMM	UDIMM
Pin Number	260pin	260pin	204pin	204pin	288pin	288pin	240pin	240pin
Frequence(MHz)	2666/2400/2133	2666/2400/2133	1866/1600	1866/1600	2666/2400/2133	2666/2400/2133	1866/1600	1866/1600
Capacity	2/4/8/16GB	2/4/8/16GB	1/2/4/8/16GB	1/2/4/8/16GB	2/4/8/16GB	2/4/8/16GB	2/4/8GB	2/4/8GB
Voltage	1.2V	1.2V	1.35V/1.5V	1.35V/1.5V	1.2V	1.2V	1.35V/1.5V	1.35V/1.5V
Operating Temperature	0 ~ 85 ℃	-20 ~ 85 ℃	0 ~ 85 ℃	-20 ~ 85 ℃	0 ~ 85 ℃	-20 ~ 85 ℃	0 ~ 85 ℃	-20 ~ 85 ℃
Function	Unbuffered							

Ruggedized DRAM Modules

SQRAM series delivers extremely durable DRAM memory for harsh environment as military, aerospace, and in-vehicle applications. Our memory designed by rigorous test program included wide temperature (-40 ~ 85 °C), humidity and vibration. Extra ruggedize protection is supported by coating and underfill.
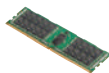
SODIMM   **UDIMM**
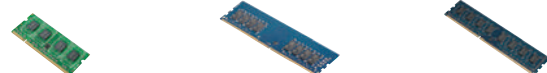
Model	SQR-SD4I	SQR-SD3I	SQR-SD2I	SQR-UD4I	SQR-UD3I
Interface	DDR4	DDR3L	DDR2	DDR4	DDR3L
Form Factor	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM
Pin Number	260pin	204pin	200pin	288pin	240pin
Frequence(MHz)	2666/2400/2133	1866/1600	667/800	2666/2400/2133	1866/1600
Capacity	2/4/8/16GB	1/2/4/8GB	1/2GB	2/4/8/16GB	2/4/8GB
Voltage	1.2V	1.35V/1.5V	1.8V	1.2V	1.35V/1.5V
Operating Temperature	-40 ~ 85 ℃	-40 ~ 85 ℃	-40 ~ 85 ℃	-40 ~ 85 ℃	-40 ~ 85 ℃
Function	Unbuffered	Unbuffered	Unbuffered	Unbuffered	Unbuffered
Value-Added Service	Confromal Coating/Underfill (Optional)				

High Performance & Server DRAM Modules

High Performance & Server DRAM modules solution provide extreme high speed and capacity of ECC DIMM and Register DIMM. SQRAM can process large workloads with outstanding speed for HPC applications included data center, surveillance and IoT applications.

RDIMM   **UDIMM ECC**   **SODIMM ECC**

Model	SQR-RD4N	SQR-UD4N(ECC)	SQR-UD3N(ECC)	SQR-SD4(ECC)	SQR-SD3(ECC)
Interface	DDR4	DDR4	DDR3L	DDR4	DDR3L
Form Factor	RDIMM	UDIMM	UDIMM	SODIMM	SODIMM
Pin Number	288pin	288pin	240pin	260pin	260pin
Frequence(MHz)	2666/2400/2133	2666/2400/2133	1600	2666/2400/2133	1600
Capacity	4/8/16/32GB	2/4/8/16GB	2/4/8GB	2/4/8/16GB	2/4/8GB
Voltage	1.2V	1.2V	1.35V/1.5V	1.2V	1.35V/1.5V
Operating Temperature	0 ~ 85 ℃	0 ~ 85 ℃	0 ~ 85 ℃	0 ~ 85 ℃ / -40 ~ 85 ℃	0 ~ 85 ℃ / -40 ~ 85 ℃
Function	ECC	ECC	ECC	ECC	ECC
Register	Yes	x	x	x	x

