

Embedded IoT Applications

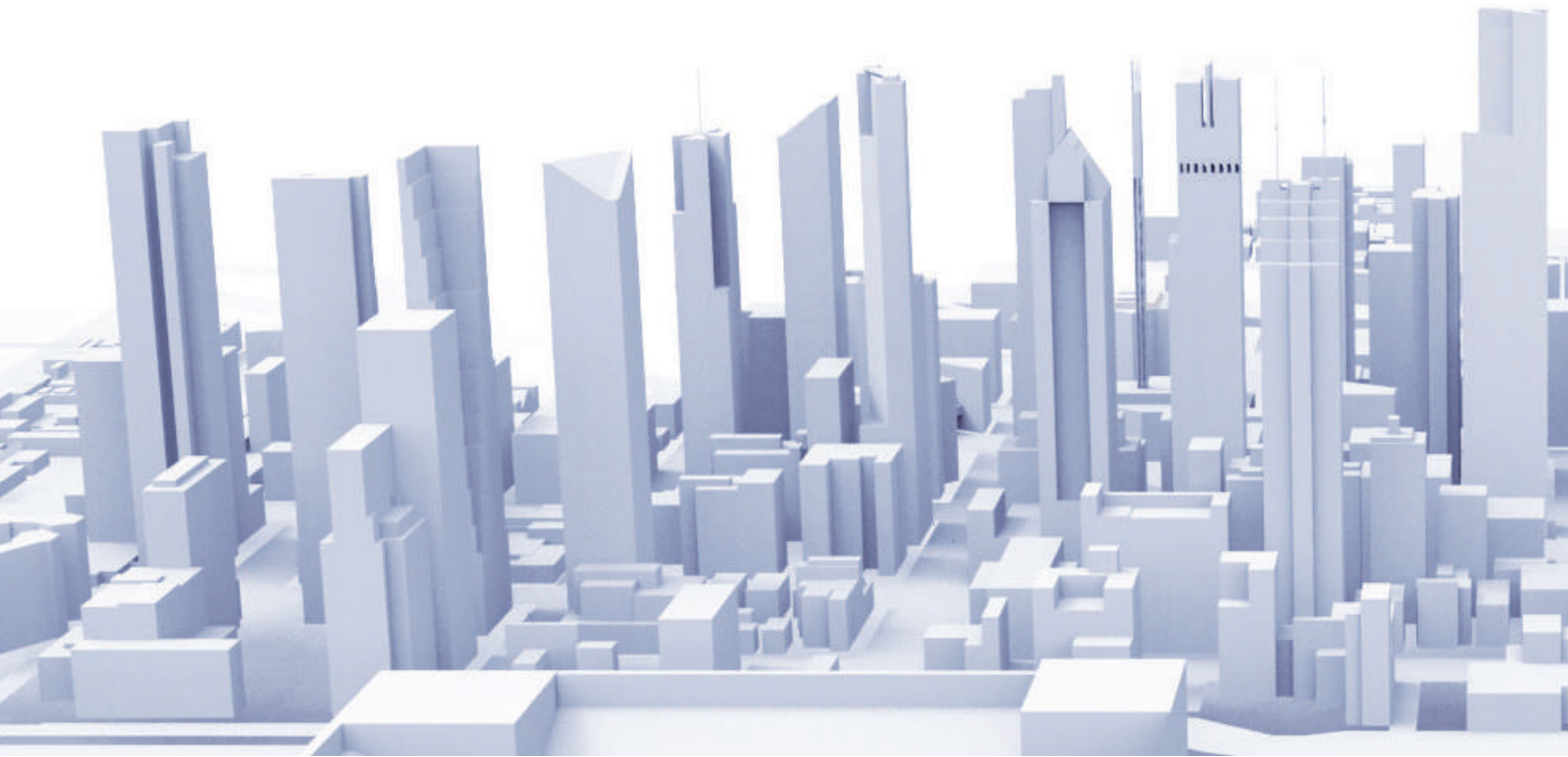
Manufacturing | Transportation | Healthcare | Retail



ADVANTECH

Enabling an Intelligent Planet

Empowering Smart Cities with Embedded IoT Solutions



With the rapid development of the Internet of Things (IoT) and Smart Cities, the world is moving toward a more intelligent planet, in which things are capable of interacting with other things. In this IoT era, parking lots can guide you to unoccupied parking spaces, factories can automatically address production line issues, and hotels can adjust temperature and lighting according to a guest's preference; making the whole city smarter. This new ecosystem of "things" is now shaping a ground breaking new business model for the next generation of embedded products.

Tremendous Business Opportunities

Smart Cities apply cutting edge information technologies such as Internet of Things, cloud computing, and mobile internet to utilities, buildings, and systems that surround us. Smart solutions allow us to have higher work efficiency and quality of life by integrating intelligence into technology. According to Gartner's report in 2020, over 30 billion connected devices will be in use. Cisco has an even bigger projection – driven by reducing price per connection and the consequent rapid growth in the number of machine-to-machine (M2M) connections, Cisco expect the number of connected

objects to reach 50 billion by 2020. Furthermore, an even more aggressive prediction by Morgan Stanley is that 75 billion devices around the globe will be connected by 2020.

Gartner predicts IoT product and service suppliers will generate incremental revenue exceeding \$300 billion, mostly in services in 2020. Another IDC report has an even more stunning prediction, anticipating IoT technology and services spending to generate global revenues of \$4.8 trillion in 2012 and \$8.9 trillion by 2020, growing at a Compound Annual Growth Rate (CAGR) of 7.9%. And this is just the beginning.

Governments Also Driving IoT

Not only corporations, but also governments around the world are driving IoT development. American President Obama issued a whitepaper to congress titled, "IoT to Rejuvenate Strategic Economics"; and the European Union proposed, "The Internet of Things - An action plan for Europe"; whilst Japan and China followed suit proposing, "i-Japan National Roadmap", and "Sensing China" by PRC China.



IoT Value Chain & Ecosystem Partnership

The IoT market is huge and the IoT infrastructure is complex, covering SoC/chip design, sensors/devices, systems/platforms, IoT clouds and web services, and all kinds of vertical applications. Therefore, the key to the future IoT business success will be the ability to shape the ecosystem through collaboration with key partners, forming an “IoT Value Chain”. This chain is composed of industry leading companies, in hardware and software, with pioneering technologies and know-how, providing customers with the most comprehensive and integrated IoT solutions and services.

Partnering for Smarter Cities

Over the past 30 years, Advantech has provided innovative embedded products, services and solutions for over thousands of applications that empower the development of smarter working and living all around the world. In response to growing demands for Smart City and IoT solutions, Advantech is working closely with a wide range of ecosystem partners to make the future of IoT a reality. Advantech has been partnering with silicon design partners such as Intel, AMD, MediaTek, TI, and Freescale, to develop the core of

intelligent systems that fit in today’s IoT world. A crucial part of IoT is gathering data, so Advantech collaborated with another important new partner – Linear Technology, to co-work on their WISE-IoT product series, which are wireless sensor networks designed for fundamental IoT data transmission and collection. For data collected from sensors to be transformed into useful information, big data analysis is the key – so Advantech also partners with Microsoft Azure to help customers establish their own cloud services using Advantech’s WISE-PaaS IoT software services, thereby helping manage big data to make the future world a smarter one – or a “WISE” one.

Miller Chang

Advantech Embedded Core Group
Vice President

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USA



About Advantech Embedded Computing

Worldwide Leadership in Embedded Designs and Services

With a wide range of professional design-in services backed by our internal and global resources, Advantech is committed to working closely with embedded customers to ensure design success by helping them discover new business opportunities through advanced embedded technologies and services that empower smart applications for an intelligent planet.

To address the market for IoT applications, Advantech developed a series of integrated IoT solutions and services, and accelerating 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

- WISE-PaaS IoT Cloud Platform
- Wireless IoT Gateway & Nodes
- Intelligent Embedded Boards: COM, SBC, MI/O
- Industrial Motherboards
- RISC Computing Platforms
- Modular Embedded Systems
- Digital Signage & Gaming Solutions
- Embedded Software Solutions
- Industrial Display Systems
- Embedded Peripheral Modules

WISE-

Remote Management

150+ REST

WISE-PaaS/RMM
WISE-PaaS/Security

IoT Software Services

Wireless IoT Gateways & Node Devices

IoT Platform



Embedded PCs



Embedded Box PCs



Digital Signage &

Full Range of



Industrial Storage Modules



Embedded Modules

Compatible Peripherals

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.

Ecosystem Partnership

Advantech allies with many leading partners of the industry such as Intel, Microsoft, AMD, Freescale, TI, and etc., to provide up-to-date technologies, products, and comprehensive streamlined services.

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 service and enable our customers to reach their customers more quickly.

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

Advantech provides 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.

PaaS

ful APIs

Security Management



Compact & Rugged IoT Gateways



Multi-function IoT Gateways

Solutions



Gaming Platforms



Industrial Motherboards



COM SBC MI/O
Small Form Factor (RISC & X86)

Embedded Platforms



Industrial Display Systems



Software Distribution

& Software Solutions

WISE-PaaS - IoT Software Platform Services

Powerful and Rapid Development Capabilities

Advantech WISE-PaaS is an IoT software platform service for building, deploying, and managing applications and services efficiently. WISE-PaaS provides diverse software services with standard RESTful APIs that speed things up, making integration cost-effective. Developers use WISE-PaaS dashboard builder and Node-RED flow-based application logic editor to build their own applications and

WISE-PaaS

150+

WISE-PaaS RESTful APIs

Remote Monitoring and Management	Security Management	Industrial Automation	Interactive Multimedia	Intelligent Video	Network Management
Account Management	Security Dashboard	Real-Time Data Access	Interactive Events	Channel Management	Topology Management
Device Management	SIEM Security Information/ Event Management	Historical Data Analysis	Playback log	Live View Stream	Fault Management
Device Control	Vulnerability Management	Advanced Alarm Management	Events log	Playback Stream	Configuration Management
Event Management	Global Threat Intelligence	Action Logger	Account Management	Event Management	Performance Management
System Management		Dashboard Editor & Viewer	Device Management	IVS Data Management	Device Management

Agent

WISE-PaaS/RMM

Remote Monitoring and Management

- Centralized Management
- High Availability
- Sensor/Device Connectivity

WISE-PaaS/Security

Security Management

- Vulnerability Manager
- ePolicy Orchestrator
- Global Threat Intelligence

WebAccess/SCADA

Smart HMI/SCADA

- 100% Web-based
- Easily Connect to IoT Devices
- Cross Browser HTML5 Dashboard



WPAN Gateway



Intel® Quark™ Gateway



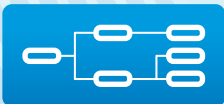
IDP-Compliant Gateway



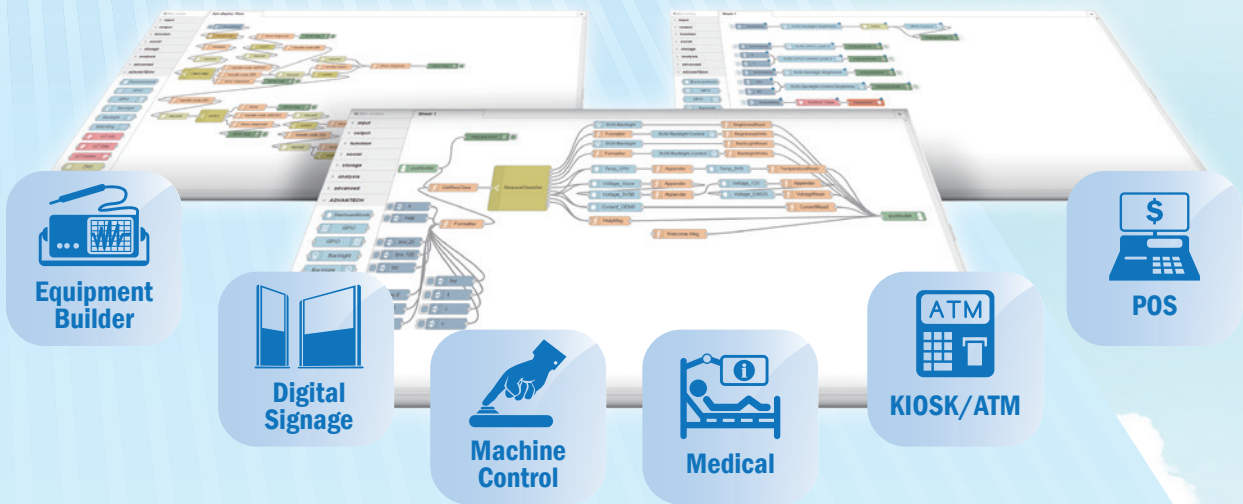
Quad Core Gateway

Alliance

show analyzed data results to improve products, services, and strategies; increasing competitiveness and new business opportunities. Furthermore, Advantech offers the WISE-PaaS Alliance program to collaborate with customers and partners for win-win success in the IoT industry.



