Product Catalog 2018-2019

Industrial IoT Systems **and Devices**

Enabling Industrial IoT with Intelligent Automation

- Software and Industry Solutions
- Industrial Server
- Intelligent System
- Intelligent HMI and Monitors
- Automation Computers and Controllers
- Industrial Communication
- Remote I/O & Wireless Sensing Modules
- Industrial I/O and Video Solutions

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

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About Advantech

Advantech : Partnering for Smart City and IoT Solutions

Founded in 1983, Advantech has the corporate vision to "Enable an Intelligent Planet". The company is a global leader in the fields of IoT intelligent systems and embedded platforms. To embrace the trends of IoT, big data, and artificial intelligence, Advantech promotes IoT hardware and software solutions with the Edge Intelligence WISE-PaaS core to assist business partners and clients in connecting their industrial chains. Advantech is also working with business partners to co-create business ecosystems that accelerate the goal of industrial intelligence.

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.

World-Class Recognition

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

Quality and Environmental Compliance

As a member of the global village, Advantech understands the importance of preserving the environment. Our environmental programs focus on reducing, reusing, and recycling materials used in our manufacturing operations. Advantech's quality and environmental compliance efforts include the

- ISO 9001 Certification
- ISO 14001 Certification
- ISO 13485 Certification
- OHSAS 18001 Certification
- TL9000 Certification
- ISO 17025 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner
- REACH SVHC Directive Compliance
- EICC Conflict Minerals Declaration

Timely Support at Your Convenience

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

Advantech Online Services

Advantech.com Website

Through www.advantech.com, we not only offer comprehensive products, but also real-time updated information to our customers. In addition to product information, you also can find case studies of proven applications from diverse sectors. Furthermore, registered MyAdvantech members, can access the RMA service center, updated price lists, and various promotion programs.

Buy.Advantech.com

Online Store

To extend Advantech's services, we launched the Buy.Advantech online store which offers one-stop shopping for Human Machine Interfaces, Industrial Ethernet networking, Controller & I/O products, plus computing platforms. This eStore offers comprehensive product information to build systems easily, with live expert support to solve problems, online configuration providing easy system customization options, instant quotations, an extensive library of FAQs and all the latest up-to-date downloads and firmware.

Online Support

Providing superior self-support mechanisms is one of the most essential parts of being a top-tier automation company, and we take pride in the outstanding level of service that we offer. To best support our customers, we've created a suite of useful interactive online tools, including:

- Technical Documents: Manuals, datasheets, updated drivers and utilities- all available for download through the support portal.
- 3D Product Models: Simulated products in 3D format to provide detailed visualizations for evaluation.
- Online Training: Self-training documents and videos to provide trainees with integrated information.
- Online Catalog: A comprehensive online catalog with extensive product information.

support.advantech.com

24/7 Online Service

To effectively respond to customers' questions, our regional call centers support inquiries about: purchasing, shipping, technical, RMA issues and more. Contact your regional call center to get the support you need today.

Global Hotlines

US / Canada	1-888-576-9668	China	800-810-0345/8389	Russia	8-800-555-01-50 (Moscow) 8-800-555-81-20 (St. Petersburg)
Mexico	52-01-800-467-2415	Taiwan	0800-777-111	India	1-800-425-5070/71
Colombia	57-1381-2858	Japan	0800-500-1055	Thailand	66-2-248-3140
Brazil	0800-770-5355	Korea	080-363-9494/9495	Indonesia	62-21-7511939
Europe	00800-2426- 8080/8081	Singapore	65-6442-1000	Malaysia (KL)	60-3-7725-4188
		Australia/ New Zealand	1300-308-531	Malaysia (Penang)	60-4-537-9188

The Industrial Internet of Things (IIoT)

Advancing Key Growth Areas in Industry 4.0, Industrial Equipment Manufacturing, Energy & Environment and Transportation

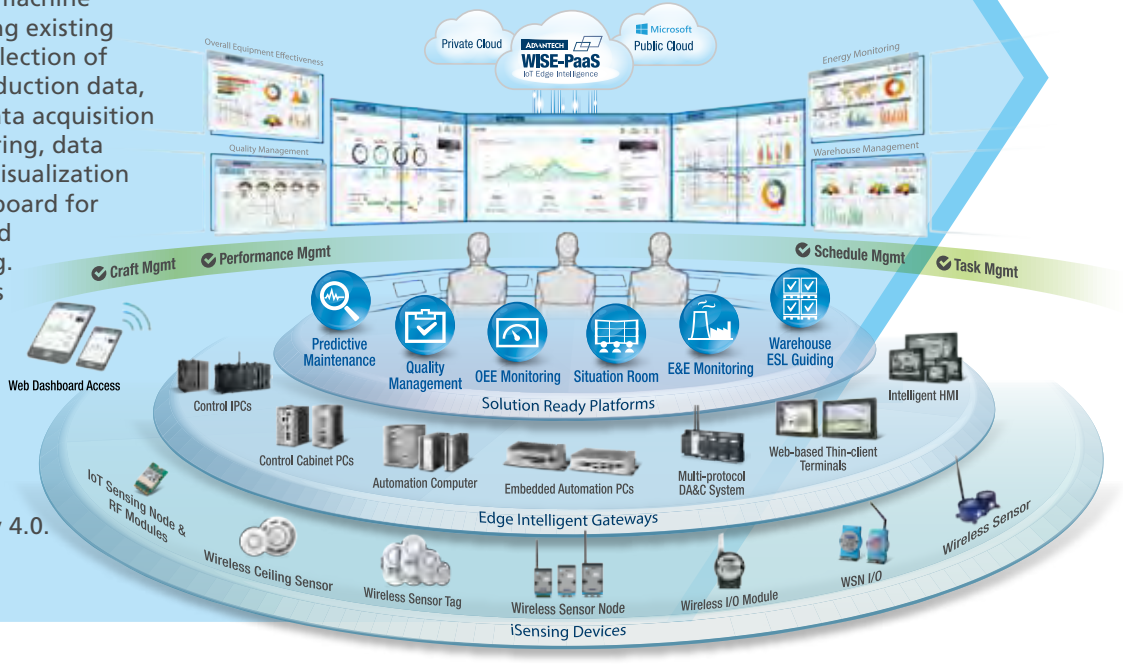
The Industrial Internet of Things (IIoT) is set to open up a new era of industrial applications, booming opportunities, and economic growth. The IIoT is a matrix of networks that connects people with data and intelligent machines in order to optimize industrial operations, productivity, and efficiency. To support the growth of IIoT, Advantech provides products and services that build the IIoT infrastructure and strengthen their offerings with four layers including, IoT Sensing Devices, Edge Intelligence Servers (EIS), IoT Cloud Platforms, and Solution Ready Package (SRP). Advantech is devoted to leveraging its computing, data acquisition, and networking competence to provide customer-centric products and solutions for key growth areas in Industry 4.0, Industrial Equipment Manufacturing, Energy & Environment, and Transportation.

Realizing Industry 4.0 with Advantech's iFactory SRP Solutions

Industry 4.0 is transforming manufacturing worldwide. Factory management needs assistance as they either upgrade existing facilities, or establish new ones that take advantage of Industry 4.0 optimization. Advantech IoT solution architecture enables the development of iFactory Solution Ready Packages (SRPs) that help customers as they embrace Industry 4.0. Advantech's iFactory SRPs are quick-start tools that enable a step-wise approach to achieving Industry 4.0.

The Industry 4.0 situation room is the most important upgrade to intelligent transformation. The Industry 4.0 situation room is the factory's nerve center where data is collected, analyzed, and visualized for real-time management. The situation room is realized with the iSensing devices, edge intelligent gateways, WISE-PaaS software platforms, and iFactory SRP solutions.

iFactory solutions facilitate machine connection without replacing existing equipment, allowing for collection of equipment status data, production data, and environmental data. Data acquisition enables production monitoring, data integration with MES, and visualization on the situation room dashboard for production optimization and data-driven decision making. The WebAccess App enables push notifications of unexpected downtime, allowing immediate action to be taken. Advantech realizes the intelligent factory from a user perspective, and helps customers embrace Industry 4.0.



The best industrial equipment manufacturing solutions for equipment builders

A key step Advantech adopts to realize smart manufacturing is to connect devices, computing systems, and equipment all together to accomplish data acquisition and integration, and import services to accomplish manufacturing process integration. Advantech achieves the network connection of equipment and devices needed to improve manufacturing and transform industry.

The product offerings of Advantech's industrial IoT include Internet of Things software – WebAccess, industrial communication products, gateways, PC-based control platforms, industrial computing platforms, servers and data capture modules. Meanwhile, Advantech also provides equipment automation and intelligent factory solutions. In the vertical markets of equipment automation, Advantech works with partners to find the most suitable industrial machinery, electronic equipment, and manufacturing solutions to meet the needs coming from diverse markets.

Cloud-enabled Energy and Environment Solutions

As the development of IoT and cloud technology, lots of Energy & Environment practices have evolved to remote management using cloud service for further analytics, visualization, and machine learning. However, there are still many difficulties system integrator and equipment operators need to overcome, including getting data from wide area, connecting data to different cloud service, and making data visible and applicable.

To shorten the gap and accelerate our customers' time-to-market, Advantech is devoted to offering Solution Ready Packages (SRP) for Energy & Environment markets based on our success of both hardware/software products and domain experience.

With our Machine-to-Intelligence (M2I) SRP, which include power inverters, water pumps, HVAC, and transformers, equipment builders can easily get the status of their machines and facilities then connect their data to the cloud. By integrating different M2I SRP into vertical system SRP, system integrators can quickly build up energy, solar power, water treatment, and pollution management solutions.

Intelligent Transportation Systems

With a decade of successful experience, Advantech has dedicated resources to designing and developing new products designed for the transportation industry. These products support both railway and roadway applications, including railway automatic fare collection, wayside control, rolling stock, city traffic management, highway management, transport hubs, and more. Our mission is to enable intelligent transportation systems, which also helps us fulfill our vision of creating and delivering smart city technologies.

Enabling IIoT and Industry 4.0 with Sector-Focused Solutions and Intelligent Automation

Solution Ready P

Equipment Connectivity

Process Visualization

CNC Machine Monitoring

OEE Monitoring

Factory Situation Room

Azure

WebAccess/SCADA
IoT Application Software Framework

WebAccess/MCM
Machine Condition Monitoring

WISE-PaaS/EdgeLink
M2I Edge Engine

WebAccess/HMI
HMI Runtime Development

ADVANTECH

WISE-

IoT Edge Int

WISE-PaaS RESTful APIs

MQTT

Modbus

CoAP

Transportation

Vertical-Focused Devices

Machine Automation

Power and Energy

Wayside Solutions

EN 50121-4

Rolling Stock Solutions

EN 50155

Machine Vision

EtherCAT Solutions/Motion Control

IEC 61850-3 Platforms/Switches

Energy Gateways

Servers & Storages

Human Ma

iConnectivity

Industrial Wireless Solutions

Industrial Eth

Industrial IoT Platfor

ackages

Machine Automation

Water Treatment Management

Air Quality Monitoring

Renewable Energy Management

3rd Party Cloud

WISE-PaaS/VideoCMS
Video Content Management

WISE-PaaS/SignageCMS
Signage Content Management

PaaS
telligence

WebAccess/NMS
Network Management

WISE-PaaS/RMM
Remote Monitoring and Management

Node-RED Packages

AMQP

OPC UA

Intelligent Automation Systems

Control IPCs

Embedded Automation Computers

I/O & Video Cards

EtherCAT I/O Modules

achine Interface

Modular IPCs

Industrial PCs

iSensing Devices

Data Acquisition Computers, Cards, and USB Modules

Wireless I/O Modules and Sensor Nodes

Remote I/O Modules

Edge Intelligent DAQ

hernet Solutions

rms & Devices

Global Certified Partner Network

Since 1983, Advantech has formed strong and lasting partnerships with many well-established channel partners and solution partners to deliver prompt and reliable local services for our customers. Currently, Advantech has over 600 partners in more than 70 countries worldwide to provide certified services and products anytime, anywhere.

Certified Professionals Guarantee Outstanding Quality Services

Through rigorous training and validation, our partners are certified annually, guaranteeing a high standard of quality and service. With these dedicated and well-trained sales and technical support teams, Advantech customers can enjoy outstanding quality services and early access to latest industrial computing solutions.

- Value-added services: Many of our partners are, value-added resellers, focused channels, system integrators, or independent software vendors specialized in specific industry segments or applications with years of experience in developing application ready platforms.

  Their profound knowledge in integrating Advantech's hardware platforms with peripherals and software can speed up your time-to-market.

- Quality technical support: All the partners have dedicated application engineers to provide pre-sales and post-sales technical support. Within Advantech, there's a group of hotline and field application engineers to back up our partners, ensuring the highest service levels.

- Fast delivery with flexible global supply chain: With over 600 partners and 4 regional service centers worldwide, Advantech offers fast delivery and after-sales support to our customers.

Strategic Focus Makes the Difference

As industrial and embedded computing applications become more diversified, customers are demanding tailored solutions for vertical applications plus high-quality local support. To fulfill such needs, Advantech has developed its global partner network with a strategic focus in mind. We only partner with distributors, VARs, and system integrators who value high-quality services as we do and pride themselves with expert industry know-how and technical proficiency. Through our comprehensive training and certification programs, Advantech partners are expert consultants in our portfolio of product and service offerings for various vertical segments.
Currently, Advantech has partners in the following categories:

Channel Partners

Advantech Industrial IoT Channel Partners (CPs) are focused on industrial automation, embedded systems, and general computing platform markets. With local inventory, logistic services, technical support and other add-on value services, our partners provide professional services and prompt delivery of system and components for automation applications. Aligned with our regional sales offices and service centers, Advantech CPs have formed a strong service network to offer professional pre-sales and post-sales worldwide. Advantech has also identified key channel partners and focused on specific vertical segments, to provide local value added services for our customers such as application development, technical consultation, design services, integration and installation, on-site services, technical training, and project management. These CPs are certified value-added resellers with expertise in application development and system integration for each vertical segment.

Solution Partners

Solution Partners are 3rd parties who integrate Advantech products and value-added software and peripherals to provide turn-key solutions. Advantech's Solution Partners offer our customers a full range of field proven integrated solutions in Medical, Telecom, Transportation, Gaming, Power & Energy, Building & Home Automation, Factory & Machine Automation, Environmental Monitoring & Facility Management, Retail, Hospitality & Selfservice, and many more. Their solutions are validated with Advantech products for compatibility, quality, and service.

WISE-PaaS Alliance

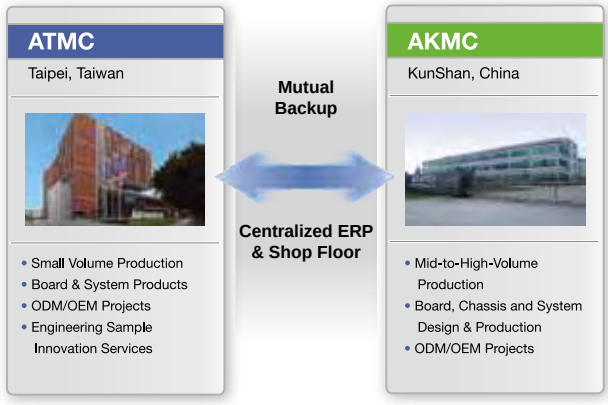
Advantech WISE-PaaS Alliance is a market-oriented cooperation model based on Advantech's WISE-PaaS software platform. WISE-PaaS/ IIoT is one of the two software components of WISE-PaaS Alliance and is designed to connect partners, cultivate co-development of vertical solutions, and encourage strategic co-marketing. By providing comprehensive IoT solutions for diverse markets and applications, WISE-PaaS/IIoT can enable partners to expand into various IoT vertical markets. By leveraging WISE-PaaS/IIoT and WebAccess platform and solutions, partners will be able to shorten their project life cycles through integrated solutions, gain competitive advantages through early technology access, boost profits and revenue through co-marketing activities, and enable cross-region business through Advantech's business networking and coverage.

Advantech iPlanet Care

Manufacturing

Our dual, world-class manufacturing centers in Taiwan and China maintain precise quality control, and offer a full range of production in a timely and cost-effective manner. To maximize the efficiency of operational procedures, we have implemented a cluster manufacturing system within our segmented manufacturing service units. This unique approach enables a direct, simplified, and highly streamlined design-to-manufacturing process.

- In-house board, chassis, and system production
- Dual world-class manufacturing centers minimize business risks
- Advanced production capabilities and customizable processes
- Rigid quality assurance system
- Most complete ISO standard coverage



Configure To Order Services

Advantech's Configure To Order Services (CTOS) makes industrial computing solutions more accessible by offering web-based configuration tools, comprehensive, complex assembly services with high-mix, low-volume box build and customized assembly, modification, system integration and functional testing services.

- Online intelligent configuration
- Comprehensive approach to complex configuration solutions
- Local customized configuration services
- 2 year global warranty covering system & peripherals integrated

ADVANTECH CTOS
Configure To Order Services

Certified Quality Assurance System

Advantech has been designing and manufacturing industrial PCs according to our 3C Quality Statement:

- Always strive for overall customer satisfaction
- Continuous improvement
- Apply closed-loop mechanisms to resolve problems

At Advantech, quality is our main priority. A complete line of safety, EMC and reliability measures such as ESD, vibration, drop testing, temperature, humidity and HALT chambers are available to ensure our products meet the strictest standards. All facilities are at least ISO 9001 and 14001 certified while others hold additional certifications such as ISO 13485, 17025, TL9000 and OHSAS18001. An environmental program that focuses on reducing, reusing and recycling of materials throughout the manufacturing process is also applied at Advantech. All our products are 100% RoHS compliant and hazardous substance management systems are applied to meet worldwide environmental requests. Advantech's efforts towards environmental protection have been recognized by Sony since 2004 (Sony Green Partner).

- Complete ISO coverage
- Constant quality and reliability monitoring
- Green policies
- Ease of access to quality contacts

One-Stop Global Services

Advantech iPlanet Care combines exceptional business expertise, powerful design capacities, and a thorough global service network to provide one-stop global services and total solutions. Our broad range of global support packages adds maximum flexibility and efficiency to your projects.

Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our worldwide logistics network offers a wide range of options for different delivery models including local and global solutions that meet your unique needs and budget requirements. Advantech's Logistics Service gives you the flexibility to simplify your logistical networks, bring your products to market on time, and enjoy a timely return on your investment.

- Optimized and flexible shipping solutions
- Integrated ERP and SAP supply chain solution with global distribution network
- Centralized plants with local delivery

Global Peripheral Procurement Services

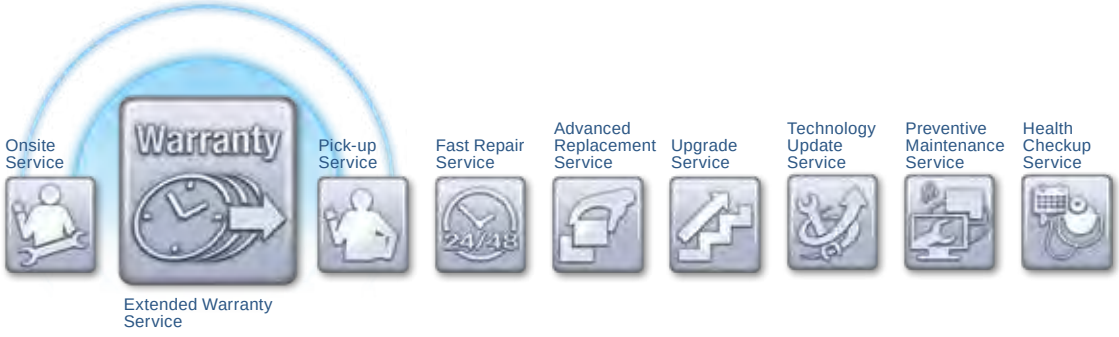
Advantech global peripheral procurement network consists of local teams that leverage strong, worldwide supplier relationships and strict vendor and product management to offer quality-guaranteed, compatible peripherals with short lead times and competitive prices.

Global Customer Support Services

- Localized procurement with worldwide network support
- Global standardization management; 100% compatible peripherals
- Trusted quality with revision control
- Short lead time and competitive price

Our global presence provides localized reliable customer support services. We can create an optimized maintenance and support plan, leveraging the full power of our service portfolio to help reduce costs and proactively mitigate business risks to best meet your needs. In addition to our complete technical and repair support, we provide a variety of customizable after-sales services, including extended warranty, advance replacement, upgrades, fast repairs, and more. With our knowledgeable local support groups, we enable a consistent support experience around the world and help keep your investment at peak performance and within your budget.

- 24/7 technical support: hotline AE & online chat support
- Easy-to-use web-based repair and tracking system (eRMA)
- Global deployment with local full-line repair capability
- Various value-added, after-sales service packages



Advantech WISE-PaaS Edge Intelligence Platform

Enabling IoT Edge Intelligence & IoT Innovative Business Models

Advantech's key strategies for the next decade are to provide integrated IoT solution platforms. The Advantech WISE-PaaS Edge Intelligence Platform offers a diverse range of software that can be applied and integrated into domain-focused SRPs. This platform provides a wide range of software and cloud-based service solutions from industrial data/ video acquisition, analysis, and visualization to cloud platform services and dashboard functions, thus enabling IoT at all system layers and realizing IoT-powered business models in various vertical markets. Join Advantech's WISE-PaaS VIP program and enjoy IoT success by leveraging WISE-PaaS's comprehensive solutions.

Advantech WebAccess Software

WebAccess/SCADA

Industrial IoT Application Software Platform

- Enables 100% web-based remote engineering, monitoring, and control
- Driver support for major PLCs, PACs, I/O modules, CNCs, network switches, and computer platforms
- Redundant SCADA, ports, and devices for high availability
- Supports multiple databases for data connectivity and data fusion
- HTML5-based dashboard for cross-browser, cross-platform data visualization and data analysis
- Provides flexible open interfaces for easy development and integration of third-party applications
- Plug-and-play functionality ready for private cloud solution
- Online software license authentication for cloud computing virtual machines

WebAccess/HMI

HMI Runtime Development Software

- Smart screen management
- Project-based management for multiple applications
- Software support for a diverse range of machines
- Provides efficient tools for easy customization
- Boosts performance with simulations
- Enhanced data security

WebAccess/CNC

CNC Machine Networking Solution

- Supports leading CNC network controllers
- Supports CNC machine and I/O device monitoring
- Provides CNC availability queries and NC file transfer function
- Supports all features and full functions of WebAccess/SCADA software
- Automatically generates CNC projects for WebAccess/ SCADA software

WebAccess/MCM

Machine Condition Monitoring Softwave

- Dynamic signal acquisition and analysis
- Real-time monitoring and alarm notification
- Provides feature extraction algorithms for data processing
- Remote management for distributed monitoring solutions
- Integrated with WebAccess/ SCADA
- Ensures easy setup without additional programming

WebAccess/NMS

Network Management System

- Cross-browser compatible
- Online Google Maps and offlineOpenStreetMap support
- Supports all Advantech Ethernetbased products
- Dynamic connectivity indication
- Automatically discovers and diagrams network topology
- PoE, ring, wireless, cellular connection indication

WISE-PaaS/VideoCMS

Video Content Management

- Centralized management and deployment of video sources
- Configurable video analysis modules, generated events, and attributed data to facilitate an intelligent security system
- Powerful SDK integration for expansion to various application scenarios

WISE-PaaS/EnSaaS

Platform for IoT Cloud Services

- Connect, monitor, and manage millions of IoT assets
- Managed SQL, NoSQL, and time-series databases for app developers
- Visualization dashboard for deriving actionable insights
- Quickly create powerful cloud apps using a fully managed platform

iFactory and M2I Solution-Ready Packages

Designed for Smart Factory and IoT Applications

In response to increasing demand for Industry 4.0 technology, Advantech has aimed to create data-driven solutions that enable intelligent manufacturing solutions that are more flexible and responsive. To highlight this, iFactory solutions are targeted at markets that seek to utilize smart factories, such as in food and beverage, electronics manufacturing, auto assembly, footwear, and energy and environment industries; whereas M2I/ CNC solutions are designed to enhance CNC intelligent machine monitoring.

Process Visualization Solutions

SRP-FPV240

Enhanced Productivity and Reduced Downtime with Centralized Management

- Centralized applications and client management
- Enables superior visualization for multi-tasking
- Reduced downtime and easy maintenance of thin clients

SRP Package:
1 x UNO-2362G-T2AE, ACP-Ready Thin Client, HDMI x 1, DP x 1

SRP-FPV220

Process Data Charting and Analysis for Production Optimization

- Shop-floor information visualization
- Mobile production monitoring with dashboards
- Easily integrated with MES via open APIs

SRP Package:
1 x WebAccess/ SCADA, 1 x UNO-2483G, 1 x WISE-4012

Equipment Connectivity Solutions

SRP-M2i240-A

Easy Programming for Real-Time Machine Control

- IEC 61131-3-compliant
- Dual Fieldbus for real-time data acquisition
- EtherCAT for real-time soft motion control

SRP Package:
1 x CODESYS V3.5 SP8, 1 x UNO-1372G, 1 x iDoor CANOpen

SRP-FEC220

Machine Data Acquisition for Monitoring and Optimization

- 100% data acquisition
- Flexible protocol conversion
- Easily connect OT and IT

SRP Package:
1 x WebAccess/ HMI, 1 x UNO-2271G, 1 x ADAM-6060

M2I/CNC Solution

SRP-M2i600

CNC Processing Efficiency Monitoring and Tool Wear Management

- Easy protocol conversion for all major CNC controllers
- A range of CNC operation and management functions
- Visual and web-based dashboards

SRP Package:
1 x WebAccess/ CNC, 1 x UNO-1372G-J

Energy & Environment Solution-Ready Packages

Accelerating Cloud-enabled IoT and Smart City Applications

Given the growing public concern regarding energy and the environment, Advantech's E&E SRPs have an industrial IoT focus on the processes of sensing, control monitoring, and remote communication. By combing these technologies with WebAccess and WISE-PaaS, both of which are reliable tools for information integration and data analysis, our E&E M2I and SRPs solutions can be widely utilized in various E&E industries.

Central Management

Data Server Application Server

E&E SRP-010 Basic System Series

- Highly stable and reliable industrial-grade server
- Powerful processing performance based on the Intel® Xeon® E5 CPU
- Extended hardware and software architecture for flexible scalability

Field Sites:
Energy management, solar power management, water management, and indoor air quality solutions

Display Server

E&E SRP-100 Situation Room Series

- Multi-screen integration for creating a highly visualizable control room
- Ruggedized fanless industrial display server
- HD display quality

Field Sites:
Energy management, solar power management, and water managementt solutions

Field Site Solutions

E&E SRP-400

Energy Management Solution

- Data acquisition sensors and meters
- Customized energy consumption reports
- Built-in formula for energy management

SRP Package:
1 x EMS, 1 x WebAccess/ SCADA w/ 5000 tags, 1 x UNO-2483G, 1 x ECU-1251

E&E SRP-410

Solar Power Management Solution

- Hierarchical visualization and complete management
- System stability guaranteed by seamless integration
- Precise and effective data acquisition

SRP Package:
1 x SPMS, 1 x WebAccess/ SCADA, 1 x ECU-4784, 10 x ECU-1251

E&E SRP-WMS420

Water Management Solution

- Monitoring and analysis for operational efficiency
- Reliable and stable seamless integration
- Data acquisition for different equipment types

SRP Package:
1 x WMS, 1 x WebAccess/ SCADA w/ 20000 tags, 1 x ECU-4784, 1 x ADAM-3600

Machine to Intelligence (M2I) Solutions

E&E SRP-401

On-Site Energy Data Acquisition

- Connect to field devices with multi-protocol support
- Smart meter for energy data acquisition
- Data store and forward

SRP Package:
ECU-1152TL, WISE-M502

E&E SRP-411

Distributed Solar Power Data Acquisition

- One slot for wireless expansion
- Built-in data mapping for solar power inverters
- Data store and forward

SRP Package:
ECU-1251TL, WISE-M502

SRP-EM2i450

Distributed Equipment M2I SRP

- Conditional maintenance
- Real-time monitoring of operating status
- Cloud connectivity via MQTT

Applied devices:
Water pumps, power generators, and HAVC

Machine Automation

Integrated Soft Computing to Enable Intelligent Machines

Advantech has independently developed a unique SoftMotion kernel and innovative GigE Vision offload engine that uses field programmable gate arrays (FPGA), digital signal processing (DSP) units, and Arm® processors as the core-computing platform. In addition to providing versatile solutions, Advantech's PCI and PCIe motion cards and all-in-one systems also deliver optimum motion performance and fulfill the needs of OEM machine makers and system integrators. Our new motion solutions also support EtherCAT for distributed, deterministic motion and I/O capability. MAS and VPS are our new SRP offerings for motion control and machine vision, enabling customers to continuously advance their technologies.

EtherCAT Solutions

High Precision
- Motion master cycle time: Up to 250 µs for 6/ 10/ 16/ 32/ 64 axes
- I/O master cycle time: 200 µs

Real Time
- Embedded RTOS for real-time motion control
- User-friendly basic scripts for stored procedures

Ease of Use
- Unified API for rapid development
- SoftMotion Engine for vertical applications

Integration
- Supports EtherCAT servo/ stepping motors
- Pulse train control via EtherCAT motion modules
- Automatic connection of EtherCAT slaves throughout a network

Structure

PC-Based Programmable Motion Control Solutions

Open Platform Multi-Axis Controller
- Seamlessly integrated motion control, machine vision, and I/O components
- Open standard interface for communication and database connectivity

One Programming Tool – Motion Studio
- Easy to program with BASIC language, thus shortening the learning curve
- Extensive debugging tools for machine control applications
- Fast to learn, program, and service

Real-Time SoftMotion Kernel
- Up to 6-axis interpolation, trajectory planning, and tracking
- Rich motion functions for XYZ table and SCADA control

Structure

Automatic Vision Inspection Solutions

Configurable Application Software
- Easy-to-configure and deploy applications without programming
- Intuitive GUI shortens the learning curve
- Industrial-grade and compact design
- Fanless system w/ IP40 rating
- 7-year product lifetime
- Palm-sized (137 x 50 x 118 mm)

Versatile I/O for the Factory Floor
- PWM lighting control
- Debounce filter w/ interrupt on digital input
- Compliant with GigE Vision cameras

Structure

Power and Energy Solutions

Ensuring Reliable Solutions in the Changing Energy Market

To ensure safety and reliability by strengthening the energy management and monitoring of distributed energy stations, renewable energy sources, grid infrastructure, and manufacturing consumption, Advantech offers the ECU series of automation controllers, gateways, and data acquisition modules. These units are IEC 61850-3-compliant, have a robust design, and offer such features as wireless connectivity, multi-protocol support, and WebAccess integration to provide a flexible and robust open platform for convenient secondary development. By leveraging the extensive range of Advantech energy technology and solutions, users can manage tasks economically and efficiently despite the increasing complexity and dynamic nature of power and energy markets.

Automation Platforms

ECU-4784 Series

TUV IEC-61850-3-Certified Power Automation Computer

- Intel® Xeon® quad-core E3-1505L processor (2.0 GHz) w/ 16 GB of DDR4 ECC RAM
- Intel® Core™ i7 4650U/ Core™ i3 4010U/ Celeron® 2980U processor w/ 8 GB of DDR3L RAM
- 8 x 10/ 100/ 1000MB LAN, 2 x RS-232, 8 x RS-232/ 422/ 485 serial ports
- 2 x I/O expansion slots
- Supports iCDManager/ VT-D/ AMT/ TPM

ECU-4685

IEC-61850-3-Compliant Power Automation Computer w/ Intel® Celeron® 2980U Processor

- Intel® Celeron 2980U processor (1.6 GHz) w/ 4 GB of DDR3L RAM
- 6 x 10/ 100/ 1000MB LAN, 2 x RS-232, 8 x RS-232/ 485 serial ports
- 2 x relay output, 1 x IRIG-B
- 1 x mini-PCIe slot (full size)

XPCIe Cards

ECU-P1524PE (HSR+PRP)

2-Port SFP Gigabit Ethernet card w/ HSR+PRP support

- 2 x SFP (1000 Mbps Base-X)
- 2 x SFP (HSR+PRP, selection via jumper)
- Wide operating temperature range (-25~70°C)

ECU-P1761 (Digital I/O)

4-ch Isolated Digital Input/ 4-ch Isolated Relay Output Card w/ IRIG-B

- 4 x digital input (wet contact)
- 4 x relay output (Form C)
- 1 x IRIG-B
- Wide operating temperature range (-25~70°C)

ECU-P1628D/ 1618D (COM)

8-Port Isolated/ Non-Isolated RS-232/ 422/ 485 Card

- RS-232: 50~115.2 kbps (max.)
- RS-422/ 485: 50~921.6 kbps (max.)
- 2500 VDC isolation (ECU-P1628D)
- Wide operating temperature range (-20~70°C)

RISC-Based Gateways

ECU-1251

IEC-61850-3-Compliant Cortex® A8 Power Automation Gateway w/ 2 x LAN, 4 x COM

- Arm® Cortex® A8 800-MHz processor w/ 256 MB of DDR3L RAM
- 2 x 10/ 100 MB LAN, 4 x RS-232/ 485 serial ports
- 1 x mini-PCIe slot for wireless expansion
- Wide operating temperature range (-40~70°C)

ECU-1152

IEC-61850-3-Compliant Cortex® A8 Power Automation Gateway w/ 2 x LAN, 6 x COM

- Arm® Cortex® A8 800-MHz processor w/ 512 MB of DDR3L RAM
- 2 x 10/ 100 MB LAN, 6 x RS-232/ 485 serial ports
- 1 x mini-PCIe slot for wireless expansion
- Wide operating temperature range (-40~70°C)

ECU-4553

IEC-61850-Compliant Cortex® A8 Power Automation Gateway w/ 4 x LAN, 16 x COM

- ARM® Cortex® A8 800-MHz processorw/ 1 GB of DDR3L RAM
- 4 x 10/ 100MB LAN, 16 x RS-232/ 485 serial ports
- 2 x CAN 2.0b, 1 x IRIG-B
- Wide operating temperature range (-40~70°C)

Intelligent Transportation Systems

Total Solutions Build Up Modernized Infrastructure

With a decade of successful experience, Advantech has dedicated resources to designing and developing new products designed for the transportation industry. These products support both railway and roadway applications, including railway automatic fare collection, wayside control, rolling stock, city traffic management, highway management, transport hubs, and more. Our mission is to enable intelligent transportation systems, which also helps us fulfill our vision of creating and delivering smart city technologies.

Rugged-design Computer Platform

Fully Certified with EN 50155

ITA-5831

EN 50155-Certified Compact Fanless System

- Intel® Core™ i7-6822EQ platform with QM170
- Satisfies EN 50155 Tx (-40~70°C) and IEC 61373 body mount Class B standards
- Compliant with EMC standard EN 50121-3-2 for rolling stock apparatus
- Ruggedized communication and power port connectors (M12)
- Supports easy-swap storage and I/O modules

Fully Certified with EN 50155

ITA-5231

EN 50155-Certified Fanless System

- H-series, 6th generation Intel® Core™ i3/i5/i7 platform with QM170
- Satisfies temp. standards for EN 50155 TX (-40~70°C) and IEC 61373 body mount class B
- Compliant with EN 50121-3-2/ EN 50121-4 on EMC compatibility
- Ruggedized connectors (M12) used for communication and power ports
- Supports easy-swap storage and I/O modules

Display System

ARS-P3800

EN50155-Certified 38" Railway Panel PC w/ AMD® Embedded G-Series Processor

- 38" LCD panel w/ 1920 x 540 resolution
- 1 x GbE (M12), 1 x USB 2.0 (M12)
- Certificated with EN50155 T1 (-25~55°C), IEC 61373 Class B, EN 45545
- IP54 rating ensures protection against dust/ water ingress
- Fanless, anti-shock and anti-vibration design

Process Visualization Solutions

ITA-1711

Intel® Celeron™ J1900 Fanless Compact System

- 4 GB of DDR3 onboard RAM w/ optional NVRAM
- 2 x LAN, 6 x USB, 14 x COM, and 1 x USB 3.0 ports
- Replaceable secondary display (VGA 2/ DVI-D/ LVDS)
- Supports dual outputs of full HD resolution video
- Serial RS-232/ 422/ 485 ports support with automatic flow control

Fully Compliant with EN 50121-4

ITA-2231

EN50121-4-Compliant 2U Fanless System

- Intel® 6th Gen Core™ i7 processor w/ 16 GB of DDR4 RAM (up to 32 GB via DIMM expansion)
- Compliant with EN 50121-4 EMC standard for railway applications
- Provides 3 x ITA-EM modules, 1 x PCI104, and 1 x M.2 slots for expansion
- Wide operating temperature range (-25~60 °C)
- Supports single/ dual power modules

Touch Panel PC

Fully Certified with EN 50155

NEW

ITA-8120

EN50155-Certified 12.1" Railway Panel PC with Intel® Atom™ X Series Processor

- 12"LCD touch panel w/ 1024 x768 resolution
- 2x GbE (M12), 1x USB 2.0 (M12), 2x RS-422/ 485 (M12)
- Wide voltage input range: 24/ 48/ 72/ 110 VDC (±40%)
- Compliant with EN50155 T3 (-25~70°C), IEC 61373 Class B, and EN 45545

EN50155 Switches

EKI-9500 Series

28/ 20/ 16/ 12/ 10/ 8-Port EN50155 Managed Switch w/ PoE Support

- EKI-9520: 16 x M12 D-coded/ X-coded PoE ports + 4 x M12 X-coded w/ bypass
- EKI-9528: 16 x M12 D-coded/ X-coded PoE ports + 4 x M12 X-coded w/ bypass + 8 x M12 D-coded/ X-coded ports
- Wide power input range (24/ 36/ 48/ 72/ 96/ 110 VDC)

EKI-9512E-4EETB

EN50155 Train Router for Rolling Stock Backbone

- 8 x 10/ 100 Mbps M12 D-coded + 4 x 10/ 100 Mbps M12 D-coded w/ bypass
- TTDP (IEC-61375-2-5)
- Wide power input range (24/ 36/ 48/ 72/ 96/ 110 VDC)

Managed Ethernet Switch for Road Transportation

EKI-7700 Series

Industrial Managed Switch

- X-Ring Pro redundancy (recovery time < 20 ms)
- IXM for rapid deployment
- PoE/ PoE+ models available
- Compliant with EN50121-4 and NEMA TS2

Intelligent Systems and Platforms

Infrastructure for the IoT

With a diverse range of innovative technologies including cloud computing (industrial and video servers), edge computing (fanless, slim, portable devices), and high-performance embedded systems, Advantech's industrial cloud services and system design-to-order services (DTOS) transform embedded systems into intelligent systems equipped with smart, secure, energy-saving features. Our intelligent systems are designed specifically for vertical markets in intelligent transportation, factory automation/ machine automation, cloud infrastructure, and intelligent video application sectors.

Industrial Computers

ACP-2020

2U Rackmount Short Depth Chassis for ATX/ MicroATX Motherboards

- 398-mm short-depth 2U rackmount chassis
- Supports microATX single-processor motherboards
- 350-W single or 500-W redundant power supply
- Two internal 2.5" or hot-swap drive bays
- Intelligent system module for smart fan, self-diagnosis, and remote management

IPC-631

4U Front I/O Short Depth Rackmount Chassis for ATX/ Micro-ATX Motherboards

- 350-mm short-depth rackmount chassis
- Supports microATX single-processor motherboards, CPU TDP up to 120 W
- 500-W single or redundant power supply
- All I/O ports, buttons, LEDs, drive bays, and AC inlet on the same side
- PWM-controlled smart fan for minimal noise

ACP-4340

4U Rackmount Chassis w/ 4 x Hot-Swap Drive Trays

- Supports a PICMG backplane with up to 14 slots or an ATX/ microATX motherboard
- Shock-resistant disk drive bay holds 4 x hot-swap 3.5" and 2.5" SATA disk trays, 1 x slim optical disk drive, and 1 x 2.5" internal drive
- 2 x front USB 3.0 ports
- Front-accessible system fan without opening top cover for easy maintenance
- Intelligent system module for smart fan control, self-diagnosis, and remote management

Machine Vision Systems

AIIS-3400U/ P

Compact Vision System, Intel® 6th/ 7th Gen Core™ i CPU, 4-ch Camera Interface for GigE PoE or USB 3.0

- Intel® 6th/ 7th Gen Core™ i CPU (LGA1151)
- AIIS-3400P: 4-ch GbE PoE
- AIIS-3400U: 4-CH USB 3.0 w/ dedicated controller

Modular Industrial Computer

MIC-7700

Intel® 6th/ 7th Gen Core™ i Desktop Compact Fanless System

- Intel® 6th/ 7th Gen Core™ i CPU socket-type (LGA1151) w/ Intel® Q170/ H110 chipset
- VGA and DVI output
- 2 x GigaLAN and 8 x USB 3.0
- 2 x RS-232/ 422/ 485 and 4 x RS232 serial ports
- 1 x 2.5" HDD/ SSD, 1 x CFast, and 1 x mSATA

MIC-7420

Compact Fanless System with Intel® 6th Gen Core™ i Processor

- Intel® 6th Gen Core™ i7/i3 (BGA type) processor w/ Intel® QM170 chipset
- 8 GB of DDR4 memory (up to 24 GB)
- 2 x DVI, 2 x GbE LAN, 8 x USB ports
- 2 x PCIe x4/ 2 x PCI expansion slots
- 2 x 3.5"/ 2.5" HDD and 1 x M.2

Storage / Hybrid Server

NEW

SKY-5240

2U 4-Node Intel® Xeon® Scalable Series Hybrid Server

- Cutting edge technologies with Intel Xeon Scalable Family and support up to 24 DIMMs per Node
- Flexible I/O options, easy to upgrade to 1G/10G/40G/100G LAN via daughter boards
- Supports NVMe, SAS 12G, and SATA 6G for flexible storage arrangement
- Featured with Platinum redundant power supply, providing up to 96% high efficiency
- Supports two additional PCIe x16 expansion cards

Tower Chassis

HPC-5000

Small Tower Chassis for MicroATX/ Mini-ITX Motherboards

- Supports microATX/ mini-ITX motherboards
- Supports 2 x 3.5" or 1 x 3.5" and 1 x 2.5" internal HDDs
- 2 x USB 2.0 and 2 x USB 3.0 ports on the front panel
- Supports up to 4 FH/ FL (10.5") expansion slots
- Supports 300/ 500-W high-efficiency single ATX power supply
- Replaceable air filter to protect against dust ingress
- Under 23 dB(A) in idle mode (tested with ASMB-585 in smart fan mode)

GPU Server

NEW

SKY-6400

4U Rackmount Intel® Xeon® Scalable Series GPU server

- Supports DDR4 REG 2666/ 2400/ 2133/ 1866-MHz DIMM (up to 384 GB)
- Provides 4 expansion slots
- PCIe x16 double-deck card + 1
- PCIe x8 single-deck FH/ FL card
- PSU: 2000-W 1+1 redundant power supply with 80 PLUS Platinum certification
- IPMI function support for remote management
- Dual Intel® Xeon® scalable series processor

Video Capture Cards

DVP-7011UHE

4K Capture Card

- 1-ch 4K HDMI 2.0 video input with H.264 software compression
- 60/ 50 fps (NTSC/ PAL) at up to 4096 x 2160p for recording and display
- PCIe x 4 host interface
- Low profile size

DVP-7635HE

4-ch AHD Capture Card

- 4-ch AHD/ CVI/ TVI/ composite (CVBS) hardware compression
- 30/ 25 fps (NTSC/ PAL) at up to 1920 x 1080p for recording and display per channel
- PCIe x 4 host interface
- Supports watchdog function

DVP-7011MHE

M.2 DVI/ VGA/ HDMI Capture Card

- 1-ch HDMI/ DVI-D/ DVI-A/ YPbPr channel video inputs with H.264 software compression
- 30/ 25 fps (NTSC/ PAL) at up to full HD for recording and display
- PCIe M.2 (B/ M) host interface

Industrial Motherboards

AIMB-705

LGA1151 6th/ 7th Gen Core™ i7/i5/i3/ Pentium ATX with DVI/ VGA, DDR4, SATAIII, USB 3.0, and 6 x COM

- Intel® Core™ i7/i5/i3/Pentium® processor w/ H110 chipset
- Dual-channel (non-ECC) DDR4 RAM at 1866/ 2133 MHz (up to 32GB)

AIMB-785

LGA1151 6th/ 7th Gen Core™ i7/i5/ i3/Celeron/ Pentium ATX with 2 x DVI VGA, DDR4, and SATA III, USB 3.0, and 6 x COM

- Intel® Core™ i7/i5/i3/Celeron®/Pentium® processor w/ Q170 chipset
- Dual-channel (non-ECC) DDR4 at 1866/ 2133 MHz (up to 64 GB)
- Supports triple display (VGA/ 2 DVI-D)

Slot Single-Board Computers

PCE-3029

LGA1151 6th/ 7th Gen Intel® Core™ i7/i5/i3 Half-Sized SHB with DVI/ VGA, DDR4, SATA III, mSATA, USB 3.0, and 2 x COM

- Intel® Core™ i7/i5/i3/Celeron®/Pentium® processor w/ H110 chipset
- Dual-channel (non-ECC) DDR4 at 1866/ 2133 MHz (up to 32 GB)

Slot Single-Board Computers

PCE-5029

LGA1151 6th/ 7th Gen Intel® Core™ i7/i5/i3 Full-Sized SHB with DVI/ VGA, DDR4, SATA III, USB 3.0, and 2 x COM

- Intel® Core™ i7/i5/i3 processor w/ H110 chipset
- Dual-channel (non-ECC) DDR4 at 1866/ 2133 MHz (up to 32 GB)

PCE-5129

LGA1151 6th/ 7th Gen Intel® Core™ i7/ i5/i3 Full-Sized SHB with 2 x DVI VGA, DDR4, SATA III, USB 3.0, 2 x COM, M.2, and AMT

- Intel® Core™ i7/i5/i3 LGA1151 processor w/ Q170 chipset
- Dual-channel (non-ECC) DDR4 at 1866/ 2133 MHz (up to 32 GB)
- Supports SW Raid 0/ 1/ 5/ 10
- Supports triple display (VGA/ 2 DVI D)
- Compliant with PICMG 1.3

PCE-7129

LGA1151 6th and 7th Gen Intel® Xeon®/ Core™ 7/i5/i3/Pentium® LGA1151System Host Board with DDR4, SATA 3.0, USB 3.0, M.2, Dual GbE, and Triple Display

- Intel® Xeon® E3-1200v5/ Core™ i7/i5/i3 LGA1151 processor w/ C236 chipset
- Dual-channel (non-ECC) DDR4 1866/ 2133 MHz (up to 32 GB)
- Supports triple display (VGA/ 2 DVI D/ DP)

Embedded Automation Computers

Seamless Cloud Connection and Transmission for Smart Factories

Equipped with advanced communication capabilities and integrated iDoor technology, UNO systems can serve as intelligent IoT gateways for smart factories to ensure convenient cloud connectivity. These units offer scalable computing power for field site control and can support a diverse range of protocols for various PLC models with the integration of Advantech's WebAccess/ HMI software. The modularized design allows for flexible configuration and future expandability, making UNO systems ideal industrial computing solutions for smart factory operations.

Modular Box Platforms

NEW

UNO-2271G

Intel® Atom™ Pocket-Sized Smart Factory Edge Gateway

- Intel® Atom™ E3815 processor, w/ 4 GB of DDR3L onboard RAM
- Modular design for flexible expansion
- Built-in 32 GB of eMMC storage
- Versatile mounting options (DIN rail/ pole/ VESA/ stand)

Optimized UNO
UNO-2271G-E21AE
- 2 x GbE, 1 x USB 3.0, 1 x HDMI
- Supports additional second stack expansion for iDoor (UNO-2372G-EKAE)

Universal UNO
UNO-2271G-E22AE
- 2 x GbE, 1 x USB 3.0, 1 x HDMI, 3 x USB 2.0

Customized UNO
UNO-2271G-E23AE
- 2 x GbE, 1 x USB 3.0, 1 x HDMI, 2 x RS-232/ 422/ 485

NEW

UNO-2372G

Intel® Atom™ Small-Sized Smart Factory Data Gateway

- Intel® Atom™ E3845/ Celeron J1900 processor w/ 4 GB of DDR3L RAM
- Modular design for flexible expansion
- Versatile mounting options (DIN rail/ VESA/ stand)

Optimized UNO
UNO-2372G-E021AE
- 2 x GbE, 1 x USB 3.0, 3 x USB 2.0, 1 x HDMI, 1 x DP
- Supports additional second stack expansion for iDoor (UNO-2372G-EKAE)

Universal UNO
UNO-2372G-E022AE
- 2 x GbE, 1 x USB 3.0, 3 x USB 2.0, 1 x HDMI, 1 x DP
- 2 x iDoor expansion slots

NEW

UNO-2484G

Intel® Core™ i7/i5/i3 Regular-Sized, High-Performance Modular IPC

- Intel® Core™ i7/i5/i3 processor w/ 8 GB of DDR4 RAM
- Ruggedized and cableless design with lockable I/O
- TPM 2.0 technology for cyber security
- Versatile expansion module for different applications

Optimized UNO
UNO-2484G-6731AE
- 4 x GbE, 4 x USB 3.0, 1 x HDMI, 1 x DP, 4 x RS-232/ 422/ 485
- Supports additional second stack expansion: UNO-2484G-EKAE (4 x iDoor installation); UNO-2484G-S2AE (dual external accessible storage)

Universal UNO
UNO-2484G-6732AE
- 4 x GbE, 4 x USB 3.0, 1 x HDMI, 1 x DP, 4 x RS-232/ 422/ 485, 4 x iDoor expansion slots

Customized UNO
UNO-2484G-6732H5AE
- 4 x GbE, 4 x USB 3.0, 4 x USB 2.0, 5 x HDMI, 1 x DP, 4 x RS-232/ 422/ 485

Control Cabinet PCs

UNO-1252G/ 1251G

Micro-Sized DIN-Rail Industrial IoT Gateway

- Intel® Quark™/ TI Cortex®-A8 processor with 512/ 256 MB of RAM
- UNO-1252G: 2 x LAN, 2 x USB, 2 x mPCIe, 2 x COM, 8 x DI/O, 1 x microSD, 1 x SIM, 1 x iDoor, Ycoto Lynux
- UNO-1251G: 2 x LAN, 1 x USB, 1 x mPCIe, 3 x COM, 1 x CAN, 2 x microSD, 1 x microSIM, WEC7
- Programmable OLED display for indicating system status

UNO-1372GH/ UNO-1372G-J

Intel® Atom™/ Celeron Small-Sized DIN Rail Controller

- Intel® Atom™ E3845/ Celeron J1900 processor w/ 4 GB of DDR3L RAM
- UNO-1372GH: 3 x GbE, 2 x mPCIe, 2 x USB 2.0, 1 x USB 3.0, 1 x RS-232, 1 x RS-422/ 485, 1 x VGA, 1 x HDMI, 8 x DI/O, 1 x Line-out, 1 x iDoor, CID2-certified
- UNO-1372G-J: 2x GbE, 2 x mPCIe, 3 x USB 2.0, 1 x USB 3.0, 4 x RS-232/ 422/ 485, 1 x DP, 1 x HDMI, 8 x DI/O, 1 x iDoor
- Dedicated TPM2.0 onboard for hardware security (UNO-1372G-J)

UNO-1483G

Intel® Core™ i3 Standard-Sized DIN-Rail Controller

- 4th Gen Intel® Core™ i3 processor (up to 1.7 GHz) w/ 8 GB of DDR3L RAM
- 4 x GbE, 3 x mPCIe, 1 x PCIe x1, 2 x USB 2.0, 2 x USB 3.0, 1 x RS232, 2 x RS422/ 485, 1 x VGA, 1 x DP, 8 x DI/O, 1 x line out, 1 x iDoor
- Redundant power and easy-access swappable RTC battery

UNO-3283G/ 3285G

Intel® Core™ i Wall Mount Automation Computer

- 6th Gen Intel® Core™ i processor w/ 8 GB of DDR4 RAM
- 2 x GbE, 6 x USB 3.0, 2 x RS-232/ 422/ 485, 1 x DVI-I, 1 x HDMI, 1 x CFast 1 x iDoor, 2 x mPCIe (UNO-3283G: 2 x PCI/ PCIe, UNO-3285G: 4 x PCI/ PCIe)
- Dual hot-swappable HDD/ SSD slots with thumb screws for easy maintenance
- Redundant power input

UNO-3382G/ 3384G

Intel® Core™ i7/Celeron® Book Mount Automation Computer

- 4th Gen Intel® Core™ i7/Celeron® processors with 4/ 8 GB of DDR3L RAM
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232/ 422/ 485, 1 x DP, 1 x HDMI, 2 x mPCIe, 1 x CFast, 2 x iDoor (UNO-3384: 2 x PCI/ PCIe)
- Dual hot-swappable HDD/ SSD slots with thumb screws for easy maintenance

UNO-3483G

Intel® Core™ i7 Enclosure Mount Automation Computer

- 3rd Gen Intel® Core™ quad-core i7-3612QE processor (up to 2.1 GHz) w/ 8 GB of DDR3L RAM
- 2 x GbE, 2 x USB 2.0, 2 x USB 3.0, 1 x RS-232 (pin header), 1 x RS-422/ 485 (pin header), 1 x VGA, 1 x HDMI, 1 x PCIe x4, 3 x mPCIe, 2 x iDoor
- Dual hot-swappable HDD/ SSD slots with thumb screws for easy maintenance

iDoor Modules

Industrial Fieldbus

PCM-26 Series

Industrial Fieldbus iDoor modules support common automation protocols

- CANOpen
- PROFIBUS
- PROFINET
- EtherCAT
- EtherNet/ IP
- Sercos 3
- POWERLINK
- CC-Link IE

Wireless Communication

PCM-24S Series

Wireless communication iDoor modules enhance connectivity for industrial IoT

- Wi-Fi/ Bluetooth
- 3G/ GPS
- LTE/ GPS
- LoRa
- Sigfox
- Sub-1G

Industrial I/O and Peripherals

PCM-23/ 24/ 27/ 29 Series

Industrial I/O and peripheral modules enable flexible I/O expansion

- RS232/ 422/ 485
- Digital I/O
- GigaLAN
- MRAM
- CFast slot
- USB dongle
- USB 3.0
- PoE
- TPM
- Audio
- IO-Link

Intelligent HMI

Leading HMI Innovations for Smart Factories

As a leading promoter of Industry 4.0, Advantech offers a diverse range of HMI products equipped with iDoor technology, including high-performance control panels, low-power industrial thin clients, web browser terminals, and industrial monitors. For vertical markets such as railway transportation and food and beverage industries, we also provide reliable domain-focused products with IP69K, C1D2, and EN50155 certification. Advantech has developed a new generation of modular solutions for a diverse range of configurations to meet specific usage requirements, offering customers a quick time to market and high level of expandability for Industry 4.0 applications.

Modular Industrial Panel PCs

Preconfigured Modular Systems

TPC-5000 Series

Modular 12”/ 15”/ 17”/ 18.5”/ 21.5”. LED LCD w/ 6th Gen Intel® Core™ i7/i3/ Celeron® Multi-Touch Panel Computer

- Intel® Core™ i7-6600U processor with 8 GB of DDR4 SODIMM
- Various front panel sizes that support either PCT touch for multi-touch control or 5-wire resistive touch
- 3 x GbE, 1 x full-sized mini-PCIe with iDoor technology and 1 x half-sized PCIe slot

TPC-2000 Series

Modular 12”/ 15”/ 17”/ 18.5”/ 21.5” LED LCD w/ Intel® Atom™ Industrial Thin Client

- Intel® Celeron® J3455 Quad-Core Processor (1.50 GHz) + 4 GB of DDR3L SODIMM
- Various front panel sizes that support either PCT touch for multi-touch control or 5-wire resistive touch
- Supports NFC, Wi-Fi, and Bluetooth wireless communication, as well as iDoor technology

FPM-7000 Series

Modular 12/ 15/ 17/ 18.5/ 21.5 Full HD Industrial Monitor

- Supports dual displays and control with picture-in-picture functionality
- Module-in-module design with customizable I/O interface
- iLINK technology enables long-distance (up to 100 m) one-to-one/ one-to-many (up to 4) data transmissions

Standalone Modules

Box Module

TPC-B500-6C2AE
Intel® Celeron® 3955U, 4 GB of DDR4 RAM

TPC-B500-6C2AE
Intel® i7-6600U, 8 GB of DDR4 RAM

TPC-B500-6C2AE
Intel® i3-6100U, 8 GB of DDR4 RAM

TPC-B200-J12AE
Intel® Celeron® J3455 1.50 GHz, 4G of DDR3L RAM

TPC-B200-E12AE
Intel® Atom® 1.8GHz, 4G of DDR3L RAM

FPM-B700-AE
Modular monitor box w/ 2 x I/O slots

Panel Module

FPM-D12T-AE
12.1” XGA

FPM-D15T-AE
15” XGA

FPM-D17T-AE
17” SXGA

FPM-D18W-AE
18.5” HD

FPM-D21W-AE
21.5” Full HD

High Performance Control Panels

TPC-1x82 Series
12”/ 15”/ 17” TFT LED LCD
Intel® Core™ i3 Touch Panel Computer
- Intel® Core™ i3-5010U/ 4010U (1.7/ 2.1 GHz) w/ 4 GB of DDR3L SDRAM + 5-wire resistive touch screen
- Expandable system I/O, isolated digital I/O, Fieldbus, and communication via iDoor technology
- PCIe and mini-PCIe expansion support
- Supports 2 x USB 3.0 and HDMI ports for independent displays

TPC-1x81WP Series
15.6”/ 18.5” TFT LED LCD
Intel® Core™ i7/i3 with PCT Multi-Touch Panel Computer
- 7H surface hardness glass widescreen with PCT multi-touch control, IP66 rating, and true-flat design
- Expandable system I/O, isolated digital I/O, Fieldbus, and communication via iDoor technology
- Built-in ikey and Home key provide an intuitive user interface
- Supports USB 3.0 and HDMI for independent displays

Industrial Thin Clients

TPC-xx51T Series
5.7”/ 6.5”/ 12.1”/ 15”/ 17” TFT LED LCD Intel® Atom™ Dual-Core Thin Client Panel Computer
- Intel® Atom™ dual-core E3827, 1.75 GHz, processor with 4 GB of DDR3L SDRAM (Optional Intel® Celeron™ quad-core J1900 processor)
- Wide operating temperature (-20 ~ 60 °C)
- IP66-rated front panel with durable true-flat 5-wire resistive touchscreen
- Supports iDoor technology (TPC-1251T-EHKE required)

TPC-xxWP Series
10.1”/ 15.6” TFT LED LCD Intel® Atom™ Dual-Core Thin Client Panel Computer
- Intel® Atom™ dual-core E3827 (1.75 GHz) w/ 4 GB of DDR3L SDRAM
- Wide operating temperature range (-20~55°C)
- 7H surface hardness glass widescreen with PCT multi-touch control, IP66 rating, and true-flat design
- Supports iDoor technology (TPC-1251T-EHKE required)

TPC-1840WP/ TPC-2140WP
18.5”/ 21.5” TFT LCD Multi-Touch Panel Computer with AMD Dual-Core Processor
- AMD dual-core T56E (1.65 GHz) w/ independent GPU
- 16:9 WXGA/ FHD TFT LED LCD display with PCT multi-touch control
- Built-in function and home key buttons provide an intuitive user interface
- Easy maintenance Cfast/ HDD/ mini-PCIe components

Web Browser Terminals

WebOP-3000 Series
7”/ 10.1”/ 12” Cortex™-A8 Operator Panel
- Microsoft Windows Embedded CE 6.0
- Backup memory frame in 128 KB (64 words) without battery
- Wide operating temperature range (-20~60°C)
- Flat-sealed front panel with IP66 rating

WebOP-2000 Series
4.3”/ 7”/ 10.1” WSVGA Operator Panel
- 65,536 colors TFT LCD, Arm9-based CPUs
- Front panel flat-sealed with IP66 rating
- Low power consumption (10 W)
- Supports over 400 PLC communication protocols

Domain-Focused Panel PCs

SPC Series
All-Around IP66-Rated 18.5”/ 21.5” Stationary Panel w/ Intel® i3/i5/i7/AMD® Dual-Core Processor
- Intel® Core™ i3-4010U/ AMD G-series T56N processor
- 7H surface hardness glass widescreen with true-flat design, all-around IP66 rating VESA mount support
- Waterproof M12 I/O: 1 x RS-232, 1 x USB, and 2 x LAN (customization is allowed)
- Winner of the 2013 iF product design award

IPPC-5211WS
IP69K-Rated 21.5” TFT LED LCD w/ PCT Touch Panel
- Intel® Celeron® quad-core J1900 (2 GHz)
- 21.5” full HD TFT LED LCD display
- IP69K rating with corrosion-proof stainless steel housing
- Supports detachable accessories for various applications

Panel PCs

NEW

PPC-6000C Series

15”/ 17”/ 19” 6th Gen Intel® Core™ i7/i5/i3 Panel PC w/ Selectable Mini-ITX Motherboard

- 6th Gen Intel® Core™ i, up to 45W TDP (socket type)
- True-flat, IP65-rated, front bezel with resistive or optional PCAP touchscreen
- Selectable mini-ITX motherboard for diverse requirements
- 2 x expansion slots (1 x PCIe x 4 or 2 x PCI)

NEW

PPC-3001 Series

15”/ 15.6”/ 21.5” 6th/ 4th Gen Intel® Core™ i5 Fanless Panel PC

- Intel® Core™ i5-6300U/ 4300U, 2.4 GHz/ 1.9 GHz, processor
- True-flat, IP65-rated front bezel w/ PCAP or resistive touchscreen
- Wide input voltage range (9~32 VDC, 12~32 VDC)
- Supports 1 x PCIe x 4/ PCI x1 bus expansion
- Built-in isolated RS-422/ 485 with auto flow control
- Supports triple display (1 x DP, 1 x VGA)

NEW

PPC-3001S Series

18.5”/ 21.5” 6th Gen Intel® Core™ i5 Fanless Panel PC

- Intel® Core™ i5-6300U, 2.4 GHz, processor
- True-flat, IP65-rated front bezel with PCAP touchscreen
- Compact fanless design with solid aluminum alloy enclosure
- Wide input voltage range (12~24 VDC)

PPC-3000 Series

10.4”/ 12.1”/ 15”/ 17”/ 19” Intel® Atom™ Quad-Core Fanless Panel PC

- Intel® Atom™ quad-core E3940/ E3845 (1.6/ 1.91 GHz)
- Wide operating temperature range (-20~60°C)
- Wide input voltage range (9~32 VDC)
- Supports 1 x PCI/ PCIe bus expansion
- Built-in isolated RS-422/ 485 with auto flow control
- Optional expansion for CF/ CFast, USB dongle, RS232 and GPIO

NEW

PPC-3000S Series

6.5”/ 10.4”/ 12.1”/ 15”/ 15.6”/ 18.5”/ 21.5” Intel® Celeron Dual/ Quad-Core Fanless Panel PC

- Intel® Celeron quad-core N2930/ N4200 (1.83/ 1.1 GHz)
- True-flat, IP65-rated front bezel with resistive or PCAP touchscreen
- Compact fanless design with solid aluminum alloy enclosure
- Wide input voltage range (12 ~ 24 VDC)

Industrial Monitors

FPM-2000 series

12”/ 15”/ 17” SXGA Industrial Monitor with Resistive Touchscreen and Direct-VGA Port

- Robust design with IP65 aluminum front panel
- Anti-glare screen
- Supports panel, wall, desktop, rack or VESA arm mounting
- Combination RS-232 + USB interface for touchscreen function

FPM-3000 series

15”/ 17”/ 19” SXGA Industrial Monitor with Resistive Touchscreen, Direct-VGA and DVI Ports

- Robust design with stainless steel chassis and IP65 aluminum front panel protection
- OSD control pad on front panel
- Supports industrial 12 and 24 VDC power input
- Supports panel, wall, desktop, rack or VESA arm mounting

FPM-5000 series

6.5”/ 12”/ 15”/ 15.6”/ 18.5”/ 21.5” True-Flat Industrial Monitor with PCT/ Resistive, Direct VGA, and DVI Ports

- Robust design with IP65-rated front panel
- Front USB port for easy maintenance
- Supports industrial 12 and 24 VDC power input
- Supports panel, wall, desktop, or VESA arm mounting

Control IPCs

Scalable PC-based Automation Controllers for Smart Factories

Advantech's APAX series products leverage embedded computing technology and a modular system design. Featuring flexible I/O expansion, real-time Fieldbus and I/O control, and network connectivity via a range of interfaces, the APAX series provides integrated control systems and an open environment that can be integrated with unique software to bridge the gap between operational and information technology.

Control IPCs

APAX-5580
Embedded Control IPC
- Supports CODESYS V3.5 RTE
- Onboard Fieldbus support for EtherCAT, PROFINET, Ethernet/ IP
- PLC-graded RTC battery with 10-year lifecycle
- Supports up to 8 x local and 64 x remote COM ports
- Supports up to 32 x APAX expansion I/O, 768 x DI/DO, and 192 x AI channels

APAX-5580CDS
Supports CODESYS V3.5 RTE
- Onboard Fieldbus support for EtherCAT, PROFINET, Ethernet/ IP
- PLC-graded RTC battery with 10-year lifecycle
- Supports up to 8 x local and 64 x remote COM ports
- Supports up to 32 x APAX expansion I/O, 768 x DI/DO, and 192 x AI channels

Couplers

APAX-5070/ 5071/ 5072
Fieldbus Communication Coupler
- APAX-5070 supports 1-ms Modbus response time
- Flexible Modbus mapping table
- Supports UDP data streaming and event alarms

CODESYS Cloud Connectivity Plug-in Package

WebAccess/SCADA Support
- Export tags from CODESYS PLC Handler
- Seamless integration w/ WebAccess SCADA nodes

ODBC Database Direct Connection
- Update tag values to a cloud database each cycle
- Supports update times of <1 ms

OPC/ UA Support
- OPC/ UA Server supported
- Supports Micro Embedded Device Server profile
- OPC/ UA Security support (x.509)

APAX Series Modules

APAX-5090
Local Bus Communication Module
- 4 x RS-232/ 422/ 485 ports
- Up to 64 x virtual COM ports with APAX-5580
- Supports a distributed topology with APAX bus

APAX-5017H
12-ch High-Speed AI Module
- Input current: 4~20 mA
- Input voltage: ±10V
- Each channel can be configured to different input types and ranges
- 100/ 1000 Hz sampling rate per channel

APAX-5430
SATA HDD Module
- SATA I/ II/ III 2.5" HDD/ SDD
- Supports RAID 0/ 1

Edge DAQ Devices

Booster for Equipment Manufacturers, Rental Services, and End Users

Advantech's edge data acquisition solutions are designed to simplify remote equipment monitoring. These solutions can improve service quality by facilitating product care, enabling equipment operation monitoring, and allowing for efficiency and energy consumption analysis. This allows manufacturers, rental services, and end users to obtain insights on usage behaviors by connecting machine data to the cloud in order to derive intelligence through the analysis of big data. Advantech provides three major solutions for protocol translation and minimizing programming effort in different application scenarios: 1) WISE-PaaS/EdgeLink, 2) Node-RED core product solution, and 3) the ADAM-5630 open edge data acquisition platform.

WISE-PaaS/EdgeLink Core DAQ Solution

WISE-PaaS/ EdgeLink

M2I Edge Engine

- Click-and-go cloud access deployment
- Protocol support for multiple PLCs
- IEC-61131-3 Soft Logic controller
- SSL encryption for web page access
- Optimized network connection with cyber security protection

Modularize Edge DAQ

ADAM-3600

Wireless Intelligent RTU with WISE-PaaS/EdgeLink

- Linux-based
- CPU: Arm® Cortex-A8, 32 bit
- RAM: 256 MB
- Data storage: micro-SD
- 2 x LAN ports
- 2 x wireless comm. interface (mini-PCIe)
- 8 x DI, 8 x AI, 4 x isolated DO channels

ADAM-3651/ ADAM-3656

Digital I/O Expansion Module

- ADAM-3651: 8-ch DI module
- ADAM-3656: 8-ch DO module

ADAM-3617/ ADAM-3624

Analog I/O Expansion Module

- ADAM-3617: 4-ch AI module
- ADAM-3624: 4-ch AO module

Edge Intelligent Communication

ECU-1251TL

RISC-based IIoT Gateway with WISE-PaaS/EdgeLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 800 MHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD, 1 GB
- 2 x LAN, 1 x USB 2.0, 4 x RS-485/ 232 ports
- 1 x mini-PCIe/ USB

ECU-1051TL

Compact RISC-based IIoT Gateway with WISE-PaaS/EdgeLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 600 MHz)
- RAM: 256 MB
- Data storage: NADA flash
- 2 x LAN, 2 x COM ports

ECU-1050TL

Wireless to Wireless RISC based IIoT Gateway with WISE-PaaS/EdgeLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 600 MHz)
- RAM: 256 MB
- Data storage: NADA flash
- 1 x LAN port
- 2 x wireless comm. interface (mini-PCIe)

Node-RED Core DAQ Solution

Node-RED

- Graphical programming with drag-and-drop user interface
- Exclusive function nodes for fast and customized application deployment
- Encrypted data to the cloud or a database
- Universal JavaScript-based programming for customization
- Data analytics and visualization

NEW

ADAM-6750

Data Analytics Gateway with Digital I/O

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN, 1 x RS-485 port
- 8-ch DI/ 4-ch DO

NEW

ADAM-6717UH

Data Analytics Gateway with High-Speed Analog Input

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN ports
- 8-ch AI/ 1-ch DO (sample rate: 100 KHz over 8 channels)

NEW

ADAM-6771

Data Analytics Gateway

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN, 1 x USB 2.0, 2 x RS-485, 2 x RS-485/ 232 ports

Edge Intelligent DAQ Controller

NEW

ADAM-5630

- TI Cortex-A8 (600 MHz) w/ 512 MB of DDR3 RAM
- Real-time Linux
- 2 x LAN ports with two MAC addresses
- 4/ 8 slots selection
- Micro-SD slot for storage
- Wired and wireless communication expansion options
- Supports web services

Expansion Modules

NEW

ADAM-5037

8-ch High-Speed AI Module

- 4/ 8 slots selection
- Micro-SD slot for storage

NEW

ADAM-5101

Storage Expansion Module

- Supports mini PCI express or M.2 interface

NEW

ADAM-5101P

Mini-PCI Express Expansion

- Supports wireless expansion
- 2 x Antenna Points

NEW

ADAM-5191

Serial Expansion Module

- 4 x serial ports
- Supports RS-485/ 232/ 422

NEW

ADAM-5192

Network Expansion Module

- 2 x LAN ports

ADAM-5000 Expansion I/O Modules

- 9 x AI/ AO Channels
- 16 x DI/ DO Channels
- 2 x Counters

Industrial Communication

Seamless Data Connectivity from the Network Edge to the Core

Advantech leverages over 20 years of industry experience to develop industrial communication products that provide reliable wired and wireless communication solutions for mission critical applications. These products include industrial Ethernet switches, industrial Fieldbus gateways, Modbus gateways, cellular IP gateways, cellular routers, wireless access points/ clients, media converters, and serial device servers, all of which contribute to securely transmitting critical and sensitive information, remotely monitoring and controlling networked devices, and delivering advanced communication capabilities for industrial applications.

Wireless Sensing Platforms

Wzzard Mesh Platform

Wireless Mesh I/O Sensors–Intelligent Sensing Platforms

- Ultra-low power consumption
- 802.15.4e SmartMesh IP technology
- Supports MQTT and JSON IoT protocols
- UL Class 1/ Division 2 hazardous location rating
- IP66-rated, reinforced-fiber polyester PBT enclosure

SmartSwarm 243 LoRa Private Gateway/ WISE-6610 LoRaWAN Gateway

LoRa I/O Sensors Node and Gateway

- Low power consumption for solar and battery power applications
- Long-range, wide-area IoT gateway
- IP66-rated reinforced-fiber polyester PBT enclosure
- LoRa private protocol for closing system applications

Intelligent Gateway

SmartSwarm 351 Asset Integration Gateway

Seamlessly Integrate Data from Legacy Modbus Systems, Devices, and Sensors

- Protocol translation w/ Modbus and MQTT support
- Event triggering and data transmissions without duplication
- Data aggregation and reporting to reduce network traffic
- Authentication and encryption features for data security

LTE Routers & Gateways

SL30x Series

SmartStart Routers and Gateways

- LTE/ UMTS/ HSPA+/ HSDPA/ GPRS/ EDGE
- Wi-Fi (optional)
- 2 x SIM card holders
- Advanced security and networking features
- UL 60950-1 certification for hazardous locations

SR30x Series

SmartFlex Routers and Gateways

- LTE/ UMTS/ HSPA+/ HSDPA/ GPRS/ EDGE
- Wi-Fi (optional); GPS receiver (wired version not included)
- 2 x SIM card holders, 1 x MicroSD card holder
- PoE PD/ PSE (optional)
- Advanced security and networking features

ST35x Series

SmartMotion Routers and Gateways

- Twin interdependent cellular modules for redundant reliability
- Wi-Fi (optional) and GPS receiver (not included w/ wired version)
- 4 x SIM card holders, 1 x microSD card holder
- PoE PD/ PSE (optional)
- Advanced security and networking features

Fieldbus Gateways

EKI-1242EIMS

Modbus RTU/ TCP to EtherNet/ IP Fieldbus Gateway

- Dual power input
- Integrates Modbus RTU/ TCP and EtherNet/ IP communication
- Designed for protocol extensibility and adaption
- Built-in real-time diagnostics
- I models support a wide operating temperature range

EKI-1242PNMS

Modbus RTU/ TCP to PROFINET Fieldbus Gateway

- Dual power input
- Integrates Modbus RTU/ TCP and EtherNet/ IP communication
- Designed for protocol extensibility and adaption
- Built-in real-time diagnostics
- I models support a wide operating temperature range

EKI-1242ECMS

Modbus RTU/ TCP to EtherCAT Fieldbus Gateway

- Dual power input
- Integrates Modbus RTU/ TCP and EtherNet/ IP communication
- Designed for protocol extensibility and adaption
- Built-in real-time diagnostics
- I models support a wide operating temperature range

Serial Device Servers

EKI-1526/ EKI-1528
16/ 8-Port RS-232/ 422/ 485 Rackmount Serial Device Server
- Connect up to 8/ 16-port RS-232/ 422/ 485 devices directly to TCP/ IP networks
- High-speed baud rates (50 bps~976.5 Kbps) for high-volume transmission
- VCOM, TCP server, TCP client, UDP, and RFC2217 operating modes

EKI-1528-DR
8-Port RS-232/ 422/ 485 DIN Rail Serial Device Server
- 2 x 10/ 100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP, and RFC2217 operating modes
- I models support a wide operating temperature range;
- CI models support isolation and a wide operating temperature range

EKI-1520 Series
1/ 2/ 4-Port RS-232/ 422/ 485 Serial Device Server
- 2 x 10/ 100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP, and RFC2217 operating modes
- I models support a wide operating temperature range
- CI models support isolation and a wide operating temperature range

Modbus Gateway

EKI-1220 Series
1/ 2/ 4/ 8-Port Modbus Gateway
- Supports redundancy-enhanced Modbus ID
- Integrates Modbus TCP and Modbus RTU/ ASCII networks
- Wide operation temperature range and isolation (optional)

Modbus Router

NEW

EKI-1220R Series
1/ 2/ 4-Port Modbus Gateway/ Router
- Integrated stateful firewall for protection from intrusion
- Supports redundancy-enhanced Modbus ID
- Integrates Modbus TCP and Modbus RTU/ ASCII network

WLAN Device Servers

EKI-1360/ 1360MB Series
1/ 2-Port RS-232/ 422/ 485 to 802.11a/b/g/n WLAN Serial/ Modbus Device Server
- 2 x 10/ 100 Mbps Ethernet ports for LAN redundancy
- VCOM, TCP server, TCP Client, UDP, and RFC2217 operating modes
- Supports dual bands 2.4/ 5 GHz (selective)

Industrial Wireless AP/ Clients

EKI-6331AN/ 6332GN
802.11N Wi-Fi AP/ Bridge/ Client
- Compliant with IEEE 802.11 a/n and 802.11 b/g/n
- High output power
- Fast roaming
- IP55 rated for waterproof

NEW

EKI-6333AC
802.11N/ AC Wi-Fi AP/ Bridge
- Compliant with IEEE 802.11 a/b/g/n/ac
- DIN rail mounting
- Supports dual bands 2.4/ 5 GHz (selective)

L3 Switches

EKI-9700/ 9600 Series
Industrial Layer 3 Managed Switch
- Static routing/ NAT (EKI-9612G, EKI-9628G)
- Static routing, RIP v1/ v2, OSPF v2, VRRP (EKI-9728G)
- Supports up to 4 x 10GbE fiber ports (EKI-9728G)
- Wide operating temperature range

Network Management System

WebAccess/NMS
Network Management System
- Cross-browser compatible
- Online Google Maps and offline OpenStreetMap support
- Supports all Advantech Ethernet-based products
- Dynamic connectivity indication
- Automatically discovers and diagrams network topology
- PoE, ring, wireless, cellular connection indication

IEC 61850-3-Certified Switches

NEW

EKI-9228 Series
Industrial Rackmount Managed Switch with Flexible Port Options
- 16 x Gigabit RJ-45 ports, 4 x SFP, 8 x Gigabit combo ports
- SFP socket for easy and flexible fiber expansion
- Gigabit X-Ring redundancy (ultra-high-speed recovery time, <20 ms), RSTP/ STP (802.1w/ 1D), MSTP
- Wide operating temperature range (-40~85˚C)
- Dual wide-range AC/ DC power input

NEW

EKI-9226G Series
26-port Rackmount Managed Switch w/ High-Density Fiber Ports
- 20 x Gigabit SFP + 6 x Gigabit RJ-45 ports
- Numerous fiber ports for establishing fiber links to many locations
- Security: 802.1x , HTTPS, SSH, and SNMPv3
- Gigabit X-Ring redundancy (ultra-high-speed recovery time, <20 ms), RSTP/ STP (802.1w/ 1D), MSTP
- Wide operating temperature range (-40~85˚C)
- Dual wide-range AC/ DC power input and 2 x relay outputs

NEW

EKI-9213
DIN Rail Managed Switch w/ Support for HSR/ PRP
- 8 x 10/ 100 Mbps RJ-45 + 3 x 100/ 1000 Mbps SFP + 2 x 10/ 100 Mbps HSR/ PRP combo ports
- IEC 62439-3 Clause 4 (PRP) and Clause 5 (HSR)-compliant
- Security: 802.1x , HTTPS, SSH, and SNMPv3
- Wide operating temperature range (-40~85˚C)

L2 Managed Switches

EKI-7428G-4CI
Industrial Rackmount Managed Switch
- IXM for rapid deployment
- Management: SNMP v1/ v2c/ v3, WEB, Telnet, Standard MIB
- Wide operating temperature range (-40~70°C)
- Dual-power input (12~48 V_{DC})
- EN50121-4 and NEMA TS2-certified

EKI-7700 Series
Industrial Managed Switch
- Models supporting Gigabit / FastEthernet ports + Gigabit Copper/ SFP combo ports
- IXM function enables fast deployment
- IP30-rated chassis design
- EN50121-4 and NEMA TS2-certified

EKI-5500-EI/ PN/ 5600-EI/ PN
Managed Switch with EtherNet/ IP or PROFINET Protocol Support
- UL508, Class 1 Division 2, ATEX-certified
- Compatible with SIMATIC step 7 and TIA portal (PROFINET-compatible models)
- PROFITNET models support MRP
- Faceplate compatible with Rockwell FactoryTalk® View (Ethernet/ IP compatible models)
- Easy and fast deployment from Advantech IXM technology

Unmanaged Switches

EKI-5000 Series
Unmanaged Switch
- IECEx, ATEX, CID2 certification for hazardous environments
- Monitoring utility
- Port-based QoS for deterministic data transmissions
- Loop detection
- Dual-power input

EKI-2000 Series
Unmanaged Switch
- 5 x Fast Ethernet ports w/ slim design (W 25 x H 80 x D 84 mm)
- Supports redundant power input + 1 x DC power jack
- Wide operating temperature range (-40~75°C)
- IP40-rated chassis design
- AC power design (EKI-2428G-4FA)

EKI-2525LI
Unmanaged Switch
- 5 x Fast Ethernet ports w/ slim design (W 25 x H 80 x D 84 mm)
- Supports redundant power input + 1 x DC power jack
- Wide operating temperature range (-40~75°C)
- IP40-rated chassis design

PoE Switches

EKI-7428G-4CPI
Industrial Rackmount Managed Switch with 24G PoE, 4G Combo Ports
- 24 x IEEE 802.3 af/ at PoE Gigabit ports, 4 x Gigabit copper/ SFP combo ports
- IXM for rapid deployment
- Management: SNMP v1/ v2c/ v3, WEB, Telnet, Standard MIB
- Wide operating temperature range (-40~70°C)
- EN50121-4 and NEMA TS2-certified

EKI-7700 Series
Fully Managed PoE/ PoE+ Industrial Ethernet Switch
- X-Ring Pro redundancy (recovery time < 20 ms)
- IXM for rapid deployment
- Wide operating temperature range (-40~75°C)
- EN50121-4 and NEMA TS2-certified

EKI-5000/ 2000 Series
Unmanaged PoE/ PoE+ Industrial Ethernet Switch
- Compact size
- Redundant power design
- Wide operating temperature range (-40~75°C)
- IP30-rated chassis design
- IECEx, ATEX, and CID2 certification for hazardous environments (EKI-5000 Series)

EKI-9528/ 9520 Series
28/ 20-Port EN50155 Managed Switch w/ Support for PoE
- EKI-9520: 16 x M12 D-coded/ X-coded PoE ports + 4 x M12 X-coded w/ bypass
- EKI-9528: 16 x M12 D-coded/ X-coded PoE ports + 4 x M12 X-coded w/ bypass + 8 x M12 D-coded/ X-coded ports
- M12 with IP67 protection
- Wide operating temperature range for EN501055 Tx (-40~70°C)
- Wide input power range (24/ 36/ 48/ 72/ 96/ 110 V_{DC})

EKI-9516/ 9512/ 9510/ 9508 Series
16/ 12/ 10/ 8-Port EN50155 Managed Switch w/ Support for PoE
- IEEE 802.3af/ 802.3at per port with system PoE power management (PoE models)
- Compact size for space-limited environments (EKI-9510/ 9508)
- Wide operating temperature range for EN501055 Tx (-40~70°C)
- M12 with IP67 protection (EKI-9516/ 9512)

EKI-9512E-4EETB
EN50155 Train Router for Rolling Stock Backbone
- 8 x 10/ 100 Mbps M12 D-coded + 4 x 10/ 100 Mbps M12 D-coded w/ bypass
- TTDP (IEC-61375-2-5)
- Wide input power range (24/ 36/ 48/ 72/ 96/ 110 V_{DC})

Wireless IoT Sensing Devices

Intelligent Wireless Sensing Devices for IoT Big Data Acquisition

With developments in wireless and cloud technology, more remote management services have adopted cloud services for wide area communication. To shorten the gap between the network edge and the cloud, Advantech provides wireless sensing devices that directly pass data to the cloud by utilizing MQTT and RESTful APIs.