Embedded Software

WISE-PaaS/EdgeSense

WISE-PaaS/**RMM** WISE-PaaS/**OTA** WISE-PaaS/**Security** WISE-PaaS/**ESL**

	WISE-PaaS/RMM		WISE-PaaS/OTA		WISE-PaaS/Security	WISE-PaaS/ESL	
Introduction	IoT Device Remote Monitoring and Management Platform		Over-the-Air Software Upgrade Management Services		IoT Security Management	Wireless and Battery-less Display Solutions for IoT Applications	
Feature Highlights	• Hardware Monitoring: Remotely monitor hardware status, including CPU temperature, fan speed, voltage, HDD smart information, etc. • Software Monitoring: Remotely monitor software status, including CPU and memory usage. • Device Management: Devices / Group/ Map view		• Lightweight and reliable MQTT device connection • Automatic mode means all parts of the upgrade are under control • Scheduling mode lets you plan your updates • Supports open framework, which can integrate 3rd party storage easily, such as, local storage FTP, or public storage		• Central security management monitors and reports data from all managed clients • Remote deployment of security policies • Flexibility to add McAfee modules to fulfill different vertical applications • Dashboard with analytical reports	• Integrated ePaper module/router/ gateway solutions for different scenarios • Full centralized management with up to 10,000 tags • Easy installation and maintenance • Paper-free content management	
	WISE-PaaS/RMM Cloud	WISE-PaaS/RMM Agent	WISE-PaaS/OTA Cloud	WISE-PaaS/OTA Agent		WISE-PaaS/ESL Cloud	WISE-PaaS/ESL Agent
Hardware Requirements	• Intel® Core™ i3 2.3 GHz CPU or above 4GB RAM • 25 GB root partition for the system • 100 GB data storage partition (for documents and indexing) • OS: Windows Server 2008 R2 64-bit, Windows Server 2012/2012 R2 64-bit, Windows 10 64-bit, Windows 8/8.1 64-bit, Windows 7 SP1 64-bit	• Advantech HW with SUSI driver 3.02/4.0 support (or above), which is required for HWM (Hardware Monitoring Management) function to work normally • OS: Windows 10 32-bit/64-bit, Windows 7 SP1 32-bit/64-bit, Ubuntu 16.04, CentOS 7, Yocto	• Intel® Core™ i3 2.3 GHz CPU or above 4GB RAM • 25 GB root partition for the system • 100 GB data storage partition (for documents and indexing) • OS: Windows Server 2008 R2 64-bit, Windows Server 2012/2012 R2 64-bit, Windows 10 64-bit, Windows 8/8.1 64-bit, Windows 7 SP1 64-bit	• OS: Windows 10 32-bit/64-bit, Windows 7 SP1 32-bit/64-bit, Ubuntu 16.04, CentOS 7, Yocto, and Android 6 (request by project)	• Microsoft Windows Server 2012/2012R2/ 2008/2008 R2 • 64-bit Intel Pentium D or higher, RAM 8GB or higher, HDD 200GB or higher	• Intel® Core™ i3 2.3 GHz CPU or above 4GB RAM • 25 GB root partition for the system • 100 GB data storage partition (for documents and indexing) • OS: Windows Server 2008 R2 64-bit, Windows Server 2012/2012 R2 64-bit, Windows 10 64-bit, Windows 8/8.1 64-bit, Windows 7 SP1 64-bit	Pre built in ESL gateway
Product Ordering Number	WISE-PaaS/RMM Pro (max 10 devices): 32EMRMP31B WISE-PaaS/RMM Pro (max 50 devices): 32EMRMP31C WISE-PaaS/RMM Pro (max 200 devices): 32EMRMP31D WISE-PaaS/RMM Pro (Site License): 32EMRMP31E		WISE-PaaS/OTA Pro (max 100 devices): 32EMOTAP2B WISE-PaaS/OTA Pro (max 500 devices): 32EMOTAP2C		Acronis True Image 2016 Personal: 31WPSALO16 WISE-PaaS/Security ePolicy Orchestrator: 31WPSEPO01 McAfee Endpoint Security 10: 31WPSMES0A McAfee Integrity Control: 31WPSMIC01 McAfee Embedded Control: 31WPSMEC01 McAfee Application Control: 31WPSMAC01 McAfee Application Control with ePO: 31WPSMAP01	Coming soon	
Marketplace Ordering Number	VIP Membership: 98DPWSPA0A (highly recommended) Regular membership: 98DPWSPAP1 *Join WISE-PaaS membership to redeem above applications with better service and discount					Coming soon	