SRP Node-RED Packages



Software

WebAccess/IMM

Interactive Multimedia

- Server-Client Architecture
- Multi-screen Display
- Edit and Dispatch Programs

WebAccess/IVS

Intelligent Video

- Intelligent Video Platform
- Intelligent Video Analytics
- Modularized SDK Ready

WebAccess/NMS

Network Management

- 100% HTML5 web-based
- Device Connectivity Mgmt
- Integration of Network Topology



Rugged System



Mini-ITX System



Digital Signage Player

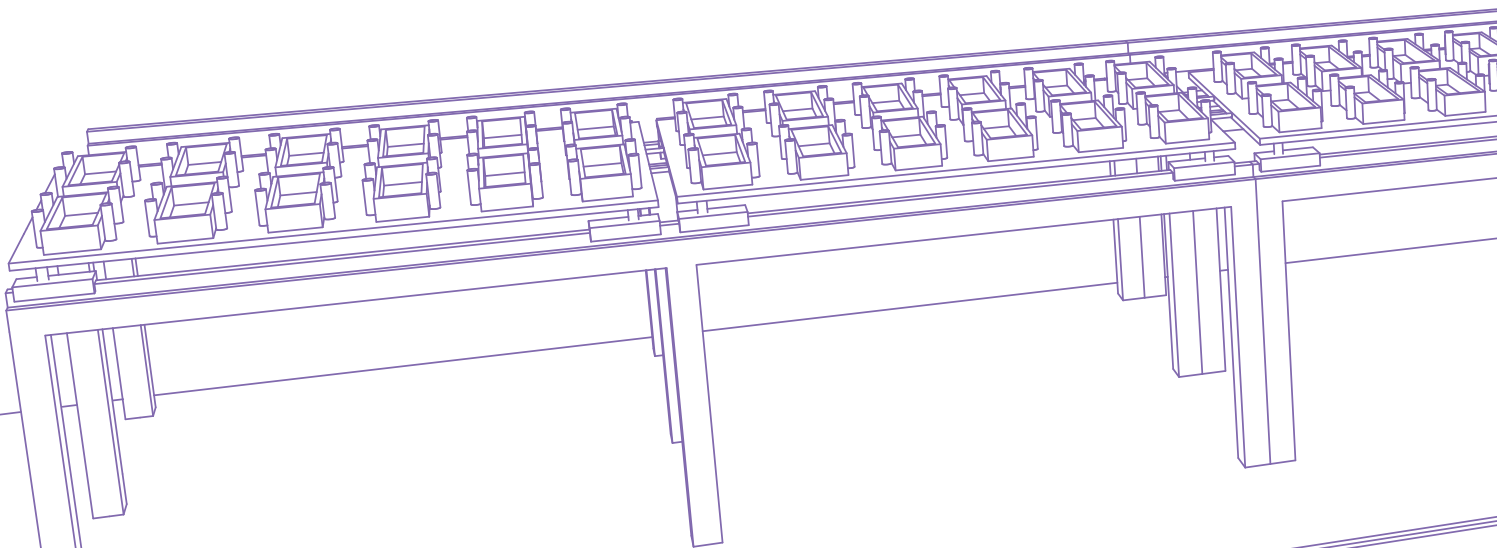
Application Story

Intelligent Manufacturing

IoT enables real-time access to devices and machines in manufacturing. This evolution will allow IoT to penetrate further into digitized manufacturing systems. According to an IDC report in 2014, manufacturing will capture nearly 20% (\$913 billion) of revenue opportunity from an estimated \$4.59 trillion derived from IoT by 2018. Intelligent manufacturing requires smart equipment that can generate information automatically, adapt to new situations and provide remote access and insight to optimize productivity, and lower total cost of ownership.

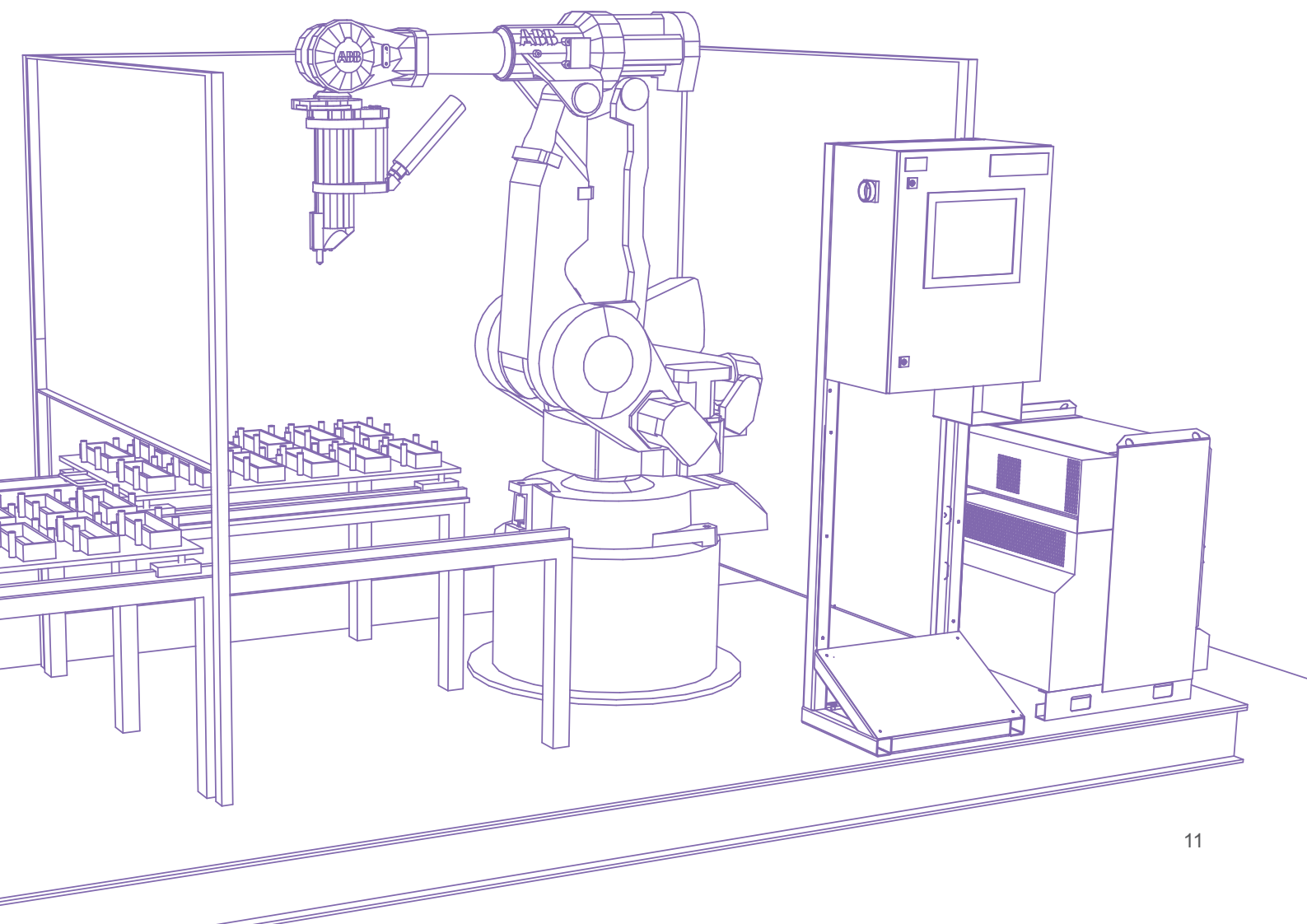
Key Elements: Reliable Embedded Systems, Sensor Nodes, Interactive HMI, Remote Management Software, Cloud Platform, Data Analytics

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



Global Application Stories

- Welding robots in China
- IoT-based industrial electroplating factory
- WISE-PaaS enables IoT applications and upgrades





Welding Robots in China

Faster, Stronger, and Increased Productivity

Project Summary

Country: China

Industry: Intelligent Manufacturing

Challenge:

- High reliability with precision
- Flexible expansion capability for real-time sensing and dynamic control
- Long life span

Solution:

- MIO-2263, single board computer

Benefits:

- Outstanding CPU and graphics performance with dual USB 3.0 interface
- Highly reliable design for embedded applications

Over the last decade, China has seen rapid development of its welding equipment industry, and it has become the world's largest producer and exporter of welding equipment. In recent years, automation equipment and welding robots have developed radically, and since China is already the world's largest market for industrial robots—sales last year grew 54% from 2013.

Challenge

Early welding robotics lacked flexibility since all welding processes and welding parameters were set in advance based on conditions. But with the development of intelligent network technology, a real-time sensing and dynamic control system was developed to quickly respond to the changing environment. This next generation of welding robot provides real-time, high speed and accurate motion control with vision sensors at the welding head for fast real-time adjustment.

Solution

EtherCAT is a popular industrial standard for robotics and motion control systems because of its high-precision, open structure, ease of integration, and cost effective features. For autonomous welding robotics, the vision sensing system detects changes in the external environment and informs the robots which can adjust welding parameters in real time. Advantech's MIO-2263, with Intel Gen 7 graphics, allows customers to implement an EtherCAT master and vision sensing system easily.

Outstanding CPU and Graphics Performance with Dual USB 3.0 Interfaces

MIO-2263 graphics is based on the Gen 7 Intel® Graphics Architecture with DirectX 11, Open GL 4.0, and full HD video. Hardware acceleration is enabled for H.264, MVC, VPG8, JPEG/mJPEG, VC1/WMV9, and MPEG2 standards. With improved media and graphics performance, plus USB 3.0, MIO-2263 was an ideal fit for the vision sensing system.

Highly Reliable Design for Embedded Applications

MIO-2263 complies with the IEC standard for electrostatic discharge protection for the COM port transceiver with 15kV air gap protection, and 8kV contact protection for RS-232. MIO-2263 was designed with 100% solid capacitors which give better reliability, and its high Tg PCB value (TG-170) means the PCB is more stable under high vibration operation.

Industrial Cloud Computing Client with WISE-PaaS/RMM

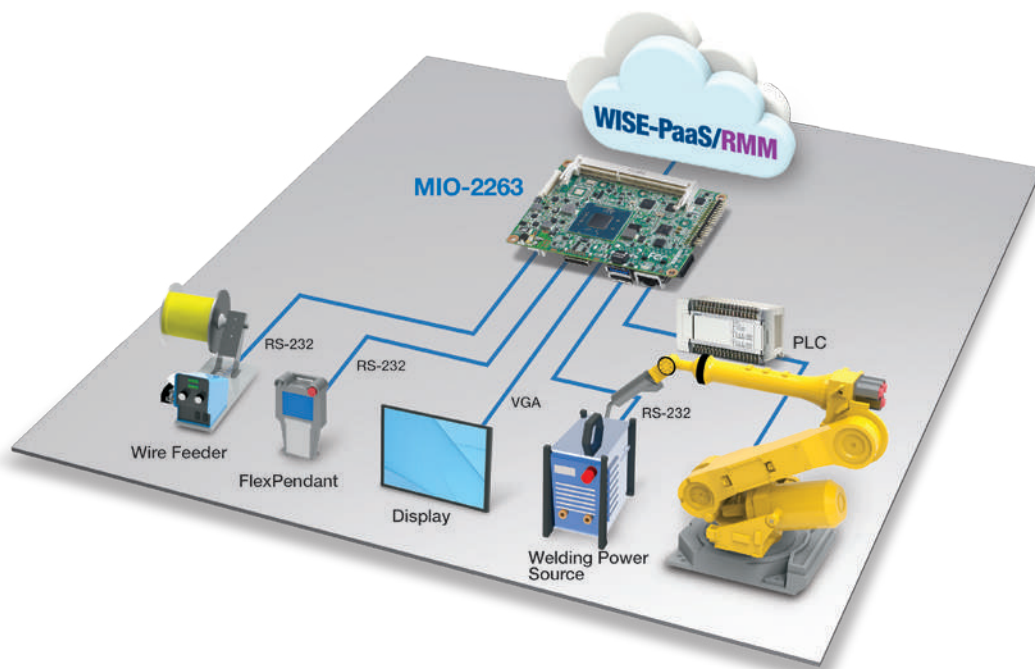
MIO-2263 includes Advantech's remote management software WISE-PaaS/RMM, which builds intelligent management functions into embedded computing applications, ensuring continuous system uptime with reduced maintenance cost. WISE-PaaS/RMM constantly monitors the health of multiple devices and sends out alarm notifications via e-mail and SMS messages. Other utilities are included such as System Recovery (Acronis), System Protection (McAfee), and Remote KVM for protection and recovery.

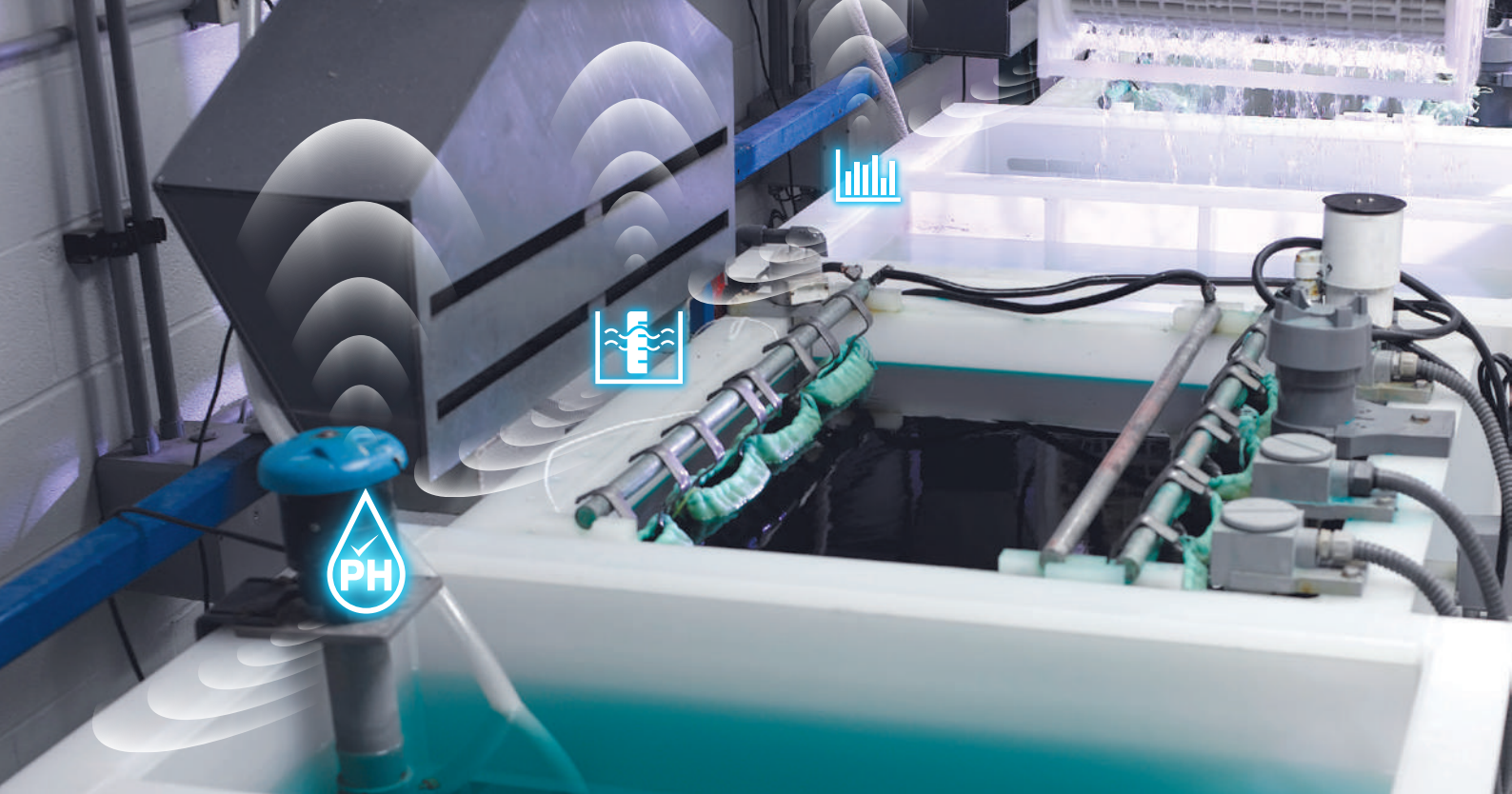
Advantech Solutions



MIO-2263

- Great graphics capability
- Built-in high speed USB3.0
- Generic Intel Ethernet controller
- Strict criteria on design and material
- Remote software package support





IoT-Based Industrial Electroplating Factory

Enhanced Manufacturing Efficiency and Reduced Maintenance Costs

Project Summary

Country: China

Industry: Electroplating Factory

Challenge:

- Avoid chemical corrosion of wired infrastructure
- Support multiple sensor combinations

Solution:

- DS-570, rich I/O gateway
- WISE-1020, wireless IoT node

Benefits:

- Reliable wireless sensor network
- WISE-IoT design-in services for integrating multiple sensors
- Easy installation and deployment
- Enhanced manufacturing efficiency
- Up to 50% savings on maintenance costs

Because the working environment of electroplating factories is full of hazardous chemicals and volatile acids that are toxic and may corrode equipment, the provision of adequate protection for workers and factory equipment is essential.

