Regional Service & Customization Centers

China	Taiwan	Netherlands	Poland	USA
Kunshan	Taipei	Eindhoven	Warsaw	Milpitas, CA
86-512-5777-5666	886-2-2792-7818	31-40-267-7000	48-22-33-23-740 / 741	1-408-519-3898

Worldwide Offices

Greater China

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

Asia Pacific

Japan	0800-500-1055
Tokyo	81-3-6802-1021
Osaka	81-6-6267-1887
Korea	080-363-9494
Seoul	82-2-3663-9494
Singapore	
Singapore	65-6442-1000
Malaysia	1800-88-1809
Kuala Lumpur	60-3-7724-3555
Penang	60-4-397-3788
	60-4-397-4188
Indonesia	
Jakarta	62-21-769-0525
Thailand	
Bangkok	66-2-248-3140
India	1800-425-5070
Bangalore	91-80-2337-4567
Australia	1300-308-531
Melbourne	61-3-9797-0100
Sydney	61-2-9476-9300

Europe

Europe	00800-2426-8080
Germany	
Münich	49-89-12599-0
Hilden	49-2103-97-885-0
France	
Paris	33-1-4119-4666
Italy	
Milano	39-02-9544-961
Benelux & Nordics	
Breda	31-76-5233-100
Roosendaal	31-165-550-505
UK	
Reading	44-0118-929-4540
Poland	
Warsaw	48-22-33-23-740/741
Russia	8-800-555-01-50
Moscow	7-495-232-1692

Americas

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

Advantech is a Premier member of the Intel® Intelligent Systems Alliance. From modular components to market-ready systems, Intel and the 200+ global member companies of the Alliance provide the performance, connectivity, manageability, and security developers need to create smart, connected systems. Learn more at: intel.com/go/intelligentsystems-alliance.

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

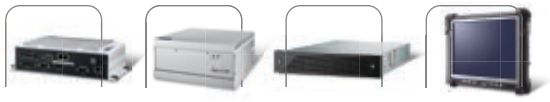
Please verify specifications before quoting. This guide is intended for reference purposes only.
All product specifications are subject to change without notice.

More Information

2000020773

Intelligent Transportation System Solutions

Industrial Computers with Industry-Proven Success



- Infrastructure
- In-Vehicle
- Passenger Information Display Systems
- Mobile Computing

ADVANTECH

Enabling an Intelligent Planet

RoHS COMPLIANT 2002/95/EC CE FCC UL

www.advantech.com

About Advantech

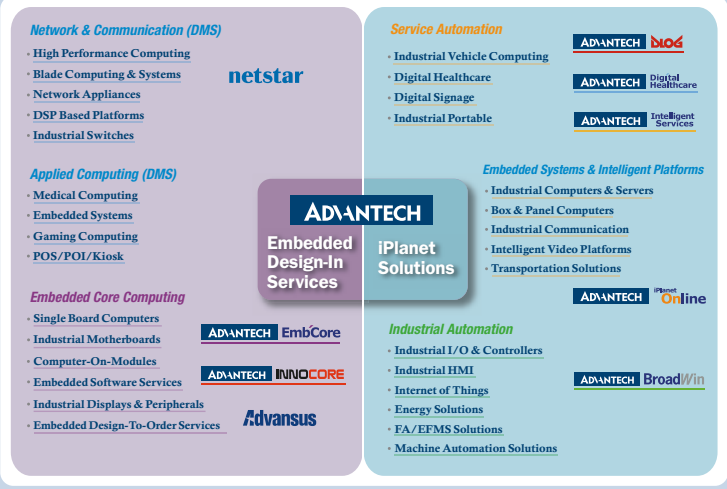
Advantech: Enabler of an Intelligent Planet

Founded in 1983, Advantech is a leader in providing trusted innovative embedded and automation products and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, and global logistics support; all backed by industry-leading front and back office e-business solutions. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. Advantech has always been an innovator in the development and manufacture of high-quality, high-performance computing platforms, and our mission is to empower these innovations by offering trustworthy products and services that enable an intelligent planet. With Advantech, there is no limit to the applications and innovations our products make possible.

Advantech's Good-to-Great 3-Circle Principle

The Advantech 3-Circle Principle is based on the book "Good to Great," by Jim Collins. According to the book, a company looking for long-term success should clearly address these three fundamental principles, and commit to their continuing, solid execution. Advantech is fully committed to this approach and has defined the Advantech "Good to Great 3-Circle Principle" as a means of adhering to it.

Advantech Corporate Structure and Growth Engines

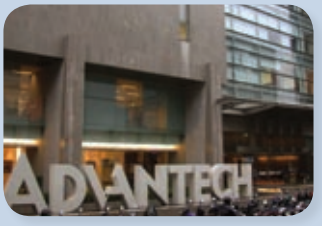


• Networks & Communications DMS

Advantech integrated DMS "StarFleet" Model provides OEMs and premier key accounts with customer-focused Design and Manufacturing Services (DMS), winning together through worldwide partnership and collaboration. DMS provides hardware and software integrated solutions. For the telecom and networking markets, Advantech provides mission-critical hardware to the leading equipment manufacturers. Advantech's standard and customized products are embedded in OEM equipment that the world's communications infrastructure depends upon. Through Advantech's premier Design & Manufacturing Services our customers get reliable, open-standard solutions from the leading innovator in network platform development and manufacturing – plus dedicated resources and support to back them up.

• Applied Computing DMS

Advantech is a leading industrial computer systems manufacturer and customized solutions provider. Under Design & Manufacturing Services (DMS), our applied computing professionals develop vertically-driven, application-specific platforms and service-ready solutions for use in many sectors: gaming computing, eHealthcare computing, portable computing, and embedded systems. We specialize in designing and manufacturing the widest range of high quality and high performance industrial grade hardware and dedicated software tailored to the exact needs of each industry field. With a dedicated research & development team, a full range of customization capabilities, and a global sales/service organization, the Advantech DMS applied computing team has what it takes to fulfill customers' time-to-market requirements.





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. In 2011, Interbrand, the world renowned brand consulting firm, once again recognized Advantech as one of the Top 10 Taiwanese Global Brands. 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.

Model Corporate Citizen

Advantech is committed to being a model corporate citizen by helping to preserve the environment and by giving back to society. Our environmental program focuses on reducing, reusing, and recycling materials used in our manufacturing operations. Advantech's environmental compliance effort includes the following:

- ISO 9001 Certification
- ISO 14001 Certification
- ISO 13485 Certification
- OHSAS 18001 Certification
- TL9000 Quality Management System
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner

Timely Support at Your Convenience

Advantech has over 12 regional toll-free hotlines, and offices throughout 71 cities in 21 countries, with over 5,000 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 over ten customer service centers in Taiwan, China, Japan, Korea, Singapore, Brazil, the Netherlands, Poland, and the United States, our global service network offers an extensive spectrum of services that includes warehousing, logistics, peripheral certification, sourcing and purchasing, and RMA and support services.

• Embedded Core Computing

Embedded Core Computing Group provides a full range of embedded boards, systems, peripheral modules and innovative embedded software services with leading technologies to customers. With a range of specialist 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.

• Embedded Systems & Intelligent Platforms

With innovative technologies from cloud computing (industrial server, video server), edge computing (fanless, slim & portable devices), to high performance embedded systems (blade computing, network processor platforms, DSP processing), Advantech transforms embedded systems into intelligent systems with smart, secure, energy-saving features, built with Industrial Cloud Services and professional System Design-To-Order Services (System DTOS). Advantech's intelligent systems are designed to target vertical markets in transportation, industry (machine automation, equipment/machine building), digital signage, and video applications (video infrastructure and video surveillance).

• Service Automation

Advantech's Service Automation & Applied Computing Group invests in developing vertically-driven, application-specific platforms and service-ready solutions for use in many sectors: industrial portable computing; digital logistics & fleet management; digital healthcare & medical computing; smart room & scenario control for home and office; and digital signage & self-service computing for retail, hospitality, enterprise, education, and public spaces. Service Automation & Applied Computing Group lets you enjoy the convenience, safety, and efficiency that smart applications deliver, and experience the best in interactive and innovative technologies and services.

• Industrial Automation

With the theme of Intelligent Automation, Seamless Integration; the Industrial Automation Group (IAG) of Advantech Corporation is a pioneer in intelligent automation technology. By combining connectivity, flexibility, ruggedness and leading-edge "Internet of Things" technology, IAG offers product offerings for intelligent HMI platforms, the industrial Ethernet, wireless communications, automation controllers, automation software, embedded automation computers, distributed I/O modules, wireless sensor network solutions, motion I/O and plug-in I/O modules for a wide array of industries. With more than 20 years of experience in providing a full range of products to different vertical markets, IAG is a leading global automation product and services provider.