While WISE-4000 are designed for wide area communication with Wi-Fi, LPWAN, LoRa, NB-IoT/eMTC, and 3G/LTE, the WISE-2000 are all-in-one devices for specific applications, and the WISE-6000 comprise ready-to-use M2I edge devices for remote machine status monitoring and management.

Wireless I/O Modules

WISE-4000 Series

2.4 GHz Wi-Fi I/O Module

- REST and MQTT protocol for IoT or cloud services
- Local data logger and cloud storage w/ secure sockets
- HTML5 web interface for mobile configuration

WISE-4012
- 4-ch AI/ DI + 2-ch DO

WISE-4051
- 8-ch DI + 1 x RS-485 port

WISE-4050/ 4060
- 4-ch DI + 4-ch DO/ relay

WISE-4012E IoT Developer Kit
- 2-ch AI + 2-ch DI + 2-ch relay
- Ready-to-use software and accessories for immediate use

Wireless Sensor Nodes

WISE-4200/ 4400/ 4600 Series

Sensor to Intelligence Node

WISE-4220 (2.4 GHz Wi-Fi)
- REST and MQTT protocol for IoT or cloud services
- Local data logger and cloud storage w/ secure sockets

WISE-4210 (Sub-GHz LPWAN)
- Less interference than at 2.4 GHz
- Long distance communication with 3.6 V AA battery power

WISE-4470 (Cellular, NB-IoT)
- Local data logger and cloud storage w/ secure sockets
- IP65-rated protection with M12 connectors and an internal antenna

WISE-4610 (LoRa, LoRaWAN)
- IP65-rated protection with M12 connectors for outdoor applications
- Solar panel rechargeable battery and optional GPS for location tracking

Wireless Sensor Devices

WISE-2000 Series

Self-Powered Sensor Nodes and Intelligent RFID Gateways

WISE-2210 (Sub-GHz LPWAN)
- Self-Powered by photovoltaic panel or current transducer
- Power consumption measuring or environment monitoring for equipment and machine

WISE-2800 (RFID)
- 4-port UHF RFID read/ write function
- Node-RED programmable for data read/ write, filtering, and transfer
- Application-ready function block
- Ethernet and Wi-Fi interface for up-link

Wireless M2I Edge Devices

WISE-6200 Series

RISC Edge Device with Arm Cortex-A8 and RT-Linux OS

- Support for more than 100 PLC drivers via WebAccess/ TagLink
- Built-in DI/DO, AI/AO, RS-485 and Ethernet for machine status monitoring
- Wi-Fi, 3G, NB-IoT w/ mini-PCIe communication
- Intelligent logic control with Node-RED
- ePaper for local visualization and web service support for remote management

Data Acquisition and Control

Diverse Form Factors to Satisfy All DAQ Requirements

Advantech offers a wide range of industrial data acquisition and control devices with various interfaces and functions. Based on PC technology, from add-on cards and portable modules to signal conditioning and graphical software tools, Advantech's industrial I/O products are reliable, accurate, affordable, and suitable for a range of industrial automation applications such as measurement, laboratory operations, machine automation, and production testing. Moreover, Advantech's latest DAQNavi I/O driver supports Windows 7, 8, 10, and Linux, enabling customers to seamlessly integrate data acquisition cards with the latest platforms for improved performance and reduced development time.

PCI Express DAQ Cards

PCIE-1730H/ 1756H

32/ 64-ch Isolated DI/DO PCI Express Card

- 16/ 32-ch isolated DI/DO channels w/ 24 V compatibility
- Interrupt handling capability for all DI channels
- Software-selectable digital filter time for all DI channels
- 16-ch TTL DI/DO w/ 5 V compatibility (PCIE-1730H only)
- High-voltage isolation on all isolated DI/DO channels (2,500 V_{DC})

PCIE-1812

8-ch Simultaneous Sampling Multi-Function PCI Express Card

- 8 x differential simultaneous sampling AI channels (sample rate: up to 250 kHz; resolution: 16-bit)
- 2 x AO channels (sample rate: up to 3 MHz; resolution: 16-bit)
- 2 x analog/ digital triggers for AI/ AO channels
- 4 x 32-bit programmable encoder counters/ timers
- 32 x programmable DI/DO channels with interrupt function

PCIE-1813

4-ch, 26-bit Simultaneous Sampling, Universal Bridge Input, Multi-Function PCI Express Card

- 4 x AI channels (sample rate: 38.4 Hz/ 4 s; resolution: 26-bit for full-, half-, and quarter-bridge sensor inputs)
- 2 x AO channels (sample rate: up to 3 MHz; resolution: 16-bit)
- 4 x 32-bit programmable encoder counters/ timers
- 32 programmable DI/DO channels with interrupt functions

PCIE-1810/ 1816/ 1816H

16-ch AI Multi-Function PCI Express Card

- Sample rate: 500 KHz for PCIE-1810 and PCIE-1816; 1 MHz for PCIE-1816H
- Resolution: 12/ 16-bit
- Analog and digital triggers
- Waveform generator for AO channels
- 24 x programmable DI/DO channels

PCIE-1802/ 1802L

8/ 4-ch Dynamic Signal Acquisition PCI Express Card

- 8/ 4 x simultaneously sampled AI channels (sample rate: up to 216 KHz)
- 24-bit resolution A/ D converters (dynamic range: 115 dB)
- Wide input voltage range (±0.2~10 V)
- Built-in anti-aliasing filter

PCIE-1840/ 1840L

4-ch Digitizer PCI Express Card

- 4 x AI channels (sample rate: up to 125/ 80 MHz, resolution: 16-bit)
- 500-MHz time-interleaved sampling rate
- Supports continuous data streaming
- 2 GB of onboard memory

PCI DAQ Cards

PCI-1714U/ 1714UL

4-ch Simultaneous AI PCI Card

- A/ D converter for each channel
- 4 x single-ended AI channels (12-bit, 30 MHz for PCI-1714U; 12-bit, 10 MHz for PCI-1714UL)
- 30 VDC overvoltage protection

PCI-1716/ 1716L

16-ch Multi-Function PCI Card

- 16 x single-ended, 8 x differential/ combination AI channels
- 16-bit A/ D converter (sample rate: up to 250 kHz)
- Automatic calibration
- 16 x DI/DO channels
- 2 analog outputs with 16-bit resolution (PCI-1716 only)

PCI-1730U/ 1756

32/ 64-ch Isolated DI/O Universal PCI Card

- High-voltage isolation on DO channels (2,500 V_{DC})
- Wide output voltage range (5~40 VDC)
- High sink current for isolated output channels (max. 200 mA/ channel)
- Current protection for each port

USB DAQ Modules

USB-4711/ 4716
16-ch Multi-Function USB Module
- 2 x analog output channels
- Resolution (sample rate): 12-bit (150 kHz)/ 16-bit (200 kHz)
- 8x 5V/ TTL-compatible DI/DO channels
- 1 counter for event counting, frequency measurement, and PWM output
- Lockable USB cable for connection security

USB-5830/ 5856
32/ 64-ch Isolated Digital I/O module (USB 3.0)
- SuperSpeed USB (5 Gbps)
- Built-in USB hub
- 2,500 VDC isolation protection
- Level 3 ESD and surge protection

USB-DSO
2-ch Digital Storage Oscilloscope
- Sample rate: up to 1 GHz
- Bandwidth: 200 MHz
- Waveform memory: up to 128 MS/ ch
- Resolution: 8/ 16-bit

Communication Solutions

PCI-1600/ PCIE-1600
2/ 4/ 8-Port PCI/ PCIe Serial Communication Card with Surge/ Isolation Protection
- PCI/ PCIE - 1604/ 1610/ 1620: RS-232 port
- PCI/ PCIE - 1602/ 1612/ 1622: RS-232/ 422/ 485 port
- Optional surge/ isolation protection
- Fast data transmission: up to 921.6 kbps

PCIE-1680
2-Port CAN Bus Universal PCI Communication Card w/ CANopen Support
- Supports two simultaneous CAN networks
- Fast data transmission: up to 1 Mbps
- CAN controller frequency: 16 MHz
- Isolation protection: 2,500 VDC

USB-4630
4-Port Isolated SuperSpeed USB 3.0 Hub
- The world's first isolated SuperSpeed USB Hub (5 Gbps)
- 2,500 VDC voltage isolation for upstream ports
- Lockable USB 3.0 cable included
- Can be powered via USB bus or 10~30 VDC external power source

EtherCAT Remote I/O Modules

AMAX-4817
8-ch Isolated AI EtherCAT Remote I/O Module
- Suitable for EtherCAT networks
- 8 x AI channels w/ 2,500 VDC isolation (resolution: 16-bit)
- Quick-remove European-type connector
- Supports DC mode
- LED indicators for I/O status

AMAX-4830
16-ch Isolated DI/DO EtherCAT Remote I/O Module
- Suitable for EtherCAT networks
- 2,500 VDC isolation
- Quick-remove European-type connector
- Supports DC mode
- LED indicators for I/O status

AMAX-4856
32-ch Isolated DI/DO EtherCAT Remote I/O Module
- Suitable for EtherCAT networks
- 2,500 VDC isolation
- Quick-remove European-type connector
- Supports DC mode
- LED indicators for I/O status

DAQ-Embedded Computers

MIC-1810/ 1816
12/ 16-bit Data Acquisition Platform w/ Intel® Core™ i3/Celeron® Processer
- Intel® Celeron® 1047UE (1.4 GHz)/ Core™ i3-3217UE processer (1.6 GHz)
- MIC-1810: 16x AI channels (sample rate: up to 500 KHz; resolution: 12-bit), 2 x AO channels (sample rate: up to 500 KHz; resolution: 12-bit)
- MIC-1816: 16 x AI channels (sample rate: up to 1 MHz; resolution: 16-bit), 2 x AO channels (sample rate: up to 3 MHz; resolution: 16-bit)
- 2 x 10/ 100/ 1000BASE-T RJ45 LAN ports
- 2 x USB 2.0 and 2 x USB 3.0 ports
- 2 x RS-232 ports
- Onboard FIFO memory (4k samples)
- Supports digital and analog triggers
- 24 x programmable DI/DO channels
- 2 x programmable counters/ timers (32-bit)

Remote I/O Modules

Transformation for IIoT's Wider & Larger Applications

Advantech's ADAM remote I/O modules, with their cutting-edge functional design, have been a consistently reliable figure in the industrial automation field for over 25 years. The versatile product offerings and latest technology updates for this series of modules continue to accelerate the realization of industrial IoT and fulfill the demands of larger scale network infrastructure in an increasingly more diverse range of applications. With RFID and USB technology, users have additional options for configuration and inspection, even when unpowered. Additionally, for larger network infrastructure, ADAM Ethernet-based remote I/O modules use SNMP and MQTT to enhance communication efficiency.

RFID Introduction

RFID Access

Applicable to ADAM-4100 and ADAM-6200 series

Serial I/O Modules

ADAM-4100 Series

Robust RS-485 I/O Modules

- Wide operating temperature range (-40~85°C/ -40~185°F)
- High protection level: 4-kV surge, 3-kV EFT, 8-kV ESD
- High common mode voltage: 200 VDC
- Burnout detection

Module Selection

- ADAM-4117: Robust 8-ch AI module
- ADAM-4118: Robust 8-ch thermocouple
- ADAM-4150: 7-ch DI/ 8-ch DO module
- ADAM-4168: 8-ch relay module

ADAM-4000 Series

RS-485 I/O Modules

- Watchdog timer
- ±35 VDC overvoltage protection
- 3,000 VDC voltage isolation

Module Selection

- ADAM-4017+: 8-ch AI module
- ADAM-4024: 4-ch AO/ 4-ch DO module
- ADAM-4015: 6-ch RTD module
- ADAM-4051: 16-ch DI module
- ADAM-4055: 8-ch DI/ 8-ch DO module

Ethernet I/O Modules

ADAM-6200 Series

Daisy-Chain Ethernet I/O Modules

- Cloud management: configuration, monitoring, and firmware updates
- Daisy chain connectivity w/ auto-bypass protection
- Supports HTML5, JavaScript, XML
- Supports GCL and P2P functions
- Group configuration capability

Module Selection

- ADAM-6217: 8-ch AI module
- ADAM-6224: 4-ch AO/ 4-ch DI module
- ADAM-6250: 8-ch DI/ 7-ch DO module
- ADAM-6251: 16-ch DI module
- ADAM-6266: 4-ch Relay/ 4-ch DI module

ADAM-6100 Series

Real-Time Ethernet I/O Modules

- Daisy chain connectivity
- Coupler-free design
- GSD, L5K, and EDS file-ready
- 2,500 VDC isolation protection

Module Selection

- ADAM-6117EI/PN: 8-ch AI module
- ADAM-6160EI/PN: 6-ch relay module
- ADAM-6150EI/PN: 8-ch DI/ 7-ch DO module
- ADAM-6151EI/PN: 16-ch DI module
- ADAM-6156EI/PN: 16-ch DO module

*PROFINET:PN , EtherNet/ IP:EI

ADAM-6000 Series

Smart Ethernet I/O Modules

- Cloud management: configuration, monitoring, and firmware updates
- Embedded web server
- Data stream function to push data
- Supports GCL and P2P functions
- Supports C# .NET and VB.NET

Module Selection

- ADAM-6015:7-ch RTD module
- ADAM-6017: 8-ch AI/ 2-ch DO module
- ADAM-6050: 12-ch DI/ 6-ch DO Relay module
- ADAM-6060: 6-ch DI/ 6-ch Relay module

Industrial Tablets for Mobile Workers

Support On-Site Management, Manufacturing and Inspections

Advantech's industrial tablets are designed for mobile workers in on-site factory inspections. Equipped with the latest Intel® processor and RF technology, our rugged tablets enable seamless data transmission, thus ensuring access to real-time information. For example, the AIM-65 tablet and application-oriented peripherals are built for rough handling in extreme environments; this tablet has been drop-tested at 1.2 m and has an IP65 rating. The extension module also has a barcode scanner (20°/ 70°) and RJ45+COM capabilities to satisfy customization requirements. For extended operations, the AIM-65 can be operated and easily removed from its wall docking station, and it has hand and shoulder straps to enable hands-free carry.

Industrial-Grade Tablets and Handheld Terminals

PWS-872

10" Industrial-Grade Tablet w/ 7th Gen Intel® Core™ i3/i5/i7/Celeron® Processor

- 10.1" high-brightness WUXGA LED display with scratch-resistant Corning® Gorilla® Glass 3 panel
- Multi-touch PCAP touchscreen with support for gloved operation
- Rugged design with MIL-STD-810G certification, IP65 rating, and 4-ft. drop tolerance
- 4G LTE, WLAN (802.11 a/b/g/n/ac), Bluetooth 4.1, and GPS modules with BeiDou/ GLONASS support
- Built-in front and rear cameras, 1D/ 2D barcode scanner, and NFC RFID reader

AIM-65

8" Industrial-Grade Tablet w/ Intel® Atom™ Processor

- Intel® Atom™ processor for Windows 10 IoT and AIM Android operating systems
- 8" WUXGA full HD display with scratch-resistant Corning® Gorilla®Glass 3 and multi-touch PCAP control
- WLAN, BT, NFC, 3G/ 4G LTE technology for seamless communications
- Optional extension modules such as a 1D/ 2D barcode scanner and LAN +COM module
- Additional modules and accessories can be customized according to application requirements

PWS-472

5" Industrial-Grade Handheld Terminal w/ Arm® Cortex™-A53 Quad-Core Processor

- ARM® Cortex™-A53, quad-core, 1.3 GHz processor with Android 5.1
- 5" HD (1280 x 720) capacitive touchscreen
- Lightweight design (295 g)
- IP65 rated for protection from water and dust
- Wide operating temperature range (-20~60°C)
- Wi-Fi, Bluetooth, GPS, BeiDou, and 4G LTE communication capabilities
- 13-megapixel auto-focus camera and optional 1D/ 2D barcode scanner

PWS-472 UHF RFID Reader

5" Industrial-Grade Handheld UHF RFID Reader with ARM® Cortex™-A53 Quad-Core Processor

- Built-in 13-megapixel auto-focus camera and 1D/ 2D barcode scanner
- Long-range UHF RFID capabilities (compatible with EPC C-1 G-2/ ISO 18000-6C)
- User-friendly trigger button
- IP54 rated for protection from water and dust
- Wi-Fi, Bluetooth, GPS, BeiDou capabilities

Enabling an Industrial IoT Evolution

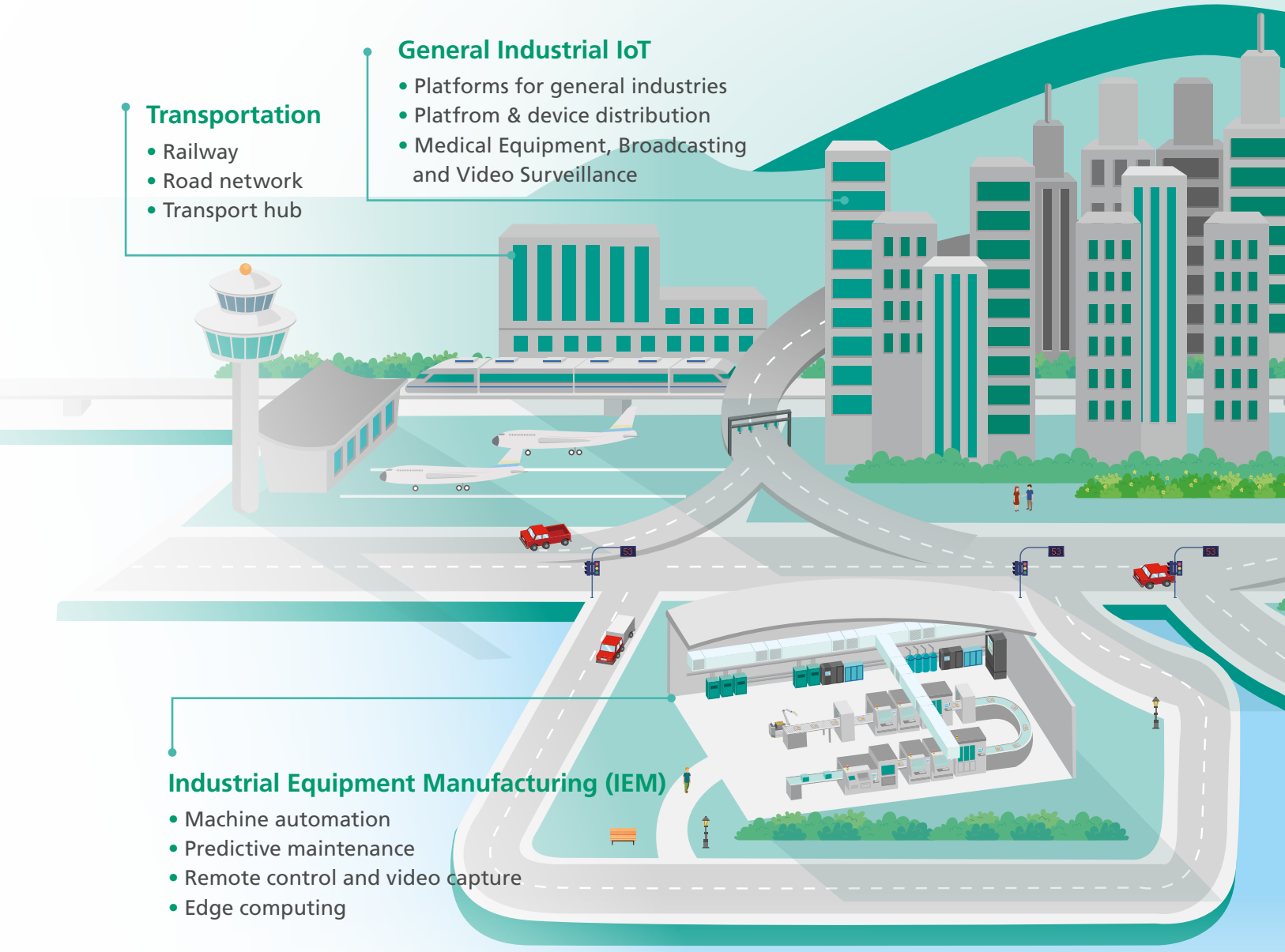
Advancements in technology have shaped modern life, allowing us to interconnect people in ways never thought possible before. Advantech, a global industrial computing and automation manufacturer, continues to explore what technology brings to our lives. With over three decades of proven experience, we combine information, automation and communication technology with efficiency, energy conservation, minimized risk, cost-effectiveness, and environmental protection to create solutions to enable an intelligent planet.

General Industrial IoT

- Platforms for general industries
- Platfrom & device distribution
- Medical Equipment, Broadcasting and Video Surveillance

Transportation

- Railway
- Road network
- Transport hub



Industrial Equipment Manufacturing (IEM)

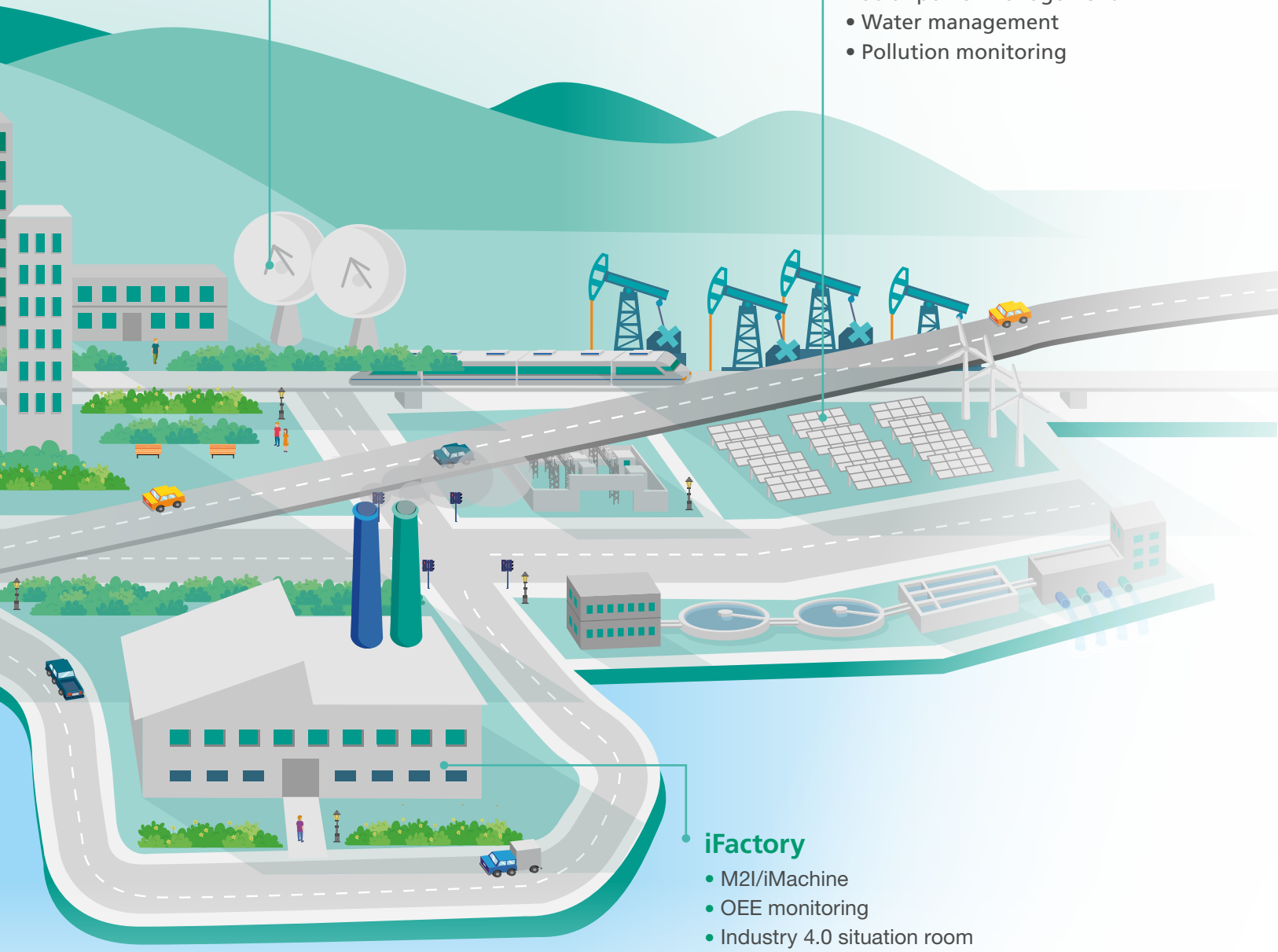
- Machine automation
- Predictive maintenance
- Remote control and video capture
- Edge computing

iConnectivity

- WebAccess/NMS
- Cellular routing solution
- Wired & wireless network infrastructure
- Protocol & interface conversion solution

Energy & Environment

- Energy management
- Solar power management
- Water management
- Pollution monitoring

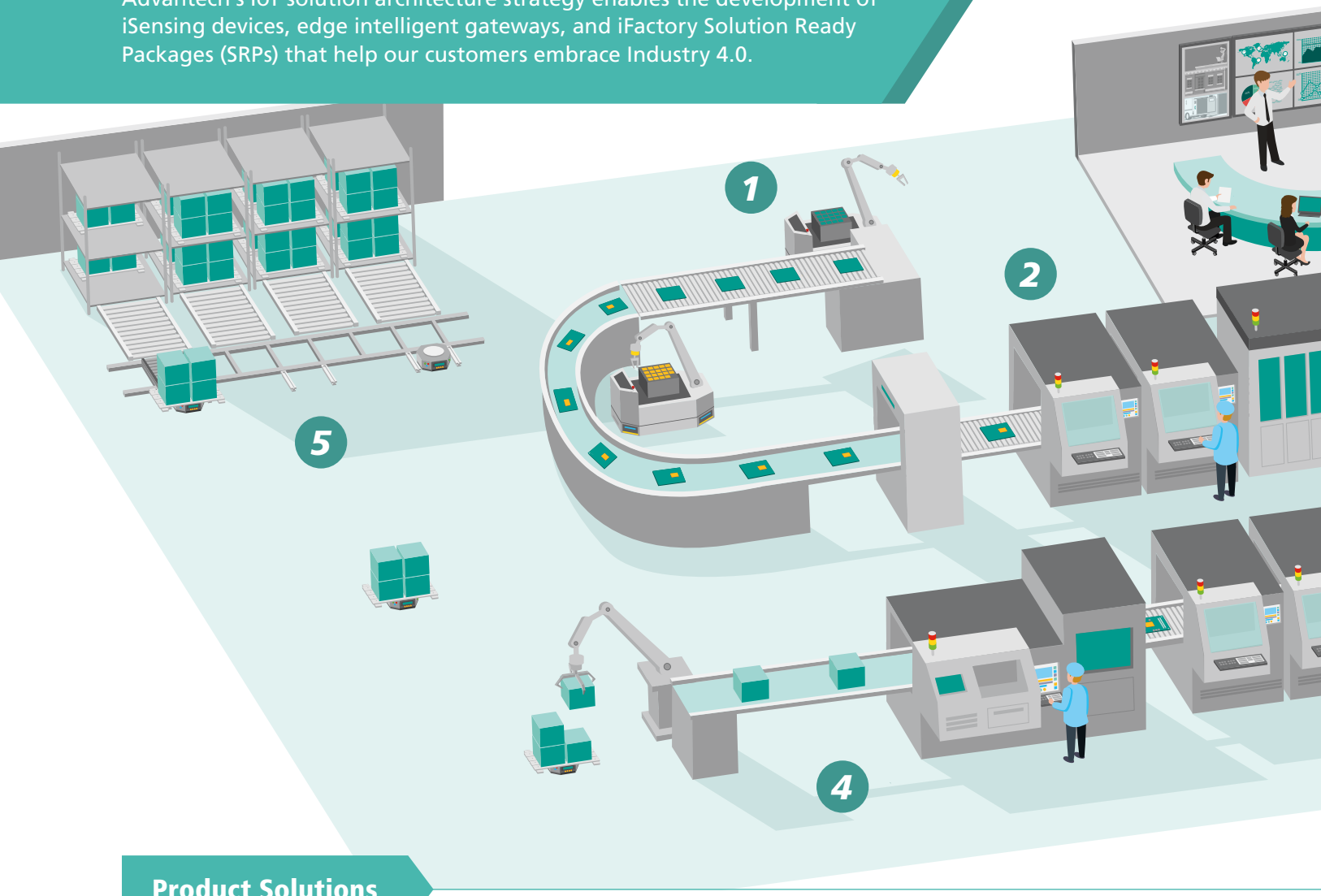


iFactory

- M2I/iMachine
- OEE monitoring
- Industry 4.0 situation room
- Factory energy & environment monitoring
- Warehouse management

Industry 4.0

Industry 4.0 is transforming manufacturing worldwide. Factory management needs assistance as they either upgrade existing facilities, or establish new ones that take advantage of Industry 4.0 optimization. Advantech's IoT solution architecture strategy enables the development of iSensing devices, edge intelligent gateways, and iFactory Solution Ready Packages (SRPs) that help our customers embrace Industry 4.0.



Product Solutions

WebAccess Software

Advantech WebAccess
- IIoT application software platform

Solution Ready Package (SRP)

SRP Series
- Software-hardware integrated solutions

Wireless IoT Sensing Devices

WISE-4000 Series
- IoT wireless I/O modules

Remote I/O Modules

ADAM-4000/6000 Series
- RS-485 & Ethernet I/O modules

1

M2I/iMachine

- Real-time monitoring for cloud-based Machine-to-Intelligence (M2I) management.
- Robot management with machine status monitoring, diagnosis, and intelligent prediction.
- CNC machine monitoring for enhanced CNC management and predictive maintenance.

Predictive Maintenance

- Access multiple data sources in real time to predict asset failures or quality issues and improve operational processes.
- Intelligent predictive analytics to prevent unexpected breakdowns, allowing maintenance to be planned before failures occur.

2

OEE Monitoring

- Data acquisition from wireless shop-floor devices in real time.
- Overall Equipment Effectiveness (OEE) monitoring for realizing equipment connectivity and effective optimization.
- Dashboard visualization with machine availability, downtime, and streamlined balance rates.

3

Industry 4.0 Situation Room

- Factory nerve center where data is collected, analyzed, and visualized for real-time management and data-driven decision making.
- Data consolidation and visualization framework easily accessible to factory managers.
- Real-time management for efficiency improvements and production optimization.

4

Factory Energy & Environment Monitoring

- Factory energy management system to enable energy supply and consumption optimization to reduce factory operating costs.
- Temperature and humidity monitoring to optimize factory operations.
- Factory safety can be monitored for dust, gas, CO2, water and other hazardous materials to ensure the factory environment is safe.

5

Warehouse Management

- Automated guided vehicles (AGV) solution to transport materials and products.
- Full warehouse inventory visibility to optimize warehouse management.
- Paperless warehouse management in real time to ensure competitive and successful distribution operations.

Industrial Communication

EKI Series, Wzzard™ & IE Multiway
- Industrial communication

Industrial Controllers

UNO-1000/3000, APAX-5000 & MIC-7000 Series
- Control IPCs

IIoT Gateways

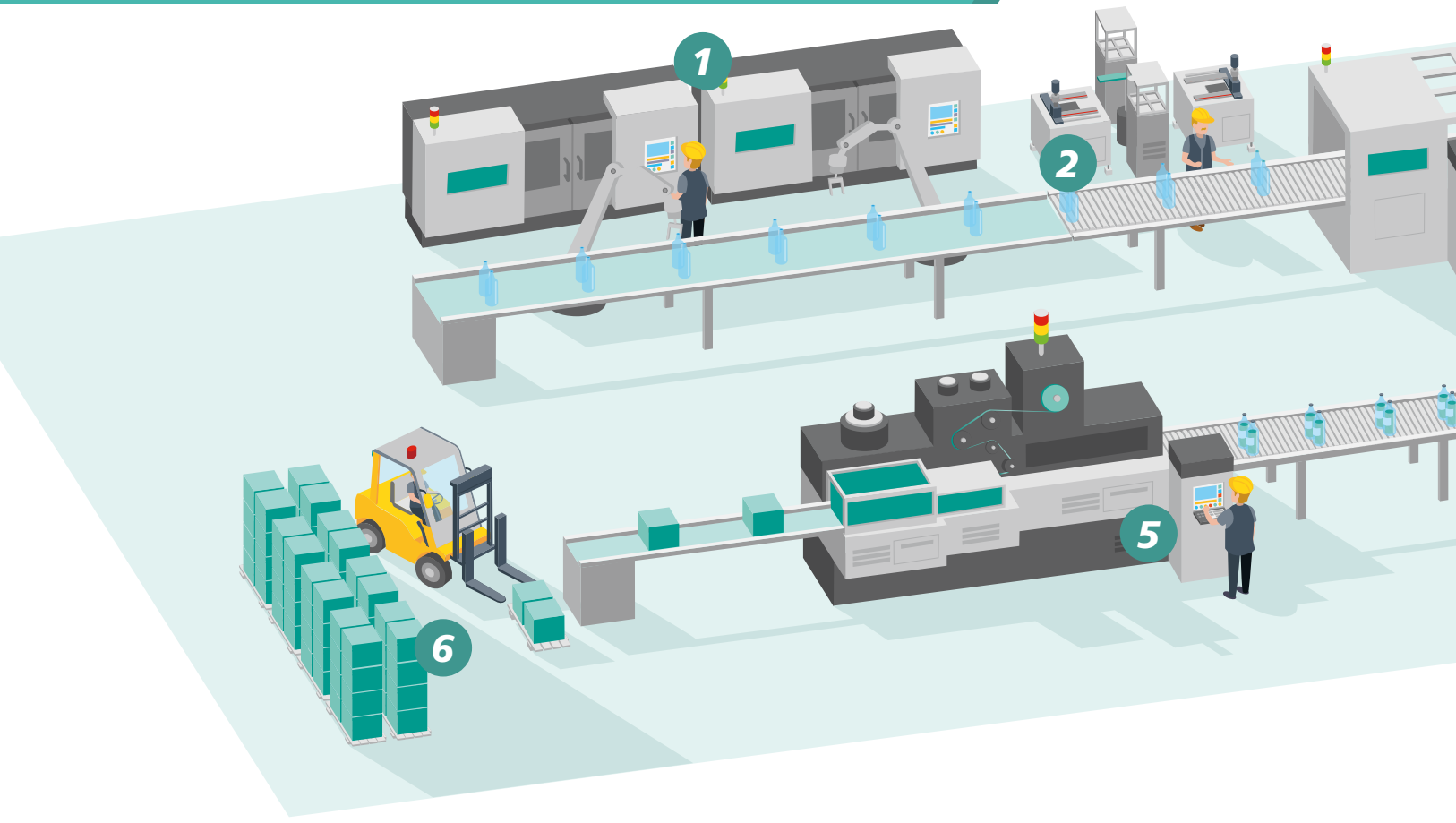
ADAM-3600/ECU-1100 & UNO-2000 Series
- Industrial IoT gateways

Intelligent HMI

TPC & PPC Series
- Control panels, thin clients, and operator panels

Industrial Equipment Manufacturing Solutions

The key step Advantech adopts to realizing intelligent manufacturing and smart equipment is to connect devices, computing systems, and equipment together to accomplish data acquisition, analysis, and visualization. Cloud platform services and dashboards complete data integration and allow network connection of all equipment and data to achieve intelligent manufacturing processes and industry transformation.



Product Solutions

Motion Control

- Supports versatile EtherCAT servo/stepping motor
- Pulse train control via EtherCAT motion module

Machine Vision

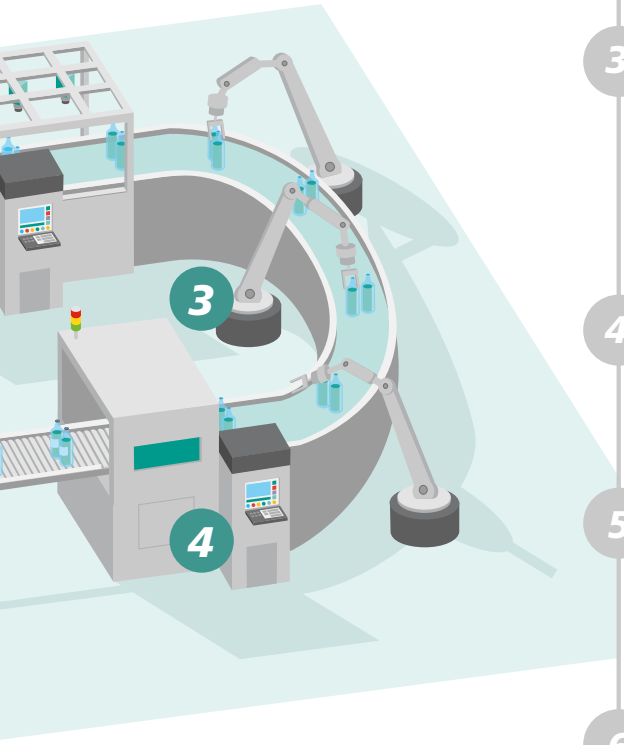
- Easy-to-configure without programming
- Intuitive GUI shortens the learning curve

Industrial Ethernet Switch & Wireless Network

- Wired & wireless network infrastructure

Data Acquisition

- Provides a wide range of I/O devices with various interfaces and functions
- Reliable and accurate data acquisition hardwares and graphical software tools



1 Remote Control and Video Capture

- Extremely low latency(<3 ms) for video, control and data transmission
- Extends up to 100 meter (330 ft)
- Supports High Resolution 1920x1080 @ 60Hz

2 Protocol Gateway

- Supports various widely used industrial protocols such as PROFINET, EtherNET/IP and EtherCAT
- Seamless conversion between each industrial protocol
- Efficiently connect to different protocol equipment with redundancy and management features

3 Predictive Maintenance

- Wide-range of industrial data acquisition and control devices with various interfaces and functions
- Reliable, accurate, affordable, and suitable for diverse industrial automation applications
- Enables customers to seamlessly integrate data acquisition cards with the latest platforms for improved performance and reduced development time

4 Edge Computing

- Modular design for PC-based controllers, industrial PCs, and panel computers
- High system configuration flexibility to meet the needs of various applications
- Minimize lead times with global CTOS capability

5 Motion Control and Machine Vision

- Unique SoftMotion kernel and innovative GigE Vision offloads engine using FPGA, DSP and ARM as the core-computing platform
- Provides versatile solutions and optimum motion / vision performance for fulfilling the demands of OEM machine makers and system integrators

6 Industrial Connectivity

- Robust, reliable, and sophisticated connectivity from the network edge to the network core
- Transmit data over copper cables, fiber optics, and wireless connections
- Flexible access to network status via multiple industrial protocols

Remote Control and Video Capture

- Only one power supply supports both transmitter and receiver
- Mountable design for Industry application scenario

All-in-One Computing Platform

- AIIS Series: Compact Vision System supports the latest Intel® Core™ processors
- AiMC Series: Micro Computer supports the latest Intel® Core™ processors

Modular IPC

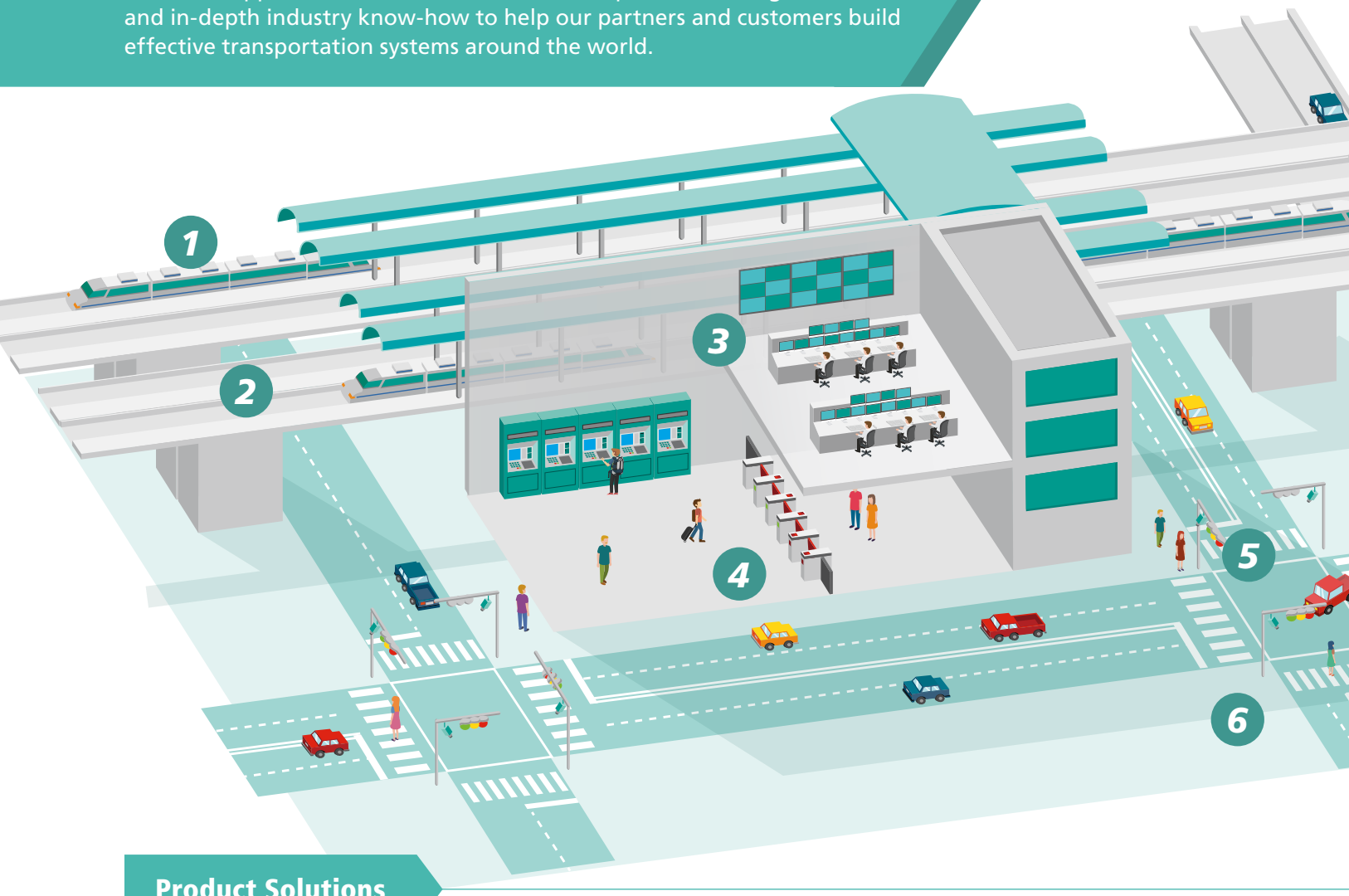
- Comprises compact modularized systems
- Supports the innovative i-Module for flexible expansion to satisfy diverse application requirements

Servers and Storage

- Xeon® E5 processor for high performance computing
- CPU/GPU hybrid technology for video-intensive applications
- Supreme server DTOS for optimal customization

Intelligent Transportation Systems

From railways to roads, airports to harbors, the endless streams of vehicles, passengers, and cargo vessels create difficulties and challenges for transportation infrastructure planning by city authorities and traffic operators. With decades of experiences and an impressive portfolio of successful applications, Advantech offers a comprehensive range of solutions and in-depth industry know-how to help our partners and customers build effective transportation systems around the world.



Product Solutions

Rolling Stock Controller

ITA-5000 Series
- EN 50155 certified product for railway applications

Rugged-design Platform

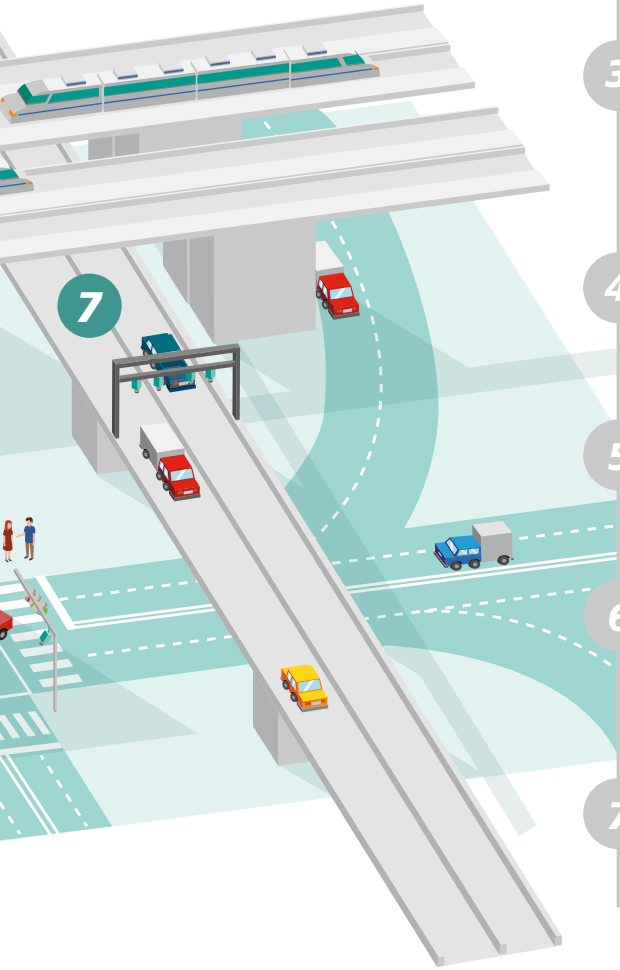
ITA-2000 Series
- Flexible configuration design for multiple COM, CAN, LAN

AFC Controller

ITA-1000 Series
- EN 50155 Certified Panel PC

Display System

ARS-P3800/2800
- EN 50155 Certified Panel PC



1

Rolling Stock Solution

- Passenger information system
- CCTV system
- Infotainment system
- Vehicle monitoring system

2

Wayside Control Solution

- Wayside signaling
- Interlocking system
- Train control system

3

Integrated Supervisory Control System

- Building automation system
- Fire alarm system
- Passenger information system
- CCTV system

4

Automatic Fare Collection Solution

- Automatic gate machine
- Ticket vending machine

5

Intelligent Video Analytics Solution

- Traffic management surveillance system
- License plate recognition system

6

Traffic Management Solution

- Signal control management
- Road condition monitoring
- Emergency system

7

Highway Management Solution

- Electronic toll collection system
- Bridge & tunnel monitoring
- Traffic flow control & analysis

Panel Controller

ITA-8000 Series & TPC-8100
- EN 50155 certified HMI

Railway Ethernet Solutions

EKI-9500 Series
- EN 50155 certified switches

Roadway Ethernet Solutions

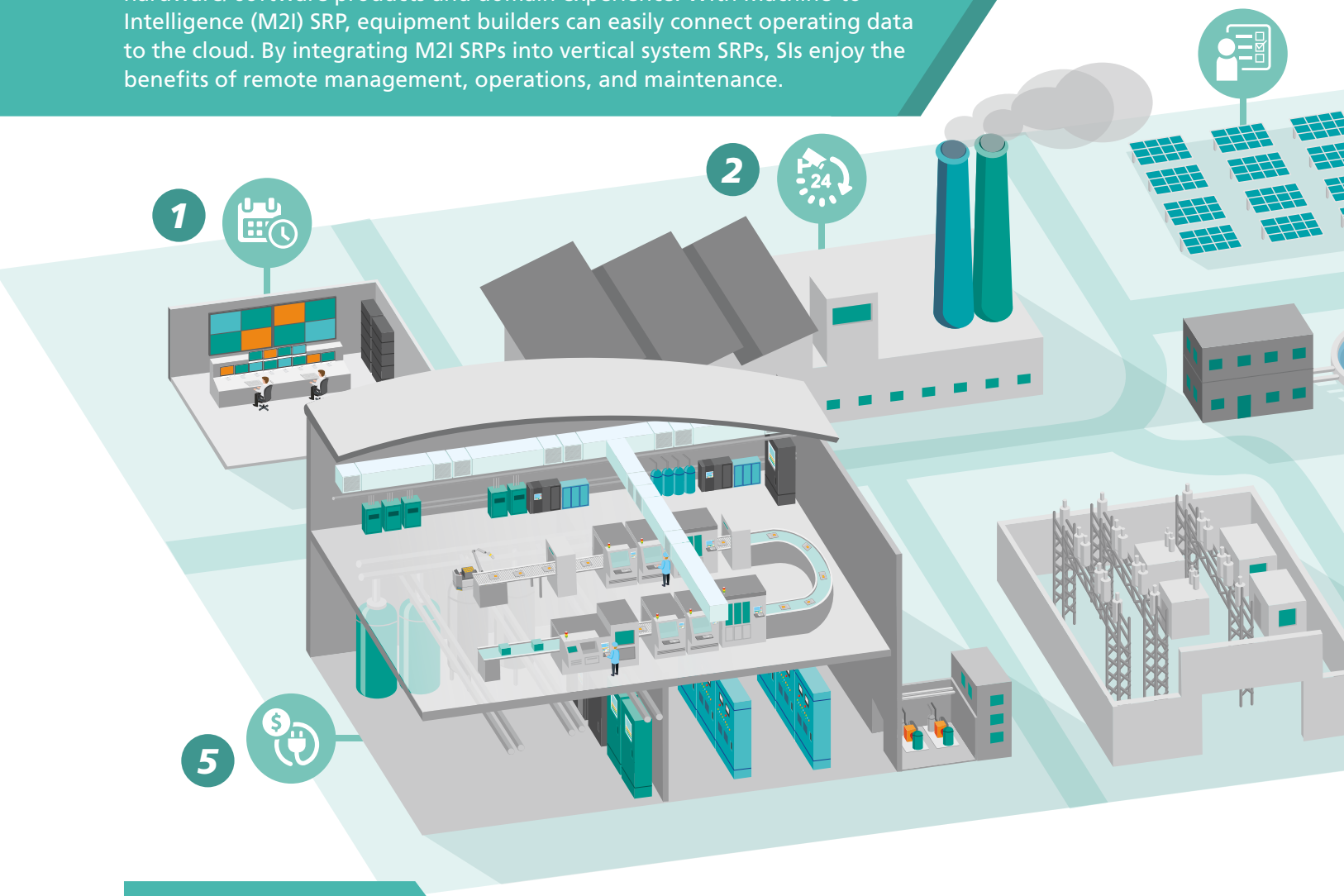
EKI-7700 & MiniMc Series
- Roadway network communications

Wireless Solutions

WISE/Wzzard/SmartFlex
- Transportation wireless communications

Cloud-enabled Energy & Environment Solutions

Nowadays, energy and environment practices have evolved to remote management using cloud services. To accelerate our customers' time-to-market, Advantech offers Solution Ready Package (SRP) based on our hardware/ software products and domain experience. With Machine-to-Intelligence (M2I) SRP, equipment builders can easily connect operating data to the cloud. By integrating M2I SRPs into vertical system SRPs, SIs enjoy the benefits of remote management, operations, and maintenance.



Product Solutions

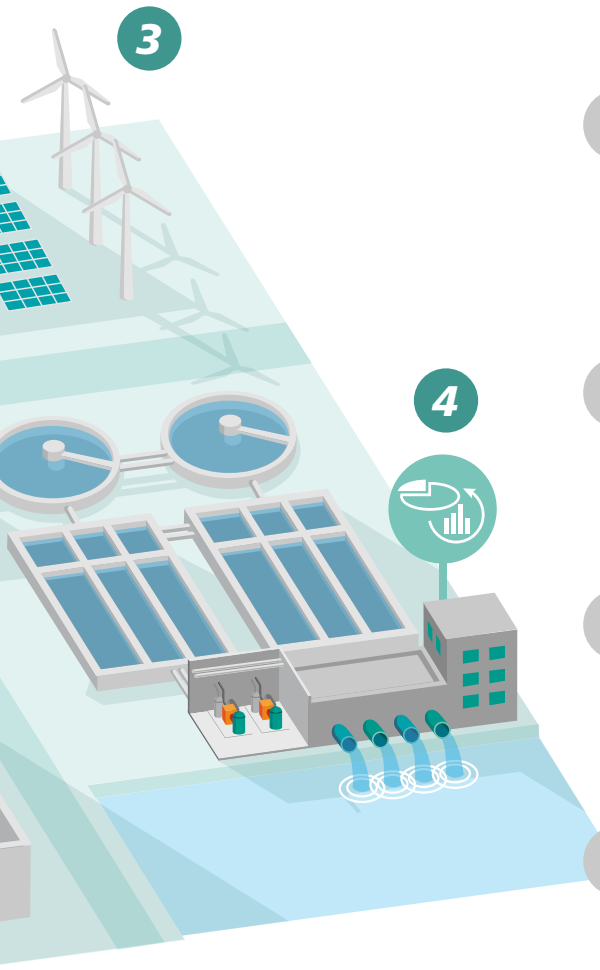
Vertical Application System SRP

Energy Management Solution
- Energy consumption visualization and analysis for optimization

Solar Power Management Solution
- Centralized operation with unmanned remote sites

Indoor Air Quality Management Solution
- Management solution continuous indoor air quality monitoring and analysis

Water Management Solution
- Cloud-enabled remote equipment monitoring for water and wastewater treatment



1 Planning & Scheduling Optimiaztion

- Optimize and increase overall equipment effectiveness (OEE)
- Make the most of equipment usage and help schedule planning

2 Real-Time Monitoring & Control

- Realize operation status monitoring and remote control
- Continuous data uploads to cloud service or government office to meet regulations
- Automatically send trends, timings and partial/standard alarms in real-time

3 Fault Detection & Predictive Maintenance

- Operation status monitoring
- Receive alarms when exceptions occur for proactive action before equipment damage

4 Asset Management

- Key equipment such as motor and pump maintenance to prevent asset from damage or lost
- Equipment life cycle management

5 Operation & Energy Management

- Reduce cost and increase capacity by monitoring power consumption of machines and production lines
- Reduce electricity bills by monitoring peak/off-peak energy consumption

Machine-to-Intelligence (M2I) SRP

Distributed Solar Power Data Acquisition
- Reliable data acquisition for solar power markets

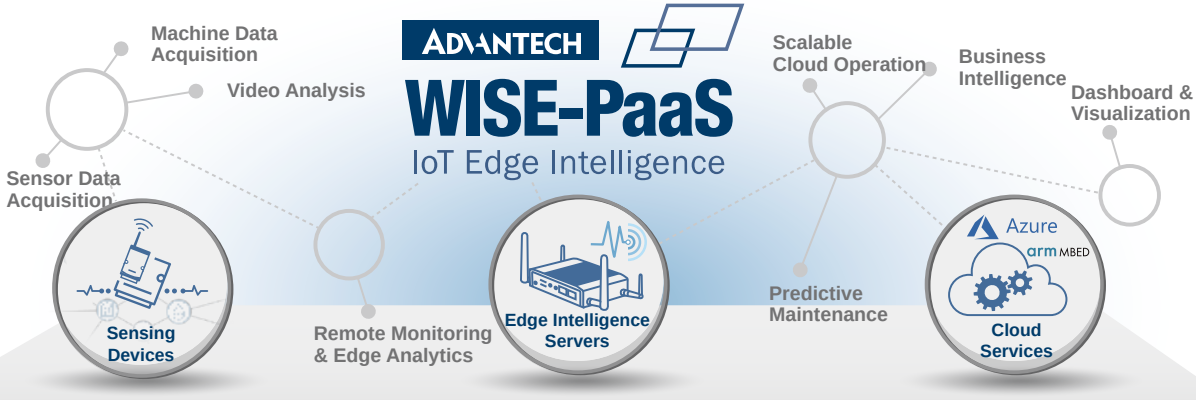
HVAC & Heater E&E M2I SRP
- Remote monitoring and centralized management for HVAC and heater

Mobile Power Generator E&E M2I SRP
- Remote monitoring and centralized management for mobile power generator

Water Pump E&E M2I SRP
- Remote monitoring and centralized management for water pump

Enabling IoT Edge Intelligence with WISE-PaaS

In the era of IoT, billions of sensing devices are distributed in factories, power plants, water treatment plants, transportation, healthcare, and retail industries for environmental monitoring, surveillance and more. Big data analysis improves accuracy, efficiency, and productivity. Intelligence is ubiquitous and inevitable. Advantech launched the WISE-PaaS edge intelligence platform to provide total solutions to system integrators and manufacturers, enabling real IoT powered business models in various vertical markets.



WISE-PaaS/EnSaaS Platform for IoT Cloud Services

WISE-PaaS/AFS **WISE-PaaS/Dashboard** **WISE-PaaS/SaaS Composer**

WISE-PaaS/EnSaaS is a cloud-based software platform designed to empower cloud services. It provides a highly secure, multi-tenancy architecture with automatic expansion to create a highly robust data platform for Advantech's domain-focused cloud services or customer's own cloud services.

WebAccess
Industrial Data Acquisition and Visualization

WebAccess/SCADA **WebAccess/CNC** **WISE-PaaS/EdgeLink**
WebAccess/NMS **WebAccess/MCM** **WebAccess/HMI**

WebAccess is the core of Advantech's industrial IoT solutions for data acquisition, analysis, and visualization. WebAccess supports open interface APIs for secondary development and enterprise-level system integration.

WISE-PaaS/VideoSense
Intelligent Video and Multimedia Management

WISE-PaaS/VideoCMS **WISE-PaaS/SignageCMS**
WISE-PaaS/HumanDetectAI

WISE-PaaS/VideoSense is a service platform for intelligent video analytics that collects sensor data, performs video analytics, data visualization, and dispatches files through a central management system.

WISE-PaaS/EdgeSense
Edge Intelligence and Sensing Integration

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

WISE-PaaS/EdgeSense is an edge intelligence and sensing integration software solution that incorporates sensor data aggregation, edge analytics, cloud applications, and security management for real-time device-to-cloud operational intelligence.

WISE-PaaS VIP Program

WISE-PaaS VIP Program

WISE-PaaS provides a range of software and cloud-based service solutions that enable IoT in every layer and every vertical domain. Join Advantech's WISE-PaaS Alliance to become a special VIP, and enjoy IoT success with Advantech.

1 Software and Industry Solutions

WebAccess Software

Introduction

The recent emergence of the Internet of the Things (IoT) and its surround technology eco-system promises significant future business opportunities until the year 2025. With more and more investment going into developing integrated IoT applications and cloud services, software has become the crucial factor for success in the IoT era.

As one of its core IoT solutions, Advantech's WebAccess offers not only a human-machine interface (HMI) and supervisory control and data acquisition (SCADA) software solution, but also an IoT software framework that serves as a software platform for IoT and cloud applications.

With Advantech WebAccess, a comprehensive browser-based IoT application software, users can easily monitor and manage projects via a web browser. For the IoT device layer, Advantech WebAccess supports multiple protocols and drivers for connecting up to 350 controllers and devices, making WebAccess a flexible and suitable software platform for all I-IoT applications and projects. Additionally, WebAccess provides a foundation for IoT data collection and management with its open architecture and open interfaces, which facilitate the development of various vertical applications.

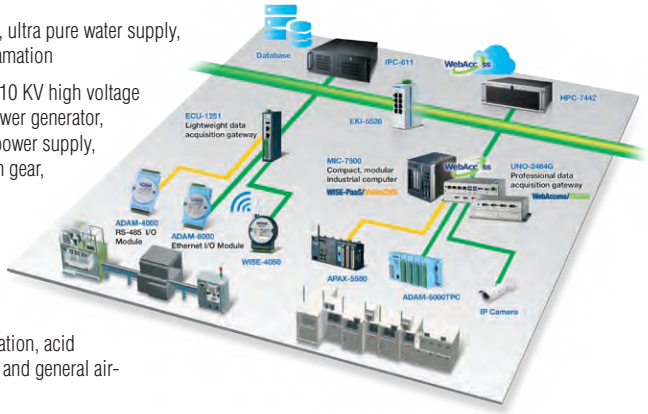
To satisfy demands for industrial IoT (IIoT) and Industry 4.0 services, a variety of cloud-specific features, such as plug-and-play device configuration, cloud-based dashboards, and big data connectivity, are included in the WebAccess Cloud software package in an effort to provide an easy tool for connecting IoT devices and conducting big data analysis and predictive maintenance.

WebAccess Architecture

WebAccess Focused Solutions

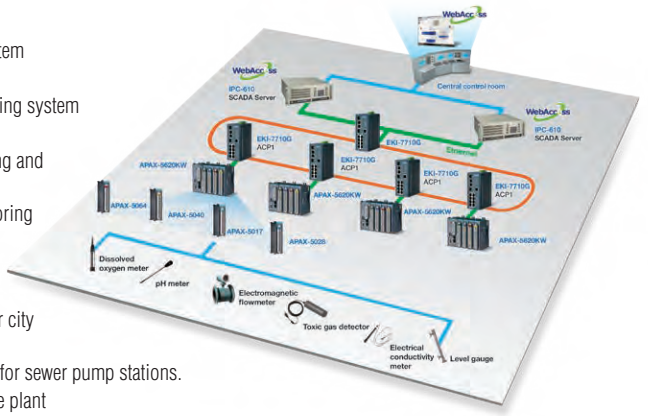
Factory Automation Solution

- Water system: raw water supply, ultra pure water supply, waste water treatment, and reclamation
- Electricity power system: 220/110 KV high voltage power monitoring, emergent power generator, dynamic/static uninterruptible power supply, electric bus, high voltage switch gear, and low voltage power meter
- Gas system: toxic gases detection, gas cabinet operation, valve box operation, and general gases
- HVAC system: clean room operation, acid exhaust, process cooling water, and general air-conditioning



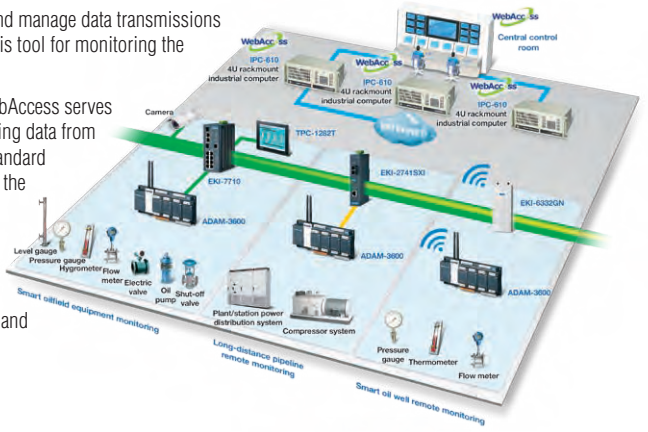
Water Treatment Solution

- Water resource distribution system
- Raw water distribution system
- Large-scale water supply pumping system
- SCADA system for tap water
- Booster pump station monitoring and control system
- Urban tap water pipeline monitoring control system
- City pipeline distribution optimization system
- Remote management system for city sewage pipelines
- Monitoring and control system for sewer pump stations.
- SCADA system for large sewage plant
- Performance management for large sewage plan



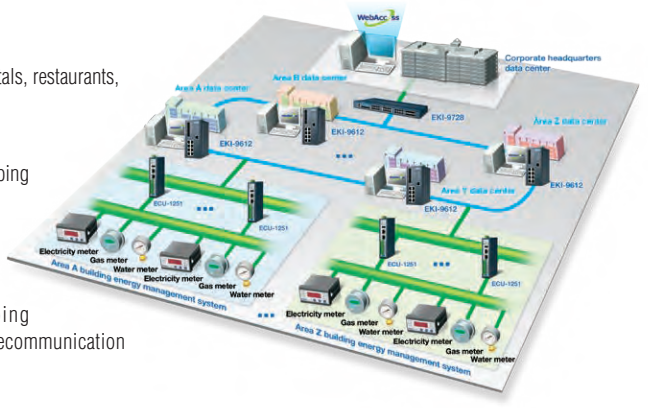
Oil & Gas Solution

- WebAccess is used to collect and manage data transmissions from RTUs to provide an analysis tool for monitoring the operating status of oil wells
- For oil pipeline monitoring, WebAccess serves as gateway software for converting data from each gateway device into the standard protocol before transmission to the control center
- Communicating with intelligent devices, WebAccess acts as remote control software for monitoring and controlling devices in the field



Building Energy Management Solution

- Stand-alone buildings
  - Commercial buildings, hospitals, restaurants, and office buildings
- Building complexes
  - Franchised restaurants, shopping malls, furniture stores, shoe stores, supermarkets, book stores, and convenience stores
  - Financial groups, shopping centers, campuses, and telecommunication stations



Enabling IoT & Industry 4.0 with WISE-PaaS Alliance and WebAccess

Introduction

Advantech's key strategies for the next decade are to provide integrated IoT solution platforms. The Advantech WISE-PaaS Edge Intelligence Platform offers a diverse range of software that can be applied and integrated into domain-focused SRPs. This platform provides a wide range of software and cloud-based service solutions from industrial data/video acquisition, analysis, and visualization to cloud platform services and dashboard functions, thus enabling IoT at all system layers and realizing IoT-powered business models in various vertical markets. Join Advantech's WISE-PaaS VIP program and enjoy IoT success by leveraging WISE-PaaS's comprehensive solutions.

WebAccess/SCADA

WebAccess/SCADA

Industrial IoT Application Software Platform

- Enables 100% web-based remote engineering, monitoring, and control
- Driver support for major PLCs, PACs, I/O modules, CNCs, network switches, and computer platforms
- Redundant SCADA, ports, and devices for high availability
- Supports multiple databases for data connectivity and data fusion
- HTML5-based dashboard for cross-browser, cross-platform data visualization and data analysis
- Provides flexible open interfaces for easy development and integration of third-party applications
- Plug-and-play functionality ready for private cloud solution
- Online software license authentication for cloud computing virtual machines

WebAccess/HMI

WebAccess/HMI

HMI Runtime Development Software

- Smart screen management
- Project-based management for multiple applications
- Software support for a diverse range of machines
- Provides efficient tools for easy customization
- Boosts performance with simulations
- Enhanced data security

WebAccess/CNC

WebAccess/CNC

CNC Machine Networking Solution

- Automatically generates CNC projects for WebAccess/SCADA software
- Supports CNC machine and I/O device monitoring
- Supports leading CNC network controllers
- Provides CNC machining status and PLC register monitoring
- Provides CNC availability queries and NC file transfer functionality
- Provides historical CNC alarm and operation queries
- Supports all features and full functions of WebAccess/SCADA software

WebAccess/MCM

WebAccess/MCM

Machine Condition Monitoring Softwave

- Dynamic signal acquisition and analysis
- Real-time monitoring and alarm notification
- Provides feature extraction algorithms for data processing
- Remote management for distributed monitoring solutions
- Integrated with WebAccess/SCADA
- Ensures easy setup without additional programming

WebAccess/NMS

WebAccess/NMS

Network Management System

- Cross-browser compatible
- Supports all Advantech Ethernet-based products
- Automatically generated topology
- PoE, ring, wireless, cellular connection indication

WISE-PaaS/EnSaaS

WISE-PaaS/EnSaaS

Platform for Enabling IoT Cloud Services

- Connect, monitor, and manage millions of IoT assets
- Managed SQL, NoSQL, and time-series databases for app developers
- Visualization dashboard for deriving actionable insights
- Quickly create powerful cloud apps using a fully managed platform

iFactory & M2I /CNC (Machine to Intelligence) Solution Ready Package Introduction

With the evolution of industrial automation, factories are getting smarter and more digital. To accelerate the implementation of smart manufacturing in industry 4.0, Advantech's iFactory Solution Ready Packages (SRP) and Machine to intelligence (M2I) solutions play critical roles in IOT integration from the network edge to the cloud.

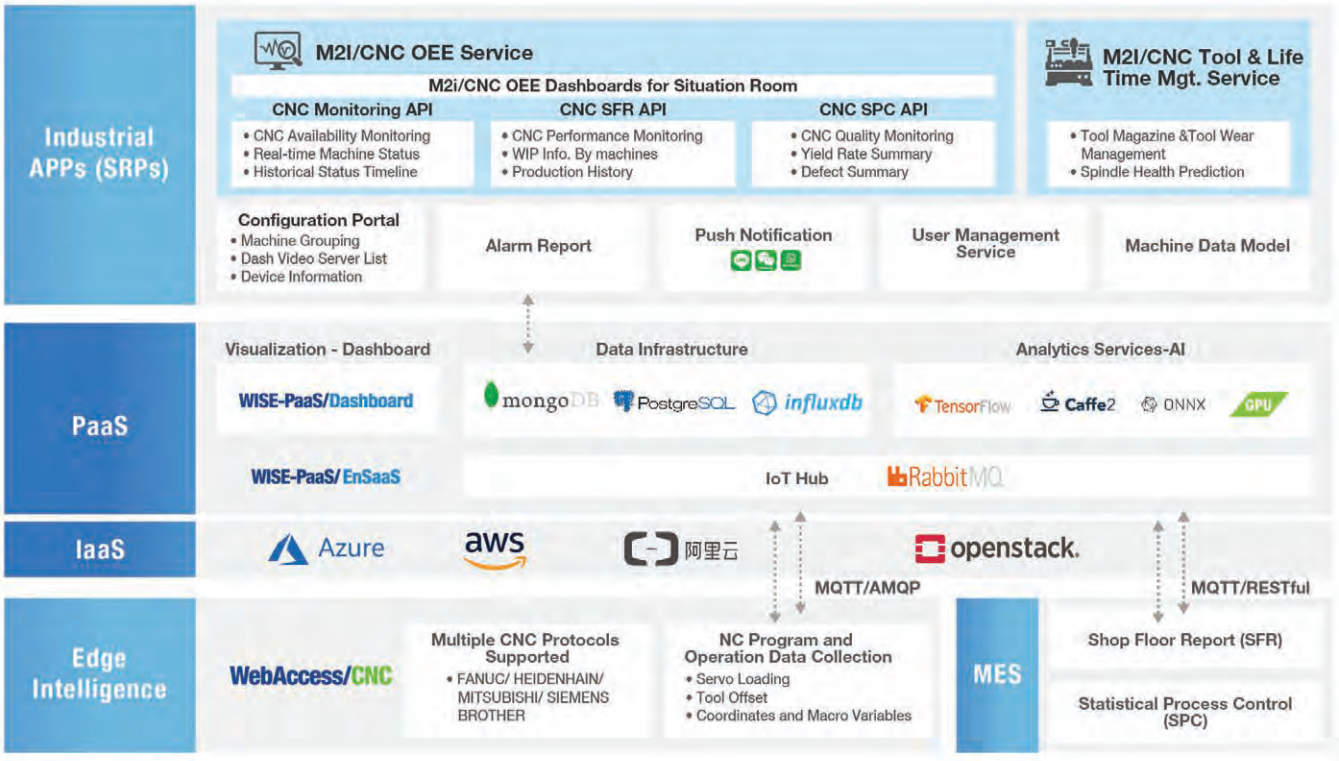
iFactory SRPs

Advantech's iFactory SRPs allow for easily data acquisition from shop-floor modules via multiple communication protocols such as Modbus, OPC UA, and MQTT, and automatically and display information on a real-time dashboard. Advantech's iFactory SRPs enable traditional factories to rapidly transform into streamlined, high-output, intelligent factories.

M2I/CNC SRPs

M2I solutions are cloud-based solutions with a wide-range of industrial app services in order to make machines accessible for intelligent connection, monitoring, and predictive maintenance. M2I SRPs aim to optimize the efficiency of intelligent machines for automation and manufacturing operations.

M2I/CNC Software Diagram



iFactory & M2I/CNC Solutions

M2I/CNC Intelligent CNC Machine Management Solution

Visual OEE and Cross-Factory CNC Management empowered by Cloud-Service

M2I/CNC solution provides an essential SRP for CNC machine real-time production monitoring, alarm report, and availability analysis. With a strong focus on CNC machine monitoring, this package can be applied to enable efficiency and utilization of Intelligent CNC machine management.

Key Features:

- Cloud-based service: equipped with cloud-based industrial apps enable a convenient cross-factory management in CNC machines and apply to multiple scenarios.
- Real-time production overview with processing details: using visual dashboard for production monitoring in both production lines and single machine to optimize processing operation.
- Alarm Management for Machine Monitoring: Top machine error messages, ranking and duration record help to identify key issues and optimize with alarm management.

Equipment Connectivity Solution

Achieve Real-time Machine Control with Advantech's CODESYS Solution

Advantech's CODESYS solution enables flexible real-time machine control programming for a wide range of factory automation operations, including motion and vision control, and pick and place machine control. Featuring a softPLC design, Advantech's CODESYS solutions support multiple fieldbus protocols, specifically EtherCAT, CANopen, PROFINET, and EtherNET.

Key Features:

- Reduced development time: applications are integrated and can be edited using a single interface that supports all PLCopen IEC 61131-3 programming languages (FBD,LD,IL,ST,SFC).
- Real-time dual fieldbus data acquisition: supports real-time dual fieldbus data acquisition of PROFINET and EtherCAT communications.
- Real-time EtherCAT soft motion control: supports CODESYS certified PLCopen motion POCs for single or multi-axis movement of electronic CAMs/gears etc.

Overall Effectiveness Monitoring Solution (OEE)

Enable Intelligent Machine Management with a Real-time Dashboard

Overall equipment effectiveness (OEE) refers to the percentage of planned production time that is truly productive. Advantech's OEE solution optimizes operations for convenient real-time machine monitoring including status change, availability, and downtimes as key indicators. With real-time data on a dashboard, machine availability can be monitored and machine downtime managed to improve operational efficiency.

Key Features:

- Automatic recording of machine status: real-time machine status (downtimes, availability, duration), data acquisition from wireless shop-floor modules, automatic uploads to server.
- Suitable for general use: easily apply to general machines with stack lights with non-invasive tools in production lines.
- Real-time dashboard for analysis: visual dashboard provides machine availability, downtime alarms, and streamlined balance rates.

Process Visualization Solution

Enhance Productivity with ThinManager Thin-Client Solution

ThinManager solution is developed based on thin client options that are fully compatible with Rockwell Automation's ThinManager software. ThinManager series solutions provide a sustainable and scalable automation platform for boosting productivity by increasing production efficiency and minimizing system downtime through centralized management.

Key Features:

- Centralized client management: all server applications and thin client devices can be managed from a centralized control room using a single interface.
- Advanced data security: ThinManager software features powerful visualization, encryption, and authentication to ensure data security.
- Multi-tasking with visualization: superior visualization with virtual screening can be displayed including multi-monitors, multi-sessions and screen tiling functions.

Energy & Environment Solution Ready Package

Energy and Environment Solution Ready Package Overview

As energy and environment issues are important concerns for the public, Advantech has developed solution ready packages (SRP) for energy and environment applications with industrial IoT technologies focusing on the process of sensing, control monitoring, remote communication, and smart data management. By combing these technologies with WebAccess and WISE-PaaS edge intelligence platform that performs information integration and data analysis, our SRPs are designed to be widely used in a wide variety of energy and environment industries.

Remote Equipment Monitoring and Efficiency Optimization

Each energy and environment SRP is integrated with intelligent sensing, communication, and real-time analysis capabilities that allow users to obtain the operating status of any machine at any time to ensure efficient resource usage.

Event Monitoring for Real-Time Alarms

With 3G/4G communication technology, event alerts can be transmitted in real-time from remote sites to the control center, allowing field personnel to respond promptly to minimize accidents and losses.

Remote Equipment Diagnostics and Predictive Maintenance

Collates operating status data from key components, thereby increasing equipment life, while reducing maintenance costs.

Visualized and Integrated WISE-PaaS Cloud Platform

Integrated data is gathered from a wide area and big data analysis and information visualization provides management level intelligence for decision-making to optimize operational efficiency.

Machine to Intelligent Solution and Management

Advantech energy and environment Machine-to-Intelligence (M2I) SRP allows equipment builders to easily overview the operational status of their machines and facilities. Advantech offers various M2I solutions based on market demands.

Energy and Environment Solution Architecture

Machine to Intelligence (M2I) Solution

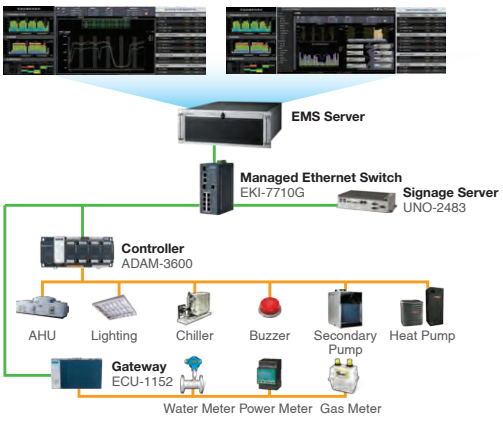
With our Machine-to-Intelligence (M2I) SRP which includes power inverter, water pump, HVAC and transformer, equipment builders can easily get the operating status of their machines and facilities. By integrating different M2I SRP into vertical system SRP, system integrators can build up solar power, water treatment, and pollution management solutions, while opening up new opportunities in operation maintenance services to businesses in IIoT.

Energy Management Solution (EMS)

Advantech EMS integrates the hardware/software required to optimize energy efficiency. By collecting data from all energy-consuming devices and generating analysis reports, the solution enables management to identify excessive energy usage and implement improvements.

Key Features:

- Intuitive browser-based graphics dashboard.
- Energy consumption statistics and analysis tools.
- Simple management platform for easy maintenance.

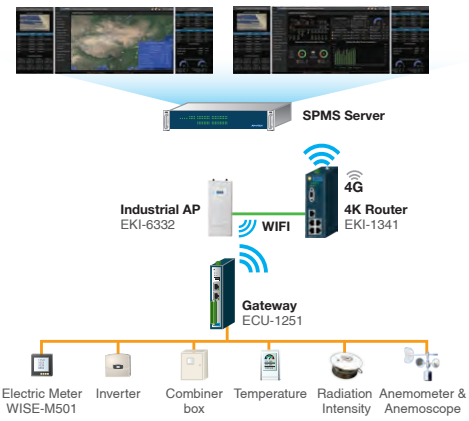


Solar Power Management Solution (SPMS)

Advantech SPMS aims to improve the efficiency of power generation and reduce the cost of operations and maintenance. With the help of high performance integrated hardware/software, our SPMS solution is able to realize accurate data acquisition, perform remote management, and analyze mass data from all power stations.

Key Features:

- Centralized operation with unmanned remote sites.
- Scalable architecture which works in plants of any size.
- Analyzing and optimizing power station efficiency.



Motion Control Overview

Motion Control Solutions

Advantech intelligent motion control product division provides solutions to OEM machine makers and system integrators. The core technologies are based on state-of-art DSP/FPGA/SoC processors, Advantech's own softmotion kernel for trajectory and control, EtherCAT motion bus, and configuration utilities. With our softmotion kernel, users can leverage the new, high performance computing hardware and latest application functions supported in the kernel, to enhance machine features and performance. With the support of EtherCAT open standard protocol, users can leverage high speed cycle times for high performance synchronous motion control, and the Ethernet cable connection saves wiring costs.

Application-Ready Embedded Motion Control

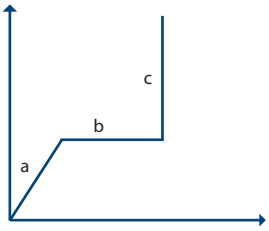
In any vertical specific application, customers are looking for application-ready control platforms. The main reasons for this consideration are system integrity and system stability. Compared with plug-in motion controllers plus industrial PCs, application-ready motion control platforms provide well-integrated systems, pre-validated to guarantee stability. Furthermore, the concept of solution selling can bring higher add-on value to system integrators and machine builders.

Motion Control Technology

There are three basic types of motion control system: point-to-point, contouring, and synchronization.

Point-to-Point (PTP) Motion

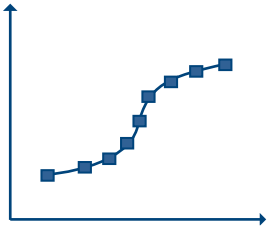
Point-to-point (PTP) movement is the most basic form of motion control. The principle function of the PTP is to position the tool from one point to another within the coordinate system. It is used when precise start and stop position is important, but the path is irrelevant. Velocity, time, and acceleration can be defined for point-to-point moves, allowing the controller to construct either a T or an S-curve move profile.



a: Line
b: PTP
c: PTP

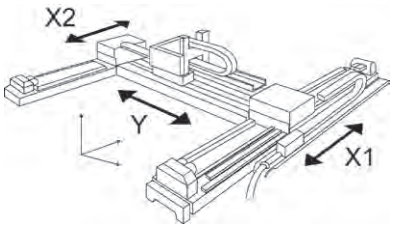
Contouring (Continuous Trajectory)

To achieve contoured motion, a series of points is provided during programming, and the motion controller extrapolates a smooth line or curve from these points. Unlike point-to-point motion, contouring guarantees that the system passes through each point, using either linear or circular interpolation. Between the points, linear or circular interpolation is performed, leading to a contour described by a succession of linear segments. In a contoured move, a time to complete the move is specified, but the actual move profile is determined by the motion controller.



Synchronization

All synchronization controllers follow the master/slave principle. Where the master can freely move with any motion profile under control of any speed curve and one or several slaves exactly follow the master motion in terms of position and speed. The control is based on incremental position feedback by means of encoders on both sides. Many applications just use a measuring wheel with encoder instead of a master drive. It is possible to preset every speed or gear ratio by means of adjustable impulse scaling factors.



A Broad Array of Products for Motion Control

Advantech's full product offering accommodates all your motion control needs.

Point to point motion (PTP)

Model	Type	Feature
PCI-1245L	Pulse	PTP
PCI-1245LIO	Pulse	PTP + I/O Expansion

Contouring (continuous trajectory)

Model	Type	Feature
PCI-1245E/85E	Pulse	Path
PCI-1245V/85V	Pulse	Path + Compare Trigger

Synchronization

Model	Type	Feature
PCI-1245/65/85	Pulse	Synchronous Control
PCI-1203/PCIE-1203	EtherCAT	Synchronous Control

Motion Control Overview

EtherCAT

EtherCAT (Ethernet Control Automation Technology) is a high-performance, Ethernet-based fieldbus industrial network system. The protocol is standardized in IEC 61158 and applies to automation applications that need faster and more efficient communications. Short data update times with precise synchronization make EtherCAT suitable for real-time requirements in automation technology.