Challenge

An electroplating factory located in China sought to improve its manufacturing processes by making them safer. The company planned to upgrade the existing traditional wired infrastructure to a wireless solution to protect vital factory equipment from chemical corrosion. Thus, they required a reliable data acquisition device with wireless connection stability and multiple sensor combination support.

Solution

The customer chose Advantech's WISE IoT Solution, which comprises embedded box PC (that serves as a gateway) integrated with a WPAN control module and 35 sets of WPAN sensor nodes - WISE-1020 (IEEE 802.15.4e mesh network) - for constructing a highly reliable wireless sensor network. With Advantech's DS-570 embedded box PC equipped with multi-display technology serving as a local control center, the WISE PaaS and WISE IoT devices, including the WPAN control module, sensor nodes, and gateway, were used to conduct remote monitoring and management.

Enhanced Manufacturing Efficiency

Traditionally, for an automatic electroplating line, the various sensory input signals and actuator output signals are directly connected to a programmable logic controller (PLC) via cables that are typically expensive and vulnerable to corrosion. The resulting losses in production can incur substantial cost. Advantech's reliable wireless IoT solution WISE-1020 prevents cable issues in automated electroplating lines. This solution ensures stable data transmissions in IEEE802.15.4e environments, resulting in increased manufacturing efficiency and reduced power usage.

50% Reduction in Maintenance Costs

To gather environmental data at the factory, one DS-570 fanless box PC featuring a WPAN module wirelessly connected to 35 sets of WISE-1020 nodes was installed. WISE-1020 nodes are designed with multiple interfaces (UART, AI, and DI ports) to support various sensor board types. Advantech collaborated with the customer to integrate all the WISE-1020 nodes, which were aimed at collecting data such as pH values, conductivity, water temperatures, and water levels. Following sensor integration, the local control center can be used to conveniently monitor and control all factory data. Advantech's WISE solution provides a MESH network with centralized dynamic network management capabilities that achieves 99.999% reliability.

Advantech Solutions



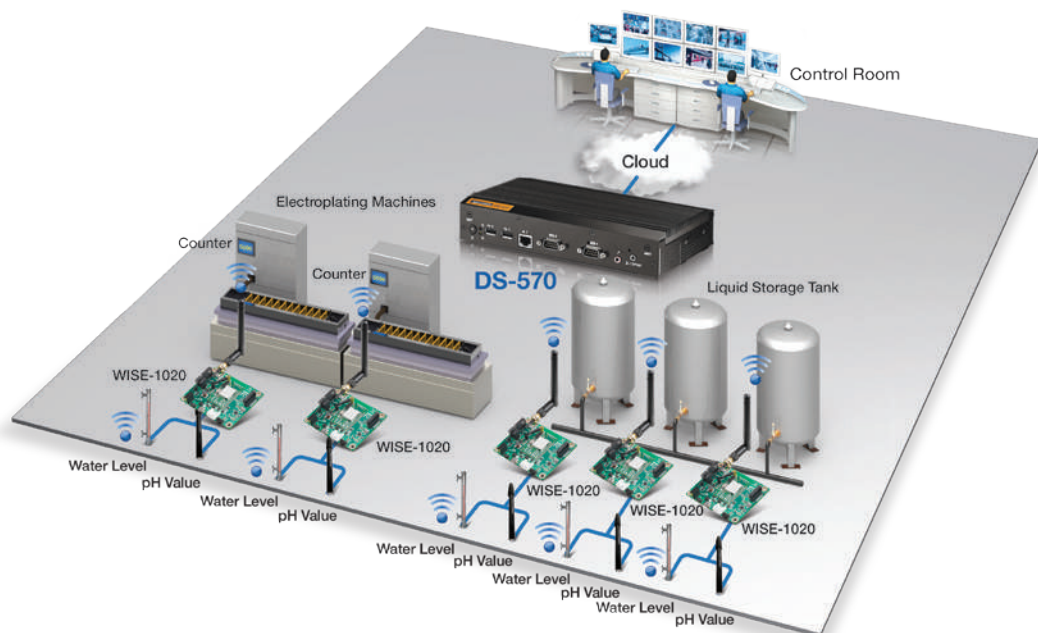
DS-570 Rich I/O Gateway

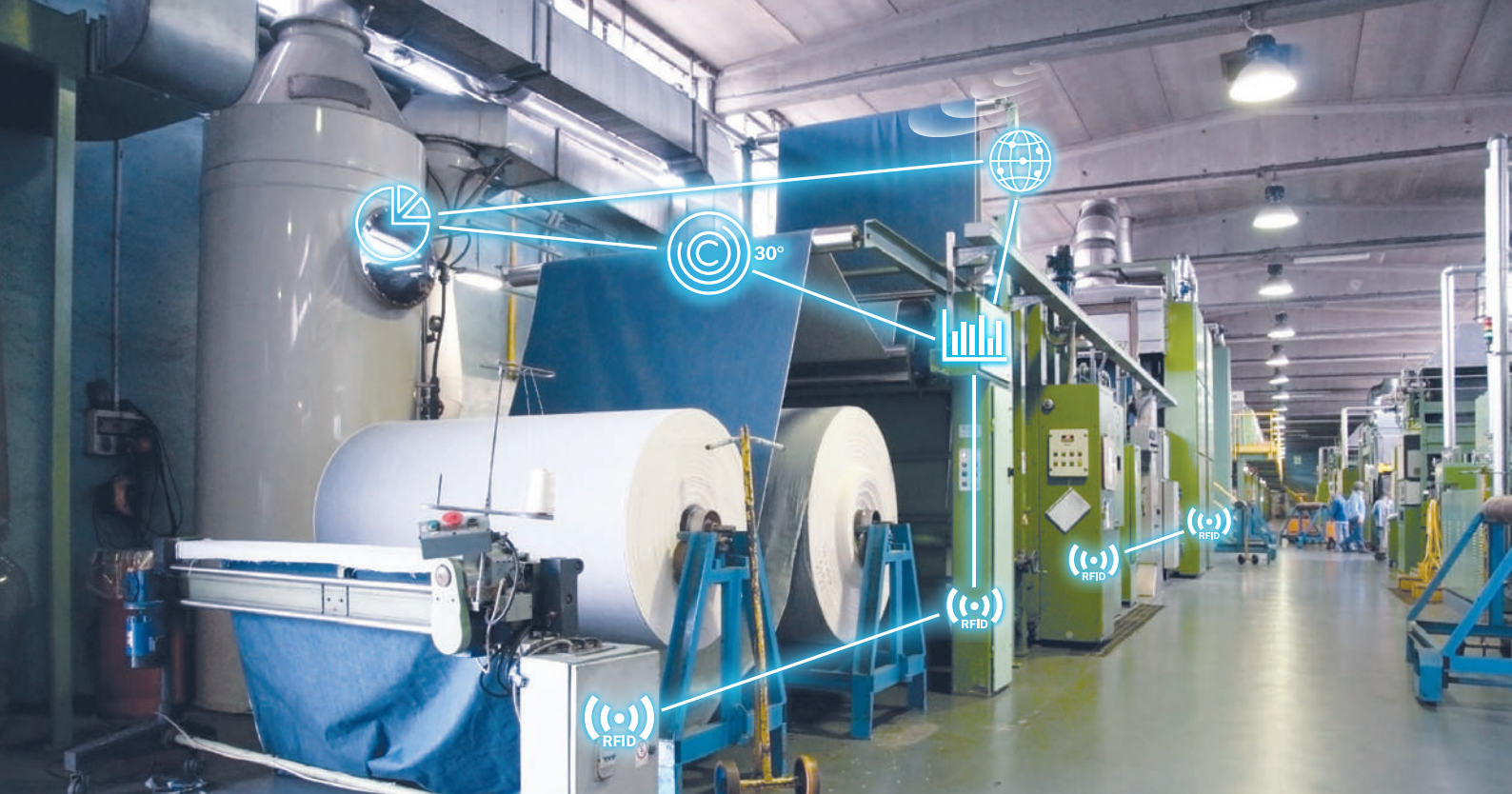
- Embedded Intel® Celeron® N2930/ J1900 quad-core™ System-on-Chip
- Multi-display output (supports up to four simultaneous displays)
- Compact, fanless design
- Features an internal mini-PCIe interface for high expandability
- Operating temperature of 0°C ~ 70°C with extended temperature range, memory, and SSD



WISE-1020 Wireless IoT Node

- High data reliability (99.999%) wireless MESH network
- Easy installation and low maintenance costs
- Extremely low power usage
- Operating temperature of -40°C ~ 85°C
- Supports multiple sensor combinations





WISE-PaaS Enables IoT Applications and Upgrades in Textile Plant

IoT-Enabled Asset Tracking Facilitates Business Intelligence

Project Summary

Country: Taiwan

Industry: Textile manufacturer

Challenge:

- Vast area of nearly 2 hectares, with thousands of carts to be tracked
- Inefficient manual tracking practices and record keeping

Solution:

- WISE-PaaS and Alliance Program

Benefits:

- Supported by WISE-PaaS to integrate all system elements
- Easy application development with rich Advantech APIs
- Professional IoT design-in services, training and consulting accelerate deployment of IoT applications

To streamline efficient production flow, a textile company in Taiwan established an IT taskforce responsible for implementing IoT applications. The company then joined the Advantech WISE-PaaS Alliance to gain access to the top technological support. They utilized WISE-PaaS to deploy IoT applications in their efforts to achieve an “Industry 4.0” manufacturing environment and more intelligent business practices.

Challenge

At any given time, the textile company’s manufacturing facility has up to 2,000 textile carts in use. These carts are pushed from room to room, carrying materials or semi-finished products. Previously, a paper with a hand-written description was attached to each cart. This traditional method of processing made product tracking extremely difficult. Additionally, making sure that every cart of materials or semi-finished products went to its correct processing work station was also a problem. Therefore, the company desired an intelligent solution for tracking assets at their factories. They also wanted a solution that would help them collect process data so they could improve their manufacturing efficiency.

Solution

Under Advantech’s WISE-PaaS Alliance program, the textile company deployed a cart tracking system at their facility. RFID

tags were attached to each cart, and an RFID reader antenna was attached to every machine or piece of equipment. Now when a cart approaches, the RFID reader gets the ID of this cart from its tag, and transmits the data to an ARK-1123 data gateway. Using its WISE-PaaS/RMM remote data and device monitoring and management software, the gateway ensures data transmission and device security. WISE-PaaS also provided RESTful APIs for easy integration with MES to enabled electronic production records. And Microsoft Azure provides for IoT big data computing and analytics. Most importantly, WISE-PaaS offers easy access across programming platforms and can be integrated with existing management solutions to improve products/services and business intelligence.

IoT-Enabled Electronic Production Records and Asset Tracking

The functions of the cart tracking system in this textile plant are twofold – one is the building of production track records concerning materials, components, and manufacturing processes; the other is the cart tracking system. The system is a typical IoT application; it is a cost-efficient solution that combines RFID technology to implement electronic management and real-time asset tracking. The WISE-PaaS provides RESTful APIs with integrated RFID data and cart management on a user-friendly dashboard, ensuring effortless and intuitive asset tracking. These integrated tools allow users to manage production records easily and effectively. It significantly improved the company's production line efficiency, helping them to achieve their "Industry 4.0" manufacturing environment and boost competitiveness.

Advantech Solutions



WISE-PaaS and Alliance Program

Advantech WISE-PaaS provides Partner Alliance program to further cultivate IoT business potential. Within the Alliance, academia-in-dustry innovation cooperation can also better help existing solutions. Advantech offers to alliance members: an IoT development starter kit, SDK/Protocols, Microsoft Azure service, professional consulting and technical training services, business match making, co-mar-keting programs and more, to shape the win-win strategy needed to succeed in the IoT market.