Intelligent Transportation for Future SAFE Cities

Advantech is committed to providing long-term cooperation and reliable platform solutions that enable intelligent transportation in cities all over the world. With a decade of successful experience, especially in China, Advantech is there to assist customers in building transportation solutions that are SAFE: with Smart development & management, Accurate sensor data for real-time control, Fast forecasting to avoid traffic congestion, and Environmental protection, with reduced traffic & carbon emissions.

Transportation Infrastructure

Table of Contents

In-vehicle

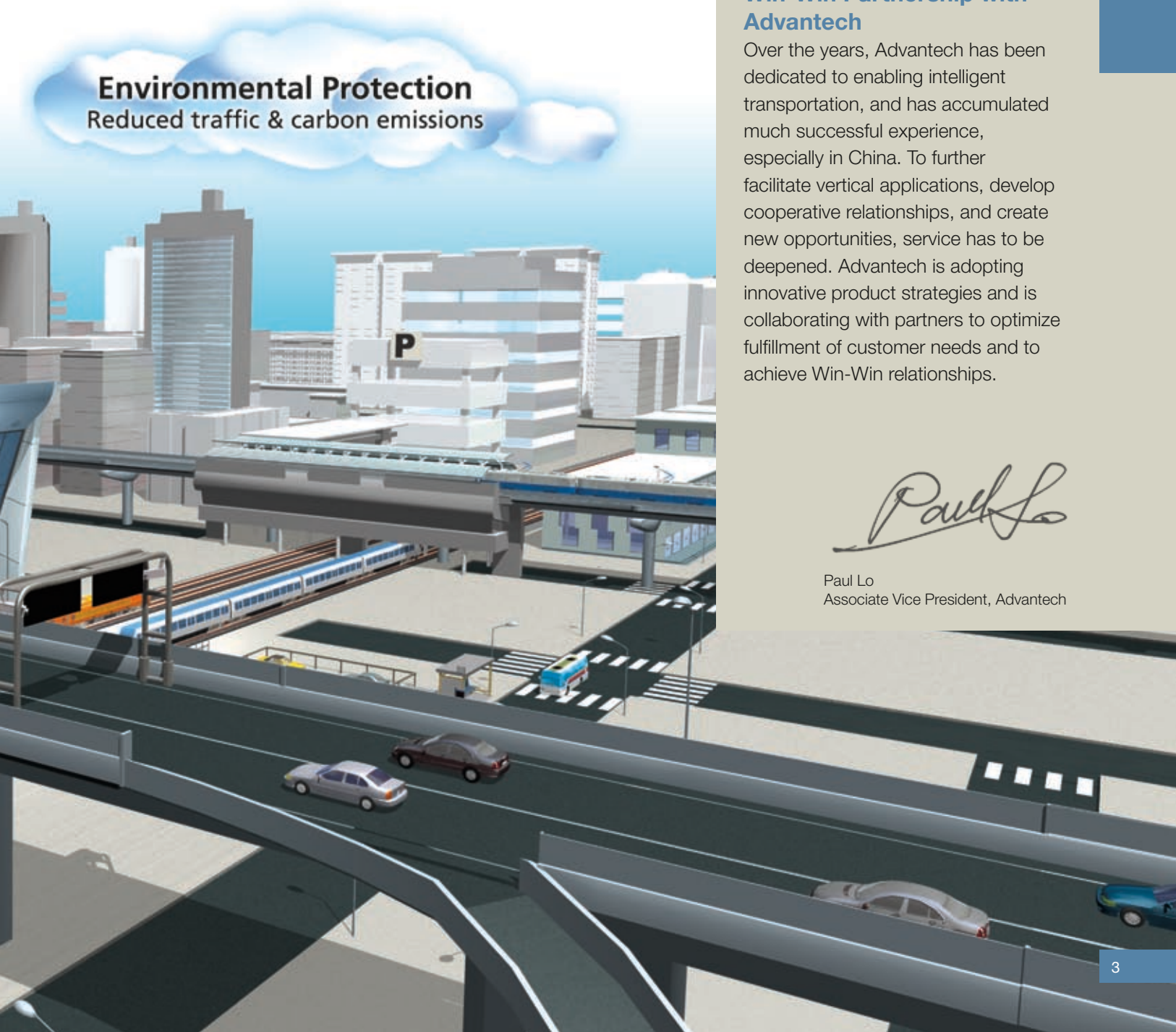
Passenger Information Display Systems (PIDS)

Mobile Computing

Win-Win Partnership with Advantech

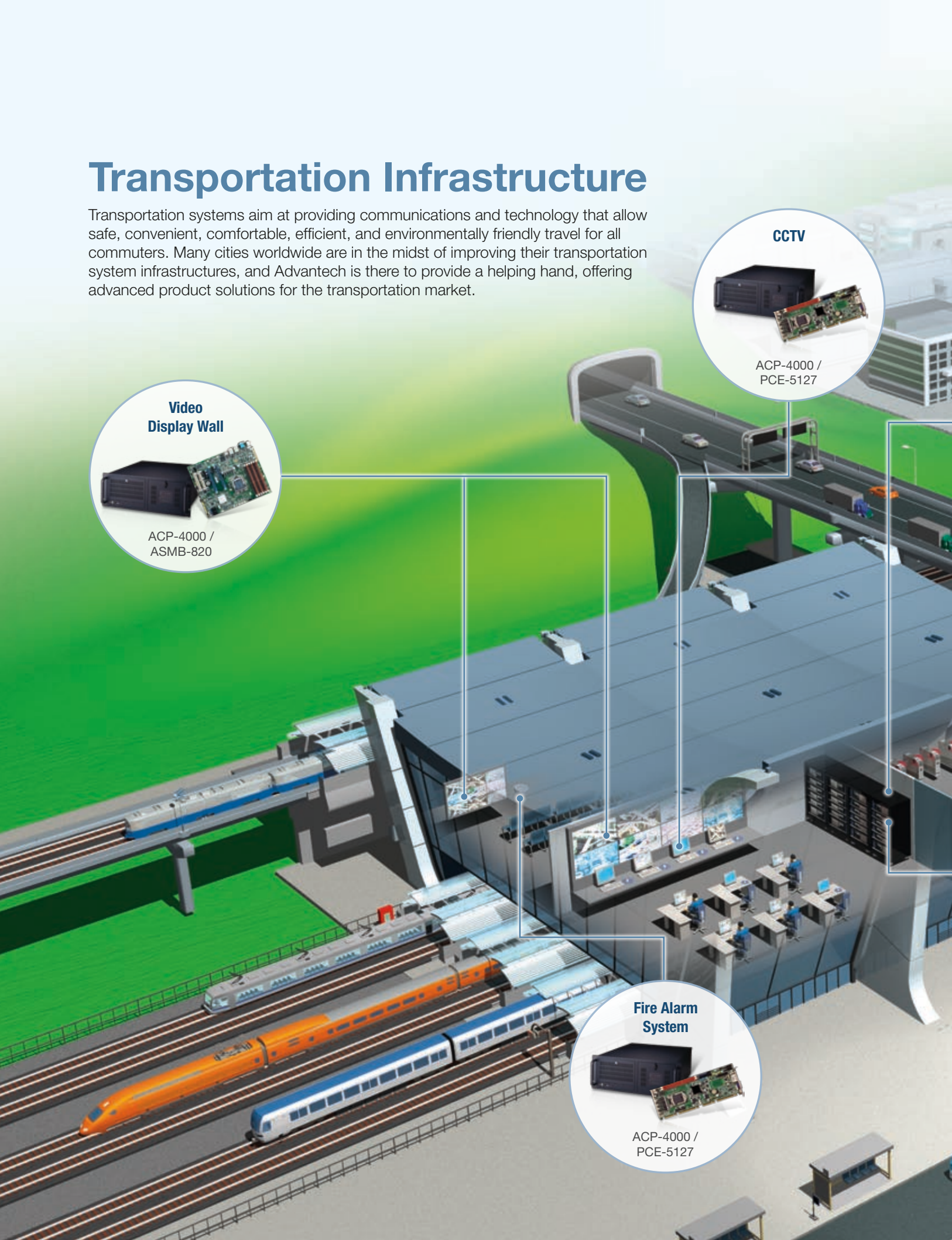
Over the years, Advantech has been dedicated to enabling intelligent transportation, and has accumulated much successful experience, especially in China. To further facilitate vertical applications, develop cooperative relationships, and create new opportunities, service has to be deepened. Advantech is adopting innovative product strategies and is collaborating with partners to optimize fulfillment of customer needs and to achieve Win-Win relationships.