Functional Principle

In EtherCAT network, the Master sends Ethernet frames through all of the slave nodes. The Standard Ethernet packet or frame is no longer received, interpreted, and copied as process data at every node. Instead, slave devices read the data addressed to them and input data are also inserted in the same time while the telegram passes through the device, processing data "on the fly". Typically the entire network can be addressed with just one frame.

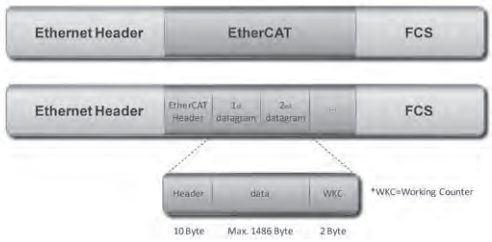
Data exchanges are cyclically updated between EtherCAT Masters and Slaves. Data in EtherCAT frames is transported directly within the IEEE 802.3 Ethernet frame using Ether type 0x88a4 and are processed by the EtherCAT slave controller on the fly. Each EtherCAT datagram is a command that consists of a header, data, and a working counter. The datagram header indicates what type of access the master device would like to execute:

Read, write, read-write

Access to a specified slave device through direct addressing

Access to multiple slave devices through logical addressing

Logical addressing is used for the cyclical exchange of process data. The header and data are used to specify the operation that the slave must perform, and the working counter is updated by the slave to let the master to know that a slave has processed the command. Every EtherCAT datagram ends with a 16-bit working counter (WKC). The WKC counts the number of devices that were successfully addressed by this EtherCAT datagram. EtherCAT datagrams are processed before receiving the complete frame. In the case that the data is invalid, the frame check sum is not valid and the slave will not set data for the local application.



Topology

EtherCAT supports a variety of network topologies, including line, tree, ring, and star. The line and tree topologies are more conducive to fieldbus applications because they require fewer connections and utilize a much simpler and more flexible cabling schema that switches and hubs are not necessary for lines or trees topology. Inexpensive industrial Ethernet cable can be used between two nodes up to 100m apart in 100BASE-TX mode. EtherCAT makes a pure bus or line topology with hundreds of nodes possible without limitations. Up to 65,535 devices can be connected to EtherCAT, so network expansion is almost unlimited.

EtherCAT supports individual nodes to be connected/disconnected during operation. If one of the slaves in the network is removed, the rest of the network can continue to operate normally. EtherCAT also enables other communication features such as cable redundancy or master redundancy with Hot Standby.

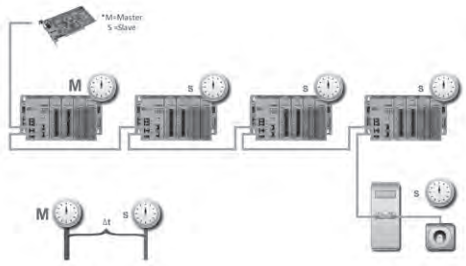
Synchronization

Distributed clocks (DC) mechanism provides highly precise time synchronization between slaves in an EtherCAT network, which is equivalent to the IEEE 1588 Precision Time Protocol standard. By using distributed clocks, EtherCAT is able to synchronize the time in all local bus devices within a very narrow tolerance range. All EtherCAT slaves are provided with an internal clock (system time/local time). One EtherCAT slave is used as a reference clock and distributes its clock cyclically.

Possible misalignment between the reference clock and the clocks of the other slaves are caused when a slave is switched on and the internal free-running register that holds the current time is reset to zero. Unfortunately, this action doesn't happen at the same time, and this result in an initial offset among clocks that has to be compensated.

Typically, masters send a broadcast to all other slaves in the system. Having received the message, slaves will latch the value of their internal clock. There are two latch values, one is receiving, and the other is returning back. Thus, the master can read all latched values and calculate the delay for each slave. Delays will be stored into an offset register. In the following, the master will send a message periodically to all other slaves in the EtherCAT network to make the first slave the reference clock and forcing all other slaves to set their internal clock by the calculated offset. Because synchronization between slaves in DC mode is done by internal clocks in hardware, EtherCAT guarantees the time jitter is less than 1us.

Diagnosis with Exact Localization



EtherCAT is an ultra-fast I/O system. To reach the best high-speed communication, high communication accuracy is demanded. EtherCAT comprises a wide range of systems with inherent diagnostic features which help detect and locate system errors precisely. Every EtherCAT datagram ends with a 16-bit working counter (WKC) to count the number of devices that were successfully addressed by this EtherCAT datagram. The Master can check the data exchange situation by WKC in the same cycle and the error frame can be detected by analyzing the nodes' error counters. The slave application will be executed only as the frame is received correctly. The automatic evaluation of the associated error counters enables precise localization of critical network sections.

Bit errors during transmission are detected reliably by the analysis of the Cyclic Redundancy Check (CRC) check sum. CRC is an error-detecting code commonly used in digital networks and storage devices to detect accidental changes to raw data. In addition to error detection and localization protocols, transmission physics and topology of the EtherCAT system allows an individual quality monitoring of every single transmission path.

SoftMotion Introduction

Advantech's SoftMotion Introduction

SoftMotion is Advantech's important core technology in the equipment automation field. Compared to ASIC motion control solutions, Advantech's Machine Automation Team independently developed its own SoftMotion control technology and uses the FPGA (Field Programmable Gate Array) and DSP (Digital Signal Processing) as the core-computing hardware platform. Because of SoftMotion excludes the inherent limitations of ASIC specifications, Advantech is able to offer the expertise of professional motion control for our customers and provides custom firmware to optimize device control as well as to minimize the need for additional programming. Through SoftMotion technology enhancements, Advantech offers critical technologies in EMA (Electronic Machine Automation) and TMA (Traditional Machine Automation) fields. Meanwhile, based on the three motion control architectures (centralized, distributed and embedded), Advantech's comprehensive product offering helps our customers to continuously progress their technologies to create win-win opportunities.

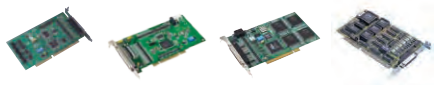
SoftMotion Function Table

Item		Description	PCI-1220U	PCI-1240U	PCI-1245L	PCI-1245LIO	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1265 PCI-1285	PCI-1203 (6/10/16/32axis)	PCIE-1203L-64AE (64axis)
Motion Control Function	Single-Axis Motion	JOG Move	✓	✓	✓	✓	✓	✓	✓	✓	✓
		MPG	✓	✓	✓	✓	✓	✓	✓	-	-
		T&S-curve speed profile	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Programmable acc. and dec.	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Point to point motion	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Position / Speed Override	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Velocity motion	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Backlash compensation	-	-	✓	✓	✓	✓	✓	✓	✓
		Superimposed move	-	-	-	-	-	-	✓	✓	-
		Stop	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Multi-Axis Motion (Group)	up to 4 groups	1 Group	1 Group	1 Group	2 Group	2 / 4 Group	2 / 4 Group	2 / 3 / 4 Group	6 Group	6 Group
		Line	2 axis	2/3 axis	2 axis	2/3 axis	2 axis	2/3 axis	2/3 axis	2/3 axis	2/3 axis
		2-axes Circular	✓	✓	-	2 axis	-	✓	✓	✓	-
		Speed Override	-	-	-	-	-	✓	✓	✓	2/3 axis
		Helical	-	-	-	-	-	-	✓	✓	-
		Pause & Resume	-	-	-	✓	✓	✓	✓	✓	-
	Home	16 home mode	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Motion Trajectory Planning	Table	✓	✓	-	-	3 tables (10K poins)/ 4 tables (7K poins)	3 tables (10K poins)/ 4 tables (7K poins)	3 tables (10K poins)/ 3 tables (10K poins)/ 4 tables (7K poins)	6 tables, size: 7k points	-
		Start / End motion list	✓	✓	-	-	✓	✓	✓	✓	-
		line trajectory: up to 8 axes	2-axis Line	2/3-axis Line	-	2/3-axis Line 2-axis Direct	2-axis Line/Direct	2/3-axisLine, 2~8 axis Direct	2/3-axis Line, 2~8 axis Direct	2/3-axis Line, 1~8 axis Direct	-
		Add arc trajectory (2/3-axis)	✓	✓	-	-	-	✓	✓	✓	-
		Add Dwell	-	-	-	-	✓	✓	✓	✓	-
		Start/Sop/ Repeat	✓	✓	-	-	✓	✓	✓	✓	-
		Auto Blending	-	-	-	-	-	-	✓	✓	-
Application Function	Gantry	Master & Slave Synchronized motion	-	-	-	-	-	-	✓	✓	-
	Speed Forward	Master & Slave Synchronized motion	-	-	-	-	-	-	✓	✓	-
	Tangential Following		-	-	-	-	-	-	✓	✓	-
	E-Gear		-	-	-	-	✓	✓	✓	✓	-
	E-CAM		-	-	-	-	-	-	✓	✓	-
	Error check	Error status, Watchdog	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Position Window trigger	Position window output	-	-	-	-	-	-	✓	✓	-
	Position Latch	Position Latch Information	-	-	-	-	-	✓	✓	✓	-
	Multi-axis Simultaneous Start / Stop	Simultaneously Start/Stop	-	-	✓	✓	-	-	✓	✓	✓
	PT/PVT	Position/ Velocity/Time Planning	-	-	-	-	-	-	-	✓	-
	Torque Limit	Position/ Torque Limit	-	-	-	-	-	-	-	✓	-
Interrupt	Axis Interrupt	Axis Stop	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Axis Compare	✓	✓	-	-	-	-	✓	-	-
		Axis Error	-	-	✓	✓	✓	✓	✓	✓	✓
		Axis Latch	-	-	-	-	-	-	✓	✓	-
		Axis VH Start	-	-	✓	✓	✓	✓	✓	✓	✓
		Axis VH Stop	-	-	✓	✓	✓	✓	✓	✓	✓
	Group Interrupt	Group Stop	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Group VH Start	-	-	✓	✓	✓	✓	✓	✓	✓
		Group VH Stop	-	-	✓	✓	✓	✓	✓	✓	✓
Trigger Function	Single Compare	Up to 8 channels	✓ (2 Channel)	✓ (2 Channel)	-	-	-	4 / 8 Channel	4 / 6 / 8 Channel	-	-
	Table Compare	Up to 2 channels	✓	✓	-	-	-	✓	✓	-	-
	Linear Compare	(Table size: 100K points)	✓	✓	-	-	-	✓	✓	-	-
Device DIO	DAQ	DIO	-	-	-	16DI, 16DO	-	-	8DI, 8DO (PCI-1265)	-	-
Device AI	DAQ	AI	-	-	-	-	-	-	2 AI (PCI-1265)	-	-

Motion Card Product Selection Guide

Centralized Motion Control Solutions

Category		Motion Control						Motion Control	
Bus		PCI						PCI	
Model		PCI-1220U	PCI-1240U	PCI-1243U	PCI-1245L	PCI-1245LIO	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1265 PCI-1285
Axis	Number of Axis	2	4	4	4	4	4/8	4/8	4/6/8
	Linear Interpolation	✓	✓	-	✓	✓	✓	✓	✓
	2/3-axis Circle Interpolation	✓	✓	-	-	2-axis	-	✓	✓
Advanced Functions	Encoder Channels	2	4	-	4	4	4/8	4/8	4/6/8
	Limit Switch Input Channels	4	8	8	8	8	8/16	8/16	8/12/16
	Home Input Channels	2	4	4	4	4	4/8	4/8	4/6/8
	Emergency Stop Input Channels	1	1	1	1	1	1	1	1
	Slow Down Limit Switches	4	8	-	8	8	8/16	8/16	8/12/16
	General Purpose DI Channels	6	12	8	16	32	16/32	16/32	16/32/32
	Servo On Output Channels	2	4	-	4	4	4/8	4/8	4/6/8
	General Purpose DO Channels	8	16	8	16	32	16/32	16/32	16/32/32
	Analog Input Channels	-	-	-	-	-	-	-	2 (PCI-1265 only)
	BoardID Switch	✓	✓	✓	✓	✓	✓	✓	✓
	Position Compare	✓	✓	-	-	-	-	-	✓
	Position Latch	-	-	-	-	-	-	-	✓
Dimensions (mm)		175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100	175 x 100



Category		Motion Control	Latch & Trigger	Encoder	
Bus		ISA	PCI		ISA
Model		PCL-839+	PCI-1274	PCI-1784U	PCL-833
Axis	Number of Axis	3	4	-	-
	Linear Interpolation	-	✓	-	-
	2/3-axis Circle Interpolation	-	-	-	-
Advanced Functions	Encoder Channels	-	4	4	3
	Limit Switch Input Channels	6	8	-	-
	Home Input Channels	3	4	-	-
	Emergency Stop Input Channels	-	1	-	-
	Slow Down Limit Switches	6	8	-	-
	General Purpose DI Channels	16	4 (General)	4	2
	Servo On Output Channels	-	4	-	-
	General Purpose DO Channels	16	4	4	-
	Analog Input Channels	-	-	-	-
	BoardID Switch	-	✓	✓	-
	Position Compare	-	12	-	-
	Position Latch	-	12	-	-
Dimensions (mm)		185 x 100	175 x 100	185 x 100	185 x 100

Embedded Machine Automation Solution

Model Name		MVP-3245
Chassis	Input Voltage	DC 24V
	Power	24W MAX (1A @ 24V)
Hardware	CPU	Intel Atom E3825 1.33G dual-core
	Memory	2G
	Storage	32G mSATA
	Graphic	D-SuB15 Port
Communication	Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
	USB	4 x USB 2.0
	Serial	2 x RS-232, DB9 connector
Physical	Dimensions (W x H x D mm)	250 x 160 x 85

EtherCAT Solution Product Selection Guide

EtherCAT Master Control Card

Model		PCI-1203	PCIE-1203L
Axis		6/10/16/32	64
Advanced Functions	General Purpose DI Channels	8	-
	General Purpose DO Channels	4	-
	Remote Motion	1024-CH DI and 1024-CH DO 128-CH AI and 128-CH AO	1024-CH DI and 1024-CH DO 128-CH AI and 128-CH AO
	Remote I/O	32 Servo Drive Max.	64 Servo Drive Max.
Dimensions (L x H)		175 x 100 mm	175 x 100 mm
Connectors		2 x RJ45, D-sub 15	2 x RJ45

	EtherCAT Slave				
Model	AMAX-4830	AMAX-4833	AMAX-4834	AMAX-4856	AMAX-4850
Isolated Digital Input	16	32	-	32	16
Isolated Digital Output	16	-	32	32	-
PhotoMOS Relay Output	-	-	-	-	8
Relay Output	-	-	-	-	-
Analog Input	-	-	-	-	-
Analog Output	-	-	-	-	-

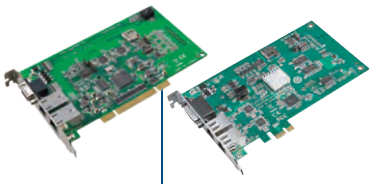
	EtherCAT Slave				
Model	AMAX-4860	AMAX-4855	AMAX-4862	AMAX-4817	AMAX-4820
Isolated Digital Input	8	32	16	-	-
Isolated Digital Output	-	-	-	-	-
PhotoMOS Relay Output	-	16	-	-	-
Relay Output	8	-	16	-	-
Analog Input	-	-	-	8	-
Analog Output	-	-	-	-	4

Terminal Board & Cable Selection Guide

Motion Card

Motion Controller	Cable	Terminal Board	Cable for Motor
PCI-1285/85V/85E	PCL-101100SB-1E/2E/3E x 2	ADAM-3956 x 2	PCL-10153PA5-2E for Panasonic A4/A5 series PCL-10153MJ3-2E Mitsubishi J3/J4 series PCL-10153YS5-2E Yaskawa Sigma V/7 series PCL-10153DA2-2E Delta A2 series
PCI-1265	PCL-10152-1E/3E + PCL-101100M-1E/2E/3E + PCL-10120-1E/2E	ADAM-3952/3955 + ADAM-3956 + ADAM-3920	PCL-10153PA5-2E for Panasonic A4/A5 series PCL-10153MJ3-2E Mitsubishi J3/J4 series PCL-10153YS5-2E Yaskawa Sigma V/7 series PCL-10153DA2-2E Delta A2 series
PCI-1245/45V/45E PCI-1245L PCI-1274 PCI-1240U	PCL-10251-1E/3E	ADAM-3952 x 2 ADAM-3955 x 2	PCL-10153PA5-2E for Panasonic A4/A5 series PCL-10153MJ3-2E Mitsubishi J3/J4 series PCL-10153YS5-2E Yaskawa Sigma V/7 series PCL-10153DA2-2E Delta A2 series
	PCL-101100M-1E/2E/3E	ADAM-3956	
PCI-1245LIO	PCL-101100M-1E/2E/3E	MTB-3956LIO	PCL-10153PA5-2E for Panasonic A4/A5 series PCL-10153MJ3-2E Mitsubishi J3/J4 series PCL-10153YS5-2E Yaskawa Sigma V/7 series PCL-10153DA2-2E Delta A2 series
PCI-1243U	PCL-10162-1E/3E	ADAM-3962	
PCI-1220U	PCL-10152-1E/3E	ADAM-3952 ADAM-3955	PCL-10153PA5-2E for Panasonic A4/A5 series PCL-10153MJ3-2E Mitsubishi J3/J4 series PCL-10153YS5-2E Yaskawa Sigma V/7 series PCL-10153DA2-2E Delta A2 series
PCL-839+	PCL-10137-1E/2E/3E	ADAM-3937	

EtherCAT



PCI-1203 & PCIE-1203L

AMAX-3285IO

AMAX-4830/33/34

- PCL-10153PA5-2E for Panasonic A4/A5 series
- PCL-10153MJ3-2E Mitsubishi J3/J4 series
- PCL-10153YS5-2E Yaskawa Sigma V/7 series
- PCL-10153DA2-2E Delta A2 series

PC-based Programmable Motion Control Solutions

MAS Controller Introduction

The MAS controller is a PC-based programmable motion controller, which is developed using the Motion Studio software development tool. It features a range of built-in debugging tools,is programmed using BASIC programming languag, can be easily integrated motion control and machine vision solution.

Open platform multi-axis controller

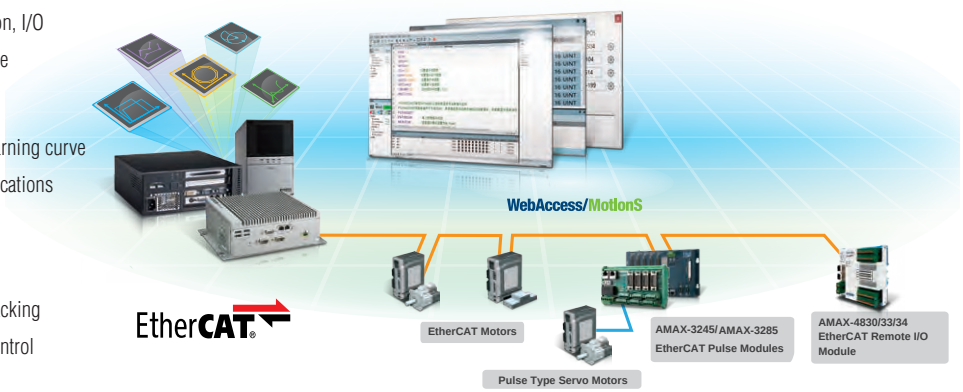
- Seamlessly integrated motion control, machine vision, I/O
- Open standard interface for communication, database

One Programming Tool - Motion Studio

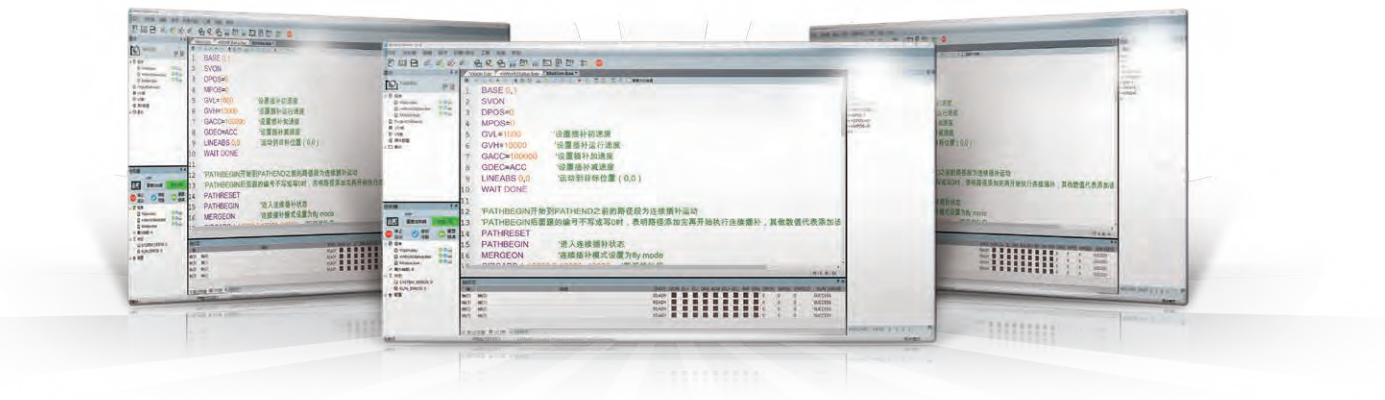
- Easy to program with BASIC language to shorten learning curve
- Extensive debugging tools for machine control applications
- Faster to learn, program and service

Real-Time SoftMotion Kernel

- Max 6 axes interpolation, trajectory planning and tracking
- Rich motion functionalities for XYZ table, SCARA control



Motion Studio



A single programming tool for every aspect of an machine automation project minimizes training needs, solidifies overall integration and eliminates communication problems between engineering disciplines.

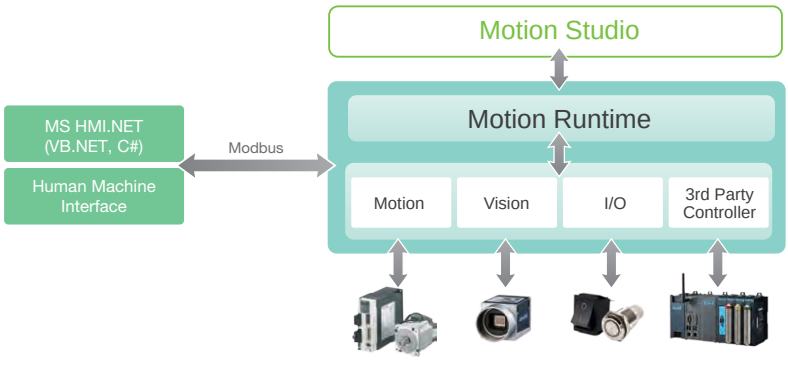
The user can easily program by BASIC programming language,using many debugging tools to help develop,Communicate with the outside hardware through controller's standard interface and connect to the database. in addition,users can also use the Motion Studio industry function block to quickly build a project,so as to improve the reusability,reduce the time of equipment development.

Debugging Tool

- Terminal
- Variable Watch
- I/O Viewer
- Motion test tool
- Parameter Viewer
- VR Management tool
- Breakpoint Operation
- Single Step Debugging
- C-integration
- 3D Path
- CAM Editor Tool
- Coding help

Function Blocks

- Cylinder control
- XYZ table/ SCARA control
- DXF
- Gcode
- Machine Vision Task
- Virtual Controller
- Programmable Encryption
- Path Link



MAS Controller Product Selection Guide

Mode		MAS-3245-LG	MAS-5242-LG	MAS-5242-EG	MAS-5282-EG	MAS-5202-EG	MAS-5283-LG
OS		WIN7 Embedded	WIN7 Embedded	WIN7 Embedded	WIN7 Embedded	WIN7 Embedded	WIN7 Embedded
CPU		Intel Celeron J1900	Inter Core I3	Inter Core I3	Inter Core I3	Inter Core I3	Inter Core I3
Memory		4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3
Storage		mSATA 32GB	500G	500G	500G	500G	500G
DI/O		32DI/32DO	16DI/16DO	16DI/16DO	32DI/32DO	–	32DI/32DO
Serial Ports		2 x RS232/422/485	2 x RS232	2 x RS232	2 x RS232	2 x RS232	2 x RS232
LAN Ports		2 x 10/100/1000M	2 x 10/100/1000M	2 x 10/100/1000M	2 x 10/100/1000M	2 x 10/100/1000M	2 x 10/100/1000M
USB 3.0		1 x USB 3.0	–	–	–	–	–
USB 2.0		4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	–
Motion Functions	Number of Axis	4	4	4	8	16	8
	Encoder Channels	4	4	4	8	-	8
	T&S Velocity curve	✓	✓	✓	✓	✓	✓
	Linear Interpolation	2/3-axis Linear	2-axis Linear	2/3-axis Linear	2/3-axis Linear	2/3-axis Linear	2-axis Linear
	Circular Interpolation	2-axis Circular	–	2-axis Circular	2-axis Circular	2-axis Circular	–
	Helix Interpolation	✓	–	✓	✓	✓	–
	Continuous interpolation	✓	–	✓	✓	✓	–
	MPG&JOG	✓	✓	✓	✓	✓	✓
	Position Compare	✓	–	✓	✓	✓	–
	Position Latch	✓	–	✓	✓	✓	–
	Simultaneously Start/Stop	✓	–	✓	✓	✓	–
	E-Gear	✓	–	✓	✓	✓	–
	E-CAM	✓	–	✓	–	–	–
	Gantry	✓	–	✓	✓	✓	–
	Tangential Following	✓	–	✓	✓	✓	–
	Position window output	✓	–	✓	✓	✓	–
Motion Studio	Programming Language	Motion BASIC					
	Number of Task	10					
	Debugging Tool	Terminal; Variable Watch; I/O Viewer; Motion test tool; Parameter Viewer; VR Management tool; Breakpoint Operation; Single Step Debugging; C-integration; 3D Path; CAM Editor Tool; Coding help					
	Function Blocks	Cylinder control; DXF; Gcode; Virtual Controller; Programmable Encryption;					

Machine Vision Introduction

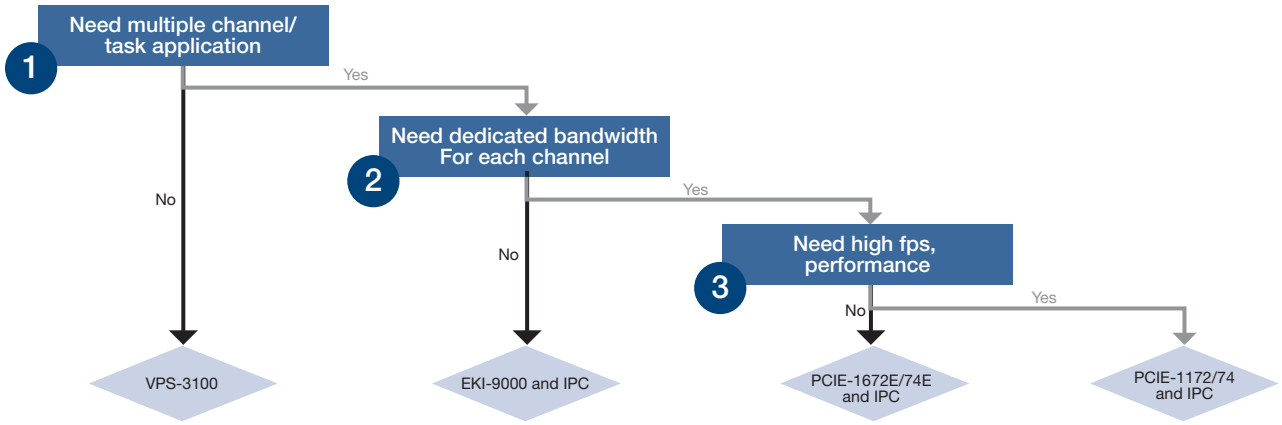
Introduction

Machine vision is used in every manufacturing market, from food beverage, pharmaceuticals, automotive, semiconductor to general manufacturing, the human eye inspection and response is too slow and unreliable for the demanding manufacturing process nowadays, replacing human inspection with machine vision can go further in the automating factory operation, the majors applications are quality assurance, production automation and identification

The era of Industry 4.0 is upon us, the scope of the factory will change dramatically, not only the ability to produce, but to produce with the most flexibility and efficiency, machine vision plays an important role in achieving 100% quality control in manufacturing, reducing costs, increase flexibility and ensuring a high level of customer satisfaction to fit the demands of smart manufacturing.

The move from analog to digital is prevalent, and the GigE Vision become the most significant interface in this market, Advantech provides high performance GigE Vision solutions, an open PC-based architecture, including industrial camera, computing platform, frame grabber for the traceability, alignment, gauge, identification and inspection application to fulfill the requirements for versatile machine vision applications.

Selection Guide



Application Stories

Backend semiconductor packaging inspection machines

The semiconductor industry has some of the most demanding applications, requiring a combination of extreme accuracy and precision combined with high throughput. Keeping up with innovations in packaging, the challenges to achieve this drastically increase. The fast-paced progress towards greater densities and finer dimensions are pushing the limits of vision systems.

Advantech suggested an intelligent GigE Vision frame grabber, DSP-based multi-axis motion control card and compact modularized system for direct integration in space-constrained machine to accomplish high-precision, high productivity IC packaging inspection. The solution adopts an industrial grade computer to combine PCIE-1174, four-channel intelligent GigE Vision frame grabber with include a dedicated FPGA (Field Programmable Gate Array) to reconstruct images before transmitting them in real time to the host PC via DMA (Direct Memory Access). This then frees up the host PC's processor and ensures there is no frame or packet loss during image acquisition.

Improve fabric quality in textile industry

Textile manufacturing is a very complex process. Weaving is the most basic process which involves interlacing a set of vertical threads (called the warp) with a set of horizontal threads (called the weft).

The new optical web inspection system can detect the warp thread break less one second and ease of use and maintenance. Accordingly, Advantech suggested the UNO-3283G, an Intel i7 Fanless Automation Computer with 2 x GbE, 2 x mPCIe, HDMI, DVI-I, and PCIE-1172, two channel intelligent GigE Vision frame grabber with include a dedicated FPGA (Field Programmable Gate Array) to reconstruct images before transmitting them in real time to the host PC via DMA (Direct Memory Access). This then frees up the host PC's processor and ensures there is no frame or packet loss during image acquisition. To further aid installation and maintenance, this series also includes the use of PoE (Power over Ethernet) and Ad Hoc protocol which, like DHCP, doesn't require a specific IP address and enables System Integrators (SI) to simply plug the camera in and go.

Implement the product traceability in food & beverage

As the market demand for food safety increases, traceability is getting more attention in the food and beverage industry as well as the packaging industry. One of the world's leading providers of beverage containers would like to identify the bar codes, characters and numbers one the ink-jet printing labels at a 7 unit per second run rate. Advantech provided the multiple camera, PC-based automated optical identification system to identify the bar code, data code, and the character on the beverage container, the system consists of AIIS-1240, 4-CH PoE compact vision system with Intel® Core™ i7 CPU; Inspector Express, a graphical user interface machine vision application software specifically designed to simplify the design and deployment of automated inspection on the factory floor; QCAM-GM0640-120CE, 0.3 Megapixel industrial camera, features with the PoE (Power over Ethernet) to simplify installation and maintenance.

Vision system and robotics ensure finished product quality in automotive industry

In the automotive industry, quality control is an extremely important part. Most of time, there are engineers to verify the interiors and exteriors, including dash board, door, seat, light, and color for the finished product quality check. In one of the largest automotive groups, there are about 100 items in the finished product check list and the client was looking for a quality check system to perform the inspection automatically. To automate the quality check of the parts in different vehicles, a flexible and extensible system had to be created, and due to numbers of characteristic, the system integrators designed the AOI (Automated Optics Inspection) system with multiple-camera and robots for high flexibility and efficiency. To satisfy this case, Advantech suggested PCIE-1674E, four channel GigE Vision frame grabber and QCAM-GM2500-014CE, 5.0 Megapixel industrial camera including PoE (Power over Ethernet) function, to simply the installation and maintenance. Besides these, there are other products to help provide the client with the desired functionality. The UNO-3283G, an Intel i7 Fanless Automation Computer with 2 x GbE, 2 x mPCIe, HDMI, DVI-I, and the PC- 1756, a 64-ch Isolated Digital I/O PCI Card for digital signal path to provide the total solutions in this case.

Machine Vision Selection Guide

Frame Grabbers

Model Name		PCIE-1172	PCIE-1174	PCIE-1672E	PCIE-1674E
Power Requirements	Input Voltage	12 V_{DC} direct from PCIe slot, total Max. 18W or AT/ATX system power input			
	Overload Current Protection	Present			
	Connection	AT/ATX Power Jack			
	Output PoE Power	48 VDC PoE Power output, total Max. 18W (total Max. 60W with AT/ATX system power input)			
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)			
	Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)			
	Operating Humidity	5 ~ 95% RH			
Mechanics	Dimensions (W x D)	185 x 110 mm (7.3" x 3.9")			
GigE Vision	Compatibility	IEEE802.3af			
	Speed	1000 Mbps		10/100/1000 Mbps	
	No. of Ports	2	4	2	4
	Port Connector	8-pin RJ45			
	Bus Interface	PCI Express® x 4			
	Jumbo Frame	9KB			
	GigE Vision Offload Engine	✓	✓	–	–
Safety	ESD	8KV (air), 4KV (contact)			
	EFT	2 KV			
	Surge Protection	1 KV			
	Isolation Protection	2.5 KV			
Digital Input/ Output	No. of Channels	2 input and output	4 input and output	–	–
	Input/Output range	0-30V opto-isolated		–	–
	Max. frequency	1KHz		–	–
	Digital input interrupt	Falling and rising edge, normal and invert		–	–

Cameras

Model Name	QCAM-GM0640-300CE	QCAM-GM1300-060DE	QCAM-GC1300-060CE	QCAM-GM1600-060DE	QCAM-GM2500-014DE	QCAM-GC2500-014CE	QCAM-GM3800-010CE	QCAM-GC4600-007CE
Resolution	640 x 480	1280 x 1024	1280 x 1024	1600 x 1200	2592 x 1944	2592 x 1944	3856 x 2764	3072 x 2048
Frame Rate	300	60	60	60	14	14	10	7
Sensor	Python 300, CMOS	e2V EV76C560, CMOS	e2V EV76C560, CMOS	e2V EV76C570, CMOS	Aptina MT9P031, CMOS	Aptina MT9P031, CMOS	Aptina MT9J003, CMOS	Aptina MT9F002, CMOS
Shutter	Global Shutter	Global Shutter	Global Shutter	Global Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter
Sensor Size	1/4"	1/1.8"	1/1.8"	1/1.8"	1/2.5"	1/2.5"	1/2.3"	1/2.3"
Pixel Size (μm)	4.8 x 4.8	5.3 x 5.3	5.3 x 5.3	4.5 x 4.5	2.2 x 2.2	2.2 x 2.2	1.67 x 1.67	1.4 x 1.4
Color Format	Mono	Mono	Color	Mono	Mono	Color	Mono	Color
Interface	Gigabit Ethernet							
Dimensions (L x W x H) mm	42 x 42 x 29							
Lens Mount	C/CS							
Operating Temperature	0 ~ 50°C							
Power Consumption	<2.6 W	<2.6 W	<2.6 W	<2.7 W	<2.7 W	<2.7 W	<3.7 W	<3.7 W

Energy Solution Overview

Introduction

The successful management of power and energy applications is becoming increasingly critical as new energy sources, distributed across a much wider area than fossil fuels, become increasingly important. The informatization, intellectualization, and energy development of these new energy sources will change the traditional model, from a single communication model without response, to an alarm-to-intercommunication unified model. Advantech, as a leading manufacturer of industrial PCs for power and energy applications, provides intelligent components, from smart meters, IEC-61850-3 certified industrial computers, intelligent wireless gateways, to SCADA software, substation automation system development, and energy management. Through a host of innovative products and solutions, Advantech has shown itself to be one of the key enablers of Industrial IoT and Industry 4.0.

Integrated Power Management

- **SCADA Application**

In Smart Substations, it's essential to be able to remotely monitor substation devices from a central management center. To achieve this, high performance computing platforms integrate HMI/DATA collection, data monitoring, environmental status, which help operators accurately evaluate their devices' status and take action.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - High-performance computing platform
  - AMT/ TPM

- **Cyber Security for Smart Grids**

There are different grades of network protection priorities in a substation, and use in these environments needs reliable cyber security. This requires a software firewall or comparable hardware firewall devices to prevent illegal and unauthorized user access.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - High-performance Ethernet
  - Virtual Machine/ TPM

- **Communication & Data Gateway with IEC 61850**

Within a substation, various devices use a wide variety of protocols, such as IEC-60870-101/103/104, Modbus or other private rules. The status and information of these devices needs to be accurately monitored and collected through a gateway computer with a unified communication transition protocol. It's very important that transfer devices use various protocols to unify the IEC-61850 protocol.

- Application Requirements
  - Reliable IEC 61850-3 certification
  - Multiple communication interfaces support
  - Isolated serial ports, Ethernet ports, IRIG-B

- **Auxiliary Safety Monitoring**

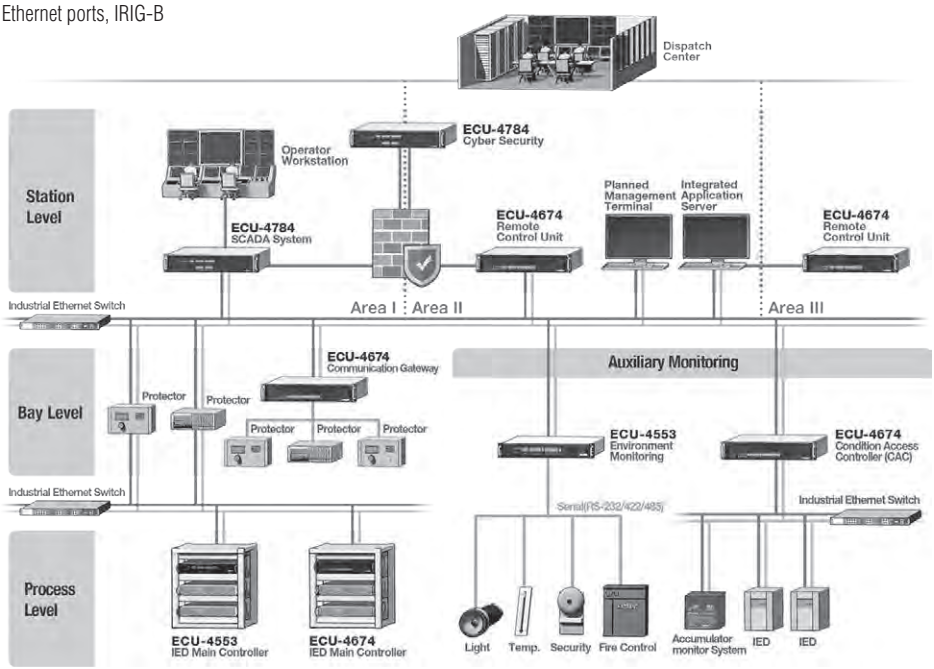
Along with modern computing and network communication technology, electricity system automation becomes more important, especially for safety related applications. The goal is to avoid issues of traditional substation such as non-precaution and non-linkage conditions. Advantech's computers and devices provide safety related information acquisition and monitoring, such as environmental parameters, facility parameters, and access guard status and other unusual conditions.

- Application Requirements
  - On-board or expansion IO for data acquisition
  - Communication protocol support for monitoring sensors

- **Primary Device Monitoring**

In smart substations, traditional primary devices including transformers, GIS, CT/VT, Thunder and other isolated switches, normally operate without precaution, monitoring unified communication protocols. Along with the development of modern smart substations, the IEC-61850 standard is latest trend in substation applications and primary device monitoring. To meet these requirements, Advantech provides IEC-61850 compliant computer platforms for data communication and transmission which keeps primary devices operating normally.

- Application Requirements
  - Flexible I/O, communication interfaces and protocol support
  - Highly reliable computing platform



Distributed Energy Monitoring in Renewable Energy

With the increasing construction of solar power plants, customers are finding it difficult to handle issues of the number of communication protocol requests, unstable communication networks on distributed farms and no high-efficiency or intelligent monitoring software. This means traditional solar power monitoring solutions can not satisfy modern fast developing solar operation requirements.

Advantech provides high-performance computing platforms, total data acquisition modules, communication protocol gateways, network communications, and cloud software solutions with multiple communication protocols and stable Ethernet or wireless network support, network switchboards and remote monitoring software.

- **Data Acquisition Using Multiple Communication Protocols**

There are many types of electrical equipment in solar power farms, such as inverters, combiner boxes, and intelligent or non-intelligent power meters, which need the support of a diverse range of communication protocols. For device data acquisition Advantech provides communication platforms compatible with these protocols.

- Application Requirements
  - X86/ RISC-based gateway platforms
  - Multiple serial ports / network ports
  - IEC-60870 / Modbus / DNP3 protocol support

- **Wireless Communication on Distributed Solar Power**

Distributed solar power farms are scattered over vast and remote areas, and establishing stable communication networks is not easy. To reduce wiring costs and maintain reliability, Advantech provides gateways capable of supporting 2G/3G/Wi-Fi/4G wireless for stable networks with data integrity.

- Application Requirements
  - 2G/3G/Wi-Fi/4G wireless
  - Reliable platform with integrated intelligent software

- **Remote Monitoring and Maintenance**

The operating status of solar power plants (especially solar panels) directly affects power generation efficiency and capacity. Comprehensive centralized monitoring and scientific management is important. Due to the characteristics of wide areas and long distances, Advantech provides remote control solutions for helping administrators immediately understand the operational status of the plant through handheld devices or PCs. This helps with the timely control and maintenance of equipment while enhancing the efficiency and safety of solar power plants.

Distributed Energy Monitoring in Energy Consumption

In order to reduce production costs and increase product profitability, manufacturing factories require integrated monitoring management and optimization measures to manage their high energy-consuming facilities. Advantech not only provides practical and easy-to-implement energy management solutions, but also has a full range of product portfolios, including smart meters, data acquisition modules, and control hosts, as well as and back-end management platforms to offer complete solutions for enterprises to achieve energy efficiency.

High Energy-consuming Equipment Monitoring Application

Since harmonics can have a significant impact on electrical distribution systems and the critical facilities they need, Advantech's energy management solution used equipment failure diagnosis and prevention mechanisms to provide analytical information through monitoring harmonic currents generated by non-linear electronic loads, so as to improve production efficiency and reduce maintenance and energy costs.

Factory Facility Monitoring Application

By providing real-time energy consumption data to accurately grasp the key moments, Advantech's factory facility monitoring systems are aimed at controlling high consumption facilities such as lighting, HVAC (heating, ventilation and air conditioning), and UPS (uninterruptible power supply). A time-of-use pricing service was used to adjust the use and operation of the facility according to the actual power usage and electricity tariff, saving energy costs.

WebAccess Based Remote Energy Management Solution

For factory energy consumption, Advantech WebAccess SCADA software is able to implement remote management, energy consumption status overview, energy saving potential assessment, and recommend practical measures, energy monitoring and reporting analysis, etc. to effectively achieve energy savings and cost control.

X86-based Industrial Automation Computers Selection Guide

Energy Solution Platforms

	NEW				NEW		
							
Model Name	ECU-4685	UNO-4671A	ECU-4674	ECU-4574	ECU-4784 Xeon	UNO-4673A/4683	ECU-4784
Certification	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3 / IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 Compliant China Electricity Certificate IV level	IEC 61850-3/IEEE 1613 China Electricity Certificate IV level
CPU	Intel Skylake Celeron 3955U 2.0GHz	Intel Atom D525 1.8GHz	Intel Atom N2600 1.66GHz	Intel Atom N2600 1.66GHz	Intel SkyLake Xeon E3-1505L Quad-core 2.0GHz	Intel Atom D510, 1.6 GHz Intel Core i7, 2.0 GHz	Intel Haswell Core i7 4650U 1.7GHz dual-core, i3 4010U 1.7GHz, Celeron 2980U 1.6GHz
RAM	4G DDR3L SDRAM	4GB DDR3 SDRAM	2G DDR3 SDRAM	2G DDR3 SDRAM	16G DDR4 SDRAM with ECC	2GB DDR2 SDRAM 4GB DDR3 SDRAM	8G DDR3L SDRAM 16G DDR3L SDRAM
Display	VGA	VGA	VGA	VGA	VGA/DVI	VGA/DVI-I	VGA/DVI
Serial Ports	8 x Isolated RS-232/422/485 (Terminal Block)	2 x Isolated RS-232, 4 x Isolated RS-422/485, 4 x Isolated RS-485	2 x isolated RS-232 1 x IRIG-B 16 x Isolated RS-232/485	2 x isolated RS-232 8 x isolated RS-232/485	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)	2 x Isolated RS-232/422/485	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)
Ethernet Ports	6 x 10/100/1000Base-T	2 x 10/100/1000Base-T and 4 x 10/100 Base-T RJ-45	2 x 10/100/1000Base-T 6 x 10/100Base-T	2 x 10/100/1000Base-T 6 x 10/100Base-T	8 x 10/100/1000Base-T	2 x 10/100/1000, 4 x 10/100 Base-T RJ-45	8 x 10/100/1000Base-T
USB Ports	Six (One internal)	4 (1 x internal)	5 (1 x internal)	5 (1 x internal)	6 (1 x internal)	6 (1 x internal)	6 (1 x internal)
Expansion	-	PCI-104	1 x PCI 104	1 x PCI 104	2 x PCI/PCIE	-	2 x PCI/PCIE
Onboard I/O	-	-	8 x isolated DI, 8 x isolated DO	-	-	-	-
Watchdog Timer	✓	✓	✓	✓	-	✓	✓
CompactFlash Slots	One Internal (mSATA)	One Internal	1 x Internal (CF)	1 x Internal (CF)	1 x Internal (CFast)	One Internal	1 x Internal (CFast)
2.5" HDD Expansion	2 x SATA	1 x SATA	2 x SATA	2 x SATA	2 x SATA	1 x SATA	2 x SATA
Operating Systems	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Windows Embedded 8 64-bit	WES2009, WES7, Windows CE 6.0 and Linux	WES7, Windows7, Linux	WES7, Windows7, Linux	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Embedded 8 (64bits)	WES7, Windows XP Embedded, Windows /XP, Windows CE 6.0, Linux, QNX, Win10, Win7, Windows Server 2008R2/ 2012/ 2012R2	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Embedded 8 (64bits)
Mounting	1U Rack-Mount	2U Rackmount	2U Rackmount	1U Rackmount	-	2U Rackmount	2U Rackmount
Anti-Vibration	2 G w/mSATA, 1 G w/HDD	2 G w/CF, 0.5 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	-	2 G w/CF, 1 G w/HDD	2 Gw/CF, 1 Gw/HDD
Anti-Shock	30 G w/mSATA, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	-	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 60°C with 50% CPU/ I/O loading, without 2D/3D -20 ~ 45°C with 100% CPU/ I/O loading	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
Power Consumption Typical	22W	30 W	24 W	24 W	35 W	45 W	22W (i7 dual-core) 24.2W (Celeron)
Power Requirements	Supports Redundant Power Input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant power input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant power input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant power input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant power input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant power input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC	Supports Redundant Power Input Power 1: 100 ~ 240 VAC or 100 ~ 240 VDC Power 2: 100 ~ 240 VAC or 100 ~ 240 VDC
Dimensions (W x D x H)	440 x 280 x 44 mm	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 272 x 44 mm (17.3" x 8.6" x 3.4")	440 x 280 x 88 mm	440 x 220 x 88 mm (17.3" x 8.6" x 3.4")	440 x 280 x 88 mm
Weight	5.5 kg	~ 5.5 kg	~ 6.0 kg	4.6 kg	-	~ 6.0 kg	~ 6.0 kg
Ordering Information	ECU-4685-LC24SAE	-	ECU-4674-A53SAE ECU-4674-LBA53SAE	ECU-4574-A53SAE	ECU-4784-E56SAE	-	ECU-4784-D55SAE ECU-4784-D56SBE ECU-4784-E15SAE ECU-4784-C25SAE

RISC-based Industrial Communication Gateway

Module Name	ECU-1251	ECU-1152	ECU-4553
Certification	China Electricity Certificate IV level	China Electricity Certificate IV level	CE/FCC/CCC
CPU	TI Cortex A8 800MHz	TI Cortex A8 800MHz	TI Cortex A8 800MHz
RAM	DDR3L 256MB	DDR3L 512MB	DDR3L 1GB
Serial Ports	4 x Isolated RS-232/485	6 x isolated RS-232/485	16 x isolation RS-232/485
Ethernet Ports	2 x 10/100 Base-T	2 x 10/100 Base-T	4 x 10/100 Base-T
CAN	-	-	2 x CAN 2.0B
Display	-	-	VGA
USB Ports	1	1	1
Storage	2 x SD (Micro-SD)	2 x SD (Micro-SD)	2 x SD (Micro-SD)
Watch Timer	✓	✓	✓
Power Requirements	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}	100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
Operating System	RT-Linux 3.12	RT-Linux 3.12	RT-Linux 3.12
Mounting	Wall-mount/ DIN-rail	Wall-mount/ DIN-rail	1U Rack-mount
Anti-vibration	2G w/Micro-SD	2G w/Micro-SD	2G w/Micro-SD
Anti-shock	10G w/Micro-SD	10G w/Micro-SD	10G w/Micro-SD
Operating Temperature	-40 ~ 70°C	-40 ~ 70°C	-40 ~ 70°C
Typical Power Consumption	2.4W	2.4W	6.6W
Dimensions	140 x 96.5 x 30 mm	170 x 110 x 32.2 mm	440 x 220 x 44 mm
Weight	1.5 kg	1.5 kg	4.5 kg

Intelligent Transportation Platforms

Comprehensive Solutions for Modernizing Infrastructure

Advantech collaborates with partners to provide reliable platform solutions that facilitate intelligent transportation in cities worldwide. Leveraging over a decade of experience, Advantech has invested resources into designing and developing innovative product offerings aimed specifically at the transportation industry. These products include automatic fare collection systems, wayside control equipment, rolling stock management solutions, and traffic surveillance systems. By enabling intelligent transportation systems, Advantech achieves its vision of realizing smart city technologies.

Product Offerings

AFC Controller

ITA-1000 Series

AFC controller series features fanless design and rich I/O to support various applications such as automatic gate machines, ticket vending machines, automatic fare collection systems, and more. It also supports self-service equipment and kiosk applications due to its compact and lightweight design.

Rugged-design Platform

ITA-2000 Series

Wayside controller series provide various applications such as communication-based train control, wayside signaling, and train control system. Our wayside controller system includes CTC and ATC systems that provide a secure monitoring and operating environment.

Rolling Stock Controller

ITA-5000 Series

Rolling stock controller caters for rolling stock applications including driver machine interface, passenger information system, vehicle monitoring system and more. Advantech in-train products are EN 50155 and EN50121-3-2 railway standard certified, which enable them to withstand high levels of vibration to enhance their longevity.

Display System

ARS-P3800/2800

Advantech ARS-P series is fanless Passenger Information System, EN 50155 certified specially for rolling stock applications. It features a stretched LCD panel, with high brightness to ensure easy readability even in light-insufficient environments. It serves as a reliable platform to provide passenger information on a wide range of vehicles.

Panel Controller

ITA-7000 / 8000 Series

ITA-7000 series is a fanless Passenger Information System, EN 50155 certified specially for rolling stock applications. Its stretched LCD panel ensures easy readability even in light-insufficient environments. ITA-8000 series is a fanless touch panel PC for human machine interface. The panel's small, ultra-flat design offers space savings for installation in driver cabins, while the configuration flexibly allows it to be adjusted for specific applications and different train models.

Intelligent Transportation Platforms




Model Name		ITA-1501	ITA-1611	ITA-1711	ITA-2111
Processor System	CPU	i.MX6 Quad Cortex-A9	Intel® Celeron™ J1900	Intel® Celeron™ J1900	Intel® Atom™ E3845
	CPU TDP	5W	10W	10W	10W
	Frequency	1.0 GHz	2.0 GHz	2.0 GHz	1.91 GHz
	Core Number	4	4	4	4
	L2 Cache	1MB	2MB	2MB	2MB
	BIOS	-	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Chipset	-	-	-	-
Memory	Technology	Single channel DDR3 1066	Dual channel DDR3 1333	Dual channel DDR3 1333	Dual channel DDR3 1333
	Capacity	Up to 2GB	Up to 8GB	Up to 8GB	Up to 8GB
	Onboard Memory	2GB	4GB	4GB	4GB
	DIMM Slot	-	1	1	1
Display	Graphic Memory	Freescale i.MX6 integrated Hardware accelerators	Shared with system memory up to 256MB	Shared with system memory up to 256MB	Shared with system memory up to 256MB
	Multiple Display	Dual	Dual	Dual	Dual
	Display Interface	VGA +HDMI or 2 x VGA Single channel: 1920 x 1080 @ 60 Hz Dual channel: 1920 x 1080 @ 60 Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel max: 1920 x 1080 @ 60Hz Dual channel max: 1920 x 1080 @ 60Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel max: 1920 x 1080 @ 60Hz Dual channel max: 1920 x 1080 @ 60Hz	VGA + DVI-D Single channel max: 1920 x 1080 @ 60Hz Dual channel max: 1920 x 1080 @ 60Hz
Ethernet	Controller	1 x RTL8211E	2 x Intel® I211	2 x Intel® I211	4 x Intel® I210-IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	1 x RJ45	2 x RJ45	2 x RJ45	4 x RJ45
Storage	Onboard Slot	1 x SD	1 x mSATA	1 x mSATA	1 x mSATA
	HDD/SSD	1 x 2.5" SSD	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD	1 x 3.5" or 2 x 2.5" HDD/SSD
	Easy Swap Module	-	-	1	-
Expansion Interface	Mini PCIe	1	1	1	1
	PCIe	-	-	-	-
	PCI	-	-	-	-
	PCI104	-	-	-	1
	ITA-EM	-	-	-	-
I/O	Display	VGA +HDMI or 2 x VGA	2 x VGA or VGA + DVI-D or VGA + LVDS	2 x VGA or VGA + DVI-D or VGA + LVDS	VGA + DVI-D
	Audio	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in
	Ethernet	1	2	2	4
	USB3.0	-	1	1	1
	USB2.0	6	5	5	6
	COM	Up to 6 ports	Up to 6 ports	Up to 14 ports	10
	Digital I/O	-	8 GPIO	Up to 24 DI and 24 DO	-
Power	Input Range	DC 12V	DC 9V~36V	DC 9V~36V	AC 100V~240V or DC 110V
Physical Characteristics	Dimensions (W x H x D)	188 x 66 x 129 mm (7.28" x 2.59" x 5.11")	200 x 70 x 190 mm (7.87" x 2.75" x 7.48")	200 x 100 x 190 mm (7.87" x 3.93" x 7.48")	427 x 44 x 325 mm (19.0" x 1.73" x 12.79")
Environment	Operating Temperature	0 ~ 60 °C (With SSD)	-25 ~ 60 °C (With SSD) 0 ~ 40 °C (With HDD)	-25 ~ 60 °C (With SSD) 0 ~ 40 °C (With HDD)	-25 ~ 60 °C (With SSD) 0 ~ 40 °C (With HDD)
Certification	EMC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC
	Safety Certifications	UL, CB, CCC	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC
	Other	-	-	-	EN 50121-4

Intelligent Transportation Platforms

Model Name		ITA-2211	ITA-2231	ITA-5231	ITA-5612	ITA-5831
Processor System	CPU	Intel® Atom™ E3845	Intel® Core™ i7-6822EQ	Intel® 6th Gen. Core™ i7/i5/i3	Intel®Atom™ X7-E3950	Intel® 6th Gen. Core™ i7/i5/i3
	CPU TDP	10W	25W	25W	12W	25W
	Frequency	1.91 GHz	2.0 GHz	Up to 2.0 GHz	Up to 2.0 GHz	Up to 2.0 GHz
	Core Number	4	4	4/2	4	4/2
	L2 Cache	2MB	8MB	8/6/3MB	2MB	8/6/3MB
	BIOS	AMI SPI 64Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Chipset	-	Intel® QM170	Intel® QM170	-	Intel® QM170
Memory	Technology	Dual channel DDR3 1333	Dual channel DDR4 2133	Dual channel DDR4 2133	Dual channel DDR3L 1600	Dual channel DDR4 2133
	Capacity	Up to 8GB	Up to 32GB	Up to 16GB	Up to 8GB	Up to 16GB
	Onboard Memory	4GB	16GB	8GB	4GB	8GB
	DIMM Slot	1	1	1	1	1
Display	Graphic Memory	Shared with system memory up to 256MB	Shared with system memory up to 512MB	Shared with system memory up to 512MB	Shared with system memory up to 256MB	Shared with system memory up to 512MB
	Multiple Display	Dual	Dual	Dual	Dual	Dual
	Display Interface	VGA + DVI-D Single channel max: 1920 x 1080 @ 60Hz Dual channel max: 1920 x 1080 @ 60Hz	DVI-I + DVI-D Single channel max: 1920 x 1200 @ 60Hz Dual channel max: 1920 x 1200 @ 60Hz	DVI-I + DVI-D Single channel max: 1920 x 1200 @ 60Hz Dual channel max: 1920 x 1200 @ 60Hz	DVI-I + DVI-D (Optional) Single channel max: 1920 x 1200 @ 60Hz Dual channel max: 1920 x 1200 @ 60Hz	DVI-I + DVI-D (Optional) Single channel max: 1920 x 1200 @ 60Hz Dual channel max: 1920 x 1200 @ 60Hz
Ethernet	Controller	2 x Intel® I210-IT	1 x Intel® i219LM and 1 x Intel® i210-IT	1 x Intel® i219LM and 2 x Intel® i210-IT	3 x Intel® i210-IT	3 x Intel® i210-IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	2 x RJ45	2 x RJ45	3 x M12 X-coded(F)	3 x M12 X-coded(F)	3 x M12 X-coded(F)
Storage	Onboard Slot	1 x mSATA	1 x M.2 (with SATA interface)	1 x mSATA	1 x mSATA	1 x mSATA
	HDD/SSD	1 x 3.5" or 2 x 2.5" HDD/SSD	2 x 3.5" or 3 x 2.5" HDD/SSD	-	-	-
	Easy Swap Module	-	-	Max to 4 x 2.5" SSD or 3 x 2.5" HDD	2 x 2.5" SSD	Max to 3 x 2.5" SSD or 2 x 2.5" HDD
Expansion Interface	Mini PCIe	1	1	3	1 (Shared Slot with mSATA)	3
	PCIe	-	-	-	-	-
	PCI	-	-	-	-	-
	PCI104	1	1	-	-	-
	ITA-EM	3	3	4	-	2
I/O	Display	VGA + DVI-D	DVI-I + DVI-D	DVI-I + DVI-D	1 x DVI-I	1 x DVI-I
	Audio	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in	1 x Speaker-out with 2 x 4W amplifier, 1 x Mic-in
	Ethernet	2	2	3	3	3
	USB3.0	1	4	2	2	2
	USB2.0	6	3	1 x USB2.0 with M12 A-coded(F) 4-pin	-	1 x USB2.0 with M12 A-coded(F) 4-pin
	COM	2	2	2	1	2
	Digital I/O	-	-	4 DI and 4 DO	8 GPIO	4 DI and 4 DO
Power	Input Range	AC 100V~240V or DC 110V	AC 100V~240V or DC 110V	Optional DC 24/48/72/110V input compliant with EN50155 class S2/C2	Optional DC 24/48/72/110V input compliant with EN50155 class S2/C1	Optional DC 24/48/72/110V input compliant with EN50155 class S2/C1
Physical Characteristics	Dimensions (W x H x D)	483 x 88 x 325 mm (19.0" x 3.46" x 12.79")	483 x 88 x 325 mm (19.0" x 3.46" x 12.79")	427 x 88 x 200 mm (19.0" x 3.46" x 7.87")	205 x 72 x 210 mm (8.07" x 2.83" x 8.26")	220 x 88 x 200 mm (8.66" x 3.46" x 7.87")
Environment	Operating Temperature	-25 ~ 60 °C (With SSD) 0 ~ 40 °C (With HDD)	-25 ~ 60 °C (With SSD) 0 ~ 40 °C (With HDD)	EN 50155 TX -40 ~ 70 °C (With SSD)	EN 50155 TX -40 ~ 70 °C (With SSD)	EN 50155 TX -40 ~ 70 °C (With SSD)
Certification	EMC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC
	Safety Certifications	UL, CB, CCC	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI
	Other	EN 50121-4	EN 50121-4	EN 50155, EN 50121-3-2, EN 50121-4, EN 45545	EN 50155, EN 50121-3-2, EN 45545	EN 50155, EN 50121-3-2, EN 50121-4, EN 45545

Model Name		ARS-P3800	ARS-P2800/P2800D	ITA-7220/7220D
Computer System	CPU	AMD® Embedded G-Series GX-217GA dual-core (1.65 GHz) SoC	Intel® Celeron® J1900 quad-core (2.00 GHz)	Intel® Celeron® J1900 quad-core (2.00 GHz)
	Memory	DDR3 1600MHz 204-pin SODIMM (up to 8GB)	DDR3 1600MHz 204-pin SODIMM (up to 8GB)	DDR3L 1333MHz 204-pin SODIMM (up to 8GB)
Storage	mSATA	1 x mSATA SSD (64 GB default)	1 x mSATA SSD (64 GB default)	1 x mSATA SSD (64 GB default)
Graphics	Chipset	Radeon™ HD8280E, max. 450 MHz	Intel® HD Graphics, max. 688 MHz	Intel® HD Graphics, max. 688 MHz
Display	Display Type	38" TFT LCD panel, max. resolution 1920 x 540	28" TFT LCD panel, max. resolution 1920 x 357	22" TFT LCD panel, max. resolution 1920 x 1080
	Brightness	800 nits	1000 nits	400 nits
	Contrast Ratio	5000:1	6500:1	1000:1
Ethernet	LAN	10/100/1000 Mbps (M12 A-coded)	10/100/1000 Mbps (M12 A-coded)	10/100/1000 Base-T Ethernet interface (M12 X-coded)
Touch Panel	Touch Type	-	-	-
	Function Keys	-	-	-
I/O	USB	1 x USB 2.0 (M12 A-coded), 1 x USB 2.0 (Type A)	1 x USB 2.0 (M12 A-coded), 1 x USB 2.0 (Type A)	1 x USB 2.0 (M12 A-coded)
	Video Output	1 x HDMI	1 x DVI-D	1 x DVI-D
Digital I/O	Input/Output	-	-	-
Software	Opearting System	Linux Ubuntu 16.04	Linux Ubuntu 16.04	Linux Ubuntu 16.04
Power	Input Voltage	110 V_{DC} (±40%, selectable), 4-pole M12 connector	24/48/72/110 V_{DC} (±40%), 4-pole M12 connector	24/48/72/110 V_{DC} (±40%), 4-pole M12 connector
Enviornment	Operating Temperature	EN 50155 T1: -25 ~ +55 °C	EN 50155 T1: -25 ~ +55 °C	EN 50155 T1: -25 ~ +55 °C
	Vibration, Shock	EN 50155	EN 50155	EN 50155
	Ingress Protection	IP-54	IP-54	IP-40
Physical Characteristics	Dimensions (W x H x D)	1065 x 342 x 63 mm (42.0 x 13.5 x 2.5 in)	814 x 178 x 56 mm (32.0 x 7.0 x 2.2 in)	575 x 299 x 56 mm (23 x 12 x 2.2 in)
	Weight	11 kg (24.3 lb)	8.3 kg (18.3 lb)	7 kg (15.4 lb) / 6.5 kg (14.3 lb)
Certifications	Railway Related	EN 50155, EN 50121, IEC 61373, (EN 45545 compliant)	EN 50155, EN 50121, IEC 61373, IEC 60571, (EN 45545 compliant)	EN 50155, EN 50121, IEC 61373, IEC60571 (EN 45545)
	EMC, Safty	CE/FCC Class A, UL	CE/FCC Class A, UL	CE/FCC Class A, UL

Intelligent Transportation Platforms



Model Name		ITA-7170	ITA-8120	ITA-8101
Computer System	CPU	Intel® Celeron® J1900 quad-core (2.00 GHz)	Intel® Atom™ x7-E3950 quad-core (2.00 GHz)	Intel® Atom™ x7-E3950 quad-core (2.00 GHz)
	Memory	DDR3L 1333MHz 204-pin SODIMM (up to 8GB)	DDR3L 1600MHz 204-pin SODIMM (up to 8GB)	DDR3L 1600MHz 204-pin SODIMM (up to 8GB)
Storage	mSATA	1 x mSATA SSD (64 GB default)	1 x M.2 2242 SSD (64 GB default)	1 x M.2 2242 SSD (64 GB default)
Graphics	Chipset	Intel® HD Graphics, max. 688 MHz	Intel® HD Graphics, max. 650 MHz	Intel® HD Graphics, max. 650 MHz
Display	Display Type	17" TFT LCD panel max. resolution 1920 x 1080	12.1" TFT LCD panel, max. resolution 1024 x 768	10.4" TFT LCD panel, max. resolution 1024 x 768
	Brightness	400 nits	500 nits	400 nits
	Contrast Ratio	600:01:00	700:1	500:1
Ethernet	LAN	10/100/1000 Base-T Ethernet interface (M12 X-coded)	10/100/1000 Mbps (M12 X-coded)	10/100/1000 Mbps (M12 X-coded)
Touch Panel	Touch Type	-	Projected capacitive touchscreen with support for two-finger multi-touch control	Projected capacitive touchscreen with support for two-finger multi-touch control
	Function Keys	-	32 front-facing keys with tactile feedback that comply with UIC612-01 requirements	32 front-facing keys with tactile feedback that comply with UIC612-01 requirements
I/O	USB	1 x USB 2.0 (M12 A-coded)	1 x USB 2.0 (M12 A-coded)	1 x USB 2.0 (M12 A-coded)
	Video Output	1 x DVI-D	2 x RS-422/485 (M12 A-coded)	2 x RS-422/485 (M12 A-coded)
Digital I/O	Input/Output	-	5-ch / 1-ch, isolated (M12 A-coded)	5-ch / 1-ch, isolated (M12 A-coded)
Software	Opearting System	Linux Ubuntu 16.04	Linux Ubuntu 16.04, Windows 10	Linux Ubuntu 16.04, Windows 10
Power	Input Voltage	24/48/72/110 V_{DC} (±40%), 4-pole M12 connector	24/48/72/110 V_{DC} (±40%), 4-pole M12 connector	24/48/72/110 V_{DC} (±40%), 4-pole M12 connector
Enviornment	Operating Temperature	EN 50155 T1: -25 ~ +55 °C	EN 50155 T3: -25 ~ +70 °C (85 °C for 10 minutes)	EN 50155 T3: -25 ~ +70 °C (85 °C for 10 minutes)
	Vibration, Shock	EN 50155	EN 50155	EN 50155
	Ingress Protection	IP-40	IP-65 front cover	IP-65 front cover
Physical Characteristics	Dimensions (W x H x D)	483 x 248 x 56 mm (19.0 x 9.8 x 2.2 lb)	350 x 260 x 73 mm (13.8 x 10.2 x 2.9 in)	310 x 214 x 73 mm (12.2 x 8.4 x 2.9 in)
	Weight	5.5 kg (12.1 lb)	5 kg (11 lb)	4.5 kg (9.9 lb)
Certifications	Railway Related	EN 50155, EN 50121, IEC 61373, IEC60571 (EN 45545)	EN 50155, EN 50121, IEC 61373, IEC 60571, (EN 45545 compliant)	EN 50155, EN 50121, IEC 61373, IEC 60571, (EN 45545 compliant)
	EMC, Safty	CE/FCC Class A, UL	CE/FCC Class A, UL	CE/FCC Class A, UL

2 Industrial Server

Storage Servers

NEW

Product Categories		Storage Server	
Model Name		SKY-5240	ASR-3100
System	Form Factor	2U 4 Nodes	1U 16 bay
	Number of Drives	24 bays (2.5")	16 bays (2.5")
	Drive Type	NVMe/SAS/SATA	NVMe/SAS/SATA
	CPU Type	Intel Xeon Scalable dual processors (up to 145W TDP)	Dual LGA 2011-R3 supports Intel® Xeon® E5-2600 V3/ V4 series
	Chipset	Intel® C622	Intel® C612
	Memory Type	24 x DDR4-2666 ECC RDIMMs (Up to 768 GB)	16 x DDR4-2133 ECC RDIMM (up to 512 GB)
	Storage Expansion	-	-
	Configuration	-	-
	TPM	-	-
	Smart Fan Control	✓	✓
Expansion Slot	PCIe x16	2 Per Node (Supports HHHL)	-
	PCIe x8	-	2 (supports 1 x HHHL card and 1 x FHHL card)
Display	Integrated Chipset	-	-
	Display Memory	64 MB	64 MB
	VGA	ASPEED AST-2500 (Per Node)	ASPEED AST-2400
Ethernet	RJ-45 Ethernet	3 (Per Node)	2
I/O	Front I/O	-	1 x USB 2.0
	Rear I/O	Per Node 1 x VGA 2 x USB 3.0 3 x LAN RJ45	1 x VGA 1 x COM RS-232 4 x USB 3.0 2 x LAN RJ45
	Internal I/O Connector	2 x M.2 2280 Connector (Per Node)	2 x M.2 connectors (2242)
Power Supply	Power Output	2200W 80 PLUS Platinum 1+1 redundant power supply	1100W redundant power
	Input Range	220 ~ 240V_{AC}	100 ~ 240V_{AC}
Mechanical	Dimensions (L x W x H)	830 x 446 x 88 mm (32.68" x 17.56" x 3.46")	806 x 430 x 44 mm (31.7" x 16.9" x 1.7")
	Weight	-	17 kg (without hard drives)
Environmental	Operating Temperature	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-Operating Temperature	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Operating Humidity	95% @ 40 °C, non-condensing	10 ~ 85% @ 40 °C, non-condensing
	Non-Operating Humidity	95% @ 40 °C, non-condensing	10 ~ 95% @ 40 °C, non-condensing
	Operating Vibration (5~500 Hz)	0.25Grms	0.25Grms
Miscellaneous	Notification LED	Power status, HDD Status, Fan Status, Location, Overheat, Node Status, Node Alert	Power Status, System Error, HDD Status, LAN LED, Location

✓: supported, - : not supported, △: optional

Product Categories		Disk Expansion Enclosure	Storage Server
Model Name		SKY-4120B	SKY-4311
System	Form Factor	2U 24 bay	1U 8 bay
	Number of Drives	24 bays (2.5")	8 bays (2.5")
	Drive Type	12/6 Gb/s SAS	NVMe/SATA
	CPU Type	-	Dual LGA 2011-R3 supports Intel® Xeon® E5-2600 V3/ V4 series
	Chipset	-	Intel® C612
	Memory Type	-	16 x DDR4-2133 ECC RDIMM (up to 512 GB)
	Storage Expansion	3 x Mini-SAS HD wide-ports (2 for SAS in, 1 for SAS out)	2 x PCIe x8 (Gen3) (supports 1 x HHHL card and 1 x FHHL card)
	Configuration	Redundant controller	-
	TPM	-	-
	Smart Fan Control	✓	✓
Expansion Slot	PCIe x16	-	-
	PCIe x8	-	2 (supports 1 x HHHL card and 1 x FHHL card)
Display	Integrated Chipset	-	-
	Display Memory	-	1 GB
	VGA	-	ASPEED AST-2400
Ethernet	RJ-45 Ethernet	Remote management - SNMP trap supported	2
I/O	Front I/O	-	1 x USB 2.0
	Rear I/O	1 x LAN RJ45 3 x Mini-SAS HD wide-ports (2 for SAS in, 1 for SAS out)	1 x VGA 1 x COM RS-232 4 x USB 3.0 2 x LAN RJ45
	Internal I/O Connector	-	2 x M.2 connectors (2242)
Power Supply	Power Output	550W redundant power	1100W redundant power
	Input Range	100 ~ 240V_{AC}	100 ~ 240V_{AC}
Mechanical	Dimensions (L x W x H)	502 x438 x 88.4 mm (19.7" x 17.2" x 3.4")	626 x 430 x 44 mm (24.6" x 16.9" x 1.7")
	Weight	20 kg (without hard drives)	15 kg (without hard drives)
Environmental	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-Operating Temperature	-40° C ~ 60° C (-40° F ~ 140° F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Operating Humidity	95% @ 40° C, non-condensing	10 ~ 85% @ 40 °C, non-condensing
	Non-Operating Humidity	95% @ 60° C, non-condensing	10 ~ 95% @ 40 °C, non-condensing
	Operating Vibration (5~500 Hz)	0.25Grms	0.25Grms
Miscellaneous	Notification LED	System power, system alert, location, controller fan, controller temperature, controller ready	Power Status, System Error, HDD Status, LAN LED, Location

✓: supported, - : not supported, △: optional

GPU Servers

NEW

NEW

NEW

Model Name		SKY-6100		SKY-6200		SKY-6400	
Processor Support		Intel LGA3647-P0 Xeon Scalable processor (up to 140W TDP)		Intel LGA3647-P0 Xeon Scalable processor (up to 140W TDP)		Intel LGA3647-P0 Xeon Scalable processor (up to 205W TDP)	
Expansion Slots		5 x PCIe x16 slot (Gen3 x16 link) for five HH/HL cards or one FH/FL + one FH/HL card.		Four PCIe x16 slot (Gen3 x16 link) for 4 x/10.5" + one PCIe x8 slot (Gen3 x8 link) for FH/HL card		4 x PCIe x16 slot (Gen3 x16 link) for FH/10.5" doube-deck cards + one PCIe x8 slot (Gen3 x8 link) for FH/HL card + one PCIe x4 slot (Gen3 x4 link) for FH/HL card	
Drive Bay	Slim ODD Bay	0		1		-	
	2.5" Hot Swap	2		8		-	
	2.5" Internal	-		-		-	
	3.5" Hot Swap	-		-		8	
Cooling	Chassis Fan	6 x 4056 high speed fan + 1 x 4028 system fan		2 x 8038 CPU fan + 4 x 8038 card cage fan		4 x 12038 system fan	
	Air Filter	-		-		-	
Chassis Intrusion Alarm		✓		✓		✓	
Front USB		2 x USB2.0		2 x USB2.0		2 x USB3.0	
Miscellaneous	LED Indicators	Power Status, LAN Status, System information LED		Power Status, LAN Status, System information LED		Power status, HDD activity, LAN1 & LAN2	
	Rear Panel	-		-		-	
Environment		Operating	Non-Operating	Operating	Non-Operating	Operating	Non-Operating
	Temperature	0 ~ 35 °C (32 ~ 95 °F)	-40 ~ 60 °C (-40 ~ 140 °F)	0 ~ 35 °C (32 ~ 95 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	0 ~ 35 °C (32 ~ 95 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	95% @ 40 °C	95% @ 60 °C	10 ~ 85% @ 40 °C	10 ~ 95% @ 40 °C	95% @ 40 °C	95% @ 40 °C
	Vibration (5~500 Hz)	0.25 Grms	2 G	0.5 Grms	2 G	0.25 Grms	2 G
	Shock	10G (with 11ms duration, half since wave)	△	10G (with 11ms duration, half since wave)	30G	10G (with 11ms duration, half since wave)	△
Physical Characteristics	Dimensions (W x H x D)	438 x 44 x 650 (17.24" x 1.7" x 25.6")		438 x 44 x 760 (17.24" x 1.7" x 29.92")		435 x 177 x 673 mm (17.12" x 6.96" x 26.49")	

✓: supported, - : not supported, △: optional



Model Name		AGS-913	AGS-923	HPC-7400-S813
Processor Support		Dual Intel® Xeon® E5-2600 v3/v4	Dual Intel® Xeon® E5-2600 v3/v4	Single Intel® Xeon® E5-2600 v3/v4
Expansion Slots		3 x PCIe x16 double-depth card + 1 x PCIe x8 FH/HL card	4 x PCIe x16 double-depth card + 1 x PCIe x8 FH/HLcard	2 x PCIe x16 double-depth card + 1 x PCIe x8 + PCIe x4 + 1 x PCIe x1
Drive Bay	Slim ODD Bay	-	-	-
	2.5" Hot Swap	4	8	-
	3.5" Hot Swap	-	-	2
Cooling	Chassis Fan	7 x 40x56 + 2 x 40x28 high speed fan	4 x 80x38 + 1 x 80x20 + 1 x 80x38 (△) high speed fan	3 x 80x38 + △ 2 (6cm) rear fans
	Air Filter	-	-	✓
Chassis Intrusion Alarm		✓	✓	✓
Front USB		2	2	2
Miscellaneous	LED Indicators	Power status, HDD activity, LAN status, location, error message	Power status, HDD activity, LAN status, location, error message	Power switch and system reset button
	Rear Panel	Location, error message	Location, error message	-
Environment		Operating		Non-Operating
	Temperature	0 ~ 40 °C (32~104 °F)		-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	10 ~ 85% @ 40 °C		10 ~ 95% @ 40 °C
	Vibration (5~500 Hz)	0.5 Grms	2G	2G
	Shock	10 G (with 11ms duration, half since wave)	10 G (with 11ms duration, half since wave)	10 G (with 11ms duration, half since wave)
Physical Characteristics	Dimensions (W x H x D)	430 x 44 x 770 mm (16.9" x 1.7" x 30.3")	430 x 88 x 770 mm (16.9" x 3.4" x 30.3")	482 x 177 x 448 mm (18.9" x 6.9" x 17.6")


Model Name		HPC-7400-S923	HPC-7483-S923
Processor Support		Intel Xeon E5-2500 v4/v3 processor	
Expansion Slots		3 x PCIe x 16 double-depth cards	4 x PCIe x 16 double-depth cards
Drive Bay	Slim ODD Bay	-	-
	2.5" Internal	2 rear-accessible (3.5"/2.5")	2
	2.5" Hot Swap	-	
	3.5" (internal)	2 rear-accessible (3.5"/2.5")	8
	5.25" (front accessible)	2	3
Cooling	Chassis Fan	(8 cm/1.41.9 CFM) + △ 2 (6 cm) rear fans	3 (12 cm / 226.5 CFM)+ △ 2 (8 cm) rear fans
	Air Filter	✓	-
Chassis Intrusion Alarm		✓	✓
Front USB		2	2
Miscellaneous	LED Indicators	Power switch , system reset button,HDD, LAN1,LAN2	System: Power, HDD, LAN1, LAN2, System information HDD Tray: HDD Power and Activity LED
	Rear Panel	-	Two 9-pin D-Sub and two PS2 and two USB
Environment		Operating	Non-Operating
	Temperature	0 ~ 35 °C (32 ~ 95 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	10 ~ 85% @ 35 °C	10 ~ 95% @ 40 °C
	Vibration (5~500 Hz)	1 Grms	2 G
	Shock	10G	
Physical Characteristics	Dimensions (W x H x D)	482x 177 x 448 mm (18.9" x 6.9" x 17.6")	435 x 177 x 658 mm (17.1" x 6.9" x 25.9")

✓: supported, - : not supported, △: optional

GPU Servers

Compatible GPU/Xeon Phi

GPU Card Vendor \ Advantech Product Model			1U		2U		3U chassis HPC-7320/ 4U chassis HPC-7483 & HPC-7400					4U			
			AGS-913	SKY-6100	AGS-923	SKY-6200	ASMB-813	ASMB-822	ASMB-913	ASMB-922	ASMB-923	HPC-7400-S813	HPC-7400-S923	HPC-7483-S923	SKY-6400
Nvidia	Tesla	P100	*	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	*	✓
		P40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓
		M60	*	✓	*	✓	✓	✓	✓	✓	✓	*	✓	✓	✓
		M40	*	✓	*	✓	✓	✓	✓	✓	✓	✓	*	*	✓
		K80	✓	✓	*	✓	✓	✓	✓	✓	✓	*	*	✓	✓
		K40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AMD	Workstation	W9000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		W9100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Server	S9000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		S9150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note:
1. ✓ means they have already passed compatibility tests (GPU card and driver install).
2. * means qualified tesla server by Nvdia
3. Some GPU cards need to enable "Above 4G Decoding" in BIOS setup menu when installing multiple GPU cards

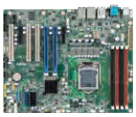
GPU P/N

Cat.	Part Number	Description
NVS series GPU cards	SKY-NVS-810E	NVS 810 4GB PCI-E x16 MDP*8 FS
Quadro series GPU cards	SKY-QUAD-GP100	Quadro GP100 16GB PCI-Ex16 DVI-D*1 DP*4 FS
	SKY-QUAD-M5000E	Quadro M5000 8GB PCI-Ex16 DVI*1 DP*4 FS
	SKY-QUAD-M6000-2E	Quadro M6000 24GB PCI-Ex16 DVI*1 DP*4 FS
	SKY-QUAD-M6000E	Quadro M6000 12GB PCI-Ex16 DVI*1 DP*4 FS
	SKY-QUAD-P400	Quadro P400 2GB PCI-Ex16 MDP*2 FS
	SKY-QUAD-P600	Quadro P600 2GB PCI-Ex16 MDP*4 FS
	SKY-QUAD-P1000	Quadro P1000 4GB PCI-Ex16 MDP*4 FS
	SKY-QUAD-P2000	Quadro P2000 5GB PCI-Ex16 DP*4 FS
	SKY-QUAD-P4000	Quadro P4000 8GB PCI-Ex16 DP*4 FS
	SKY-QUAD-P5000E	Quadro P5000 12GB PCI-Ex16 DVI-D*1 DP*4 FS
	SKY-QUAD-P6000E	Quadro P6000 24GB PCI-Ex16 DVI-D*1 DP*4 FS
Tesla series GPU cards	SKY-TESL-K40-AE	Tesla K40 12GB PCI-E x16 FS
	SKY-TESL-K40-PE	Tesla K40 12GB PCI-E x16 HS
	SKY-TESL-K80E	Tesla K80 24GB PCI-E x16 HS
	SKY-TESL-M10-PE	Tesla M10 32GB PCI-E x16 HS
	SKY-TESL-M40-2E	Tesla M40 24GB PCI-E x16 HS
	SKY-TESL-M40E	Tesla M40 12GB PCI-E x16 HS
	SKY-TESL-M4E	Tesla M4 4GB PCI-E x16 HS/Low profile
	SKY-TESL-M6-MXM-PE	Tesla M6 8GB MXM3.1 type B HS
	SKY-TESL-M60-PLRE	Tesla M60 16GB PCI-E x16 HS L to R
	SKY-TESL-M60-PRLE	Tesla M60 16GB PCI-E x16 HS R to L
	SKY-TESL-P100-16P	Tesla P100-PCIE-16GB x16 HS
	SKY-TESL-P100-PE	Tesla P100 12GB PCI-E x16 HS
	SKY-TESL-P4-PE	Tesla P4 8GB PCI-E x16 HS
	SKY-TESL-P40-PE	Tesla P40 24GB PCI-E x16 HS

Server Boards

NEW

NEW



Model Name		ASMB-260	ASMB-584	ASMB-585	ASMB-586	ASMB-782
Form Factor		Mini-ITX	Micro ATX	Micro ATX	MicroATX	ATX
Processor System	CPU	Intel® Atom® C3000 Series	Intel® Xeon® E3 v3 and 4th Gen. Core™ i3/i5/i7 Series	Intel® Xeon® E3 v5/v6 and 6th/7th Gen.Core™ i3/i5/ i7 Series	Intel® Xeon® E & 8th Gen. Core™ i3/i5/i7 Series	Intel Xeon E3/E3 v2/ 2nd and 3rd Gen. Core i7/i5/i3/ Pentium Series
	Socket	-	1 x socket 1150	1 x socket 1151	1 x socket 1151	1 x socket 1155
	Max. Speed	2.2 GHz	3.5 GHz	3.6 GHz	3.7 GHz	3.5 GHz
	Front Side Bus	-	-	-	-	-
	L3 Cache	2 MB (based on CPU sku)	8 MB	8 MB	13.5 MB	8 MB
	Chipset	-	Intel C226	Intel C236	Intel C246	Intel C216
	BIOS	AMI 128 Mbit, SPI	AMI 128Mbit, SPI	AMI 128Mbit, SPI	AMI 128Mbit, SPI	AMI 64 Mbit, SPI
Expansion Slot	PCI	-	1*	-	-	3
	PCIe x16	-	-	1 (Gen3 x16 link)	1	-
	PCIe x8	-	2 (x16 slot with x8 link)	-	-	2 (x16 slot with x8 link)
	PCIe x4	1 (1 Gen3 x 4 link)	1	3 (2 Gen3 x4 link, 1 Gen3 x1 link)	2	2
	PCIe x1	-	-	-	1	-
Memory	Technology	DDR4 Reg/unbuffered 2400/2133/1866/1600 Mhz DIMM	DDR3 ECC/non-ECC Unbuffer 1066/1333/1600 MHz	DDR4 ECC/non-ECC Unbuffer 1600/1866/2133/2400 MHz	DDR4 ECC/non-ECC Unbuffer 2133/2400/2666 MHz	DDR3 ECC/Non-ECC Unbuffer 1066/1333/1600 MHz
	Max. Capacity	128 GB for RDIMM/ 64GB for UDIMM	32 GB ECC/Non-ECC UDIMM	64 GB ECC/Non-ECC UDIMM	64 GB ECC/Non-ECC UDIMM	32 GB ECC/Non-ECC UDIMM
	Socket	4x 288-pin DIMM	4 x 240-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 240-pin DIMM
Graphics	Controller	AST2500	Intel GT2-HD Graphics	Intel GT2-HD Graphics	Intel GT2-HD Graphics	Intel HD Graphics
	VRAM	DDR3 64MB	1 GB maximum shared memory with 2 GB and above system memory installed	1 GB maximum shared memory with 2 GB and above system memory installed	1 GB maximum shared memory with 2 GB and above system memory	1 GB maximum shared memory with 2 GB and above system memory installed
	LCD	-	-	-	-	-
	TV-Out	-	-	-	-	-
	HDMI	-	-	-	1	-
	DVI	-	1	2	1	✓ (pin header)
	Dual Display	✓	✓	✓	✓	✓ (pin header for DVI)
Ethernet	Interface	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet
	Controller	2 x Intel I210AT + 1 x Intel X557-AT2	1 x Intel I217LM, 1 x Intel I210AT (G2 SKU only)	1 x Intel I219LM, 3 x Intel I210AT (G4 SKU only)	1 x Intel I219LM, 3 x Intel I210AT (G4 SKU only)	1 x Intel 82579LM + 3 x Intel 82574L (G4 SKU only)
	Connector	RJ-45 x 3 (1 sharing IPMI function)	RJ-45 x 2 (G2 SKU) / RJ-45 x1 (VG SKU)	RJ-45 x 2 (G2 SKU) / RJ-45 x4 (G4 SKU)	RJ-45 x 2 (G2 SKU) / RJ-45 x4 (G4 SKU)	RJ-45 x 4 (G4 SKU) / RJ-45 x 2 (G2 SKU)
TPM		Optional	Optional	Optional	Optional	Optional
SATA	Max. Data Transfer Rate	600MB/s for SATA3	600 MB/s	600 MB/s	600 MB/s	300MB/s for SATA2 600 MB/s for SATA3
	Channel	Up to 8	6	7	8	4 for SATA2, 2 for SATA3
SAS	Max. Data Transfer Rate	-	-	-	-	-
	Channel	-	-	-	-	-
Rear I/O	VGA/DVI/HDMI/DP	1 / - / - / -	1 / 1 / - / 2	1 / 2 / - / -	1 / 1 / 1 / -	1 / - / - / -
	Ethernet	3	2 for G2 SKU and 1 for VG SKU	2 for G2 SKU and 4 for G4 SKU	2 for G2 SKU and 4 for G4 SKU	4 for G4 SKU and 2 for G2 SKU
	USB	2 (USB 3.0)	4 (2 USB 3.0; 2 USB 2.0)	4 (USB 3.0)	4 (USB 3.1)	4 (2 USB 3.0; 2 USB 2.0)
	Audio	-	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	-
	Parallel	-	-	-	-	-
	Serial	1 (RS-232)	-	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	-	-	-	-	2
Internal Connector	DVI	-	-	-	-	✓ (pin header)
	USB	2 (2 USB3.0)	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)	9 (2 USB 3.0; 6 USB 2.0;1 USB 2.0 Type A)	10 (2 USB 3.0; 6 USB 2.0; 2 USB 2.0 Type-A)
	Audio	-	1	1	1	1
	Serial	1	2	3	1	1
	Parallel	-	1	-	-	1
	SATA	8	6	7	8	6
	SAS	-	-	-	-	-
	Compact Flash	-	-	-	-	-
	GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	1 (SATA SGPIO)
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec

* ASMB-584 A2 version has removed PCI slot for 1U & 2U chassis with riser.