Application Story

Intelligent Transportation

Intelligent transportation is a vital part of smart cities. Cities around the world face common transport challenges such as congestion, safety, fuel consumption, etc. IoT technologies enables more effective transport networks with real-time traffic management, sensor-based parking management, and advanced public transit routing and scheduling systems. According to IDC report, transportation will account for \$325 billion, around 7% from an estimated \$4.59 trillion derived from the Internet of Things by 2018. Intelligent transportation requires an integrated solution which includes sensor connection, diversity wireless communication, traffic video capture for further analysis and rugged design for critical environment. Those systems can be monitored and controlled by remote access, furthermore, system will send alert message automatically once any abnormal events occur.

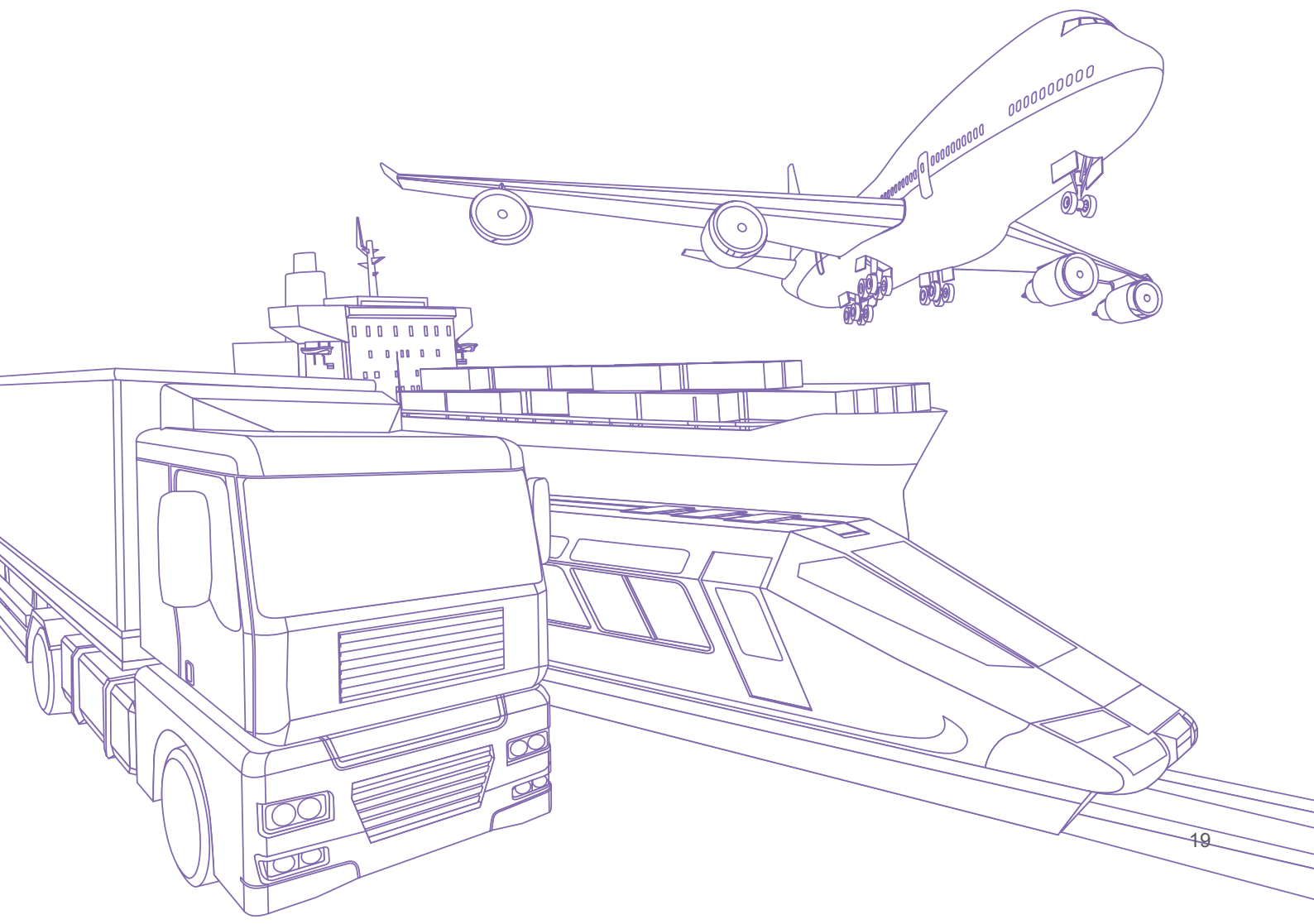
Key Elements: 24/7 Non-stop Running, High-level Isolated Protection, Wider Operating Temperature, Remote Management Software

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



Global Application Stories

- Smart bike sharing system for urban transport
- In-vehicle trinity Wi-Fi system
- ePolice solutions increase traffic safety in China
- Reliable intelligent solution for logistics





Smart Bike Sharing Systems in Urban Transport

Efficient Transportation with Reduced Carbon and Pollutant Emissions

Project Summary

Country: Germany

Industry: Public Transportation

Challenge:

- Outdoor environment
- Sunlight visibility
- Operation with gloved hands in the winter

Solution:

- IDK-2110, 10.4" 1200 nits LCD
- Rugged PCAP Touch Sensor
- MIO-2263, single board computer

Benefits:

- Single, integrated assembly for easy manufacturing
- Fully tested system with single point of warranty
- Dusk to dawn, easy to operate for end-user
- Durable 6mm glass for anti-vandal protection

By the year 2050, over 70% of the world's population is expected to live in urban areas. To promote energy efficiency and carbon emissions reduction, governments are increasingly building smart bike sharing systems and encouraging the public to use non-polluting bicycles for short journeys. When travelling around large cities over the past few years, you may have noticed racks of bicycles on the sidewalks, available for public usage. Today more than 500 cities in 49 countries host advanced bike-sharing programs, with a combined fleet of over 500,000 bicycles.

Challenge

The customer was looking for an integrated solution. Because smart bike sharing systems are operated 24/7 outdoors, the system needed to be rugged, reliable, accurate, and durable. The aspect of unsupervised operation also posed additional challenges for both environmental protection and serviceability.

Solution

For this system, Advantech combined IDK-2110, a 10.4" 1200-nit, high-brightness liquid crystal display (LCD) kit, with a rugged PCAP touch panel and a MIO-2263 wide-temperature, single-board computer capable of withstanding extreme outdoor environments. A self-service interface for bicycle check-in and checkout was also provided. The LCD kit provides integration flexibility, allowing customers to focus more on system design.

Sunlight Readable and Easy-to-Use Interface

To ensure readability in direct sunlight, the system features an IDK-2110 10.4" 1200-nit, high-brightness LCD kit. Its wide operating temperature range of -20 ~ 70 °C and low power consumption rate of only 7.1 watts make it ideal for all locations. Furthermore, IDK-2110 also features an optically bounded, customized, edge-to-edge projected capacitive touch screen. Despite long-term exposure to harsh outdoor environments, the touch screen panel remains highly visible and easy to navigate. The rugged PCAP touch sensor was deliberately chosen for its reliability in outdoor environments, where constant exposure to the elements can interfere with normal operation.

Highly Reliable and Efficient Operation

To ensure 24/7 operability, a smart bike-sharing system must comprise rugged and durable hardware. As the smallest wide-temperature Pico-ITX single-board computer in the world, Advantech's MIO-2263 provides a low-power intelligent solution for locations without a power source, supports the combination of SBC and Touch Display, and can be powered by solar energy. The entire unit provides an ideal user interface and an efficient bicycle locking control system. The inclusion of an ambient light and proximity sensor ensures that the backlight remains at the appropriate level of brightness in relation to the environmental conditions. With the proximity sensor, the unit is only activated when a user interacts with the interface, thereby reducing energy consumption. The MIO-2263 is connected to the IDK-2110 via compatible LVDS and backlight cables. With this highly efficient system and integrated display solution, Advantech provides system integrators with a reliable and durable foundation for future development.

Advantech Solutions



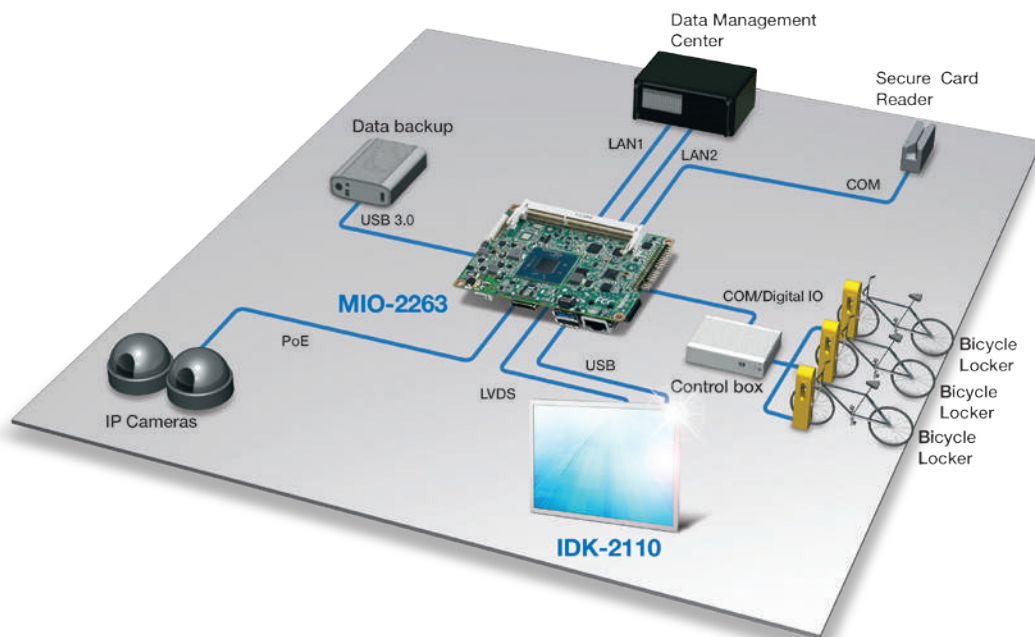
MIO-2263

- Intel® Atom™ System-on-Chip E3825 and Celeron J1900 (up to quad-core) processor
- Supports dual independent displays via 24-bit LVDS, VGA, and HDMI
- Flexible design featuring multiple integrated I/O
- Rich I/O interface
- Supports SUSIAccess and embedded software APIs



IDK-2110

- 10.4" LCD supports 800 x 600 resolution
- 1200cd/m2 with LED backlight
- Wide operating temperature range Of -20°C ~ 70°C
- Projected capacitive touch technology
- LVDS signal interface





In-Vehicle Trinity Wi-Fi System

Ultra Slim, High Performance, Ruggedized, Customizable

Project Summary

Country: China

Industry: Trinity Wi-Fi system

Challenge:

- Requirement for a slim and high-performance SBC to ensure stable communication
- Ruggedized design with reliability in high-speed operation and vibration resistance

Solution:

- MIO-3260
- Customized extension board

Benefits:

- Compelling CPU Performance with Concentrated Thermal Solution
- Highly Flexible Design & Reliable Connection Choice
- Rigid Test Requirement for Durability and Quality

With the advent of the Internet of Things (IoT), many and devices are well integrated with the Internet, in our homes or workplaces, and even when we travel. Internet access can be tough in places without hardwired cables or wireless hotspots, so to improve transmission efficiency, a brand-new mobile communication service delivery platform has been launched. Trinity In-vehicle Wi-Fi system can easily transfer data by connecting each router fixed on the exterior of each carriage and sharing the signal wirelessly.

Challenge

On high-speed trains, many passengers experience communication problems such as bad signals, poor data transmission and disconnections due to fast moving location relative to cell towers and demanding terrains such as mountains and tunnels. To build an ideal in-vehicle trinity Wi-Fi system, obtaining sufficiently strong signals to maintain communications is a major concern.

Solution

The system requires ultra-slim embedded computing boards in each coach to constantly transfer data through M12 ports, and the data center server installed in the locomotive which controls the database delivers the information to each router. The customer chose MIO-3260 for its quad-core CPU performance and low power consumption, as well as flexible I/O capability for customized module board. MIO-3260 features .

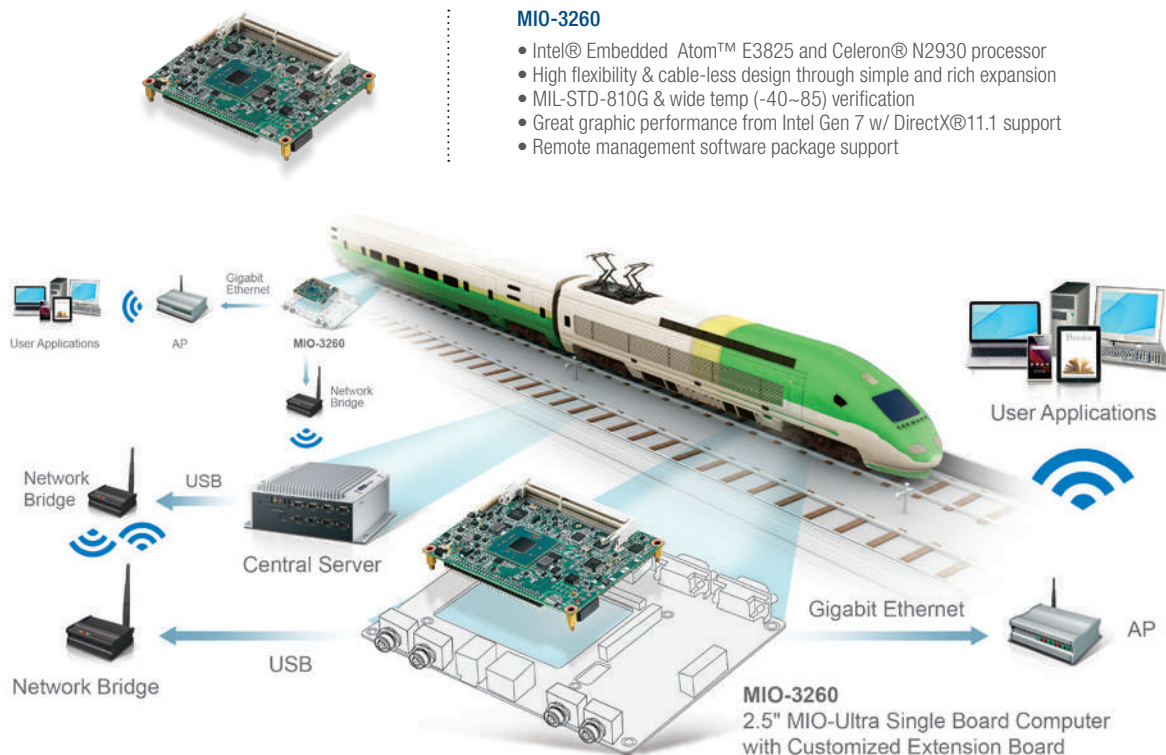
Compelling CPU Performance with Concentrated Thermal Solution

MIO-3260 delivers excellent CPU performance with up to quad core processing. The Intel® Celeron® N2930 processor version doubles the performance upgrade compared to previous generation Intel® Atom® N2800 processors in CPU and graphic computing; making it ideal for high speed, in-vehicle signal resolution and data communication, and router to router networking. MIO-3260 retains a 5Vsb/12Vsb power supply for power-exchange processing which offers a higher throughput yet consumes less power (TDP is below 8 Watts), and integrates existing data without sacrificing software compatibility. All heat generating components are placed on the top side of the board, dispersing heat via the heatsink or the heat spreader with excellent results.