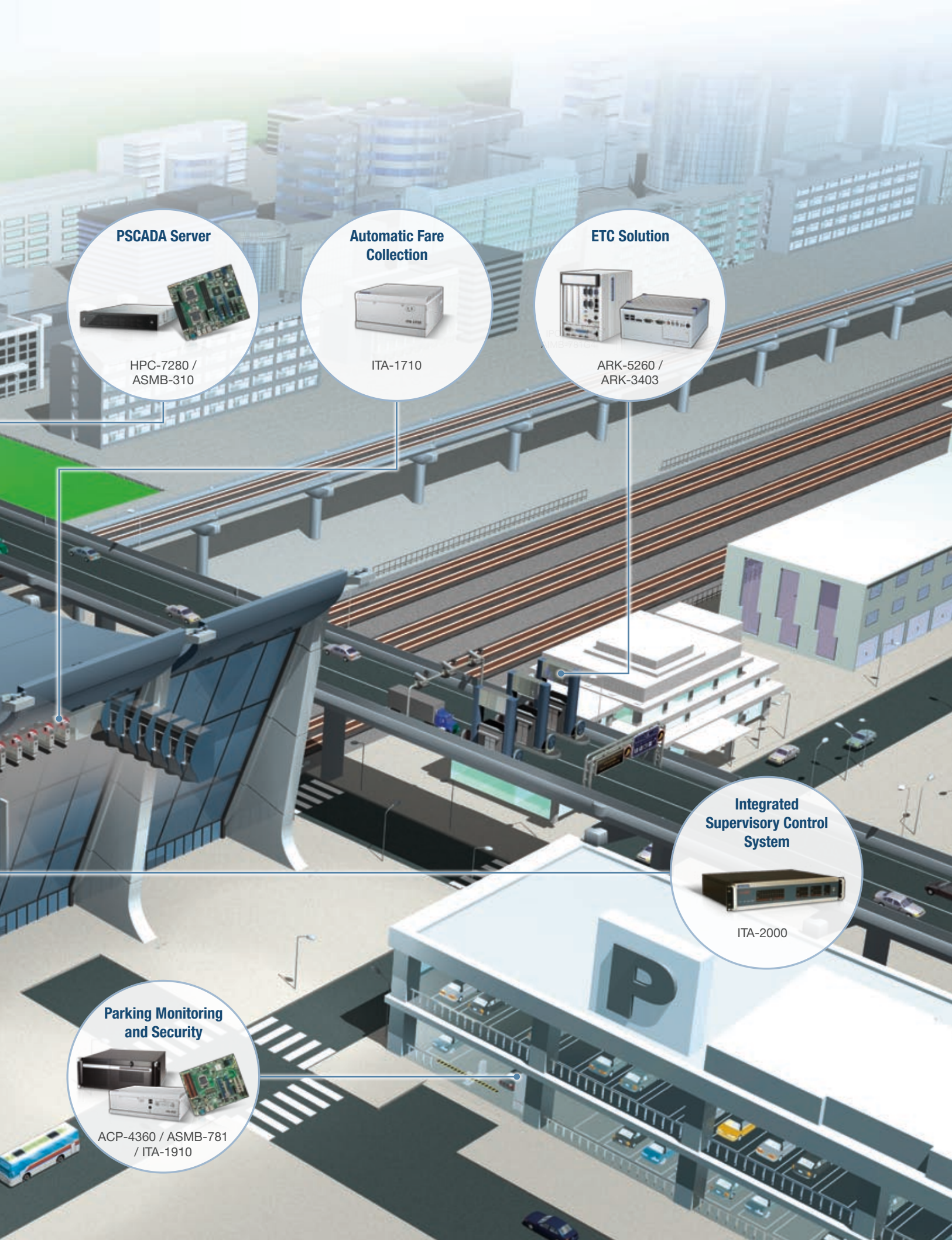
Paul Lo
Associate Vice President, Advantech



Transportation Infrastructure

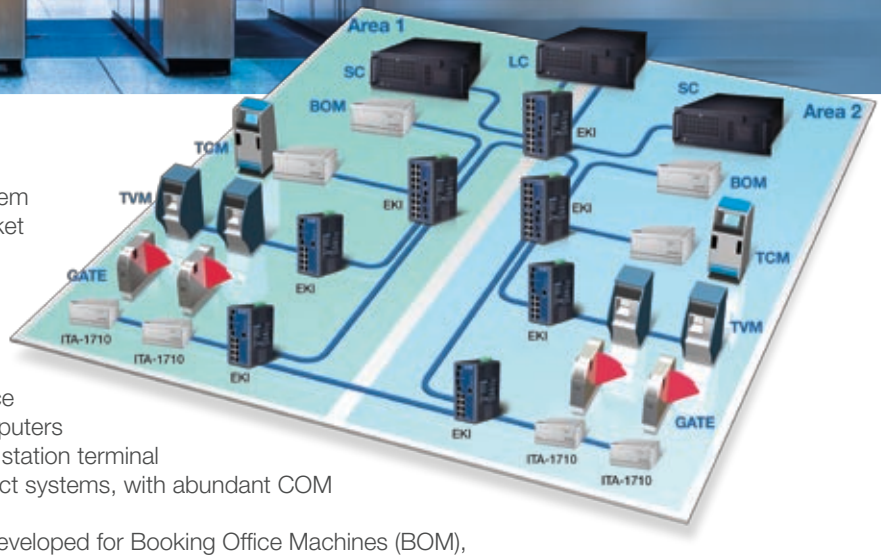
Transportation systems aim at providing communications and technology that allow safe, convenient, comfortable, efficient, and environmentally friendly travel for all commuters. Many cities worldwide are in the midst of improving their transportation system infrastructures, and Advantech is there to provide a helping hand, offering advanced product solutions for the transportation market.




PSCADA Server
HPC-7280 /
ASMB-310
Automatic Fare Collection
ITA-1710
ETC Solution
ARK-5260 /
ARK-3403
Integrated Supervisory Control System
ITA-2000
Parking Monitoring and Security
ACP-4360 / ASMB-781
/ ITA-1910

Automatic Fare Collection

Advantech Automatic Fare Collection (AFC) System for Rail Transportation



Project

Automatic Fare Collection (AFC) is an automated system for rail transportation that performs ticket vending, ticket checking, fare calculation, fare collection, statistics, clearing, and management tasks; it uses computers, communication networks, and automatic control technology. The structure of an AFC system consists of five levels: fare media, devices to read/write media, depot/station computers, back office systems, and central clearing house. Embedded computers are used in all the systems except for the tickets, and station terminal equipment has relatively special requirements: compact systems, with abundant COM and USB ports, multiple displays, etc.
For those reasons, unique specifications have been developed for Booking Office Machines (BOM), Ticket Vending Machines (TVM), Ticket Checking Machines (TCM), and Gate Control Systems (GCS).

Requirements

- A high degree of integration—on-board CPU, RAM, and application interfaces
- Fanless design
- Compact
- Multiple display support
- Storage method: Industrial-grade SSD, CF
- Real-time operating system: DOS, Windows® XP, XPE, CE, Vxworks, Linux, QNX
- Highly security
- Vibration and impact resistant

Conclusion

We see that computer development for AFC continues to tend toward low power consumption, fanless design, self-diagnosis and remote management, data backup, high reliability and security, and flexible modular design. Advantech products have been applied in AFC systems in China for a long time. The earliest Advantech products in these applications consisted of single board computers plus PC104 I/O cards directly embedded in AFC machines. But as systems evolved, I/O requirements increased along with demands for greater reliability for use in harsh environments. Advantech products are currently embedded in AFC systems in the subway stations of such major cities as Beijing, Shanghai, and Shenzhen.

Implemented Products

ITA-1710
Intel® Atom™ D525 DC Wide Range Compact System with Dual GigaLAN, 10 COM ports and Dual Display

Fire Alarm System

Advantech Industrial Computers Power Beijing Subway Fire Alarm System

Project

The FAS (Fire Alarm System) in Beijing Subway Line 4 provides dual management, comprising a main controller (control center) and subordinate controllers (stations, yards, and depots). A hazard prevention monitoring center located in the control center is responsible for receiving warning signals and alarms, issuing disaster response commands, and monitoring the status of hazard prevention and resolution equipment along the entire line. In the individual stations, hazard monitoring systems receive alarms and communicate in real-time with the command center, receiving and executing hazard-resolution commands.

Requirements

The hazard prevention alarm system in the subway includes central functions and station-level functions.

- The central monitoring functions of FAS chiefly encompass monitoring fire alarms in all stations. If a fire occurs, the FAS serves as a control center for hazard resolution along the whole line.
- The FAS automatically collects, displays, records, and stores information on fires, stores records concerning operating personnel, and also manages and processes history files.
- In accordance with the actual situation when a fire occurs, the FAS can automatically or manually select a preset plan, issue evacuation orders and fire safety and disaster response commands to station-level control systems, and direct disaster response work.

System

The FAS forms the critical heart of the metro/subway safety system. In accord with regulations, the main control unit employs redundant Ethernet LANs with dual network ports, and is linked with the MCS front-end processor (FEP). Station information is transmitted using TCP/IP through the line's backbone network to the operational control center (OCC), enabling full remote control.