✓: supported, - : not supported, △: optional

Server Boards

NEW





Model Name		ASMB-784	ASMB-785	ASMB-786	ASMB-822	ASMB-813
Form Factor		ATX	ATX	ATX	ATX	ATX
Processor System	CPU	Intel® Xeon® E3 v3 and 4th Gen. Core™ i3/i5/ i7 Series	Intel® Xeon® E3 v5/v6 and 6th/7th Gen. Core™ i3/i5/i7 Series	Intel® Xeon® E & 8th Gen. Core™ i3/i5/i7 Series	Intel® Xeon® E5-1600/ 1600 v2 / 2600 / 2600 v2	Intel® Xeon® E5-1600 v3/v4 and 2600 v3/v4 Series Core i7 Series
	Socket	1 x socket 1150	1 x socket 1151	1 x socket 1151	1 x socket 2011	1 x socket 2011-R3
	Max. Speed	3.5 GHz	3.6 GHz	3.7 GHz	3.7 GHz	2.5 GHz
	Front Side Bus	-	-	-	-	QPI 9.6GT/s
	L3 Cache	8MB	8MB	13.5 MB	20 MB	30 MB
	Chipset	Intel C226	Intel C236	Intel C246	Intel C602J	Intel C612
	BIOS	AMI 128Mbit, SPI	AMI 128Mbit, SPI	AMI 128Mbit, SPI	AMI 64 Mbit, SPI	AMI 128 Mbit, SPI
Expansion Slot	PCI	3	3	-	1	-
	PCIe x16	1 (switchable to two x8)	1 (switchable to two x8)	1 (switchable to two x8)	-	2/0
	PCIe x8	2 (switchable to one x16)	2 (switchable to one x16)	2 (switchable to one x16)	5	1/5
	PCIe x4	-	2	2	1	1
	PCIe x1	2	-	3	-	1
Memory	Technology	DDR3 ECC/Non-ECC Unbuffer 1066/1333/1600 MHz	DDR4 ECC/Non-ECC Unbuffer 1600/1866/2133/2400 MHz	DDR4 ECC/non-ECC Unbuffer 2133/2400/2666 MHz	DDR3 REG/ECC/ Non-ECC Unbuffer 1066/1333/1600 MHz	DDR4 REG 2400/2133/ 1866/1600/1333 MHz DIMM
	Max. Capacity	32 GB ECC/Non-ECC UDIMM	64 GB ECC/Non-ECC UDIMM	64 GB ECC/Non-ECC UDIMM	96 GB/Non-ECC/ECC/ REG DIMM	256 GB REG DIMM
	Socket	4 x 240-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	6 x 240-pin DIMM	8 x 288-pin DIMM
Graphics	Controller	Intel GT2-HD Graphics	Intel GT2-HD Graphics	Intel GT2-HD Graphics	AST1300/AST2300	AST1400/AST2400
	VRAM	1 GB maximum shared memory with 2 GB and above system memory installed	1 GB maximum shared memory with 2 GB and above system memory installed	1 GB maximum shared memory with 2 GB and above system memory	DDR3 64MB	DDR3 64MB
	LCD	-	-	-	-	-
	TV-Out	-	-	-	-	-
	HDMI	-	-	1	-	-
	DVI	2	2	1	-	-
	Dual Display	✓	✓	✓	-	-
Ethernet	Interface	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet
	Controller	1 x Intel I217LM + 3 x Intel I210AT (G4 SKU only)	1 x Intel I219LM + 3 x Intel I210AT (G4 SKU only)	1 x Intel I219LM + 3 x Intel I210AT (G4 SKU only)	1 x Intel 82579LM + 1 x Intel I210AT 1 x Realtek 8201EL (ASMB-822I SKU only)	2 x Intel I210AT
	Connector	RJ-45 x 4 (G4 SKU) / RJ-45 x2 (G2 SKU)	RJ-45 x 2 (G2 SKU) / RJ-45 x4 (G4 SKU)	RJ-45 x 2 (G2 SKU) / RJ-45 x4 (G4 SKU)	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 3 (1 for IPMI function)
TPM		△	△	△	△	△
SATA	Max. Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	300MB/s for SATA2 600 MB/s for SATA3	600MB/s for SATA3
	Channel	6	6	8	4 for SATA2, 2 for SATA3	8 for SATA3
SAS	Max. Data Transfer Rate	-	-	-	-	-
	Channel	-	-	-	-	-
Rear I/O	VGA/DVI/HDMI/DP	1 / 2 / - / -	1 / 2 / - / -	1 / 1 / 1 / -	1 / - / - / -	1 / - / - / -
	Ethernet	4 for G4 SKU and 2 for G2 SKU	2 for G2 SKU and 4 for G4 SKU	2 for G2 SKU and 4 for G4 SKU	2	2
	USB	4 (2 USB 3.0; 2 USB 2.0)	4 (USB 3.0)	4 (USB 3.1)	6 (2 x USB 3.0)	4 (USB 3.0), 2 (USB 2.0)
	Audio	-	Mic-in, Line-out	Mic-in, Line-out	-	-
	Parallel	-	-	-	-	-
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	2	-	-	2	2
Internal Connector	DVI	-	-	-	-	-
	USB	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)	9 (2 USB 3.0; 6 USB 2.0; 1 USB 2.0 Type A)	9 (2 USB 3.0; 6 USB 2.0;1 USB 2.0 Type A)	8 (6 USB 2.0, 2 USB 2.0 Type-A)	5 (2 USB3.0,2 USB2.0, 1 USB 2.0 Type-A)
	Audio	1	1	1	1	1
	Serial	1	3	1	1	1
	Parallel	1	1	1	1	-
	SATA	6	6	8	6	8
	SAS	-	-	-	-	-
	Compact Flash	-	-	-	-	-
	GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable 1~255 sec	Programmable 1~255 sec	Programmable 1~255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec

* ASMB-584 A2 version has removed PCI slot for 1U & 2U chassis with riser.

✓: supported, - : not supported, △: optional




Model Name		ASMB-823	ASMB-815	ASMB-825	ASMB-922
Form Factor		ATX	ATX	ATX	EATX
Processor System	CPU	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® Scalable Series	Intel® Xeon® Scalable Series	Intel® Xeon® E5-2600 / 2600 v2
	Socket	2 x socket 2011-R3	1 x socket 3647-P0	2 x socket 3647-P0	2 x socket 2011
	Max. Speed	2.5 GHz	3.6 GHz	3.6 GHz	2.1 GHz
	Front Side Bus	QPI 9.6GT/s	Up to UPI 10.4 GT/s	Up to UPI 10.4 GT/s	QPI 8 GT/s
	L3 Cache	30 MB	38.5 MB	38.5 MB	20 MB
	Chipset	Intel C612	Intel C620	Intel C620	Intel C602J
	BIOS	AMI 128 Mbit, SPI	AMI 256 Mbit, SPI	AMI 256 Mbit, SPI	AMI 64 Mbit, SPI
Expansion Slot	PCI	-	-	-	-
	PCIe x16	4	2/0	4	4 (1 for PME)
	PCIe x8	2	1/5	2	1
	PCIe x4	1 (x8 slot with x4 link)	1	-	-
	PCIe x1	-	1	-	-
Memory	Technology	DDR4 REG 2400/2133/1866/1600/1333 MHz DIMM	DDR4 REG 2666/2400/2133 MHz DIMM	DDR4 REG 2666/2400/2133 MHz DIMM	DDR3 REG/ECC/non-ECC Unbuffer 1066/1333/1600 MHz
	Max. Capacity	192 GB REG DIMM	192 GB REG DIMM	192 GB REG DIMM	128 GB/Non-ECC/ECC/REG DIMM
	Socket	6 x 288-pin DIMM	6 x 288-pin DIMM	8 x 288-pin DIMM	8 x 240-pin DIMM
Graphics	Controller	AST1400/AST2400	AST2510/AST2500	AST2510/AST2500	AST1300/AST2300
	VRAM	DDR3 64MB	DDR3 64MB	DDR3 64MB	DDR3 64MB
	LCD	-	-	-	-
	TV-Out	-	-	-	-
	HDMI	-	-	-	-
	DVI	-	-	-	-
	Dual Display	-	-	-	-
Ethernet	Interface	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet	10/100/1000 Mbps Gigabit Ethernet
	Controller	2 x Intel I210AT	2 x Intel I210AT + 1 x Intel X557-AT2 1 x Realtek 8201EL (ASMB-815I/815T2 SKUs)	2 x Intel I210AT + 1 x Intel X557-AT2	1 x Intel 82579LM + 1 x Intel I210AT 1 x Realtek 8201EL (ASMB-922I SKU only)
	Connector	RJ-45 x 3 (1 sharing IPMI function)	RJ-45 x 5 (1 for IPMI function)	RJ-45 x 4 (1 sharing IPMI function)	RJ-45 x 3 (1 for IPMI function)
TPM		△	△	△	△
SATA	Max. Data Transfer Rate	600MB/s for SATA3	600MB/s for SATA3	600MB/s for SATA3	300MB/s for SATA2 600 MB/s for SATA3
	Channel	9 for SATA3	9 for SATA3	9 for SATA3	4 for SATA2, 2 for SATA3
SAS	Max. Data Transfer Rate	-	-	-	-
	Channel	-	-	-	-
Rear I/O	VGA/DVI/HDMI/DP	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -
	Ethernet	2	4 (T2 SKU)	4 (T2 SKU)	2
	USB	4 (USB 3.0)	4 (USB 3.0), 2 (USB 2.0)	2 (USB 3.0)	4 (2 x USB 3.0)
	Audio	-	-	-	-
	Parallel	-	-	-	-
	Serial	-	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	-	-	-	2
Internal Connector	DVI	-	-	-	-
	USB	5 (2 USB3.0, 2 USB2.0, 1 USB 2.0 Type-A)	5 (2 USB3.0, 4 USB2.0, 1 USB 2.0 Type-A)	5 (4 USB3.0, 4 USB2.0, 1 USB 2.0 Type-A)	9 (8 USB 2.0, 1 USB 2.0 Type-A)
	Audio	1	1	1	1
	Serial	1	1	1	1
	Parallel	-	-	-	-
	SATA	9	8	8	6
	SAS	-	-	-	-
	Compact Flash	-	-	-	-
	GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec

✓: supported, - : not supported, △: optional

Server Boards





NEW


Model Name		ASMB-913	ASMB-923	ASMB-925	ASMB-975	ASMB-935
Form Factor		EATX	EATX	EATX	Proprietary	EATX
Processor System	CPU	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® Scalable Series	Intel® Xeon® Scalable Series	Intel® Xeon® Scalable Series
	Socket	2 x socket 2011-R3	2 x socket 2011-R3	2 x socket 3647-P0	2 x socket 3647-P0	2 x socket 3647-P0
	Max. Speed	2.5 GHz	2.5 GHz	3.6 GHz	3.6 GHz	3.6 GHz
	Front Side Bus	QPI 9.6GT/s	QPI 9.6GT/s	Up to UPI 10.4 GT/s	Up to UPI 10.4 GT/s	Up to UPI 10.4 GT/s
	L3 Cache	30 MB	30 MB	38.5 MB	38.5 MB	38.5 MB
	Chipset	Intel C612	Intel C612	Intel C620	Intel C620	Intel C620
	BIOS	AMI 128 Mbit, SPI	AMI 128 Mbit, SPI	AMI 256 Mbit, SPI	AMI 256 Mbit, SPI	AMI 256 Mbit, SPI
Expansion Slot	PCI	-	-	1	-	-
	PCIe x16	4 (1 for PME)	4	5	4	5
	PCIe x8	-	2	1	1	1
	PCIe x4	-	1	-	4	-
	PCIe x1	-	-	-	-	-
Memory	Technology	DDR4 REG 2400/2133/1866/ 1600/1333 MHz DIMM	DDR4 REG 2400/2133/1866/ 1600/1333 MHz DIMM	DDR4 REG 2666/2400/2133 MHz DIMM	DDR4 REG 2666/2400/2133 MHz DIMM	DDR4 REG 2666/2400/2133 MHz DIMM
	Max. Capacity	512 GB REG DIMM	256 GB REG DIMM	384 GB REG DIMM	384 GB REG DIMM	768 GB REG DIMM
	Socket	16 x 288-pin DIMM	8 x 288-pin DIMM	12 x 288-pin DIMM	12 x 288-pin DIMM	24 x 288-pin DIMM
Graphics	Controller	AST1400/AST2400	AST1400/AST2400	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500
	VRAM	DDR3 64MB	DDR3 64MB	DDR3 64MB	DDR3 64MB	DDR3 64MB
	LCD	-	-	-	-	-
	TV-Out	-	-	-	-	-
	HDMI	-	-	-	-	-
	DVI	-	-	-	-	-
	Dual Display	-	-	-	-	-
Ethernet	Interface	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit Ethernet	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet	10/100/1000 Mbps Gigabit & 10GBase-T Ethernet
	Controller	4 x Intel I210AT	2 x Intel I210AT	2 x Intel I210AT + 1 x Intel X557-AT2	2 x Intel I210AT + 1 x Intel X557-AT2	2 x Intel I210AT + 1 x Intel X557-AT2
	Connector	RJ-45 x 4 (1 sharing IPMI function)	RJ-45 x 3 (1 for IPMI function)	RJ-45 x 4 (1 sharing IPMI function)	RJ-45 x 4 (1 sharing IPMI function)	RJ-45 x 4 (1 sharing IPMI function)
TPM		△	△	△	△	△
SATA	Max. Data Transfer Rate	600MB/s for SATA3	600MB/s for SATA3	600MB/s for SATA3	600MB/s for SATA3	600MB/s for SATA3
	Channel	8 for SATA3	10 for SATA3	8 for SATA3	14 for SATA3	10 for SATA3
SAS	Max. Data Transfer Rate	-	-	-	-	-
	Channel	-	-	-	-	-
Rear I/O	VGA/DVI/HDMI/ DP	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -	1 / - / - / -
	Ethernet	4	2	4 (T2 SKU)	4 (T2 SKU)	4 (T2 SKU)
	USB	2 (USB 3.0)	2 (USB 3.0), 2 (USB 2.0)	4 (USB 3.0)	4 (USB 3.0)	4 (USB 3.0)
	Audio	-	-	-	-	-
	Parallel	-	-	-	-	-
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	-	2	-	-	-
Internal Connector	DVI	-	-	-	-	-
	USB	7 (4 USB3.0,2 USB2.0, 1 USB 2.0 Type-A)	7 (2 USB3.0,4 USB2.0, 1 USB 2.0 Type-A)	7 (2 USB3.0, 4 USB2.0, 1 USB 2.0 Type-A)	11 (8 USB3.0, 2 USB2.0, 1 USB 2.0 Type-A)	7 (2 USB3.0, 4 USB2.0, 1 USB 2.0 Type-A)
	Audio	1	1	1	1	1
	Serial	1	1	1	1	1
	Parallel	-	-	-	-	-
	SATA	8	10	8	12	10
	SAS	-	-	-	-	-
	M.2	-	-	-	2 x M.2 2280 (SATA)	1 x M.2 2280 (SATA & PCIe)
	Compact Flash	-	-	-	-	-
	GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO	8 bit GPIO
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec	Programmable, 1 ~ 255 sec

✓: supported, - : not supported, △: optional

Server Chassis

Height (1U = 1.75")			Tower		1U	
Model Name		HPC-2040	HPC-5000	HPC-7000	HPC-7120S	HPC-7120
Form Factor Support		Mini iTX	Micro ATX	Micro ATX, ATX, EATX	Micro ATX, ATX	Micro ATX, ATX
No. of slots / No. of full-size cards		1/0	4/2 (11.73" Length)	7/6	1/0	1/0
Drive Bay	Slim ODD Bay	1	1	1	-	-
	5.25" (front-accessible)	-	-	-	-	-
	3.5" (hot-swappable)	4	-	-	-	-
	3.5" (internal)	-	2*3.5" or 1*3.5" + 1*2.5"	3 (External)	-	-
	2.5" (hot-swappable)	-	-	-	2 (HPC-7120S-35ZXE only)	2 x SATA III
	2.5" (internal)	1	2*3.5" or 1*3.5" + 1*2.5"	-	2	-
Cooling	Chassis Fan	1 (12cm / 57.2CFM)	1 (12cm / 82CFM)	2 (12cm/150CFM)	3 (4 cm/23.1 CFM)	4 (4 cm/28.6 CFM)
	Air Filter	-	✓	-	-	-
Front I/O Interface	USB 3.0	2	2	2	2	2
	USB 2.0	-	2	-	-	-
Miscellaneous	LED Indicators	Power, LAN 1, LAN 2, HDD, System Information	System: Power	System: Power	System: Power, HDD, LAN1, LAN2, System Information HDD Tray: HDD Power and Activity LED	System: Power, HDD, LAN1, LAN2, System Information HDD Tray: HDD Power and Activity LED
	Rear Panel	One reserved DB-9 ports	Two reserved DB-9 ports	Two USB reserved ports	-	-
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 122 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-Operating Temperature	-40 ~ 60 °C (-40 ~ 140 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)
	Operating Humidity	95% @ 40 °C, non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing
	Non-operating Humidity	95% @ 60 °C, non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing
Physical Characteristics	Dimensions (W x H x D)	210 x 230 x 275 mm (8.3" x 9.1" x 10.8")	192 x 376.7 x 338.5 mm (7.56" x 14.83" x 13.33")	267.1 x 458 x 500 mm (10.52" x 18.03" x 19.69")	438 x 43 x 381 mm (17.24" x 1.7" x 15")	438 x 43 x 478 mm (17.24" x 1.7" x 18.82")

✓: supported, - : not supported, △: optional

Server Chassis




Height (1U = 1.75")		1U	2U		3U / Tower
Model Name		HPC-7140	HPC-7242	HPC-7282	HPC-7320
Form Factor Support		Micro ATX, ATX	Micro ATX, ATX	Micro ATX, ATX	Micro ATX, ATX, EATX
No. of slots / No. of full-size cards		1/0	3/3	7/0	7/6
Drive Bay	Slim ODD Bay	1	1	1	1
	5.25" (front-accessible)	-	-	-	-
	3.5" (hot-swappable)	4	4 (3.5" / 2.5")	8	2 (3.5" / 2.5")
	3.5" (internal)	-	-	2	2
	2.5" (hot-swappable)	△	4 (3.5" / 2.5")	△	2 (3.5" / 2.5")
	2.5" (internal)	-	2	-	-
Cooling	Chassis Fan	4 (4cm / 24CFM)	1 (8 cm/47CFM) + 2 (6 cm/28CFM)	3 (8cm / 52.6 CFM)	2 (8cm/141.9CFM) + 1 (6cm/27.72CFM)
	Air Filter	-	✓	-	✓
Front I/O Interface	USB 3.0	-	2	-	2
	USB 2.0	2	-	2	-
Miscellaneous	LED Indicators	System: Power, HDD, LAN1, LAN2, System Information HDD Tray: HDD Power and Activity LED	System: Power, HDD, LAN1, LAN2, temperature, fan HDD Tray: HDD Power and Activity LED	System: Power, HDD, LAN1, LAN2, System Information HDD Tray: HDD Power and Activity LED	System: Power, HDD, LAN1, LAN2 HDD Tray: HDD Power and Activity LED
	Rear Panel	-	Two reserved DB-9 ports	-	Two reserved DB-9 ports
Environment	Operating Temperature	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-Operating Temperature	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)
	Operating Humidity	10 ~ 85% @ 40 °C non-condensing	10 ~ 85% @ 40 °C non-condensing	10 ~ 85% @ 40 °C non-condensing	10 ~ 85% @ 40 °C non-condensing
	Non-operating Humidity	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing
Physical Characteristics	Dimensions (W x H x D)	437 x 43.5 x 503 mm (17.2" x 1.7" x 19.85")	426.4 x 88 x 525 mm (16.79" x 3.46" x 20.67")	437 x 88.9 x 533.4 mm (17.2" x 3.5" x 21")	426.4 x 132.2 x 480 mm (16.79" x 5.2" x 18.9")

✓: supported, - : not supported, △: optional

Height (1U = 1.75")		4U / Tower			
Model Name		HPC-7000	HPC-7400	HPC-7442	HPC-7483
Form Factor Support		Micro ATX, ATX, EATX	Micro ATX, ATX, EATX	Micro ATX, ATX, EATX	Micro ATX, ATX, EATX
No. of slots / No. of full-size cards		7/6	12/12	7/7	10/10
Drive Bay	Slim ODD Bay	1	-	1	-
	5.25" (front-accessible)	-	2	-	3
	3.5" (hot-swappable)	-	-	4 can upgrade to 8 (3.5" / 2.5")	8
	3.5" (internal)	3 (External)	2 rear-accessible (3.5" / 2.5")	1	-
	2.5" (hot-swappable)	-	-	4 can upgrade to 8 (3.5" / 2.5")	-
	2.5" (internal)	-	2 rear-accessible (3.5" / 2.5")	-	2
Cooling	Chassis Fan	2 (12cm/150CFM)	3 (8cm/141.9CFM)	1 (12 cm /114 CFM) + 1 (8 cm/55 CFM)	3 (12 cm /226.5 CFM)
	Air Filter	-	✓	✓	-
Front I/O Interface	USB 3.0	2	2	2	2
	USB 2.0	-	-	-	-
Miscellaneous	LED Indicators	System: Power	System: Power, HDD, LAN1, LAN2	System: Power, HDD, LAN1, LAN2, temperature, fan HDD Tray: HDD Power and Activity LED	System: Power, HDD, LAN1, LAN2, System information HDD Tray: HDD Power and Activity LED
	Rear Panel	-	-	Five DB-9 ports and one 68-pin SCSI openings	Two DB-9 ports and two PS2 and two USB
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-Operating Temperature	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)
	Operating Humidity	10 ~ 95% @ 60 °C non-condensing	10 ~ 85% @ 40 °C non-condensing	10 ~ 85% @ 40 °C non-condensing	10 ~ 85% @ 40 °C non-condensing
	Non-operating Humidity	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing
Physical Characteristics	Dimensions (W x H x D)	267 x 458 x 500 mm (10.52" x 18.03" x 19.69")	426 x 177 x 448 mm (16.7" x 7.0" x 17.6")	426 x 177 x 600 mm (16.7" x 7.0" x 23.6")	435 x 177 x 658 mm (17.13" x 7.0" x 25.5")

✓: supported, - : not supported, △: optional

Server Chassis

Height (1U = 1.75")		1U	2U		3U	4U
Model Name		HPC-8104	HPC-8212	HPC-8224	HPC-8316	HPC-8424
Form Factor Support		Mico ATX, ATX	Mico ATX, ATX, EATX	Mico ATX, ATX, EATX	Mico ATX, ATX, EATX	Mico ATX, ATX, EATX
No. of slots / No. of full-size cards		1/0	7/0	7/0	7/6	7/6
Drive Bay	ODD Bay	1 x Ultra Slim ODD Bay	-	-	-	-
	3.5" (hot-swappable)	4 x SAS3 or SATA	12 x SAS3/SATA	-	-	-
	3.5" (internal)	-	-	-	16 x SAS3 or SATA	24 x SAS3/SATA
	2.5" (hot-swappable)	-	-	24 x SAS3/SATA +*2 (Rear)	2 (Rear)	2 (Rear)
	2.5" (internal)	2 or 3 (△)	-	-	-	-
	Expander	-	✓ (12)	✓ (24)	✓ (16 for SAS, 12 for SATA)	✓ (24)
	NVMe Support	-	✓ (4)	✓ (4)	-	✓ (4)
Cooling	Chassis Fan	5 (4cm)	4 (8cm)	4 (8cm)	4 (8cm)	4(8cm)
	Air Filter	-	-	-	-	-
Front I/O Interface	USB 3.0	2	-	-	2	-
	USB 2.0	-	2	2	-	2
Power Supply	Single Power Supply	350W, 500W	-	-	500W (TA SKU)	-
	Redudant Power Supply	-	550W, 650W, 800W	550W, 800W	550W,800W	550W, 800W
Environment	Operating Temperature	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35 °C (32 ~ 95 °F)
	Non-Operating Temperature	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)	-40 ~ 70 °C (-40 ~ 158 °F)
	Operating Humidity	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing
	Non-operating Humidity	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing	10 ~ 95% @ 60 °C non-condensing
Physical Characteristics	Dimensions (W x H x D)	438 x 43.9 x 530mm (17.24" x 1.73" x 20.9")	438 x 88.4 x 540 mm (17.24" x 3.48" x 21.26") / 438 x 88.4 x 620 mm (17.24" x 3.48" x 24.41")	438 x 88.4 x 540 mm (17.24" x 3.48" x 21.26") / 438 x 88.4 x 620 mm (17.24" x 3.48" x 24.41")	435 x 132 x 540 mm (17.13 x 5.2 x 21.26") / 435 x 132 x 620 mm (17.13 x 5.2 x 24.41")	438 x 176 x 540 mm (17.24" x 6.93" x 21.26") / 438 x 176 x 620 mm (17.24" x 6.93" x 24.41")

* R6A1E SKU support additional rear 2 Hot-swap 2.5"

✓: supported, - : not supported, △: optional

3 Intelligent System

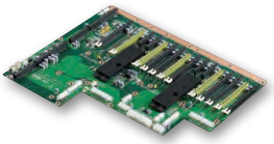
Full Range of Industrial Computers and Integration Services for Automation Applications

Overview

Advantech delivers a full range of industrial computers for versatile applications in the automation field. Offering sophisticated system integration services, from customization, integration, validation, and certification, we provide a one-stop solution for rugged systems to customers who require a trusted partner to maximize their solutions.

PICMG Single Board Computers

Advantech's slot CPU cards deliver a variety of solutions for industrial and embedded applications. Offering a complete selection of standard PICMG 1.0/1.3 full-size, as well as half-size SBCs, these scalable product lines have flexible I/O and great expandability, from ISA and PCI, to PCI Express. Industrial, slot-hungry demands can be easily accommodated with Advantech's full range of backplanes, chassis, and peripheral support.



Passive Backplanes

A wide range of Advantech backplanes are available for PICMG 1.0/1.3 SBCs. They range from two to twenty slots and allow optimal system configurations with flexible combinations of ISA, 32-bit / 64-bit PCI and PCIe slots. Our strict design policy makes it easy for customers to create solutions that ensure system compatibility. Advantech also provides a low-cost, yet professional design service that tailors backplanes to meet expansion requirements within a short time frame.

Industrial Motherboards

Advantech provides a complete range of industrial motherboards in various form factors, from performance-rich ATX to best price/performance MicroATX and ultra compact highly integrated Mini-ITX. These motherboards are highly integrated and deliver advanced features like multi-core processing and PCI Express technology. They are suited for demanding industrial applications that require seamless upgrades, long term support, proven reliability and strict revision control.

Industrial Computer Chassis

Advantech offers a complete selection of industrial computer chassis from 1U to 6U rackmount, to wall-mountable solutions, designed to support a variety of industrial-grade motherboard/single board computer (SBC) form factors, such as ATX, MicroATX, PICMG 1.0/1.3, and full-size/half-size SBC. Chassis include a range of features such as redundant power supply, hot swappable accessories, storage, and cooling options. High-end models with built in intelligent system modules enable system health self diagnosis, smart fan control, and remote management with WISE-PaaS/RMM or SNMP sub agent.

CompactPCI Platforms

Advantech offers industrial CompactPCI solutions which feature front-end access, high shock and vibration tolerance characteristics, automatic cooling system, fault resilience, and hot swap capabilities. These features make our CompactPCI series the most reliable PC-based computing platform for mission-critical applications.

Industrial Computer Peripherals

Advantech IPC peripherals can integrate with various modules including IPMI, TPM, power supplies and versatile rackmount/wallmount peripherals. They can help system integrators build easy-to-operate computer systems.

Applications

Automated Optical Inspection (AOI)

Automated optical inspection provides high speed production and helps manufacturers improve efficiency. Advantech AIIS series with compatible Basler and Pointgrey cameras, multiple PoE, USB3, and rich I/O Interface ensures product quality and safety.

Factory Automation

Factory automation counts on immediate information monitoring to achieve just-in-time manufacture. Advantech WebAccess, a 100% web-based SCADA software with excellent networking capabilities, provides powerful remote monitoring and control functions. Through WebAccess web structure, users can develop a central database from project node to SCADA node via Internet or Intranet.

Machine Diagnostic

The graphical control interface makes it easy to monitor machine status in real time, and develop an effective, dynamic, preventive maintenance solution that ensures increased equipment reliability and stable overall operation.

Automatic Test Equipment & Data Acquisition (DAQ)

Quality control systems have become very expensive in recent years, creating a demand for more cost-effective alternatives. Along with automatic testing and inspection systems, Advantech's products help reduce human error and accelerate time to market.

Start your Business with an IPC Expert

Tool-less thumb screws

Lockable door, flexible with-or-without key

Front-accessible fan without opening top cover

Small footprint chassis design for better work field layout arrangement

PICMG 1.3 System Host Boards



Model Name		LGA1150 PICMG 1.3 SHB	LGA1151 PICMG 1.3 SHB	LGA1151 PICMG 1.3 SHB
		PCE-5128	PCE-5029	PCE-5129
Processor System	CPU	Intel® Core™ i7/Core™ i5/Core™ i3 LGA1150 Processors	Intel® Core™ i7/Core™ i5/ Core™ i3 LGA1151 Processors	Intel® Core™ i7/Core™ i5/Core™ i3 LGA1151 Processors
	Max. Speed	3.1 GHz	3.4 GHz	3.4 GHz
	Cache	Up to 8 MB (Depends on CPU)	Up to 8 MB (Depends on CPU)	Up to 8 MB (Depends on CPU)
	Chipset	Intel® Q87	Intel® H110	Intel Q170
	BIOS	AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash
Backplane Bus	PCIe	PICMG1.3: One x16 & Four x1	PICMG1.3: One x16 & Four x1	PICMG1.3: One x16 & Four x1
	PCI (32bit/33 MHz)	4	4	4
Memory	Technology	Dual-channel (Non-ECC) DDR3 1333/1600	Dual-channels (Non-ECC) DDR4 1866/2133	Dual-channels (Non-ECC) DDR4 1866/2133
	Max. Capacity	16 GB	32 GB	32 GB
	Socket	240-pin DIMM x 2	2 x 288-pin DIMM	2 x 288-pin DIMM
Graphics	Controller	Chipset integrated Intel® HD Graphics	Chipset integrated Intel® HD Graphics	Chipset integrated Intel® HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
	Video Out	VGA/DVI-D/DVI-D (Optional DVI-D cable)	G2: VGA+DP/DVI (Optional DVI-D/DP cable) VG: VGA	VGA+DP/DVI-D+DP/DVI-D
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	LAN1/LAN2 Controller	Intel® I217LM/I211AT	LAN1: I219-V LAN2: I211-AT (G2 only)	Intel I219LM/I211
	Connector	RJ45 X 2	G2: 2 VG: 1	RJ45 x 2
	Disable in BIOS	✓	✓	✓
SATA	Max. Date Transfer Rate	600 MB/s SATA3.0	600 MB/s SATA3.0	600 MB/s SATA3.0
	Channel	6 x SATA3.0	4 x SATA3.0	5 x SATA3.0
	S/W Raid	0, 1, 5, 10	-	0, 1, 5, 10
Rear I/O	VGA	1	1	1
	Ethernet	2	G2: 2 VG: 1	2
	USB2.0	0	-	0
	USB3.0	1	G2: 1 VG: -	1
	PS/2	1	1	1
	Serial		G2: - VG: 1	-
Internal I/O	USB 2.0	9 USB 2.0 (Pin-Header x 4 + USB Type A x 1 + 4 on backplane)	7 USB 2.0 (Pin-header x 2+USB Type A x 1+ 4 on backplane)	7 USB2.0 (Pin-header x 2+USB Type A x 1+ 4 on backplane)
	USB 3.0	2 USB3.0 (Pin-Header)	2 USB3.0 (Pin header)	4 USB3.0 (Pin header)
	SATA	6	4	5
	M.2 (2280 Type M)	-	-	1 (Shared w/ SATA0 port)
	Serial	2 RS-232 (Pin-Header)	G2: 2 VG: 1	2 RS-232 (Pin-Header)
	Parallel	1(SPP/EPP/ECP)	1	1
	PS/2	1	1	1
	OBS(Onboard Security Hardware Monitor)	✓	✓	✓
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programable, 1~255 sec/min	Programable, 1~255 sec	Programable, 1~255 sec/min
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDA1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SNMP-1000	✓	-	✓
	Advantech SAB-2000	✓	G2: ✓ VG: -	✓
	Advantech IPMI Module	-	-	-
	AMT	✓	-	✓

✓: supported, - : not supported, △: optional

LGA1150 PICMG 1.3 SHB	LGA1151 PICMG 1.3 SHB	LGA2011 PICMG 1.3 SHB
PCE-7128	PCE-7129	PCE-9228
Intel® Xeon® and Core™ i7/Core™ i5/Core™ i3 LGA1150 Processors	Intel® Xeon and Core™ i7/Core™ i5/Core™ i3 LGA1151 Processors	Intel Xeon E5-2600 v3 series LGA2011 Processors
3.5 GHz	3.6 GHz	2.5 GHz
Up to 8 MB (Depends on CPU)	Up to 8 MB (Depends on CPU)	Up to 30 MB (Depends on CPU)
Intel® C226	Intel C236	Intel C612
AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash
One x16/ Two x8 & Four x1	PICMG1.3: One x16 / Two x8 & Four x1	PICMG1.3: One x16/ Two x8 & Four x1 Expansion (ODM optional): 64 lanes
4	4	4
Dual-channel (ECC) DDR3 1333/1600	Dual-channels (ECC) DDR4 1600/1866/2133	Quard-channels ECC-Register DDR4 1600/1866/2133
16 GB	32 GB	256 GB
240-pins DIMM x 2	2 x 288-pins DIMM	288-pins DIMM x 8
Chipset integrated Intel® HD Graphics	Chipset integrated Intel® HD Graphics	AST1400/AST2400
Shared system memory is subject to OS	Shared system memory is subject to OS	DDR3 64MB
VGA/DVI-D/DVI-D (Optional DVI-D cable)	VGA+DP/DVI-D+DP/DVI-D	VGA
10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Intel® I217LM/I210AT	Intel I219LM/I210AT	Intel I210AT/I210AT
RJ45 x 2	RJ45 x 2	RJ45 x 2
✓	✓	Lan1: -; Lan2: ✓
600 MB/s SATA3.0	600 MB/s SATA3.0	600 MB/s SATA3.0
6 x SATA3.0	5 x SATA3.0	8 x SATA3.0
0, 1, 5, 10	0, 1, 5, 10	0, 1, 5, 10
1	1	1
2	2	3(IPMI occupy 1 LAN)
0	0	2
1	1	2
1	1	1
-	-	-
9 USB 2.0 (Pin-Header x 4 + USB Type A x 1 + 4 on backplane)	7 USB2.0 (Pin-header x 2+USB Type A x 1+ 4 on backplane)	4 USB 2.0 (On backplane)
2 USB3.0 (Pin-Header)	4 USB3.0 (Pin header)	2 USB3.0 (Pin-Header)
6	5	8
-	1 (Shared w/ SATA0 port)	-
2 RS-232(Pin-Header)	2 RS-232(Pin-Header)	1 RS-232(Pin-Header)
1(SPP/EPP/ECP)	1	-
1	1	-
✓	✓	✓
System reset	System reset	System reset
Programable, 1~255 sec/min	Programable, 1~255 sec/min	Programable, 1~255 sec/min
PCA-AUDIO-HDA1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDA1E
✓	✓	✓
✓	✓	✓
✓	-	✓
✓	✓	-

PICMG 1.0 Single Board Computers

Model Name		Core™ 2 Quad PICMG 1.0 SBC	LGA1150 PICMG 1.0 SBC
		PCA-6011	PCA-6028
Processor System	CPU	Intel® Core™ 2 Quad/Core™ 2 Duo/ Pentium dual-Core™/Celeron LGA775 processors	Intel Core i7/i5/i3/Pentium LGA 1150 Processors
	Max. Speed	3.16 GHz	3.2GHz
	Max. L2 Cache	Up to 12 MB (Depend on CPU)	Up to 8MB
	Chipset	Intel® G41 + ICH7 (VG version only) Intel® G41 + ICH7R (G2 version only)	Intel H81
	BIOS	AMI 16 Mb SPI Flash	AMI 128Mbit SPI Flash
	FSB	1333/1066/800 MHz	-
Bus	PCI	32-bit/33 MHz PCI	32 bit/33 MHz PCI
	ISA	HISA (ISA High Drive)	HISA (ISA High Driver)
Graphics	Controller	Chipset integrated Intel® Graphics Media Accelerator X4500	Chipset integrated Intel HD Graphics
	VRAM	Shared with system memory up to 352 MB	Shared system memory is subject to OS
	LCD/DVI	DVI (Optional)	DVI (G2 version only)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel® 82583V LAN2: Intel® 82583V	LAN 1: Intel I217V LAN 2: Intel I211 (Only in G2 Sku)
	Connector	RJ-45 x 2	RJ45 x 1 (VG sku); RJ45 x 2 (G2 sku)
	Disabled in BIOS	✓	✓
Memory	Technology	Dual-channel DDR3 1066/800 MHz	Dual channel (Non-ECC) DDR3 1333/1600 MHz
	Max. Capacity	8 GB	16 GB (8 GB per DIMM)
	Socket	240-pin DIMM x 2	DDR3 240-pin DIMM x 2
SATA	Max. Data Transfer Rate	300 MB/s	600 MB/s
	Channel	4	4 (1x SATA2.0, 2x SATA3.0, 1x mSATA)
	RAID	0, 1, 5, 10 (G2 version only)	-
EIDE	Mode	ATA 100/66/33	-
	Channel	1 (Max. two devices)	-
I/O Interface	USB	8 (USB 2.0, for VG version) 7 (USB 2.0, for G2 version)	Up to 8 x USB2.0 (6x pin header, 1x type A, 1x rear in G2 sku only) 2x USB3.0 (Pin header)
	Serial	2 (RS-232)	2 RS-232 (Pin-Header)
	Parallel	1 (SPP/EPP/ECP)	1
	FDD	1	-
	PS/2	1	1
	LAN	1 (for VG version) 2 (for G2 version)	1 (for VG version) 2 (for G2 version)
	OBS (Hardware Monitor)	✓	✓
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable, 1~255 sec	Programmable, 1~255 sec
Miscellaneous	Audio	PCA-AUDIO-HDA1E	PCA-AUDIO-HDA1E
	Advantech SNMP-1000-B	✓	✓
	Advantech SAB-2000	✓	✓
	Solid State Disk	(Optional)	mSATA

✓: supported, - : not supported, △: optional

Half-Size Single Board Computers

Specifications		PCIe Half-Size SBC	
		PCE-3028	PCE-4128
Processor System	CPU	Intel Core i7/i5/i3/Pentium LGA 1150 Processor	Intel Xeon E3 1200v3 series, Core i7/i5/i3 LGA1150 processors
	Speed	Up to 3.5 GHz	up to 3.5GHz
	L2 Cache	Up to 8MB	up to 8MB
	Chipset	Intel H81	Intel C226
	BIOS	AMI 128 Mbit SPI Flash	AMI 128Mbit SPI Flash
	FSB	-	-
Bus	PCIe	One PCIex16, Four PCIex1	One PCIe x16/Two PCIe x8, Four PCIe x1
	PCI	-	-
	ISA	-	-
Graphics	Controller	Chipset integrated graphics with Intel HD	GT2 P4600/GT2 4600/GT1 HD graphics
	VRAM	Shared with system memory is subject to OS	Shared system memory is subject to OS
	Video output	D-sub VGA port, DVI	VGA, DP, CRT
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel® I217V LAN2: Intel® I211AT	LAN1: Intel I217LM, LAN2: I210AT
	Connector	RJ-45 x2	RJ-45 x2
	Disabled in BIOS	✓	-
Memory	Technology	Dual-channel DDR3 1066/1333/1600 MHz	Dual channel DDR3 ECC 1066/1333/1600 MHz(ECC function enable depends on processor support)
	Max. Capacity	16 GB	16 GB
	Socket	204-pin SODIMM x2	DDR3 204-pin SO-DIMM x2
SATA	Max. Data Transfer Rate	600 MB/s, 300 MB/s	600 MB/sec
	Channel	4	4
	RAID	-	0,1,5,10
EIDE	Mode	-	-
	Channel	-	-
I/O Interface	USB	2 USB 3.0 + 7 USB 2.0	3 USB 3.0, 7 USB 2.0
	Serial	2 x RS-232 Optional: 4x RS-422/485 w/Auto-flow or 4 x RS-232 by COM module	2 x RS-232, Optional: RS-422/485 x4 or RS-232 x4 via module.
	Parallel	1	1
	FDD	-	0
	PS/2	1	1
	LAN	2	2
	OBS (Onboard Security Hardware Monitor)	-	-
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable 1-255 sec	Programmable 1-255 sec
Miscellaneous	Audio	PCA-AUDIO-HDA1E	PCA-AUDIO-HDA1E
	Advantech SNMP-1000	-	-
	IPMI	-	-
	Solid State Disk	-	-

✓: supported, - : not supported, △: optional

Half-Size Single Board Computers



Specifications		PCIe Half-Size SBC		PCI Half-Size SBC
		PCE-3029	PCE-4129	PCI-7032
Processor System	CPU	Intel Core i7/i5/i3/Pentium LGA 1151 Processor	Intel Xeon E3-1200v5 series, Core i7/i5/ i3 LGA1151 processors	Intel Celeron J1900/N2930
	Speed	Up to 3.7 GHz	Up to 3.7 GHz	2.00/1.83 GHz
	L2 Cache	Up to 8 MB	Up to 8 MB	2MB/2MB
	Chipset	Intel H110	Intel C236	Intel Celeron J1900/N2930 SOC
	BIOS	AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash	AMI 64 Mbit SPI Flash
	FSB	-	-	-
Bus	PCIe	One PCIe x16, Four PCIe x1	One PCIe x16 or Two PCIe x8, Four PCIe x1	One PCIe x 1 (F SKU) Only
	PCI	-	-	32-bit/33 MHz PCI
	ISA	-	-	-
Graphics	Controller	Chipset integrated graphics with Intel HD	Chipset integrated graphics with Intel HD	Chipset integrated graphics with Intel® HD
	VRAM	Shared with system memory is subject to OS	Shared with system memory is subject to OS	Shared with system memory is subject to OS
	Video output	VGA, DVI, DP	VGA, DVI, DP	D-sub VGA port, 48-bit LVDS, DVI
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel® I219V LAN2: Intel® I211AT	LAN1: Intel® I219LM LAN2: Intel® I210AT	LAN1: Intel® I211 LAN2: Intel® I211
	Connector	RJ-45 x2	RJ-45 x2	RJ-45 x 2
	Disabled in BIOS	✓	✓	✓
Memory	Technology	Dual-channel DDR4 1866/2133 MHz	Dual channel DDR4 ECC 1866/2133 MHz (ECC function enable depends on processor support)	Dual-Chnnel DDR3L 1333
	Max. Capacity	32 GB	32GB	8GB (for G2/F SKU) 4GB (for VG SKU)
	Socket	260-pin SODIMM x2	260-pin SO-DIMM X2	204-pin SODIMM x 2 (for G2/F SKU) 204-pin SODIMM x 1 (for VG SKU)
SATA	Max. Data Transfer Rate	600MB/s	600MB/s	300 MB/s
	Channel	4	4	2 (SATA 2 can change mSATA)
	RAID	-	0,1,5,10	-
EIDE	Mode	-	-	-
	Channel	-	-	-
I/O Interface	USB	3 USB 3.0 + 7 USB 2.0	3 USB 3.0 + 7 USB 2.0	1 USB 3.0 + 6 USB 2.0 (for G2/F SKU) 1 USB 3.0 + 5 USB 2.0 (for VG SKU)
	Serial	2 x RS-232 Optional: 4x RS-422/485 w/Auto-flow or 4 x RS-232 by COM module	2 x RS-232 Optional: 4x RS-422/485 w/auto-flow or 4 x RS232 by COM module	4 x RS-232/422/485 (for G2/F SKU) 2 x RS-232/422/485 (for VG SKU) Optional: 4 x RS-422/485 w/Auto-flow or 4 RS-232 by COM module
	Parallel	1	1	1
	FDD	-	-	-
	PS/2	1	1	1
	LAN	2	2	2 (for G2/F SKU) 1 (for VG SKU)
	OBS (Onboard Security Hardware Monitor)	✓	✓	✓ (G2 SKU only)
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable 1-255 sec	Programmable 1-255 sec	Programmable, 1~255 sec/min
Miscellaneous	Audio	PCA-AUDIO-HDB1E	PCA-AUDIO-HDA1E	PCA-AUDIO-HDB1E
	Advantech SNMP-1000	-	-	-
	IPMI	-	-	-
	Solid State Disk	mSATA x 1	mSATA x 1	mSATA x 1

✓: supported, - : not supported, △: optional



ISA Half-Size SBC		
PCA-6763	PCA-6742	PCA-6743
AMD G-Series APU T16R/T40E	Advantech EVA-X4300	DM&P Vortex86DX
615 MHz/1GHz	300 MHz	800 MHz
512 KB	L1 Cache 32 KB	256 KB
AMD A55E	Advantech EVA-X4300	DM&P Vortex86DX
AMI 32 Mbit SPI Flash	Award integrated 256 KB ROM in EVA-X4300	Award integrated 256 KB ROM in Vortex86DX
-	-	-
-	-	-
-	-	-
16-bit ISA Bus	8/16-bit 8 MHz ISA	16-bit ISA Bus
Radeon HD 6250	SMI 712 graphic controller	SMI 712 graphic controller
Shared with system memory up to 384MB	4 MB display memory	4 MB display memory
D-sub VGA port, LVDS (48-bit for G2 SKU, 18-bit for VG SKU), DVI	D-Sub VGA port, 18/24 bit TTL or 18/24 bit LVDS (optional)	D-Sub VGA port, up to 24 bit TTL or 18 bit LVDS (optional)
10/100/1000 Mbps	10/100 Mbps	10/100 Mbps
LAN1: Realtek RTL8111E-VL-CG LAN2: Realtek RTL8111E-VL-CG	Realtek RTL8100CL	LAN on Vortex86DX
RJ-45 x 2	RJ-45 x 1	RJ-45 x 1
✓	✓	✓
Onboard 1GB DDR3 1066 MHz SODIMM DDR3 1066 MHz up to 4GB	Default onboard DDR 2 166MHz	Default onboard DDR2 (for VE SKU) Default onboard DDR2 (for F SKU)
5GB	128 MB	256 MB (for VE SKU) 512 MB (for F SKU)
204-pin SODIMM x 1	-	-
300 MB/s	-	150 MB/s
4	-	1 (for F SKU)
-	-	-
-	UDMA 100	UDMA 100
-	1 (Max. 2 devices)	1 (Max. 2 devices)
7 USB 2.0 (for G2 SKU) 6 USB 2.0 (for VG SKU)	4 USB 2.0	4 USB 2.0
2 x RS-232 Optional: 4 x RS-422/485 w/Auto-flow by COM module	1 x RS-232/422/485 3 x RS-232	F SKU: 2 x RS-232/422/485 & 2 x RS-232 VE SKU: 2 x RS-232
1	1	1
1	-	1
1	1	1
2 (for G2/F SKU) 1 (for VG SKU	1 (VE)	1
-	-	-
System reset	System reset/IRQ11	System reset/IRQ11
Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min
PCA-AUDIO-HDA1E	-	-
-	-	-
-	-	-
mSATA x 1	CompactFlash Type I/II	CompactFlash Type I/II

PICMG1.3 Full-Size SHB Backplanes

Server Grade: Compatible with PCE-7000 Series CPU Boards

Category	Model Name	PCIe				PCI-X			PCI
		x16	x8	x4	x1	64/66	64/100	64/133	32/33
2U Butterfly BP	PCE-7B06V-04A1E	-	1	-	-	-	-	-	4
8 slots BP	PCE-7B08-04A1E	-	2	1	-	-	-	-	4
14 slots BP	PCE-7B09R-04A1E	-	1	3	-	-	-	-	4
	PCE-7B10-04A1E	-		5	-	-	-	-	4
	PCE-7B13-64C1E	-	2	-	-	4	2	-	4
	PCE-7B13-07A1E	-	2	3	-	-	-	-	7
	PCE-7B13D-04A1E	-	1, 2	-	-	-	-	-	4
20 slots BP	PCE-7B17-00A1E	-	5	11	-	-	-	-	-

Category	Model Name	Wallmount/Desktop Chassis			
		IPC-6025	IPC-6606	IPC-6806(W)	IPC-6608
2U Butterfly BP	PCE-7B06V-04A1E	-	-	-	-
8 slots BP	PCE-7B08-04A1E	-	-	-	✓
14 slots BP	PCE-7B09R-04A1E	-	-	-	-
	PCE-7B10-04A1E	-	-	-	-
	PCE-7B13-64C1E	-	-	-	-
	PCE-7B13-07A1E	-	-	-	-
	PCE-7B13D-04A1E	-	-	-	-
20 slots BP	PCE-7B17-00A1E	-	-	-	-

Category	Model Name	Rackmount Chassis													
		ACP-1010	ACP-1320	ACP-2000EBP	IPC-602EBP	IPC-510	IPC-610	IPC-611	ACP-4000	ACP-4010	ACP-4320	ACP-4340	ACP-4360	IPC-623	IPC-622
		2-slot / 1U		6-slot / 2U		15-slot / 4U								20-slot/ 4U	20-slot/ 6U
2U Butterfly BP	PCE-7B06V-04A1E	-	-	✓	✓	-	-	-	-	-	-		-	-	-
8 slots BP	PCE-7B08-04A1E	-	-	-	-	-	-	-	-	-	-		-	-	-
14 slots BP	PCE-7B09R-04A1E	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	PCE-7B10-04A1E	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	PCE-7B13-64C1E	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	PCE-7B13-07A1E	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	PCE-7B13D-04A1E	-	-	-	-	-	-	-	-	✓	-	-	-	-	-
20 slots BP	PCE-7B17-00A1E	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓

Desktop: Compatible with PCE-5000 Series CPU Boards

Category	Model Name	PCIe				PCI-X			PCI
		x16	x8	x4	x1	64/66	64/100	64/133	32/33
1U Butterfly BP	PCE-5B03V-01A1E	1	-	-	-	-	-	-	1
	PCE-5B03V-00A1E	1		1	-	-	-	-	-
2U Butterfly BP	PCE-5B05V-30B1E	1	-	-	-	-	2	1	-
	PCE-5B06V-00A1E	1	-	-	4	-	-	-	-
	PCE-5B06V-04A1E	1	-	-	-	-	-	-	4
5 slot BP	PCE-5B04-20B1E	1	-	-	-	-	-	2	-
	PCE-5B05-02A1E	1	-	1	-	-	-	-	2
	PCE-5B05-03A1E	1	-	-	-	-	-	-	3
	PCE-5B05-04A1E	-	-	-	-	-	-	-	4
6 slot BP	PCE-5B06-00A1E	1	-	-	4	-	-	-	-
	PCE-5B06-03A1E	1	-	1	-	-	-	-	3
	PCE-5B06-04A1E	1	-	-	-	-	-	-	4
8 slot BP	PCE-5B07-04A1E	1	-	1	-	-	-	-	4
	PCE-5B08-02A1E	1	-	-	4	-	-	-	2
10 slot BP	PCE-5B09-04A1E	1	-	3	-	-	-	-	4
	PCE-5B09-06A1E	1	-	1	-	-	-	-	6
14 slot BP	PCE-5B10-04A1E	1	-	-	4	-	-	-	4
	PCE-5B12-07A1E	1	-	3	-	-	-	-	7
	PCE-5B12-64C1E	1	-	-	-	4	2	-	4
	PCE-5B13-08A1E	1	-	-	3	-	-	-	8
	PCE-5B12D-04A1E	1	-	-	-	-	-	-	4
20 slot BP	PCE-5B12-00A1E	10	-	1	-	-	-	-	-
	PCE-5B16Q-02A1E	1	-	-	-	-	-	-	2
	PCE-5B18-88B1E	1	-	-	-	8	-	-	8
	PCE-5B19-00A1E	17	-	1	-	-	-	-	-

Category	Model Name	Wallmount/Desktop Chassis					
		IPC-6025	IPC-6606	IPC-6806	IPC-6806W	IPC-6608	IPC-7132
1U Butterfly BP	PCE-5B03V-01A1E	-	-	-	-	-	-
	PCE-5B03V-00A1E	-	-	-	-	-	-
2U Butterfly BP	PCE-5B05V-30B1E	-	-	-	-	-	-
	PCE-5B06V-00A1E	-	-	-	-	-	-
	PCE-5B06V-04A1E	-	-	-	-	-	-
5 slot BP	PCE-5B04-20B1E	✓	-	-	-	-	-
	PCE-5B05-02A1E	✓	-	-	-	-	-
	PCE-5B05-03A1E	✓	-	-	-	-	-
	PCE-5B05-04A1E	✓	-	-	-	-	-
6 slot BP	PCE-5B06-00A1E	-	✓	-	✓	-	-
	PCE-5B06-03A1E	-	✓	-	✓	-	-
	PCE-5B06-04A1E	-	✓	-	✓	-	-
8 slot BP	PCE-5B07-04A1E	-	-	-	-	✓	-
	PCE-5B08-02A1E	-	-	-	-	✓	-
10 slot BP	PCE-5B09-04A1E	-	-	-	-	-	✓
	PCE-5B09-06A1E	-	-	-	-	-	✓
14 slot BP	PCE-5B10-04A1E	-	-	-	-	-	-
	PCE-5B12-07A1E	-	-	-	-	-	-
	PCE-5B12-64C1E	-	-	-	-	-	-
	PCE-5B13-08A1E	-	-	-	-	-	-
	PCE-5B12D-04A1E	-	-	-	-	-	-
20 slot BP	PCE-5B12-00A1E	-	-	-	-	-	-
	PCE-5B16Q-02A1E	-	-	-	-	-	-
	PCE-5B18-88B1E	-	-	-	-	-	-
	PCE-5B19-00A1E	-	-	-	-	-	-

✓: supported, - : not supported, △: optional

PCI/ISA Backplanes

Selection Guide

Yes: supported/- : not supported/△ : optional

Category	Model Name	Slot per segment					Segment	AT	ATX	1U Chassis		2U Chassis		4U Chassis		
		ISA	PCI	PICMG	PICMG/PCI	ISA/PCI				ACP-1010	ACP-1320	ACP-2000	IPC-602	IPC-510	IPC-610	IPC-611
										2-slot	2-slot	6-slot	6-slot	15-slot	15-slot	15-slot
1U Butterfly BP	PCA-6103P2V-0A2E*	-	2	1	-	-	1	-	✓	✓	✓	-	-	-	-	-
2U Butterfly BP	PCA-6105P4V-0B3E*	-	4	1	-	-	1	-	✓	-	-	✓	✓	-	-	-
	PCA-6106P3V-0B2E*	1	3	2	-	-	1	✓	✓	-	-	✓	✓	-	-	-
5 Slot BP	PCA-6105P3-5A1E	1	2	1	-	1	1	-	✓	-	-	-	-	-	-	-
6/8 Slot BP	PCA-6106P4-0A2E	-	4	2	-	-	1	✓	✓	-	-	-	-	-	-	-
	PCA-6106P3-0D2E	2	2	1	1	-	1	✓	✓	-	-	-	-	-	-	-
	PCA-6108P6-0C1E	1	5	1	1	-	1	✓	✓	-	-	-	-	-	-	-
	PCA-6108P4-0C2E	3	3	1	1	-	1	✓	✓	-	-	-	-	-	-	-
	PCA-6108-0B2E	8	-	-	-	-	1	✓	✓	-	-	-	-	✓	✓	✓
14/15 Slot BP	PCA-6114P12-0B3E	1	11	1	1	-	1	✓	✓	-	-	-	-	✓	✓	✓
	PCA-6114P10-0B2E	2	10	2	-	-	1	✓	✓	-	-	-	-	✓	✓	✓
	PCA-6114P7-0E1E	4	6	3	-	1	1	✓	✓	-	-	-	-	✓	✓	✓
	PCA-6114P4-0C2E	8	4	2	-	-	1	✓	✓	-	-	-	-	✓	✓	✓
	PCA-6113P4R-0C2E	7	4	2	-	-	1	✓	✓	-	-	-	-	✓	✓	✓
	PCA-6114-0B2E	14	-	-	-	-	1	✓	✓	-	-	-	-	-	-	-
	PCA-6113DP4-0A2E	1	3,4	1,2	1,0	-	2	✓	✓	-	-	-	-	-	-	-
20 Slot BP	PCA-6120P18-0A2E	1	17	1	1	-	1	✓	△	-	-	-	-	-	-	-
	PCA-6120P4-0B2E	14	4	2	-	-	1	✓	△	-	-	-	-	-	-	-
	PCA-6120P12-0A2E	7	11	1	1	-	1	✓	△	-	-	-	-	-	-	-
	PCA-6119P7-0C1E	10	7	2	-	-	1	✓	△	-	-	-	-	-	-	-
	PCA-6120Q-0B2E	5	-	-	-	-	4	✓	△	-	-	-	-	-	-	-

Category	Model Name	4U Chassis						6U Chassis	Wallmount/Desktop Chassis				Cage
		ACP-4000	ACP-4010	ACP-4320	ACP-4340	ACP-4360	IPC-623	IPC-622	IPC-6608	IPC-6606	IPC-6806/ IPC-6806W	IPC-6025	IPC-6006
		15-slot	15-slot	15-slot	15-slot	15-slot	20-slot	20-slot	8-slot	6-slot	6-slot	5-slot	6-slot
1U Butterfly BP	PCA-6103P2V-0A2E*	-	-	-	-	-	-	-	-	-	-	-	-
2U Butterfly BP	PCA-6105P4V-0B3E*	-	-	-	-	-	-	-	-	-	-	-	-
	PCA-6106P3V-0B2E*	-	-	-	-	-	-	-	-	-	-	-	-
5 Slot BP	PCA-6105P3-5A1E	-	-	-	-	-	-	-	-	-	-	✓	-
6/8 Slot BP	PCA-6106P4-0A2E	-	-	-	-	-	-	-	-	✓	✓	-	✓
	PCA-6106P3-0D2E	-	-	-	-	-	-	-	-	✓	✓	-	✓
	PCA-6108P6-0C1E	-	-	-	-	-	-	-	✓	-	-	-	-
	PCA-6108P4-0C2E	-	-	-	-	-	-	-	✓	-	-	-	-
14/15 Slot BP	PCA-6114P12-0B3E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6114P10-0B2E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6114P7-0E1E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6114P4-0C2E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6113P4R-0C2E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6114-0B2E	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
	PCA-6113DP4-0A2E	-	✓	-	-	-	-	-	-	-	-	-	
20 Slot BP	PCA-6120P18-0A2E	-	-	-	-	-	✓	✓	-	-	-	-	-
	PCA-6120P4-0B2E	-	-	-	-	-	✓	✓	-	-	-	-	-
	PCA-6119P7-0C1E	-	-	-	-	-	✓	✓	-	-	-	-	-
	PCA-6119P7-0B3E	-	-	-	-	-	✓	✓	-	-	-	-	-
	PCA-6120Q-0B2E	-	-	-	-	-	✓	✓	-	-	-	-	-

Remarks:
* : only compatible with Advantech's 1U/2U chassis

✓: supported, - : not supported, △: optional

Backplanes Compatible with Half-Size SBCs

Selection Guide

Interface	Category	Model Name	Slots per segment							Segment
			ISA	PCI	PCIe x16	PCIe x 8	PCIe x4	PCIe x1	PICMG	
Pure ISA Backplane	-	PCA-6104-0C2E	3	-	-	-	-	-	1	1
	6-slot	PCA-6106-0B2E	5	-	-	-	-	-	1	1
	-	PCA-6108-0B2E *	7	-	-	-	-	-	1	1
	8-slot	PCA-6108E-0C2E	7	-	-	-	-	-	1	1
Pure PCI Backplane	-	PCA-6104P4-0B2E	-	3	-	-	-	-	1	1
	6-slot	PCA-6105P5-0B2E	-	4	-	-	-	-	1	1
	8-slot	PCA-6108P8-0A2E	-	7	-	-	-	-	1	1
PCI/PCIe Backplane	1U	PCI-7103P1V-01A1E	-	1	-	-	1	-	1	1
PICMG1.3 Half-Size Backplanes	6-slot	PCE-3B03-00A1E	-	-	1	-	1	-	1	1
	6-slot	PCE-3B06-00A1E	-	-	1	-	-	4	1	1
	6-slot	PCE-3B06-03A1E	-	3	1	-	-	1	1	1
	6-slot	PCE-3B06-02A1E	-	2	1	-	-	2	1	1
	3-slot	PCE-3B03A-00A1E	-	-	1	-	1	-	1	1
	3-slot	PCE-3B03-01A1E	-	1	1	-	-	-	1	1
	14-slot	PCE-3B12-08A1E	-	8	1	-	-	2	1	1
	14-slot	PCE-4B13-08A1E	-	8	-	2	-	2	1	1
	14-slot	PCE-4B12-03A1E	-	3	-	1	4	3	1	1
	14-slot	PCE-4B13-00A1E	-	-	-	1	11	-	-	-

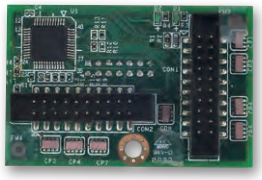
Interface	Model Name	AT	ATX	ACP-4020	ACP-4D00	IPC-6806S*	IPC-6006S	IPC-3026	IPC-3012
				Rackmount	Rackmount	Wallmount	Wallmount	Wallmount	Wallmount
				14-slot	6-slot	6-slot	6-slot	6-slot	3-slot
Pure ISA Backplane	PCA-6104-0C2E	✓	✓	-	-	-	-	-	-
	PCA-6106-0B2E	✓	✓	-	-	✓	✓	✓	-
	PCA-6108-0B2E	✓	✓	-	-	-	-	-	-
	PCA-6108E-0C2E	✓	✓	-	-	-	-	-	-
Pure PCI Backplane	PCA-6104P4-0B2E	✓	✓	-	-	-	-	-	-
	PCA-6105P5-0B2E	✓	✓	-	✓	✓	✓	✓	-
	PCA-6108P8-0A2E	✓	✓	-	-	-	-	-	-
Half-Size Backplanes	PCE-3B03-00A1E	-	✓	-	✓	✓	-	✓	-
	PCE-3B06-00A1E	-	✓	-	✓	✓	-	✓	-
	PCE-3B06-03A1E	-	✓	-	✓	✓	-	✓	-
	PCE-3B06-02A1E	-	✓	-	✓	✓	-	✓	-
	PCE-3B03A-00A1E	-	✓	-	-	-	-	-	✓
	PCE-3B03-01A1E	-	✓	-	-	-	-	-	✓
	PCE-3B12-08A1E	-	✓	✓	-	-	-	-	-
	PCE-4B13-08A1E	-	✓	✓	-	-	-	-	-
	PCE-4B12-03A1E	-	✓	✓	-	-	-	-	-
	PCE-4B13-00A1E	-	✓	✓	-	-	-	-	-

✓: supported, - : not supported, △: optional

Extension Modules for Slot SBCs

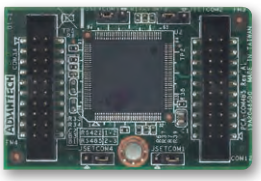
PCA-AUDIO-HDA1E

- 7.1 Channel HD Audio Extension Module
- Line-in, Mic-in, Lin-out, Front-out, Speaker-out, Rear-out, Subcen-out, Side-out
- Dimensions (L x H) : 47.5 x 80.74 mm (1.87" x 3.17")



PCA-COM232-00A1E

- 4 RS-232 series ports extension module by LPC connector on CPU card.
- Dimensions (L x H) : 31.5 x 48 mm (1.24" x 1.88")



PCA-COM485-00A1E

- 4 RS-422/485 series ports extension module by LPC connector on CPU card.
- With Auto-flow control function
- Dimensions (L x H) : 31.5 x 48 mm (1.24" x 1.88")

PCE-SA01-00A1E

- I/O extension stack board
- 1 DP, 2 USB 3.0, MIC-in, LINE-out
- Dimensions (L x H) : 68 x 125 mm (2.67" x 4.92")
- Supports Model: PCE-3029, PCE-4128, PCE-4129

PCA-5650-00A1E

- 2 VGA output Mini PCI Express Graphic card
- GPU: Silicon Motion SM750
- VGA output: 1920 x 1080, up to 75Hz vertical rate
- 16 Mb of embedded DDR memory

PCA-TPM-00A1E

- Trusted platform module compliant with TCG 1.2 specification and TCG software stack 1.2 via LPC connector on CPU card
- Hardware based data protection solution for storage device encryption and decryption
- Dimensions (L x H) : 31.5 x 30.5 mm (1.24" x 1.2")

IPMI-1000-00A1E

- IPMI2.0 Server-grade remote control solution
- OS independent hardware-based solution
- Real-time and centralized management
- KVM over IP remote control function
- User friendly UI and utility
- Supports Model: PCE-5126WG2, PCE-7127, PCE-5128

PCA-TPM-00B1E

- Trusted platform module compliant with TCG 2.0 specification and TCG software stack 2.0 via LPC connector on CPU card
- Hardware based data protection solution for storage device encryption and decryption
- Dimensions (L x H) : 31.5 x 30.5 mm (1.24" x 1.2")

ATX Motherboards

Model Name		AIMB-701	AIMB-782
Processor System	CPU	2nd/3rd Gen Intel Core i7/i5/i3/Pentium	2nd/3rd Gen Intel Core i7/i5/i3/Pentium
	Socket	LGA1155	LGA1155
	Max. Speed	3.4 GHz	3.4 GHz
	Front Side Bus	-	-
	Cache	L3: up to 8 MB (depends on CPU)	L3: up to 8 MB (depends on CPU)
	Chipset	Intel H61	Intel Q77
	BIOS	AMI 64 Mbit SPI	AMI 64 Mbit SPI
Expansion Slot	PCIe x16	1 (Gen2)	1 (Gen3)
	PCIe x4	1 for VG SKU (Gen2)	1 (Gen2)
	PCIe x1	1 for G2 SKU (Gen2)	1 (Gen2)
	PCI	5	4
Memory	Technology	Dual Channel DDR3 1066/1333/1600 (1600 is only supported by Core i7/i5/i3 3xxx series processors)	Dual Channel DDR3 1066/1333/1600 MHz
	Max. Capacity	16 GB	32 GB
	Socket	2 x 240-pin DIMM	4 x 240-pin DIMM
Graphics	Controller	Intel HD Graphics	Intel HD Graphics
	VRAM	1 GB maximum shared memory with 2 GB and above system memory installed	Shared system memory up to 1 GB
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	GbE LAN1: Intel 82579V, GbE LAN2: Intel 82583V	GbE LAN1: Intel 82579LM, GbE LAN2: Intel 82583V
SATA	Max. Date Transfer Rate	300 MB/s	600 MB/s; 300 MB/s
	Channel	4	6 (SW RAID)
EIDE	Mode	-	-
	Channel	-	-
I/O Interface	VGA	1	1
	DVI	1 for G2 version	1
	USB	10	14 (4 USB 3.0 and 10 USB 2.0)
	Serial	6 for G2 version (3 x RS-232, 1 x RS-232/422/485 with auto-flow control)	6
	Parallel	1	1
	FDD	-	-
	PS/2	2 (1 x rear I/O and 1 x wafer box)	2 (1 x keyboard and 1 x mouse)
	Ethernet (GbE)	2 for G2 version; 1 for VG version	2
	Audio	Mic-in, Line-out	Mic-in, Line-out
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable 1 ~ 255 sec	Programmable, 1 ~ 255 sec

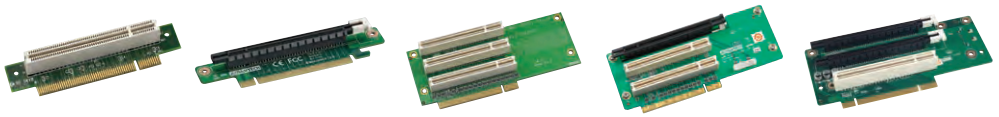
✓: supported, - : not supported, △: optional



Model Name		AIMB-784	AIMB-705	AIMB-785
Processor System	CPU	4th Gen Intel Core i7/i5/i3/Pentium	6th/7th Gen Intel Core i7/i5/i3/Pentium	6th/7th Gen Intel Core i7/i5/i3/Pentium
	Socket	LGA1150	LGA1151	LGA1151
	Max. Speed	3.7 GHz	3.9 GHz	3.9 GHz
	Front Side Bus	-	-	-
	Cache	L3: up to 8 MB (depends on CPU)	L3: up to 8 MB (depends on CPU)	L3: up to 8 MB (depends on CPU)
	Chipset	Intel Q87	Intel H110	Intel Q170
	BIOS	AMI 128 Mbit SPI	AMI 128 Mbit SPI	AMI 128 Mbit SPI
Expansion Slot	PCIe x16	1 (Gen3)	1 (Gen3)	1 (Gen3)
	PCIe x4	1 (Gen2)	1 (Gen2)	3 (Gen3)
	PCIe x1	1 (Gen2)	-	-
	PCI	4	5	3
Memory	Technology	Dual Channel DDR3 1333/1600 MHz	Dual Channel DDR4 1866/2133 MHz	Dual Channel DDR4 1866/2133 MHz
	Max. Capacity	32 GB	32 GB	64 GB
	Socket	4 x 240-pin DIMM	2 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
	VRAM	Shared system memory up to 1 GB	Shared system memory is subject to OS	Shared system memory is subject to OS
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	GbE LAN1: Intel I217LM, GbE LAN2: Intel I211AT	GbE LAN1: Intel I219V GbE LAN2: Intel I211AT (for G2 version)	GbE LAN1: Intel I219LM, GbE LAN2: Intel I211AT
SATA	Max. Date Transfer Rate	600 MB/s	600 MB/s	600 MB/s
	Channel	6 (SW RAID)	4	6 (SW RAID)
EIDE	Mode	-	-	-
	Channel	-	-	-
I/O Interface	VGA	1	1	1
	DVI	2	1(for G2 version)	2
	USB	13 (4 USB 3.0 and 9 USB 2.0)	9 (4 USB 3.0 and 5 USB 2.0)	13 (6 USB 3.0 and 7 USB 2.0)
	Serial	6	6 (for G2 version) 2 (for VG version)	6
	Parallel	1	1	1
	FDD	-	-	-
	PS/2	2 (1 x keyboard and 1 x mouse)	2 (1 x rear I/O and 1 x wafer box)	1 (internal wafer box)
	Ethernet (GbE)	2	2 for G2 version; 1 for VG version	2
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec	Programmable, 1-255 Sec	Programmable, 1-255 Sec

✓: supported, - : not supported, △: optional

Riser Cards



Selection Guide

Model Name		AIMB-RP10P-01A1E	AIMB-RF10F-01A1E	AIMB-RP30P-03A1E	AIMB-RP3PF-21A1E	AIMB-RP3P8-12A1E
Interface		PCI	PCIe x 16	PCI	PCIe x16/PCI	PCIe x16/PCI
Expansion Slots		1 PCI	1 PCIe x 16	3 PCI	1 PCIe x16 + 2 PCI	2 PCIe x8 + 1 PCI
Chassis	1U	✓	✓	-	-	-
	2U	-	-	✓	✓	✓
ATX	AIMB-785	-	✓	-	-	-
	AIMB-784	-	✓	-	-	-
	AIMB-782	-	-	-	-	-
	AIMB-781	-	✓	-	-	-
	AIMB-780	✓	✓	✓	✓	✓ (WG2 Only)*
	AIMB-705	✓	-	✓	✓	-
	AIMB-701	-	✓	-	-	-
	AIMB-769	-	✓	-	-	-
	AIMB-767	✓	✓	✓	✓	-
	AIMB-766	✓	-	✓	✓	-
	AIMB-763	-	✓	-	✓	-

*Note: AIMB-RP3P8-12A1E is not compatible with ACP-2010MB/2320MB, IPC-603MB chassis unless riser card bracket is changed to P/N: 1950014302N001.

Selection Guide

Model Name		AIMB-R4104-01A1E	AIMB-R430P-03A2E	AIMB-R4301-03A1E	AIMB-R431F-21A1E	AIMB-R43PF-21A1E
Interface		PCIe x4	PCIe x4	PCIe x4	PCIe x16/PCIe x4	PCIe x16/PCIe x4
Expansion Slots		1 PCIe x4	3 PCI	3 PCIe x1	1 PCIe x16 + 2 PCIe x1	1 PCIe x16 + 2 PCI
Chassis	1U	✓	-	-	-	-
	2U	-	✓	✓	✓	✓
ATX	AIMB-785	✓	✓	△	□	✓
	AIMB-784	-	-	-	□	✓
	AIMB-782	-	✓	-	□	✓
	AIMB-781	✓	✓	✓	✓	✓
	AIMB-780	-	-	-	-	-
	AIMB-701	✓	✓	△	-	-
	AIMB-769	✓	✓	△	-	-
	AIMB-767	-	-	-	-	-
	AIMB-766	-	-	-	-	-
	AIMB-763	-	-	-	-	-

✓: Fully compatible
□: Only the PCIe x 16 and PCIe x1 (bottom slot) connectors work.
△: Only one PCIe x1 connector works (top slot).