Highly Flexible Design & Reliable Connection Choice

The 2 x 64-pin internal expansion connectors and customized module board increase I/O flexibility and make MIO-3260 a simple cableless solution which meets customers' requests to reduce the production cost from installation to materials, and reduced thermal heat dissipation. Customer can use their own carrier board design to acquire any additional I/O interfaces. With more M12 connectors, the customized board enhances the in-vehicle Wi-Fi system that supports higher-bandwidth needs up to 10GB/s. Based on Advantech MIO extension module or "MIOe co-development support", customers could develop their own I/O board if they want to support particular functions such as adding more M12 connectors. In-vehicle systems are often exposed to extreme temperatures of up to 90°C when operating for less than 30 minutes, and system breakdowns and electrical explosions can happen because of high temperature thermal peaks. When moving at high speeds, vibration is another problem that could shorten a product's longevity. So MIO-3260 delivers a highly rugged solution with wide temperature (-40° to +85°C) support that's compliant to military standard MIL-STD-202G.

Advantech Solutions





ePolice Solutions Increase Traffic Safety in China

Achieving High Efficiency and Reduced TCO

Project Summary

Country: China

Industry: Video Surveillance

Challenge:

- Ensuring 24/7 non-stop video recording
- Achieving real-time device management

Solution:

- ARK-2150 high-performance NVR

Benefits:

- All-in-one, integrated NVR solutions
- Rich SDK and APIs for developers
- Real-time centralized device management
- Full range of available platforms to satisfy various needs
- Multi-expansion for diverse scenarios

Ensuring effective management and control of the increasingly busy road traffic in China is extremely challenging. This situation is then further compounded by the substantial disparity that exists between the least and most developed areas. Nonetheless, with the assistance of Advantech, local authorities are establishing an ePolice solution that features advanced video surveillance to respond to the demands of China's growing road traffic.

Challenge

Heavy traffic, as well as a high incidence of accidents/collisions, is becoming commonplace in not only major cities but also less developed areas throughout the country. Considering staff limitations, an ePolice solution for video surveillance was implemented to compensate for police personnel shortages. Now, this ePolice solution can operate 24/7 all year round in order to accurately record traffic dynamics.

Solution

To improve traffic flow, ARK-2150 provided multiple expansion options that could be easily integrated with third-party video surveillance hardware and software to deliver a comprehensive NVR solution. Each ePolice unit comprises of motor traffic cameras, exposure-assisting lights, an induction coil, wired/wireless network modules, switches, and an electronic control device to conduct intelligent video identification at traffic intersections.

Well-Developed Device Management and Surveillance SDK and APIs

This ARK-based solution not only provides video surveillance hardware, but also integrates the hardware, firmware, and software with rich SDK and APIs that eliminates the complex programming required to make low-level system calls. This allows system integrators to focus on developing their own applications and functions, resulting in a faster time-to-market. Remote management software, such as Advantech's WISE-PaaS/RMM, facilitates the development of ePolice solutions with real-time centralized management, to which advanced applications such as VMS or IVA can be easily integrated.

Multi-Expansion Capabilities for Diverse Scenarios

ARK fanless embedded systems can support up to three Mini-PCIe slots for installing 3G, Wi-Fi, and CANBus modules. For example, in a public bus information system, a CANBus module provided in-vehicle network connectivity, facilitating the tracking and monitoring of vehicle data such as driving speed, gear use, braking, and fuel usage—data that is invaluable for determining responsibility or liability regarding traffic incidents. And to improve communication, a 3G module and multiple SIM cards allows 3G real-time communication between vehicle drivers and the control center.

Advantech Solutions



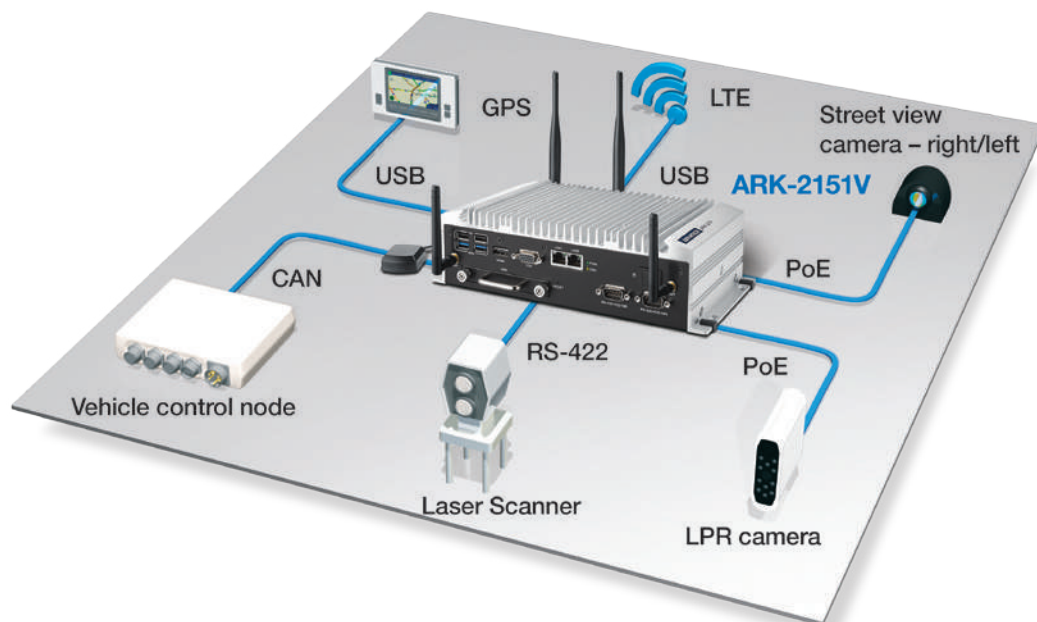
ARK-2150

- Third-generation Intel® Core™ i3/ i7 processor
- Dual independent display: VGA + HDMI/ DisplayPort + DVI-D
- 3 x Mini-PCIe for WLAN, 3G/LTE, or mSATA modules
- Supports WISE-PaaS/RMM remote management software and embedded software APIs



Software SDK/API Packages

- WISE-PaaS/RMM remote device monitoring & management
- RESTful APIs for application integration





Reliable Intelligent Solution for Logistics

Faster and Precise Delivery for Online Shopping

Project Summary

Country: China

Industry: Logistics

Challenge:

- Shipping bandwidth for online market
- Streamlined Logistics
- Labor cost & resource saving

Solution:

- In-vehicle box computer UBC-220
- Computer-on-module ROM-3420
- WISE-1020 sensor node

Benefits:

- Reliable wireless sensor network
- Cost-effective system deployment
- Compact and easy installation design
- RISC design-in services for streamlined implementation
- New business model transformation

With the popularization of the Internet, more and more people choose to use online shopping. The ever increasing domestic demand requires a huge supply chain, so efficient logistics systems will be crucial to the success of online shopping, and intelligent devices will play an increasing role in expanding shipping bandwidth and improving customer service.

Challenge

Facing massive online business orders, the customer realized they had to change their ways to fulfill all delivery requirements. Labor costs and resource needed to be carefully managed and a new intelligent logistics business model needed to be introduced—supplementing the workforce with intelligent devices, so total control and monitoring can be enabled through the implementation of a cloud service.

Solution

Advantech offered various solutions for customer's requirements. This included a UBC-220 RISC-based low power box computer in each truck, and a ROM-3420 high performance fanless computer-on-module in each intelligent parcel and dispatch center for shipment dispatch, control, and tracking stored properly. WISE-1020 sensor nodes are bundled with WISE-PaaS support so data can be gathered efficiently, stored securely, and transmitted rapidly.

Reliable Intelligent Solution for Logistics

All trucks, transfer posts and dispatch centers are connected to Advantech WISE-PaaS with wireless monitoring, especially the in-vehicle solution UBC-220, powered by a RISC-based SoC, which is a cost effective, reliable and power-saving hardware platform to accomplish 24/7 transportation monitoring. With add-on GPS and 3G module, it connects to the cloud and obtains real-time traffic information, and gets the best routes from the cloud which saves the time and fuel costs—benefitting both users and the environment. Plus, the implementation of EDR and wireless sensors improve security and the logistics flow is now much more accurate and dependable.

Effective Data Mining and Information Analysis

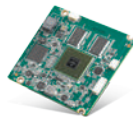
All data generated during transaction, including the information of the online shoppers and the sellers, the content of the shipments, the shipping methods and the routes, all go back to the cloud, and through an effective data mining analyzer, can be reused in many different ways. Advantech offers ROM-3420 as the data collector and I/O manager, which is an ultra-low-power computer-on-module powered by a high performance RISC-based SoC. It's totally fanless and the module design makes it flexible enough to implement any additional I/O demands. The high computing capability helps analyze and processes the data, transfers it into valuable information and synchronizes it to the cloud database. ROM-3420 empowers intelligent logistic solutions and changes our lives.

Advantech Solutions



UBC-220

- Freescale i.MX6 Dual Lite 1GHz
- 1GB DDR3/ 4GB e.MMC Flash Memory
- Support dual independent display by 24-bit LVDS and, HDMI
- GPS/3G/WiFi module compatible
- Supports SUSI API, Embedded Linux, Yocto Linux and Android



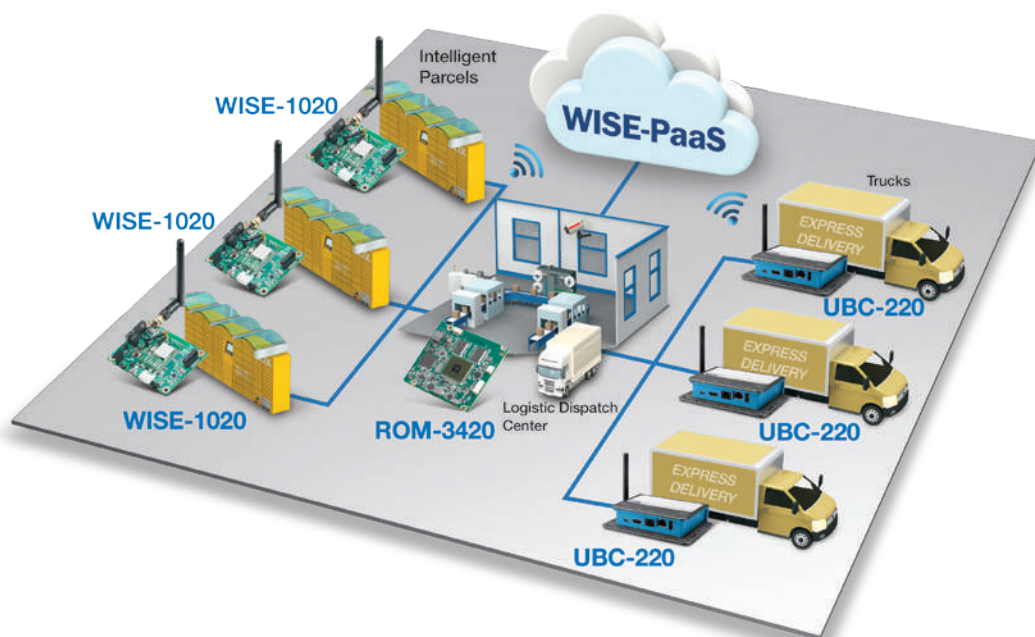
ROM-3420

- Freescale i.MX6 Dual/Quad 1GHz
- DDR3 up to 2GB/4GB e.MMC Flash Memory
- Rich I/O RTX 2.0 module design
- -40°C ~ +85°C wide operating temp. support
- Supports SUSI API, Embedded Linux, Yocto Linux and Android



WISE-1020

- Mesh network with 99.999% reliability
- Easy installation and configuration
- External SMA dipole antenna or on-board chip-antenna



Application Story

Intelligent Healthcare

Healthcare for senior citizens and disable population will be one of the main issues for smart cities. According to IDC report, healthcare will reach \$ 313 million of revenue opportunity driven by the IoT technology in 2018. The ubiquitous adoption of wireless technology in our personal lives has accelerated the acceptance of remote devices in healthcare. For Intelligent and connected medical devices which provide better caring quality and managing all the clinical information remotely, the stable and ruggedized embedded solutions are widely used. System reliability, data accuracy, and security are crucial to the medical industry.