Conclusion

With the ongoing development of fire alarm technology, all FAS in subways are now controlled by industrial computers and employ public backbone networks to share resources and information, enhancing system safety and reliability. The installations in the stations ensure system independence and meet specialized specification requirements.
A stable control unit provides a solid foundation for overall system operation. Advantech's highly reliable industrial computers make excellent choices for FAS applications.

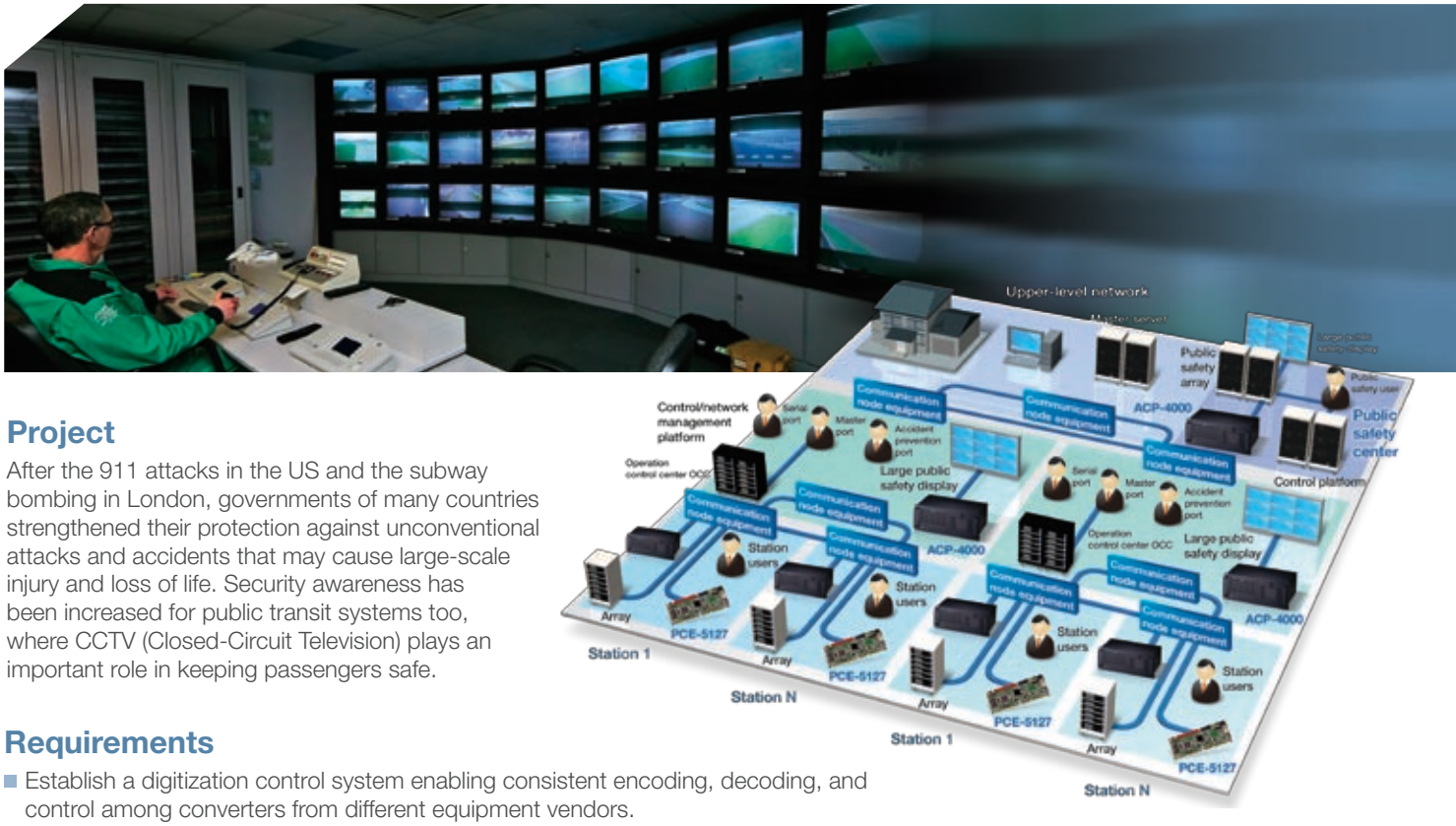
Implemented Products

ACP-4000
4U Rackmount Chassis with Visual & Audible Alarm Notification

PCE-5127
LGA1155 Intel® Core™ i7/i5/i3 SHB DDR3/ SATA 3.0/USB3.0/Dual GbE

CCTV

CCTV Monitoring System for Urban Rail Transit



Project

After the 911 attacks in the US and the subway bombing in London, governments of many countries strengthened their protection against unconventional attacks and accidents that may cause large-scale injury and loss of life. Security awareness has been increased for public transit systems too, where CCTV (Closed-Circuit Television) plays an important role in keeping passengers safe.

Requirements

- Establish a digitization control system enabling consistent encoding, decoding, and control among converters from different equipment vendors.
- Use of a standard interface, operating system, and network and communication protocols to facilitate integration with other systems.
- Personnel working at stations, the operation control center, and the public safety command center should feel they are using local keyboards, and not feel they are using a remote system.
- Stations will employ online control servers, overcoming problems affecting networks based on conventional servers with asynchronous serial port communication interfaces.

System

The CCTV system comprises three levels: the upper-level network management center, the operation control center, and stations. Network control and allocation is achieved by using a communication network platform consisting of distributed station network control servers, the video control servers in the operation control center, and the video control terminals in the upper-level network management center. This achieves unified network-wide system management, unified interface protocols, unified user management, unified permissions management, and unified equipment serial numbers, while ensuring consistent, network-wide rail transit video image management.

Conclusion

Advantech's ACP/IPC series, with excellent stability and reliability, make excellent choices for the CCTV system as video control servers and video control terminals. They are currently installed and serving 24/7 in the subway systems of such major cities as Beijing, Shanghai, and Shenzhen.