Embedded Software

IoT Cloud Services

WISE-PaaS/EnSaaS   **arm MBED**   **aws**   **Azure**

	WISE-PaaS/EnSaaS	Arm Mbed Cloud	Amazon Web Services	Microsoft Azure
Product Positioning	Cloud platform is well integrated with Advantech Hardware products. Particularly suitable for industrial IoT applications by leveraging Advantech's domain know-how.	Arm's cloud service is designed for Arm-based chips and platforms. High data protection is based on its Cortex architecture which makes it more suitable for security sensitive domains.	Well-known IaaS and PaaS provider, with proven ability to handle huge amounts of data. Most widely adopted cloud service around the world.	Well-known cloud service provider with IaaS, PaaS and SaaS solution which supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems.
Focused Verticals	• Industry 4.0 & smart factory • Equipment builder • Smart city • Smart agriculture	• Telecom • Smart metering	• Smart Factory and manufacturing • Retail • Smart city • Healthcare	• Transportation and logistics • Smart Factory and manufacturing • Retail • Smart city • Healthcare
Application Scenarios	• Application for verticals • SW update • Data acquisition • Gateway edge computing package • PaaS service	• Data acquisition • Gateway edge computing package • Device provisioning • Firmware update	• Data acquisition • Data analytic • Gateway edge computing package • IaaS virtual machine service • PaaS service	• Infra cloud host service • Serverless/Hybrid PaaS service • IoT data acquisition and analysis • Edge Intelligent device solution package • AI platform development
Edge Computing Package on Gateways	WISE-PaaS/EdgeSense	Mbed Edge	AWS Greengrass (AWS Device SDK)	Azure IoT Edge
Communication Protocol	MQTT, AMQP	LWM2M	MQTT	MQTT, AMQP, HTTP
Compatible Advantech Hardware Platform	X86-based, Arm-based Platform	Arm-based Platform	X86-based, Arm-based Platform	X86-based, Arm-based Platform
Data Resumption (zero downtime time)	Y	Y	Y	Y
Container Service	Y	N	Y	Y
Online Marketplace	Y	N	Y	Y
Multi-tenant Service	Y	Y	Y	Y
Data Visualization	Y	N	Y	Y
Data Pre-processing on Edge	Y	Y	Y	Y
API Service & Management	Y	Y	Y	Y
Data Ingestion	Y	Y	Y	Y
Analytics	N	N	Y	Y

IoT Security Services

	Embedded Real-Time OS		Security
Product	**Wind River Pulsar Linux**	**Wind River VxWorks**	**Acronis**
Overview	A container-based Linux OS with vital components for the production and commercialization of IoT devices.	VxWorks is the RTOS foundation for successful development of very small devices, large intelligent connected systems, and everything in between.	Provides users with a quick and easy solution to protect data and recover the entire system if the OS crashes. It effectively reduces down-time cost and lowers the risk of data loss.
Benefits	• Open source software • Customized base platform • Extensibility via packages and/or containers	• Lower system development costs with a single RTOS that scales • Complete security for connected devices • Ensure compliance with safety and security requirements	• Entire computer backup and restore for your system, applications, and files, or can migrate to new hardware with full image backup • Restore your computer to bare metal or migrate to a new computer and new hardware • Optimized for Windows 10 and recent Mac OS X versions, compatible with Windows XP, 7, 8, and 10
Min. Hardware Requirement	• Advantech selected Product	• ARM 11 / 11 MPCore / 9 / Cortex A9 MPCore / Cortex A8 • Intel® Pentium family / Quark/ Xeon/ Xeon LV / Core/ Core 2 Duo / Atom / VxWorks 7	• Processor - Pentium 1 GHz • 1.5 GB of free space on a hard disk CD-RW/DVD-RW drive or USB flash drive for bootable media creation • Screen resolution of 1152 x 720
Product	• Wind River Pulsar Linux 8	• VxWorks 7	• Acronis True Image Personal • Acronis True Image Full/Premium

	Security		
Product	**McAfee**		
Overview	McAfee ePolicy Orchestrator unifies the managing of endpoints, networks, and data. It is a management tool for deploying and configuring embedded security in connected devices.	McAfee whitelisting technology is ideal for protecting systems with low overhead which does not impact system performance and is equally effective in standalone mode without network access.	McAfee blacklisting technology introduces a new framework that allows multiple endpoint defense technologies to communicate in real time, and analyzes and collaborates against new and advanced threats.
Benefits	• Central security management to monitor and report the data of managed clients • Remote deployment of security policies • Additional McAfee modules to fulfill different vertical applications • Dashboard with analytical reports	• Block unauthorized applications and change attempts • Change attempts from outside of policy are blocked • Monitors file integrity and file changes	• Includes several new, advanced malware-scanning features to defend against emerging and targeted attacks • Prevents users from browsing to malicious or unauthorized websites • Stops malicious inbound and outbound network traffic
Min. Hardware Requirement	• 64-bit Intel Pentium D or higher • 2.66 GHz or higher • 8 GB available RAM	• Processor supports x86-64 / AMD64 architectures • 1-GB RAM (64 bit 2-GB) • 100-MB free disk	• Win 7 1.4 GHz or higher 2 GB RAM • Win 10 2 GHz or higher 3GB RAM
Product	• McAfee ePO	• McAfee Applicaation Control • McAfee Embedded Control • McAfee Integrity Control	• McAfee Endpoint Security 10