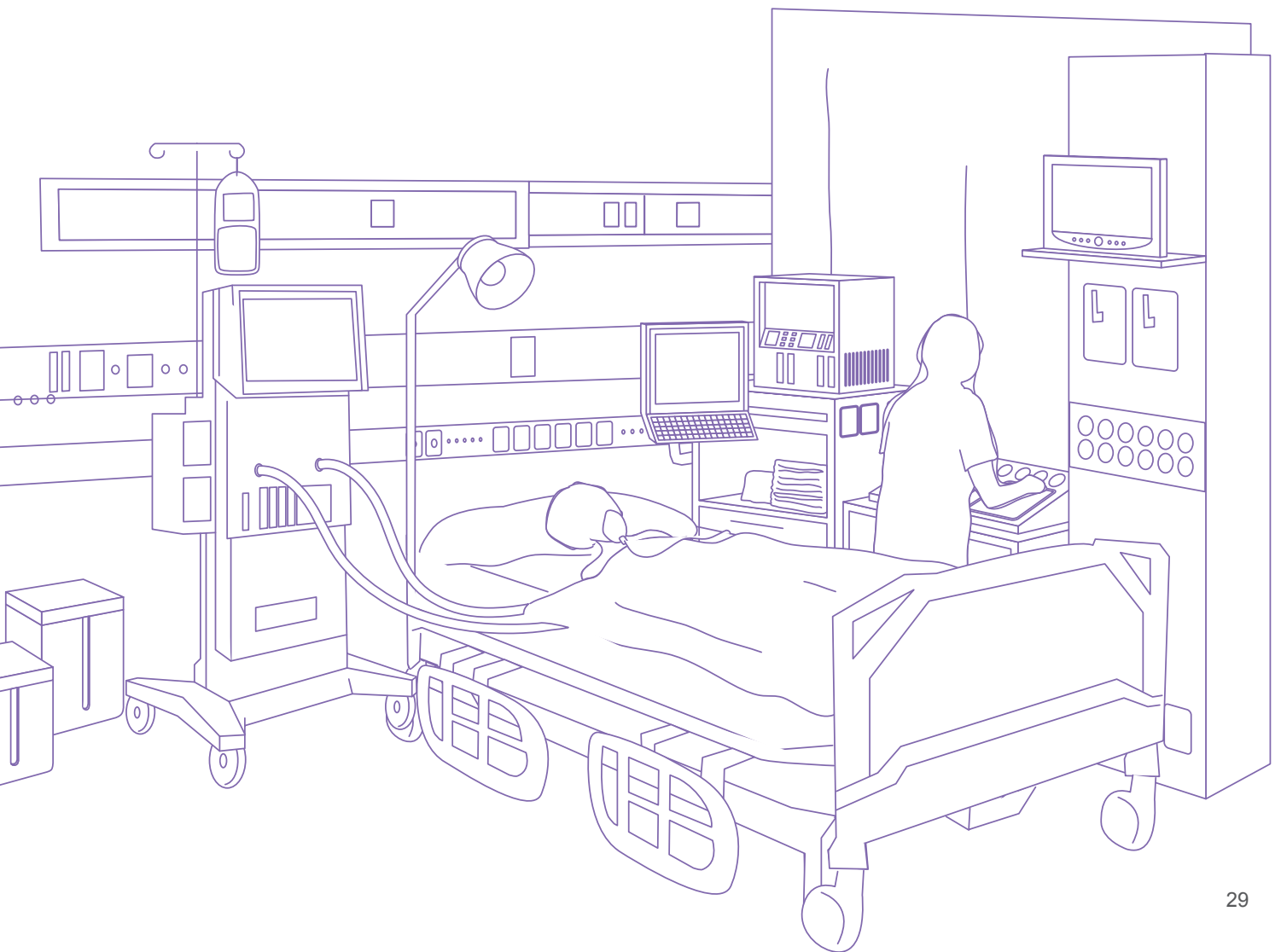
Key Elements: High Performance Embedded Boards, Extended I/O Bandwidth, DICOM Compliant Displays, Remote Management Software, Data Analytics & Security

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



Global Application Stories

- Remote healthcare services
- Compact ultrasound diagnostic systems
- Ultra-slim modular panel PC for surface area analyzer





Remote Healthcare Services

IoT Gateway Enables a Smarter, Safer Home

Project Summary

Country: U.K.

Industry: Medical

Challenge:

- Needs to support Wi-Fi/BT/ZigBee sensors
- Single power input
- Stable and easy-to-maintain

Solution:

- UTX-3115
- Intel® AC7260 Wi-Fi module
- WindRiver IDP OS

Benefits:

- Single, integrated assembly for easy manufacture
- Palm-size, fanless, very low noise
- High CPU performance
- Two Mini PCIe modules support Wi-Fi/BT/3G/LTE/ZigBee sensors

With an ageing population and rising levels of obesity, diabetes, and coronary heart disease, concerns are increasing about unexpected medical events that represent a new set of challenges for patients as well as medical professionals. Caretakers and clinicians need to know about vital signs and changes in behavior patterns so they can provide timely and accurate care.

Challenge

Our customer was looking for an integrated solution that could improve the lives of elderly and vulnerable people by providing a medical monitoring system that gave reassurance, while enabling early intervention with minimal intrusion. The platform needed to be highly reliable, with a long life cycle. It should include capabilities for communication both with sensors in the home and also with the cloud.

Solution

The Advantech UTX-3115 was designed from the beginning as a gateway product for IoT applications, and it proved ideal for the remote health care application. This fanless, wide-temp embedded box computer offers serial ports that can connect to control devices or to sensors for data aggregation. It also includes Mini PCIe slots that support Wi-Fi and 3G /4G proprietary WWAN networks. Patients take an active role in deciding what information they want collected, and then all data can be sent to the cloud in real time through the UTX-3115.

High Expandability and Efficient Operation

UTX-3115 provides two Mini PCIe slots which can take either a Wi-Fi module or a Bluetooth module to communicate with vital sign, environmental, or behavioral sensors. It also has an RS-232 port and an RS-422/485 serial port that support ZigBee interface sensor devices. Powered by an Intel® Atom™ E3826 dual core processor operating at 1.46GHz, the UTX-3115 offers significantly reduced power consumption compared to previous generations. The reduced 12V power consumption cuts total cost of ownership. The unit also includes Wind River IDP image, and McAfee security functions to protect system efficiency and reliability. Advantech's UTX-3115 is not just an embedded box PC, it's developed specifically with IoT in mind and integrated with Intelligent Systems Framework (ISF) from Intel®, and Wind River® Intelligent Device Platform (IDP) solutions for a totally IoT ready platform solution.

Palm-size, with Wide Temperature Range Support (-20 ~ 60 °C)

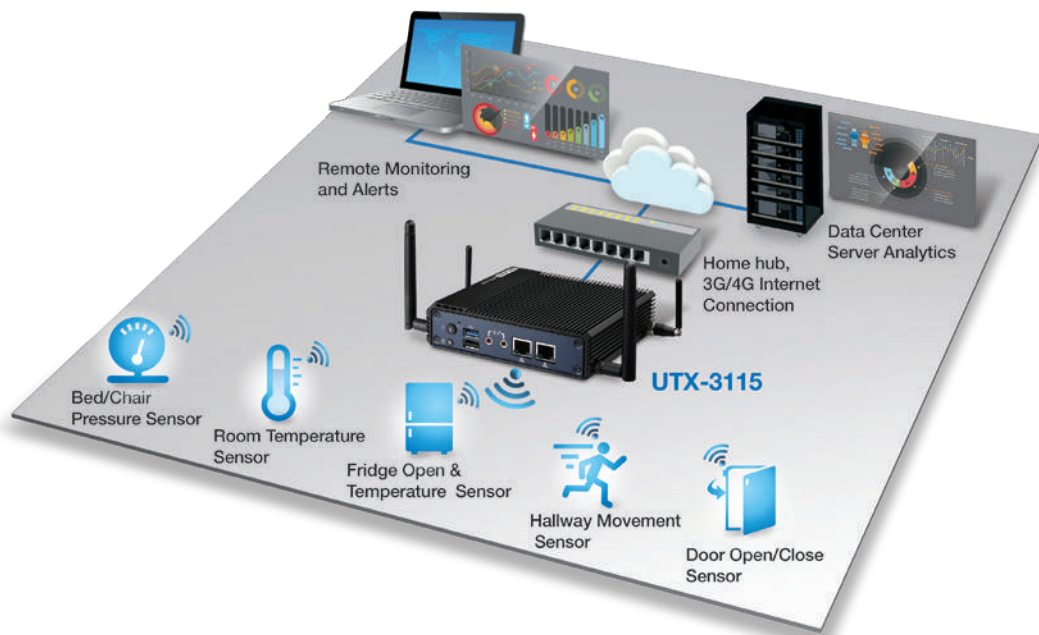
Capable of indoor or outdoor 24/7 operation, this IoT gateway is a robust and efficient solution for remote health care services. UTX-3115 boasts palm-size dimensions and three kinds of mounting kits for easy installation, even on irregular surfaces. With wide temperature support, from -20 ~ 60 °C, the fanless, low-maintenance UTX-3115 solution is nearly silent in operation.

Advantech Solutions



UTX-3115

- Intel® Atom™ Dual Core E3826 1.46 GHz processor with wide temperature -20 ~ 60 °C support
- Palm-size form factor: 138.5(W) x 35.98(H) x 116.4(D) mm
- Built-in 1 ea. half-size Mini PCIe slot, and 1 ea. full-size Mini PCIe slot for Wi-Fi or 3G modules
- 2 COM ports: 1 ea. RS-232, 1 ea. RS-422/485
- Supports WIN10/8/7 and WR IDP OS
- Optional VESA / DIN-rail wall mounts





Compact Ultrasound Diagnostic Systems

Enhanced and Efficient Care for Patients

Project Summary

Country: South Korea

Industry: Ultrasound

Challenge:

- Customers take a long time verifying and passing a lot of reliability tests
- Customers need to change their carrier board design to fit in the standard products

Solution:

- SOM-5894C
- Support customer's carrier board design.
- EMI noise solution

Benefits:

- Time Saving
- Advanced design-in services
- Easy maintenance
- Easy for manufacturing
- Cost Saving

Modern ultrasound imaging systems streamline exam workflows and deliver excellent image clarity with multiple diagnostic and healing functions. Advancement in ultrasound technology, such as the introduction of 3D and 4D systems and miniaturization, has enhanced image quality and improved clinical outcomes.

Challenge

Our customer in Korea has developed a line of professional ultrasound equipment that is distributed globally. They were looking for not merely high-performance computing power but also a rugged and reliable form factor that met stringent conditions. Generally, it takes a long time to pass many reliability tests. Also, most other vendors in the market only provide standard products which means customers need to change their carrier board design to fit into it. Finally, to support high definition image output, an integrated GPU design while consuming low power is required.

Solution

Meeting all these requirements and the limits from customers are challenging which is why Advantech SOM-5894 COM Express was being chosen. With its modular design flexibility together with Advantech professional technical design-in service, the SOM-5894, which features the 4th generation Intel Core i processor, was adopted to assist the development of the ultrasound device.

Faster Time-to-Market with Advanced Design-in Services

The new generation of customer's ultrasound system is smaller yet more powerful, reliable, and able to fit into medical solutions. SOM-5894 supports hardware coding/decoding, DirectX10.1 / OpenGL3.0, HD speeding, doubled 3D graphics capabilities covering multi-displays, and HD output. During development process, the customer faced unstable USB connecting issue, and couldn't figure out the root cause itself. As being a trusted partner, Advantech not only provided high performance platforms, but also offer COM Design-in Services to help with customer's issues even on its carrier board side. Moreover, since the system is more compact than the previous generation, ultrasound image suffered from noise issue and EMI problem. To solve the problem meanwhile maintaining its original design, Advantech design-in service team slightly adjusted few components along with improved cooler solutions.

Easy Maintenance and Manufacturing with 30% Cost Saving

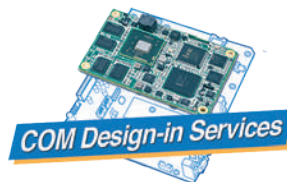
Comparing with our competitors, our solution is cost saving, easy maintenance and easy for manufacturing, helping customer to save another two months to avoid PCB re-spin and reduce around 30% cost for manufacturing and designing carrier boards and for dealing with integration problems. Advantech earns customer's trust by not only providing powerful COM solutions but also multi-layer assistance for customers' carrier board designs, including the planning phase, product development process, volume production, and product lifecycle management. Through our assistance, customers can easily maintain and manufacture their products and save time and costs at the same time.

Advantech Solutions



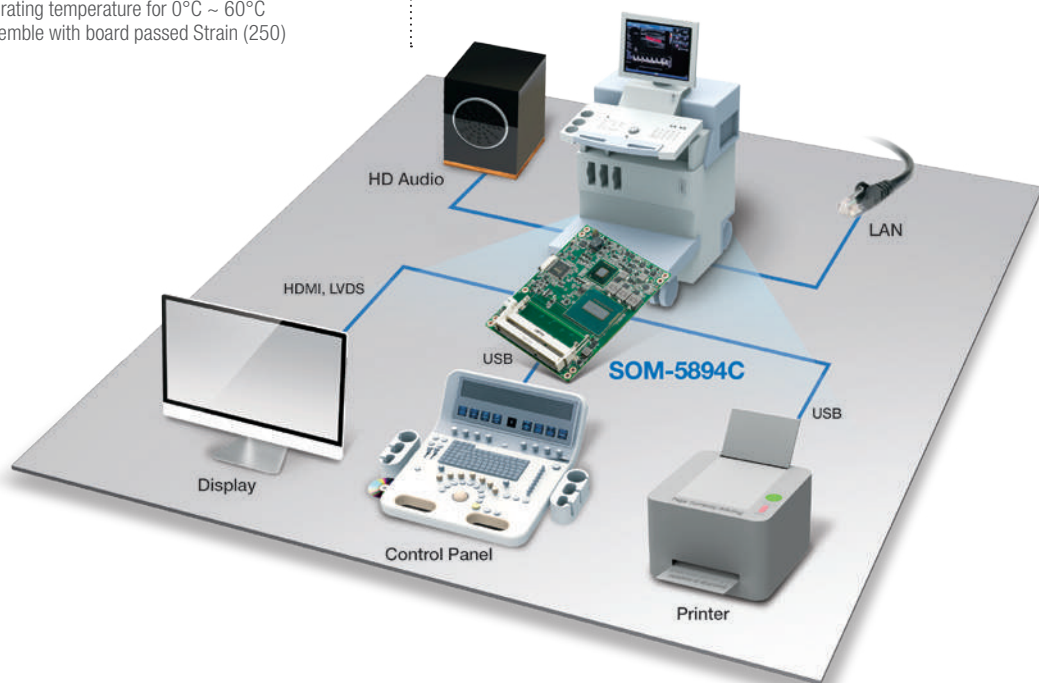
SOM-5894C

- Embedded Intel® i3-4100
- Triple-display outputs
- Slim type Cooler with UL certification FAN
- Operating temperature for 0°C ~ 60°C
- Assemble with board passed Strain (250)



COM Design-in Service

- Design assistance based on our clients' carrier board
- Dedicated EMI solution





Ultra Slim Modular Panel PC for Surface Area Analyzer

Real-time, Accurate, Reliable Analysis

Project Summary

Country: USA

Industry: Medical diagnostics

Challenge:

- A completely integrated, fully automated system
- Intuitive touch interface for easy operation and real-time data display

Solution:

- ARK-1122, slim fanless system
- IDS-3115, 15" open frame monitor

Benefits:

- Off-the-shelf modularized panel PC solution
- 5-wire resistive touch solution for fast touch response
- Efficient computing power for accurate and quick data analysis
- Friendly I/O ports and extension capability for peripherals.
- Open front architecture for flexible integration

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.