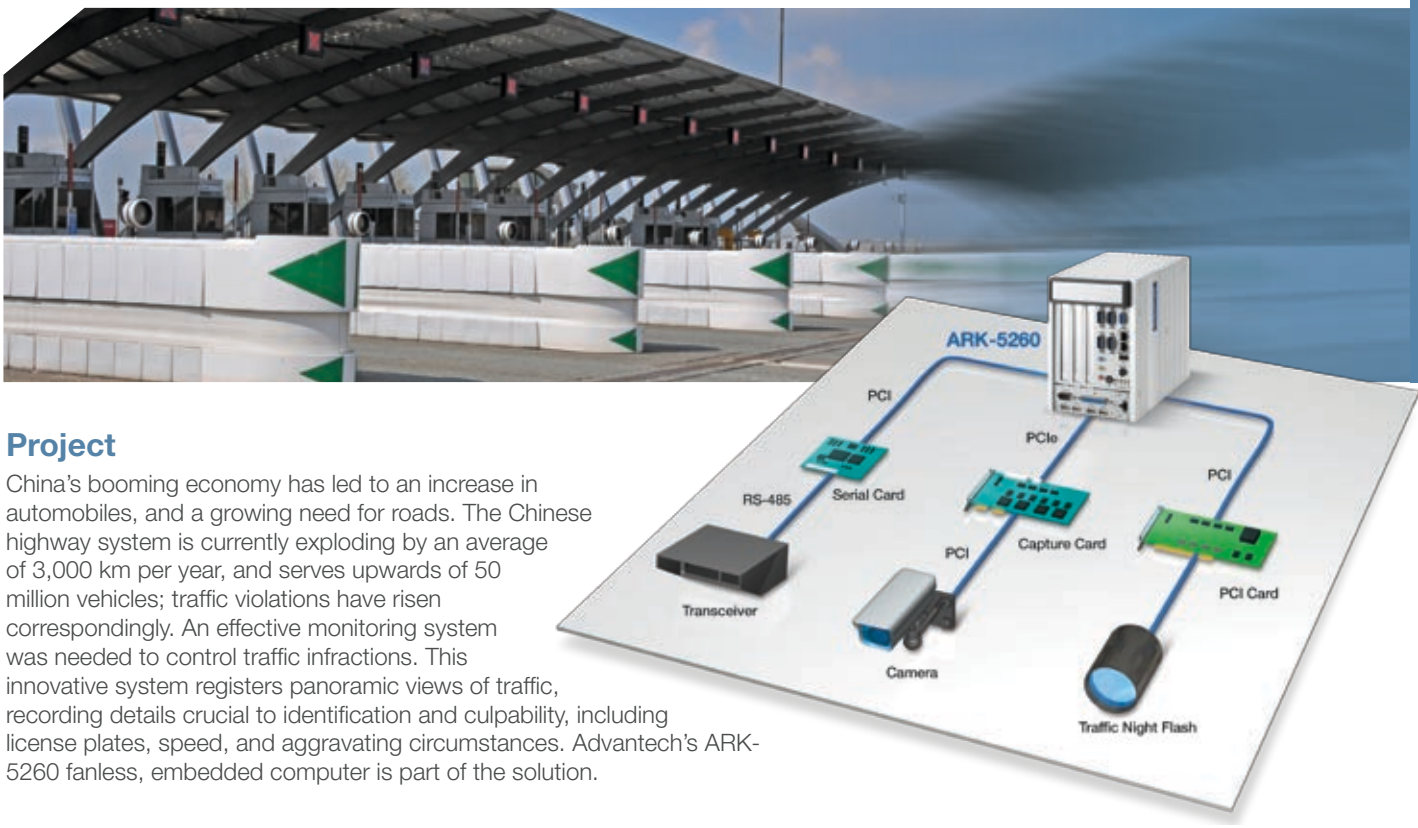
Implemented Products

ACP-4000
4U Rackmount Chassis with Visual & Audible Alarm Notification

PCE-5127
LGA1155 Intel® Core™ i7/i5/i3 SHB DDR3/ SATA 3.0/USB3.0/Dual GbE

Highway Surveillance and ETC Service

Intelligent Vehicle Monitoring and Recording System



Project

China's booming economy has led to an increase in automobiles, and a growing need for roads. The Chinese highway system is currently exploding by an average of 3,000 km per year, and serves upwards of 50 million vehicles; traffic violations have risen correspondingly. An effective monitoring system was needed to control traffic infractions. This innovative system registers panoramic views of traffic, recording details crucial to identification and culpability, including license plates, speed, and aggravating circumstances. Advantech's ARK-5260 fanless, embedded computer is part of the solution.

Requirements

- Tough and rugged, wide temperature range (-20 ~ 60° C)
- Fully sealed against dust
- Totally reliable, easy to install and maintain
- Compact design, fanless, low power consumption
- 2 PCI and 1 PCIe x1 slots for further vertical applications
- Must accept a wide range of DC power sources

System

The China highway system required a high quality, fanless IPC with PCI/PCIe slots, and ARK-5260 with two PCIs and one PCIe x1 filled the bill; all ARK-5260s in the system connect to the server via Ethernet LAN. Whenever a vehicle enters the electronic toll lane, a PCI-1761 triggers a license snapshot. The PCIe serial card connects with electronic toll sensors for toll collection via RS-485. The partnership with Advantech has made it possible for China to implement effective, fast, and reliable traffic monitoring.

Conclusion

The ARK-5260 fanless embedded IPC is well suited for electronic toll apps because it offers three PCI/PCIe slots, LPT, and dual movable HDD trays. All electronics are sealed and equipped with thermal fins for easy cooling – ideal for restricted space and environmental demands. Not only did the ARK-5260 provide vivid connectivity for China's highway system, Advantech's software customization services helped fine tune the Linux-based OS to meet the needs of the highway department.

Implemented Products

ARK-VH200
High Performance Mobile Intel® Atom™ D510 Fanless DVR Solution

ARK-5260
Intel® Atom™ D510 with 1 x PCIe and 2 x PCI Expansion Embedded Box PC

ARK-3403
Intel® Atom™ D510/ D525 with PCI/ PCIe Expansion and Dual SATA HDDs Embedded Box PC

Parking Lot Monitoring System

The Penetrating “Third Eye” Safeguards Security

Project

Parking lots are places with intense security concerns, and we see more and more video cameras installed in these locations. Thanks to advancements in computer technology, parking lot monitoring systems are today more intelligent than ever, not only capable of recording images but also of analyzing recorded data and issuing event alerts.
One of our Asian customers supplies such systems. These systems not only provide security monitors for every square foot of equipped parking lots, but also connect with payment card readers at lot entrances and exits for management purposes.

Requirements

- Massive data storage capacity with hot swappable storage bays
- Outstanding computing power for image analysis
- GigaLAN with networking redundancy for reliable video data transmission

System

ASMB-781 is perfect as the central server in such an application, featuring Intel® Xeon® E3 1200 series processors, 4 DIMMs up to 32 GB capacity, and rich expansion I/O interfaces, ASMB-781 offers extreme performance in computing speed, memory capacity and fast, reliable networking.
To ensure the system operates reliably and smoothly, ASMB-781 has multiple built-in GbE LANs which support redundant networking. It also has 6 SATA ports supporting RAID 0, 1, 5, and 10 to offer high capacity, high performance, and high reliability for video data storage.

Conclusion

For a parking lot monitoring system, computing power and reliability are everything. Advantech’s industrial ASMB-781 motherboard, featuring stunning CPU performance, massive data storage, redundant networking and remote management, is an ideal choice. It delivers extreme performance at a low cost, and is available with a 5-year extended warranty and 7-year product supply provided by Advantech’s localized logistics support.

Implemented Products

ACP-4360
4U rackmount chassis with 6 hot-swap drive bays

ASMB-781
LGA1155 Intel® Xeon® E3 1200 ATX server board with 32GB ECC DDR3, 4 GbE LANs, remote manageability

Airport Video Wall Controller System

Powerful Server-grade Computer for Multiple Displays

Project

A Chinese international airport was seeking to replace its old LED flight summary boards with a state-of-the-art video wall that, in addition to the conventional flight details that keep passengers on time, would also display airport promotional materials, destination information and other vibrant content.
As the airport accommodates millions of passengers each year, their system would have to be accurate, powerful, rugged and reliable enough for 24/7 non-stop operation, with no errors tolerated. These requirements add up to a perfect combination of displays, content, connectivity, and most importantly, strong back-end systems driven by a powerful server-grade computer.

Requirements

- Dual PCIe x 16 slots for two Matrox Multi-display graphics cards to form a video wall
- Rugged and reliable for round-the-clock operation
- High resolution video quality
- Remote control and management
- Long product life and long RMA services guarantee

System

Advantech's industrial-grade ASMB-820 motherboard has two Gen 3.0 PCI Express PCIe x16 slots for installing two Matrox multi-display graphics cards. With the powerful Matrox graphics driver and utility, a system developer can easily configure and combine the displays to form a big video wall and the content manager can remotely manage it with a mobile device such as pad or laptop PC.

Conclusion

Advantech's ASMB-820 motherboard was ideal for this video wall controller system because of its strong expandability, durability and remote management functionality.
Advantech's industrial server provides rich expansion slots to facilitate specialized purposes. In alliance with other companies, Advantech can deliver all-in-one solutions combining hardware, accessories and software tools for purposed applications. For example, we have a cooperative relationship with Matrox, the world's leading supplier of specialized graphics cards.

Implemented Products

ASMB-820
Next generation Intel® Xeon® E5 family ATX server board with 96GB ECC & REG DDR3, 2 GbE LANs, remote manageability

ACP-4000
4U rackmount chassis with robustness and scalability

Railroad PSCADA System

Maintaining Railroad Power Supply and Security from Minute to Minute

Project

For modern railroad systems, a reliable supply of electrical power is a matter of life and death. Power substations along rail lines transform voltage from the city grid into voltage suitable for trains. The equipment in these power substations requires close monitoring to ensure normal operations and security.

One of our Chinese customers was in charge of building up a Power Supervisory Control and Data Acquisition (PSCADA) system for a certain railroad system in China. They found Advantech's industrial server-grade computers to be good choices for this mission.

Requirements

- High computing power
- Remote manageability
- Power and Ethernet redundancy
- Huge data storage capacity with hot swappable drive bays

System

Advantech's Industrial motherboard ASMB-310 was adopted for the central management server, which requires high computing power and reliable network connection. It is also suggested for the storage server which requires large storage capacity and data read/write reliability, while ASMB-781 motherboard is recommended for front-end IPCs, that require non-stop operation and remote manageability.

Conclusion

These Advantech industrial motherboards and chassis are ideal for PSCADA applications as they are particularly rugged and durable, delivering massive computing performance and data storage capacity with power and networking redundancy, and most importantly, supporting remote control and management. These features ensure the system can operate smoothly 24/7, with maximum security. This is important for monitoring railway power supplies, where there is no room for errors.