Embedded Software

Embedded OS

Windows 10

	Windows OS			
Product	**Windows 10 IoT Enterprise**	**Windows Embedded Standard**	**Windows Embedded Enterprise**	**Windows Embedded Industry and POSReady**
Overview	Windows 10 IoT is a family of Windows 10 editions with advanced lockdown capabilities that power a range of industry devices across retail and manufacturing.	This is a componentized OS to let you create custom operating system images to deliver precise functionality to devices.	Windows Embedded Enterprise powers dedicated embedded devices that require compatibility and the flexibility to deploy a custom user interface.	Windows Embedded POSReady is a flexible OS designed to seamlessly connectpoint-of-service solutions with peripherals, servers, and services.
Benefits	• One app platform - universal ppp (UAP) • Supports unified POS implementation • Build-in Embedded lockdown capabilities • Full-spectrum interconnectivity	• Componentized operating system lets you choose the features that you want • Custom branding lets you provide a unique, custom experience from start to finish • Lockdown features help ensure predictable customer experience	• Take advantage of full Windows to provide a high degree of cross-platform application compatibility • Deliver an immersive, natural user experience with multi-touch and Kinect for Windows • Easily implement retail peripherals with built-in plug and play capabilities	• Take advantage of full Windows 8.1 to provide a high degree of cross-platform application compatibility • Easily implement retail peripherals with built-in plug and play capabilities • Build and deploy industrial devices with streamlined OS installation
Min. Hardware Requirement	• x86 or AMD64 processor • 1GB CPU or higher • 1GB of system memory (2GB recommended for 64-bit) • 16G free space on hard disk drive	• x86 or AMD64 processor • 900mhz CPU or higher • 512 MB of system memory (1GB recommended for AMD64) • 1 GB free space on hard disk drive (HDD) or flash-based Solid State Drive (SSD) (4 GB recommended)	• x86 or AMD64 processor • 1GB CPU or higher • 1GB of system memory (2GB recommended for 64-bit) • 16GB free space on hard disk drive (HDD)	• x86 or AMD64 processors • 900mhz CPU or higher • 512 MB of system memory (1GB recommended for AMD64) • 1 GB free space on hard disk drive (HDD) or flash-based Solid State Drive (SSD) (4 GB recommended)
Product	• Windows 10 IoT Enterprise LTSB • Windows 10 IoT Enterprise CBB	• Windows Embedded Standard 8 • Windows Embedded Standard 7	• Windows Embedded 8.1 Industry Pro • Windows 8.1 pro for embedded system • Windows 7 pro/ultimate for embedded system	• • Windows 8.1 Industry pro retail • • POSReady 7 • • POSReady2009

	Windows OS		
Product	**Windows Embedded Compact**	**Windows Embedded Server**	**Microsoft SQL Server for Embedded Systems**
Overview	Windows Embedded Compact is a componentized, real-time, small-footprint OS for powering some of the industry's smallest devices.	Windows Server has built-in security, reliability, and availability features intended for application in embedded solutions.	Microsoft SQL Server is intended for application in embedded solutions or purpose-built HW running Windows Embedded Server OS.
Benefits	• OS for specialized, small-footprint devices that need real-time performance and compatibility with ARM and x86 architectures • Platform for sensors-to-cloud intelligent systems applications • Focussed on industrial automation, retail and medical devices	• Offers a dynamic infrastructure that can scale up, increase hardware ROI, and reduce total cost of ownership • Platform features diverse storage choices that can help achieve high-performance, availability and resource efficiency through virtualization and optimization • Delivers centralized access and audit policies, leverages built-in security capabilities, and helps lock down your appliances	• Breakthrough performance • Enterprise scalability across computers, networking, and storage • Consistent data platform on-premises to the cloud
Min. Hardware Requirement	• 1.6 GHz CPU, 384 MB RAM, 1024x768 display • 100 GB of free hard disk space	• 1.4 GHz 64-bit processor or higher • Minimum: 512 MB system memory • Minimum: 32 GB free space	• x86 or AMD64 processor • 1.4 GHz or higher • 1GB of system memory
Product	• Windows Embedded Compact 2013 • Windows Embedded Compact 7 • Windows Embedded CE 6.0	• Server 2016 for embedded system • Server 2012 for embedded system • Server 2008 for embedded system	• SQL Server 2017 for embedded system • SQL server 2016 for embedded system • SQL server 2014 for embedded system

Memo

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Düsseldorf	49-2103-97-855-0

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Italy
Milano	39-02-9544-961

Benelux & Nordics
Breda	31-76-523-3100

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