Industrial Computer Chassis





Model Name			IPC-3012	IPC-3026	IPC-6806S	IPC-6806S-D	IPC-6806/6806W
Form Factor Support			PICMG 1.3 Half-size SBC	PICMG 1.0/1.3 Half-size SBC	PICMG 1.0/1.3 Half-size SBC	PICMG 1.0/1.3 Half-size SBC	PICMG 1.0 Full-size SBC / PICMG 1.0/1.3 Full-size SBC
Drive Bay	Slim Optical Drive		-	-	-	1	-
	2.5"		2	-	-	1 (hot-swap)	-
	3.5"	External	-	1	1	-	1 / 1
		Internal	-	-	1	1	1 / 1
	5.25"		-	-	-	-	0 / 1
Front I/O	USB		2	2	2	2	2 / 2
	PS/2		-	-	-	-	- / -
Cooling	No. of Fans		2	1	1	1	1 / 1
	CFM		27	44.6	53	53	53 / 58
Power Supply	AC		250W Flex ATX	150W Flex ATX	250W Flex ATX	250W Flex ATX	250W Flex ATX 350W Flex ATX
	AC Redundant		-	-	-	-	-
	DC		-	-	-	-	-
No. of Slots for add-on cards			2	4	4	4	5 / 5
No. of Full-size Cards			-	-	-	-	6 / 6
Passive Backplane Options	PICMG 1.0		-	✓	✓	✓	✓
	PICMG 1.3		✓	✓	✓	✓	- / ✓
Intelligent System Module			-	✓	-	-	-
Dimensions (W x H x D)	mm		232 x 90 x 232	150 x 222 x 270	191 x 178 x 290	191 x 178 x 290	166 x 178 x 398/ 198 x 221 x 398
	inch		9.13 x 3.54 x 9.13	5.9 x 8.74 x 10.63	7.5 x 7.01 x 11.42	7.5 x 7.01 x 11.42	6.54 x 7.01 x 15.67/ 7.8 x 8.7 x 15.67
Weight	kg		3.24	4.4	5.6	5.6	6.3 / 8
	lb		7.14	9.7	12.3	12.3	13.9 / 17.6

✓: supported, - : not supported, △: optional

Industrial Computer Chassis







Model Name			IPC-6606/6608	IPC-7132	IPC-5120/7120	IPC-6025	IPC-5122	IPC-7130 / IPC-7130L	IPC-7220
Form Factor Support			PICMG 1.0/1.3 Full-size SBC	ATX / Micro ATX	Micro ATX / ATX	PICMG 1.0/1.3 Full-size SBC	Micro ATX	ATX / Micro ATX	ATX / Micro ATX
Drive Bay	Slim Optical Drive		-	-	- / -	-	1	-	-
	2.5"		-	-	-	-	-	-	-
	3.5"	External	1 / 1	1	1 / 1	1	1	2 (hot-swap) / 2	1
		Internal	1 / 1	2	1 / 1	1	1	1 / 1	1
	5.25"		1 / 2	1	1 / 1	-	-	1 / 1	2
Front I/O	USB		2 / 2	2	Front I/O chassis	2	2	2 / 2	2
	PS/2		- / -	-	-	-	-	-	-
Cooling	No. of Fans		1 / 1	1	1 + 1	1	1	1 + 1	1
	CFM		53 / 85	85	85 / 10	46.6	85	73.8 / 21.2	85
Power Supply	AC		250W PS/2 300W PS/2 400W PS/2	300W PS/2 400W PS/2	250W Flex ATX 350W Flex ATX	270W Flex ATX 400W Flex ATX	300W PS/2 400W PS/2	300W PS/2 400W PS/2 500W PS/2	300W PS/2 400W PS/2
	AC Redundant		-	-	-	-	-	350W Mini RPS 500W Mini RPS	350W Mini RPS 500W Mini RPS
	DC		-	-	-	-	-	-	-
No. of Slots for add-on cards			5 / 7	7	4 / 7	4	4	7	7
No. of Full-size Cards			6 / 8	7	-	5	-	7	7
Passive Backplane Options	PICMG 1.0		✓	-	-	✓	-	-	-
	PICMG 1.3		✓	✓	-	✓	-	-	-
Intelligent System Module			-	-	-	✓	✓	✓/-	✓
Dimensions (W x H x D)	mm		173 x 254 x 396/ 173 x 315 x 410	200 x 330 x 430	320 x 164 x 316.5/ 380 x 164 x 316.5	111 x 212 x 420	157 x 360 x 340	200 x 320 x 480	200 x 320 x 480
	inch		6.8 x 10 x 15.6 / 6.8 x 12.4 x 16.1	7.9 x 13 x 16.9	12.6 x 6.5 x 12.5/ 15 x 6.5 x 12.5	4.4 x 8.3 x 16.5	6.2 x 14.2 x 13.4	7.9 x 12.6 x 18.9	7.9 x 12.6 x 18.9
Weight	kg		9 / 11	9.96	6.54 / 7.01	4.7	6.5	12.8	14
	lb		19.8 / 24.2	21.93	14.42 / 15.45	10.3	14.3	28.2	30.8

✓: supported, - : not supported, △: optional

Model Name		1U Rackmount	2U Rackmount				4U Rackmount		
		ACP-1010	IPC-603	ACP-2000	ACP-2010/2320	ACP-2020	IPC-510	IPC-610-L/ IPC-611	IPC-631
Form Factor Support		PICMG 1.0/1.3 Full-Size SBC ATX/MicroATX	ATX/MicroATX	PICMG 1.0/1.3 Full-Size SBC	ATX/MicroATX	ATX / MicroATX	PICMG1.0/1.3 Full size SBC ATX/Micro-ATX	PICMG1.0/1.3 Full size SBC ATX/Micro-ATX	ATX/Micro-ATX
Drive Bay	Slim Optical Drive	1	1	1	-/1	1	-	-	1
	2.5"	1 x 3.5" or 2 x 2.5"	-	-	-	2 external (optional hot-swap module) 2 internal	-	-	4 (2 external optional hot-swap)
	3.5" Hot-swap	-	-	-	- / 2 (SATA)	-	-	-	-
	3.5" External	1	-	2	1 / -	-	1	1	-
	3.5" Internal	1 x 3.5" or 2 x 2.5"	1	-	2	-	1	-	-
	5.25"	-	-	-	1 / -	-	3	3	-
Front I/O	USB	2	Front I/O chassis	2	2	2 (USB 3.0)	2	2	Front I/O chassis
	PS/2	-		1	1	-	1	-	
Cooling	No. of Fans	2 (MB), 4 (BP)	2	2	2 / 3	1	1	1	2
	CFM	2 x 24 (MB) / 3 x 24 + 1 x 15 (BP)	2 x 47	2 x 47	2 x 47/ 2 x 47 + 1 x 28	41	77	85	2 x 82
Power Supply	AC	250W Flex ATX 300W Flex ATX	350W Flex ATX	250W PS/2 300W PS/2 400W PS/2 500W PS/2	250W Flex ATX 300W Flex ATX	350W Flex ATX	250W PS/2 300W PS/2 400W PS/2	250W PS/2 300W PS/2	500W PS/2
	AC Redundant	-	-	300W 1+1 RPS	250W 1+1	500W 2U redundant	-	350W Mini RPS 500W Mini RPS	500W Mini RPS
	DC	-	-	300W 48V	-	-	-	-	-
No. of Slots		MB: 1 BP: 3	3	6	3 / 3	7	14	15	7
No. of Full-size Cards[Note]		MB: 0 BP: 2	0	4	3 / 3	7	8	11	0
Passive Backplane Options	PICMG 1.0	✓	-	✓	-	-	✓	✓	-
	PICMG 1.3	✓	-	✓	-	-	✓	✓	-
Intelligent System Module		-	-	✓	✓	✓	-	-	-
Dimensions (W x H x D)	mm	480 x 44 x 497	482 x 88 x 308	482 x 88 x 451	482 x 88 x 480	482 x 177 x 348	482 x 177 x 446	482 x 177 x 480	482 x 177 x 348
	inch	19 x 1.7 x 19.6	19 x 3.46 x 12.1	19 x 3.5 x 17.8	19 x 3.5 x 18.9	19 x 7.0 x 13.7	19 x 7 x 17.6	19 x 7 x 18.9	19 x 7.0 x 13.7
Weight	kg	8	6.4	11.5	10.7/11.7	8	10.7	14.5	8
	lb	17.6	14.1	25.3	23.5/25.7	17.6 lb	23.5	31.9	17.6

Note: Depending on system configuration. Board component or CPU cooler mechanical interference might reduce supported full-size card number.

✓: supported, - : not supported, △: optional

Industrial Computer Chassis

Model Name			4U Rackmount								6U Rackmount
			IPC-610-H	ACP-4020	ACP-4D00	ACP-4000	ACP-4010/ ACP-4320	ACP-4340	ACP-4360	IPC-623	IPC-622
Form Factor Support			PICMG1.0/1.3 Full size SBC ATX/Micro-ATX	PICMG1.3 Half-size SBC ATX/Micro-ATX	PICMG 1.3/PCI Half-size SBC	PICMG1.0/1.3 Full-size SBC ATX/Micro-ATX	PICMG1.0/1.3 Full-size SBC ATX/Micro-ATX	PICMG1.0/1.3 Full size SBC ATX/Micro-ATX	PICMG1.0/1.3 Full size SBC ATX/Micro-ATX	PICMG 1.0/1.3 Full size SBC	PICMG 1.0/1.3 Full size SBC
Drive Bay	Slim Optical Drive		-	1	-	-	-	1	1	-	-
	2.5"		-	1 (Internal)	-	-	-	1 (Internal)	-	-	-
	3.5"	Hot-swap	-	-		-	- / 2 (SATA)	4 (SATA)	6 (SATA)	-	-
		External	1	2	1 / each node	1	1 / -	-	1	1	-
		Internal	-	-	-	-	1 / -	-	-	1	2
	5.25"		3	-	-	3	2	-	-	3	4
Front I/O	USB		2	2 (USB 3.0)	2 (USB 2.0) + 2 (USB 3.0) / each node	2	4 / 2	2 (USB 3.0)	2	-	2
	PS/2		1	-	-	1	-	-	-	-	-
Cooling	No. of Fans		2	2	1 / each node	2	2 / 2	2	3	3	4
	CFM		2 x 85	2 x 53	1 x 58 per node	2 x 85	2 x 85/ 1 x 74 + 1 x 28	1 x 74 + 1 x 56	1 x 114 + 2 x 47	3 x 114	4 x 58
Power Supply	AC		300W PS/2 400W PS/2 500W PS/2	300W PS/2 400W PS/2 500W PS/2	250W Flex ATX 300W Flex ATX	300W PS/2 400W PS/2 500W PS/2	300W PS/2 400W PS/2 500W PS/2	400W PS/2 500W PS/2 700W PS/2	400W PS/2 500W PS/2 700W PS/2	400W 500W	400W PS/2 500W PS/2 700W PS/2
	AC Redundant		350W Mini RPS 500W Mini RPS	-	-	350W Mini RPS 500W Mini RPS	350W Mini RPS 500W Mini RPS 750W Mini RPS	500W Mini RPS	350W Mini RPS 500W Mini RPS	570W 2+1	500W Mini RPS 750W Mini RPS
	DC		300W 48V	300W 48V	-	300W 48V	-	-	-	-	-
No. of Slots			15	15	6 / each node	15	15 / 15	15	15	20	20
No. of Full-size Cards[Note]			11	0	0	11	15 / 10	11	8	20	20
Passive Backplane Options	PICMG 1.0		✓	-	✓ (PCI BP only)	✓	✓	✓	✓	✓	✓
	PICMG 1.3		✓	✓	✓	✓	✓	✓	✓	✓	✓
Intelligent System Module			-	✓	✓	✓	✓	✓	✓	-	✓
Dimensions (W x H x D)	mm		482 x 177 x 479	482 x 177 x 348	430 x 177 x 350	482 x 177 x 479	482 x 177 x 479	482 x 177 x 478	482 x 177 x 501	482 x 177 x 657	482 x 266 x 464
	inch		19 x 7 x 18.9	19 x 7.0 x 13.7	19 x 7.0 x 13.8	19 x 7 x 18.9	19 x 7 x 18.9	19 x 7.0 x 18.8	19 x 7.0 x 19.8	19 x 7 x 26	19 x 10.5 x 18.3
Weight	kg		15	8.5	15	15.2	16.6/17.6	12.5	19	26	30
	lb		33	18.7	33	33.5	36.5/38.7	27.5	41.8	57	66

Note: Depending on system configuration. Board component or CPU cooler mechanical interference might reduce supported full-size card number.

✓: supported, - : not supported, △: optional

4U CompactPCI® Chassis

Model		MIC-3106				MIC-3111				MIC-3121			
Backplane	slot	System x 1, Peripheral x 2 CompactPCI® peripherl slot x 2				System x 1, Peripheral x 7 CompactPCI® peripherl slot x 7				System x 1, Peripheral x 7 CompactPCI® peripherl slot x 7			
	bus	32-bit/33 MHz PCI bus				32-bit/33 MHz PCI bus				32-bit/33 MHz PCI bus			
	V (I/O)	+3.3 V/+5 V (selectable)				+3.3 V/+5 V (selectable)				+3.3 V/+5 V (selectable)			
Cooling	FAN	1 Blower on Top (Max. 2.47CFM/FAN) 1 Fan on Bottom (Max.18 CFM/FAN)				2 Blowers on Top (Max. 2.47CFM/FAN) 1 Fan on Bottom (Max.18 CFM/FAN)				2 Blowers on Top (Max. 2.47CFM/FAN) 1 Fan on Bottom (Max.18 CFM/FAN)			
Power Supply	Input	AC 100 ~ 240 V @ 50 ~ 60 Hz, full range				AC 100 ~ 240 V @ 50 ~ 60 Hz, full range				AC 100 ~ 240 V @ 50 ~ 60 Hz, full range			
	Output	ATX 180W PSU				ATX 180W PSU				ATX 300W PSU			
		+3.3V	+5V	+12V	-12V	+3.3V	+5V	+12V	-12V	+3.3V	+5V	+12V	-12V
	Max Load	14A	16A	14A	0.5A	14A	16A	14A	0.5A	16A	19A	11A	0.3A
	Min Load	0.3A	0.3A	0.3A	0A	0.3A	0.3A	0.3A	0A	0A	0.5A	0.1A	0A
Physical Characteristics	Dimensions (W x H x D)	134 x 177 x 238 mm (5.27" x 6.96" x 9.37")				234 x 177 x 258 mm (9.21" x 6.96" x 9.37")				482 x 177 x 310 mm (18.97" x 6.96" x 12.2")			
Environment		Operating		Non-operating		Operating		Non-operating		Operating		Non-operating	
	Temperature	0 ~ 50 °C (32 ~ 122 °F)		-20 ~ 60 °C (-4 ~ 138 °F)		0 ~ 50 °C (32 ~ 122 °F)		-20 ~ 60 °C (-4 ~ 138 °F)		0 ~ 50 °C (32 ~ 122 °F)		-20 ~ 60 °C (-4 ~ 138 °F)	
	Humidity	10 ~ 85% @ 40 °C, non-condensing		10 ~ 95% @ 40 °C,non-condensing		10 ~ 85% @ 40 °C, non-condensing		10 ~ 95% @ 40 °C, non-condensing		10 ~ 85% @ 40 °C, non-condensing		10 ~ 95% @ 40 °C, non-condensing	
	Vibration	2Grms				2Grms				2Grms			
	Shock	10G				10G				10G			
Reliability	MTBF	Backplane		FAN module		Backplane		FAN module		Backplane		FAN module	
		800,000 hours / 50,000 hours @ 40 °C / 10,000 hours @ 80% load				800,000 hours / 50,000 hours @ 40 °C / 10,000 hours @ 80% load				800,000 hours / 50,000 hours @ 40 °C / 10,000 hours @ 80% load			
Regulatory	Conformance	RoHS, CE, FCC, UL, CCC				RoHS, CE, FCC, UL, CCC				RoHS, CE, FCC, UL, CCC			
Compliance	Standards	PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification				PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification				PICMG 2.0 R3.0 CompactPCI Specification PICMG 2.1 R2.0 CompactPCI Hot Swap Specification			

✓: supported, - : not supported, △: optional

3U CompactPCI® Peripheral Cards

NEW




Model		MIC-3714	MIC-3716	MIC-3720	MIC-3723
Form Factor		3U	3U	3U	3U
Main Function		-	-	-	-
Bus	PCI	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz
Power Consumption	TDP	13W	13W	6.7W	12W
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	non-operating temperature	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)
	Humidity	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)
		95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)
	Vibration	2Grms	2Grms	2Grms	2Grms
	Shock	-	-	-	-
	Altitude	-	-	-	-
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Operating System	Compatibiity	WinXP, Win 7/8/10	WinXP, Win 7/8/10	WinXP, Win 7/8/10	WinXP, Win 7/8/10
Compliance	Standards	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0





Model		MIC-3753	MIC-3756	MIC-3758	MIC-3761	MIC-3780
Form Factor		3U	3U	3U	3U	3U
Main Function		-	-	-	-	-
Bus	PCI	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz	32-bit/33 MHz
Power Consumption	TDP	3.5W	6W	8.3W	4W	8.5W
Environment	Operating Temperature	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	non-operating temperature	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)	-20 ~70 °C (-4~ 158 °F)
	Humidity	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)	95 % @ 40 °C, non-condensing (Operating)
		95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)	95 % @ 60 °C, non-condensing (Non-operating)
	Vibration	2Grms	2Grms	2Grms	2Grms	2Grms
	Shock	-	-	-	-	n/a
	Altitude	-	-	-	-	n/a
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Operating System	Compatibiity	WinXP, Win 7/8/10	WinXP, Win 7/8/10	WinXP, Win 7/8/10	WinXP, Win 7/8/10	WinXP, Win 7/8/10
Compliance	Standards	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0	PICMG 2.0 R3.0 PICMG 2.1 R2.0

✓: supported, - : not supported, △: optional

Power Supplies

80 Plus PS/2 Single Power Supplies

Part Number	PS8-250ATX-ZE	PS8-300ATX-ZBE	PS8-400ATX-ZE	PS8-500ATX-ZE	PS8-700ATX-ZE
Form Factor	PS/2	PS/2	PS/2	PS/2	PS/2
Wattage	250W	300W	400W	500W	700W
80 Plus Grade	Bronze	Bronze	Bronze	Bronze	Bronze
Input Range	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}
Output Range	+3.3V @ 20 A +5 V @ 21 A +12 V1 @ 16 A +12 V2 @ 16 A -12 V @ 0.3 A -5 V @ 0.3A +5 Vsb @ 2.5 A	+3.3V @ 11.12 A +5 V @ 13.2 A +12 V @ 7.64 A +12 VCPU @ 8 A -12 V @ 0.1 A -5V @ 0.05 A +5 Vsb @ 1.39 A	+3.3V @ 21 A +5 V @ 20 A +12 V1 @ 16 A +12 V2 @ 16 A -12 V @ 0.5 A -5V @ 0.3 A +5 Vsb @ 3 A	+3.3V @ 24 A +5 V @ 20 A +12 V1 @ 16 A +12 V2 @ 16 A -12 V @ 0.5 A -5V @ 0.3 A +5 Vsb @ 3 A	+3.3V @ 24 A +5 V @ 30 A +12 V1 @ 16 A +12 V2 @ 16 A +12 V3 @ 16 A +12 V4 @ 16 A -12 V @ 0.5 A -5V @ 0.5 A +5 Vsb @ 4 A
MTBF(hrs)	100,000 @ 25° C	100,000 @ 25° C	100,000 @ 25° C	100,000 @ 25° C	100,000 @ 25° C
Dimensions (W x H x D)	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")
Safety	CE, FCC, UL, CB, TUV, CCC, KC	CE, FCC, UL, CB, TUV, CCC, KC, BSMI	CE, FCC, UL, CB, TUV, CCC, KC	CE, FCC, UL, CB, TUV, CCC, KC	CE, FCC, UL, CB, TUV, CCC, KC
Compatible Chassis	ACP-2000/IPC-602, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360 IPC-6606, IPC-6608, IPC-5122, IPC-7130, IPC-7130L, IPC-7132, IPC-7220, IPC-510, IPC-610-F, IPC-610-H, IPC-610-L, IPC-611, IPC-619	ACP-2000/IPC-602, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360 IPC-6606, IPC-6608, IPC-5122, IPC-7130, IPC-7130L, IPC-7132, IPC-7220, IPC-510, IPC-610-F, IPC-610-H, IPC-610-L, IPC-611, IPC-619, HPC-5000	ACP-2000/IPC-602, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360 IPC-6606, IPC-6608, IPC-5122, IPC-7130, IPC-7130L, IPC-7132, IPC-7220, IPC-510, IPC-610-F, IPC-610-H, IPC-610-L, IPC-611, IPC-619, HPC-7442	ACP-2000/IPC-602, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360 IPC-6606, IPC-6608, IPC-5122, IPC-7130, IPC-7130L, IPC-7132, IPC-7220, IPC-510, IPC-610-F, IPC-610-H, IPC-610-L, IPC-611, IPC-619, IPC-631, HPC-7442	ACP-2000/IPC-602, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360, IPC-510 , IPC-610-F, IPC-610-H , IPC-610-L, IPC-611, IPC-619 HPC-7442

PS/2 DC Power Supplies

Model Name	PS-300ATX-DC48E
Wattage	300W
Input Range	72 ~ 36 V_{DC}, 15 A
Outputs	+5 V @ 30 A (0.3 A min) +3.3 V @ 28 A (0.3 A min) +12 V @ 15 A (0.2 A min) -12 V @ 0.8 A, -5 V @ 0.3 A, +5 Vsb @ 2 A
MTBF (hrs)	100,000 @ 25° C
Dimensions (W x H x D)	150 x 86 x 140 mm (5.91" x 3.39" x 5.51")
Safety	UL, TUV, CB, CCC
Compatible Chassis	ACP-2000, ACP-4000, ACP-4010, ACP-4020, ACP-4320, ACP-4340, ACP-4360, IPC-602, IPC-610

Power Supplies

80 Plus 1U/2U Single Power Supplies

Part Number	PS8-500U2-XE	96PS-A700W1U
Form Factor	2U	1U
Wattage	500W	700W
80 Plus Grade	Bronze	Bronze
Input Range	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}
Output Range	+3.3V @ 20 A, +5 V @ 20 A +12 V1 @ 16 A, +12 V1 @ 16 A +12 V3 @ 16 A, -12 V @ 0.5A +5 Vsb @ 3 A	+3.3V @ 24 A, +5 V @ 30 A +12 V1 @ 16 A, +12 V2 @ 16 A +12 V3 @ 16 A, +12 V4 @ 16 A -12V @ 0.5 A, +5 Vsb @ 4 A
MTBF(hrs)	100,000 @ 25° C	100,000 @ 25° C
Dimensions (W x H x D)	70 x 100 x 240 mm (2.75" x 3.93" x 9.44")	40 x 100 x 250 mm (1.57" x 3.93" x 9.84")
Safety	CE, FCC, UL, CB, TUV, CCC, KC	CE, FCC, UL, CB, TUV, CCC, KC
Compatible Chassis	HPC-7242, HPC-7282, HPC-7320, HPC-8316	HPC-7320, HPC-7400, HPC-8316

80 Plus Flex ATX Power Supplies

Part Number	PS8-250FATX-XE	PS8-350FATX-XE
Form Factor	Flex ATX	Flex ATX
Wattage	250W	350W
80 Plus Grade	Bronze	Bronze
Input Range	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}
Output Range	+3.3V @ 12 A +5 V @ 14 A +12 V @ 18 A -12 V @ 0.3 A +5 Vsb @ 2.5 A	+3.3V @16A +5 V @ 16 A +12 V1 @ 18 A +12 V2 @ 18 A -12 V @ 0.3A +5 Vsb @ 3 A
MTBF(hrs)	100,000 @ 25° C	100,000 @ 25° C
Dimensions (W x H x D)	81.5 x 40.5 x 150 mm (3.2" x 1.59" x 5.9")	81.5 x 40.5 x 150 mm (3.2" x 1.59" x 5.9")
Safety	CE, FCC, UL, CB, TUV, CCC, KC	CE, FCC, UL, CB, TUV, CCC, KC, BSMI
Compatible Chassis	ACP-1010/ACP-1320, ACP-2010/ACP-2320, ACP-4D00, IPC-3012, IPC-6806S, IPC-6806S-D, IPC-6806, IPC-5120, IPC-7120	ACP-1010/ACP-1320, ACP-2010/ACP-2320, ACP-4D00, IPC-603, IPC-3012, IPC-6806S, IPC-6806S-D, IPC-6806, IPC-5120, IPC-7120, ACP-2020

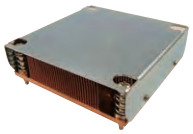
80 Plus Redundant Power Supplies

Part Number	RPS8-500ATX-XE	RPS8-750ATX-XE	RPS8-500U2-XE
Form Factor	Mini Redundant	Mini Redundant	2U Redundant
Wattage	500W 1+1	750W 1+1	500W 1+1
80 Plus Grade	Gold	Gold	Bronze
PMBus	Ver. 1.2	Ver. 1.2	-
Input Range	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}	90 ~ 264 V_{AC}
Output Range	+3.3V @ 20 A +5 V @ 20 A +12 V1 @ 16 A +12 V2 @ 16A +12 V3 @ 16A -5 V @ 0.3 A -12 V@ 0.5 A +5 Vsb @3 A	+3.3V @ 24 A +5 V @ 30 A +12 V @ 60.9 A -12 V@ 0.5 A +5 Vsb @ 4 A	+3.3V @ 20 A +5 V @ 25 A +12 V @ 40.2 A -12 V@ 0.5 A +5 Vsb @3.52 A
MTBF (hrs)	100,000 @ 25° C	100,000 @ 25° C	100,000 @ 25° C
Dimensions (W x H x D)	150 x 84 x 190 mm (5.9" x 3.3" x 7.48")	150 x 84 x 200 mm (5.9" x 3.3" x 7.87")	85 x 86.6 x 217 mm (3.34" x 3.4" x 8.54")
Safety	CE , FCC, UL, CB, TUV, CCC, KC	CE , FCC, UL, CB, TUV, CCC, KC	CE , FCC, UL, CB, TUV, CCC, KC
Compatible Chassis	IPC-7130, IPC-7130L, IPC-7220, IPC-610, IPC-611,ACP-4000, ACP-4010, ACP-4320, ACP-4340, ACP-4360, IPC-622, HPC-7442, IPC-631	ACP-4000, ACP-4010, IPC-622, HPC-7442	HPC-7242, HPC-7282, HPC-7320, HPC-8316, ACP-2020
Single Module Part Number	96PSRM-A500W1U-2	96PSRM-A750W1U	96PSRM-A500WFX

✓: supported, - : not supported, △: optional

CPU Coolers

Intel® LGA1150/1151/1155/1156



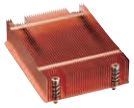
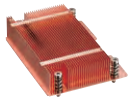

Model Name	1960049408N001	1960047831N001	1960052651N021	1960047669N001
Thermal Dispatch Performance	Intel LGA1156/1155/1150/1151 84W	Intel LGA1156/1155/1150/1151 95W	Intel LGA 1156/1155/1150/1151 80W	Intel LGA1156/1155/1150/1151 95W
Fan	-	7 cm/35.5CFM 5400+/- 10% RPM	6 cm/28.77 CFM 5800 +/- 10% RPM	8 cm/57.5 CFM 4500+/- 10% RPM
Heatsink Material	Copper	Copper	Aluminum	Aluminum & Copper heart
Heatsink Dimensions	85 x 85 x 26 mm (3.35" x 3.35" x 1.02")	83 x 83 x 39.26 mm (3.27" x 3.27" x 1.54")	90x 90x 68 mm (3.54" x 3.54" x 2.68")	90 x 90 x 35 mm (3.54" x 3.54"x 1.38")
Dimensions	-	83 x 83 x 55.73mm (3.27" x 3.27" x 2.17")	90x 90x 68 mm (3.54" x 3.54" x 2.68")	120 x 120 x 77 mm (4.72" x 4.72" x 3.03")
Weight	611 g	582 g	417g	500 g
Minimum Chassis Height	1U	2U	2U/4U	4U
Recommended Chassis	ACP-1010 HPC-7140/7180	Backplane version of chassis	Motherboard/ backplane version of chassis	Motherboard version of chassis
Supported Boards	AIMB-580/701/780/781/782/784; PCE-5125/5126/5127/7127/5026 ASMB-584/585/781/782/784/785	AIMB-580/581/582; PCE-5125/5126/5127/ 5026/7127/5128/7128	AIMB-705/785 PCE-5029/5129/7129/3029/4129 ASMB-584/585/781/782/784/785	AIMB-580/581/582/701/780/ 781/782/784


Model Name	1960053065N001	1960053207N001
Thermal Dispatch Performance	Intel LGA1155/1150/1151 55W Up to Core i3	Intel LGA1155/1150/1151 65W Up to Core i7
Fan	77 x 75 x 15.4 mm/11.83 CFM 5500+/- 10% RPM	9 cm/45.09 CFM 4400 +/- 10% RPM
Heatsink Material	Copper	Aluminum & Copper
Heatsink Dimensions	84 x 84 x 13 mm (3.32" x 3.32" x 0.51")	92.9 x 92.2 x 46 mm (3.67" x 3.67" x 1.82")
Dimensions	84 x 84 x 28 mm (3.32" x 3.32" x 1.11")	92.9 x 92.2 x 46 mm (3.67" x 3.67" x 1.82")
Weight	382g	250g
Minimum Chassis Height	1U	1.5U
Recommended Chassis	IPC-3026, IPC-3012	IPC-3026, IPC-3012
Supported Board	PCE-3026/3028/3029/4128/4129 AIMC-3200/3201/3420/3421/3202/3422	PCE-3026/3028/3029/4128/4129 AIMC-3200/3420/3201/3421/3202/3422

Intel® Xeon® LGA2011






Part number	1960055362N001	1960065684N001	1960063011N001	1960063011N011	1960065593N001	1960065591N001	1960057226N001
Thermal Dispatch Performance	Up to 145W	Up to 160W	Up to 135W	Up to 120W	Up to 135W	Up to 135W	Up to 95W
Fan	6cm / 38.8CFM 6800 ± 10% RPM	9cm/108.08CFM 5000 ± 10% RPM	6cm/50.40CFM 9000± 10% RPM	6cm/50.40CFM 9000+/- 10% RPM(Puller Fan)	-	-	-
Heatsink Material	Aluminum Fins & Cu Block with 3 Heat Pipes	Aluminum Fins & Copper base with 3 Heat Pipes	Aluminum fins soldered Copper base with Heatpipe	Aluminum fins soldered Copper base with Heatpipe	Copper with vapor chamber	Copper with vapor chamber	Aluminum fins soldered Copper base with Heatpipe
Heatsink Dimensions (L x W x H)	90.0 x 90.0 x 63.9 mm (3.54" x 3.54" x 2.51")	88.2 x 88.2 x 112.15 mm (3.47" x 3.47" x 4.41")	107 x 70 x 64.0 mm (4.21" x 2.75" x 2.51")	107 x 70 x 64.0 mm (4.21" x 2.75" x 2.51")	106 x 82 x 27 mm (4.17" x 3.22" x 1.06")	106 x 82 x 27 mm (4.17" x 3.22" x 1.06")	90 x 90 x 25.5 mm (3.54" x 3.54" x 1")
Dimensions	90.0 x 90.0 x 65.6 mm (3.54" x 3.54" x 2.58")	88.2 x 88.2 x 112.15 mm (3.47" x 3.47" x 4.41")	94.0 x 70.0 x 64.0 mm (3.7" x 2.75" x 2.51")	94.0 x 70.0 x 64.0 mm (3.7" x 2.75" x 2.51")	106 x 82 x 27 mm (4.17" x 3.22" x 1.06")	106 x 82 x 27 mm (4.17" x 3.22" x 1.06")	90 x 90 x 25.5 mm (3.54" x 3.54" x 1")
Weight	413g	583g	319g	319g	405g	385g	197g
Minimum Chassis Height	2U	4U	2U	2U	1U	1U	1U
Supported Boards	ASMB-823/913/920/923	ASMB-823/913/920/923	ASMB-822/922/813	PCE-9228	ASMB-822/813 & 922 (For CPU1)	ASMB-922 (For CPU0)	ASMB-823/913/920/923
Remark	Square Type	Square Type	Narrow Type	Narrow Type	Narrow Type	Narrow Type	Square Type

Intel® Xeon® LGA3647


Part number	1960081603N001	1960081155N001
Thermal Dispatch Performance	Up to 205W	Up to 165W
Fan	6 cm/50.4 CFM 9000 ± 10% RPM	-
Heatsink Material	Aluminum Stack Fin & CU Block with heatpipe	Aluminum Stack Fin & CU Block with Heatpipe
Heatsink Dimensions (L x W x H)	108 x 78 x 64 mm (4.25" x 3.07" x 2.51")	107.75 x 78 x 25.5 mm (4.24" x 3.07" x 1")
Dimensions	108 x 78 x 64 mm (4.25" x 3.07" x 2.51")	107.75 x 78 x 25.5 mm (4.24" x 3.07" x 1")
Weight	464g	257.6g
Minimum Chassis Height	2U	1U
Supported Boards	ASMB-815/825/925/975	ASMB-815/825/925/975
Remark	Narrow Type	Narrow Type

Accessories

Slide Rail

For 1U rackmount chassis

- 26" P/N: 9680009153
- Maximum acceptable load: 25kg
- 1 pair included

For 2U and higher rackmount chassis

- 26" P/N: 9680006905
- Maximum acceptable load: 45kg
- 1 pair included

Industrial Disk Tray/Bay

IPC-DT-5121/ IPC-DT-5121B

Shockproof industrial hard disk drive tray with cooling fan and optional front USB and PS/2 interfaces

- Accepted Device: 1 x 3.5" HDD (only for 9.5mm thickness)
- Cooling Fan: 1 x 4 cm
- Color (Codes): Gray (414U), Black (4C2X)
- Dimensions (W x H x D): 148.5 x 42.6 x 171 mm³ (5.84" x 1.67" x 6.73")

IPC-DT-3120E

Mobile rack for converting a 3.5" drive bay to dual 2.5" SATA HDD/SSD trays

- Accepted Device: 2 x 2.5" SATA HDD/SSD (only for HDD/SSD thickness less than 9.6 mm)
- Dimensions (W x H x D): 101.6 x 25.4 x 139 mm³ (4" x 1" x 5.47")

9892200013E

Module to convert a 5.25" drive bay to a slim ODD and a 3.5" drive bay

- Accepted Device: 3.5" device x 1, slim ODD x 1

IPC-DT-5230E

Mobile rack for converting dual 5.25" drive bays to three 3.5" SATA HDD trays

- Accepted Device: 3.5" SATA HDD x 3 or 2.5" SATA HDD/SSD x3
- Cooling Fan: 1 x 8 cm
- Dimensions (W x H x D): 146.5 x 86 x 225 mm³ (5.76" x 3.38" x 8.85")

989K008733

A frame to securely fix a 3.5" HDD in a 5.25" drive bay

- Accepted Device: 3.5" HDD x 1

989K008734

A frame to securely fix two 2.5" HDDs/SSDs in a 3.5" drive bay

- Accepted Device: 2.5" SATA HDD/SSD x 2 (only for HDD thickness less than 9.6 mm)

96RACK-5SS-CAGE-CR

Mobile rack for converting one 5.25" drive bay to four 2.5" SAS/SATA HDD/SSD trays

- Accepted Device: 2.5" SAS/SATA HDD/SSD x 4
- Dimension (W x H x D): 146 x 41 x 170 mm³ (5.74" x 1.61" x 6.69")

96RACK-5-SS-CR-B2

Mobile rack for converting one 5.25" drive bay to one slim ODD and two 2.5" SAS/SATA HSS/SSD trays

- Accepted Device : slim ODD x 1 , 2.5" SAS/ SATA HDD/SSD x 2
- Dimension (W x H x D): 146 x 41.3 x 170 mm³ (5.74" x 1.62" x 6.69")

Add-on Card Hold Down Kit

98RKBTOS09E

Add-on card hold down kit (short)

- Bracket Q'ty of each kit : 5 pcs
- For PCI add-on card with height 72.3mm ~ 87.3mm and PCIe add-on card with height 81.7mm ~ 91.8mm

98RKBTOS10E

Add-on card hold down kit (long)

- Bracket Q'ty of each kit : 5 pcs
- For PCI add-on card with height 54.8mm ~ 75.7mm and PCIe add-on card with height 59.3mm ~ 80.2mm

USB Cables

Part Number	1700008461	1700003195	1700002204	1700014398	1700020277-01
Description	USB 2.0 cable with 4 ports	USB 2.0 cable with 2 ports	USB 2.0 cable with 2 ports	USB 2.0 cable with 4 ports	USB 3.0 cable with 2 ports
Cable Length	30.5 cm (12.01")	17.5 cm (6.89")	27 cm (11.92")	30.5 cm (12.01")	30 cm (11.81")
Remark	For ATX/Micro-ATX MB, full-sized SBC			For half-sized SBC	For ATX/Micro-ATX MB, full/half-sized SBC

SATA Cables

Part Number	96CB-SATAPOWER-6P2	1700022749-11	1700019381	1700007351	1700003194
Description	SATA power cable for slim ODD	SATA power cable for HDD/SSD	SATA data cable (right angle)	SATA data cable (right angle)	SATA data cable
Cable Length	10 cm (3.94")	10 cm (3.94")	55 cm (21.65")	40 cm (15.75")	60 cm (23.62")
Remark	Big 4 P to SATA power cable for Slim ODD	Big 4 P to SATA power cable for HDD/SSD	SATA data cable with 1 right angle and 1 vertical connectors	SATA data cable with 1 right angle and 1 vertical connectors	SATA data cable with vertical connectors with locks

COM and Printer Ports Cables

Part Number	1701092300	1701090401	1700020294-01	1700008762
Description	COM cable with 2 ports	COM cable with 1 port	Printer (Parallel) port cable	COM cable with 2 ports
Cable Length	28.5 cm (11.22")	40 cm (15.75")	42.0 cm (16.54")	22.5 cm (8.86")
Remark	For ATX/Micro-ATX MB, full-sized SBC		For ATX/Micro-ATX MB, full-sized SBC	For half-sized SBC

Accessories

Video Cables



Part Number	PCE-DP10-00A1E	1700021831-01	1700008822-11
Description	Display port cable	DP to DVI port cable	DVI to DVI port cable
Cable Length	25 cm (9.84")	30 cm (11.81")	30 cm (11.81")
Remark	Video cable for converting on board DP connector to external DP port supporting DP 1.1a/1.2 signaling	Video cable for converting on board DP connector to external DVI-D port	Video cable for converting on board DVI connector to external DVI-D port

Other Cables



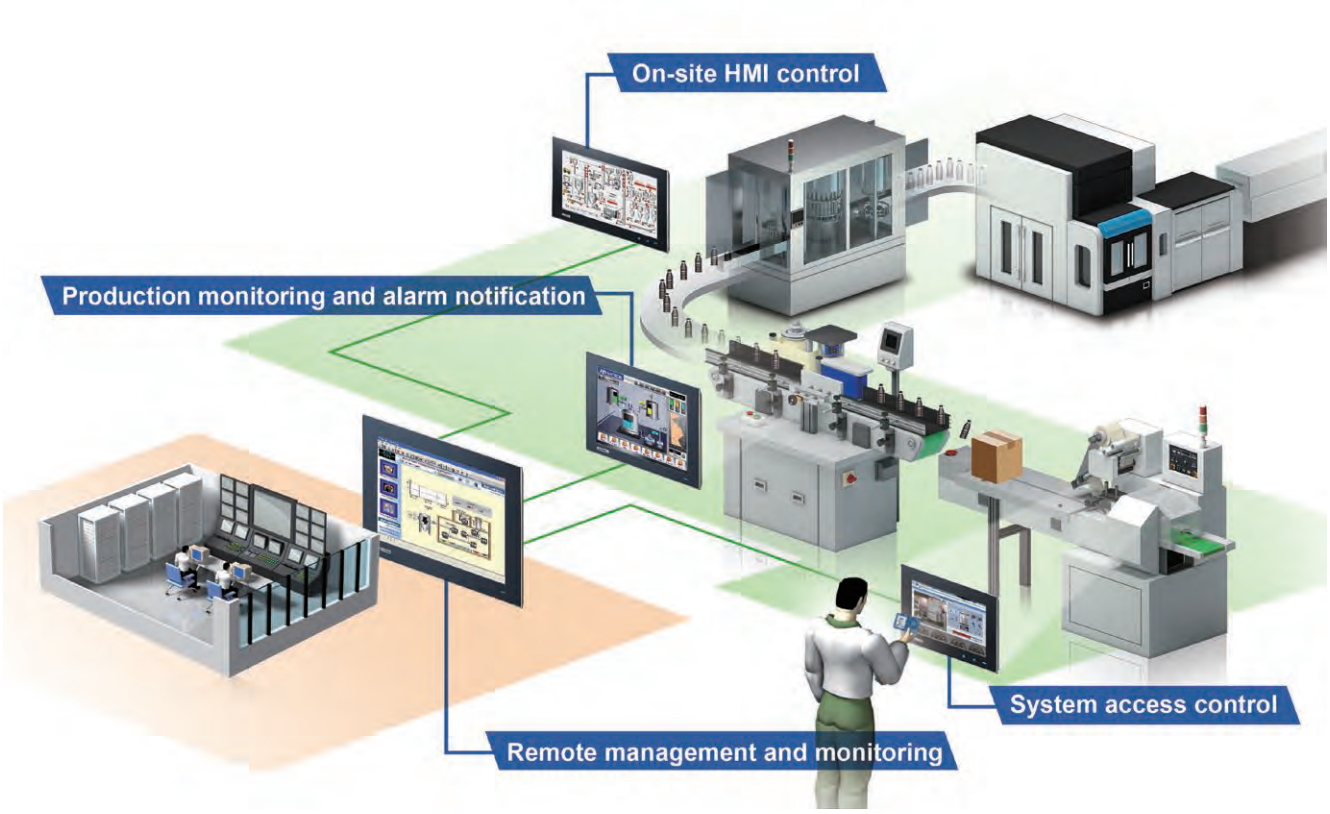
Part Number	1700006915	1700006916	1700024754-01
Description	Cable for ACP-4000MB front LED board	Cable for IPC-610MB-H front LED board	Power cable for GPU card
Cable Length	60 cm (23.62")	60 cm (23.62")	10 cm (3.93")
Remark	For those Advantech motherboards with VOLT1 connector too far away from the chassis LED board		2*B4P Molex power connector to 6+2P PCIe power cable for GPU card

4 Intelligent HMI and Monitors

Introduction

To facilitate data visualization in Industry 4.0 applications, Advantech offers a diverse range of rugged and reliable HMI products of varying size (from 3.5" to 21.5") and screen ratio (4:3 and 16:9). Our HMI product categories include high-performance control panels that can be embedded into equipment and machines, low-power industrial thin clients for process monitoring, web terminals for next-generation smart factory applications, and standard industrial monitors. In addition to standard products, Advantech also provides customized domain-focused products to satisfy the needs of specific industries.

All Advantech HMI products are equipped with relevant software (WebAccess/HMI, WebAccess/SCADA or WISE-PaaS/RMM) as well as Advantech's iDOOR technology, making them suitable for various applications.



Product Categories

Modular Series

In response to ongoing advances in Industry 4.0, Advantech has created its new series of modular panel PC solutions based on three performance-segmented modules — a control panel, industrial thin-client, and industrial monitor. The modular design of our solutions allows the computing box modules to be interchangeably combined with our display modules to provide comprehensive platform solutions for specific field applications. This modularization offers many advantages, including flexible configuration, rapid integration and deployment, reduced system downtime and maintenance costs, and support for future expansion.

Control Panel

Advantech's control panel series of PC-based open control platforms feature a high-performance, fanless design and can be integrated with a wide variety of machines in diverse environments to support complex machine control tasks and data visualization applications. The optimized design includes three Gigabit LANs that support multiple fieldbus communication protocols, an IP66-rated front panel that protects against dust and water ingress, and support for flexible iDOOR and PCIe expansion, making these platforms particularly ideal for industrial automation control operations.

Thin Client Terminals

Advantech's thin client modules feature a compact, fanless, and low-power design that supports multiple aspect ratios (4:3 and 16:9) and allows the modules to be equipped with a range of display sizes (5.7" to 21.5"). These thin client modules are primarily deployed as manufacturing execution systems (MESs) or for work flow monitoring and production process visualization. Under the Industry 4.0 trend, thin clients are widely utilized in distributed control architectures because of their easy deployment and suitability for the centralized management of devices and information. This architecture allows the OS to be quickly dispatched from server to client following a hardware replacement while still ensuring data security.

Operator Panel

With SCADA software moving toward cloud-based applications, simple web-based terminals with HTML5 browser support have become an economical option for process monitoring. Advantech's WebOP series of operator panels feature a range of display sizes (7" to 12") and support multiple communication interfaces (e.g., RS-232/422/485, Ethernet, and USB). Bundled with WebAccess/HMI software, Advantech's WebOP series supports over 450 PLC communication protocols, ensuring convenient integration with equipment made by a comprehensive range of manufacturers.

Domain Focused

In addition to standard products, Advantech provides domain-focused systems with customizable features designed to satisfy specific requirements across various vertical markets. Verified with ATEX Class 1 Division 2/ EN 50155 certification, Advantech's domain-focused rugged HMIs are sufficiently robust for operation in extreme environments typical of the locomotive, food and beverage, oil and gas, and machine tool manufacturing industries. Ensuring system flexibility and compatibility are also major focus points for Advantech when designing domain-focused HMI products.

Industrial Monitors

Independent controllers and industrial PCs embedded in machines require an interface for data processing and visualization, for which Advantech produces industrial monitors in a range of sizes (6", 12.1", 15", 17", 18.5", to 21.5"). Featuring an industrial-grade LED LCD with a backlight lifetime of 50,000 hours, high IP-rated bezel, and wide temperature support, our industrial monitors are equipped to withstand operation in harsh environments. Versatile mounting options (panel, wall, desktop, rack, and VESA arm) are also supported to ensure easy installation for various usage scenarios.

Modular Panel PCs

Panel Module

P/N	FPM-D12T-AE	FPM-D15T-AE	FPM-D17T-AE	FPM-D18W-AE	FPM-D21W-AE
Panel Size	12"	15"	17"	18.5"	21.5"
Resolution	1024 x 768	1024 x 768	1280 x 1024	1366 x 768	1920 x 1080
Touch	5-wire resistive touch	Projected capacitive touch	Projected capacitive touch	Projected capacitive touch	Projected capacitive touch
Wi-Fi Antenna	-	✓	✓	✓	✓
NFC Reader	-	△	△	△	△
IP Rating	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel

Box Module

Coming Soon

P/N	TPC-B200-E12AE	TPC-B200-J12AE	TPC-B500-633AE	TPC-B500-653AE	TPC-B500-6C2AE	TPC-B500-673AE
CPU	Intel® Atom® E3940 Processor	Intel® Celeron® J3455 Processor	Intel® Core™ i3-6100U	Intel® Core™ i5-6300U	Intel® Celeron 3955U	Intel® Core™ i7-6600U
Memory	4 GB DDR3L 1600 MHz SO-DIMM	4 GB DDR3L 1600 MHz SO-DIMM	8 GB DDR4 2133 MHz SO-DIMM	8 GB DDR4 2133 MHz SO-DIMM	4 GB DDR4 2133 MHz SO-DIMM	8 GB DDR4 2133 MHz SO-DIMM
I/O	2 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 2 x GbE, 1 x Line Out, 1 x DP	2 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 2 x GbE, 1 x Line Out, 1 x DP	1 x RS-232, 1 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 3 x GbE, 1 x Line Out, 1 x DP	1 x RS-232, 1 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 3 x GbE, 1 x Line Out, 1 x DP	1 x RS-232, 1 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 3 x GbE, 1 x Line Out, 1 x DP	1 x RS-232, 1 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 3 x GbE, 1 x Line Out, 1 x DP
Expansion	1 x Full-size mini PCIe	1 x Full-size mini PCIe	1 x Half-size PCIe, 2 x full-size mini PCIe	1 x Half-size PCIe, 2 x full-size mini PCIe	1 x Half-size PCIe, 2 x full-size mini PCIe	1 x Half-size PCIe, 2 x full-size mini PCIe
Power Input	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
Operating System	Microsoft® Windows 10 IoT Enterprise LTSB	Microsoft® Windows 10 IoT Enterprise LTSB	Microsoft® Windows WES7 (32/64-bit), Windows 7 (32/64-bit), Ubuntu 16.04, Windows 10 IoT Enterprise LTSB	Microsoft® Windows WES7 (32/64-bit), Windows 7 (32/64-bit), Ubuntu 16.04, Windows 10 IoT Enterprise LTSB	Microsoft® Windows WES7 (32/64-bit), Windows 7 (32/64-bit), Ubuntu 16.04, Windows 10 IoT Enterprise LTSB	Microsoft® Windows WES7 (32/64-bit), Windows 7 (32/64-bit), Ubuntu 16.04, Windows 10 IoT Enterprise LTSB
Mount Options	Panel, stand, and VESA mount (with optional mounting kit)	Panel, stand, and VESA mount (with optional mounting kit)	Panel, stand, and VESA mount (with optional mounting kit)	Panel, stand, and VESA mount (with optional mounting kit)	Panel, stand, and VESA mount (with optional mounting kit)	Panel, stand, and VESA mount (with optional mounting kit)

Monitor Box Modules

P/N	FPM-B700-AE
Video Interface Available	HDMI, DP, DVI, VGA, iLink
Power Input	24 V_{DC} ± 20%
Mount Options	Panel, stand, and VESA mount
iLINK Technology	Supported

High-Performance Control Panels

Model		TPC-1881WP	TPC-1581WP
CPU		4th Gen. Intel® Core™ i7/i3 Processor	4th Gen. Intel® Core™ i3 Processor
Memory		4 GB DDR3L	4 GB DDR3L
		1600 MHz SO-DIMM	1600 MHz SO-DIMM
		SDRAM	SDRAM
Display	Display Type	TFT LED LCD	TFT LED LCD
	Display Size	18.5"	15.6"
	Max. Resolution	1366 x 768	1366 x 768
	Max. Colors	16.7M	16.7M
	Luminance cd/m²	300 nits	300 nits
	VieWINg Angle (H/V°)	170/160	170/160
	Backlight MTBF	50,000 hr	50,000 hr
	Touchscreen	Projected capacitive touch	Projected capacitive touch
Network (LAN)		10/100/1000BASE-T x 2	10/100/1000BASE-T x 2
I/O Ports		RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio line out x 1, USB 2.0 x 1 (△) Audio MIC x 1 (△)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio line out x 1, USB 2.0 x 1 (△) Audio MIC x 1 (△)
HDD (Optional)		2.5" SATA HDD	2.5" SATA HDD
Intelligent Keys		Quick access through built-in front bezel function and home key button	Quick access through built-in front bezel function and home key button
CompactFlash Slots		CFast slot x 1	CFast slot x 1
Expansion Slots		Full-size mini PICe	Full-size mini PICe
Digital Input/Output		-	-
Ingress Protection		Front panel: IP66	Front panel: IP66
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%
Enclosure		Front bezel: Die cast aluminum alloy Back housing: PC/ABS resin	Front bezel: Die cast aluminum alloy Back housing: PC/ABS resin
Mounting		Panel mount	Panel mount
Weight		6 kg (13.22 lb)	7 kg (15.44 lb)
Operating Temperature		0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Dimensions		488.1 x 309.1 x 56.7 mm (19.2" x 12.2" x 2.2")	419.7 x 269 x 56.7 mm (16.52" x 10.59" x 2.23")
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB

High-Performance Control Panels



Model		TPC-1782H	TPC-1582H	TPC-1282T
CPU		4th Gen. Intel® Core™ i7/i3 Processor	4th Gen. Intel® Core™ i3 Processor	5th Gen. Intel® Core™ i3 Processor
Memory		4 GB DDR3L	4 GB DDR3L	4 GB DDR3L
		1600 MHz SO-DIMM	1600 MHz SO-DIMM	1600 MHz SO-DIMM
		SDRAM	SDRAM	SDRAM
Display	Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD
	Display Size	17"	15"	12.1"
	Max. Resolution	1280 x 1024	1024 x 768	1024 x 768
	Max. Colors	16.7M	16.2M	16.2M
	Luminance cd/m²	350 nits	400 nits	600 nits
	VieWINg Angle (H/V°)	170/160	160/140	160/140
	Backlight MTBF	50,000 hr	50,000 hr	50,000 hr
	Touchscreen	Resistive	Resistive	Resistive
Network (LAN)		10/100/1000BASE-T x 2	10/100/1000BASE-T x 2	10/100/1000BASE-T x 2
I/O Ports		RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio line out x 1, USB 2.0 x 1 (△) Audio MIC x 1 (△)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio line out x 1, USB 2.0 x 1 (△) Audio MIC x 1 (△)	RS-232/422/485 x 1 USB 3.0 x 2, HDMI 1.4 x 1 Audio line out x 1, USB 2.0 x 1 (△) Audio MIC x 1 (△)
HDD (Optional)		2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD
Intelligent Keys		-	-	-
CompactFlash Slots		CFast slot x 1	CFast slot x 1	CFast slot x 1
Expansion Slots		Full-size mini PICe/half-size PCIe	Full-size mini PICe/half-size PCIe	Full-size mini PICe/half-size PCIe
Digital Input/Output		-	-	-
Ingress Protection		Front panel: IP65	Front panel: IP65	Front panel: IP66
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
Enclosure		Front bezel: Die cast aluminum alloy Back housing: PC/ABS resin	Front bezel: Die cast aluminum alloy Back housing: PC/ABS resin	Front bezel: Die cast aluminum alloy Back housing: PC/ABS resin
Mounting		Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount	Desktop, Wall or Panel Mount
Weight		6 kg (13.23 lb)	5.5 kg (12.13 lb)	3.2 kg (7.02 lb)
Operating Temperature		0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Dimensions		414 x 347.5 x 84 mm (16.3" x 13.68" x 3.31")	383 x 307 x 78.5 mm (15.08" x 12.09" x 3.09")	311.8 x 238 x 77.2 mm (12.28" x 9.38" x 3.04")
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB

Industrial Thin-Client Terminals

Model		TPC-1840WP	TPC-1751T		TPC-1551WP
CPU		AMD G-series T56E 1.65GHz	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Celeron® J1900 2.0 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor
Memory		4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM	4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM		4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM
Display	Display Type	HD TFT LED LCD	SXGA TFT LED LCD		WXGA TFT LED LCD
	Display Size	18.5"	17"		15.6"
	Max. Resolution	1366 x 768	1280 x 1024		1366 x 768
	Max. Colors	16.7M	16.7M		16.7M
	Luminance cd/m²	300 nits	350 nits		400 nits
	VieWINg Angle (H/V°)	170/160	160/140		170/160
	Backlight MTBF	50,000 hr	50,000 hr		50,000 hr
Touchscreen		Projected capacitive	Resistive		Projected capacitive
HDD (Optional)		2.5" SATA x 1	via optional kit		via optional kit
Network (LAN)		10/100/1000BASE-T x 2	10/100/1000BASE-T x 2		10/100/1000BASE-T x 2
I/O Ports		RS-232 x 3 RS-232/422/485 x 1 - USB 2.0 x 2	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1		RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1
CompactFlash Slots		-	CFast slot x 1		CFast slot x 1
Expansion Slots		Full-size mini PCIe	Full-size mini PCIe		Full-size mini PCIe
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%		24 V_{DC} ± 20%
Dimensions		488 x 309 x 56.7 mm (19.21" x 12.17" x 2.23")	413.7 x 347.2 x 63.8 mm (16.28" x 13.68" x 2.5")		419.7 x 269 x 61.9 mm (16.52" x 10.59" x 2.44")
Weight		7 kg	6 kg		5 kg
Front cover		Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy		Front bezel: Die cast aluminum alloy
Operating Temperature		0 ~ 55°C (32 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)		0 ~ 55°C (32 ~ 131°F)
Ingress Protection (Front Panel)		IP66	IP66		IP66
Certification		BSMI, CCC, CE	BSMI, CCC, CE		BSMI, CCC, CE
		FCC Class A, UL	FCC Class A, UL, KCC		FCC Class A, UL
Operating System		Windows 7, WES7	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB		Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB

Industrial Thin-Client Terminals




Model		TPC-1551T	TPC-1251T	TPC-1051WP	TPC-651T
CPU		Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor
Memory		4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM	4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM	4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM	4 GB (Optional 8 GB) DDR3L 1600 MHz SO-DIMM SDRAM
Display	Display Type	XGA TFT LED LCD	XGA TFT LED LCD	WXGA TFT LED LCD	VGA TFT LED LCD
	Display Size	15"	12.1"	10.1"	5.7"/6.5"
	Max. Resolution	1024 x 768	1024 x 768	1280 x 800	640 x 480
	Max. Colors	16.7M	16.2M	262K	262K
	Luminance cd/m²	400 nits	600 nits	300 nits	550/800 nits
	VieWINg Angle (H/V°)	160/140	160/140	170/170	160/140
	Backlight MTBF	50,000 hr	50,000 hr	25,000 hr	50,000 hr
Touchscreen		Resistive	Resistive	Projected capacitive	Resistive
HDD (Optional)		2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1	2.5" SATA x 1
Network (LAN)		10/100/1000BASE-T x 2	10/100/1000BASE-T x 2	10/100/1000BASE-T x 2	10/100/1000BASE-T x 2
I/O Ports		RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1	RS-232 x 1, RS-232/422/485 x 1 USB 3.0 x 1 USB 2.0 x 1
CompactFlash Slots		CFast slot x 1	CFast slot x 1	CFast slot x 1	CFast slot x 1
Expansion Slots		Full-size mini PCIe	Full-size mini PCIe	Full-size mini PCIe	Full-size mini PCIe
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
Dimensions		383.20 x 307.30 x 61.10 mm (15.09" x 12.10" x 2.41")	311.80 x 238 x 57.2 mm (12.28" x 9.37" x 22.52")	283.1 x 202.3 x 61.4 mm (11.15" x 7.96" x 2.42)	199 x 152 x 58.9 mm (7.83" x 5.98" x 2.32")
Weight		3.9 kg	2.6 kg	2.6 kg	1.5 kg
Front cover		Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 55°C (-4 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Ingress Protection (Front Panel)		IP66	IP66	IP66	IP66
Certification		BSMI, CCC, CE	BSMI, CCC, CE	BSMI, CCC, CE	BSMI, CCC, CE
		FCC Class A, UL, KCC	FCC Class A, UL, KCC	FCC Class A, UL	FCC Class A, UL
Operating System		Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB

Domain-Focused






Model		IPPC-5211WS	SPC-2140WP/1840WP	SPC-1881WP	FPM-8151H	TPC-8151WM	TPC-8191WM
CPU		Intel Celeron J1900	AMD T56N	Intel® Core™ i7/ i5 / i3 Processor	-	Intel Celeron CPU G3900TE @ 2.30 GHz	Intel Celeron CPU G3900TE @ 2.30 GHz
Memory		4 GB DDR3L SDRAM	4 GB DDR3L SDRAM	4 GB DDR3L SDRAM	-	4 GB DDR3L SDRAM	4 GB DDR3L SDRAM
Display	Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
	Display Size	21.5"	21.5" / 18.5"	18.5"	15"	15.6"	19.5"
	Max. Resolution	1920 x 1080	21.5": 1920 x 1080 18.5": 1366 x 768	1366 x 768	1024 x 768	1366 x 768	1600 x 900
	Max. Colors	16.7M	16.7M	16.7M	16.2M	16.7M	16.7M
	Luminance cd/m²	300 nits	300 nits	300 nits	350 nits	300 nits	250 nits
	VieWINg Angle (H/V°)	178/178	21.5": 178/178 18.5": 170/160	170/160	160/140	80 (left), 80 (right), 80 (up), 80 (down)	85 (left), 85 (right), 80 (up), 80 (down)
	Backlight MTBF	50,000 hr	50,000 hr	50,000 hr	50,000 hr	70,000 hr	30,000 hr
	Touchscreen	Projected capacitive touch	Projected capacitive touch	Projected capacitive touch	Resistive	Projected capacitive touch	Projected capacitive touch
Network (LAN)		10/100/1000BASE-T x 2	10/100/1000BASE-T x 2	10/100/1000BASE-T x 2	-	10/100/1000BASE-T x 1	10/100/1000BASE-T x 1
I/O Ports		RS-232/422/485 x 1 RS-232 x 1 USB 3.0 x 1	RS-232 x1 (connection:M12 A-coded, 8-pin male) USB 2.0 x1 (connection:M12 A-coded, 8-pin female) 24 V_{DC} power input (connection:M12 A-coded, 5-pin male)	RS-232 x1 (connection:M12 A-coded, 8-pin male) USB 2.0 x1 (connection:M12 A-coded, 8-pin female) 24 V_{DC} power input (connection:M12 A-coded, 5-pin male)	VGA DVI-D	USB 3.0 x 3 (rear) USB 2.0 x 1 (rear) USB 3.0 x 1 (front)	USB 3.0 x 3 (rear) USB 2.0 x 1 (rear) USB 3.0 x 1 (front)
HDD (Optional)		2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD	-	2.5" SATA HDD	2.5" SATA HDD
Expansion Slots		Full-size mini PCIe x1	Full-size mini PCIe x1	Full-size mini PCIe x1	-	-	-
Digital		-	-	-	-	-	-
Input/Output		-	-	-	-	-	-
Ingress Protection		All-Around IP69k	All-Around IP66	All-Around IP66	Front IP66	-	-
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20% / 12 V_{DC}/4.75A	19 V_{DC}	19 V_{DC}
Enclosure		Front bezel: Stainless steel Back housing: Aluminum/stainless steel	Front bezel: Die cast aluminum alloy Back housing: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy Back housing: Die cast aluminum alloy	Front bezel: 316L stainless steel Back housing: Stainless steel	Front bezel: Die cast aluminum alloy Back housing: PC/ ABS resin	Front bezel: Die cast aluminum alloy Back housing: PC/ ABS resin
Mounting		VESA and flange adapter for arm and foot mount	VESA	VESA	VESA / Panel Mount	Desktop, Wall or VESA Mount	Desktop, Wall or VESA Mount
Weight		16 kg	9 kg	9 kg	8.5 kg	4.4 kg	5.5 kg
Operating Temperature		0 ~ 50°C (32 ~ 122°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	-20 ~60°C (-4 ~ 140°F)	0 ~ 40°C (32 ~ 130°F)	0 ~ 40°C (32 ~ 130°F)
Dimensions		555 x 346.5 x 81 mm	21.5": 558.4 x 349.8 x 65 mm 18.5": 488 x 309 x 65 mm	488 x 309 x 65 mm	414 x 347.5 x 84 mm	400.74 x 241 x 78.5 mm	510 x 291 x 66 mm
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	CCC, CE, FCC Class A, UL	CCC, CE, FCC Class A, UL
Operating System		Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	WIN 10 Enterprise LTSB	WIN 10 Enterprise LTSB

Industrial Operator Panel






Model		WOP-3070T	WOP-3100T	WOP-3120T	WOP-2040T		WOP-2070T		WOP-2100T	
Ordering Information		WOP-3070T-C4BE	WOP-3100T-C4BE	WOP-3120T-C4AE	WOP-2040T-S1AE	WOP-2040T-N1AE	WOP-2070T-S2AE	WOP-2070T-N2AE	WOP-2100T-S2AE	WOP-2100T-N2AE
CPU		RISC 32 bits, 600 MHz (ARM® Cortex™-A8)	ARM Cortex A8 600Mhz	ARM Cortex A8 600Mhz	RISC (32-bit, 200 MHz)		RISC (32-bit, 200 MHz)			
Backup Memory		128 KB	128 KB	FRAM 1M bit (=128K Byte, 64 word)	128 KB		128 KB			
Working Memory		DDR2 256M Bytes	DDR2 256 MB on board	DDR2 256 MB on board	32 MB SDRAM		64 MB SDRAM		64 MB SDRAM	
Storage		512MB on board SLC type	512MB on board SLC type	512MB on board SLC type	8MB NOR Flash		8 MB NOR Flash			
		-	-	-	-	128M NAND Flash	-	128M NAND Flash	-	128M NAND Flash
Operating System		Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0	HMI RTOS, WebOP Designer 2.0		HMI RTOS, WebOP Designer 2.0			
Display	Type	WVGA (16:9) TFT LCD	WSGA (17:10) TFT LCD	XGA (16:9) TFT LCD	WQVGA (16:9) TFT LCD		WVGA (16:9) TFT LCD		WSVGA (16:9) TFT LCD	
	Size	7"	10.1"	12"	4.3"		7"		10.1"	
	Max. Resolution	800 x 480	1024 x 600	1024 x 768	480 x 272		800 x 480		1024 x 600	
	Max. Colors	65,536 colors	64K	64K	65,536		65,536		65,536	
	Luminance (cd/m²)	500	550 nits	500 nits	400		300		250	
	Viewing Angle (H/V°)	140/120	140/110	160/140	100/95		140/130		140/110	
	Backlight Life (hr)	50,000	50,000	50,000	LED, 20,000		LED, 20,000		LED, 20,000	
	Dimming	Adjustable	-	-	-		-		-	
Touchscreen		5 wire Analog Resistive	5 wires Analog resistive	5 wires Analog resistive	4-wire analog resistive		4-wire analog resistive		4-wire analog resistive	
Power-On LED		✓	✓	✓	✓		✓		✓	
Communication	COM1	RS-232/422485 (DB9)	RS-232/422/485 (DB9 Male)	RS-232/RS-422,RS-485 (DB9), 300~115.2 kbps	RS-232/422/485 (DB9)		RS-232/422/485 (DB9)		RS-232/422/485 (DB9)	
Interface	COM2	RS-422/485 (Terminal 4pin+Ground)	RS-422/485 (Terminal Plug 4-Pin)	RS-422/RS-485 (Terminal 4 pin+Ground), 300~115.2 kbps	RS-422/485 (5-pin terminal)		RS-422/485 (5-pin terminal)		RS-422/485 (5-pin terminal)	
	COM3	RS-485 (Termianl 2pin)	RS-485 (Terminal Plug 2-Pin)	RS-485 (Terminal 2 pin), 300~115.2 kbps	RS-232 (COM1: 5/7/8-pin)		RS-232 (COM1: 5/7/8-pin)		RS-232 (COM1: 5/7/8-pin)	
	CAN	Termianl 2pin	Terminal Plug 2-Pin	Terminal Plug 2-Pin	-		-		-	
	Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT	-	10/100 BASE-T	-	10/100 BASE-T	-	10/100 BASE-T
I/Os	USB Client	USB 2.0 Client x 1	USB 2.0 Client x 1	USB 2.0 Client x 1	✓		✓		✓	
	USB Host	USB 2.0 Host x 1 (Top)	USB 2.0 Host x 1	USB 2.0 Host x 1 (Top)	✓		✓		✓	
	Micro-SD Slot	✓	✓	✓	-	✓	-	✓	-	✓
	SD Slot	-	-	-	-		-		-	
	Audio	1 Lin out / 1 Mic in	1 Line-out / 1 Mic-in	1 Line-out / 1 Mic-in	-		-		-	
	Power Isolation	✓	✓	✓	-		-		-	
	I/O Isolation	✓	✓	✓	-		-		-	
Power Supply Voltage		24 VDC ± 10%	24 VDC ± 10%	24 VDC ± 10%	24 VDC ± 10%		24 VDC ± 10%		24 VDC ± 10%	
Power Consumption		7W Typical	9 W	20 W	5 W		10 W		10 W	
Dimensions W x H x D (mm)		203.4 x 150 x 43.7 mm (8.01" x 5.91" x 1.72")	271.5 x 213.5 x 43.2 mm (10.69" x 8.41" x 1.7")	311.8 x 238 x 54.5 mm (12.28" x 9.37" x 2.15")	130 x 106.2 x 36.4 mm (5.11" x 4.18" x 1.43")		188 x 143.3 x 30 mm (7.4" x 5.64" x 1.18")		269.8 x 212 x 37.4 mm (10.62" x 8.35" x1.47")	
Cut-out Dimensions W x H (mm)		192 x 138.5 mm (7.56" x 5.45")	260 x 201.5 mm (10.24" x 7.93")	302.5 x 228.5 mm (12.1" x 9.14")	118.5 x 92.5 mm (4.66" x 3.64")		175 x 132.5 mm (6.89" x 5.21")		259.5 x 201.5 mm (10.22" x 7.93")	
Enclosure		Die-cast aluminum alloy front bezel	PC + ABS	PC + ABS	PC + ABS		PC + ABS		PC + ABS	
Net Weight		1 kg (2.20 lbs)	1.2 kg (2.65 lbs)	2.5 kg (5.51 lb)	0.3 kg (0.66 lb)		0.6 kg (1.32 lb)		1.2 kg (2.64 lb)	
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)		0 ~ 50°C (32 ~ 122°F)	
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)	
Humidity		10% ~ 90% RH @ 40°C, non-condensing	10 ~ 90% RH @ 40°C, non-condensing	10 ~ 90% RH @ 40°C, non-condensing	10 ~ 90% RH @ 40°C, non-condensing		10 ~ 90% RH @ 40°C, non-condensing		10 ~ 90% RH @ 40°C, non-condensing	
Ingress Protection		IP66	Front panel: IP66	Front panel: IP66	Front panel: IP66		Front panel: IP66		Front panel: IP66	
Certification		CE, FCC, BSMI, CCC, UL-508	CE, BSMI, CCC, UL, FCC Class A	CE, BSMI, CCC, UL, FCC Class A	CE, FCC, BSMI, CCC, UL		CE, FCC, BSMI, CCC, UL		CE, FCC, BSMI, CCC, UL	

Industrial monitors






Model		FPM-7211W	FPM-7181W	FPM-7151W	FPM-7151T	FPM-7121T	FPM-7061T
Display	Display Type	Full HD	WXGA	WXGA	XGA	XGA	VGA
	Display Size	21.5"	18.5"	15.6"	15"	12.1"	6.5"
	Max. Resolution	1920 x 1080	1366 x 768	1366 x 768	1024 x 768	1024 x 768	640 x 480
	Max.Colors	16.7M	16.7M	16.7M	16.7M	16.2M	16.2M
	Luminance cd/m²	300	300	300	400	600	800
	Viewing Angle (H/V°)	178/178	170/160	170/160	160/140	160/140	160/140
	Backlight MTBF	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr
Video Port		VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DP	VGA/DP	VGA/DP
Touchscreen		Combo	Combo	Combo	Combo	Combo	USB
OSD (onscreen display)		Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable
Power Input Voltage		100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)
DC Power Input(voltage)		24 V	24 V	24 V	24 V	24 V	24 V
Operating Temperature		0 ~ 55°C	0 ~ 55°C	0 ~ 55°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Storage Temperature		-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-30 ~ 70°C	-30 ~ 70°C	-30 ~ 70°C
Dimensions		558.4 x 349.8 x 47.7 mm	488 x 309 x 47.7 mm	419.7 x 269 x 47.7 mm	383.2 x 307.3 x 48.2 mm	311.8 x 238 x 44.5 mm	199 x 152 x 46.1 mm
Cut-out Dimensions		550.3 x 341.8 mm	479.3 x 300.3 mm	412.4 x 261.7 mm	374.5 x 298.5 mm	303 x 229 mm	189.1 x 142.1 mm
Weight		8 kg	6 kg	5 kg	4.2 kg	2.6 kg	1.2 kg
Certifications		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux

Industrial monitors






Model		FPM-5191G	FPM-5171G	FPM-5151G	FPM-2170G	FPM-2150G	FPM-2120G
Display	Display Type	SXGA	SXGA	XGA	SXGA	XGA	SVGA
	Display Size	19"	17"	15"	17"	15"	12"
	Max. Resolution	1280 x 1024	1280 x 1024	1024 x 768	1280 x 1024	1024 x 768	800 x 600
	Max.Colors	16.7M	16.7M	16.2M	16.7M	16.2M	16.2M
	Luminance cd/m²	350	350	400	350	400	450
	Viewing Angle (H/V°)	170/160	160/140	160/140	160/140	160/140	160/140
	Backlight MTBF	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr
Video Port		VGA/DVI	VGA/DVI	VGA/DVI	VGA	VGA	VGA
Touchscreen		Combo	Combo	Combo	Combo	Combo	Combo
OSD (onscreen display)		Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable
Power Input Voltage		100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Adapter)	100 ~ 240 V (Adapter)	100 ~ 240 V (Adapter)
DC Power Input		10 ~ 30 V	10 ~ 30 V	10 ~ 30 V	12 V	12 V	12 V
Operating Temperature		0 ~ 50°C	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C
Storage Temperature		-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Dimensions		481.93 x 384.6 x 59 mm	481.9 x 355.9 x 55 mm	449.92 x 315.63 x 50.5 mm	413.72 x 347.22 x 52.13 mm	383 x 307 x 48.13 mm	311 x 237 x 40.63 mm
Cut-out Dimensions		454 x 338 mm	454 x 338 mm	424 x 293 mm	400.92 x 334.42 mm	374.5 x 298.5 mm	303 x 229 mm
Weight		8.5 kg	7 kg	6 kg	5.6 kg	4.5 kg	4 kg
Certifications		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL	BSMI, CCC, CE, FCC, UL
Operating System		Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux




Model		FPM-3191G	FPM-3171G	FPM-3151G	FPM-3121G
Display	Display Type	SXGA	SXGA	XGA	XGA
	Display Size	19"	17"	15"	12.1"
	Max. Resolution	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768
	Max.Colors	16.7M	16.7M	16.2M	16.2M
	Luminance cd/m²	350	350	350	600
	Viewing Angle (H/V°)	170/160	160/140	160/140	160/140
	Backlight MTBF	50,000 hr	50,000 hr	50,000 hr	50,000 hr
Video Port		VGA/DVI	VGA/DVI	VGA/DVI	VGA/DVI
Touchscreen		Combo	Combo	Combo	Combo
OSD (onscreen display)		Front panel control buttons	Front panel control buttons	Front panel control buttons	Front panel control buttons
Power Input Voltage		100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)	100 ~ 240 V (Optional adapter)
DC Power Input		10 ~ 30 V	10 ~ 30 V	10 ~ 30 V	10 ~ 30 V
Operating Temperature		-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Storage Temperature		-30 ~ 80°C	-30 ~ 80°C	-30 ~ 80°C	-30 ~ 80°C
Dimensions		482 x 399.2 x 67 mm	482 x 354.8 x 63.5 mm	312 x 224 x 60 mm	312 x 224 x 60 mm
Cut-out Dimensions		441 x 376.4 mm	447.2 x 329.2 mm	303.5 x 229.5 mm	303.5 x 229.5 mm
Weight		10.65 kg	9.25 kg	7.73 kg	4.07 kg
Certifications		CE, FCC Class A, BSMI, CCC, UL	CE, FCC Class A, BSMI, CCC, UL	CE, FCC Class A, BSMI, CCC, UL	CE, FCC Class A, BSMI, CCC, UL
Operating System		Windows XP/Vista/7/8/10/XPE, Linux	Windows XP/Vista/7/8/10/XPE, Linux	Windows XP/Vista/7/8/10/XPE, Linux	Windows XP/Vista/7/8/10/XPE, Linux

General Panel PC

NEW

New Generation




Model	PPC-3060S	PPC-3100S/3120S/3150S			PPC-3150SW/3180SW/3210SW			PPC-3100/3120	
CPU	Intel® Celeron® 1.58 GHz Processor (Dual Core)	Intel® Celeron® 1.83 GHz Processor (Quad Core)			Intel® Pentium® 1.1 GHz Processor (Quad Core)		Intel® Celeron® 1.83 GHz Processor (Quad Core)	Intel® Atom™ 1.6GHz Processor (Quad Core)	
Memory	1 x SO-DIMM DDR3L 1333 MHz (max. 4 GB)	1 x SO-DIMM DDR3L 1333 MHz (max. 8 GB)			1 x SO-DIMM DDR3L 1333 MHz (max. 8 GB)		1 x SO-DIMM DDR3L 1333 MHz (max. 8 GB)	1 x SO-DIMM DDR3L (max. 8 GB)	
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	
Display Size	6.5	10.4	12.1	15	15.6	18.5	21.5	10.4	12.1
Screen Ratio	4:3	4:3			16:9		16:9	4:3	
Max. Resolution	640 x 480	800 x 600 / 1024 x 768	1024 x 768	1024 x 768	1366 x 768	1366 x 768	1920 x 1080	800 x 600	1024 x 768
Luminance cd/m²	800	400 / 350	500	400	400	300	300	400	600
Viewing Angle (H/V°)	160,140	160,140 / 176,176	160,140		170,160	170,160	178,178	160,140	
Backlight MTBF	50,000 hr	30,000 hr	30,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	30,000 hr	50,000 hr
Touchscreen	5-wire resistive	Projected capacitive multi-touch/5-wire resistive			Projected capacitive multi-touch/5-wire resistive			5-wire resistive	
Network (LAN)	2 x GbE (Intel I211-AT)	2 x GbE (Intel I211-AT)			2 x GbE (Intel I211-AT,Intel I219LM)		2 x GbE (Intel I211-AT)	2 x GbE	
IO Ports	2 x serial ports: 1 x RS-232, 1 x RS-232/422/485 (adjustable via BIOS) 2 x USB 2.0, 1 x USB 3.0	2 x serial ports: 1 x RS-232, 1x RS-232/422/485 (adjustable via BIOS) 2 x USB 2.0, 1 x USB 3.0 (for PPC-3100S-RAE) 1 x USB 2.0, 1 x USB 3.0 (for PPC-3100S-PBE)			2 x serial ports: 1 x RS-232, 1 x RS-232/422/485 (adjustable via BIOS) 1 x USB 2.0, 2 x USB 3.0 1 x line out		2 x serial ports: 1 x RS-232, 1 x RS-232/422/485 (adjustable via BIOS) 1 x USB 2.0, 1 x USB 3.0	5 x serial ports: 4 x RS-232, 1 x isolated RS-422/485 4 x USB 3.0 1 x DB15 VGA 1 x HDMI 1 x line out, 1 x mic in	
Storage	1 x 2.5" SATA bay 1 x mSATA bay	1 x 2.5" SATA bay 1 x mSATA bay			1 x 2.5" SATA bay 1 x mSATA bay		1 x 2.5" SATA bay 1 x mSATA bay	1 x 2.5" SATA bay 1 x mSATA bay	
Expansion	1 x full-size mini PCIe	1 x full-size mini PCIe			1 x full-size mini PCIe		1 x full-size mini PCIe	1 x PCIe x1; 1 x PCI (only PPC-3120) 1 x full-size mini PCIe	
Power Input (Voltage)	12 ~ 24 V_{DC}	12 ~ 24 V_{DC}			12 ~ 24 V_{DC}		12 ~ 24 V_{DC}	9 ~ 32 V_{DC}	
Enclosure	Front: Aluminum alloy Back: SECC	Aluminum alloy			Aluminum alloy		Aluminum alloy	Front: Aluminum alloy Back: Plastic + SECC	
Ingress Protection	Front panel: IP65	Front panel: IP65			Front panel: IP65		Front panel: IP65	Front panel: IP65	
Mounting	Panel, VESA 75, wall, stand, ARM	Panel, VESA 75, wall, stand, ARM			Panel, VESA 75, wall, stand, ARM		Panel, VESA 75, wall, stand, ARM	Panel, VESA 75, wall, stand, ARM	
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD			0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD		0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 40°C (32 ~ 104°F) with HDD	0 ~ 50°C (32 ~ 122°F) with 2.5" SATA SSD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5" SATA SSD	
Storage Temperature	-30 ~ 60°C (-22 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)			-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)	
Dimensions	197.6 x 150.6 x 41 mm (7.8" x 5.9" x 1.6")	272 x 217 x 46 mm (10.7" x 8.5" x 1.8")	317 x 246 x 49 mm (12.5" x 9.7" x 1.9")	391.3 x 312.4 x 51.5 mm (15.4" x 12.3" x 2.0")	419.7 x 269 x 54 mm (16.52" x 10.59" x 2.16")	488 x 309 x 55 mm (19.21" x 12.17" x 2.16")	558.4 x 349.8 x 56.2 mm (22" x 13.8" x 2.2")	271.8 x 216.8 x 57.5 mm (10.7" x 8.53" x 2.26")	317 x 217 x 60.5 mm (12.5" x 9.7" x 2.4")
Weight	1.5 kg	1.9 kg	2.1 kg	4 kg	5.4 kg	7 kg	7.5 kg	2.5 kg	3.3 kg
Certification	BSMI, CCC, CB, UL, CE, FCC Class B	BSMI, CCC, CB, UL, CE, FCC Class B			BSMI, CCC, CB, UL, CE, FCC Class B		BSMI, CCC, CB, UL, CE, FCC Class B	BSMI, CCC, CB, UL, CE, FCC Class B	
Operating System	Windows 7/8.1/10, WES7, WEC7, Linux, Android 4.4	Windows 7/8.1/10, WES7, WEC7, Linux, Android 4.4			Windows 10, Linux, Android		Windows 7/8.1/10, WES7, WEC7, Linux, Android 4.4	Windows 10, Linux, Android	

NEW




Model	PPC-3150/3170/3190			PPC-3151	PPC-4151W/4211W		PPC-3181SW/3211SW	
CPU	Intel® Atom™ 1.91 GHz Processor (Quad Core)			6th Gen Intel® Core™ i5 processor (Dual Core)	4th Gen. Intel® Core™ i5/ i3 Processor (Dual Core)		6th Gen Intel® Core™ i5 processor (Dual Core)	
Memory	1 x SO-DIMM DDR3L 1333 MHz (max. 8 GB)			1 x SO-DIMM DDR4 1866/2133 MHz (max. 16 GB) (1.2 V)	1 x SO-DIMM DDR3L 1333/1600 MHz (max. 8 GB)		1 x SO-DIMM DDR4 1866/2133 MHz (max. 16 GB)	
Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD		TFT LED LCD	
Display Size	15	17	19	15	15.6	21.5	18.5	21.5
Screen Ratio	4:3			4:3	16:9		16:9	
Max. Resolution	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1366 x 768	1920 x 1080	1366 x 768	1920 x 1080
Luminance cd/m²	400	350	350	400	400	300	300	300
Viewing Angle (H/V°)	160,140	160,140	170,160	160,140	170,160	178,178	170,160	178,178
Backlight MTBF	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr
Touchscreen	5-wire resistive			Projected capacitive multi-touch	Projected capacitive multi-touch/5-wire resistive		Projected capacitive multi-touch	
Network (LAN)	2 x GbE (Intel I210)			2 x GbE (Intel® I211-AT, I219LM)	2 x GbE (Intel I211-AT,Intel I218LM)		2 x GbE (Intel I211-AT,Intel I219LM)	
IO Ports	5 x serial ports: 4 x RS-232 (2 x external and 2 x via internal pin header, requires optional module), 1 x USB 3.0, 3 x USB 2.0 1 x VGA 1 x DP1.1a 1 x GPIO (8 channels, TTL level) via internal pin header (requires optional module) 1 x line out, 1 x mic in			5 x serial ports: 4 x RS-232 (2 x via internal pin header, requires additional optional module), 1 x isolated RS-422/485, 4 x USB 3.0 1 x VGA 1 x DP1.2 1 x GPIO (8 channels, TTL level) via internal pin header 1 x line out, 1 x mic in	5 x serial ports: 4 x RS-232, 1 x isolated RS-422/485, 4 x USB 3.0 (rear), 1 x USB 2.0 (right side) 1 x DB15 VGA 1 x display port (1.2) 1 x line out, 1 x mic in		2 x serial ports: 1 x RS-232, 1 x RS-232/422/485 (adjustable via BIOS) 2 x USB 3.0, 2 x USB 2.0 (right side) 1 x HDMI	
Storage	1 x 2.5" SATA bay 1 x mSATA bay			1 x 2.5" SATA bay 1 x M.2 bay (22 x 42 mm)	1 x 2.5" SATA bay 1 x mSATA bay	2 x 2.5" SATA bay (Intel RAID) 1 x mSATA bay	1 x 2.5" SATA bay 1 x mSATA bay	
Expansion	1 x PCI (standard); 1 x PCIe x1 (in the accessory box) 1 x Full-size mini PCIe Optional: 1 x Cfast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO			1 x PCIe x4 (standard); 1 x PCI (in the accessory box) 1 x Full-size mini PCIe Optional: 1 x CFast; 1 x CF card; 1 x Internal USB dongle; 2 x RS-232 or 1 x RS-232 + 1 x GPIO	1 x PCIe x4 (standard); 1 x PCI (in the accessory box) 1 x Full-size mini PCIe		1 x Full-size mini PCIe	
Power Input (Voltage)	9 ~ 32 V_{DC}			9 ~ 32 V_{DC}	9 ~ 32 V_{DC}	12 ~ 32 V_{DC}	12 ~ 24 V_{DC}	
Enclosure	Plastic			Front: Aluminum alloy Back: Plastic	Front: Aluminum alloy Back: Plastic		Aluminum alloy	
Ingress Protection	Front panel: IP65			Front panel: IP65	Front panel: IP65		Front panel: IP65	
Mounting	Panel, VESA 75, wall, stand, ARM			Panel, VESA 75, wall, stand, ARM	Panel, VESA 75/100, wall, stand, ARM		Panel, VESA 100, wall, stand, ARM	
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with 2.5 SATA HDD -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or 2.5 SATA SSD			0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 45°C (32 ~ 104°F) with HDD	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 45°C (32 ~ 104°F) with HDD	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F) with SSD 0 ~ 45°C (32 ~ 104°F) with HDD	
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)	-30 ~ 60°C (-22 ~ 140°F)		-40 ~ 60°C (-40 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)	
Dimensions	396.5 x 317.6 x 65.3 mm (15.6" x 12.5" x 2.57")	442.0 x 362.0 x 69.5 mm (17.4" x 14.3" x2.74")	458.2 x 384 x 67.3 mm (18" x 15" x 2.6")	391.4 x 312.5 x 55.35 mm (15.41" x 12.3" x 2.18")	419.7 x 269 x 59 mm (16.52" x 10.59" x 2.32")	558.4 x 349.8 x 63.6 mm (22" x 13.8" x 2.5")	488 x 309 x 61 mm (19.21" x 12.17" x 2.4")	558.4 x 349.8 x 62.3 mm (22" x 13.8" x 2.45")
Weight	5.3 kg	6.3 kg	7.9 kg	5.4 kg	5.69 kg	7.8 kg	7.6 kg	8.1 kg
Certification	BSMI, CCC, CB, UL, CE, FCC Class A			BSMI, CCC, CB, UL, CE, FCC Class B	BSMI, CCC, CB, UL, CE, FCC Class B		BSMI, CCC, CB, UL, CE, FCC Class B	
Operating System	Windows 7/8.1/10, WES7, WEC7, Linux			Windows 7/8.1/10, Linux	Windows 7/8.1/10, WES7, Linux		Windows 7/8.1/10, WEC7, Linux	

General Panel PC

Model	PPC-6151C/6171C/6191C-RTAE PPC-MB-8260AE			PPC-6151C/6171C/6191C-RMAE Support certified mini-ITX motherboards			PPC-6120
CPU	6th Gen. Intel® Core™ i3/i5/i7/Celeron® Processor			Support processor up to 45W TDP depending on the Mini-ITX motherboard			4th Gen. Intel® Core™ i3/i5/i7/ Celeron® Processor
Memory	1 x SO-DIMM DDR4 2133 MHz (max. 16 GB)			Subject to mini-ITX motherboard specifications			2 x SO-DIMM DDR3/DDR3L 1066/1333 MHz (max. 16/8 GB per SO-DIMM)
Display Type	TFT LED LCD			TFT LED LCD			TFT LED LCD
Display Size	15	17	19	15	17	19	12.1
Screen Ratio	4:3			4:3			4:3
Max. Resolution	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768
Luminance cd/m²	400	350	350	400	350	350	600
Viewing Angle (H/V°)	160,140	160,140	170,160	160,140	160,140	170,160	160,140
Backlight MTBF	50,000 hr			50,000 hr			50,000 hr
Touchscreen	Projected capacitive multi-touch/5-wire resistive			Projected capacitive multi-touch/5-wire resistive			5-wire resistive
Network (LAN)	2 x GbE (Intel I211)			Subject to mini-ITX motherboard specifications			2 x GbE(Intel I211, Intel I217LM)
IO Ports	5 x serial ports: 3 x RS-232 (by cabling), 1 x RS-232/422/485, 1 x RS-232, 4 x USB3.0 (ext.), 2 x USB2.0 (int. pin head) 1 x DP 1.3, 1 x VGA 1 x line out, 1 x mic in 1 x GPIO (8-bit) (by cabling)			4 x Reserved ports 2 x WLAN antenna ports Subject to mini-ITX motherboard specifications			5 x serial ports: 4 x RS-232, 1 x isolated RS-422/485 4 x USB 3.0 (Ext.), 2 x USB 2.0 (int. pin head) 1 x display port 1.2 1 x VGA 1 x line out, 1 x mic in
Storage	1 x 2.5" SATA bay 1 x mSATA bay			2 x 2.5" SATA bay			1 x 2.5" SATA bay 1 x mSATA bay
Expansion	1 x PCIe x4 (standard); 2 x PCI (in the accessory box) Optional: 2 x PCIe x1 1 x PCIe x1 + 1 x PCI 1 x Full-size mini PCIe or 1 x mSATA Bay			Subject to mini-ITX motherboard specifications			1 x PCIe x4 or 1 x PCI (Optional) 1 x Full-size mini PCIe
Power Input (Voltage)	100 ~ 240 V_{AC}			100 ~ 240 V_{AC}			12 ~ 30 V_{DC}
Enclosure	Front: Aluminum alloy Back: Plastic			Front: Aluminum alloy Back: Plastic			Plastic
Ingress Protection	Front panel: IP65			Front panel: IP65			Front panel: IP65
Mounting	Panel, VESA 75/100, wall, stand, ARM			Panel, VESA 75/100, wall, stand, ARM			Panel, VESA 75, wall, stand, ARM
Operating Temperature	0 ~ 50°C (32 ~ 122°F)			0 ~ 50°C (32 ~ 122°F)			0 ~ 50°C (32 ~ 122°F)
Storage Temperature	-30 ~ 60°C (-22 ~ 140°F)			-30 ~ 60°C (-22 ~ 140°F)			-40 ~ 60°C (-40 ~ 140°F)
Dimensions	391.4 x 312.5 x 103.6 mm (15.4" x 12.3" x 4.08")	437 x 357 x 107.6 mm (17.2" x 14.06" x 4.2")	454 x 379.8 x 107.5 mm (17.9" x 15" x 4.2")	391.4 x 312.5 x 103.6 mm (15.4" x 12.3" x 4.08")	437 x 357 x 107.6 mm (17.2" x 14.06" x 4.2")	454 x 379.8 x 107.5 mm (17.9" x 15" x 4.2")	325 x 253.8 x 73.8 mm (12.80" x 9.99" x 2.91")
Weight	5.03 kg	5.4 kg	5.8 kg	5.03 kg	5.4 kg	5.8 kg	3.8 kg
Certification	BSMI, CCC, CB, UL, CE, FCC Class A			CB, UL, CE, FCC classA			BSMI, CCC, CB, UL, CE, FCC Class A
Operating System	Windows 7/8.1/10, Linux			Subject to mini-ITX motherboard specifications			Windows 7/8.1/10, Linux, WEC7, WES7P

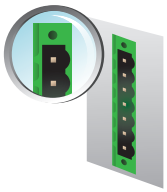
5 Automation Computers and Controllers

Advantech Control Cabinet PC

Diverse Form Factors for Different Mounting Scenarios in Cabinet Applications

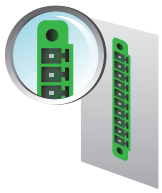
Advantech's UNO-1000/3000 series of embedded control cabinet PCs are high-performance, fanless systems with multiple extensions and a ruggedized chassis. With iDoor technology, they also support automation feature extensions such as Fieldbus communication, Wi-Fi/3G, Digital I/O, and PoE. Versatile mounting options via DIN-rail, wall, enclosure, and panel mounts ensure easy installation for indicated market segments. The mounting options as control cabinet PCs make them particularly suitable for IoT gateway, motion, and vision applications.