Implemented Products

HPC-7280
2U Rack-mount Chassis for with 8 Hot-swap Drive Bays

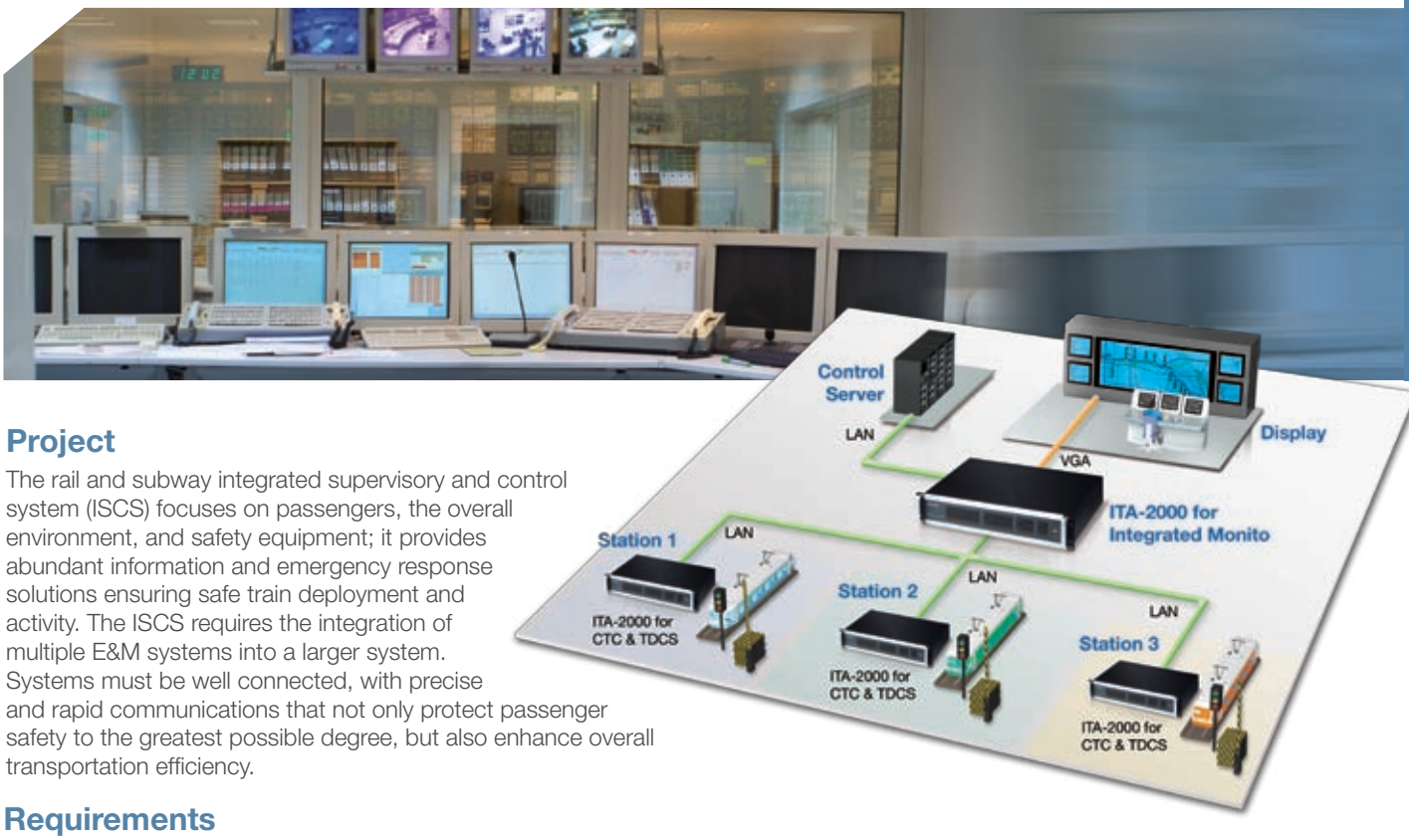
ASMB-310
Dual LGA 1366 Intel® Xeon® 5500/5600 Server MB with 48GB ECC & REG DDR3

ACP-4000
4U Rack-mount Chassis with Alarm Notification

ASMB-781
LGA1155 Intel® Xeon® E3 1200 ATX Server MB with 32GB ECC DDR3, 4 GbE LANs , remote manageability

Control Room

Integrated Supervisory and Control System



Project

The rail and subway integrated supervisory and control system (ISCS) focuses on passengers, the overall environment, and safety equipment; it provides abundant information and emergency response solutions ensuring safe train deployment and activity. The ISCS requires the integration of multiple E&M systems into a larger system. Systems must be well connected, with precise and rapid communications that not only protect passenger safety to the greatest possible degree, but also enhance overall transportation efficiency.

Requirements

- 2U rackmount chassis
- Front-end LED design, for communication status alerts
- Multiple industrial communications interfaces, including RS-232/422/485 CANBus, and digital I/O
- 4 or more gigabit Ethernet ports (optional), used for LAN communications
- Must support on-board memory, low power consumption, fanless design
- Must support wide-voltage AC and DC power inputs
- Must have core service of integrated embedded software and support for embedded and real-time operating systems

System

ISCS system equipment generally consists of two layers: The first layer comprises the center-level of ISCS hardware, and includes redundant real-time servers, redundant history servers, an external disk array, work stations for all types of dispatchers, network management work stations, black-and-white online printers, color printers, network switches with redundant routing functions, front-end processors (FEPs), UPS, etc. The second layer comprises station-level ISCS hardware, and includes redundant real-time servers, duty station heads' work stations, redundant network switches, FEP, IBP, etc.

Conclusion

Advantech's ITA-2000 industrial-grade system offers abundant industrial communications interfaces, more than 4 GbE for network communications use, on-board memory, low power consumption, and fanless design, and supports wide voltage AC and DC power supplies, as well as integrating embedded core software services and supporting embedded and real-time operation systems. It is an ideal choice for ISCS applications.

Implemented Products

ITA-2000

Intel® Atom™ N270 Fanless 2U Rackmount System with 4 x LAN, 10 x COM, 8 x DI, 8 x DO, PC/104+

In-Vehicle

Throughout the world, deployment of in-vehicle computers is becoming increasingly extensive. Implementation of in-vehicle systems is especially rapid because of infrastructure development by emerging countries and advanced transportation system-building in established economies. As people spend more time commuting to work, the demands for better fleet management, logistics, safety, and entertainment are tremendously increased. Advantech offers industrial-grade, high computing power, and rugged operation for a range of in-vehicle applications, including in-vehicle signage, in-vehicle surveillance, and in-vehicle communications to control operational quality and ensure safety. Advantech in-vehicle platforms feature a vehicle-friendly power design (compliant with ISO-7637-2), wireless communications, GPS receiver, in-vehicle certification (E-Mark, EN50155), anti-vibration and shock resistant design (MIL-810), and easy installation. They operate in an extended range of temperatures with industrial grade Compact Flash, from -20 up to 60° C; in addition, these rugged designs endure shock and vibration and fit a variety of vertical in-vehicle markets such as police cars, taxis, buses, emergency vehicles, trucks, and trains. They are ideal solutions to speed up system integrators' time-to-market and reduce cost for space-critical, in-vehicle applications.

In-Vehicle Signage

ARK-3202V

Mobile Intel® Atom™ Fanless Solution with Dual Display and Multiple I/Os

- Intel® Atom™ N270 processor at 1.6 GHz
- DVI & VGA dual display and support for wide screen with high resolution
- Supports 2 GbE, 5 USB 2.0 and up to 5 COM ports

In-Vehicle Communication

ARK-1388V

Ultra Compact Solution with Safe Start/Shutdown and Wireless Functions

- Intel® Core™ 2 Duo ULV U7500 1.06 GHz / Celeron® M ULV 423 1.06 GHz processor
- Startup and shutdown linked to car battery and ignition status
- Optional built in WLAN/GPRS/EDGE/UMTS/HSDPA module

In-Vehicle Surveillance

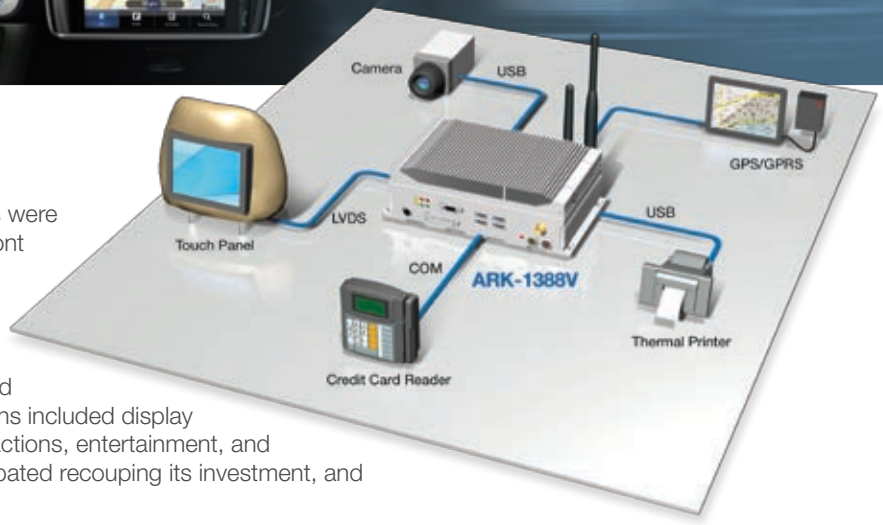
ARK-VH200

High Performance Mobile Intel® Atom™ Fanless DVR Solution

- Intel® Atom™ D510 processor at 1.66 GHz
- 120/100 FPS D1 resolution video recorders, 2 GbE for IP camera
- Optional add-on miniPCIe card for wireless applications, e.g., WLAN or 3.5G module

Taxi Passenger Information Center

The Peace of Mind Ride



Project

A taxi company was interested in providing real-time infotainment systems for its passengers. The systems were to be installed as flat panel displays in the backs of front seat headrests, allowing for convenient viewing by backseat passengers.
Benefits to the passengers would include:
GPS tracking, which should eliminate passenger concerns about routing, as well as advertisements and information of use to residents and travelers alike. Plans included display data covering hotels, restaurants, activities, local attractions, entertainment, and weather and safety bulletins. The taxi company anticipated recouping its investment, and more, through paid advertising.