Challenge

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. Lastly, a compact computing system is needed for portability and space saving efficiency.

Solution

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. Coming with an integrated kit, tailor-made cables, and VESA mounting bracket, the customer could easily integrate our solution into their application with a highly efficient cabling arrangement.

Modular Design Enhances Space Saving, Cost Saving and Flexibility

This modular solution provides a flexible and cost-effective choice for integrating displays and fanless box PCs so that customers can select which bundle perfectly meets their needs. Compared to traditional panel PCs, it is 30mm thinner and saves up to 30% of development cost. Moreover, the modular solution provides reliable dual-core performance, and comes with three different I/O ports for peripheral connection and internet data transmission.

Easy-to-read Interactive Interface for Easy Control

The 15" XGA modular panel PC features a 5-wire resistive touch screen which enables reliable operation, and assured durability of 10 million touches. Plus, it allows easy control of all instrument functions without the use of an external computer. The open front bezel architecture enables flexible and customized enclosure for branding. And, with Advantech's WISE-PaaS/RMM remote management software built-in, customers can realize real-time remote monitoring and control, to secure the device from cyber threats and attacks.

Advantech modular panel pc and fanless box PC provides customers with a flexible display solution which can be customized to customers' specific needs, schedule and budget.

Advantech Solutions



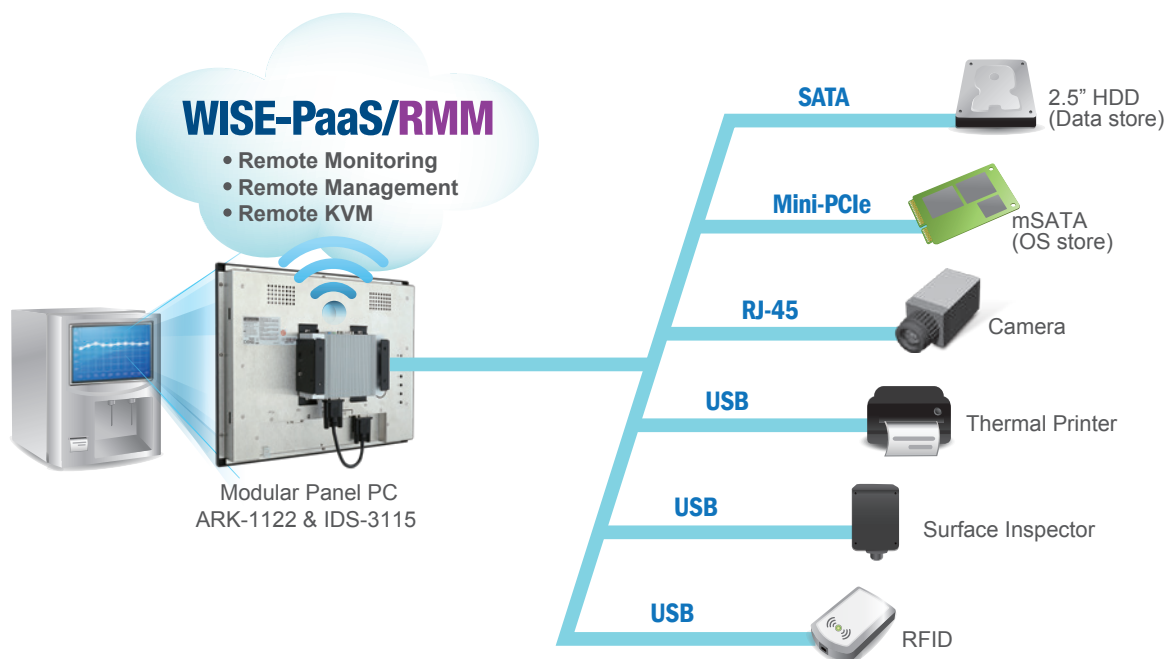
ARK-1122 Ultra Slim Fanless Box PC

- Intel Atom N2600 dual-core processor
- 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



IDS-3115, 15" Open Frame Monitor

- 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



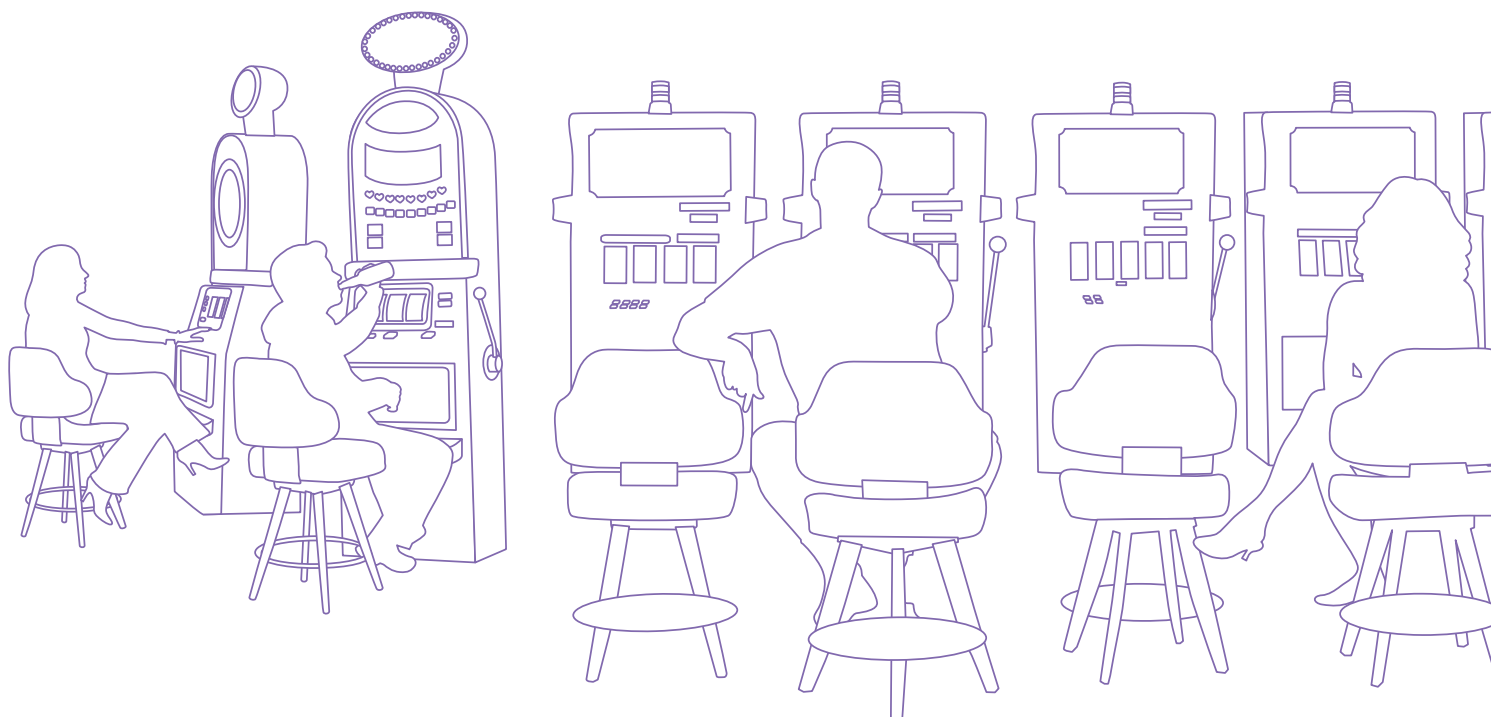
Application Story

Intelligent Retail & Gaming

The retail industry is undergoing a major transformation, changing how customers shop and how retailers run business. Everything in the store becomes connected including people, machines, items and services and that helps retailers to track real-time data for stock and interact with customers with personalized promotion. According to IDC report, retail will account for \$ 326 million of revenue opportunity driven by the IoT technology in 2018. The gaming industry has also undergone a major change in the last 5 years, with the focus of game developers shifting towards the digital segment. In combining interactive digital signage, social media, and mobile apps, casinos are embracing and experimenting with new platforms to connect with customers. Connectivity, Security, Manageability are key aspects that are involved.

Key Elements: Graphic Enhanced Systems, Reliable Sensor Network, Remote Management Software, Data Analytics, System Security

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



Global Application Stories

- 3D rewards center kiosk in retail
- Dynamic digital menu board
- Casino gaming machines





3D Rewards Center Kiosk in Retail

Keeps Retailers In Touch With Mall Shopper

Project Summary

Country: USA

Industry: Retail

Challenge:

- Dual 3D graphics capability
- Tight schedule and time-to-market pressure

Solution:

- DS-061, ultra slim signage player
- Custom Image and BIOS
- Design-in service

Benefits:

- 19mm of slim design for easy installation
- Supports Full HD output for simultaneous dual displays
- Supports 2D and 3D multimedia content
- Full design-in support

Digital signage kiosks can be seen in many types of retail stores to provide shoppers with up-to-date information and the latest promotions. Kiosks with 3D advertising capabilities allow shoppers to print coupons of promotional offerings and they also gives brand marketers a chance to showcase their products.

Challenge

Our customer is currently the market leader in true 3D consumer advertising displays. Their new 3D holographic kiosk is equipped with two 17" displays; one projects videos in front of the screen without the need for special glasses and the other one is a 2D interactive touchscreen that provides consumers with quick access to promotions, coupons, or other retailer specific programs. Brand marketers can showcase their products via 3D advertising and engage viewers in new ways via an interactive touch screen interface. The 3D kiosks have been gradually launched in 1,000 retail locations in the New York and Los Angeles markets.

Solution

To meet the customer's tight schedule and high performance requirements, Advantech provided their ultra slim signage player—DS-061, along with full design-in support to help them develop their new 3D holographic kiosks with reduced design costs, development time, and time-to-market.

Excellent Performance and Quality Increase for More Engaging Experience

DS-061 is powered by an Intel core i7 processor which provides great 3D graphics performance. Measuring a mere 19 mm thick, DS-061 is easily integrated into the kiosk enclosure. It supports simultaneous dual Full-HD 1080P and 3D graphic capability via DP and VGA interface, delivering a premium visual experience. Moreover, the 3D kiosk provides a crystal clear 17" touch screen interface and a printer for on demand coupons, rewards and promotions inside retail locations. DS-061 supports multiple connections via USB, mini-PCle, and RS232 to integrate additional value-added modules such as printer, and touchscreen. It is wireless, so the customer can easily create marketing campaigns and remotely manage them in real time while launching customized content on the fly to deliver a richer brand experience using Intel® Retail Client Manager (Intel® RCM).

Full Design-in Support

During the development process, Advantech engineering support team were involved in the beginning of the design process and provided technical consulting and support, which saved engineering resources and enabled the customer to shorten their development cycle. Advantech local engineering support team were able to provide both a customized BIOS and image for each of the customer's software needs which helped increase graphics performance and reduced the OS image footprint, as well as increasing storage space for the customer's own software applications.

Advantech Solutions



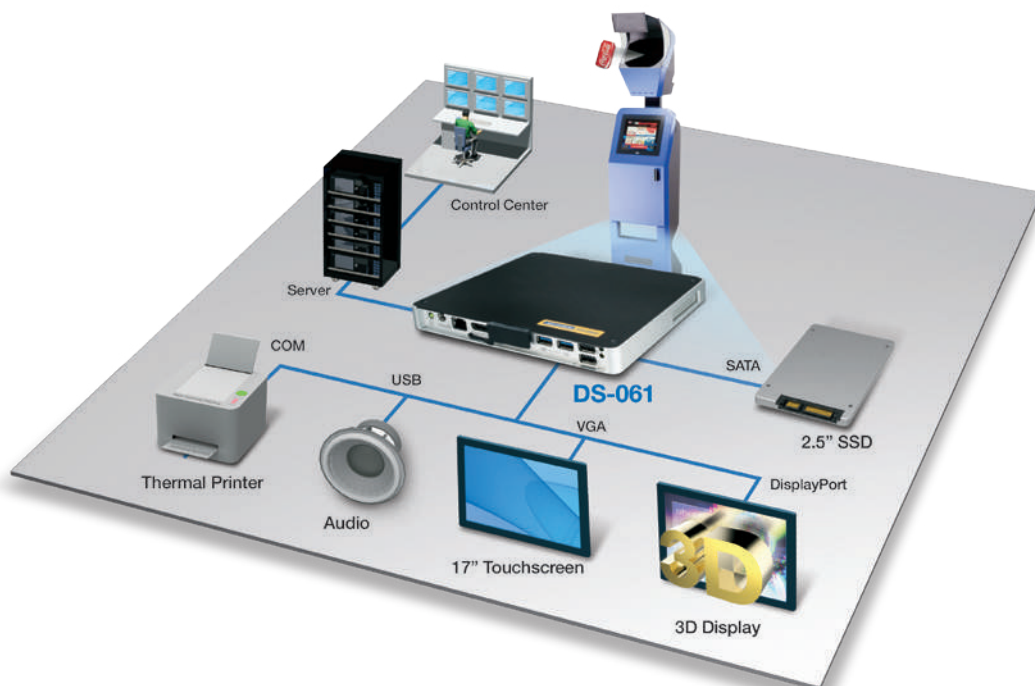
DS-061

- Intel core i7 CPU with HD graphic engine
- 8GB of RAM to increase graphics performance
- Solid State Disk storage to provide fast performance and reliability
- Ultra slim form factor to ease installation in Kiosk



Custom Image and BIOS

- Customized BIOS tailor-made for customer's graphics needs
- Customized Image to reduce OS footprint and to increase storage space
- Customized OS to preinstall customer's software
- Embedded OS to provide a secure environment and features





Dynamic Digital Menu Board Delights Customers

Maximized Target Sales and Customers' Satisfaction

Project Summary

Country: China

Industry: Quick Service Restaurant

Challenge:

- Increase per user spending by digital menu boards
- Efficient way to communicate promotions to customers

Solution:

- DS-570, driving 1080P content up to four independent displays
- WebAccess/IMM web-based content management software

Benefits:

- Supports simultaneous four display outputs
- Easy maintenance and management
- Compact fanless design for easy installation
- Windows® 7 Embedded
- Great reliability, stability and connectivity

Restaurant chains operate in a fast-paced industry focused on customer satisfaction. Wait times are a thing of the past, as customers can proactively use screens to look at seasonal or time-scheduled menu offerings, and special promotions. It has been proven that digital menu boards can help increase sales by more than 5 percent and eliminate annual maintenance costs.