Features and Benefits



Dual Power Input

Support for dual power input with a wide range of operating voltages provides a fail-safe mechanism to reduce downtime due to maintenance by providing an alternative power input source. Furthermore, remote power-on assists with working units going back online without the need to open the cabinet.



Built-In Digital I/O

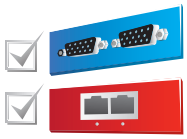
Built-in digital I/O for simple I/O control, status detection, lighting control, and event triggering saves on additional costs and the need for extra devices.

Multiple Expansion Options

UNO modules support the latest range of expansion interfaces including PCIe for high-density I/O applications, iDoor for Fieldbus modules, and PCI for motion cards, with easy installation captive thumb screws.

Dual Digital Display

Flexible display options provide resolutions of up to 4K/2K to deliver outstanding image quality.



Dual iDoor Expansion

Advantech's iDoor technology provides simple, flexible, and reliable expandability in high-density systems with versatile color identification and multiple functions.

IEC-61010 Compliance

UNO-3382G/ 3384G conform to the UL/ IEC-61010 standard and support book mounting methods, making them suitable for installation in harsh industrial environments.

Easy Maintenance

Captive Thumb Screws

Operators can work efficiently with captive thumb screws, which are superior for swapping HDD, CFast, and PCI/PCI equipment and for maintaining storage and expansion devices.

Hot-Swappable RTC Battery

Removable RTC battery saves time and costs by avoiding the need to disassemble working units and shutting down the whole operation.

Hot-Swappable Storage

Hot-swappable HDD/SSD technology allows operators to deploy software or collect control data easily so that they can maintain working units without interruption.

Versatile Mounting with Easy Installation

DIN-Rail Mount

UNO-1000 series can be painlessly installed on rails with the sophisticated DIN rail kit at the rear and R-angle design at the front.

Wall Mount

Easy pull-out operation is an extremely convenient and makes these units suitable for all but the heaviest of installations.

Book Mount

The UNO-3300 is an open and universal automation solution that saves space and allows quick installation in control cabinets.

Enclosure Mount

The UNO-3400 series are designed for easy, quick installation in control cabinets. This series utilizes place-and-click snap connectors in further consideration of user activity in order to simplify installation procedures.

Control Cabinet PCs

NEW

Model Name	UNO-1251G	UNO-1252G	UNO-1372G-J
Certification	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI
CPU	ARM Cortex A8	Intel® Quark X1001	Intel® Celeron J1900 2.0 GHz
Onboard RAM	Onboard 256 MB DDR2	Onboard 512 MB DDR3L	Built-in 4 GB DDR3L
Battery-Backup RAM	FRAM 128 KB	-	-
Display	-	-	HDMI, DP
Audio	-	-	-
Digital I/O Serial Port	1 x RS-485 1 x RS-422/485 1 x RS-232 1 x CAN	Isolated 4-ch digital I/O Isolated 1 x RS-232/485 1 x RS-232	Isolated 4-ch digital I/O Isolated 4 x RS-232/422/485
Ethernet Ports	2 x RJ45, 10/100 Mbps	2 x RJ45, 10/100 Mbps	2 x RJ45, 10/100/1000 Mbps
USB Ports	1 x USB2.0	1 x USB 2.0 1 x USB Client	1 x USB3.0 3 x USB2.0
PCIe/PCI Expansion	1 x mPCIe (USB signal)	2 x mPCIe (1 x only PCIe signal)	2 x mPCIe
Watchdog Timer	-	-	✓
CompactFlash Slots	-	-	-
Storage	1 x 1 GB microSD card (built-in) 1 x microSD card slot	1 x 1 GB microSD card (built-in)	1 x mSATA (shared with mPCIe slot) 1 x 2.5" HDD bay
SIM Card slot	1 (micro)	1 (micro)	1 (micro)
Default OS	WEC7	Ycoto Linux	-
Operating Systems	WEC7, Embedded Linux	Ycoto Linux	Win10, WES7P, WEC7, AdvLinuxTU
TPM	-	TPM 1.2 by iDOOR	TPM 2.0 onboard
Mounting	DIN rail	DIN rail	DIN rail
Power Input Range	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temp.	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Power Consumption Typical	5 W	10 W	19 W
Dimensions(WxDxH)	50 x 90 x 100 mm (1.97" x 3.54" x 3.94")	63 x 105 x 100 mm (2.48" x 4.13" x 3.94")	65 x 105 x 150mm (2.6" x 4.1" x 5.9")
Weight	0.4 kg	0.6 kg	1 kg

NEW

UNO-1372G-E	UNO-1372GH	UNO-1483G
CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI, CID2	CE, FCC, UL, CCC, BSMI
Intel® ATOM E3845 1.91 GHz	Intel® ATOM E3845 1.91 GHz	Intel® Core i3-4010U
Built-in 4 GB DDR3L	Built-in 4 GB DDR3L	Built-in 8 GB DDR3L
-	-	-
VGA, HDMI	VGA, HDMI	VGA/DP
Line out	Line out	Line out
Isolated 4-ch digital I/O 1 x RS-422/485 1 x RS-232	Isolated 4-ch digital I/O 1 x RS-422/485 1 x RS-232	Isolated 4-ch digital I/O 1 x RS-232 2 x RS-422/485
3 x RJ45, 10/100/1000 Mbps	3 x RJ45, 10/100/1000 Mbps	4 x RJ45, 10/100/1000 Mbps
1 x USB3.0 2 x USB2.0	1 x USB3.0 2 x USB2.0	2 x USB2.0 2 x USB3.0
2 x mPCIe	2 x mPCIe	2 x mPCIe 1 x PCIe x1
✓	✓	✓
-	-	-
1 x mSATA,1 x 2.5” HDD bay	1 x mSATA,1 x 2.5” HDD bay	1 x mSATA, 1 x 2.5” HDD bay
2 (Standard)	2 (Standard)	1 (Standard, support by project)
-	-	-
Win10, WES7P, WEC7, AdvLinux	Win10, WES7P, WEC7, AdvLinux	Win10, WES7P, AdvLinux
TPM 1.2 by iDOOR	TPM 1.2 by iDOOR	TPM 1.2 by iDOOR
DIN rail, wall mount	DIN rail, wall mount	DIN rail, wall mount
10 ~ 36 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
24 W	24 W	40 W
85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	106 x 139 x 198 mm (4.2" x 5.8" x 7.8")
1.6 kg	1.6 kg	2.4 kg

Control Cabinet PCs

NEW

Model Name	UNO-3083G/3085G UNO-3073G/3075G UNO-3073GL	UNO-3283G/UNO-3285G/UNO-3285C
CPU	UNO-3073GL: Intel Celeron® 807UE 1 GHz UNO-3073G: Intel Celeron® 847 1.1 GHz UNO-3083G/3085G: Intel Core i7 3555 LE 2.5 GHz or -2655LE 2.2 GHz	Intel® 6th Gen. Quad Core™ i7-6822EQ 2.0 GHz i5-6440EQ 2.7 GHz i5-6442EQ 1.9 GHz i3-6102E 1.9 GHz
Onboard RAM	4 GB DDR3	UNO-3283G: 8 GB DDR4
Battery-Backup RAM	-	-
Display	DVI-I, HDMI	DVI-I, HDMI
Audio	Mic in, line out	Built-in line in/out + mic, I/O via iDoor
Serial Ports	2 x RS-232/422/485 2 x RS-232 (optional)	2 x RS-232/422/485
Ethernet Ports	2 x 10/100/1000BASE-T RJ-45 ports Supports AMT (UNO-3083G/3085G only)	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)
USB Ports	4 x USB3.0 5 x USB2.0 (1 x internal)	6 x USB 3.0
PCIe/PCI Expansion	UNO-3073G/UNO-3073GL/3083G: 3 slots 3085G: 5 slots	UNO-3283G: 1 x PCIe x16 + 1 x PCI (Optional: 2 x PCIe x8) UNO-3285G/UNO-3285C: 2 x PCIe x8 + 2 x PCI (Optional: 4 x PCI)
Watchdog Timer	✓	✓
CFast Slot	Two internal	One internal
2.5" HDD Expansion	2 x SATA, supports RAID 0/1 (except UNO-3073GL)	2 x SATA, supports RAID 0/1
Operating Systems	Windows XP/7/8, WES7, WES-2009, Linux	WIN7/8, WES7, WES10, Linux
Mounting	Wall/Stand/Panel	Wall/Stand/Enclosure
Anti-Vibration	-	4g w/SSD
Anti-Shock	50g w/CF 20g w/HDD	50g w/SSD
Power Input Range	9 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	UNO-3073GL: 25 W (typical) UNO-3073G: 35 W (typical) UNO-3083G/3085G: 45 W (typical)	90 W (typical)
Dimensions(WxDxH)	UNO-3083G/3073G/GL: 148 x 238 x 177 mm (5.8" x 9.3" x 7.0") UNO-3085G: 193 x 238 x 177 mm (7.6" x 9.3" x 7.0")	UNO-3283G: 142 x 238 x 177 mm (5.6" x 9.4" x 7") UNO-3285G: 182 x 238 x 177 mm (7.2" x 9.4" x 7") UNO-3285C: 197 x 238 x 177 mm (7.9" x 9.4" x 7")
Weight	UNO-3083G/3073G/GL: 4.5 kg UNO-3085G: 5.0 kg	UNO-3283G/ UNO-3285G: 4.0 kg UNO-3285C: 4.7 kg

Model Name	UNO-3382G/3384G	UNO-3483G
CPU	Intel® Core™ i7-4650U 1.7 GHz Intel® Celeron® 2980U 1.6 GHz	Intel® Core™ i7-3612QE
Onboard RAM	8 GB DDR3L (Core i version) 4 GB DDR3L (Celeron version)	8 GB DDR3/DDR3L
Battery-Backup RAM	Onboard MRAM 512 KB	-
Display	HDMI, DP	VGA, HDMI
Audio	Built-in line in/out + mic, I/O via iDoor	Mic in, line out (pin header)
Serial Ports	1x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485 with DB9 connection (pin header)
Ethernet Ports	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)
USB Ports	2 x USB 2.0 2 x USB 3.0	2 x USB 2.0 2 x USB 3.0
PCIe/PCI Expansion	UNO-3382G: 2 x mini PCIe UNO-3384G: 2 x mini PCIe, 1 x PCIe x4 + 1 x PCI	1 x PCIe x4, 3 x mini PCIe (2 x full, 1 x half)
Watchdog Timer	✓	✓
CompactFlash Slots	One internal	-
2.5" HDD Expansion	2 x SATA, supports RAID 0/1	2 x SATA, supports RAID 0/1
Operating Systems	Windows7/8, WES7, Windows 10 IoT Enterprise LTSB, Linux	Windows 7/8, WES7, WES-2009, Linux
Mounting	Book Mount	Enclosure Mount
Anti-Vibration	2g w/SSD	2g w/SSD
Anti-Shock	50g w/SSD	50g w/SSD
Power Input Range	24 V_{DC} ± 20%	12/24 V_{DC} ± 20%
Operating Temperature	0 ~ 55°C (32 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	45 W	50 W
Dimensions(WxDxH)	UNO-3382G: 65.2 x 254 x 207 mm (2.57" x 10" x 8.15") UNO-3384G: 103.2 x 254 x 207 mm (4.06" x 10" x 8.15")	305 x 82 x 225 mm (120.1" x 32.3" x 88.6")
Weight	UNO-3382G: 3.1 kg UNO-3384G: 3.9 kg	4.9 kg

Connecting Smart Factory Machines and Processes to Accelerate Industry 4.0

Modular Box Platform Satisfies All Industrial Needs

In the Industry 4.0 era, fanless and ruggedized properties are not the only criteria for industrial embedded computers. Advantech's industrial embedded computers offer flexible and expandable features, and our new UNO-2000 series are based on a new modular form factor. Integrated with iDoor expandability, the new UNO-2000 series is adapted for embedded automation applications. The UNO-2271G, which is the size of a standard SSD, is the world's smallest embedded computer; and at a size of only 7.9", the performance of the UNO-2484G has been optimized with TPM2.0 for cyber security. Both of these units can be easily integrated with Advantech WebAccess, which helps bridge the gap between IT and OT.

The new UNO-2000 series also provides the time-to-market customized service, and the modularized design makes these units suitable for vertical markets. This design enables customers to introduce additional functionality and create more possibilities in different markets and applications by having a more flexible and manageable configuration approach to progress into the Industry 4.0 era.

Bridging the Gap Between IT and OT

New Innovative Design

Modular Platform Design

Universal (general applications), domain-specific (vertical application), and customized (by project base) UNO board-to-board connectors are suitable for all factory applications.

Wide-Range Power Input (10 ~ 36 V)

Wide-range power input ensures normal operation in unstable power environments.

iDoor Expansion with 100+ Combinations

More than 100+ combinations of iDoor technology enable UNO modules to meet the needs of every vertical application scenario.

Cable-Less Design

Cable-less design for internal space saving, enhanced MTBF, reliability of signal transition, and cost efficiency for assembly.

Friendly Assembly Design

User friendly screw design simplifies assembly for 2nd stack and iDoor modules.

Time-to-Market

Easy to configure and modular design shortens assembly times and time-to-market.

Dual Swappable SSD/HDD

Dual storage supports RAID 0/1 and external removable drive design makes for easier maintenance for data switching.

Rubber Stopper Design with Captive Screws

Modular boxes utilize a captive screw design to prevent screw loss during assembly and rubber stoppers to provide better system stability.

Lockable I/O Design

Fully lockable I/O ensures the system works properly and safely in high-vibration environments.

Versatile Mounting

Variety of mounting methods -VESA, DIN rail, pole, and stand mount.

Industrial IoT Gateways

NEW

NEW

NEW

Model Name	UNO-2271G	UNO-2372G	UNO-2484G
CPU	Intel® Atom™ E3815, 1.46 GHz (E3825 support by project)	Intel® Atom™ J1900, 2.41 GHz	Intel® Core i7-6600U, 2.6 GHz/i7-7600U, 2.8 GHz Intel® Core i5-6300U, 2.4 GHz/i5-7300U, 2.6 GHz Intel® Core i3-6100U, 2.3 GHz/i3-7100U, 2.4 GHz
Onboard RAM	4 GB DDR3L	4 GB DDR3L	8 GB DDR4
Battery-Backup RAM	-	-	-
Display	1 x HDMI	1 x DP, 1 x HDMI	1 x DP, 1 x HDMI
Audio	-	Line out	Line out
Serial Ports	UNO-2271G-E23AE: 2 x RS-232/422/485	4 x RS-232/422/485	4 x RS-232/422/485
Ethernet Ports	2 x RJ45, 10/100/1000Mbps	2 x RJ45, 10/100/1000Mbps	4 x RJ45, 10/100/1000Mbps
USB Ports	UNO-2271G-E21AE and E23AE: 1 x USB 3.0 UNO-2271G-E22AE: 3 x USB 2.0 and 1 x USB 3.0	1 x USB 3.0, 3 x USB 2.0	4 x USB 3.0
Hardware Security	-	UNO-2372G-J021AE: TPM2.0	TPM2.0
mPCIe Expansion	1 x Full-size mPCIe slot	2 x Full-size mPCIe slots	Single stack version: 1 x Full-size mPCIe slots Double stack version: 4 x Full-size mPCIe slots
PCIe/PCI Expansion	-	-	-
Watchdog Timer	✓	✓	✓
Onboard Storage	32 GB eMMC	-	-
Storage Expansion	-	1 x mSATA shared with mPCIe slot 1 x 2.5" HDD/SDD bay	1 x mSATA shared with mPCIe slot 1 x 2.5" HDD/SDD bay
Operating Systems	Windows 7/10, Advantech Linux	Windows 7/10, Advantech Linux	Windows 7/10, Advantech Linux
Mounting	Stand, wall, VESA (△), DIN rail (△), pole (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)
Anti-Vibration	$2g_{rms}$ w/mSATA	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD
Anti-Shock	50g w/mSATA	50g w/mSATA	50g w/mSATA
Power Input Range	10 ~ 30 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	12 W	30 W	55 W
Power Requirements	24 W	42 W	95.2 W
Dimensions (W x D x H)	UNO-2271G-E21AE: 100 x 70 x 30 mm (3.9" x 2.8" x 1.2"), UNO-2271G-E22AE and E23AE: 100 x 70 x 65 mm (3.9" x 2.8" x 2.6")	Single stack version: 150 x 105 x 35 mm (5.8" x 4.2" x 1.4") Double stack version: 150 x 105 x 65 mm (5.8" x 4.2" x 2.6")	Single stack version: 200 x 140 x 40 mm (7.8" x 5.6" x 1.6") Double stack version: 200 x 140 x 70 mm (7.8" x 5.6" x 2.8")
Weight	UNO-2271G-E21AE: 0.5 kg (1.1 lb) UNO-2271G-E22AE and E23AE: 0.6 kg (1.2 lb)	Single stack: 0.8 kg (1.76 lb) Double stack: 1.0 kg (2.2 lb)	Single stack: 1.4 kg (3.09 lb) Double stack: 1.6 kg (3.53 lb)




Model Name	UNO-2272G	UNO-2362G	UNO-2473G	UNO-2483G
CPU	Intel® Atom™ N2800, 1.86 GHz Intel® Celeron™ J1900, 2.0 GHz	AMD® G-series T40E, 1.0 GHz	Intel® Atom™ E3845, 1.91 GHz Intel® Celeron™ J1900, 2.0 GHz	Intel® Core™ i7-4650U, 1.7 GHz Intel® Core™ i3-4010U, 1.7 GHz Intel® Celeron® 2980U, 1.6 GHz
Onboard RAM	2 GB DDR3L	2 GB DDR3	4 GB DDR3L	4/8 GB DDR3L
Battery-Backup RAM	-	-	-	-
Display	2272G-N2AE: 1 x VGA 2272G-J2AE: 1 x HDMI	1 x DP, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	Line out	-	Line in/out	Line in/out
Serial Ports	UNO-2272G-N2AE: 1 x RS-232 UNO-2272G-J2AE: 1 x RS-232/422/485	1 x RS-232, 1 x RS-485	UNO-2473G-E3AE: 2 x RS-232, 2 x RS-433/485 UNO-2473G-J3AE: 2 x RS-232, 2 x RS-232/433/485	2 x RS-232, 2 x RS-422/485
Ethernet Ports	1 x RJ45, 10/100/1000 Mbps	2 x RJ45, 10/100/1000 Mbps	UNO-2473G-E3AE: 4 x RJ45, 10/100/1000 Mbps UNO-2473G-J3AE: 2 x RJ45, 10/100/1000 Mbps	4 x RJ45, 10/100/1000 Mbps
USB Ports	UNO-2272G-N2AE: 3 x USB 2.0 UNO-2272G-J2AE: 2 x USB 2.0 and 1 x USB 3.0	4 x USB 2.0	UNO-2473G-E3AE: 3 x USB 2.0, 1 x USB 3.0 UNO-2473G-J3AE: 4 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
Hardware Security	-	-	-	-
mPCIe Expansion	UNO-2272G-N2AE: 1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot UNO-2272G-J2AE: 2 x Full-size mPCIe slot	1 x Full-size mPCIe slot	UNO-2473G-E3AE: 3 x Full-size mPCIe slot UNO-2473G-J3AE: 1 x Full-size mPCIe slot	2 x Full-size mPCIe slot
PCIe/PCI Expansion	-	-	-	-
Watchdog Timer	✓	✓	✓	✓
Onboard Storage	-	-	-	-
Storage Expansion	UNO-2272G-N2AE: 1 x Full-size mSATA UNO-2272G-J2AE: 1 x Half-size mSATA	1 x mSATA slot 1 x 2.5" HDD/SDD bay	1 x mSATA slot 1 x 2.5" HDD/SDD bay	1 x mSATA slot 2 x 2.5" HDD/SDD bay
Operating Systems	UNO-2272G-N2AE: Windows 7, Advantech Linux UNO-2272G-J2AE: Windows 7/10, Advantech Linux	Windows XP/7, Advantech Linux	Windows 7/10, WEC7, Advantech Linux	Windows 7/10, WEC7, Advantech Linux
Mounting	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)
Anti-Vibration	$2g_{rms}$ w/mSATA	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD
Anti-Shock	50g w/mSATA	50g w/mSATA	50g w/mSATA	50g w/mSATA
Power Input Range	$24V_{DC}$ ± 20%	$24V_{DC}$ ±15%	UNO-2473G-E3AE: $24V_{DC}$ ± 20% UNO-2473G-J3AE: $12/24V_{DC}$ ± 20%	$24V_{DC}$ ± 20%
Operating Temperature	UNO-2272G-N2AE: - 20 ~ 60°C (-4 ~ 140°F) UNO-2272G-J2AE: - 10 ~ 55°C (14 ~ 131°F)	- 10 ~ 60°C (14 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	14 W	14 W	15 W	44 W
Power Requirements	45.3 W	47.3 W	68 W	87 W
Dimensions (W x D x H)	157 x 88 x 50 mm (6.2" x 3.5" x 2.0")	190 x 107 x 47 mm (7.5" x 4.2" x 1.8")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
Weight	0.8 kg (1.76 lb)	1.0 kg (2.2 lb)	1.6 kg (3.5 lb)	1.6 kg (3.5 lb)

Advantech iDoor Technology

Leading Industrial PC Trends

Advantech's innovative iDoor Technology is a new modular way of adding flexible functionality to a wide range of devices. iDoor Technology gives system integrators the flexibility to choose functions they need without purchasing costly extra devices with functions that they are unlikely to ever use. By using standardized components and interfaces, system integrators can leverage current state-of-the-art technologies as well as up-and-coming IPC trends. For instance, as embedded operating systems improve and higher performance storage methods become widely available, IPC suppliers are able to seamlessly integrate them into product lines for their customers.

iDoor Technology

Simple, Flexible, Reliable

The optimized design simplifies the iDoor mechanism with I/O plate, I/O module, and mPCIe card designs, making it easier to assemble and install. The modular design makes iDoor highly flexible for any configuration. Advantech's rugged design and comprehensive testing ensure that iDoor is a reliable offering.

Easy Maintenance

In addition to the iDoor's design making it easy to install into many platform/chassis types, the iDoor also provides a standard cable for internal cable routing and management. With captive screws and locked USB, it is easy for users to maintain.

iDoor Technology

Supports Different Platforms

iDoor technology is not only designed to work exclusively with Advantech's products, but it also gives system integrators the ability to use iDoor modules in any IPC with a spare PCIe slot. With the extended plate and adapter solution, this technology is particularly suitable for IPC platforms. The flexible design makes iDoor fulfill any other third party applications.

Integration of Multiple Functions

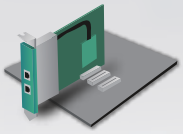
With the versatile functionality of iDoor, the system is suitable for a range of vertical applications. iDoor application modules include memory, storage, and external I/O modules; Fieldbus protocol modules (Ethernet/IP, Profibus, Profinet, EtherCAT, Powerlink, and so on); communication kits (WAN, MAN, LAN); and digital/analog I/O modules.

Fast Customization

The open-source nature of this technology allows system integrators to develop their own mPCIe card, their own exclusive iDoor functions, and even customized iDoor shell colors (e.g., including the company logo) to shape their brand image through color recognition. For those key accounts, they can integrate industry expertise in automation applications via iDoor technology.

iDoor I/O Plate with mPCIe Card

An iDoor module uses a mini PCIe slot on the motherboard. Most market requirements can be fulfilled by mPCIe card suppliers.



PCI/PCIe I/O Plate with mPCIe Card in PCIe Adapter Card

Some customers need more expansion but are limited by the number of available mPCIe slots. We provide a PCIe adapter that gives an additional mPCIe slot by connecting through an existing PCIe slot to maximize expansion capacity.

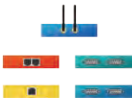
PCI/PCIe I/O Plate with mPCIe Card

For users who have a standard IPC on hand but require an expansion, we provide an optimization plate that can be utilized for expansion via the mPCIe interface.

Standard Interface

The standard dimensions of the 81 x 19.4 mm I/O plate with mPCIe interface are supported by the following models:

- Embedded DIN-Rail Controller: UNO-1000 series
- Embedded Automation PC: UNO-2000 series
- Embedded BOX IPC: UNO-3000 series
- Embedded Automation Panel: TPC series



Versatile Color Identification

For easy identification, iDoor uses a color convention that represents the primary colors of the logos for the key protocols that the modules are related to. For example, the red is the most obvious color for EtherCAT, and so the I/O plate is colored PANTONE 1795C, whereas a black plate is used for the POWERLINK logo.

iDoor Module Selection Guide

Industrial I/O & Peripheral

Model Name	PCM-2300MR	PCM-23C1CF	PCM-23U1DG	PCM-24R1TP	PCM-24U2U3	PCM-24R2PE	PCM-24R2GL	PCM-28P1AD	PCM-28P1BK	PCM-27J3AU
Description	MR4A16B, MRAM, 2 MB, mPCIe	1 CFast Slot with cover protection	USB slot w/ lock for USB dongle, half-size mPCIe	1-port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45	2-port USB 3.0, mPCIe, USB-A type	2-port Gigabit Ethernet, IEEE 802.3af (PoE)-compliant, mPCIe, RJ45	2-port Gigabit Ethernet, Intel® i350, mPCIe, RJ45	PCIe to mPCIe, 2-slot mPCIe, iDoor I/O plate expansion	iDoor PCIe I/O plate	3-port audio stereo, mPCIe, 3.5-mm jack

Model Name	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-27D24DI
Description	2-port Isolated RS-422/485, mPCIe, DB9	2-port Isolated RS-232, mPCIe, DB9	4-port non-isolated RS-422/485 mPCIe, DB37 cable	4-port non-isolated RS-232 mPCIe, DB37 cable	24-ch isolated digital I/O with counter mPCIe, DB37

Wireless Communication

Model Name	PCM-24S2WF	PCM-24S33G	PCM-24S34G
Description	Wi-Fi 802.11 a/b/g/n 2T2R w/Bluetooth 4.0, half-size mPCIe, antennas	3.75G HSPA/GPS, full-size mPCIe, front-accessible dual SIM card slots, 3G/GPS antennas	LTE/HSPA+/GPRS and GPS, full-size mPCIe, 4G/GPS antennas

Industrial Fieldbus

Model Name	PCM-26D2CA	PCM-26D1DB	PCM-26R2PN	PCM-26R2EC	PCM-26R2EI	PCM-26R2S3	PCM-26R2PL
Description	2-port isolated CANBus mPCIe, CANopen, DB9	1-port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9	2-port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45	2-port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45	2-port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45	2-port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45	2-port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45

Naming Convention

PCM- 2 6 D 2 C A

Category
- 23-Memory/storage/external I/O
- 24-Communication
- 25-Display
- 26-Fieldbus
- 27-Digital/analog I/O
- 28-Expansion kit

Connector
- R-RJ45
- D-DB9
- U-USB
- P-PCIe/mPCIe
- C-CFast
- S-SMA/DFP/SD
- H-HDMI/DP
- J-Phone jack

Port
- 0-No connector
- 1-One connector
- 2-Two connectors
- 4-Four connectors

Function
- BK-Bracket
- DB-PROFIBUS
- PN-PROFINET
- EI-Ethernet/IP
- EC-EtherCAT
- S3-SERCOS III
- CA-CANopen
- PL-PowerLink
- WF-Wi-Fi/BT
- 3G-3G/GPS
- ZB-ZigBee
- AD-Adapter
- PE-PoE
- TP-Precision Time Protocol
- DC-Daisy-Chain
- MR-MRAM
- TM-TPM
- DI-Digital I/O
- AI-Analog I/O
- R4-Multi-drop RS-422/485
- R2-Single-ended RS-232
- ID-Intelligent displays
- U3-USB 3.0
- HD-HDMI
- 4G-LTE/GPS
- DG-Dongle
- GL-Gigabit LAN

iDoor Support Table

Model / Platform	Function	UNO-1252G	UNO-1483G	UNO-1372G-E	UNO-1372G-J	UNO-2271G-E2	UNO-2272G-N2
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	-	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	-	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	-	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	-	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	-	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	-	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	-	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	✓	✓	-	-	-
PCM-24R2GL	2-port GigaLAN	-	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	-	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	✓	✓	✓	-	✓
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	-	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	-	✓	✓	✓	-	✓
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	-	✓	✓	✓	-	-
PCM-2300TM	TPM	-	-	*	-	-	-
PCM-26D1DB	PROFIBUS	-	✓	✓	✓	✓	-
PCM-26R2PN	PROFINET	-	✓	✓	✓	✓	-
PCM-26R2EC	EtherCAT	-	✓	✓	✓	✓	-
PCM-26R2EI	EtherNet/IP	-	✓	✓	✓	✓	-
PCM-26R2S3	Sercos 3	-	✓	✓	✓	✓	-
PCM-26R2PL	POWERLINK	-	✓	✓	✓	✓	-
PCM-28P1AD	iDoor PCIe adpater card	-	✓	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	✓	-	-	-	-
PCM-27J3AU	Audio	-	✓	✓	✓	✓	-
PCM-29R1TX	iLink	-	✓	✓	✓	-	-

Model / Platform	Function	UNO-2272G-J2	UNO-2362G	UNO-2372G-E022AE	UNO-2473G-E3	UNO-2473G-J3	UNO-2483G
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	✓	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	✓	✓	✓	✓	✓
PCM-24R2GL	2-port GigaLAN	✓	-	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	✓	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	✓	-	✓	✓	-	*
PCM-24S2WF-AE	Wi-Fi	✓	✓	-	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	✓	-	✓	✓	✓	*
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	-	✓	✓	✓	✓	*
PCM-2300TM	TPM	-	-	-	✓	-	✓
PCM-26D1DB	PROFIBUS	-	-	✓	✓	✓	✓
PCM-26R2PN	PROFINET	-	-	✓	✓	✓	✓
PCM-26R2EC	EtherCAT	-	-	✓	✓	✓	✓
PCM-26R2EI	EtherNet/IP	-	-	✓	✓	✓	✓
PCM-26R2S3	Sercos 3	-	-	✓	✓	✓	✓
PCM-26R2PL	POWERLINK	-	-	✓	✓	✓	✓
PCM-28P1AD	iDoor PCIe adpater card	-	-	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	-	-	-	-	-
PCM-27J3AU	Audio	-	✓	✓	-	✓	-
PCM-29R1TX	iLink	✓	-	✓	✓	✓	✓

* Contact Advantech for Further Information
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iDoor Support Table

Model / Platform	Function	UNO-2484G-67x1AE	UNO-2484G-67x2AE	UNO-3283G	UNO-3382G/3384G	UNO-3483G	(TPC-1x82H/1282T)
PCM-24D2R2-AE	Iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	-	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	-	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	-	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	**	-	-	✓	-
PCM-24R2GL	2-port GigaLAN	-	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	-	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	✓	✓	✓	✓	-
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	-	✓	✓	✓	✓	-
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	-	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	✓	✓	✓	-	-	-
PCM-2300TM	TPM	-	-	✓	-	✓	-
PCM-26D1DB	PROFIBUS	-	✓	✓	✓	✓	-
PCM-26R2PN	PROFINET	-	✓	✓	✓	✓	-
PCM-26R2EC	EtherCAT	-	✓	✓	✓	✓	-
PCM-26R2EI	EtherNet/IP	-	✓	✓	✓	✓	-
PCM-26R2S3	Sercos 3	-	✓	✓	✓	✓	-
PCM-26R2PL	POWERLINK	-	✓	✓	✓	✓	-
PCM-28P1AD	iDoor PCIe adpater card	-	-	✓	✓	✓	✓
PCM-28P1BK	iDoor PCIe I/O plate	-	-	✓	✓	✓	✓
PCM-27J3AU	Audio	-	✓	✓	✓	✓	✓
PCM-29R1TX	iLink	-	✓	*	*	*	-

Model / Platform	Function	(TPC-1581WP)	(TPC-1881WP)	(TPC-xx51WP)	(TPC-xx51T)	TPC-2xx1T/W	TPC-5XXXT/W	IPPC-5211WS
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	✓	✓	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	✓	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	-	**	**	-	✓	-
PCM-24R2GL	2-port GigaLAN	✓	✓	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	✓	✓	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	-	-	-	-	✓	-
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	✓	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	-	-	-
PCM-24U2U3	USB 3.0	**	**	-	**	-	✓	**
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	-	-	✓	-	-
PCM-24S34G	LTE/GPS	-	-	-	-	-	✓	-
PCM-2300TM	TPM	-	-	-	-	-	-	-
PCM-26D1DB	PROFIBUS	✓	✓	✓	✓	✓	✓	✓
PCM-26R2PN	PROFINET	✓	✓	✓	✓	✓	✓	✓
PCM-26R2EC	EtherCAT	✓	✓	✓	✓	✓	✓	✓
PCM-26R2EI	EtherNet/IP	✓	✓	✓	✓	✓	✓	✓
PCM-26R2S3	Sercos 3	✓	✓	✓	✓	✓	✓	✓
PCM-26R2PL	POWERLINK	✓	✓	✓	✓	✓	✓	✓
PCM-28P1AD	iDoor PCIe adpater card	-	-	-	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	-	-	-	-	-	-
PCM-27J3AU	Audio	✓	✓	✓	✓	✓	✓	✓
PCM-29R1TX	iLink	-	-	-	-	-		

* Contact Advantech for Further Information

**Need extra accessory

Modular IPCs

Overview

Advantech's modular IPCs are fan-based systems for high-performance computing applications where fanless, embedded systems are required for harsh work environments. Our next generation of IPCs feature a modular design for high expandability and flexible configuration. With this brilliant design, Advantech modular IPCs are suitable for a diverse range of industrial applications.

Micro Computer

The AiMC series of microcomputers is designed for machine automation applications such as system security, intelligent inspection, and PCBA. With PoE vision and a rich I/O interface, the AiMC series features high-performance computing with low power consumption, intelligent management capability, and extended product longevity.

Industrial Modularized Computer

Our compact modular IPCs support i-module expansion to satisfy many application requirements. Modular computers reduce lead times for CTOS due to their easy configuration. They can also be widely deployed for factory and machine automation.

Compact Fanless Computer

The AiMC-2000 fanless embedded microcomputer is an intelligent and application-specific system equipped with an Intel Celeron J1900 Quad Core processor and multiple I/O ports. The solid aluminum top cover and sealed chassis offers vibration, shock, and dust resistance, and its passive cooling provides quiet and reliable operation.

Modular IPCs

Model name		AiMC-3202	AiMC-3422	MIC-7900
Form Factor		Compact	Compact	Compact
Processor System	Chipset	H110	H110	-
	CPU	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® Xeon® D-1559/D-1539 BGA-type
	Core	Max. 4	Max. 4	Max. 12
	Cache	Max. 8 MB	Max. 8 MB	Max. 18 MB
	Memory	DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual DDR4 2400 MHz (supports ECC) Max. 32 GB
Graphic	Graphics Controller	Intel® HD Graphics	Intel® HD Graphics	ASPEED AST1400 with 256 MB VGA memory provides basic 2D VGA function
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	AIMC-3202-00A1E 1 x PCIe x16, 1 x PCIe x4 AIMC-3202-01A1E 1 x PCIe x16, 1 x PCI	AIMC-3422-00A1E 1 x PCIe x16, 1 x PCIe x1, 2 x PCI AIMC-3422-01A1E 1 x PCIe x16, 3 x PCI	Supported via i-Module
	PCIe x8	-	-	
	PCIe x4	-	-	
	PCIe x1	-	-	
	PCI	-	-	
	Mini PCIe	-	-	1
Storage	Storage Bay	2 x 2.5" internal HDD bay	1 x 3.5" or 2 x 2.5" internal HDD bay	1 x 2.5" internal HDD/SSD bay
	M.2	-	-	22110 (2280 w/ bracket)
	mSATA	1	1	1
	CFast	-	-	1
	RAID	-	-	-
Ethernet	Ethernet Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel® I219V LAN 2: Intel® I211AT	LAN 1: Intel® I219V LAN 2: Intel® I211AT	4 x Intel® i210IT
Front I/O	Display	VGA+DVI-D	VGA	VGA
	LAN	2	2	4
	USB	3 x USB 3.0	1 x USB 3.0	4 x USB 3.0
	COM	2 x RS-232	2 x RS-232	2 x RS-232/422/485
	PS/2	1	1	-
	Audio	-	-	Line out/mic in
Rear I/O	Display	-	-	-
	LAN	-	-	-
	USB	-	2 x USB 2.0	-
	COM	-	-	-
	PS/2	-	-	-
	Audio	-	-	-
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min
Power Supply	Output Wattage	250W	300W	-
	Input Range	100 ~ 240 V_{AC}	100 ~ 240 V_{AC}	9 ~ 36 V_{DC}
	Remote Power Switch	-	-	-
Cooling	System Fan	2 (6 cm/14.1 CFM)	1 (9 cm/53 CFM)	-
	Air Filter	Yes	Yes	-
Physical Characteristics	Dimensions (W x H x D)	232 x 90 x 232 mm (9.13" x 3.54" x 9.13")	150 x 222 x 270 mm (5.9" x 8.74" x 10.62")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")
	Weight	4.5 kg	5 kg	2.9 kg

✓ : supported, - : not supported, △ : optional

NEW NEW NEW




Model name		MIC-7500	MIC-7700	MIC-7300	MIC-7420
Form Factor		Compact	Compact	Compact	19" 2U Rack Mount
Processor System	Chipset	QM170	Q170/H110	-	QM170
	CPU	Intel 6th Gen Core i BGA-type	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® Celeron® N3350/ Atom™ x7-E3950 BGA-type	Intel 6th Gen Core i BGA-type
	Core	Max. 4	Max. 4	Max. 4	Max. 4
	Cache	Max. 8 MB	Max. 8 MB	2 MB	Max. 8 MB
	Memory	Dual DDR4 2400 MHz Max. 32 GB	Dual DDR4 2400 MHz Max. 32 GB	Dual DDR3L 1867 MHz Max. 8 GB	Dual DDR4 2400 MHz Onboard 8GB & 1 SODIMM slot Max. 24GB
Graphic	Graphics Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	Supported via i-Module	Supported via i-Module	-	-
	PCIe x8			-	-
	PCIe x4			-	2
	PCIe x1			Supported via i-Module	-
	PCI			Supported via i-Module	2
	Mini PCIe	2	2	1	1
Storage	Storage Bay	1 x 2.5" internal HDD/SSD bay	1 x 2.5" internal HDD/SSD bay	1 x 2.5" internal HDD/SSD bay	2 x 3.5" internal HDD bay
	M.2	-	-	-	1 M.2 (2260 M-key)
	mSATA	1	1	1	-
	CFast	1	1	-	-
	RAID	0/1/5/10	0/1/5/10 (Q SKU only)	-	0/1
Ethernet	Ethernet Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel i219LM LAN 2: Intel i210IT	LAN 1: MIC-7700Q: Intel i219LM/MIC_7700H: Inteo i219V LAN 2: Intel i210IT	2 x Intel® i210AT	LAN 1: Intel® i219LM LAN 2: Intel® i210IT
Front I/O	Display	VGA+DVI-D	VGA+DVI-D	VGA+DVI-D	-
	LAN	2	2	2	-
	USB	8 x USB 3.0	Q170: 8 x USB 3.0 H110: 4 x USB 3.0, 4 x USB 2.0	2 x USB 3.0 6 x USB 2.0	2 x USB 2.0
	COM	2 x RS-232/422/485 2 x RS-232	2 x RS-232/422/485 2 x RS-232	2 x RS-232/422/485 2 x RS-232	-
	PS/2	-	-	-	-
	Audio	Line out/mic in	Line out/mic in	Line out/mic in	-
Rear I/O	Display	-	-	-	DVI-I + DVI-D
	LAN	-	-	-	2
	USB	-	-	-	2 x USB 3.0 4 x USB 2.0
	COM	-	-	-	2 x RS-232/422/485
	PS/2	-	-	-	1
	Audio	-	-	-	Line out/mic in
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min
Power Supply	Output Wattage	-	-	-	150W
	Input Range	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	100 ~ 240 V_{AC}
	Remote Power Switch	-	-	1	-
Cooling	System Fan	-	-	-	-
	Air Filter	-	-	-	-
Physical Characteristics	Dimensions (W x H x D)	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")	427 x 88 x 325 mm (16.81" x 3.46" x 12.79")
	Weight	2.9 kg	2.9 kg	2.9 kg	10 kg

✓ : supported, - : not supported, △ : optional

i-Modules for MIC-7 Series

Compatible with MIC-7 Series Fanless Systems






i-Module		MIC-75M10	MIC-75M20	MIC-73M20	MIC-75M20-01	MIC-75M11	MIC-73M11
MIC-7900		1 x PCIe x16	1 x PCIe x16 1 x PCIe x4	-	2 x PCIe x8	1 x PCIe x16 1 x PCI	-
MIC-7500							
MIC-7700	MIC-7700Q						
	MIC-7700H				-		
MIC-7300		-	-	2 x PCIe x1	-	-	1 x PCIe x1 1 x PCI
MIC + i-Module Dimension (H x W x D)*		192 x 97 x 230 mm	192 x 123 x 230 mm				
System Fan (Optional)**		-	4 cm (98R1752000E)				




i-Module		MIC-75M13	MIC-73M13	MIC-75M40	MIC-75S20
MIC-7900		1 x PCIe x16 3 x PCI 2 x 2.5" HDD/SSD	-	1 x PCIe x8 3 x PCI 2 x 2.5" HDD/SSD	1 x PCIe x16 3 x PCI 2 x 2.5" HDD/SSD 2 x 2.5" hot Swap HDD/SSD
MIC-7500					
MIC-7700	MIC-7700Q				
	MIC-7700H			-	
MIC-7300		-	1 x PCIe x1 3 x PCI 2 x 2.5" HDD/SSD	-	-
MIC + i-Module Dimension (H x W x D)*		192 x 163 x 230 mm			
System Fan (Optional)**		8 cm (98R1751300E)			

*When an i-module is assembled with an MIC-7700, the total width will be increased by 4 mm.

**A fan must be added if expansion cards exceed 45 W of power consumption

Intelligent Inspection Systems

Advantech's AIIS series are closely aligned with machine automation applications such as automated optical inspection, wafer inspection, and alignment inspection, all of which rely heavily on machine vision. With PoE/USB 3.0 vision and a rich I/O interface, the AIIS series is characterized by high-performance computing with low power consumption as well as intelligent management and extended product longevity. Our AIIS series of machine vision controllers save on space and make installation economical and easy—perfect for vision inspection applications. With a powerful CPU and built-in PoE/USB 3.0 ports, the AIIS series enhances overall application value by delivering outstanding machine vision performance. With the latest Intel Core processors, this series delivers state-of-art computing and graphics performance.

AIIS Series Product Features

Mainstream Interface

- GigE Vision Compliant
- USB3 Vision Compliant

Outstanding Performance

- Speed and reliable transmission for image acquisition and analysis

High Interoperability

- Compliant with main vision camera partners

Compact Size

- Compact size with a rich I/O interface
- Space-saving and easy-to-install

Intelligent Inspection Systems



Model Name		AIIS-1200P	AIIS-1200U	AIIS-5410P
Form Factor		Compact	Compact	Compact
Processor System	Chipset	-	-	QM170
	CPU	Intel Braswell N3160/N3710 SoC	Intel Braswell N3160/N3710 SoC	Intel 6th Generation Core i7/i5 BGA1440 processor
	Core	4	4	4
	Cache	2 MB	2 MB	8MB
	Memory	DDR3L 1600 Onboard 8 GB	DDR3L 1600 Onboard 8 GB	Dual Channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB
Graphics	Graphics controller	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	-	-	-
	PCIe x8	-	-	1
	PCIe x4	-	-	-
	PCIe x1	-	-	-
	PCI*	-	-	1 x riser card
	mini PCIe	1	1	1
Storage	HDD Bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	2 x internal 2.5" HDD bay
	mSATA	1	1	1
	CFast	-	-	1
	RAID	-	-	RAID 0/1
Ethernet	Ethernat interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	1 x Intel I210	1 x Intel I210	2 x Intel I210
Machine Vision Connector	Interface	2-ch PoE	2-ch USB 3.0	4-ch PoE
	Controller	Intel I210	Renesas uPD720202	Intel I210
Front I/O	Display	VGA	VGA	VGA + DVI-D
	LAN	1	1	2
	USB	2 x USB 3.0	2 x USB 3.0	8 x USB 3.0
	COM	1 x RS-232/422/485 1 x RS-232	1 x RS-232/422/485 1 x RS-232	-
	PS/2	-	-	-
	Audio	-	-	Line out/mic in
Rear I/O	Display	1 x DP	1 x DP	-
	LAN	-	-	-
	USB	2 x USB 3.0	2 x USB 3.0	-
	COM	-	-	2 x RS-232/422/485
	PS/2	-	-	-
	Audio	Line out/mic in	Line out/mic in	-
	Digital I/O	8 channels (isolated)	8 channels (isolated)	8 channels
Watchdog Timer Output	Output	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min
Power Supply	Output Wattage	-	-	-
	Input Range	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}
	Remote Power Switch	1	1	1
Cooling	System Fan	-	-	-
	Air Filter	-	-	-
Physical Characteristics	Dimensions (W x H x D)	137 x 58 x 118 mm (5.39" x 2.28" x 4.65")	137 x 58 x 118 mm (5.39" x 2.28" x 4.65")	235 x 88 x 188 mm (9.25" x 3.46" x 7.4")
	Weight	1.1 kg	1.1 kg	2.9 kg

✓: supported, - : not supported, △: optional




Model Name		AIIS-3400P	AIIS-3400U	AIIS-3410P	AIIS-3410U
Form Factor		Compact	Compact	Compact	Compact
Processor System	Chipset	H110	H110	H110	H110
	CPU	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)
	Core	Max.4	Max.4	Max.4	Max.4
	Cache	Max. 8 MB	Max. 8 MB	Max. 8 MB	Max. 8 MB
	Memory	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB
Graphics	Graphics controller	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	-	-	-	-
	PCIe x8	-	-	1	1
	PCIe x4	-	-	-	-
	PCIe x1	-	-	-	-
	PCI*	-	-	1 x riser card (optional)	1 x riser card (optional)
	mini PCIe	-	-	1	1
Storage	HDD Bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay
	mSATA	-	-	-	-
	CFast	1	1	1	1
	RAID	-	-	-	-
Ethernet	Ethernat interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210
Machine Vision Connector	Interface	4-ch PoE	4-ch USB	4-ch PoE	4-ch USB
	Controller	Intel I210	Renesas µPD720202	Intel I210	Renesas µPD720202
Front I/O	Display	VGA + DVI-D	VGA + DVI-D	VGA + DVI-D	VGA + DVI-D
	LAN	2	2	2	2
	USB	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0
	COM	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
	PS/2	-	-	-	-
	Audio	Line in/line out/mic in	Line in/line out/mic in	Line in/line out/mic in	Line in/line out/mic in
Rear I/O	Display	-	-	-	-
	LAN	-	-	-	-
	USB	-	-	-	-
	COM	-	-	-	-
	PS/2	-	-	-	-
	Audio	-	-	-	-
	Digital I/O	8 Channels (isolated)	8 Channels (isolated)	8 Channels (isolated)	8 Channels (isolated)
Watchdog Timer Output	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min
Power Supply	Output Wattage	-	-	-	-
	Input Range	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}
	Remote Power Switch	1	1	1	1
Cooling	System Fan	1 (6cm / 27.7 CFM)	1 (6cm / 27.7 CFM)	1 (8cm / 57 CFM)	1 (8cm / 57 CFM)
	Air Filter	-	-	-	-
Physical Characteristics	Dimensions (W x H x D)	230 x 70 x 175 mm (9.06" x 2.76" x 6.89")	230 x 70 x 175 mm (9.06" x 2.76" x 6.89")	240 x 97 x 190 mm (9.45" x 3.82" x 7.48")	240 x 97 x 190 mm (9.45" x 3.82" x 7.48")
	Weight	1.8 kg	1.8 kg	2.4 kg	2.4 kg

✓: supported, - : not supported, △: optional

PCI Express Expansion Card

PCI Express USB 3.0 Expansion Card

Part Number		PCE-USB4	PCE-USB8
USB 3.0	Interface	PCI Express x4	
	Connector	4 x USB3.0	8 x USB3.0
	Host Bus	4-lane Gen 2 PCIe interface, compliant with PCI Express Base Specification, Revision 2.0	
	Controller	4 x Renesas µPD720202 host controllers	
	Data Transfer Rate	Super speed (5.0 Gbps)/high speed (480.0 Mbps)/full speed (12.0 Mbps)/low speed (1.5 Mbps)	
Environment	Temperature (Operating)	0 ~ 60°C (32 ~ 140°F)	
	Temperature (Storage)	-40 ~ 85°C (-40 ~ 185°F)	
	Certifications	CE/FCC, Class B	
	Dimensions	118 x 111 mm (4.64" x 4.37")	118 x 111 mm (4.64" x 4.37", dual layer)

PCI Express GbE Expansion Card

Part Number		PCE-GIGE2	PCE-GIGE4
GIGE	Interface	PCI Express x4	
	Connector	2 x RJ45 LAN ports	4 x RJ45 LAN ports
	Host Bus	4-lane Gen 2 PCIe interface, compliant with PCI Express Base Specification, Revision 2.0	
	Controller	4 x Intel i210 Ethernet Controller	
	Data Transfer Rate	10/100/1000 Mbps	
Environment	Temperature (Operating)	0 ~ 60°C (32 ~ 140°F)	
	Temperature (Storage)	-40 ~ 85°C (-40 ~ 185°F)	
	Certifications	CE/FCC, Class A	
	Dimensions	118 x 111 mm (4.64" x 4.37")	

Control IPC Overview

Introduction

Advantech offers PAC solutions designed for industrial automation applications that combine the openness and flexibility of PCs with the reliability of traditional automation controllers such as PLCs. Advantech's APAX series utilizing sophisticated thermal designs to ensure system stability. The APAX series support Windows CE, Windows 7/10, and Linux operating systems. Advantech's control IPCs are ideal platforms for implementation in diverse applications such as power/energy, transportation, machine automation, factory automation, building automation, facility management systems, environment monitoring, and more.

Real-Time Control IPC: APAX Series

APAX series are Ethernet-enabled controllers that allow users to deploy I/O modules in flexible expansion combinations such as direct stack or daisy-chain. The control performance and functionality of this series are better than not only PLCs but also most PC-based controllers. Features including versatile CPU modules, I/O modules designed as reliable as PLC I/Os, high-density I/Os with LEDs, hot-swap, and stackable functionality are delivered. Both C/C++, the .NET library, and IEC 61131-3 languages are provided as programming tools.

Advantech CODESYS

For traditional PLC controllers, the development environment will vary depending on the PLC supplier, and different PLCs are not compatible with each other. Advantech's control IPC adopts the international standard IEC 61131-3, which is based on PLCopen and was established to standardize multiple languages, sets of instructions, and different concepts in the field of automation systems. Therefore, programming languages that comply with the IEC 61131-3 standard, usually called SoftLogic software, enable users to leverage PLC-world typical programming interfaces. Additional benefits of our control IPC include portability between platforms and a shortened learning curve relative to traditional PLCs.

Advantech CODESYS

Advantech supports all kinds of CODESYS runtime, including RTE, SoftMotion, and CNC, which are based on the Windows Embedded 7 operation system. Its runtime supports not only SoftLogic control but also visualization, including both Target (local HMI) and Web (browser-based). CODESYS can help to make Advantech control IPCs gain real-time logic control and HMI with a single control platform. Advantech has also developed cloud connectivity plugin packages, including the WebAccess/SCADA support, ODBC database direct connection function blocks, and OPC/UA server support. These can help users establish upstream communication for Industry 4.0 applications.

Control IPC

- X86 system architecture
- Compact and DIN rail mount for control cabinets
- Front I/O access
- Flexible interface

Modular I/O

- Modular local I/O
- Local and remote I/O system
- Analog/digital I/O, counter/communication

Control IPC | Modular I/O | Open Platform | SoftLogic & HMI

Open Platform

- Based on Windows and Linux
- Web service
- Database connection
- Utility for I/O configuration
- API examples and documents
- Graphical interface

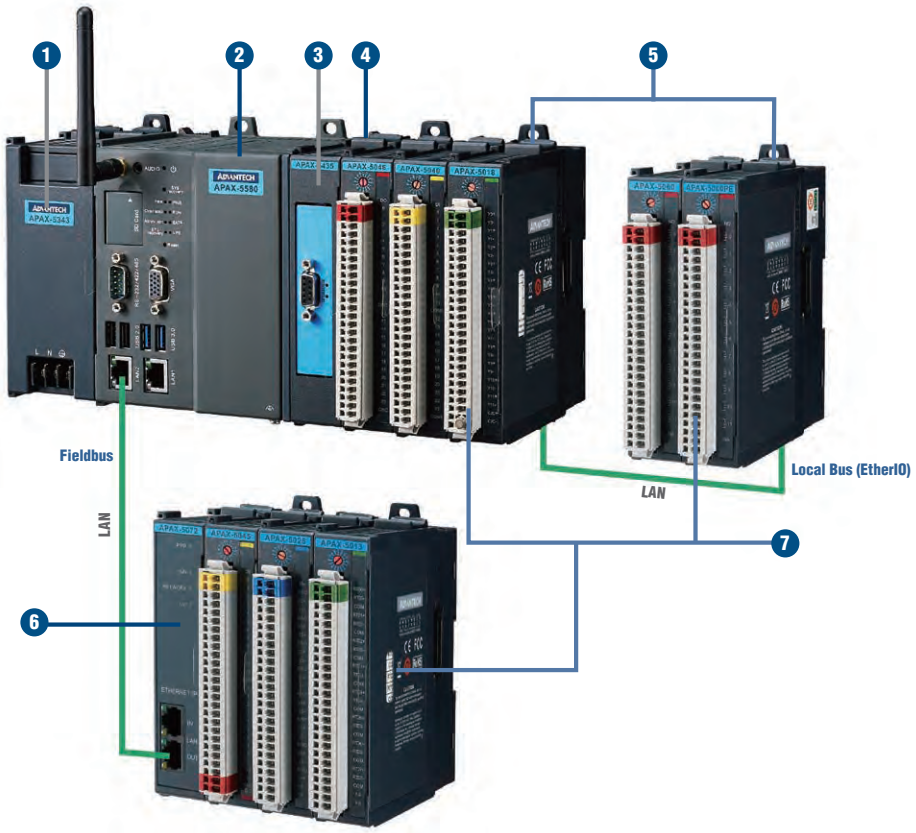
Windows Embedded | Linux | Windows 10 | Microsoft .net | WebAccess | LabVIEW

SoftLogic and HMI

- CODESYS V3 development system
- IEC-61131-3 development tool
- Object-oriented programming
- Integrated I/O configuration and target visualization
- HTML5 web visualization
- OPC server

CODESYS

APAX-5000 System



1 Power Supply Modules

- **APAX-5343** 115/230 V_{AC} power supply

2 Control Platform

- **APAX-5580** Intel® Core™ i7/i3/Celeron control IPC w/ 2 x GbE, 2 x mPCIe, VGA
- **APAX-5580CDS** High-performance SoftLogic PC-based controller, powered by CODESYS

3 PCI Express Interface Communication Modules

- **APAX-5430** SATA HDD module
- **APAX-5435** mPCIe module support for iDoor Fieldbus interface module
- **APAX-5490** 4-port RS-232/422/485 communication module

4 Expansion Backplane

- **APAX-5402** Expansion backplane (only for APAX-5580 and PCIe modules)
- **APAX-5402L** Expansion backplane for PCIe and EtherIO (APAX IO)

5 I/O Backplane

- **APAX-5001** 1-slot backplane module
- **APAX-5002** 2-slot backplane module
- **APAX-5002L** 2-slot backplane module

6 Fieldbus Coupler Modules

- **APAX-5070** Modbus/TCP communication coupler
- **APAX-5071** PROFINET communication coupler
- **APAX-5072** EtherNet/IP communication coupler

7 Analog I/O Modules

- **APAX-5013** 8-ch RTD module
- **APAX-5017** 12-ch analog input module
- **APAX-5017H** 12-ch high-speed analog input module
- **APAX-5018** 12-ch thermocouple input module
- **APAX-5028** 8-ch analog output module

Digital I/O Modules

- **APAX-5040** 24-ch digital input module
- **APAX-5045** 24-ch digital I/O module
- **APAX-5046** 24-ch digital output module
- **APAX-5046SO** 20-ch source-type digital output module
- **APAX-5060** 12-ch relay output module
- **APAX-5080** 4/8-ch high/low-speed counter module

Remote Serial Modules

- **APAX-5090** 4-port RS-232/422/485 virtual COM with APAX bus (EtherIO)

APAX Series Selection Guide

APAX Control Platform

NEW

Model		APAX-5580			APAX-5620
Description		APAX-5580 controller with Intel® Celeron® CPU	APAX-5580 controller with Intel® Core™ i3 CPU	APAX-5580 controller with Intel® Core™ i7 CPU	APAX-5620 controller
System Hardware	CPU	Intel® Celeron® 2980U ULT 1.6GHz Haswell Dual Core, 2 MB L2	Intel® Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3 MB L2	Intel® Core™ i7-4650U ULT 1.7GHz Haswell Dual Core, 4 MB L2	Marvel XScale PXA270 520 MHz
	Memory	Onboard 4 GB		8 GB	-
	Storage	1 x mSATA, 1 x SD, 1 x SD (for OS backup)			1 x Type II CompactFlash card slot
	USB Ports	4 x USB ports (2 x USB 2.0, 2 x USB 3.0 compliant), 1 x internal USB			1 x USB 1.1
	VGA	1 x VGA, supports 1920 X 1080 @ 60 Hz 24 bpp			DB15 connector
	Audio	Line out			-
General	Dimensions (W x H x D)	128 x 106 x 110 mm			60 x 139 x 100 mm
	Power Consumption	28 W (typical), 72 W (max.) @ 24 V_{DC} ± 20%			5 W @ 24 V_{DC} (typical)
	Status Display	LEDs for power, battery, LAN (Active, Status), Tx/Rx, and HDD			-
Software	Control Software	C/C++ library and .NET class library for C and .NET programming environment, CODESYS IEC 61131-3 SoftLogic control software			C/C++ and .NET library KW Multiprog (development tool), KW ProConOS (runtime kernel) Support CPU Redundancy
	OS Support	Microsoft® Windows 7/8, Linux Kernel 3.X			Windows CE
Environment	Shock Protection	Operating, IEC 60068-2-27, 50g, half sine, 11 ms			-
	Vibration Protection	Operating, IEC 60068-2-64, $2g_{rms}$, random, 5 ~ 500 Hz, 1 hr/axis (mSATA)			-
Communications (Ethernet)	LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet			2 x RJ-45 port, 10/100 Mbps
Communications (Serial)	COM Ports	1 x RS-232/422/485, DB9, 50 ~ 115.2 kbps			2 x isolated RS-485 (2-wire, isolated)

APAX Series Selection Guide

APAX Analog I/O Module

Model		APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028
Description		8-ch RTD module	12-ch analog input module	12-ch high-speed analog input module	12-ch thermocouple module	8-ch analog output module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2.5 W @ 24 V_{DC} (typical)	4 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)
Analog Input	Channels	8 (differential)	12 (differential)	12 (differential)	12 (differential)	-
	Input Type*	RTD (2-wire or 3-wire)	V, mV, mA	V, mV, mA	V, mV, mA, thermocouple	-
	Sampling Rates	10 sample/second (total)**	12 sample/second (total)**	1,000 sample/second (per channel)	12 sample/second (total)**	-
	Resolution	16-bit (accuracy: ±0.1% of scale range)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	-
	Input Impedance	>10 MΩ	>10 MΩ (voltage), 120 Ω (current)	2 MΩ (voltage), 120 Ω (current)	>1 MΩ (voltage), 120 Ω (current)	-
	Wire Burnout Detection	✓	✓ (4 ~ 20 mA only)	✓ (4 ~ 20 mA only)	✓ (4 ~ 20 mA and thermocouple)	-
Analog Output	Resolution	-	-	-	-	14-bit (accuracy: ±0.1% of scale range)
	Channels	-	-	-	-	8
	Output Type*	-	-	-	-	V, mA
	Slew Rate	-	-	-	-	0.7 V_{DC}/μs (per channel)
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				

* Each channel can be configured with different type and range

** Sampling rate depends on used channel number.

Example: Using 6 channels on APAX-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

APAX Digital I/O Module





Model		APAX-5040	APAX-5045	APAX-5046/ APAX-5046SO	APAX-5060	APAX-5080
Description		24-ch digital input module	24-ch digital I/O module	24-ch/20-ch digital output module	12-ch relay module	4/8-ch counter module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)	2 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)
	Status Display	LED per channel On: Logic level 1 Off: Logic level 0				
Digital Input	Channels	24	12	-	-	4 (sink)
	Input Voltage	Rated Value: 24 V_{DC}, For "0" signal: -5 ~ 5 V_{DC}, For "1" signal: 15 ~ 30 V_{DC} and -15 ~ 30 V_{DC}	Rated Value: 24 V_{DC}, For "0" signal: -5 ~ 5 V_{DC}, For "1" signal: 15 ~ 30 V_{DC} and -15 ~ 30 V_{DC}	-	-	For "0" signal: 0 ~ 3 V_{DC}, For "1" signal: 10 ~ 30 V_{DC}
	Type	Sink or source load	Sink or source load	-	-	-
Digital Output	Channels	-	12 (sink)	24 (sink)	-	4 (sink)
	Voltage Range	-	8 ~ 35 V_{DC}	8 ~ 35 V_{DC}	-	8 ~ 35 V_{DC}
	Rated Current Output	-	0.5 A (per channel, at signal "1")	0.5 A (per channel, at signal "1")	-	0.5 A (per channel)
Relay Output	Channels	-	-	-	12	-
Counter/ Frequency Input	Channels and Mode	-	-	-	-	8 (up and frequency mode), 4 (pulse/ direction, up/down, A/B phase mode)
	Counting Range	-	-	-	-	32-bit + 1-bit overflow
	Minimum Pulse Width	-	-	-	-	1 µs for high-freq. mode and other modes
	Counter Frequency	-	-	-	-	10 hz ~ 1 MHz for high-freq. mode and other modes
	Input Voltage	-	-	-	-	For "0" signal: 0 ~ 3 V_{DC}, for "1" signal: 10 ~ 30 V_{DC}
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				

APAX Series Selection Guide

APAX Coupler Module

Model		APAX-5070	APAX-5071	APAX-5072
Description		Modbus/TCP communication coupler	PROFINET communication coupler	EtherNET/IP communication coupler
General	Dimensions (W x H x D)	30 x 139 x 100 mm		
	Power Consumption	2 W @ 5 V_{DC} (typical)		
	Connectors	2 x RJ-45 (2-ch switch, shared IP address)		
Communications	Protocols	Modbus/TCP	PROFINET RT	Ethernet/IP
	Data Transfer Rates	10/100 Mbps		
	Connected I/O Modules	32 (max.)*		
	Digital Signals	768 (max.)		
	Analog Signals	192 (max.)		
Environment	Operating Temperature	-10 ~ 60°C (mounted vertically)		
	Storage Temperature	-40 ~ 85°C		
	Relative Humidity	5 ~ 95% (non-condensing)		

*APAX digital I/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX Communication Module

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Model		APAX-5435	APAX-5490	APAX-5090	APAX-5430
Description		mPCIe module for iDoor technology expansion	RS-232/422/485 module	4-port RS-232/422/485 virtual COM	SATA HDD module
General	Dimensions (W x H x D)	30 x 139 x 100 mm			
	Power Consumption	2.5 W @ 24 V_{DC} (typical)	2 W @ 5 V_{DC} (typical)	2 W @ 24 V_{DC} (typical)	2.5 W @ 5 V_{DC} (typical)
	Connectors	1 x 26-pin clamp-type terminal			
	Interface	mini PCI express 2.0 (Support iDoor), mSATA	RS-232/422/485	COM 1, COM 2: RS-232/422/485 COM 3, COM 4: RS-232/422/485 (change mode via switch)	SATA
Environment	Operating Temperature	-10 ~ 60°C (mounted vertically)			
	Storage Temperature	-40 ~ 70°C			
	Relative Humidity	5 ~ 95% (non-condensing)			

APAX-5000 Control IPC Support Table

Type		Control IPC		Coupler		
System		APAX-5580	APAX-5620	APAX-5070	APAX-5071	APAX-5072
Function	I/O Module	Intel® Core™ i7/i3/ Celeron Control IPC w/ 2 x GbE, 2 x mPCIe, VGA	PAC with Marvel XScale® CPU and CAN	Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler
Analog I/O	APAX-5013	✓	✓	✓	✓	✓
	APAX-5017	✓	✓	✓	✓	✓
	APAX-5017H	✓	✓	✓	✓	✓
	APAX-5018	✓	✓	✓	✓	✓
	APAX-5028	✓	✓	✓	✓	✓
Digital I/O	APAX-5040	✓	✓	✓	✓	✓
	APAX-5045	✓	✓	✓	✓	✓
	APAX-5046	✓	✓	✓	✓	✓
	APAX-5060	✓	✓	✓	✓	✓
	APAX-5046SO	✓	✓	✓	✓	✓
	APAX-5080	✓	✓	✓	✓	✓
Communication	APAX-5490	✓	-	-	-	-
	APAX-5090	✓	-	-	-	-
	APAX-5435	✓	-	-	-	-
SATA	APAX-5430	✓	-	-	-	-
Backplane & Expansion	APAX-5001	✓	✓	✓	✓	✓
	APAX-5002	✓	✓	✓	✓	✓
	APAX-5002/L	✓	✓	✓	✓	✓
	APAX-5402	✓	-	-	-	-
Power Supply	APAX-5343	✓	-	-	-	-
	APAX-5342	✓	-	-	-	-
	APAX-5343E	-	✓	✓	✓	✓

WISE-PaaS/EdgeLink-Enabled Gateways

Take Machine to Intelligent (M2I) for the Next Business Success

In the Industrial IoT era, companies are seeking solutions that can help them to utilize data analytics to raise service levels, create better products, and reduce operational costs. The ideal first step is get assets digitalized. This means that increasingly more data need to be analyzed, and both the volume and diversity of such data from different equipment are also increasing.While from the perspectives of equipment manufacturers, owners, and maintainers need to have an easy and reliable way to collect equipment data from field sites, Advantech WISE-PaaS/EdgeLink provides a solution for Machine to Intelligent (M2I). Without frequent on-site maintenance and service trips incurring time and financial costs, users will be able to monitor critical assets, track equipment performance, receive alarm notifications in the event of a problem, and perform system management and configuration using handheld devices. Thus, costs can be substantially reduced and the field equipment and facilities can be better monitored and controlled.

Optimizing Efficiency with Connected Equipment

For industrial boilers, air compressors, chillers, power distribution cabinets and other equipment, Advantech WISE-PaaS/EdgeLink serves as a kernel of data acquisition, data storage, alarm, data reporting and other functions, maximizing equipment efficiency with reliable data.

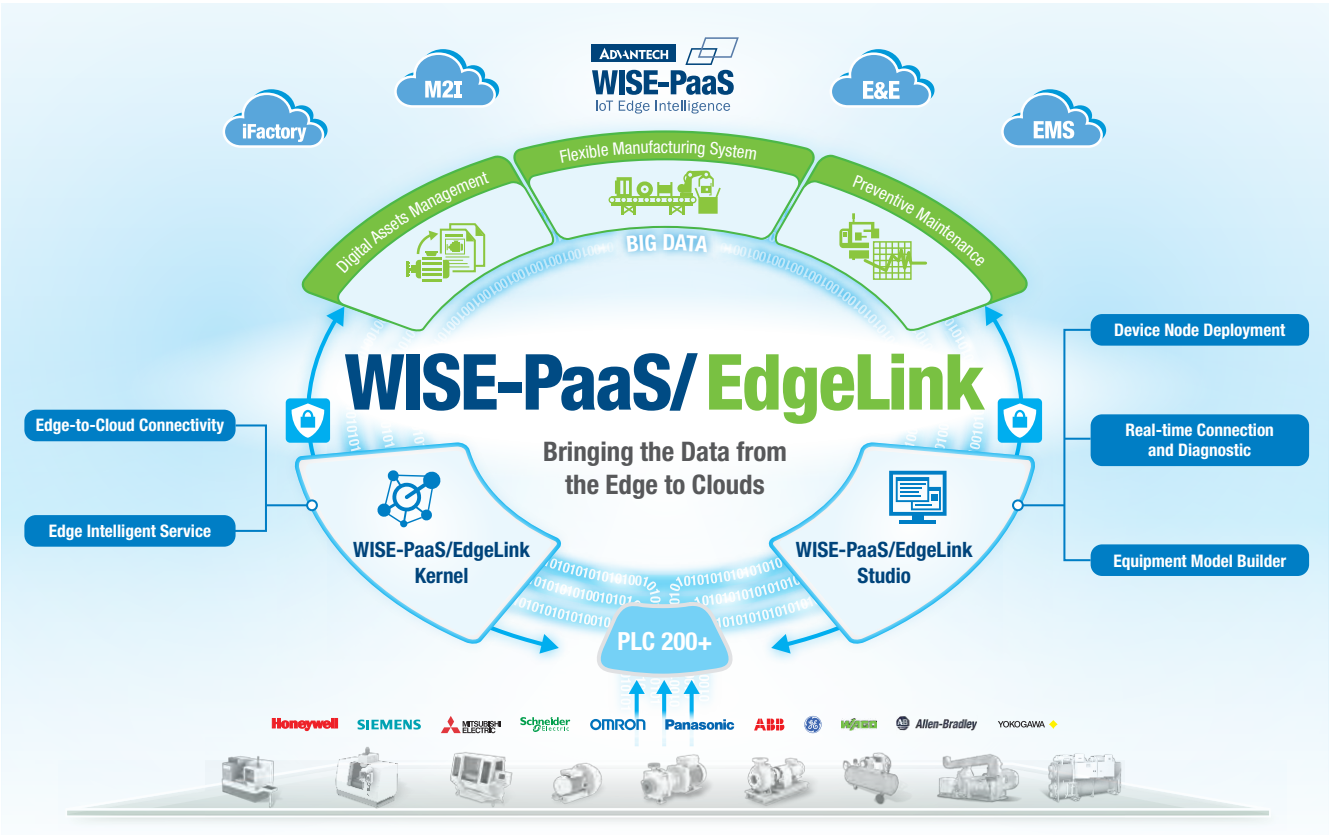
"Click-and-go" Cloud Access Deployment

Advantech WISE-PaaS/EdgeLink Studio offers a “click-and-go” functionality to send data to the Cloud. The acquired data can be easily and effortlessly report to the cloud for further analytic and visualized management reference.

Integrating Equipment Data into Middleware with Secured Data Conversion

In the IIoT Era, the requirement of connecting equipment becomes massive, more diverse and complex. Advantech WISE-PaaS/EdgeLink Studio supports data conversion that enables mass equipment such as PLCs, sensors, inverters and etc. directly integrated with SCADA, MES and ERP so that the equipment can be properly maintained and operated.

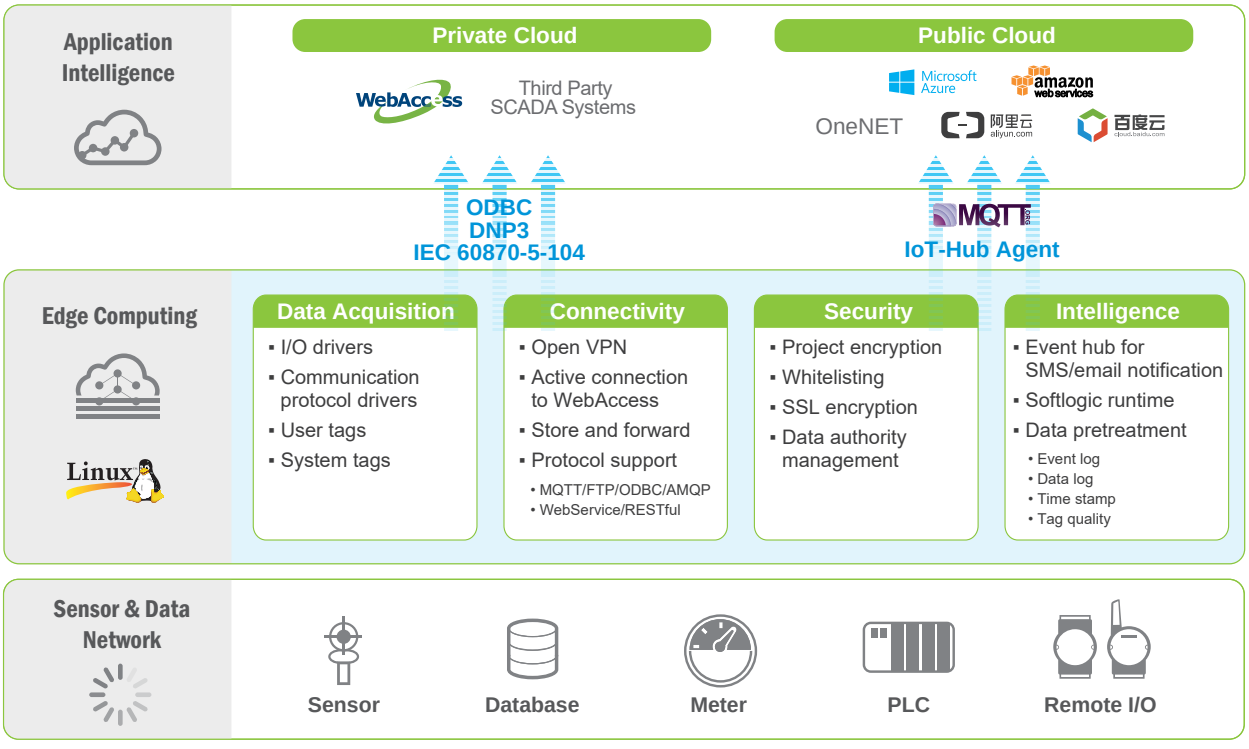
WISE-PaaS/EdgeLink Framework



Advantech WISE-PaaS/EdgeLink is equipped key functionalities for edge applications. The technology includes a runtime kernel and a user interface – "WISE-PaaS/EdgeLink Studio." With the integrated abilities of downlink to field equipment for data acquisition and uplink with connectivity, security, and intelligent functionalities, integrating field data and send them to the cloud becomes an easy task.

WISE-PaaS/EdgeLink Kernel

WISE-PaaS/EdgeLink Kernel Architecture



WISE-PaaS/EdgeLink Studio

Advantech WISE-PaaS/EdgeLink Studio is an advanced configuration tool that saves programming efforts and time for the users. It contains four major functionalities – Connectivity to handle uplink and downlink tasks, Equipment Model Builder that helps user to set for different equipment for different application in a snap, Cloud Agent that deals with the communication to public and private Cloud and Intelligent Service gives more advanced functionalities that ensure the data to be more secure and reliable.