Requirements

- Durable
- Easily maintained
- Wireless communication
- Reasonably priced
- Able to tolerate automobile DC power

System

Advantech's sealed, fanless ARK-1388V proved the ideal platform for this in-vehicle system. Its wide range of input power and built-in resilience more than fulfilled the specified requirements. Outfitted with GPS and Wi-Fi communications, data updates are painless and automatic. A seven-inch LCD screen embedded in the back of the headrest provides crisp, lively displays designed to be of interest to commuters. The ARK-1388 provides great performance in infotainment applications.

Conclusion

Passengers love the infotainment systems, especially the GPS readout, which lets them see where they are and where they are going. This gives peace of mind, especially for those unfamiliar with the city, quickly allaying any apprehensions about being "taken for a ride." The taxi company is doing a smooth rollout of their paid advertising program.

Implemented Products

ARK-1388V
Intel® Core™ 2 Duo Ultra Compact, In-Vehicle Solution with Safe Start/Shutdown and Wireless Functions

ARK-3202V
Mobile Intel® Atom™ N270 Fanless Solution with Dual Display and Multiple I/Os

Electronic Bus Fare Collection System

All-in-one Onboard Solution

Project

A Mediterranean city in southern Europe is rolling out a new bus fare collection system to serve its million residents plus eight million annual tourists. The system uses proximity IC and mag-stripe fare cards, and an LCD display system on each bus touts the city's attractions, hotels, and shopping malls. Advantech provided a fanless, embedded ARK-3202V industrial computer to each bus; this serves as an onboard control platform for fare card readers, LCD displays and an LED display for next-stop information. Commercial contents download wirelessly, and GPS allows the control center to track each bus.

Requirements

- Electronic fare collection and information display
- USB ports for card readers + RS-232 port for LED display
- Low-power Intel® Atom™ processor
- In-vehicle power supply compatible with bus electrical system
- Mobile communications based on HSDPA (3.5G)
- On-board GPS for bus tracking
- Vibration and shock resistant
- Wide operating temperature range for Mediterranean climate

System

IC and mag-stripe readers are installed near each bus door. A 7-inch LCD panel near the driver shows each validation; a 15-inch LCD screen is set up for passenger viewing. All applications are controlled by the single, onboard ARK-3202V embedded IPC, a great platform for in-vehicle applications as it supports GPS and wireless HSPDA communications, and full HD performance with optional VGA and DVI displays. Computer power feeds directly from the bus power system via a protected circuit.

Conclusion

Traditionally on a bus, separate computer systems read fare cards, and display information. But the all-in-one solution provided by Advantech saves both money and space. Additionally, commercials aired in the buses are expected to bring in revenues. The city transit authority is exploring the possibility of adding the use of bank-issued credit and debit cards to that of the IC fare cards. Whatever they decide, the flexible ARK-3202V is ready to accommodate.

Implemented Products

ARK-3202V
Mobile Intel® Atom™ N270 Fanless Solution with Dual Display and Multiple I/Os

ARK-VH200
High Performance Intel® Atom™ Fanless Mobile DVR Solution

Passenger Information Display Systems

Mass transit terminals such as railway stations and bus terminals deploy large amounts of rapidly changing information, in many different formats and sizes, and are well served by the adaptability offered by electronic signs. Today's passenger information systems are key communicators: railway concourse departure information displays, arrival information displays, arrival summaries, platform displays, bus interchange displays, entrance and exits signs, ticket booth open and closed LED signs and general way-finding signs. Along with system reliability, safety, and general appearance, the ability to provide accurate, current information on arrival and departure times and gates—information the traveler needs to keep moving efficiently—is a key component of customer satisfaction. Advantech provides industrial-grade Passenger Information Systems that deliver real-time updates on arrivals and departures for planes, trains, and buses. They also deliver the ultimate in operational flexibility and integration, seamlessly accepting data feeds from automatic third-party airline dispatch and train supervision systems.

Video Surveillance

ARK-VH200

High Performance Mobile Intel® Atom™ Fanless DVR Solution

- Intel® Atom™ D510 processor at 1.66 GHz
- 120/100 FPS D1 resolution video recorders, optional 1 LAN port for IP camera
- Optional add-on miniPCIe card for wireless applications, e.g., WLAN or 3.5G module

Information Display

ARK-2120

Easy I/O Flexibility Intel® Atom™ Fanless Embedded Box PC

- Intel® Atom™ D2550/N2600 fanless solution with multiple I/O
- Superior fanless thermal design
- Wide temperature support
- Flexible/modular expansion
- Smart remote management

Computer-Assisted Oversight for Driving Tests

In-vehicle Supervisory System

Project

China's booming economy means that millions of new drivers are taking to the road. A strict but fair driver's test ensures that newly licensed drivers have the skills necessary for traffic safety. China needed a system for driving test vehicles that would verify examinee identity via fingerprint reader, oversee and videotape the road test, evaluate performance, and wirelessly upload data to the control center for final scoring. Advantech provided ARK-3420F-U0A1E and ARK-VH200 embedded IPCs to serve as in-vehicle controllers.

Requirements

- Rugged, reliable, and fanless
- Expansion slots for WLAN communications and video capture
- 1.66 Atom™ Dual Core D510 1.6 GHz
- Up to 2GB RAM
- 2GB CF Card
- Vibration resistant
- Wide range operating temperature

System

Advantech provided two different controller versions for this case: ARK-2120 for large cities and ARK-VH200 for smaller cities. Each test car received a WLAN- and video-capture-capable controller unit, a video camera, and a 7" LCD panel with fingerprint reader. As an examinee takes a road test, s/he first confirms identity with the fingerprint reader. The test official confirms the fingerprint results on the LCD panel. The camera records the test process to ensure that all is conducted properly. In case of an irregularity, the system either issues a warning or, if severe, flat terminates the test.

Conclusion

The new computerized drivers' test system goes a long way toward keeping driving tests honest. It provides instant feedback to the administrator, and keeps a complete record of each test. In a populous country like China, where driver licensing is a mounting challenge, such a system increases efficiency significantly.

Implemented Products

ARK-VH200
High Performance Mobile Intel® Atom™ D510 Fanless DVR Solution

ARK-2120F
Intel® Atom™ N2600/D2550 High Value Fanless Embedded Box PC with 3 GBE and 6 COM

MRT In-car Video Surveillance System

Guarding Passenger Safety

Project

One rapid transit authority needed an in-coach video surveillance system for its newest MRT line. Advantech provided a solution based on its ARK-VH200 fanless embedded IPC, enabling remote monitoring and simultaneous video recording of coach interiors. The ARK-VH200 features a state-of-the-art, hardware H.264 video encoder and dual hard disks up to 1TB storage capacity.

Requirements

- Total of 1TB-Hard Drive Storage Capacity
- 1 LAN port for IP camera
- Four channels of real time hardware H.264 digital video recording @ D1 resolution
- EN50155 certified
- Rugged and vibration-resistant

System

One video camera monitors the driver; another mounted on top of the lead car targets the rails. An ARK-VH200 in each passenger car controls that car's four video cameras. A 4-up, split-screen display allows the driver to monitor video from the coaches; display shifts to a different car every 5 seconds. Video is recorded and archived. All devices comply with EN50155, the international standard for railway appliances, so this system has broad international applicability.