Challenge

In China, our customer Yoshinoya, a global quick-service Japanese restaurant chain with more than 1,800 locations across the world, recently opened a branch unveiling more variety and value with fresh menu items, a simpler ordering process, and a whole new look. Eye-catching digital signage are installed both on the store windows to attract customers and on the walls. The digital menu boards consist of four displays which play real-time video and images of the latest dishes and the freshest ingredients of the season. The customer was looking for a flexible solution which allowed either the remote IT department or onboard customer service team to update the menu boards with the latest information.

Solution

Advantech offers more than just hardware, but also a content management solution and service; as a result, our customer enjoys faster time-to-market with lower total cost of ownership.

Robust, Reliable and Continuous Operation

Considering Yoshinoya's interior design, Advantech offered DS-570 which features a compact and fanless design so that they can easily install it behind the displays both on the store windows and on the walls. DS-570 supports four 1080 FHD displays simultaneously powered by an Intel Celeron J1900 processor and NVIDIA GeForce GT730M graphics chip. DS-570 with fanless design lowers maintenance costs and prolongs 24/7 operation. Moreover, DS-570 is integrated with WebAccess/IMM, a web-based content management software so Yoshinoya can quickly change and edit their latest menus with the seasonal offerings and deliver their promotions or discounts to the customer much more quickly.

Real-time Information Keeps Customers Engaged

Advantech's integrated digital menu board solution with bundled WebAccess/IMM web-based content management software provides an intuitive drag-and-drop interface to allow the customer to create dynamic, visually appealing menus for each location, schedule promotions, and change the price or promote a time limited special offer in an efficient and engaging way. Moreover, WebAccess/IMM allows our customer to manage 500 clients/ players menu displays remotely from a central location through a web browser. Advantech also provides 24/7 and 5/8 customer support services to help Yoshinoya in any regard about the service, any difficulty in using it, connection issues or display issues. The whole solution met Yoshinoya's expectation. As a result, Yoshinoya enjoys faster time-to-market with lower total cost of ownership and provide their customers with an even more efficient ordering environment.

Advantech Solutions



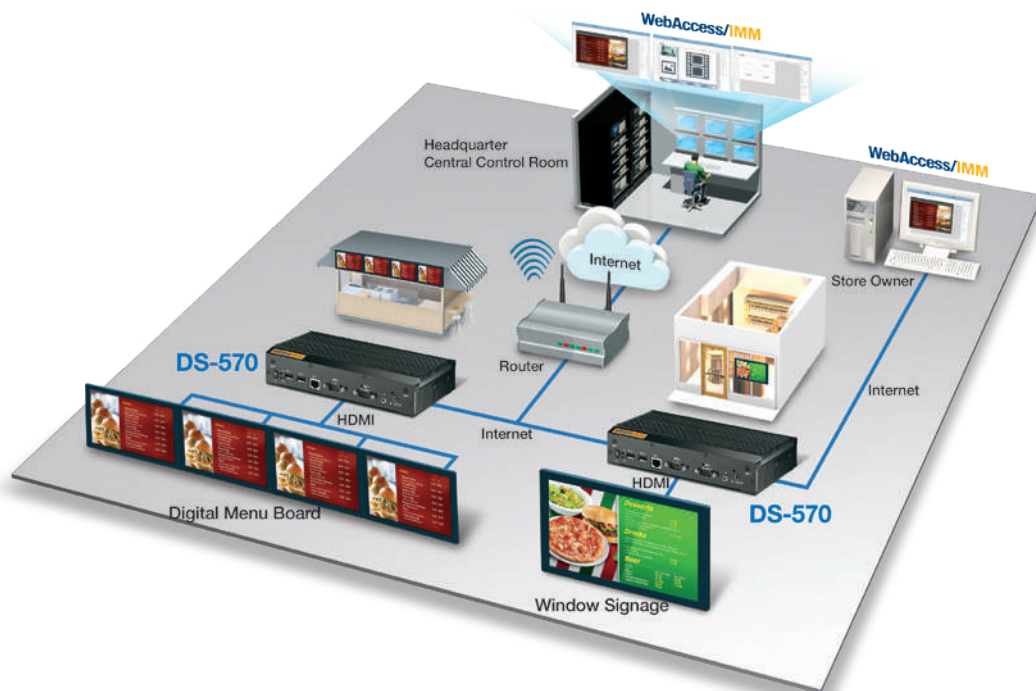
DS-570

- Intel® Celeron® J1900 Quad-Core™ SoC platform
- NVIDIA GeForce GT 730M graphic chip for UHD/FHD playback
- Supports simultaneous multi-display up to 4 displays
- Compact & fanless design for easy installation
- Content Management Software Built-in



WebAccess/IMM

- Web-based Management up to 500+ players/clients
- Edit and dispatch programs within 3 steps
- Support 30+ media contents
- User-friendly Interface
- System Backup and Restoration





Effortless Performance Upgrade and Added Intelligence Facilitates Entry to New Gaming Markets

Project Summary

Country: Europe

Industry: Casino gaming machine

Challenge:

- Upgrade performance for new OS and multimedia content
- Additional security and SAS networking for entering new markets
- Satisfy regulatory requirements

Solution:

- DPX-S435 Gaming motherboard
- DPX Secureboot SDK
- DPX SAS Engine SDK

Benefits:

- High-performance Intel® 4th generation Core™ i platform
- Backwards compatible format and software API
- Proven and approved software solutions
- Accelerated time-to-market

As casino gaming machines become increasingly elaborate multimedia computer systems, OEMs require more powerful platforms with greater bandwidth, faster processors, and high performance graphics hardware to output high-definition media-rich content to two or more displays.

Challenge

Manufacturers of the electronic gaming machines used by the casino industry are subject to many regional jurisdictional regulations and certification specifications. Advantech understands the challenges that such regulations pose for the entire supply chain. To upgrade a slot machine platform or sell an end product to new markets, OEMs must re-certify the product in each target jurisdiction. A number of markets also require specific capabilities that many OEMs do not have, such as SAS networking (slot accounting system) or BIOS-level media validation (Secureboot).

Solution

The company, one of Advantech's long-standing customers in Europe, successfully migrated from the DPX-S410 platform to the latest high-performance platform DPX-S435. Because of the mechanical format compatibility, the migration was easy and simple to perform. To enter new markets, the OEM added SAS and Secureboot capabilities to the platform using off-the-shelf product solutions.

Easy Transition to a High-Performance Platform

With comprehensive I/Os, COMs, storage, and advanced security, DPX-S435 is the first integrated Intel® Xeon® single-board computer designed specifically for the gaming industry. Featuring a fourth-generation Intel® Core™ architecture, this platform supports various CPUs, including dual-core Celeron, Core i3, Core i5, Core i7, and Xeon® CPUs. To limit cost, the customer selected the Intel® Core i3-4330TE CPU. Because DPX-S435 supports Windows 7 and 8, embedded Microsoft OS, and Linux, the customer could transition between platforms without changing the OS. The migration and certification were drastically simplified by the format and API/software compatibility, as well as the legacy OS support.

Added Intelligence with Field-Proven Software Solutions: Secureboot Security and SAS

The OEM adopted Advantech's off-the-shelf software solutions to extend the product functionalities. DPX Secureboot SDK facilitates the development of a low-level security architecture that satisfies most regulatory standards, including those established by GLI. To customize the machines for international markets, both Secureboot and SAS Engine were integrated. Most casinos have networked slot machines monitored from centralized servers that run proprietary accounting applications, and each slot machine must communicate using the correct protocol, message format, and server application data. The SAS protocol developed by IGT is the most commonly used, leading to its implementation on other machines and slot floor systems. With this highly efficient system and integrated display solution, Advantech provides system integrators with a reliable and durable foundation for future development.

Advantech Solutions



DPX-S435

- High performance Intel® Dual and Quad Core™ CPUs from Celeron® to Xeon®
- Comprehensive gaming features
- High performance integrated or PCI-Express graphics
- Easy integration for gaming applications
- Full featured Driver API for IO



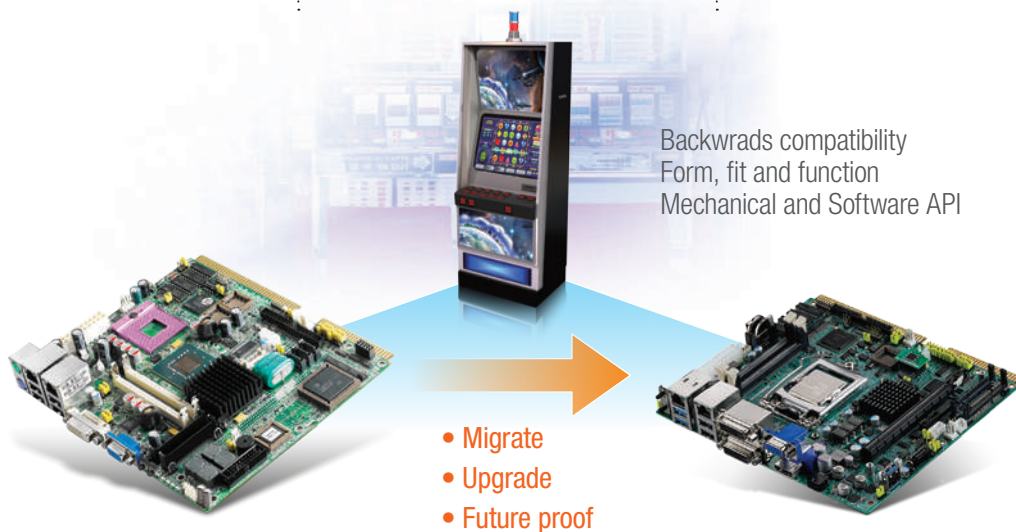
DPX Secureboot

- Security ROM code toolkit
- Customized for individual applications
- Field tested
- Complies with international gaming regulations

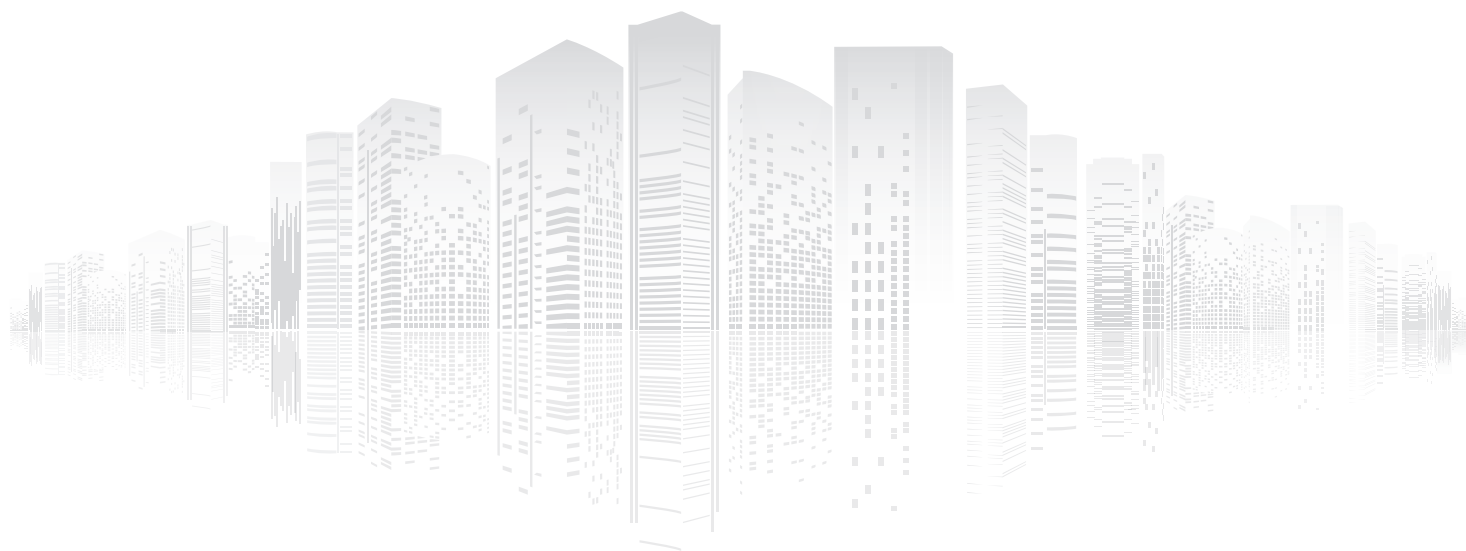


SAS Engine SDK

- Comprehensive SAS protocol library
- Over 175 SAS meters, 150 SAS events defined
- 150 SAS events defined
- Accounting, metering, TITO, EFT/AFT
- Proven and field tested



www.advantech.com/embcore



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