Device Node Deployment

Connectivity

- Uplink to Supervisory System
- Downlink to Device or Equipment
- Active Connection

Intelligent Service

- Data Pre-treatment
- Local Network
- Data Logger
- White List
- Event Manager

Equipment Model Builder

- Device Model Builder
- Built-in Device Template
- I/O Tag Settings

Cloud Agent

- Public Cloud
- Database
- Private Cloud
- File Server

Device Node Deployment

- Project import and export
- User-friendly UI
- Easy mass deployment

Real-time Connection and Diagnostic

- Network status and data quality diagnostics
- Fast sync with field equipment

Equipment Model Builder

- Plug and play
- Rich equipment nodes and model
- Customizable model template

WISE-PaaS/EdgeLink-Enabled Gateways

Model Name		ADAM-3600
Description		Open Basis Intelligent RTU
System	CPU	Cortex A8
	Operating system	Linux RT 3.12
	Programming interface	C (Linux) IEC-61131-3, IEC-60870-104
	Communication protocols	Modbus/RTU, Modbus/TCP, DNP3
	Wireless communication protocols	GPRS, LTE 3G, Wi-Fi, Zigbee
	Special functions	Monitoring (iCDManager), data identification, breakpoint transmission, initiative reporting
Serial Port	Number of ports	3
	Type	1 x RS-232/485, 2 x RS-485
Network Port	Number of channels	2
	Number of independent IP addresses	2
	Speed	10/100 Mbps
	IP specifications	IPv4/IPv6
I/O	Onboard I/O	8 analog inputs, 8 digital inputs, 4 digital outputs
	Expansion slots	4
USB	USB2.0	1
Display Interface	VGA	1
	LED	System, serial, Ethernet, digital I/O, programmable
Storage Interface	SD	1 x SD slot
Operating Temperature		-40~70 °C
Certification		CE/FCC
Part Number		ADAM-3600-C2GL1A1E

Expansion Module for ADAM-3600

Model	Category	Channel	Part Number
ADAM-3617	Analog input module	4	ADAM-3617-AE
ADAM-3618	Analog input module	4, thermocouple	ADAM-3618-AE
ADAM-3624	Analog output module	4	ADAM-3624-AE
ADAM-3651	Digital input module	8	ADAM-3651-AE
ADAM-3656	Digital output module	8	ADAM-3656-AE
ADAM-3613	Analog input module	4, RTD	ADAM-3613-AE

Analog Input	
Signal Input	Differential
Sampling Rate	10 Hz
Voltage Input	+/- 10 V, +/- 2.5 V
Input Current	0~20 mA, 4~20 mA
Sensor Input	Thermocouple (type J, K, T, E, R, S, B) RTD (Pt100, Pt1000, Balco 500, Ni 518)
Resolution	16-bit

Analog Output	
Output Voltage	0~10 V
Output Current	0~20 mA, 4~20 mA
Resolution	12-bit

Digital Input	
Input Type	Sink
Rated Voltage	12/24 V_{DC}
Logic “0” Voltage	0~5 V_{DC}
Logic “1” Voltage	11~30 V_{DC}

Digital Output	
Output Type	Open collect
Output Voltage	8~30 V_{DC} @ max 200 mA

Wireless Expansion Module

EWM-W150H2E

Half-sized mini card, supports 802.11bgn

1750006043 SMA(M) cable, 15 cm

1750000318 2-dBi antenna, 11 cm

EWMC109F601E

6-band HSPA cellular module with SIM holder

1750006264 SMA(F) cable, 15 cm

1750005865 Dipole antenna, 11 cm

WISE-PaaS/TagLink-Enabled Gateways



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Model Name		ECU-1152TL	ECU-1251TL	ECU-1051TL	ECU-1050TL
Description		Industrial Communication Gateway	Industrial Communication Gateway	Industrial communication gateway	Industrial communication gateway
System	CPU	Cortex A8	Cortex A8	Cortex A8	Cortex A8
	Operating system	Linux RT 3.12	Linux RT 3.12	Linux RT 3.12	Linux RT 3.12
	Programming interface	C (Linux)	C (Linux)	C (Linux)	C (Linux)
	Wireless communication protocols	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104
	Wireless communication	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi
	Special functions	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting
Serial Port	Number of ports	6	4	2	-
	Type	RS-232/485	RS-232/485	RS-232/485	-
Network Port	Number of channels	2	2	2	1
	Independent IP number	2	2	2	1
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
	IP specifications	IPv4/IPv6	IPv4/IPv6	IPV4/IPV6	IPV4/IPV6
I/O	Onboard I/O	-	-	-	-
	Expansion slots	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	2 x mini-pcie
USB	USB2.0	1	1	-	-
Display Interface	VGA	-	-	-	-
	LED	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Prog/LAN	PWR/Prog
Storage Interface	SD	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
Industry communication protocol		Modbus/ IEC-60870-104/BACnet IP/DNP3			
Programmable logic controller support		Siemens/Allen-Bradley/Schneider/Mitsubishi/Omron/Honeywell/Yokogawa/Delta/Panasonic			
Data logger		Realtime data logger			
Programing Support		Linux C, Web service API			
Operating Temperature		-40 ~ 70 °C	-40 ~ 70 °C	-40 ~70 °C	-40 ~70 °C
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC
Part Number		ECU-1152TL-R11ABE	ECU-1251TL-R10AAE	ECU-1051TL-R10AAE	ECU-1050TL-R10AAE

Wireless Expansion Module

GPS

EWM-G108H01E

GPS/GNSS half-sized mini PCIe card

1750006264 SMA(F) cable, 15 cm

1750006432 4.5-dBi antenna, 5 m

Lte

EWM-C117FL0xE

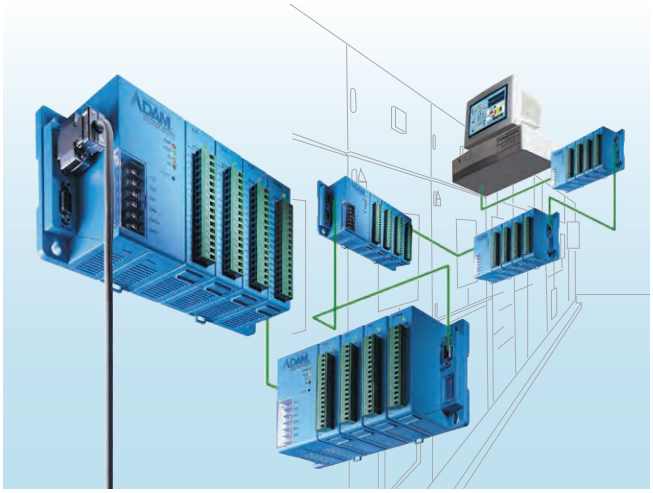
LTE/HSPA+/GPRS module, w/o SIM Slot

1750006264 SMA(F) cable, 15 cm

1750008424-01 LTE antenna, 14 cm

ADAM-5000 Series

Distributed I/O Systems & PC-based Controllers



Introduction

In the IIOT application, the first step of everything is data acquisition. People use high computing power at server side, and also need edge data collection and procession. One intelligent platform with modular design can save space in control cabinet and make installation easier. for sure this edge intelligent DAQ platform must support several communication interface to connect with upper layer system.

The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward Fieldbus-based systems. Based on popular Fieldbus data communication structures such as RS-485 and Modbus, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications: the ADAM-5000 DA&C systems and the ADAM-5630 series of PC-based controllers.

Open DAQ Controller for Industry 4.0

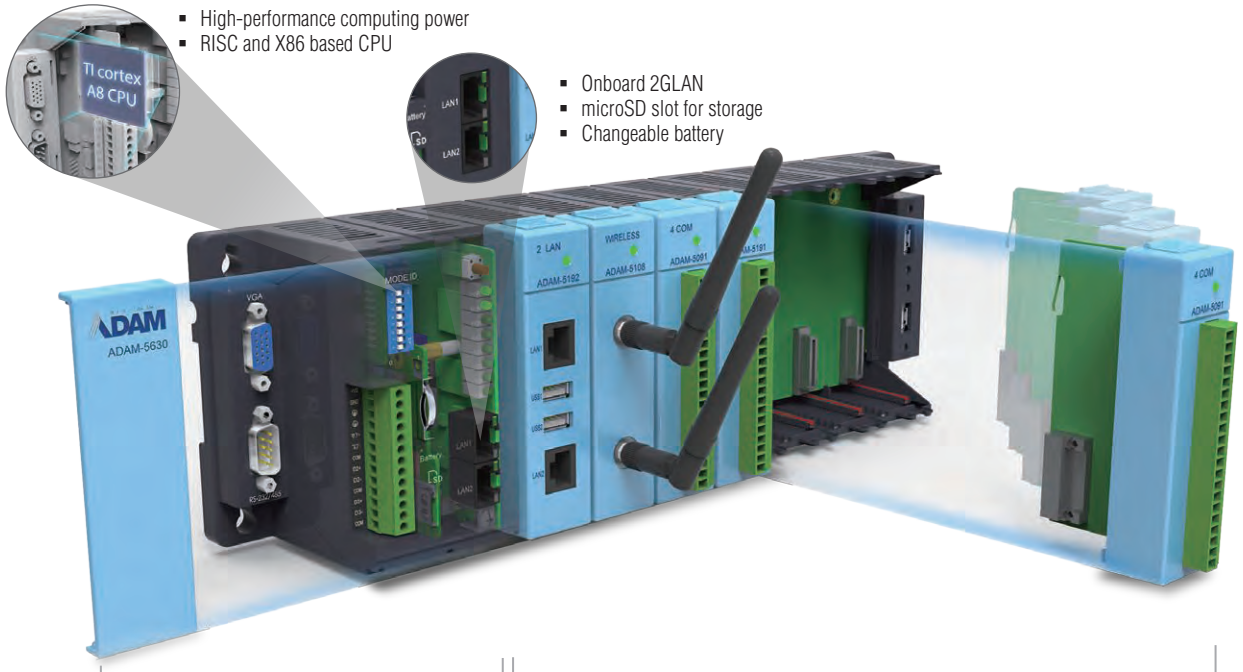
With the evolution of Industrial IoT, the demand of monitoring becomes enormous and complex in scale and variety. Hence the first stop of data acquisition requires higher ability to make the data valid. An ideal device of data acquisition for the new era covers higher computing capability, modularized I/O and customized ability.

The ADAM-5630 series of RISC-based programmable edge intelligent controllers includes ADAM-5630E, ADAM-5630. They feature cortex A8 CPU with DDR3 memory running real time Linux, which provides customer a high performance open platform.

Users can use Linux SDK and ADAM-5000 API(C and Python) to develop the application program. And ADAM-5630 also provides web service to help to set the configuration by web browser. The two onboard Ethernet ports which enables features like: FTP server, web server, TCP/UDP connections and Email alarm. ADAM-5630 controllers also have high expansion capability by supporting Modbus/RTU master/slave and Modbus/TCP client/server functions.

The ADAM-5560CE features Intel CPU running Windows CE. Users can use Microsoft Visual Studio .NET to develop the application program.

The ADAM-5560 also support CODESYS allow users to leverage the IEC 61131-3 SoftLogic programming environment to complete their automation task.



- High-performance computing power
- RISC and X86 based CPU
- Onboard 2GLAN
- microSD slot for storage
- Changeable battery

- Slide cover design
- User-friendly
- Terminal connector for device connections

- Modular data acquisition module design with a selection of more than 20 different I/O types
- Multiple port options for future communication expansion

Maximum System Design Flexibility

The ADAM-5000's modular design allows users to tailor solutions based on their own requirements. Built-in programmable I/O ranges and alarm outputs enhance flexibility in system design. A variety of communication media such as twisted-pair wiring, radio modems and fiber optics are supported.

System Maintenance and Troubleshooting

The ADAM-5000 series uses hardware self-test and software diagnosis to monitor system problems. Also included is a watchdog timer that monitors the microprocessor. If the system crashes, the watchdog automatically resets the system. Node ID setting is easily accomplished by setting a DIP switch on the front of the system.

Easy Installation and Networking

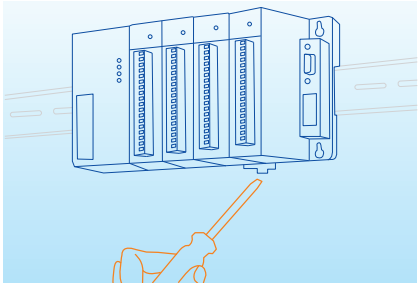
The ADAM-5000 series can be easily mounted on a DIN-rail or panel. Signal connections, network modifications and maintenance are simple and quick. Building a multi-drop network only requires a single twisted pair of wires.

Proven for Industrial Environments

The ADAM-5000 series can operate in industrial environments at temperatures between -10 and 70°C, and can use unregulated power sources between 10 and 30 V_{DC}. These units are protected against accidental power supply reversals. A 3-way isolation design (I/O, power & communication) prevents ground loops and reduces the effect of electrical noise in the system.

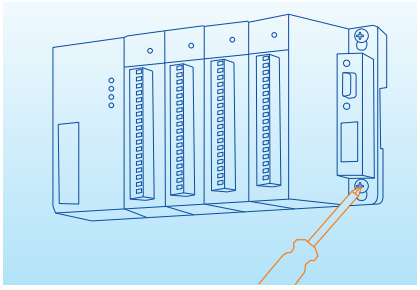
Extensive Software Support

The ADAM-5000 series is supported by most standard process controls and HMI software. .NET Class LIB is provided for use with Windows applications. OPC drivers provide links to a wide range of HMI/SCADA software packages such as InTouch, FIX and ICONICS. Advantech data acquisition software and Advantech Studio SCADA/HMI software are both tightly integrated with the ADAM-5000 systems.



DIN-rail Mounting

Installed on industrial standard DIN-rails



Panel/Wall Mounting

Flat surface system mounting

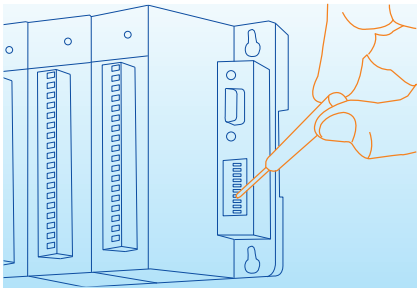
Distributed I/O Systems

Ethernet-based Data Acquisition and Control System

With the ADAM-5000/TCP as your Ethernet I/O data processing center, you can monitor and control field signals at speeds of 10/100 Mbps. The best field-proven communication performance that can be reached in industrial network environments. Additionally, the popular Modbus/TCP protocol is also supported.

RS-485 based Data Acquisition and Control System

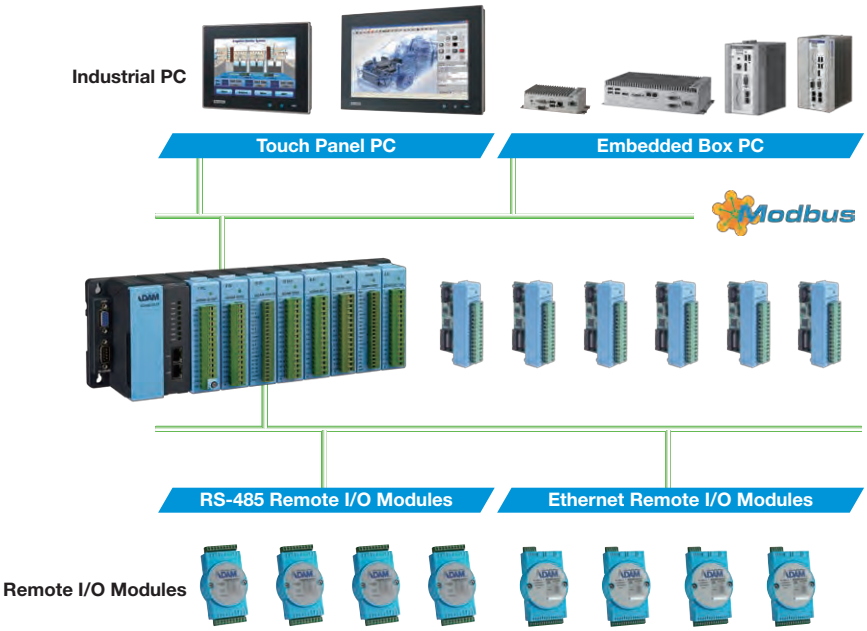
The ADAM-5000/485 system is a data acquisition and control system that can acquire, monitor and control data through multi-channel I/O modules. It communicates with a network master over a twisted-pair, multi-drop RS-485 network. Both ADAM ASCII and Modbus/RTU protocols are supported.

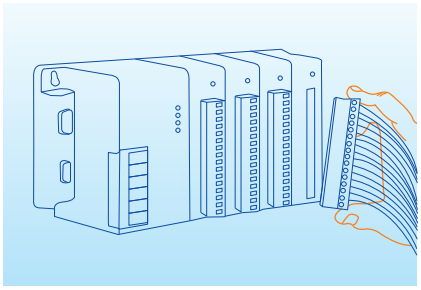


Node ID Setting

8-pin dip switch configuration

Simple and Cost Effective Network





Connection

Pre-wired plug-in terminals with I/O modules

ADAM-5000 Controller Selection Guide

System		ADAM-5630	ADAM-5630E	ADAM-5510/TCP ADAM-5510KW/TCP	ADAM-5510E/TCP ADAM-5510EKW/TP	ADAM-5560
CPU		cortex A8 600 MHz	cortex A8 600 MHz	80188		Intel Atom Z510P 1.1 GHz
RAM		512 MB DDR3L	512 MB DDR3L	640 KB		1 GB DDR2 SDRAM
Flash ROM		N/A	N/A	256 KB		-
Flash Memory		N/A	N/A	256 KB		-
Flash Disk		1 GB	1 GB	1 MB		-
OS		RT-Linux	RT-Linux	ROM-DOS		WinCE5.0/XP embedded
Control Software		Linux C SDK	Linux C SDK	ADAM-5510/TCP: Borland C ADAM-5510KW/TCP: KW SoftLogic	ADAM-5510E/TCP: Borland C ADAM-5510EKW/TP: KW SoftLogic	ADAM-5560CE: C/C++ and .NET ADAM-5560KW: KW SoftLogic
Real-time Clock		YES	YES	Yes		
Watchdog Timer		YES	YES	Yes		
COM1		RS-232/485	RS-232/485	RS-232	RS-232/RS-485	RS-232/485
COM2		RS-485	RS-485	RS-485		
COM3		RS-485	RS-485	RS-232 (TX, RX, GND)		RS-232/485
COM4		RS-232/485	RS-232/485	RS-232/485		
I/O Slots		4	8	4	8	7
Power Consumption		8W (for 5630 series only)		8 W		17 W
Isolation	Communication	2500 V_{DC} (COM1~COM3) (for 5630 series only)		2,500 V_{DC} (COM2 RS-485)		2,500 V_{DC} (COM2 RS-485) 1,500 V_{DC} (COM1, COM3, COM4 RS-485)
	Communication Power	3,000 V_{DC}				
	I/O Module	3,000 V_{DC}				
Diagnosis	Status Display	Power, RUN, Error, BAT, user define (for 5630 series only)		Power, CPU, Communication, Battery		Power, User Define
	Self Test	Yes, while ON				
	Software Diagnosis	Yes				
Communication	Interface	RS-232/485		Ethernet (RJ-45)		Ethernet (2 x RJ-45)
	Speeds	300 bps ~ 115.2 kbps		10/100 Mbps		10/100 Mbps
	Max. Distance	4,000 feet (1.2 km)		100 m		100 m
	Max. Nodes	32	32	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485
	Protocol	User Defined, Modbus/RTU	User Defined, Modbus/RTU	User Defined, Modbus/ RTU, Modbus/TCP	User Defined, Modbus/ RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
	Remote I/O	Modbus Device				
	Power Requirements	10 ~ +30 V_{DC}				
Environment	Operating Temperature	-20 ~ 70°C		-10 ~ 70°C (14 ~ 158°F)		0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)				
	Humidity	5 ~ 95%				
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75	355 x 110 x 75

ADAM-5000 I/O Module Selection Guide




System		ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
CPU		80188	80188	RISC CPU	
RAM		-	-	4 MB	
Flash ROM (User AP)		-	-	512 KB	
Flash Memory (Data Storage)		-	-	-	
Flash Disk		-	-	-	
OS		-	-	real-time OS	
Timer BIOS		-	-	-	
Real-time Clock		-	-	-	
Watchdog Timer		Yes			
I/O Slots		4	8	4	8
Power Consumption		3 W		4.0 W	5.0 W
Isolation	Communication	2,500 V_{DC}	3,000 V_{DC}	RS-485: 1,500 V_{DC}	
	Communication Power	3,000 V_{DC}			
	I/O Module	3,000 V_{DC}			
Diagnosis	Status Display	Power, CPU, Communication		Power, CPU, Error Diagnostic, Communication	
	Self Test	Yes, while ON			
	Software Diagnosis	Yes			
Communication	Interface	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet	
	Speeds (bps)	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	10 M, 100 M	
	Max. Distance	4,000 feet (1.2 km)	4,000 feet (1.2 km)	100 m without repeater	
	Data Format	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1 O, 8, 1	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1	TCP/IP	
	Max. Nodes	128	128	Depend on IP address	
	Protocols	ADAM ASCII/Modbus Protocol	ADAM ASCII/Modbus Protocol	Modbus/TCP	
	Remote I/O	-	-	20 nodes Modbus devices	
	Power Requirements	+10 ~ +30 V_{DC}			
Environment	Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)			
	Humidity	5 ~ 95%			
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75

Analog Input/Output Modules





Module		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit
	Input Channel	3	8	8	8	7
	Sampling Rate	10 (total*)	10 (total*)	10 (total*)	200K**	10 (total*)
	Voltage Input	-	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±150 mV, ±500 mV ±15V, ±10V, ±5 V, ±1 V 0 ~ 150mV, 0 ~ 500mV 0 ~ 1V, 0 ~ 5V, 0 ~ 10V 0 ~ 15V	±10 V, 0 ~ 10 V	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B
Isolation		3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}

*Sampling rate value depends on used channel number.
Example: Using 5 channels on ADAM-5017, sampling rate for each used channel will be 10/5 = 2 samples/second.
**The sampling rate varies with the controller.






Module		ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051/ ADAM-5051D/ ADAM-5051S	ADAM-5052	ADAM-5053S
Analog Input	Resolution	16 bit	-	-	-	-	-
	Input Channel	7	-	-	-	-	-
	Sampling Rate	10 (total*)	-	-	-	-	-
	Voltage Input	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V	-	-	-	-	-
	Current Input	4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B	-	-	-	-	-
Analog Output	Output Channels	-	4	-	-	-	-
	Resolution	-	12 bit	-	-	-	-
	Voltage Output	-	0 ~ 10 V	-	-	-	-
	Current Output	-	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	16 DI/O (bit-wise selectable)	16 (ADAM-5051) 16w/LED (5051D/5051S)	8	32
	Digital Output Channels	-	-		-	-	-
Isolation		3,000 V_{DC}	3,000 V_{DC}	-	2,500 V_{DC} (5051S)	5,000 V_{RMS}	2,500 V_{DC}

*Sampling rate value depends on used channel number.
Example: Using 6 channels on ADAM-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

ADAM-5000 I/O Module Selection Guide

Digital Input/Output Modules

Module		ADAM-5055S	ADAM-5056/ ADAM-5056D	ADAM-5056S/ ADAM-5056SO	ADAM-5057S	ADAM-5060
Digital Input and Digital Output	Digital Input Channels	8 w/LED	-	-	-	-
	Digital Output Channels	8 w/LED	16 (ADAM-5056) 16 w/LED (ADAM-5056D)	16 w/LED	32	6 relay (2 form A/4 form C)
Isolation		2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	-

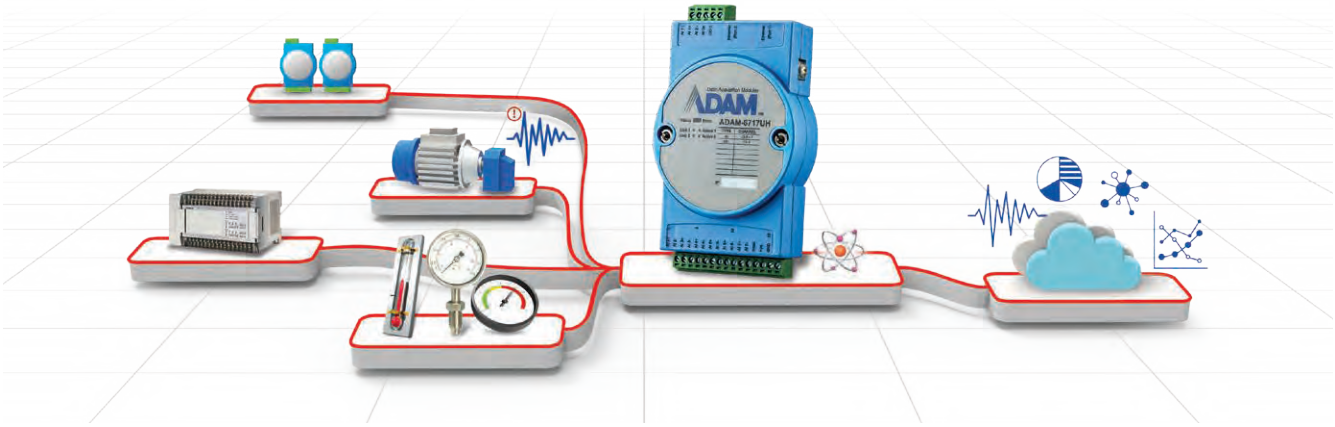
Module		ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5090/ ADAM-5091	ADAM-5191	ADAM-5192
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-	-
	Digital Output Channels	8 power relay (form A)	-	-	-	-	-
Counter (32-bit)	Channels	-	4	4/8	-	-	-
	Input Frequency	-	0.3 ~ 1000 Hz max. (frequency mode) 5000 Hz max. (counter mode)	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (counter mode)	-	-	-
	Mode	-	Frequency, Up/ Down Counter, Bi-direction Counter	Frequency, Counter (Up/Down, Bi-direction, Up, A/B Phase)	-	-	-
Communication	Channels	-	-	-	4	4 (ADAM-5630 only)	2
	Type	-	-	-	RS-232/422/485	RS-232/422/485	LAN (ADAM-5630 only)
Isolation		-	1,000 V_{RMS}	2,500 V_{DC}	-	1,000 V_{DC}	

ADAM-5000 Controller Support Table

Type		PAC			PC-based Controller		
System		ADAM-5560KW	ADAM-5510KW ADAM-5510EKW	ADAM-5510KW/TCP ADAM-5510EKW/TP	ADAM-5560CE	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510M ADAM-5510E
Function	I/O Module	7-slot Micro PAC with Atom™ CPU	4/8-slot Softlogic Controller w/ RS-485	4/8-slot Softlogic Controller w/ Ethernet	7-slot PC-based Controller with Atom™ CPU	4/8-slot PC-based Controller with Ethernet	4/8-slot PC-based Controller with RS-485
Analog Input (AI)	ADAM-5013	•	•	•	•	•	•
	ADAM-5017	•	•	•	•	•	•
	ADAM-5017P	•	-	-	•	•	•
	ADAM-5017H	-	•	•	-	•	•
	ADAM-5017UH	•	-	-	•	•	•
	ADAM-5018	•	•	•	•	•	•
	ADAM-5018P	•	-	-	•	•	•
Analog Output (AO)	ADAM-5024	•	•	•	•	•	•
Digital Input (DI)	ADAM-5051	•	•	•	•	•	•
	ADAM-5051D	•	•	•	•	•	•
	ADAM-5051S	•	•	•	•	•	•
	ADAM-5052	•	•	•	•	•	•
	ADAM-5053S	•	-	-	•	-	-
Digital Output (DO)	ADAM-5056	•	•	•	•	•	•
	ADAM-5056D	•	•	•	•	•	•
	ADAM-5056S	•	•	•	•	•	•
	ADAM-5056SO	•	•	•	•	•	•
	ADAM-5057S	•	-	-	•	-	-
Digital I/O	ADAM-5050	•	•	•	•	•	•
	ADAM-5055S	•	•	•	•	•	•
Relay Output	ADAM-5060	•	•	•	•	•	•
	ADAM-5069	•	•	•	•	•	•
Counter/ Frequency	ADAM-5080	-	•	•	-	•	•
	ADAM-5081	•	-	-	•	•	•
Comm.	ADAM-5090	-	•	•	-	•	•

ADAM-6700 Series

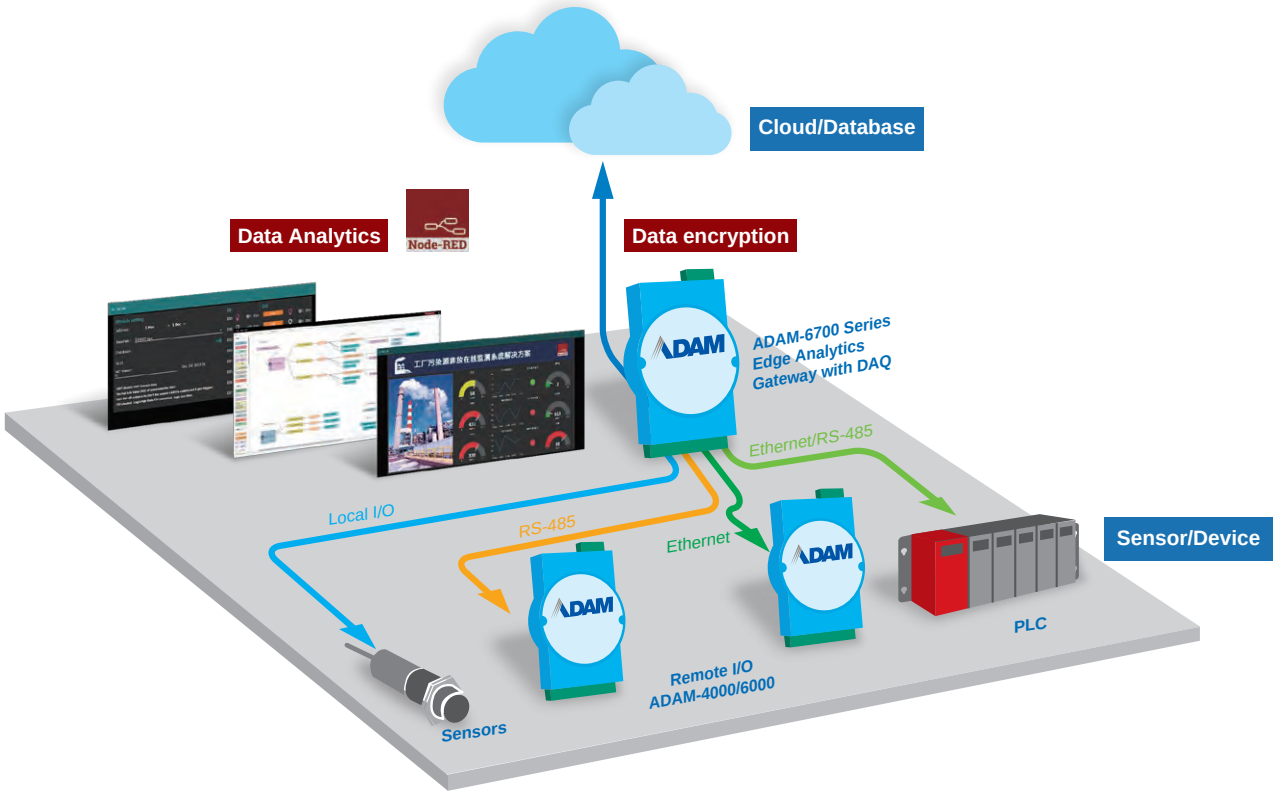
Edge Data Acquisition and Analytics Gateway



Introduction

ADAM-6700 is aiming at the edge applications. Compact size with I/O and powerful CPU allow it to possess the strength of data acquisition and analytics. Leveraging the Node-red ADAM-6700 series provides flexibility in different applications.

Edge Gateway with DAQ and Intelligence



Features

Edge Data Analytics

The cloud connectivity cost is related to the data size updated to the cloud, instead of updating all raw data to the cloud, ADAM-6700 processed the raw data and turn them into significant information such as average ,Max ,min of a period , the RMS,FFT value for predictive maintenance. The data size is reduced by sending the processed data.

Acquire data and take action locally

ADMA-6700 series equips the I/O that can acquire data from digital or analog sensors, and with the A8 MCU, large amount of data can be analyzed, and take the action locally, which reduce the latency or lose of sending command from cloud. For instance, if the temperature and vibration value is out of the specification, ADAM-6700 will directly trigger the alarm locally, meanwhile, sending the mail to management center.

Built in Node-Red

Node-red is a graphic programming tool developed by IBM. User can establish the project by simply dragging and dropping the nodes. No complicated programming process is need. Furthermore all the nodes information are open to public, variety of nodes can be found at https://flows.nodered.org/, Besides, the nodes are programmed based on JavaScript, for advanced users, JavaScript code for nodes can be modified according to the project

Cloud access with data encryption

Every cloud service has their own connection mechanism. So user will face the difficulty handling the protocol, encryption and data format. ADAM-6700 series is capable of dealing with data to the cloud service by different nodes. For the legacy machines that are incapable of sending data to the cloud, ADAM-6700 series transforms those legacy machines to the IoT world

Starting-up with Node-RED

ADAM-6700 series is built in the Node-RED environment. Various nodes enable users to establish the project in a short time without much effort . Below lists some examples about what users can leverage by the Node-red nodes. More nodes information can be found at https://flows.nodered.org/,

Communication

Users can use the node to deal with communication such as MQTT,Modbus,Restful. Furthermore the nodes also handle the process to update data to database or cloud

Data Visualization

Users can use the dashboard to visualize the data. The data trend can be monitored easily

Data process

the raw data can be calculated with the calculation nodes. Processed Data such as the average ,max,min ,scaling, RMS, FFT and many calculation results can be obtained with the nodes

Set logic rules

with the logic nodes, user can set the logic rule by using the "If", "then", "else", "and" ,"or" nodes according to their project. After setting, the ADAM-6700 will take action locally according to the rules

ADAM-6700 Series Selection Guide



		ADAM-6750	ADAM-6717UH	ADAM-6771
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External storage		1GB microSD (Optional)		
OS		Real-time Linux V3.12		
Programming		Node-Red(Graphic programming environment based on javascript),Linux C		
Interface	RS-485	1		2
	RS-485/232			2
	LAN	2	2	2
	USB 2.0			1
Digital input	Channel	8		
	Type	Dry contact: logic 0 close to ground logic 1 Open Wet contact: logic 0: 0 ~ 5 V_{DC} logic 1: 10 ~ 50 V_{DC}		
	Counter input	3kHZ		
Digital Output	Channel	4	1	
	Voltage	0 ~ 50 V_{DC}	0 ~ 50 V_{DC}	
	Type	Sink	Sink	
Analog input	channel		8	
	Sampling rate	100kHZ (total)		
Diemension		70W x 122L x 27H mm		

6 Industrial Communication

Industrial Communication in the IoT Era

Connecting legacy devices to IoT

Most legacy devices are isolated and unconnected, but the use of legacy network technologies still prevails in industrial automation and new solutions that connect legacy devices to modern networking systems are needed in order to extend the useful life of existing machinery as to avoid an expansive machine purchase or major upgrade.

Moving from Closed to Open, IP-based Networks

The adoption of an open, IP-based network has gained in popularity for their ability to connect every machine, device, and equipment together on the same network either by wired or wireless technologies in order to maximize the true benefits of IoT.

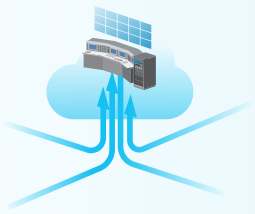
Empowered Edge Computing

Bringing intelligence to where the action takes place – edge computing processes data locally, at the edge of the network, near the source of the data, then passes data from the local area network to the cloud. It is an attractive technology which not only provides a faster response, but also helps relieve the workload of the cloud, making the cost of building your IoT Infrastructure much lower. Advantech's industrial communication solutions offer various wired and wireless communication technologies, ensuring a secure and seamless connection of every layer in the industrial communication network.

Our Technologies

Interconnected Solutions for an Intelligent Planet

In the IoT era, equipment and machines are able to connect and communicate with each other to increase productivity, efficiency, and scalability. The core mission of Advantech's iConnectivity Group is to offer best-in-class industrial communication solutions including both wired and wireless technologies that can truly help integrators leverage the full potential of IoT in the most effective and productive way.



WebAccess/NMS

Advantech's WebAccess/NMS provides centralized remote network management for industrial vertical applications.

- Auto networking topology
- Configuration backup and restore
- Network monitoring and reporting
- Dynamic connectivity indication

Network Edge

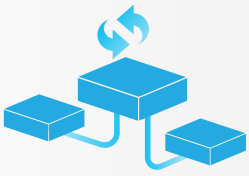
Advantech's cellular routing solutions open up endless possibilities for IoT. Advantech's cellular routers support direct communication between MQTT-enabled devices and the cloud and their built-in Node-RED technology enables smart data processing and monitoring using Advantech's WISE/PaaS management software.

- Support for operation with global 3G/LTE coverage
- Cyber security protection via firewall, NAT, and VPN
- Intelligent gateways support LoRa, and Mesh networks

Wired & Wireless Network Infrastructure

Advantech provides a comprehensive product portfolio to help users build a robust, secure and scalable wired or wireless networking infrastructure.

- Supports various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, and ODVA
- Compliant with C1D2, ATEX, IECEx certifications for hazardous environments
- Cyber security protection within the network
- Layer 3 routing protocols: RIP, OSPF, and VRRP
- Advantech's patented IXM technology for rapid deployment, saving up to 90% of engineering time and resources



Protocol & Interface Conversion Solutions

Advantech offers numerous wired and wireless products to convert different legacy protocols and interfaces to modern networking systems to avoid a complete overhaul of existing equipment and devices, saving cost and avoiding software programming errors.

- Supports various industrial Ethernet protocols including TCP/IP, Ethernet/IP, and PROFINET
- Surge protection and field isolation
- Connects to edge sensors via LoRa and MESH technologies
- Serial-to-Ethernet and USB-to-Serial conversion

Industrial Ethernet Solutions

EN50155 Ethernet Switches






Model Name		EKI-9512E-4EETB	EKI-9528E-4GMP EKI-9528G-4GMP	EKI-9520E-4GMP EKI-9520G-4GMP	EKI-9510G-2GMPH EKI-9510G-2GMPL	EKI-9510E-2GMPH EKI-9510E-2GMPL	EKI-9508G-MPH EKI-9508G-MPL
Description		EN 50155 12-port Ethernet Train Backbone Router	EN 50155 28-port Managed Ethernet Switch/With PoE	EN 50155 20-port Managed Ethernet Switch/With PoE	EN 50155 10-port Full Gigabit Managed Ethernet Switch/With PoE	EN 50155 10-port Managed Ethernet Switch/With PoE	EN 50155 8-port Full Gigabit Managed Ethernet Switch/With PoE
Interface	Ports Number	12	28	20	10	10	8
	10/100Base-T (X)	12	-	-	-	-	-
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	12	4	2	2	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	-	-
	PoE (10/100 Mbps)	-	16 (EKI-9528E-4GMP)	16 (EKI-9520E-4GMP)	-	8	-
	PoE (10/100/1000 Mbps)	-	16 (EKI-9528G-4GMP)	16 (EKI-9520G-4GMP)	8	-	8
	DI/DO	-	-	-	-	-	-
	Console	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	-	-	-	-	-	-
	24 ~ 110 V DC	✓	✓	✓	EKI-9510G-2GMPL: 24~48V DC EKI-9510G-2GMPH: 72~110V DC	EKI-9510E-2GMPL: 24~48V DC EKI-9510E-2GMPH: 72~110V DC	EKI-9508G-MPL: 24~48V DC EKI-9508G-MPH: 72~110V DC
	100 ~ 240 V AC	-	-	-	-	-	-
	Relay Output	✓	✓	✓	-	-	-
Mechanism	DIN-rail Mount	-	-	-	-	-	-
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP67	IP67	IP67	IP40	IP40	IP40
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-
	UL 508	-	-	-	-	-	-
	Others	EN50155	EN50155	EN50155	EN50155	EN50155	EN50155

✓ : supported, - : not supported, △ : optional

EN50155 Ethernet Switches





Model Name		EKI-9508E-MPH EKI-9508E-MPL	EKI-9512 EKI-9512P	EKI-9512D EKI-9512DP	EKI-9516 EKI-9516P	EKI-9516D EKI-9516DP
Description		EN 50155 8-port Managed Ethernet Switch/With PoE	EN 50155 12-port Full Gigabit Managed Ethernet Switch/With PoE + PoE+	EN 50155 12-port Managed Ethernet Switch /With PoE/PoE+	EN 50155 16-port Full Gigabit Managed Ethernet Switch/With PoE/PoE+	EN 50155 16-port Managed Ethernet Switch/With PoE/PoE+
Interface	Ports Number	8	12	12	16	16
	10/100Base-T (X)	-	-	12(EKI-9512D) 4(EKI-9512DP)	-	16(EKI-9516D) 4(EKI-9516DP)
	100BaseFX	-	-	-	-	-
	10/100/1000Base-T (X)	-	12(EKI-9512) 4(EKI-9512P)	-	16(EKI-9516) 4(EKI-9516P)	-
	1000Base-SX/LX/LHX/XD/ZX/EZX	-	-	-	-	-
	PoE (10/100 Mbps)	8	-	8(EKI-9512DP)	-	12(EKI-9516DP)
	PoE (10/100/1000 Mbps)	-	8(EKI-9512P)	-	12(EKI-9516P)	-
	DI/DO	-	-	-	-	-
	Console	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	-	-	-	-	-
	24 ~ 110 V DC	EKI-9508E-MPL: 24~48V DC EKI-9508G-MPH: 72~110V DC	EKI-9512P-LV: 24~48V DC EKI-9512P-HV: 72~110V DC EKI-9512-WV: 24~110V DC	EKI-9512DP-LV: 24~48V DC EKI-9512DP-HV: 72~110V DC EKI-9512D-WV: 24~110V DC	EKI-9516P-LV: 24~48V DC EKI-9516P-HV: 72~110V DC EKI-9516-WV: 24~110V DC	EKI-9516DP-LV: 24~48V DC EKI-9516DP-HV: 72~110V DC EKI-95126-WV: 24~110V DC
	100 ~ 240 V AC	-	-	-	-	-
	Relay Output	-	✓	✓	✓	✓
Mechanism	DIN-rail Mount	-	-	-	-	-
	Wall Mount	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-
	IP Level	IP40	IP67	IP67	IP67	IP67
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-
	UL 508	-	-	-	-	-
	Others	EN50155	EN50155	EN50155	EN50155	EN50155

✓ : supported, - : not supported, △ : optional

Industrial Ethernet Solutions

L3 Managed Switches

Model Name		EKI-9728G-4X8CI	EKI-9628G-4CI	EKI-9612G-4FI
Description		L3 28-port Managed Switch w/ 4 x 10GbE ports	L3 28-port Managed Switch	L3 12-port Managed Switch
Interface	Ports Number	28	28	12
	10/100Base-T (X)	-	-	-
	100BaseFX	-	-	-
	10/100/1000Base-T (X)	16+8 (combo)	24+4 (combo)	8
	1000Base-SX/LX/ LHX/XD/ZX/EZX	8 (combo)	4 (combo)	4 x SFP
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	HSR/PRP	4	-	-
	Console	✓	✓	✓
Network Management	Redundancy	✓	✓	✓
	Diagnostics	✓	✓	✓
	VLAN	✓	✓	✓
	Configuration	✓	✓	✓
	SNMP	✓	✓	✓
	Security	✓	✓	✓
	Traffic Control	✓	✓	✓
Power	12 ~ 48 V DC	-	✓	✓
	24 ~ 110 V DC	-	-	-
	100 ~ 240 V AC	90~264 V_{AC}	-	-
	Relay Output	-	-	-
Mechanism	DIN-rail Mount	-	-	✓
	Wall Mount	-	-	-
	Rack Mount	✓	✓	-
	IP Level	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓
	Power Reverse	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-
Certifications	CE	✓	✓	✓
	FCC	✓	✓	✓
	UL/cUL 60950-1	-	-	-
	Class 1, Division 2	-	-	-
	UL 508	-	✓	✓
Others		-	-	-

IEC 61850-3 Managed Industrial Ethernet Switches

Model Name		EKI-9228G-20FOI EKI-9228G-20FMI	EKI-9226G-20FOI EKI-9226G-20FMI	EKI-9213E-2CPHR
Description		28-port Full Giga Managed Switch	26-port Full Giga Managed Switch	13-port Managed Switch support HSR/PRP
Interface	Ports Number	28	26	13
	10/100Base-T (X)	-	-	8
	100BaseFX	-	-	-
	10/100/1000Base-T (X)	24+4 (Combo)	20	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4 x SFP(Combo)	6 x SFP	3 x SFP
	PoE (10/100 Mbps)	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-
	HSR/PRP	-	-	2 x RJ-45/SFP combo
	Console	✓	✓	✓
Network Management	Redundancy	✓	✓	✓
	Diagnostics	✓	✓	✓
	VLAN	✓	✓	✓
	Configuration	✓	✓	✓
	SNMP	✓	✓	✓
	Security	✓	✓	✓
	Traffic Control	✓	✓	✓
Power	12 ~ 48 V DC	EKI-9228G-20FMI (48 V_{DC})	EKI-9226G-20FMI (48 V_{DC})	✓
	24 ~ 110 V DC	-	-	-
	100 ~ 240 V AC	EKI-9228G-20FMI (90 ~ 264 V_{AC})	EKI-9226G-20FOI (90 ~ 264 V_{AC})	✓
	Relay Output	✓	✓	✓
Mechanism	DIN-rail Mount	-	-	✓
	Wall Mount	-	-	✓
	Rack Mount	✓	✓	✓
	IP Level	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓
	Power Reverse	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	-	-	-
	-40 ~ 85°C (-40 ~ 185°F)	✓	✓	✓
Certifications	CE	✓	✓	✓
	FCC	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓
	Class 1, Division 2	-	-	-
	UL 508	✓	-	-
Others		IEC 618500-3	IEC 618500-3	IEC 618500-3

✓ : supported, - : not supported, △ : optional

Managed Ethernet Switches

Model Name		EKI-7428G-4FA	EKI-7428G-20FA	EKI-7708G-2FVI	EKI-7710E-2C EKI-7710E-2CI	EKI-7710G-2C EKI-7710G-2CI	EKI-7712E-4F EKI-7712E-4FI	EKI-7712G-2FVI	EKI-7712G-4F EKI-7712G-4FI
Description		24Giga+4SFP Giga ports Managed Redundant Switch w/ AC Input	8Giga+20SFP Giga ports Managed Redundant Switch w/ AC Input	4Giga + 2VDSL+2SFP Giga ports Managed Redundant Industrial Switch	8FE+2G Port Gigabit Managed Redundant Industrial Switch	8G+2G Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8FE+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8Giga + 2VDSL+2SFP Giga ports Managed Redundant Industrial Switch	8G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature
Interface	Ports Number	28	28	8	10	10	12	12	12
	10/100Base-T (X)	-	-	4	8	-	-	-	-
	100BaseFX	-	-	-	-	-	-	-	-
	10/100/1000Base-T (X)	24	8	-	2	8	8	8	8
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4	20	4 (2SFP+2VDSL)	2	2	4	4 (2SFP+2VDSL)	4
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-
	HSR/PRP	-	-	-	-	-	-	-	-
	Console	✓	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	-	-	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-	-	-
	100 ~ 240 V AC	✓	✓	-	-	-	-	-	-
	Relay Output	-	-	✓	-	-	-	✓	-
Mechanism	DIN-rail Mount	-	-	✓	✓	✓	✓	✓	✓
	Wall Mount	-	-	✓	✓	✓	✓	✓	✓
	Rack Mount	✓	✓	-	-	-	-	-	-
	IP Level	-	-	30	IP30	IP30	IP30	30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-10 ~ 55°C (14 - 131°F)	-10 ~ 55°C (14 - 131°F)	-	✓	✓	✓	-	✓
	-40 ~ 75°C (-40 ~ 167°F)	-	-	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-	-
	UL 508	-	-	-	✓	✓	✓	-	✓
Others		-	-	UL 61010	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	UL 61010	NEMA TS2 EN50121-4

✓ : supported, - : not supported, △ : optional

Industrial Ethernet Solutions

Managed Ethernet Switches

Model Name		EKI-7720E-4F EKI-7720E-4FI	EKI-7720G-4F EKI-7720G-4FI	EKI-7706E-2F/I	EKI-7706G-2F/I	EKI-7708E-4F/I	EKI-7708G-4F/I	EKI-7716E-4F/I	EKI-7716G-4F/I
Description		16FE+4G SFP Port Gigabit Managed Redundant Industrial Switch with Wide Temperature	16G+4G SFP Port Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	4FE+2SFP Giga ports Managed Redundant Industrial Switch	4Giga+2SFP Giga ports Managed Redundant Industrial Switch	4FE+4SFP Giga ports Managed Redundant Industrial Switch	4Giga+4SFP Giga ports Managed Redundant Industrial Switch	8FE+4SFP+4G Combo port Managed Redundant Industrial Switch	8GE+4SFP+4G Combo port Managed Redundant Industrial Switch
Interface	Ports Number	20	20	6	6	8	8	16	16
	10/100Base-T (X)	-	-	4	-	4	-	8 + 4 (Combo)	-
	100BaseFX	-	-						
	10/100/1000Base-T (X)	16	16	-	4	-	4	-	8 + 4 (Combo)
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4	4	2	2	4	4	4 + 4 (Combo)	4 + 4 (Combo)
	PoE (10/100 Mbps)	-	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-	-
	Console	✓	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-	-
	Relay Output	-	-	-	-	-	-	-	-
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-	-
	IP Level	IP30	IP30	-	-	-	-	-	-
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	✓	✓	EKI-7706E-2F	EKI-7706G-2F	EKI-7708E-4F	EKI-7708G-4F	EKI-7716E-4F	EKI-7716G-4F
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708E-4FI	EKI-7708G-4FI	EKI-7716E-4FI	EKI-7716G-4FI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-	-	-
	UL 508	✓	✓	-	-	-	-	-	-
	Others	NEMA TS2 EN50121-4	NEMA TS2 EN50121-4	UL 61010	UL 61010	UL 61010	UL 61010	UL 61010	UL 61010

✓ : supported, - : not supported, △ : optional

Managed Protocol Switches






Model Name		EKI-5526/I-EI EKI-5528/I-EI	EKI-5526/I-PN EKI-5528/I-PN	EKI-5526/I-MB EKI-5528/I-MB	EKI-5626C/I-EI EKI-5629C/I-EI	EKI-5626C/I-PN EKI-5629C/I-PN	EKI-5626C/I-MB EKI-5629C/I-MB
Description		16/8 port Entry-Level Managed Switch Supporting EtherNet/IP	16/8 port Entry-Level Managed Switch Supporting PROFINET	16/8 port Entry-Level Managed Switch Supporting Modbus	18/10 port Entry-Level Managed Switch Supporting EtherNet/IP	18/10 port Entry-Level Managed Switch Supporting PROFINET	18/10 port Entry-Level Managed Switch Supporting Modbus
Interface	Ports Number	16/8	16/8	16/8	16/8	16/8	16/8
	10/100Base-T (X)	16/8	16/8	16/8	16/8	16/8	16/8
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	-	2/2	2/2	2/2
	1000Base-SX/LX/ LHX/XD/ZX/EZX	-	-	-	2/2	2/2	2/2
	PoE (10/100 Mbps)	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-
	Console	-	-	-	-	-	-
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	✓	✓	✓	✓	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial Ethernet Solutions

Unmanaged Ethernet Switches

Model Name		EKI-5726FI	EKI-5729FI	EKI-5726I	EKI-5728/I	EKI-5626CI	EKI-5629CI	EKI-5528/I EKI-5525/I
Description		16-port+2 SFP Gigabit Ethernet Switch	8-Port+2 SFP Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch	5/8-port Gigabit Ethernet Switch	16FE + 2GE Combo Ethernet Switch	8FE + 2GE Combo Ethernet Switch	8/5-port Fast Ethernet Switch
Interface	Ports Number	16	8	16	5/8	18	10	8/5
	10/100Base-T (X)	-	-	-	-	16	8	8/5
	100BaseFX	✓	✓	-	-	-	-	-
	10/100/1000Base-T (X)	16	8	16	5/8	-	-	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	✓	✓	-	-	2	2	-
	PoE (10/100 Mbps)	-	-	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-	-	-
	DI/DO	-	-	-	-	-	-	-
	Console	✓	✓	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-	-	-
	Diagnostics	-	-	-	-	-	-	-
	VLAN	-	-	-	-	-	-	-
	Configuration	✓	✓	✓	-	-	-	-
	SNMP	✓	✓	✓	✓	-	-	-
	Security	-	-	-	-	-	-	-
	Traffic Control	-	-	-	-	-	-	-
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	-	-	-	-	-
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-	-
	Class 1, Division 2	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓
	Others	-	-	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Unmanaged Ethernet Switches





Model Name		EKI-5525SI/MI Series	EKI-5524SSI/MMI Series	EKI-2728M/MI	EKI-2725/I	EKI-2728/I
Description		4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet Switch	4-port + 2x100FX port (Single/Multimode, SC/ST type), Fast Ethernet Switch	6G+2G Multi-Mode Unmanaged Ethernet Switch	5-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch
Interface	Ports Number	4	6	8	5	8
	10/100Base-T (X)	4	4	-	-	-
	100BaseFX	1	2	-	-	-
	10/100/1000Base-T (X)	-	-	6	5	8
	1000Base-SX/LX/ LHX/XD/ZX/EZX	-	-	2	-	-
	PoE (10/100 Mbps)	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-
	DI/DO	-	-	-	-	-
	Console	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-
	Diagnostics	-	-	-	-	-
	VLAN	-	-	-	-	-
	Configuration	-	-	-	-	-
	SNMP	-	-	-	-	-
	Security	-	-	-	-	-
	Traffic Control	-	-	-	-	-
Power	12 ~ 48 V DC	✓	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	-	EKI-2728M	EKI-2725	EKI-2728
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	EKI-2728MI	EKI-2725I	EKI-2728I
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	✓	✓
	Class 1, Division 2	✓	✓	✓	-	-
	UL 508	✓	✓	✓	-	-
	Others	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial Ethernet Solutions

Unmanaged Ethernet Switches





Model Name		EKI-2428G-4FA	EKI-2728S/2728SI	EKI-2525M/S	EKI-2526M/S	EKI-2525LI-AE
Description		24Giga+4SFP Giga ports Unmanaged Switch w/ AC Input	6GE+2G Single-Mode Fiber Port Unmanaged Ethernet Switch	4+1 100FX Port Multi-mode/Single-mode Unmanaged Industrial Ethernet Switch	4+2 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch	5Fast Ethernet ports Slim Type Unmanaged Switch
Interface	Ports Number	28	8	5	6	5
	10/100Base-T (X)	-	-	4	4	5
	100BaseFX	-	-	1	2	-
	10/100/1000Base-T (X)	24	6	-	-	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4	2 x SC Single Mode	-	-	-
	PoE (10/100 Mbps)	-	-	-	-	-
	PoE (10/100/1000 Mbps)	-	-	-	-	-
	DI/DO	-	-	-	-	-
	Console	-	-	-	-	-
Network Management	Redundancy	-	-	-	-	-
	Diagnostics	-	-	-	-	-
	VLAN	-	-	-	-	-
	Configuration	-	-	-	-	-
	SNMP	-	-	-	-	-
	Security	-	-	-	-	-
	Traffic Control	-	-	-	-	-
Power	12 ~ 48 V DC	-	✓	✓	✓	✓
	24 ~ 110 V DC	-	-	-	-	-
	100 ~ 240 V AC	✓	-	-	-	-
	Relay Output	-	✓	✓	✓	-
Mechanism	DIN-rail Mount	-	✓	✓	✓	✓
	Wall Mount	-	✓	✓	✓	✓
	Rack Mount	✓	-	-	-	-
	IP Level	20	IP30	IP30	IP30	40
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	-	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-10 ~ 55°C (14 - 131°F)	EKI-2728S	✓	✓	-
	-40 ~ 75°C (-40 ~ 167°F)	-	EKI-2728SI	-	-	✓
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓	✓	✓
	Class 1, Division 2	-	-	-	-	-
	UL 508	-	-	-	-	-
	Others	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial PoE Switches & Solutions






Model Name		EKI-7708G-4FP/I	EKI-7708G-2FVPI	EKI-7708E-4FP/I	EKI-7710G-2CPI EKI-7710G-2CP	EKI-7710E-2CP EKI-7710E-2CPI	EKI-7712G-4FP EKI-7712G-4FPI
Description		4Giga+4SFP Giga ports Managed Redundant Industrial PoE Switch	4Giga+2VDSL+2SFP Giga ports Managed Redundant Industrial PoE Switch	4FE+4SFP Giga ports Managed Redundant Industrial PoE Switch	8G+2G Port Gigabit Managed Redundant Industrial PoE Switch	8FE+2G Port Gigabit Managed Redundant Industrial PoE Switch	8G+4G Port Gigabit Managed Redundant Industrial PoE Switch
Interface	Ports Number	8	8	8	10	10	12
	10/100Base-T (X)	-	4	-	-	-	-
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	-	-	-	8	8	8
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4	4(2SFP+2VDSL)	4	2	2	4
	PoE (10/100 Mbps)	-	-	4	-	8	-
	PoE (10/100/1000 Mbps)	4	-	-	8	-	8
	DI/DO	-	-	-	-	-	-
	Console	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
Power	12 ~ 48 V DC	48 VDC	48 VDC	48 VDC	✓	✓	48 VDC
	24 ~ 110 V DC	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-
	Relay Output	✓	✓	✓	-	-	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	-	30	-	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-7708G-4FP	-	EKI-7708E-4FP	7710G-2CP	7710E-2CP	7712G-4F
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7708G-4FPI	✓	EKI-7708E-4FPI	7710G-2CPI	7710E-2CPI	7712G-4FI
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	-	-	-	-	-
	Class 1, Division 2	-	-	-	-	-	-
	UL 508	-	-	-	✓	✓	✓
	Others	UL 61010	UL 61010	UL 61010	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial Ethernet Solutions

Power Over Ethernet (PoE) Switches






Model Name		EKI-7712G-2FVPI	EKI-5624P/5624PI	EKI-5729P/5729PI	EKI-2726FHPI	EKI-2528PAI	EKI-2525P
Description		8Giga+2VDSL+2SFP Giga ports Managed Redundant Industrial PoE Switch	4FE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/at, E-Mark, 12V~24V_{DC}	8GE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/at, E-Mark, 12V~24V_{DC}	4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature Switch	8-port Industrial PoE Switch with 24/48V_{DC} Power Input and Wide Temperature	5-port Industrial PoE Switch
Interface	Ports Number	12	6	8	6	8	5
	10/100Base-T (X)	-	4	-	-	4	1
	100BaseFX	-	-	-	-	-	-
	10/100/1000Base-T (X)	8	2	-	4	-	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4 (2SFP+2VDSL)	-	-	2	-	-
	PoE (10/100 Mbps)	-	-	-	4 (PoE+, 30W)	4	4
	PoE (10/100/1000 Mbps)	-	-	8	-	-	-
	DI/DO	-	-	-	-	-	-
	Console	✓	-	-	-	-	-
Network Management	Redundancy	✓	-	-	-	-	-
	Diagnostics	✓	-	-	-	-	-
	VLAN	✓	-	-	-	-	-
	Configuration	✓	-	-	-	-	-
	SNMP	✓	-	-	-	-	-
	Security	✓	-	-	-	-	-
	Traffic Control	✓	-	-	-	-	-
Power	12 ~ 48 V DC	48 V_{DC}	12 ~ 24 V_{DC}	-	48 V_{DC}	24/48 V_{DC}	48 V_{DC}
	24 ~ 110 V DC	-	-	-	-	-	-
	100 ~ 240 V AC	-	-	-	-	-	-
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	Rack Mount	-	-	-	-	-	-
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	✓	✓	-	-	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	✓	✓	✓	-
	-40 ~ 85°C (-40 ~ 185°F)	-	-	-	-	-	-
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	-	✓	✓	-	-	✓
	Class 1, Division 2	-	-	-	-	-	-
	UL 508	-	-	-	✓	✓	-
	Others	UL 61010	✓	✓	-	-	-

✓ : supported, - : not supported, △ : optional

Power Over Ethernet (PoE) Switches

Model Name		EKI-2526PI	EKI-2525PA
Description		6-port Industrial PoE Switch with Wide Temperature	5-port Industrial PoE Switch with 24/48 V DC Power Input
Interface	Ports Number	6	5
	10/100Base-T (X)	2	1
	100BaseFX	-	-
	10/100/1000Base-T (X)	-	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	-	-
	PoE (10/100 Mbps)	4	4
	PoE (10/100/1000 Mbps)	-	-
	DI/DO	-	-
	Console	-	-
Network Management	Redundancy	-	-
	Diagnostics	-	-
	VLAN	-	-
	Configuration	-	-
	SNMP	-	-
	Security	-	-
	Traffic Control	-	-
Power	12 ~ 48 V DC	48 V_{DC}	24/48 V_{DC}
	24 ~ 110 V DC	-	-
	100 ~ 240 V AC	-	-
	Relay Output	✓	✓
Mechanism	DIN-rail Mount	✓	✓
	Wall Mount	✓	✓
	Rack Mount	-	-
	IP Level	IP30	IP30
Protection	ESD (Ethernet)	✓	✓
	Surge (EFT for power)	✓	✓
	Power Reverse	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	-
	-40 ~ 85°C (-40 ~ 185°F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	UL/cUL 60950-1	✓	-
	Class 1, Division 2	-	-
	UL 508	-	✓
	Others	-	-

✓ : supported, - : not supported, △ : optional

Media Converters

Model Name		EKI-2741F/FI/ SX/SXI/LX/LXI	EKI-2541M/MI/S/SI
Description		10/100/1000TX to Fiber Optic Gigabit Industrial Media Converters	10/100TX to Multi-mode / Single-mode SC Type Fiber Optic Industrial Media Converters
Interface	Ports Number	2	2
	10/100Base-T (X)	-	1
	100BaseFX	-	1
	10/100/1000Base-T (X)	1	-
	1000Base-SX/LX/ LHX/XD/ZX/EZX	1	-
	PoE (10/100 Mbps)	-	-
	PoE (10/100/1000 Mbps)	-	-
	DI/DO	-	-
	Console	-	-
Network Management	Redundancy	-	-
	Diagnostics	-	-
	VLAN	-	-
	Configuration	-	-
	SNMP	-	-
	Security	-	-
	Traffic Control	-	-
Power	12 ~ 48 V DC	✓	✓
	24 ~ 110 V DC	-	-
	100 ~ 240 V AC	-	-
	Relay Output	✓	✓
Mechanism	DIN-rail Mount	✓	✓
	Wall Mount	✓	✓
	Rack Mount	-	-
	IP Level	IP30	IP30
Protection	ESD (Ethernet)	✓	✓
	Surge (EFT for power)	✓	✓
	Power Reverse	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-2741F/SX/LX	EKI-2541M
	-40 ~ 75°C (-40 ~ 167°F)	EKI-2741FI/SXI/LXI	EKI-2541MI/SI
	-40 ~ 85°C (-40 ~ 185°F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	UL/cUL 60950-1	✓	✓
	Class 1, Division 2	✓	✓
	UL 508	✓	✓
	Others	-	-

Industrial Wireless and Protocol Gateway Solutions

Wireless Access Points/Client

Wireless Devices

Model Name		EKI-6331AN	EKI-6332GN
Description		IEEE 802.11 a/n Wi-Fi AP/Client	IEEE 802.11 b/g/n Wi-Fi AP/ Client
Interface	IEEE Standard	IEEE 802.11 a/n	802.11 b/g/n
	100BaseFX	✓	✓
	1000BaseFX	-	-
RF	Frequuency	2.4GHz	5GHz
	MIMO	2T2R	2T2R
	Multi-Hopping	✓	✓
	Mobility/ Roaming	✓	✓
Operating Mode	Mesh	-	-
	Mobility/ Roaming	-	-
	Multi-Hopping	-	-
	AP/CPE	✓	✓
Power	PoE	Passive 24V	Passive 24V
	Power Input Voltage	24VDC	24VDC
	Redundant DC Power Input	-	-
Mechanism	DIN-rail Mount	-	-
	Wall Mount	-	-
	VESA Mount	-	-
	Pole Mount	✓	✓
	IP Grade	IP55	IP55
Operating Temperature	-20 ~ 70°C (-'4 ~ 158°F)	✓	✓
	-40 ~ 70° C ('-40 ~ 158° F)	-	-
Certifications	CE	✓	✓
	FCC	✓	✓
	Others	Telec, ANATEL	Telec

* Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.

✓ : supported, - : not supported, △ : optional

Model Name		EKI-1361 EKI-1362	EKI-1361-MB EKI-1362-MB	EKI-6333AC
Description		1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	1/2-port RS-232/422/485 to 802.11b/g/n WLAN Modbus Gateway	IEEE 802.11 a/b/g/n Wi-Fi AP
Connectivity	10/100Base-TX, Fixed	✓	✓	-
	10/100/1000Based-T, Fixed	-	-	✓
	RS-232 only	-	-	-
	RS-232/422/485	✓	✓	-
	Serial connector type	DB9 Male	DB9 Male	-
Operating Mode	Mobility/Roaming	✓	✓	-
	Multi-Hopping	-	-	-
	AP/CPE	-	-	✓
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30
	DIN-rail	✓	✓	✓
	Wall	✓	✓	✓
	VESA Mount	-	-	-
	Pole Mount	-	-	-
Power	Power Input (VDC)	12~48V	12~48V	12~48V
	Power input (PoE)	-	-	-
	Power connector	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48VDC) Watts	8W (EKI-1361) 9W (EKI-1362)	8W (EKI-1361-MB) 9W (EKI-1362-MB)	8W
Environment	Operating Temp.	-40 ~ 75°C	-40 ~ 75°C	-40 ~ 75°C
	Operating Humidity	10 ~ 95%	10 ~ 95%	10 ~ 95%
	Input Reverse Protection	✓	✓	✓
Software	Netwrok Protocol	-	Modbus TCP, Modbus RTU/ASCII	-
	Firewall	-	-	-
	Router	-	-	-
	Configuration Options	Web-base, windows utility	Web-base, windows utility	Web-base
	Authentication	Username/Password	Username/Password	Username/Password
	Standard Operation Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Pair connection/Access Point Mode	Pair connection/Access Point Mode/ Modbus RTU Master/Slave, Modbus ASCII Master/ Slave	Access Point
WLAN	IEEE Standard	a/b/g/n	a/b/g/n	a/b/g/n
	Radio Number	1	1	1
	Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WAP/WAP2-Persona, WAP/WAP2-Enterprise
RF	MIMO	2T2R	2T2R	2T2R
	Maximum Transmit Output Power	19dBm (11n)	19dBm (11n)	19dBm (11n)
	Receive Sensitivity	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)
	Antenna Connector	R-SMA	R-SMA	R-SMA
Cellular	Standard	-	-	-
	Five-band option in UMTS	-	-	-
	Quad-band optin in EDGE/GSM	-	-	-
	Certification (GCF, PTCRB)	-	-	-
Certification	UL60950-1	-	-	-
	EN60950-1	-	-	-
	CE (EN55022 class A, EN55024)	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓
	Hazardous Location (Class I, Division 2)	-	-	-
	Radio (EN 301 489-1/-4, EN 301 511)	-	-	-
	Radio (FCC part 22H, part 24E)	-	-	-
	EN 50155	-	-	-

Fieldbus Gateway






Model Name		EKI-1221IPNMB	EKI-1221IEIMB	EKI-1242EIMS	EKI-1242PNMS	EKI-1242ECMS	EKI-1242BNMS
Description		Modbus TCP to PROFINET Protocol Gateway	Modbus TCP to EtherNet/IP Protocol Gateway	Modbus RTU/TCP to EtherNet/IP Fieldbus gateway	ModbusRTU/TCP to PROFINET Fieldbus gateway	ModbusRTU/TCP to EtherCAT Fieldbus gateway	ModbusRTU/TCP to BACnet Fieldbus gateway
Connectivity	10/100Base-TX, Fixed	2	2	4	4	4	4
	10/100/1000Based-T, Fixed	-	-	-	-	-	-
	RS-232 only	-	-	-	-	-	-
	RS-232/422/485	-	-	2	2	2	2
	Serial Connector Type	-	-	DB9 male	DB9 male	DB9 male	DB9 male
Operating Mode	Mobility/Roaming	-	-	-	-	-	-
	Multi-Hopping	-	-	-	-	-	-
	AP/CPE	-	-	-	-	-	-
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓	✓
	VESA Mount	-	-	-	-	-	-
	Pole Mount	-	-	-	-	-	-
Power	Power Input (V_{DC})	(12~48V)	(12~48V)	(12~48V)	(12~48V)	(12~48V)	(12~48V)
	Power input (PoE)	-	-	-	-	-	-
	Power connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48VDC) Watts	5.2W	5.2W	5.2W	5.2W	5.2W	5.2W
Environment	Operating Temp.	-40~70°C	-40~70°C	-10~60°C	-10~60°C	-10~60°C	-10~60°C
	Operating Humidity	10~95%	10~95%	10~95%	10~95%	10~95%	10~95%
	Input Reverse Protection	✓	✓	✓	✓	✓	✓
Software	Netwrok Protocol	Modbus TCP PROFINET	Modbus TCP EtherNet/IP	Modbus RTU/TCP EtherNet/IP	Modbus RTU/TCP PROFINET	Modbus RTU/TCP EtherCAT	Modbus RTU/TCP BACnet
	Firewall	-	-	-	-	-	-
	Router	-	-	-	-	-	-
	Configuration Options	Web-based	Web-based	Web-based	Web-based	Web-based	Web-based
	Authentication	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password	Username/Password
	Standard Operation mode	Modbus/TCP Master PROFINET Slave	Modbus/TCP Master PROFINET Adaptor	ModbusRTU/TCP Master Ethernet/IP Adapter	ModbusRTU/TCP Master PROFINET Slave	ModbusRTU/TCP Master EtherCAT Slave	ModbusRTU/TCP Master BACNet Slave
WLAN	IEEE Standard	-	-	-	-	-	-
	Radio Number	-	-	-	-	-	-
	Security	-	-	-	-	-	-
RF	MIMO	-	-	-	-	-	-
	Maximum Transmit Output Power	-	-	-	-	-	-
	Receive Sensitivity	-	-	-	-	-	-
	Antenna Connector	-	-	-	-	-	-
Cellular	Standard	-	-	-	-	-	-
	Five-band Options UMTS	-	-	-	-	-	-
	Quad-band Options EDGE/GSM	-	-	-	-	-	-
	Certification (GCF, PTCRB)	-	-	-	-	-	-
Certification	UL60950-1	✓	✓	✓	✓	✓	✓
	EN60950-1	-	-	-	-	-	-
	CE (EN55022 class A, EN55024)	✓	✓	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓	✓	✓
	Hazardous Location (Class I, Division 2)	-	-	-	-	-	-
	Radio (EN 301 489-1/-4, EN 301 511)	-	-	-	-	-	-
	Radio (FCC part 22H, part 24E)	-	-	-	-	-	-
	EN 50155	-	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions

Modbus Gateway
Modbus Router

Model Name		EKI-1221/CI/I EKI-1222/CI/I EKI-1224/CI/I
Description		1/2/4-Port Modbus Gateway
Connectivity	10/100Base-TX, Fixed	2
	10/100/1000Based-T, Fixed	-
	RS-232 only	-
	RS-232/422/485	1/2/4 (CI version: RS-422/485)
	Serial Connector Type	DB9 Male
Operating Mode	Mobility/Roaming	-
	Multi-Hopping	-
	AP/CPE	-
Enclosure & Mount kit	Enclosure	IP30
	DIN-rail	✓
	Wall	✓
	VESA Mount	-
	Pole Mount	-
Power	Power Input (V_{DC})	2* (12~48V)
	Power Input (PoE)	-
	Power Connector	Terminal block
	Power Consumption (12/24/48V_{DC}) Watts	5.2W (EKI-1221/1222) 6.3W (EKI-1224)
Environment	Operating Temp.	EKI-1221/EKI-1222/ EKI-1224: -10 ~ 60°C 'CI & I' models: -40 ~ 70°C
	Operating Humidity	5 ~ 95%
	Input Reverse Protection	-
Software	Netwrok Protocol	Modbus RTU, Modbus TCP, Modbus ASCII
	Firewall	-
	Router	-
	Configuration Options	Windows Utility, Web Browser
	Authentication	-
	Standard Operating Mode	Modbus RTU Master/Slave mode Modbus ASCII Master/Slave mode
WLAN	IEEE Standard	-
	Radio Number	-
	Security	-
RF	MIMO	-
	Maximum Transmit Output Power	-
	Receive Sensitivity	-
	Antenna Connector	-
Cellular	Standard	-
	Five-band Options UMTS	-
	Quad-band Options EDGE/GSM	-
	Certification (GCF, PTCRB)	-
Certification	UL60950-1	✓
	EN60950-1	-
	CE (EN55022 class A, EN55024)	✓
	FCC (part 15 subpart B class A)	✓
	Hazardous Location (Class I, Division 2)	✓
	Radio (EN 301 489-1/-4, EN 301 511)	-
	Radio (FCC part 22H, part 24E)	-
	EN 50155	-

Serial Device Servers

Model Name		EKI-1521/CI/I EKI-1522/CI/I EKI-1524/CI/I	EKI-1528I-DR EKI-1528CI-DR	EKI-1528/I/TI EKI-1526/I/TI	ADAM-4571/L ADAM-4570/L
Description		1/2/4-port RS-232/422/485 Serial Device Server	8-port RS-232/422/485 Device Server 8-port RS-422/485 Device Server	8/16-port RS-232/422/485 Serial Device Server	1/2-port RS-232/422/485 Serial Device Server
Connectivity	10/100Base-TX, Fixed	2	2	-	1
	10/100/1000Based-T, Fixed	-	-	2	-
	RS-232 only	-	-	-	ADAM-4571L/4570L: 1/2
	RS-232/422/485	1/2/4 (CI version: RS-422/485)	8	8/16	ADAM-4571/4570: 1/2
	Serial Connector Type	DB9 Male	DB9 Male	DB9 male	ADAM-4571/L: DB9 Male ADAM-4570/L: 10-pin RJ48
Enclosure & Mount kit	Enclosure	IP30	IP30	SECC chassis	ABS+PC with solid mounting hardware
	DIN-rail	✓	✓	Rackmount	✓
	Wall	✓	✓	-	✓
	VESA Mount	-	-	-	-
	Pole Mount	-	-	-	-
Power	Power Input (V_{DC})	2* (12~48V)	2* (12~48V)	EKI-1528(I)/ EKI-1526(I): 100 ~ 240 V_{AC}, 50 ~ 60 Hz EKI-1528T(I)/ EKI-1526T(I): 12 ~ 48 V_{DC}, Terminal Block	(10~30V)
	Power Input (PoE)	-	-	-	-
	Power Connector	Terminal block	Terminal block	6-pin removable screw terminal	Terminal block
	Power Consumption (12/24/48V_{DC}) Watts	5.2 W (EKI-1521/ EKI-1522) 6.3 W (EKI-1524)	5 W (EKI-1528I) 6 W (EKI-1528CI)	5.6 W	2.5 W
Environment	Operating Temp.	EKI-1521/EKI-1522/ EKI-1524: -10 ~ 60°C 'CI & I' models: -40 ~ 70°C	-40 ~ 70°C	-10 ~ 60°C (14 ~ 140°F) "I" Model: -40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C
	Operating Humidity	5 ~ 95%	10 ~ 95%	10 ~ 95%	5 ~ 95%
	Input Reverse Protection	-	-	-	-
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP
	Firewall	-	-	-	-
	Router	-	-	-	-
	Configuration Options	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser, serial console	Windows utility, Telnet console, Web Browser
	Authentication	-	-	-	-
	Standard Operating Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode RFC-2217 Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode
Certification	UL60950-1	✓	✓	-	-
	EN60950-1	-	-	-	-
	CE(EN55022 class A, EN55024)	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓
	Hazardous Location (Class I, Division 2)	✓	-	-	-
	Radio (EN 301 489-1/-4, EN 301 511)	-	-	-	-
	Radio (FCC part 22H, part 24E)	-	-	-	-
	EN 50155	-	-	-	-

✓ : supported, - : not supported, △ : optional

Compact Ethernet Media Converters

Compact Ethernet Gigabit Media Converters

PoE, PoE+ Gigabit Media Converters







	Model Name	MiniMc with LFPT	IE-MiniMc with LFPT	Giga-MiniMc with LFPT	IE-Giga-MiniMc with LFPT	PoE Giga-MiniMc w/LFPT	PoE+ Giga-MiniMc w/LFPT	IE-MultiWay
	Part Numbers	855-11621, 855-11623, 855-11619	855-19822	856-11700, 856-11701, 856-11703	856-18930, 856-18931	PoE:857-11811, 857-11812, 857-11814	857-11911, 857-11912	858-11121
	Description	Two Port Copper to Fiber compact 10/100 Media Converter with Link Fault Pass Through, unmanaged	Industrial Two Port Copper to Fiber compact 10/100Media Converter with Link Fault Pass Through, unmanaged	Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, Unmanaged	Industrial Two Port Copper to Fiber 10/100/1000 Media Converter with Link Fault Pass Through, unmanaged	PoE capable Unmanaged 10/100/1000 Media Converters	PoE+ capable Unmanaged 10/100/1000 Media Converters	Four Port Managed 10/100/1000 switch, with SFP capability, compact form factor
Interface	Ports Number	2	2	2	2	3	3	4
	10/100Base-T (X)	✓	✓	-	-	-	-	-
	100BaseFX	✓	✓	✓	✓	✓	-	✓
	10/100/1000Base-T (X)	-	-	✓	✓	2	2	✓
	1000Base-SX/LX	✓	✓	✓	✓	1	1	✓
	PoE (10/100/1000 Mbps)	-	-	-	-	1	-	-
	PoE+ (10/100/1000 Mbps)	-	-	-	-	✓	2	-
	PoE Reset DSW	-	-	-	-	✓	✓	-
	SFP Port Model Option	✓	-	✓	-	✓	✓	✓
	LFPT	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	-	-	-	-	-	-	✓
	Diagnostics	-	-	-	-	-	-	✓
	VLAN	-	-	-	-	-	-	✓
	Configuration	-	-	-	-	-	-	✓
	SNMP	-	-	-	-	-	-	✓
	Security	-	-	-	-	-	-	✓
	Jumbo Frames	1916	1916	10240	10240	10240	-	10240
Power	100-240V_{AC}	✓	✓	✓	✓	✓	-	✓
	DC voltage	-	7-50 V_{DC}	-	7-50 V_{DC}	-	-	480 V_{DC}
Hardware Mounting	DIN-rail Mount	✓	✓	✓	✓	✓	-	✓
	Wall Mount	✓	✓	✓	✓	✓	-	✓
	Rack Mount	✓	✓	✓	✓	✓	-	✓
	IP Level	-	-	-	-	-	-	-
Protection	ESD (Ethernet)	✓	✓	✓	-	-	-	
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓
	Reverse Polarity	✓	✓	✓	✓	✓	-	✓
Operating Temp	0 ~50°C	✓	-	✓	-	✓	-	-
	-25 ~ 85°C (-13 ~ +185°F)	-	-	-	✓	-	-	-
	-40 ~ 85°C (-40 ~ 185°F)	-	✓	-	-	-	-	✓
Certifications	CE	✓	✓	✓	✓	✓	-	✓
	FCC	✓	✓	✓	✓	✓	-	✓
	UL/cUL 60950-1	✓	✓	✓	✓	✓	-	✓
	Class 1, Division 2	-	-	-	-	-	-	-
	UL 508	-	-	-	-	-	-	-
	MSA compliant	-	-	-	-	-	-	-
	Class 1,Eye-safe Lasers	✓	✓	✓	✓	✓	-	✓

✓ : supported, - : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions

Serial Converters, Isolators and Surge Protectors






Model Name		485DRCI	485SD9R, 485SD9TB	FOSTCDRI	232OPDRI	485OPDRI	HESP4DR
Description		Triple Isolated RS-232 to RS-422/485 Converter	Port Powered RS-232 to RS-485 Converter	Triple Isolated RS-232/422/485 toFiber Converter	Triple Isolated RS-232 DIN Rail Repeater	Triple Isolated RS-485/422 DIN Rail Repeater	Three-stage DIN Rail RS422/485 Surge Protector
Function			Serial Converter		Isolator / Repeater		Surge Protector
Key Features		Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	Small Form Factor, Port Powered	Fiber to Serial	Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	Class 1 Division 2/ Tripple Isolation, Oil and Gas Applications	High Energy Surge Protector
Specifications	Temp	-40 to 80°C	0 to 70 C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Isolation	✓	-	✓	✓	✓	-
	Input Power	10 to 48 V_{DC}	Port Powered from RS-232 Ports	10 to 48 V_{DC}	10 to 48 V_{DC}	10 to 48 V_{DC}	-
	Dataline Surge Protection	✓	-	✓	✓	✓	v (5 lines)
	RS-232 Connector	DB9 female	DB9 female	Removable Terminal Blocks	DB9 female & DB9 male	-	-
	RS-422/485 Connector and Power	Remmovable Terminal Blocks	DB9 female or Terminal Block	Remmovable Terminal Blocks	-	Remmovable Terminal Blocks	Terminal Block
	Maximum Buad Rate	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	-
	Mounting	DIN Rail	In-line	DIN Rail	DIN Rail	DIN Rail	DIN Rail
	Industrial Rating	Light	-	Light	Light	Light	Light
	UL Rating	UL 508	-	UL 508	UL 508	UL 508	-
	Class 1 Division 2	✓	-	✓	✓	✓	-

✓ : supported, - : not supported, △ : optional

USB to Serial Converters





Model Name	BB-USOPTL4DR-2	BB-USOPTL4	BB-USO9ML2	BB-USO9ML2-4P	BB-USOPTL4-4P
Series	Industrial	Industrial	Industrial	Industrial	Industrial
Description	USB to RS-422, RS-485 Isolated Converter, Industrial	USB to RS-422, RS-485 Isolated Converter, Commercial	USB to RS-232 Isolated Converter, Commercial	USB to RS-232 Isolated Converter, Industrial	USB to RS-422, RS-485 Isolated Converter, Industrial
Industrial Rating	Light	Light	Light	Light	Light
RS-232	-	-	✓	✓	-
RS-422	✓	✓	-	-	✓
RS-485 2-WIRE	✓	✓	-	-	✓
RS-485 4-WIRE	✓	✓	-	-	✓
TTL 5 V	-	-	-	-	-
TTL 3.3 V	-	-	-	-	-
SERIAL PORTS	2	1	1	4	4
High Retention USB Ports	✓	✓	-	✓	✓
Isolated	✓	✓	✓	✓	✓
Mounting	DIN	In Line	In Line	Panel	Panel
Shock and Vibration	-	-	-	-	-
Heavy Industrial	-	-	-	-	-
Serial Connector	Removable Terminal Block	Removable Terminal Block	DB9 Male	DB9 Male	Removable Terminal Block
Operating Temperature	0 to 70°C	0 to 70°C	0 to 70°C	0 to 70°C	0 to 70°C
Power Input	USB Bus	USB Bus	USB Bus	USB Bus or 10-30V_{DC}	USB Bus or 10-30V_{DC}
Metal Housing	-	-	-	-	-
LED Indicators	✓	✓	✓	✓	✓
UL	-	-	-	-	-
USB Cable Included	✓	✓	✓	✓	✓
Accessory Serial Cable	-	-	BB-9PAMF6	BB-9PAMF6	-
Accessory Power Supply	-	-		BB-MDR-20-24	BB-MDR-20-24
Operating System	Windows 10	Windows 10	Windows 10	Windows 10	Windows 10
Unique or Locked Serial Number	Locked	Unique	Unique	Locked	Locked