Conclusion

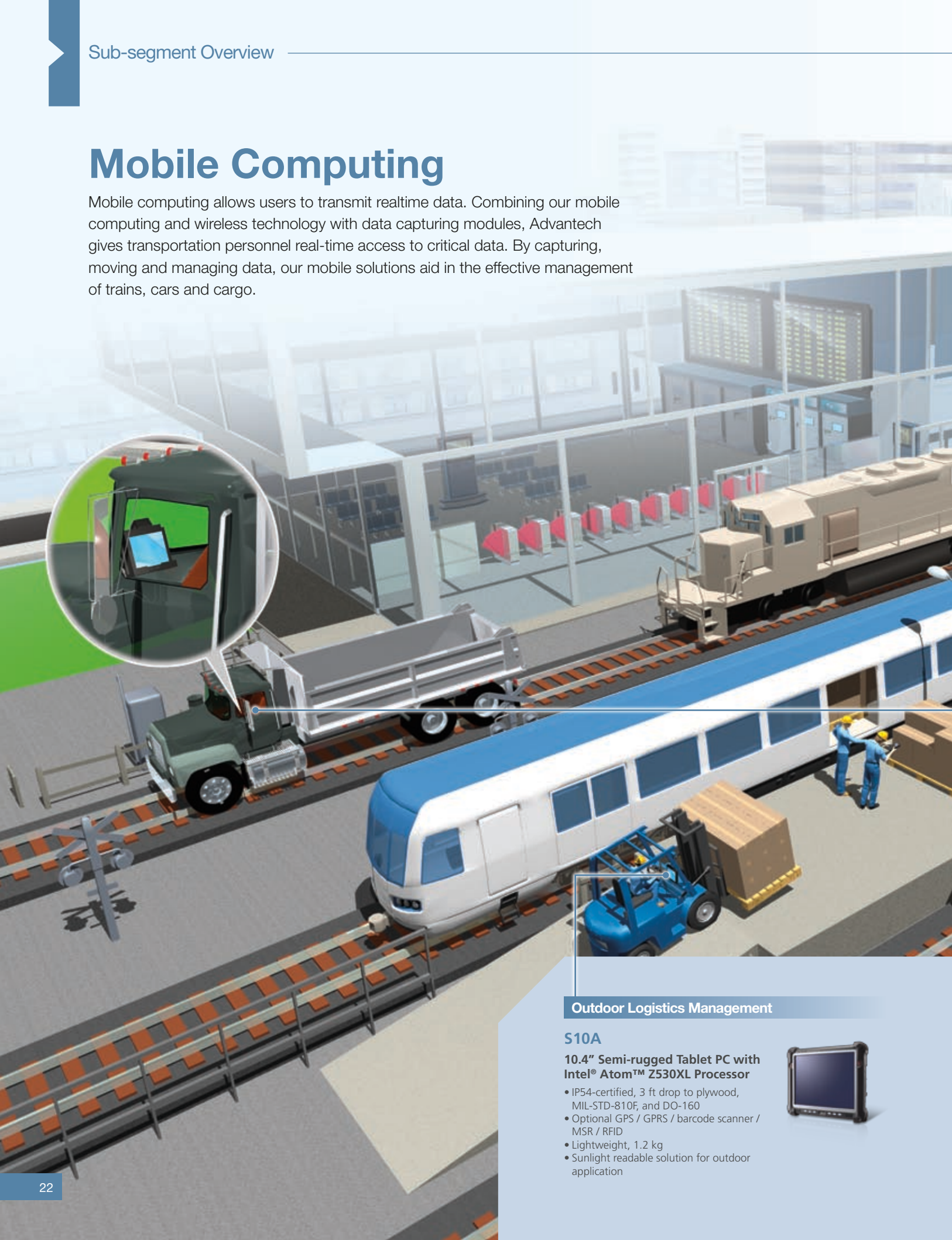
For a metropolitan mass transit system that daily sees huge human flows, speed and comfort are important, but security is vital. A video surveillance system helps prevent crime and keeps mishaps from becoming tragedies. The remote live-view function allows MRT staff to help passengers in need without delay. Video archives come into play in resolving disputes or clarifying responsibilities, and also aid in planning. Video archives are useful in crime investigations too.

Implemented Products

ARK-VH200
High Performance Mobile Intel® Atom™ D510 Fanless DVR Solution

Mobile Computing

Mobile computing allows users to transmit realtime data. Combining our mobile computing and wireless technology with data capturing modules, Advantech gives transportation personnel real-time access to critical data. By capturing, moving and managing data, our mobile solutions aid in the effective management of trains, cars and cargo.



Outdoor Logistics Management

S10A

10.4" Semi-rugged Tablet PC with Intel® Atom™ Z530XL Processor

- IP54-certified, 3 ft drop to plywood, MIL-STD-810F, and DO-160
- Optional GPS / GPRS / barcode scanner / MSR / RFID
- Lightweight, 1.2 kg
- Sunlight readable solution for outdoor application

Passenger and Ticketing Management

PWS-430

3.5" Rugged Handheld with Marvell PXA310 Processor

- IP65 rating guarantees total protection against dirt, dust and water, and certified MIL-STD-810F
- 37 keys QWERTY including 5 side keys and numeric keys
- Field navigation application with HSDPA (3.5G), 802.11b/g, Bluetooth, RFID/HF/UHF, barcode and GPS

Field Service Management

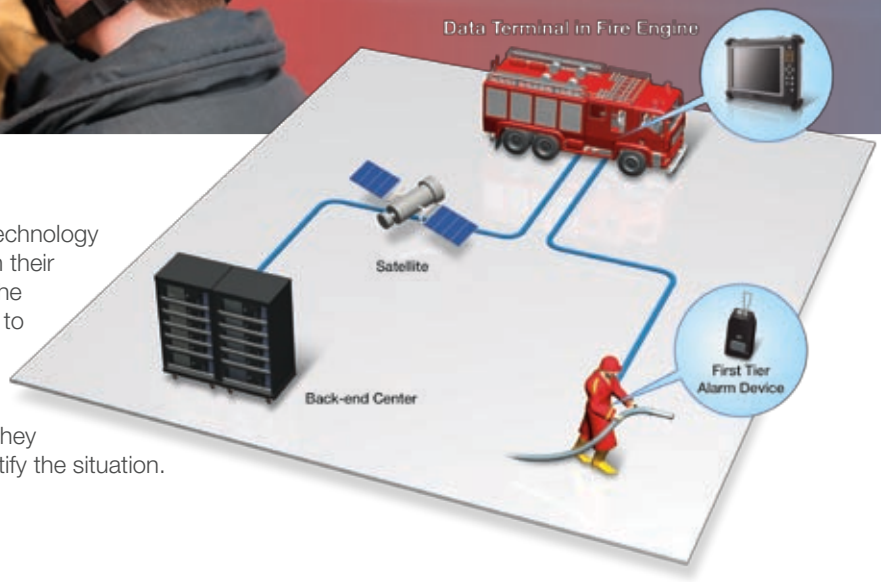
X10D

10.4" Rugged Tablet PC with Intel® Core™2 Duo U7500 Processor

- IP65 rated, 3 ft. drop test, shock and vibration proof
- Compliant with MIL-STD-810F and MIL-STD-461E standards
- Wide working temperature from -20° C to 60° C

Mobile Terminals Protect First-Responders

Safeguarding the Lives of Firefighters



Project

One city fire department in Taiwan was looking for a technology that would allow command personnel to keep tabs on their colleagues at the fire line from a console mounted in the fire engine. The equipment needed to report statistics to the operator, such as oxygen tank consumption and pressure levels. Additionally, the system needed to have an alarm function and a general evacuation call. Also, if command noticed a firefighter in trouble, they needed to be able to make direct radio contact to rectify the situation.

Requirements

- Flexible vehicle mount options (VESA or docking cradle)
- GPS and diverse set of WWAN technologies
- Ruggedized design and complete reliability
- Selection of I/O connectors for custom needs
- Total solution approach with custom software

System

The Advantech X10D Rugged Tablet PC can be vehicle mounted and receives information wirelessly from sensors attached to the firefighter's safety gear.

Conclusion

The X10D has been so successful that is being adopted by fire departments in Singapore, Brazil and China, and it is being deployed in additional vertical markets including ambulance, security, defense, and more.

Implemented Products

X10D
10.4" Rugged Tablet PC with Intel® Core™2 Duo U7500 Processor

Mobile Data Terminals Take to the Air

Electronic Flight Bag

Project

One US Airline operator was looking for tablet PCs to function as Electronic Flight Bags (EFBs). These are electronic information management devices that help flight crews perform flight management tasks more easily and efficiently, with less paper. It is a general purpose computing platform intended to reduce, or replace, paper-based reference material often found in the pilot's carry-on flight bag, including the Aircraft Operating Manual, Flight Crew Operating Manual, and Navigational Charts (including a moving map for air and ground operations). The pilot carries the data-packed tablet onto the aircraft; it is a lighter, but more comprehensive, version of the old flight bag.

Requirements

- "Plug and Play" options for efficiency
- Screen can be dimmed for use in lowlight environments
- Semi-rugged and DO-160
- Lightweight

System

Advantech S10A provided flight crew members with a robust and user friendly information system designed to replace the traditional, cumbersome flight bag. With its convenient stand and hot-swap battery, S10A operation remains smooth throughout the itinerary.

Conclusion

The Electronic Flight Bag provides airlines with convenient access to digital documents, helping to reduce costs, and to improve taxiway and flight deck safety.

Implemented Products

S10A
10.4" Semi-rugged Tablet PC with Intel® Atom™ Z530XL Processor