✓ : supported, - : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions

Ethernet to Serial Converters





Model Name		VESP211, VESP211-232, VESP211-485	VESR901	VESR921-MC	MESR901	MESR921-MC
Description		Compact Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter	DIN Rail Mount Ethernet to Serial Converter with Fiber Port	Modbus Ethernet to Modbus Serial Converter	Modbus Ethernet to Modbus Serial Converter with Fiber Port
Function		VCOM, Socket Connection, Paired Mode			Modbus	
Ethernet	Copper Ports	1	1	1	1	1
	Fiber Ports	-	-	1 Multi-mode (SC)	-	1 Multi-mode (SC)
Serial	Port Count	1	1	1	1	1
	DB9	232	232	232	232	232
	Terminal Block	422/485	422/485	422/485	422/485	422/485
Specifications	Temp Spec	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
	Power DC	10 to 30V_{DC}	10 to 48V_{DC}	10 to 48V_{DC}	10 to 48V_{DC}	10 to 48V_{DC}
	Mounting	Panel	DIN	DIN	DIN	DIN
	Class 1 Division 2	-	✓	✓	✓	✓

Wireless Sensing Network


Industrial Cellular Router




Model Name		Wzzard-LRPv Sensor Node	Wzzard	SmartStart	SmartFlex	SmartSwarm 243	WISE-6610
Part Number		BB-WSLxxxxxx	BB-WSDxxxx	BB-SL306x0110-SWH	BB-SR30xxxxxx	BB-SG30000115-43	WISE-6610-XX00-A
Description		Industrial LoRa Private Node	Intelligent Wireless Sensor Node	Intelligent LTE Router	Flexible, Module LTE Router	Industrial LoRa Private Gateway	LoRaWAN Gateway support up to 100/500 nodes with 868/915MHz
Specifications	Mobile Wireless	LoRa	DUST/BLE	GPRS/3G/LTE/WiFi	GPRS/3G/LTE/WiFi	LoRa	LoRaWAN
	Communication Interface	AI/DI/DO	AI/DI/DO	ETH/RS232/IO	ETH/SD/USB/IO/ RS232&485/POE	ETH/IO	LoRaWAN
	Temp	-40~75 °C	-40~80 °C	-40~75 °C	-40~75 °C	-40~75 °C	-40~75 °C
	Power Input	3.3 V_{DC}	3.3 V_{DC}	9 -36 V_{DC}	10 -69 V_{DC}	9 -36 V_{DC}	9~36 V_{DC}
	Dimensions (W x Hx D)	95 x 116 x 65 mm	95 x 116 x 65 mm	30 x 87 x 127 mm	55 x 97 x 125 mm	30 x 87 x 127 mm	150 x 30 x 83 mm
	Weight	340g	340g	187g	375g	187g	187g

✓ : supported, - : not supported, △ : optional

USB Hubs and Isolators





Model Name	BB-UHR304	BB-UHR204	BB-UH104	BB-UHR401	BB-UHR402
Series	Heavy Duty Hub	Heavy Duty Hub	Hub	Heavy Duty Isolator	Heavy Duty Isolator
Description	USB Hub, 4 Port, Isolated, Industrial	USB Hub, 4 Port, Industrial	USB Hub, 4 Port, Light Industrial	USB Isolator, 1 Port, Industrial	USB Isolator, 2 Port, Industrial
USB Standard	2.0	2.0	2.0	2.0	2.0
Isolation	4 KV	-	-	4 KV	4 KV
Maximum USB Speed	12 Mbps	480 Mbps	480 Mbps	12 Mbps	12 Mbps
High Retention USB Ports	✓	✓	✓	✓	✓
Downstream Ports	4	4	4	1	2
Operating Temperature	(-)40 to 80 °C	(-)40 to 80 °C	(-)40 to 80 °C	(-)40 to 80 °C	(-)40 to 80 °C
Shock and Vibration	✓	✓	-	✓	✓
Heavy Industrial	✓	✓	-	✓	✓
USB Bus Power		✓	✓		
External Power Inputs	2	2	-	1	1
Primary External Power Input	Removable Terminal Block	Removable Terminal Block	-	Threaded Barrel Jack	Threaded Barrel Jack
Secondary External Power Input	Threaded Barrel Jack	Threaded Barrel Jack	-	-	-
Metal Housing	✓	✓	-	-	-
LED Indicators	✓	✓	-	✓	✓
DIN Mount	✓	✓	-	✓	✓
Panel Mount	✓	✓	-	✓	✓
In Line	-	-	-	-	-
UL	C1D2	C1D2	-	-	-
USB Cable Included	✓	✓	-	✓	✓
Power Supply Included	-	-	-	✓	✓
Accessory Power Supply	BB-MDR-20-24	BB-MDR-20-24	-	BB-PS12VLB-INT-MED	BB-PS12VLB-INT-MED
Driver	-	-	-	-	-

✓ : supported, - : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions

Special Serial Converters

Model Name	BB-232LPTTL	BB-232LPTTL33	BB-422TTL	BB-232CL9R	BB-232CLDR	BB-CANFB	BB-CANOP
Series	TTL Converter	TTL Converter	TTL Converter	Current Loop Converter	Current Loop Converter	CAN (Controller Area Network)	CAN (Controller Area Network)
Description	RS-232 to 5 V TTL Converter	RS-232 to 3.3 V TTL Converter	RS-422 to 5 V TTL Converter	RS-232 to Current Loop Converter	RS-232 to Current Loop Converter	CAN Bus to Fiber Repeater	CAN Bus Isolator
Industrial Rating	Light	Light	Light	Light	Light	Light	Light
Isolated	-	-	-	-	✓	✓	✓
3 Way Isolation	-	-	-	-	-	-	-
Mounting	In Line	In Line	In Line	In Line	DIN	DIN	DIN
RS-232	✓	✓	-	✓	✓	-	-
RS-422	-	-	✓	-	-	-	-
SM Fiber	-	-		-	-	✓	-
3.3 V TTL	-	✓	-	-	-	-	-
5 V TTL	✓	-	✓	-	-	-	-
Current Loop	-	-	-	✓	✓	-	-
CAN	-	-	-	-	-	✓	✓
Operating Temperature	0 to 70 °C	0 to 70 °C	0 to 50 °C	0 to 50 °C	(-)40 to 80 °C	0 to 70 °C	0 to 70 °C
Input Power	Port Powered	Port Powered	12 V_{DC}	12 V_{DC}	10 to 30 V_{DC}	10 to 30 V_{DC}	10 to 30 V_{DC}
Port Power Option	✓	✓	-	-	-	-	-
Power Supply Included	-	-	-	-	-	-	-
Power Connector	-	-	2.5 mm plug	Terminal Block	Terminal Block	Terminal Block	Terminal Block
RS-232 Connector	DB9 F	DB9 F	-	DB9 F	Terminal Block	-	-
TTL Connector	DB9 M	DB9 M	DB25 M	-	-	-	-
Current Loop Connector	-	-	-	Terminal Block	Terminal Block	-	-
CAN Connector	-	-	-	-	-	Terminal Block	Terminal Block
RS-422 Connector	-	-	DB25 F	-	-	-	-
Fiber Connector	-	-	-	-	-	ST	-
Maximum Baud Rate	115.2 kbps	115.2 kbps	115.2 kbps	19.2 kbps	19.2 kbps	250 kbps	250 kbps
Accessory Serial Cable	BB-9PAMF6	BB-9PAMF6	BB-232AMF5	-	-	-	-
Accessory Power Supply	-	-	-	BB-SMI6-12-V-ST	BB-MDR-20-24	BB-MDR-20-24	BB-MDR-20-24

✓ : supported, - : not supported, △ : optional

IE-SFP Fiber Modules





Model Name	808-38101	808-38103	808-38104	808-38519	808-38520
SFP Type	SFP	SFP	SFP	SFP	SFP
Part Description	IE-SFP/155-ED, MM850-LC	IE-SFP/155-ED, SM1310-LC	IE-SFP/155-ED, SM1310/PLUS -LC	IE-SFP/155-ED, SSFX-SM1310 / PLUS-LC (1310XMT/1550RCV)	IE-SFP/155-ED, SSFX-SM1550 / PLUS-LC (1550XMT/1310RCV)
Typical Speed Mbps	100	100	100	100	100
Mode (Fiber)	Multi Mode	Single Mode	Single Mode	Single Mode	Single Mode
BiDi/Single Strand	-	-	-	✓	✓
Wavelength (nm)	850	1310	1550	1310	1550
Connector Type	LC	LC	LC	LC	LC
Distance (KM)	2	20	40	40	40
Power (dB)	14.5	21	31	26	26
DDMI	Yes	Yes	Yes	Yes	Yes
Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Use With SFP P/N (Works in Pair with)	-	-	-	808-38520	808-38519
MSA (Multi-Source Aggrement)	✓	✓	✓	✓	✓
Laser 1 Class 1 IEC 60825-2	✓	✓	✓	✓	✓
Telecordia GR-468-CORE	✓	✓	✓	✓	✓





Model Name	808-38529	808-38530	808-38201	808-38203	808-38205
SFP Type	SFP	SFP	SFP	SFP	SFP
Part Description	IE-SFP/155-ED, SSFX-SM1310 / LONG-LC (1310XMT/1550RCV)	IE-SFP/155-ED, SSFX-SM1550 / LONG-LC (1550XMT/1310RCV)	IE-SFP/1250-ED, MM850-LC	IE-SFP/1250-ED, SM1310/ PLUS-LC	IE-SFP/ 1250-ED, SM1510/XLONG-LC (LFP260)
Typical Speed Mbps	100	100	1000	1000	1000
Mode (Fiber)	Single Mode	Single Mode	Multi Mode	Single Mode	Single Mode
BiDi/Single Strand	✓	✓	-	-	-
Wavelength (nm)	1310	1550	850	1310	1510
Connector Type	LC	LC	LC	LC	LC
Distance (KM)	60	60	220/550m	30	70
Power (dB)	29	29	7.5	17	21
DDMI	✓	✓	✓	✓	✓
Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Use With SFP P/N (Works in Pair with)	808-38530	808-38529	-	-	-
MSA (Multi-Source Aggrement)	✓	✓	✓	✓	✓
Laser 1 Class 1 IEC 60825-2	✓	✓	✓	✓	✓
Telecordia GR-468-CORE	✓	✓	✓	✓	✓

✓ : supported, - : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions




Model Name	808-38206	808-38721	808-38722	808-38723
SFP Type	SFP	SFP	SFP	SFP
Part Description	IE-SFP/1250-ED, MM1310-LC	IE-SFP/1250-ED, SSLX-SM1310-LC (1310XMT/1550RCV)	IE-SFP/1250-ED, SSLX-SM1550 -LC (1550XMT/1310RCV)	IE-SFP/1250-ED, SSLX-SM1310 /PLUS-LC (1310XMT/1550RCV)
Typical Speed Mbps	1000	1000	1000	1000
Mode (Fiber)	Multi Mode	Single Mode	Single Mode	Single Mode
BiDi/Single Strand	-	✓	✓	✓
Wavelength (nm)	1310	1310	1550	1310
Connector Type	LC	LC	LC	LC
Distance (KM)	2	20	20	40
Power (dB)	10	15	15	20
DDMI	✓	✓	✓	✓
Temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Use With SFP P/N (Works in Pair with)	-	808-38722	808-38721	808-38724
MSA (Multi-Source Aggrement)	✓	✓	✓	✓
Laser 1 Class 1 IEC 60825-2	✓	✓	✓	✓
Telecordia GR-468-CORE	✓	✓	✓	✓



Model Name	808-38724	808-38600	808-38601
SFP Type	SFP	SFP+	SFP+
Part Description	IE-SFP/1250-ED, SSLX-SM1550 /PLUS-LC (1550XMT/1310RCV)	IE-SFP+SR/10G-ED, MM850-LC	IE-SFP+LR/10G-ED, SM1310-LC
Typical Speed Mbps	1000	10G	10G
Mode (Fiber)	Single Mode	Multi Mode	Single Mode
BiDi/Single Strand	✓	-	-
Wavelength (nm)	1550	850	1310
Connector Type	LC	LC	LC
Distance (KM)	40	33	10
Power (dB)	20	2.8	8.4
DDMI	✓	✓	✓
Temperature	-40 to +85°C	-10 to +70°C	-10 to +70°C
Use With SFP P/N (Works in Pair with)	808-38723	-	-
MSA (Multi-Source Aggrement)	✓	✓	✓
Laser 1 Class 1 IEC 60825-2	✓	✓	✓
Telecordia GR-468-CORE	✓	✓	✓

✓ : supported, - : not supported, △ : optional

7 Remote I/O & Wireless Sensing Modules

Wireless IoT Sensing Devices

Overview

Coinciding with the development of wireless and cloud technologies, remote management is now distributed across wider areas due to the availability of cloud services. To shorten the gap between the edge and the cloud, Advantech has launched wireless sensing devices that can directly pass data from the edge to different cloud platforms via MQTT and RESTful APIs.

For wide area communication, WISE-4000 I/O modules and sensor nodes have been designed with LPWAN, LoRa, NB-IoT/eMTC, 3G/LTE, and IP65-rated features, making them highly suitable for outdoor applications. WISE-2000 sensor devices are all-in-one devices designed for specific applications, whereas WISE-6000 devices are ready-to-use M2I edge devices for machine status monitoring in the field of remote management.

To realize a complete IoT sensing solution, the WISE-4000 series goes beyond merely providing a wireless communication interface for sensors—it also provides cloud connectivity for additional user applications. With support for IoT protocols such as MQTT and RESTful API, the WISE-4000 series can communicate with cloud services or other web services via secure web sockets. The WISE-4000 series comes with pre-integrated APIs for major cloud service providers (e.g., Dropbox) and IoT cloud services (e.g., Azure IoT Hub) and provides support for both private cloud platforms (e.g., private file servers or databases) and ERP/MES systems.

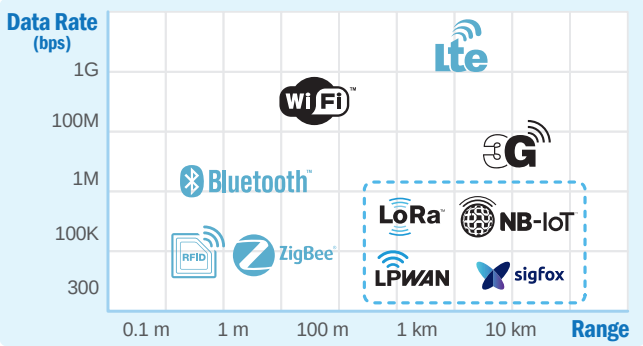
Wireless Sensor and Sensing Devices

- Power Consumption Measuring
- Direct Mobile Connectivity
- Battery-Powered
- Built-In Antenna
- GPS Location Tracking
- Self-Powered by Sensor or Panel
- Date Logger
- 2-km Wireless Communication
- IP65-Rated Protection
- Solar Panel Rechargeable Battery

Wireless Communication

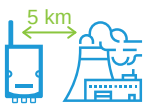
Wireless Technology

Advancements in IoT have led to the development of many wireless technologies that can be implemented in a range of hardware products. The WISE-4000 series utilizes Wi-Fi, 3G, and LPWAN to meet specific wireless communication requirements of virtually any project.



Low-Power Wide-Area Network (LPWAN, Sub-1 GHz)

LPWAN technology, including LoRa, SigFox, and NB-IoT, is suitable for applications requiring low-volume, long-range data transmission while maintaining a long battery life, minimal cost, and low levels of interference. The WISE-4000 series provides both standard LPWAN, eMTC/NB-IoT, and LoRa devices to meet different long-range sensing requirements. For the WISE-4210 and WISE-4610 end nodes, Advantech also provides LPWAN access points or LoRa gateways, enabling users to easily build up an LPWAN or LoRa network.



Up to 5-km Communication Range

Better penetration and less interference

Easy to organize LPWAN network data access

Wireless RFID Gateway and Edge Device

- 4-port UHF RFID read/write function
- Node-RED programmable for data read, write, filter, and transfer
- Application-ready function block
- Ethernet/Wi-Fi interface for uplink

- Supports more than 100 PLC drivers by WISE-PaaS/EdgeLink
- Built-in digital I/O, analog I/O, and RS-485 for machine status monitoring
- Wi-Fi, 3G, NB-IoT with mini PCIe communication
- Intelligent logic control with Node-RED
- ePaper for local visualization and web service support for remote management

IoT Wireless I/O Modules





Model		WISE-4012E	WISE-4012	WISE-4050	WISE-4060	WISE-4051
Description		6-ch IoT wireless I/O module for IoT developers	4-ch universal input + 2-ch digital output IoT wireless I/O module	4-ch digital input + 4-ch digital output IoT wireless I/O module	4-ch digital input + 4-ch relay output IoT wireless I/O module	8-ch digital input IoT wireless I/O module with 1 x RS-485 port
Wireless Interface	IEEE Standard	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n
	Frequency Band	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
	Outdoor Range	110 m (L.O.S.)	110 m (L.O.S.)	110 m (L.O.S.)	110 m (L.O.S.)	110 m (L.O.S.)
	Network Mode	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP	Infrastructure, Limited AP
	Security	WPA2 Personal and Enterprise	WPA2 Personal and Enterprise	WPA2 Personal and Enterprise	WPA2 Personal and Enterprise	WPA2 Personal and Enterprise
	Antenna Connector	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA
Analog Input	Channel	2-ch (differential)	4-ch		-	
	Input Type	V	V, A, Dry contact DI		-	
	Voltage Range	0 ~ 10 V	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V		-	
	Current Range	-	0 ~ 20, 4 ~ 20, ±20 mA		-	
	Resolution	12-bit	16-bit		-	
	Sampling Rate	10 Hz (total)	10 Hz (total)		-	
	Accuracy	±0.1 V_{DC}	Voltage: ±0.1% of FSR Current: ±0.2% of FSR		-	
	Burnout Detection	-	✓ (4 ~ 20 mA only)		-	
	Isolation	-	3,000 V_{rms}		-	
Digital Input	Channel	2-ch dry contact	Shared with analog input	4-ch dry contact or wet contact	4-ch dry contact or wet contact	8-ch dry contact or wet contact
	Counter Input	3 kHz	2 Hz	3 kHz	3 kHz	3 kHz
	Frequency Input	0.1 ~ 3 kHz	0.1 ~ 2 Hz	0.1 ~ 3 kHz	0.1 ~ 3 kHz	0.1 ~ 3 kHz
	Isolation	-	3,000 V_{rms}	3,000 V_{rms}	3,000 V_{rms}	3,000 V_{rms}
Digital Output	Channel	2-ch relay	2-ch (sink-type)	4-ch (sink-type)	4-ch power relay	-
	Output Rating (Resistive Load)	120 V_{AC} @ 0.5 A 30 V_{DC} @ 1 A	Open collector to 30 V_{DC}, 400 mA max.		250 V_{AC} @ 5 A 30 V_{DC} @ 3 A	-
	Pulse Output	60 operations/min	5 kHz	5 kHz	60 operations/min	-
	Isolation	1,500 V_{rms}	3,000 V_{rms}	3,000 V_{rms}	3,000 V_{AC}	-
Serial Port	Port Number	-				1
	Type	-				RS-485
	Data Bits	-				7, 8
	Stop Bits	-				1, 2
	Parity	-				None, odd, even
General	LED Indicators	Status, communication, network mode, quality	Status, communication, network mode, quality	Status, communication, network mode, quality	Status, communication, network mode, quality	Status, communication, network mode, quality, serial Tx, Rx
	Real-Time Clock	✓	✓ (with battery backup)	✓ (with battery backup)	✓ (with battery backup)	✓ (with battery backup)
	Connectors	I/O: Terminal block Power: Micro-B USB	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)	Plug-in screw terminal block (I/O and power)
	Dimensions	80 x 148 x 25 mm (W x H x D)				
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)				
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)				
	Operating Humidity	20 ~ 95% RH (non-condensing)				
	Storage Humidity	0 ~ 95% RH (non-condensing)				
Power	Input Range	Micro USB 5 V_{DC}	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}
	Protection	-	Power reversal protection	Power reversal protection	Power reversal protection	Power reversal protection
	Power Consumption	1.5 W @ 5 V_{DC}	2.5 W @ 24 V_{DC}	2.2 W @ 24 V_{DC}	2.5 W @ 24 V_{DC}	2.2 W @ 24 V_{DC}

IoT Ethernet I/O Modules



Model Name		WISE-4010/LAN	WISE-4050/LAN	WISE-4060/LAN
Description		4-ch current input + 4-ch digital output IoT Ethernet I/O module	4-ch digital input + 4-ch digital output IoT Ethernet I/O module	4-ch digital input + 4-ch relay output IoT Ethernet I/O module
Analog I/O	Channels	4	-	-
	Resolution	12-bit	-	-
	Accurancy	±0.2% of FSR	-	-
	Sampling Rate	10/100 Hz per channel	-	-
	Current Input	0 ~ 20, 4 ~ 20 mA	-	-
Digital I/O	Input Channels	-	4	4
	Output Channels	4	4	4 (from a power relay)
	Counter Input	-	3 kHz	3 kHz
	Frequency Input	-	3 kHz	3 kHz
	Pules Output	1 kHz	1 kHz	1 kHz
Isolation Protection		-	3,000 V_{rms}	3,000 V_{rms}
LED Indicators		Status, Comm		
Power Requirement		10 ~ 30 V_{DC} (24 V_{DC} Standard)		
Power Consumption		1.2 W @ 24 V_{DC}	2.2 W @ 24 V_{DC}	2.5 W @ 24 V_{DC}
Operating Temperature		-40 ~ 70°C (-40~158°F)		
Storage Temperature		-40 ~ 85°C (-40~185°F)		
Operating Humidity		20 ~ 95% RH (non-condensing)		
Storage Humidity		0 ~ 95% RH (non-condensing)		

IoT Wireless Sensor Nodes

Wireless		Wi-Fi			LoRa	
Model Name		WISE-4220-S231	WISE-4220-S214	WISE-4220-S215	WISE-4610-S672	WISE-4610-S614
Description		Wireless IoT WSN with Temperature/Humidity Sensors	Wireless IoT WSN with 4-ch AI and 4-ch DI	Wireless IoT WSN with 4-ch RTD	LoRa WSN with 2 Serial Port & 6-ch DI	LoRa WSN with 4-ch AI and 4-ch DI
Wireless Interface	Function	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node
	IEEE Standard	IEEE 802.11b/g/n			IEEE 802.15.4g LoRa Modulation	
	Frequency Band	2.4GHz			NA915, EU868, JP925, CN470	
	Mode / Topology	Infrastructure, Limited AP			Star	
	Outdoor Range	110m (L.O.S.)			5000m (L.O.S.)	
	GNSS	-			GPS/GLONASS/BeiDou	
Network	Interface	WLAN			Micro-B USB	
	Protocol	Modbus/TCP, REST, MQTT, Azure			-	-
Analog / Sensor Input	Channel	Built-in Sensors	4-ch	4-ch	-	4-ch
	Input Type	Temperature, Humiidty	V, A	2, 3-wire Pt RTD	-	V, A
	Input Range	-25 ~ 70°C 0 ~ 90% RH	0~10V, 0~20mA, 4~20mA	Pt-100: -200~200°C Pt-1000: -40~160°C	-	0~10V, 0~20mA, 4~20mA
Digital Input / Output	Channel	-	4-ch Dry Contact DI	-	6-ch Dry Contact DI	4-ch Dry Contact DI
Serial Port	Port Number	-	-	-	1-port RS-485 1-port RS-232/485	-
Power Input	Battery Power	-			Solar Rechargeable Battery	
	External Power	10 ~ 50 V_{DC}			10 ~ 50 V_{DC}	

Wireless		Cellular				
Model Name		WISE-4470-S250	WISE-4470-S414	WISE-4470-S472	WISE-4670-S672	WISE-4670-S614
Description		3G WSN with 1-port RS-485 and DIO	IP65 3G WSN with 4-ch AI	IP65 3G WSN with 2 Serial Port	Outdoor 3G WSN with 2 Serial Port & 6-ch DI	Outdoor 3G WSN with 4-ch AI and 4-ch DI
Wireless Interface	Function	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node
	IEEE Standard	GSM/GPRS/HSPA			GSM/GPRS/HSPA	
	Frequency Band	UMTS/HSPA: 1/8 (900/2100MHz) GSM/GPRS/EDGE: 2/3/5/8(1900/1800/850/900MHz)			UMTS/HSPA: 1/8(2100/900MHz) GSM/GPRS/EDGE: 2/3/5/8(1900/1800/850/900MHz)	
	Outdoor Range	-			-	
	GNSS	-			GPS/GLONASS/BeiDou	
Network	Configuration	Micro-B USB			Micro-B USB	
	Protocol	REST, MQTT, Azure			REST, MQTT, Azure	
Analog / Sensor Input	Channel	-	4-ch	-	-	4-ch
	Input Type	-	V, A	-	-	V, A
	Input Range	-	0~10V, 0~20mA, 4~20mA	-	-	0~10V, 0~20mA, 4~20mA
Digital Input / Output	Channel	6-ch Dry Contact DI 2-ch Sink-type DO	-	-	6-ch Dry Contact DI	4-ch Dry Contact DI
Serial Port	Port Number	1-port RS-485 for Modbus/RTU	-	1-port RS-485 1-port RS-232/485	1-port RS-485 1-port RS-232/485	-
Power Input	Battery Power	-			Solar Rechargeable Battery	
	External Power	10 ~ 50 V_{DC}			10 ~ 50 V_{DC}	

Wireless		LPWAN				
Model Name		WISE-4210-AP	WISE-4210-S231	WISE-4210-S251	WISE-4210-S214	WISE-4210-S215
Description		LPWAN Wireless to Ethernet AP	LPWAN WSN with Temperature/Humidity Sensors	LPWAN WSN with 1-port RS-485 and 6-ch DI	LPWAN WSN with 4-ch AI and 4-ch DI	LPWAN WSN with 4-ch RTD
Wireless Interface	Function	Wireless Access Point	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node
	IEEE Standard	IEEE 802.15.4g FSK/GFSK Modulation				
	Frequency Band	433, 868, or 923 MHz				
	Topology	Star				
	Outdoor Range	2000m (L.O.S.)				
Network	Configuration	RJ-45	Micro-B USB			
	Protocol	Modbus/TCP, REST, MQTT, Azure	-	-	-	-
Analog / Sensor Input	Channel	-	Built-in Sensors	-	4-ch	4-ch
	Input Type	-	Temperature, Humiidty	-	V, A	2, 3-wire Pt RTD
	Input Range	-	-25°C ~ 70°C 0 ~ 90% RH	-	0~10V, 0~20mA, 4~20mA	Pt-100: -200~200°C Pt-1000: -40~160°C
Digital Input / Output	Channel	-	-	6-ch Dry Contact DI	4-ch Dry Contact DI	-
Serial Port	Port Number	-	-	1-port RS-485 for Modbus/RTU	-	-
Power Input	Battery Power	-	3 x AA, 3.6V V_{DC} Lithium Battery			
	External Power	10 ~ 50 V_{DC}	10 ~ 50 V_{DC}			

Wireless		eMTC / NB-IoT				LPWAN
Model Name		WISE-4471-S250	WISE-4471-S214	WISE-4671-S672	WISE-4671-S614	PCM-24S1S1
Description		eMTC/NB-IoT WSN with 1-port RS-485 and DIO	eMTC/NB-IoT WSN with 4-ch AI and 4-ch DI	Ourdoor eMTC/NB-IoT WSN with 2 Serial Port	Ourdoor eMTC/NB-IoT WSN with 4-AI & 4-DI	LPWAN Wireless iDoor AP
Wireless Interface	Function	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Sensor Node	Wireless Access Point
	IEEE Standard	R13 LTE Cat M1 / NB1				IEEE 802.15.4g
	Frequency Band	2, 3, 4, 5, 8, 12, 13, 20, 28				433, 868, or 923 MHz
	Topology					Star
	Outdoor Range	-				2000m (L.O.S.)
	GPS	-	Option			-
Network	Interface	Micro-B USB	Micro-B USB	Micro-B USB	Micro-B USB	mPCIE
	Protocol	UDP, CoAP REST, MQTT	UDP, CoAP REST, MQTT	UDP, CoAP REST, MQTT	UDP, CoAP REST, MQTT	Modbus/TCP, REST, MQTT
Analog / Sensor Input	Channel	-	4-ch	-	4-ch	-
	Input Type	-	V, A	-	V, A	-
	Input Range	-	0~10V, 0~20mA, 4~20mA	-	0~10V, 0~20mA, 4~20mA	-
Digital Input / Output	Channel	6-ch Dry Contact DI 2-ch Sink-type DO	4-ch Dry Contact DI	6-ch Dry Contact DI	4-ch Dry Contact DI	-
Serial Port	Port Number	1-port RS-485 for Modbus/RTU	-	1-port RS-485 1-port RS-232/485	-	-
Power Input	Battery Power	-	Solar Rechargeable Battery			-
	External Power	10 ~ 50 V_{DC}				-

IoT Wireless Sensor Devices

Preliminary

Preliminary

Model Name		WISE-2210	WISE-2834
Description		3-ch CT input self-powered wireless sensor node	4-ch digital I/O Ethernet/Wi-Fi intelligent RFID gateway
Wireless Interface	Function	Wireless sensor device	RFID sensor
	Communication Standard	IEEE 802.15.4g	IEEE 802.15.4g and EPC Global Class 1 Gen 2
	Frequency Band	868, 923 MHz	860 ~ 928 MHz
	Outdoor Range	1000m (L.O.S.)	10m (L.O.S.)
	Topology	Star	-
	Security	WPA2 Personal and Enterprise of AP	WPA2 Personal and Enterprise
	Antenna Connector	Reverse SMA	RFID: Reverse TNC WiFI: Reverse SMA
CT Input	Channel	3-ch	-
	Input Type	V	-
	Voltage Range	1 ~ 5 V	-
	Current Range	200 mA (max.)	-
	Resolution	12-bit	-
	Sampling Rate	10 Hz (total)	-
	Accuracy	Voltage: ±1% of FSR	-
Digital Input	Channel	-	2-ch dry contact 2-ch wet contact
	Counter Input	-	3 kHz
	Frequency Input	-	0.1 ~ 3 kHz
	Isolation	-	2,000 V_{rms}
Digital Output	Channel	-	4-ch (sink-type)
	Output Rating (Resistive Load)	-	Open collector to 50 V, 400 mA max.
	Pulse Output	-	5 kHz
	Isolation	-	2,000 V_{rms}
Serial Port	Port Number	-	1
	Type	-	RS-485
General	LED Indicators	COM, USB	Status, communication, network mode, signal quality
	Real-Time Clock	-	✓
	Connectors	I/O: Plug-in screw terminal block Power: Micro USB	Terminal block (I/O and RS485)
	Dimensions	71 x 72.7 x 29.8 mm (W x H x D)	190 x 120 x 30.2 mm (W x H x D)
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)	-25 ~ 70°C (-13 ~ 158°F)
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	-40 ~ 85°C (-40 ~ 185°F)
	Operating Humidity	20 ~ 95% RH (non-condensing)	20 ~ 95% RH (non-condensing)
	Storage Humidity	0 ~ 95% RH (non-condensing)	0 ~ 95% RH (non-condensing)
Power	Input Range	Micro USB: 5 V_{DC} CT: 1 ~ 5 V_{DC}	10 ~ 30 V_{DC}
	Protection	-	Power reversal protection
	Power Consumption	0.1 mW @ 3.3 V_{DC}	5 W @ 24 V_{DC}

ADAM-6000 and ADAM-6200 Series

Intelligent Ethernet I/O Modules

Transition and Vision for Remote DAQ Devices

IT and network infrastructure have become established technologies. In the future, there are will be many potentially key elements such as artificial intelligence, energy-efficiency, cloud computing, cyber-security, and mobile communication technologies being progressively leveraged in automation markets. We believe that these will also contribute to ideal remote data acquisition devices in IoT world.

To fulfill the transition requirements and future applications, Advantech has developed the ADAM-6000/6200 series of Ethernet I/O modules, comprising analog I/O, digital I/O, and relay modules. ADAM-6000/6200 series modules possess a multitude of advanced features that can cope with changes in hardware design and user expectations regarding useful software functions for applications in the field. With a new design and strong capabilities, ADAM-6000/6200 series modules can provide a well-integrated I/O solution for Ethernet control systems.

Major Functionality Comparison

		ADAM-6000	ADAM-6200
Daisy-chain with auto-bypass		-	✓
GCL		✓	✓
Peer-to-peer		✓	✓
Web server (HTML5)		✓	✓
Configuration backup		✓	✓
Access control		✓	✓
Protocol Support	Modbus/TCP	✓	✓
	MQTT	✓	✓
	SNMP	✓	✓
	RESTful	✓	✓

Flexible Deployment with Daisy Chain Networking and Auto-Bypass Protection

ADAM-6200 modules have built-in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy, saving on wiring costs, and helping to improve scalability. The two Ethernet ports are fully compliant with IEEE 802.3u 10/100 Mbps via standard RJ-45 connectors.

Although the daisy chain topology brings cost-saving benefits for users, it still comes with the risk that once any device in the chain suffers a power outage, it will cause the disconnection of all devices data stream.

Auto-Bypass Protection

To prevent this critical issue from happening, Advantech has refined the hardware design of ADAM-6200 modules so that they can rapidly recover the network connection within approximately 2.5 s, thereby greatly minimizing any potential damage.

Remote Monitoring and Control with Smart Portable Devices

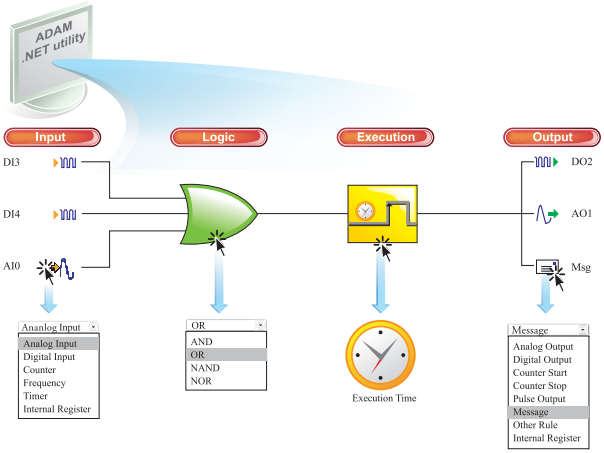
At the early stage of automation, it was difficult to access or obtain online equipment data when conducting on-site inspections. Mostly, the only possible way to do this was by communicating with engineers on the factory floor or in a central control room where the SCADA program was running. With these factors considered, on-site inspections and debugging were invariably arduous tasks that took considerable effort to complete.

Overcoming this, the ADAM-6200 series of modules integrates HTML5, allowing users to remotely monitor the status of all online modules without bridging a SCADA system. These modules also allow users to perform basic I/O configuration on any built-in HMI device such as a smartphone or digital pad via the Internet. Moreover, users can further develop extended applications based on the default HTML5 file embedded in the module.

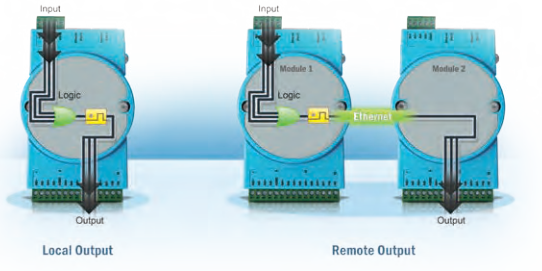
With its enhanced syntax structure and integration of rich web technologies such as CSS and JavaScript, the now widely used markup language HTML5 has enhanced the design of web content. This is particularly beneficial for ADAM module users because it allows them to implement more web services and APIs and to develop more interactive applications for configuring and monitoring their hardware.

ADAM-6000 GCL is the Simplest Logic Ethernet I/O

- **What is GCL?**
  Graphic Condition Logic (GCL) gives controllability to Ethernet I/O modules. Users can define control logic rules using the graphic configuration environment in ADAM series modules and download defined logic rules to ADAM-6000/6200 Ethernet I/O modules. The modules will then execute the logic rules automatically, just like a standalone controller. For each Ethernet I/O module, 16 logic rules can be defined. In the configuration environment of Adasm/Apax .NET Utility, four graphic icons show the four stages of one logic rule, referring to the input, logic, execution, and output stages (refer to the image below). Users can simply click on each icon and a dialog window will appear to configure each stage. After completing all configurations, users can simply click a button to download the defined logic rules to their module.



- **Supports Both Local and Remote Output**
  When users define the destination of the output stage (e.g., digital output, analog output, counter, and pulse output), the target module can be set as either the local module or another remote module, thus giving the ability to develop complex logic rules.



- **Fast Execution Time**
  Advantech GCL features the shortest logic rule execution time on the market. When a local output is selected (i.e., the input and output channels are on the same module), the processing time (including an hardware input delay time, logic rule, execution time, and hardware output delay time) is <1 ms. When a remote output is selected (i.e., the input and output channels are on different modules), the total processing time (including processing and communication time) is <3 ms.

- **Sending Messages**
  In GCL, you can define customized message. When the specified conditions are met, the message, module IP, and I/O status will be sent to the PC or device you define.

What Benefits Do Peer-to-Peer Modules Provide?

What is Peer-to-Peer?

Unlike client /server mode, peer-to-peer mode enabled modules to actively update their input channel status to a specific output channel. For this, a pair of modules is used: one input module and one output module. Users can define the mapping between them and the input value of one module will be transferred to the output channel of the other module.

No Controller Required

For Ethernet I/O modules without peer-to-peer functionality, a controller is needed to read data from the input module and then send the data to the output module. With peer-to-peer solutions, the controller can be removed since data will be automatically transferred. This not only simplifies the process but also helps save on system hardware costs.

No Programming Required

To utilize peer-to-peer modules, the only thing required is to configure the settings using Adam/Apax .NET Utility. Because no additional programming effort is needed, this greatly reduces system development time.

Fast Response Time

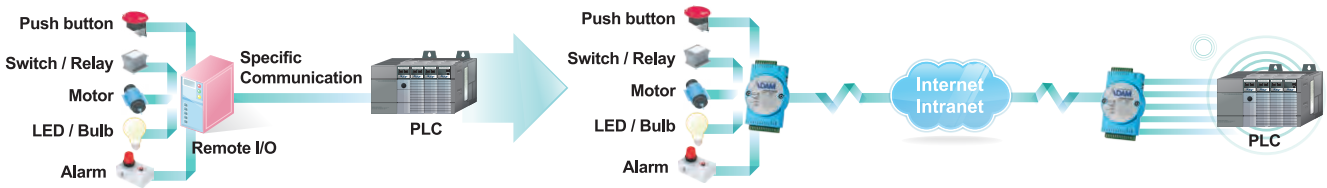
Advantech peer-to-peer modules offer the best execution times on the market; specifically, the execution time to transfer data from input to output is <1.2 ms.

Advanced Security

When peer-to-peer modules are employed, it is critical that they not be controlled by unauthorized computers or devices. ADAM-6000 series peer-to-peer modules allow users to decide which IP or MAC address has control authority. This can make ensure that output modules are controlled only by their paired input modules.

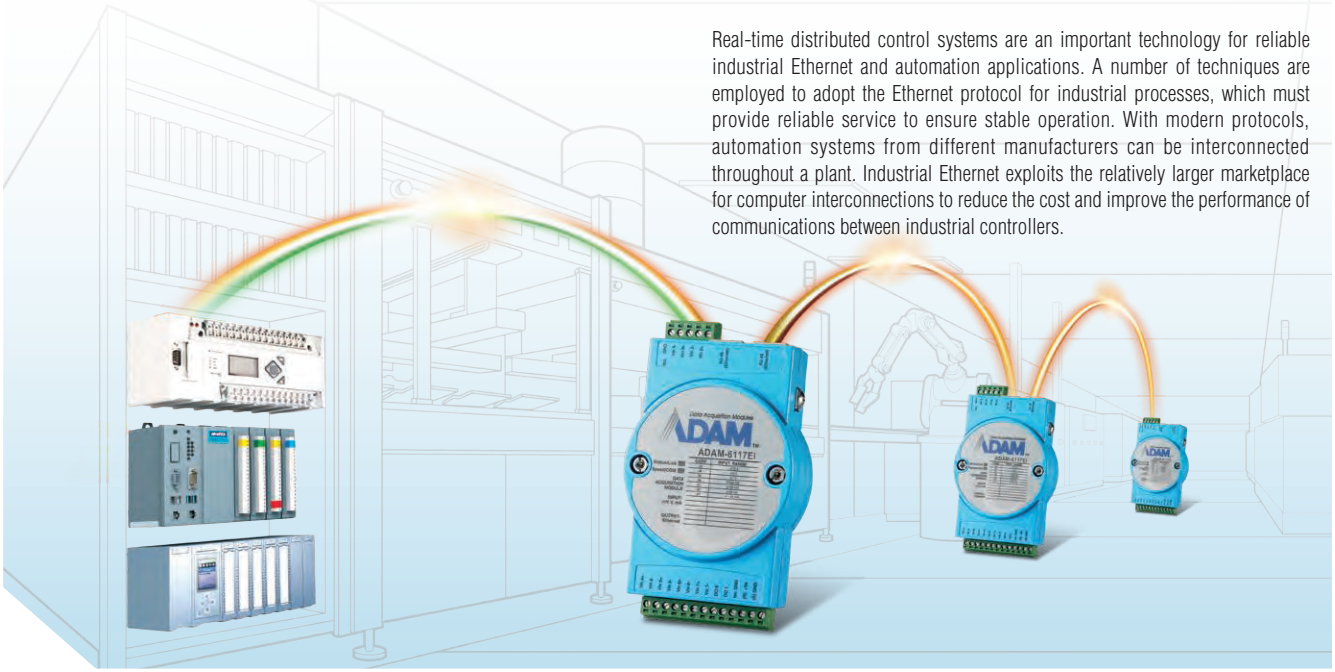
Simple and Flexible System Wiring

Long-distance wiring can introduce difficulties into any project. For some automation applications, if the PLC and the sensors are far away, a remote I/O module needs to be located near the sensors and a proprietary communication network needs to connect the PLC and the remote I/O module. However, with this setup, communication will be severely limited. Moreover, networks provided by PLC manufacturers are rarely open networks. Peer-to-peer modules can replace limited and closed networks with no limitations since they leverage the most open and flexible Ethernet networks.



ADAM-6100 Series

EtherNet/IP and Profinet I/O Modules



Real-time distributed control systems are an important technology for reliable industrial Ethernet and automation applications. A number of techniques are employed to adopt the Ethernet protocol for industrial processes, which must provide reliable service to ensure stable operation. With modern protocols, automation systems from different manufacturers can be interconnected throughout a plant. Industrial Ethernet exploits the relatively larger marketplace for computer interconnections to reduce the cost and improve the performance of communications between industrial controllers.

Real-Time Systems

A real-time system is one in which the correctness of a result depends not only on precise calculations but also on accurate timing. In computing, "real time" refers to a time frame that is very brief, to the point that it is virtually instantaneous. When a computer processes data in real time, it reads and handles data as it is received, producing results without any delay. A non-real-time computer process does not have a deadline. Such processes can be considered non-real-time—even if fast results are the preferred outcome. A real-time system, on the other hand, is expected to respond not just quickly, but also within a predictable period of time. In automation control systems, real-time technology provides multiple advantages, such as improved safety, quality, and efficiency. To build a real-time distributed control system, it is critical to establish reliable real-time communication among the controllers; accordingly, there is now increasing interest in the use of Ethernet protocols as the link-layer protocol, such as EtherNet/IP, PROFINET, EtherCAT, Ethernet PowerLink, SERCOS III.

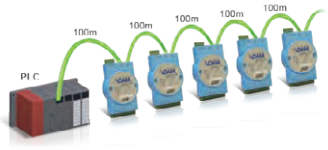
EtherNet/IP

EtherNet/IP was developed in the late 1990s by Rockwell Automation for use in process control and other industrial automation applications, ensuring multi-vendor system interoperability. EtherNet/IP is a lot like standard office Ethernet, using the same TCP/IP messaging but with a new application layer added where data are arranged. This is known as object-orientated organization, which allows ordinary office Ethernet to become a markedly more versatile system. Today, EtherNet/IP is commonly used in industrial automation applications such as water processing, manufacturing, and utilities.

Profinet

PROFINET, the standard for industrial networking in automation, connects devices, systems, and cells to facilitate manufacturing that is faster, safer, less costly, and of higher quality. As it is fully compatible with office Ethernet, it can be easily integrated with existing systems and equipment while bringing enhanced features such as real-time performance and control as well as monitoring functions. Additionally, PROFINET features highly scalable architectures, remote access and maintenance of field devices over the network, and lower production/quality data monitoring costs.

Feature Highlights



Daisy Chain Connections

ADAM-6100 modules have two built-in Ethernet switches to allow daisy chain connections in an Ethernet network, making it easier to deploy while improving scalability and resistance against interference commonly found in factory settings.

2,500 V_{DC} Isolation Protection

With triple isolation, including power supply, I/O, and Ethernet communication, ADAM-6100 series modules ensure that I/O data are controlled correctly while preventing devices from breaking down.

Ethernet-Based Configuration Tool

Adam/Apax .NET Utility comes bundled with each ADAM-6100 module. With this utility, users can configure, set, and test ADAM-6100 modules via Ethernet.

Multiple Mounting Options

Advantech provides various mounting methods to fit the varying needs of different projects in the field. ADAM-6100 series modules support DIN rail mounting, wall mounting, and piggybacking.

ADAM-6000 Series Selection Guide





Spec. \ Model		ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6022	ADAM-6024
Interface				10/100 Mbps Ethernet		
Peer-to-Peer[1]			✓		-	Receiver Only[2]
GCL[1]			✓		-	Receiver Only[2]
Resolution			16 bit		16-bit for analog inputs 12-bit for analog outputs	16-bit for analog inputs 12-bit for analog outputs
Analog Input	Channels	7	8	8	6	6
	Sampling Rate			10 Hz		
	Voltage Input	-	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V	-	±10 V	±10 V
	Current Input	-	0 ~ 20, 4 ~ 20, ±20 mA	-	0 ~ 20, 4 ~ 20 mA	0 ~ 20, 4 ~ 20 mA
	Direct Sensor Input	Pt, Balco, and Ni RTD	-	J, K, T, E, R, S, B thermocouple	-	-
	Burnout Detection	✓	✓ (4 ~ 20mA only)	✓	-	-
	Math. Functions	Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-	-
Analog Output	Channels	-	-	-	2	2
	Current Output	-	-	-	0 ~ 20, 4 ~ 20 mA @ 15 V_{DC}	0 ~ 20, 4 ~ 20 mA @ 15 V_{DC}
	Voltage Output	- -	-	-	0 ~ 10 V_{DC} @ 30 mA	0 ~ 10 V_{DC} @ 30 mA
Digital I/O	Input Channels	-	-	-	2	2
	Output Channels	-	2 (sink)	8 (sink)	2 (sink)	2 (sink)
	Extra Counter Channels	-	-	-	-	-
	Counter Input	-	-	-	-	-
	Frequency Input	-	-	-	-	-
	Pulse Output	-	-	-	-	-
	High/Low Alarm Settings	✓	✓	✓	-	-
Isolation Protection			2,000 V_{DC}		2,000 V_{DC}[3]	2,000 V_{DC}[3]
Remark		-	-	-	Built-in dual loop PID control algorithm	-





Spec. \ Model		ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066
Interface				10/100 Mbps Ethernet		
Peer-to-Peer[1]		✓	✓	✓	✓	✓
GCL[1]		✓	✓	✓	✓	✓
Digital I/O	Input Channels	12	12	8	6	6
	Output Channels	6 (sink)	2 (sink)	8 (source)	6-ch relay	6-ch power relay
	Extra Counter Channels	-	2	-	-	-
	Counter Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Frequency Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Pulse Output	✓	✓	✓	✓	✓
	High/Low Alarm Settings	-	-	-	-	-
Isolation Protection				2,000 V_{DC}		

ADAM-6200 Series Selection Guide

Model		ADAM-6217	ADAM-6224	ADAM-6250	ADAM-6251	ADAM-6256	ADAM-6260	ADAM-6266
Interface		10/100Mbps Ethernet						
Peer-to-Peer[1]		✓	Receiver Only[2]	✓	✓	✓	✓	✓
GCL[1]		✓	✓	✓	✓	✓	✓	✓
Analog Input	Channels	8	-	-	-	-	-	-
	Input Impedance	>10MΩ (voltage) 120Ω (current)	-	-	-	-	-	-
	Voltage Input	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	-	-	-	-	-	-
	Current Input	0 ~ 20, 4 ~ 20, ±20 mA	-	-	-	-	-	-
	Sampling Rate	10 Hz	-	-	-	-	-	-
	Direct Sensor Input	-	-	-	-	-	-	-
	Burnout Detection	✓ (4 ~ 20 mA)	-	-	-	-	-	-
	Resolution	16-bit	-	-	-	-	-	-
	Accuracy	±0.1% of FSR (voltage) @ 25°C ±0.2% of FSR (current) @ 25°C	-	-	-	-	-	-
Analog Output	Channels	-	4	-	-	-	-	-
	Voltage Output	-	0 ~ 5, 0 ~ 10, ±5, ±10 V	-	-	-	-	-
	Current Output	-	0 ~ 20, 4 ~ 20 mA	-	-	-	-	-
	Resolution	-	12-bit	-	-	-	-	-
Digital I/O	Input Channels	-	4 (dry contact only)	8	16	-	-	4
	Output Channels	-	-	7 (sink)	-	16 (sink)	-	-
	Relay Output	-	-	-	-	-	6 (5 Form C + 1 Form A)	4 (Form C)
	Contact Rating	-	-	-	-	-	250 V_{AC} @ 5A 30 V_{DC} @ 5A	
	Counter Input	-	-	3 kHz	3 kHz	-	-	3 kHz
	Frequency Input	-	-	3 kHz	3 kHz	-	-	3 kHz
	Pulse Output	-	-	5 kHz	-	5 kHz	5 kHz	5 kHz
	LED Indicator	-	-	8 digital outputs, 7 digital inputs	16 digital inputs	16 digital outputs	6 relay	4 digital inputs, 4 relay
Power Consumption		3.5 W	6 W	3 W	2.7 W	3.2 W	4.5 W	4.2 W
Isolation Voltage		2,500 V_{DC}						
Watchdog Timer		System (1.6 s) Communication (programmable)						
Communication Protocol		Modbus TCP, TCP/IP, UDP, HTTP, DHCP, MQTT, SNMP						
Power Requirements		10 ~ 30 V_{DC} (24 V_{DC} standard)						
Operating Temperature		-10 ~ 70°C (14 ~ 158°F)						
Storage Temperature		-20 ~ 80°C (-4 ~ 176°F)						
Operating Humidity		20 ~ 95% RH (non-condensing)						
Storage Humidity		0 ~ 95% RH (non-condensing)						

Note 1: Peer-to-peer and GCL cannot be run simultaneously; only one feature can be enabled at a time.
Note 2: The ADAM-6224 can only act as a receiver and generate analog output when peer-to-peer or GCL mode is used.

ADAM-6100 Series Selection Guide





Model		ADAM-6117	ADAM-6150	ADAM-6151	ADAM-6156	ADAM-6160
Interface		10/100 Mbps Ethernet				
Support Protocol		ADAM-6100EI: EtherNet/IP ADAM-6100PN: Profinet				
Analog Input	Resolution	16-bit	-	-	-	-
	Channels	8	-	-	-	-
	Sampling Rate	10 Hz	-	-	-	-
	Voltage Input	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	-	-	-
	Current Input	0 ~ 20, 4 ~ 20, ±20 mA	-	-	-	-
	Direct Sensor Input	-	-	-	-	-
Analog Output	Resolution	-	-	-	-	-
	Channels	-	-	-	-	-
	Current Output	-	-	-	-	-
	Voltage Output	-	-	-	-	-
Digital I/O	Input Channels	-	8	16	-	-
	Output Channels	-	7	-	16	6-ch power relay
Isolation Protection		2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}
Connectors		2 x RJ-45 LAN (daisy chain) Plug-in screw terminal block (I/O and power)				

ADAM-4000 Series

Introduction

ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operation in harsh environments. Their built-in microprocessors are encased in rugged industrial grade plastic and independently provide intelligent signal conditioning, analog I/O, digital I/O, data display, and RS-485 communication. The ADAM-4000 series can be categorized into three groups: controllers, communication modules, and I/O modules.

Applications

- Remote data acquisition
- Process monitoring
- Industrial process control
- Energy management
- Supervisory control
- Security systems
- Laboratory automation
- Building automation
- Product testing
- Direct digital control
- Relay control

General Features

Modbus Communication Protocol

Since Modbus is one of the most widely used communication standards in the world, Advantech has applied it as the major communication protocol for eAutomation product development. The new generation of ADAM-4000 modules now also supports Modbus/RTU as the remote data transmission protocol. Featuring Modbus-support capacity, the new ADAM-4000 series have become universal remote I/O modules that can operate with any Modbus system. HMI servers or controllers can read/write data via standard Modbus commands instead of complex ASCII code.

Watchdog Timer

A watchdog timer supervisory function will automatically reset the ADAM-4000 series modules if required, which reduces the need for maintenance. It also contributes a high level of reliability to the system.

Modular Industrial Design

You can easily mount modules on a DIN rail, panel, or piggyback them on top of each other. Signal connections can be formed through plug-in screw-terminal blocks, ensuring simple installation, modification, and maintenance.

I/O Module Features

Easy Plug-In System Integration

With the ADAM-4000's Modbus I/O and built-in Modbus/RTU protocol, any controller using the Modbus/RTU standard can be integrated as part of an ADAM-4000 control system. Any Modbus Ethernet data gateway can upgrade these I/O modules up to the Modbus/TCP Ethernet layer. Most HMI software is bundled with a Modbus driver and can access the ADAM-4000 I/O directly. Moreover, Advantech provides Modbus OPC Server and Modbus/TCP OPC Server as data exchange interfaces between the ADAM-4000 Modbus I/O and any Windows applications.

Communication Module Features

Fiber Converter

The ADAM-4541 and ADAM-4542+ have been designed specifically for transmitting data over long distances without noise interference. The ADAM-4541 is a multi-mode converter that carries signals from fiber optics to RS-232/422/485. It offers a transmission distance of up to 2,500 m with total immunity against electromagnetic noise. The ADAM-4542+ is a single-mode converter that carries signals from fiber optics to RS-232/422/485. It offers an incredible transmission distance of up to 15 km, also with total immunity against electromagnetic noise.

USB Converter

The ADAM-4561 and ADAM-4562 are one-port isolated USB to RS-232/422/485 converters. The ADAM-4561 can convert USB to RS-232/422/485 with a plug-in terminal, and its major features are the capability to use 9-wire RS-232 and to draw power from a USB port. With 9-wire RS-232 capability, this converter meets the requirements of PLCs, modems, and controller equipment. The ADAM-4562 is a USB-to-serial converter that supports Plug & Play and hot-swapping, which simplifies the configuration process while allowing the module to draw power via USB, thus making it no longer necessary to have an external power supply.

ADAM-4100 Series

Robust Remote Data Acquisition and Control Modules Overview

Applications

- Wide operating temperature: -40 ~ 85°C
- Higher Noise Immunity
  ESD (IEC 61000-4-2) 8KV
  EFT (IEC 61000-4-4) 4KV
  Surge (IEC 61000-4-5) 4KV
- Wide power input: 10 ~ 48 V_{DC}
- Support modbus/RTU
- Multiple interface :RS-485, Micro USB

Introduction

The robust ADAM-4000 family includes ADAM-4100 series modules, the ADAM-4510I, and the ADAM-4520I modules. The ADAM-4100 series comprises compact, versatile sensor-to-computer interface units designed for reliable operation in harsh environments. Their built-in microprocessors, encased in rugged industrial-grade PC plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, LED data display, and an address mode with a user-friendly design for convenient address reading. The ADAM-4510I and ADAM-4520I modules are robust industrial-grade communication modules.

Designed for Harsh Industrial Environments

ADAM-4100 Module with LED Display

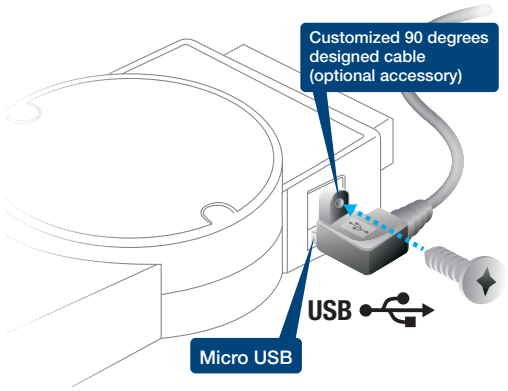
ADAM-4100 series modules have an LED display that lets you monitor the channel status. For the ADAM-4117 and ADAM-4118, the LED will be lit when the related channel is active; for the ADAM-4150 and ADAM-4168, the LED will be lit when the related channel value is high. ADAM-4100 series modules have two operating modes: initial and normal. In contrast to old modules that require additional wiring to set the mode, this can be done using a switch with ADAM-4100 modules, making it very convenient to configure. When set to initial mode, the LED display represents the node address of the module. Additionally, in systems where multiple ADAM-4100 series modules are used, you can locate individual modules using Adam/Apax .NET Utility and the LED display on the module. All of these functions are very helpful for diagnosing ADAM-4100 series systems.

Online Firmware Updates

ADAM-4100 series modules have a user-friendly and convenient design that allows for firmware updates via a local network or the Internet. You can easily update to the latest firmware using Adam/Apax .NET Utility on the host PC. This saves time and ensures that the module always runs with the latest functional enhancements.

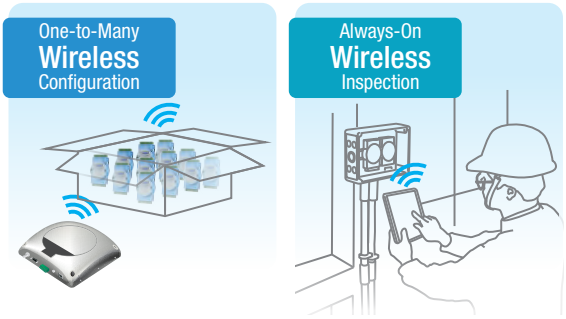
Micro USB interface

USB has become common interface in IoT devices, and it is easy to be accessed via PC. To expand the accessibility of ADAM-4100 series modules, in addition to an RS-485 serial port, the B version of these modules also has a micro USB interface that supplies power and a communication interface. Users have the option to use the RS-485 and USB ports concurrently or independently, depending on their application. The ADAM-4100 micro USB interface can be adapted to standard micro USB cable. Advantech also offers a 90° cable (optional) with a locking screw mechanism to further enhance the connection stability.



Access ADAM by Passive RFID

There is a trend in current IoT applications where increasingly more data are needed. Consequently, the demand for I/O modules is increasing. Users are pursuing efficient ways to set up and manage the modules. Thus, how to deploy I/O modules quickly and trace related usage information to avoid downtime have become key requirements in IoT applications. To fulfill these needs, ADAM-4100 series modules (B version) implement a passive internal RFID tag. This remarkable feature means that module information such as the model name, device ID, I/O value, firmware version, alarm events, and serial number are stored in the RFID tag. In contrast to typical RFID tags that contain fixed data, the RFID tag information in ADAM modules can be dynamically updated, which means that the RFID tag will reflect the latest ADAM module information. This innovative design makes ADAM modules more flexible for IoT applications.



I/O Module Selection Guide

Analog Input




Model		ADAM-4015	ADAM-4017+	ADAM-4018+	ADAM-4019+
Resolution				16 bit	
Analog Input	Channels	6 differential	8 differential	8 differential	8 differential
	Sampling Rate	10 Hz		10 Hz	10 Hz
	Voltage Input	-	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	± 100 mV ± 500 mV ± 1 V ± 2.5 V ± 5 V ± 10 V
	Current Input	-	4 ~ 20, ±20 mA	4 ~ 20, ±20 mA	4 ~ 20, ±20 mA
	Direct Sensor Input	RTD	-	J, K, T, E, R, S, B thermocouple	J, K, T, E, R, S, B thermocouple
	Burnout Detection	✓	-	✓	✓ (4 ~ 20 mA and all T/C)
	Channel Independent Configuration	✓	✓	✓	✓
Isolation Voltage		3,000 V_{DC}		3,000 V_{DC}	3,000 V_{DC}
Watchdog Timer		✓ (system and comm.)	✓ (system and comm.)	✓ (system and comm.)	✓ (system and comm.)
Modbus Support *		✓	✓	✓	✓

*All ADAM-4000 I/O modules support ASCII commands

Analog Output


Model		ADAM-4021	ADAM-4024
Resolution		12 bit	12 bit
Analog Output	Channels	1	4
	Voltage Output	0 ~ 10 V	±10 V
	Current Output	0 ~ 20, 4 ~ 20 mA	0 ~ 20, 4 ~ 20 mA
Digital I/O	Input Channels	-	4
	Output Channels	-	-
	Alarm Settings	-	✓
Isolation Voltage		3,000 V_{DC}	3,000 V_{DC}
Digital LED Indicator		-	-
Watchdog Timer		✓ (system)	✓ (system and comm.)
Safety Setting		-	✓
Modbus Support *		-	✓

Digital Input/Output



ADAM-4050	ADAM-4051	ADAM-4052
-	-	-
-	-	-
-	-	-
-	-	-
7	16	8
8	-	-
-	-	-
-	2,500 V_{DC}	5,000 V_{RMS}
-	Yes	-
✓ (system)	✓ (system and comm.)	✓ (system)
-	-	-
-	✓	-

*All ADAM-4000 I/O modules support ASCII commands

I/O Module Selection Guide

Digital Input/Output

Relay Output

Counter







Model		ADAM-4053	ADAM-4055	ADAM-4056S/ 4056SO	ADAM-4060	ADAM-4068	ADAM-4069	ADAM-4080
Resolution		-	-	-	-	-	-	-
Analog Input	Channels	-	-	-	-	-	-	-
	Sampling Rate	-	-	-	-	-	-	-
	Voltage Input	-	-	-	-	-	-	-
	Current Input	-	-	-	-	-	-	-
	Direct Sensor Input	-	-	-	-	-	-	-
	Burnout Detection	-	-	-	-	-	-	-
	Channel Independent Configuration	-	-	-	-	-	-	-
Analog Output	Channels	-	-	-	-	-	-	-
	Voltage Output	-	-	-	-	-	-	-
	Current Output	-	-	-	-	-	-	-
Digital I/O	Input Channels	16	8	-	-	-	-	-
	Output Channels	-	8	12	4-ch relay	8-ch relay	8-ch power relay	2
	Alarm Settings	-	-	-	-	-	-	Yes
Counter (32-bit)	Channels	-	-	-	-	-	-	2
	Input Frequency	-	-	-	-	-	-	50 kHz
Isolation Voltage		-	2,500 V_{DC}	5,000 V_{DC}	-	-	-	2,500 V_{RMS}
Digital LED Indicator		-	✓	✓	-	✓	-	-
Watchdog Timer		✓ (system)	✓ (system and comm.)	✓ (system and comm.)	✓ (system)	✓ (system and comm.)	✓ (system and comm.)	✓ (system)
Safety Setting		-	✓	-	✓	✓	✓	-
Modbus Support *		-	✓	✓	-	✓	✓	supported in E version

*All ADAM-4000 I/O modules support ASCII commands

Communication and Controller Module Selection Guide

Repeaters

Model	ADAM-4510 ADAM-4510S
Network	RS-422 RS-485
Comm. Protocol	-
Comm. Speed (bps)	Serial: From 1,200 to 115.2K
Comm. Distance	Serial: 1.2 km
Interface Connectors	RS-422/485: plug-in screw terminal
LED Indicators	Communication and power
Data Flow Control	-
Watchdog Timer	-
Isolation Voltage	ADAM-4510: - ADAM-4510S: 3,000 V_{DC}
Special Features	-
Built-In I/O	-
Power Requirements	10 ~ 30 V_{DC}
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)
Operating Humidity	5 ~ 95% RH
Power Consumption	1.4 W @ 24 V_{DC}

Converters




Model	ADAM-4520	ADAM-4521	ADAM-4541 ADAM-4542+	ADAM-4561 ADAM-4562
Network	RS-232 to RS-422/485		Fiber optic to RS-232/422/485	USB to RS-232/485/422
Comm. Protocol	-			
Comm. Speed (bps)	Serial: From 1,200 to 115.2K			
Comm. Distance	Serial: 1.2 km	Serial: 1.2 km	ADAM-4541: 2.5 km ADAM-4542+: 15 km	Serial: 1.2 km
Interface Connectors	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ADAM-4541: ST connector ADAM-4542+: SC connector	USB: type A client connector Serial: ADAM-4561: plug-in screw terminal (RS-232/422/485) ADAM-4562: DB9 (RS-232)
LED Indicators	Communication and power			
Data Flow Control	-	✓	-	✓
Watchdog Timer	-	✓	-	✓
Isolation Voltage	3,000 V_{DC}	1,000 V_{DC}	-	ADAM-4561: 3,000 V_{DC} ADAM-4562: 2,500 V_{DC}
Power Requirements	10 ~ 30 V_{DC}			
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
Operating Humidity	5 ~ 95% RH			
Power Consumption	1.2 W @ 24 V_{DC}	1 W @ 24 V_{DC}	ADAM-4541: 1.5 W @ 24 V_{DC} ADAM-4542+: 3 W @ 24 V_{DC}	ADAM-4561: 1.5 W @ 5 V_{DC} ADAM-4562: 1.1 W @ 5 V_{DC}

Robust RS-485 I/O Module Selection Guide




Model		ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution		16 bit		-	-
Analog Input	Channels	8 differential		-	-
	Sampling Rate	10/100 Hz (total)		-	-
	Voltage Input	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±15V	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V	-	-
	Current Input	0 ~ 20, 4 ~ 20, ±20 mA	4 ~ 20, ±20 mA	-	-
	Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burnout Detection	✓ (mA)	✓ (mA and All T/C)	-	-
	Channel Independent Configuration	✓	✓	-	-
Digital I/O	Input Channels	-	-	7	-
	Output Channels	-	-	8	8-ch relay
Counter	Channels	-	-	7	-
	Input Frequency	-	-	3 kHz	-
Isolation Voltage		3,000 V_{DC}			
Digital LED Indicator		Communication and Power			
Watchdog Timer		Yes (System & Communication)			
Safety Setting		-	-	✓	✓
Communication Protocol		ASCII Command/Modbus			
Power Requirements		10 ~ 48 V_{DC}			
Operating Temperature		-40 ~ 85°C (-40 ~ 185°F)			
Storage Temperature		-40 ~ 85°C (-40 ~ 185°F)			
Operating Humidity		5 ~ 95% RH			
Power Consumption		1.2 W @ 24 V_{DC}	0.5 W @ 24 V_{DC}	0.7 W @ 24 V_{DC}	1.8 W @ 24 V_{DC}
Page		16-18	16-19		


Model	ADAM-4510I	ADAM-4520I
Network	RS-422/485	RS-232 to RS-422/485
Communication Speed (bps)	From 1,200 to 115.2k	
Communication Distance	Serial: 1.2 km	
Interface Connectors	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal
Digital LED Indicators	Communication and Power	
Auto Data Flow Control	✓	
Isolation Voltage	3,000 V_{DC}	
Power Requirements	10 ~ 48 V_{DC}	
Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	
Operating Humidity	5 ~ 95%	
Power Consumption	1.4 W @ 24 V_{DC}	1.2 W @ 24 V_{DC}
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8 Industrial I/O and Video Solutions

Advantech Data Acquisition and Control Solutions

As a leading supplier of data acquisition products worldwide, Advantech offers a wide range of I/O devices with various interfaces and functions based on PC technology, from legacy ISA to modern USB and from signal-conditioning to graphical software tools.

Advantech's industrial I/O products are reliable, accurate, affordable, and suitable for many industrial automation applications (e.g., testing and measurement) and laboratory applications (e.g., monitoring, control, machine automation, and product testing).

Signal Sensing

Equipment Sensor

Physical Phenomenon

Signal Conditioning

Signal Conditioners

Advantech's signal conditioners provide sensor and signal conditioning on a per-module basis for various types of sensors or signals.

I/O Wiring Terminal Boards

I/O wiring terminal boards offer convenient and reliable signal wiring for a wide range of Advantech products.

Analog Signal

Data Acquisition

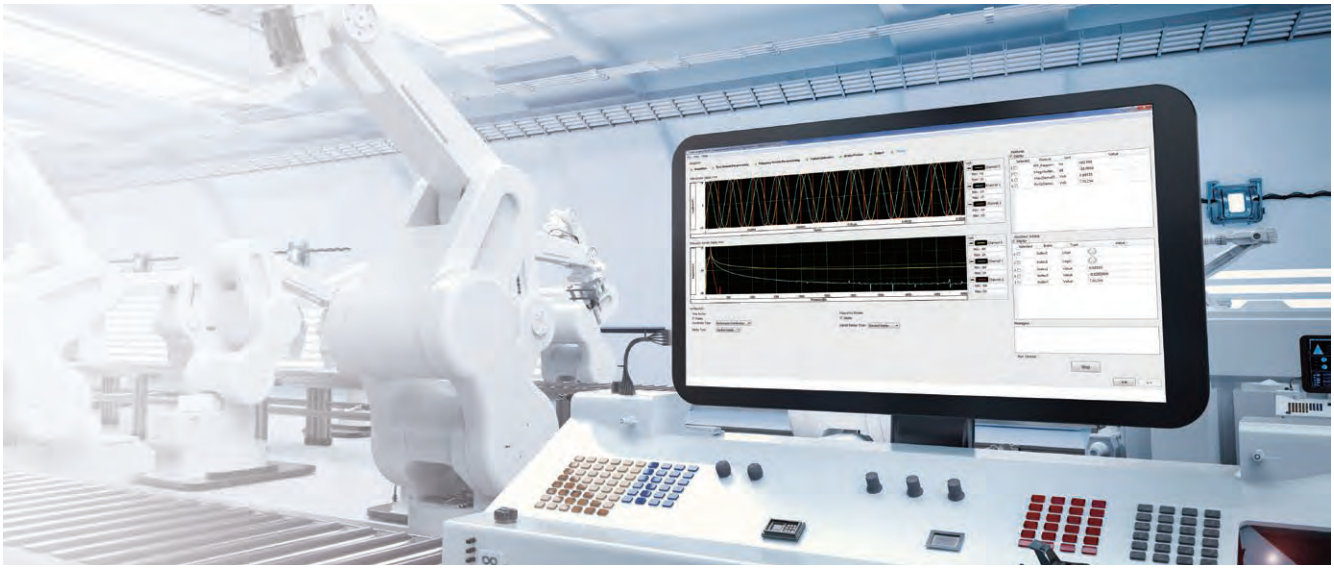
Embedded Computers

MIC-1800 series units are standalone embedded computers with integrated data acquisition modules and signal conditioning to provide digital I/O, analog I/O, and counter functions. The palm-sized design with built-in terminals is suitable for space-limited applications.

SuperSpeed USB 3.0 DIO Modules

SuperSpeed USB 3.0 digital I/O modules can be leveraged for a diverse range of industrial control applications.

Conditioned Signal



and Control

Data Acquisition and Communication Cards

Advantech offers dedicated products for USB, PCI, PCI Express, CompactPCI, PC/104, and PCI-104 interfaces. Thus, regardless of whether the platform is an IPC, embedded PC, desktop computer, or laptop, your project requirements are covered.

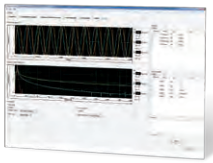
USB Data Acquisition Modules

Advantech's USB data acquisition modules are renowned for their user-friendly design and ability to replace traditional serial and parallel devices by eliminating the need for external power and allowing for hot-swapping.

Conditioned Signal

Software

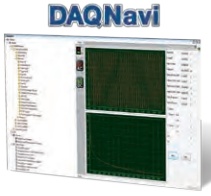
WebAccess/MCM



Machine Condition Monitoring Software

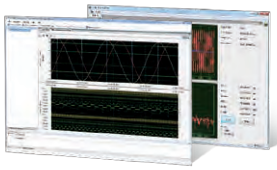
WebAccess/MCM is machine condition monitoring software that provides easy sensor signal acquisition, signal analysis, feature extraction, data management/interpretation, and alert notification.

DAQNavi



Software Development Package

DAQNavi, Advantech's next-generation driver package, delivers higher performance, compatibility, and reliability through a brand new driver and SDK.



Configurable Data Logging / Signal Analysis Software

DataLogger can be leveraged to help engineers perform data logging, recording, and visualization, while SignalMeter includes scope, AC performance, and DC performance functions to assist engineers with signal analysis.

Digital Data

Analog I/O and Multifunction Card Selection Guide

Category			Multifunction & Analog Input						
Sampling / Updating			Multiplexer						
Part Number			PCI-1710U/ 1710UL	PCI-1710HGU	PCI-1711U/ 1711UL	PCI-1712/ 1712L	PCI-1718HDU	PCI-1713U	PCI-1715U
Analog Input	Resolution		12-bit	12-bit	12-bit	12-bit	12-bit	12-bit	12-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	16 SE	16 SE/8 diff.	16 SE/8 diff.	32 SE/16 diff.	32 SE/16 diff.
	Onboard FIFO		4,096 samples	4,096 samples	1,024 samples	1,024 samples	1,024 samples	4,096 samples	1,024 samples
	Sampling Rate		100 kS/s	100 kS/s	100 kS/s	1 MS/s	100 kS/s	100 kS/s	500 kS/s
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01 V	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V
		Bipolar Inputs	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V
		Configurable Per Channel	✓	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/ External Pulse	✓	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	✓	-	-	-
		Advanced Trigger	-	-	-	✓	-	-	-
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	-	-	-	Bus mastering	-	-	Bus mastering
Analog Output	Resolution		12-bit	12-bit	12-bit	12-bit	12-bit	-	-
	Channels		2 (PCI-1710U only)	2	2 (PCI-1711U only)	2 (PCI-1712 only)	1	-	-
	Onboard FIFO		-	-	-	32,768 samples	-	-	-
	Output Range		0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10 V	-	-
	Output Rate		Static update	Static update	Static update	1 MHz	Static update	-	-
	DMA Transfer		-	-	-	✓	-	-	-
Digital I/O	Input Channels		16	16	16	16 (shared)	16	-	-
	Output Channels		16	16	16		16	-	-
Timer/ Counter	Channels		1	1	1	3	1	-	-
	Resolution		16-bit	16-bit	16-bit	16-bit	16-bit	-	-
	Max. Input Frequency		10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	-	-
Isolation Voltage			-	-	-	-	-	2,500 V_{DC}	2,500 V_{DC}
Auto Calibration			-	-	-	✓	-	-	-
Board ID Switch			✓	✓	✓	-	✓	-	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			68-pin SCSI	68-pin SCSI	68-pin SCSI	68-pin SCSI	DB37	DB37	DB37
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓	✓
	WinCE		✓	-	-	-	-	✓	-
	Linux		✓	✓	✓	✓	✓	✓	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	WinCE		✓	-	-	-	-	-	-
	Linux		-	-	✓	-	-	-	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓

* All channels should be set to the same range.
✓: supported, - : not supported, △ : optional

Category			Multifunction & Analog Input						
Sampling / Updating			Multiplexer					Simultaneous Sampling	
Part Number			PCI-1716/ 1716L	PCI-1718HDU	PCI-1742U	PCI-1741U	PCI-1747U	PCI-1714U/ 1714UL	PCI-1706U
Analog Input	Resolution		16-bit	12-bit	16-bit	16-bit	16-bit	12-bit	16-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	64 SE/32 diff.	4 SE	8 diff.
	Onboard FIFO		1,024 samples	1,024 samples	1,024 samples	1,024 samples	1,024 samples	32,768/8,192 samples	8,192 samples
	Sampling Rate		250 kS/s	100 kS/s	1 MS/s	200 kS/s	250 kS/s	30/10 MS/s	250 kS/s
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V*	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	-	-
		Bipolar Inputs	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V*	±10, 5, 2.5, 1.25, 0.625 V	±5, 2.5, 1, 0.5 V	±10, 5, 2.5, 1.25 V
		Configurable Per Channel	✓	✓	✓	-	✓	✓	✓
	Trigger Modes	Pacer/Software/ External Pulse	✓	✓	✓	✓	Pacer/software	✓	✓
		Analog Slope	-	-	-	-	-	✓	✓
		Advanced Trigger	-	-	-	-	-	✓	✓
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
		DMA	Bus mastering	-	Bus mastering	-	Bus mastering	Bus mastering	✓
Analog Output	Resolution		16-bit	12-bit	16-bit	16-bit	-	-	12-bit
	Channels		2 (PCI-1716 only)	1	2	1	-	-	2
	Onboard FIFO		-	-	-	-	-	-	-
	Output Range		0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	±5, ±10 V	-	-	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20, 0 ~ 24, 4 ~ 20 mA
	Output Rate		Static update	Static update	Static update	Static update	-	-	Static update
	DMA Transfer		-	-	-	-	-	-	-
Digital I/O	Input Channels		16	16	16	16	-	-	16 (shared)
	Output Channels		16	16	16	16	-	-	
Timer/ Counter	Channels		1	1	1	1	-	-	2
	Resolution		16-bit	16-bit	16-bit	16-bit	-	-	32-bit
	Max. Input Frequency		10 MHz	10 MHz	10 MHz	10 MHz	-	-	10 MHz
Isolation Voltage			-	-	-	-	-	-	-
Auto Calibration			✓	-	✓	✓	✓	✓	✓
Board ID Switch			✓	✓	✓	✓	✓	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			68-pin SCSI	DB37	68-pin SCSI	68-pin SCSI	68-pin SCSI	4 x BNC	68-pin SCSI
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	✓	-	-
	Linux		✓	✓	✓	✓	✓	✓	✓
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-	-
	Linux		-	-	-	✓	✓	✓	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓

* All channels should be set to the same range.
✓: supported, - : not supported, △ : optional

Analog I/O and Multifunction Card Selection Guide





Category			Multifunction & Analog Output				
Sampling / Updating			Static Update				Dynamic Update
Part Number			PCI-1713U	PCI-1727U	PCI-1724U	PCI-1723	PCI-1721
Analog Input	Resolution		12-bit	-	-	-	-
	Channels		32 SE/16 diff.	-	-	-	-
	Onboard FIFO		4,096 samples	-	-	-	-
	Sampling Rate		100 kS/s	-	-	-	-
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	-	-	-	-
		Bipolar Inputs	±10, 5, 2.5, 1.25, 0.625 V	-	-	-	-
		Configurable Per Channel	✓	-	-	-	-
	Trigger Modes	Pacer/ Software/ External Pulse	✓	-	-	-	-
		Analog Slope	-	-	-	-	-
		Advanced Trigger	-	-	-	-	-
	Data Transfer Modes	Software	✓	-		-	-
		DMA	-	-	-	-	-
Analog Output	Resolution		-	14-bit	14-bit	16-bit	16-bit
	Channels		-	12	32	8	4 (waveform output)
	Onboard FIFO		-	-	-	-	1,024 samples
	Output Range		-	±10, 0 ~ 20 mA	±10, 0 ~ 20 mA	±10, 0 ~ 20, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20, 4 ~ 20 mA
	Output Rate		-	Static update	Static update	Static update	10 MHz
	DMA Transfer		-	-	-	-	Bus mastering
Digital I/O	Input Channels		-	16	-	16 (shared)	16 (shared)
	Output Channels		-	16	-		
Timer/ Counter	Channels		-	-	-	-	1
	Resolution		-	-	-	-	16-bit
	Max. Input Frequency		-	-	-	-	10 MHz
Isolation Voltage			2,500 V_{DC}	-	1,500 V_{DC}	-	-
Auto Calibration			-	-	-	✓	✓
Board ID Switch			-	✓	✓	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			DB37	2 x 2-pin DB37	DB62	68-pin SCSI	68-pin SCSI
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓
	WinCE		✓	-	✓	-	-
	Linux		✓	✓	✓	✓	✓
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-
	Linux		-	✓	✓	-	✓
LabVIEW Driver			✓	✓	✓	✓	✓

* 80 kHz on Pentium® 4-based (or higher) systems.
** SS: Single DMA channel, single A/D channel scan.
✓: supported, - : not supported, △ : optional

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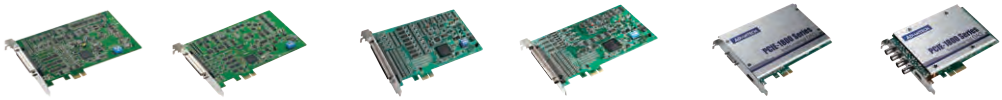

Category			Multifunction & Analog Input					
Sampling / Updating			Multiplexer		Simultaneous Sampling			
Part Number			PCIE-1810	PCIE-1816/H	PCIE-1812	PCIE-1813	PCIE-1802/ 1802L	PCIE-1840/ 1840L
Analog Input	Resolution		12-bit	16-bit	16-bit	26-bit	24-bit	16-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	8 diff.	4 diff.	8 diff./ 4 diff.	4 SE
	Onboard FIFO		4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples	1 G samples
	Sampling Rate		500 kS/s	500 KSPS/ 1MSPS	250 kS/s	38.4 kS/s	216 kS/s	125/80 MSPS
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	±31.25 mV/V, ±62.5 mV/V, ±125 mV/V, ±250 mV/V, ±500 mV/V, and ±1 V/V (bridge inputs)	-	-
		Bipolar Inputs	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10 V, ±5 V, ±2.5 V, ±1.25 V, ±625 mV, ±312.5 mV	±0.2, ±0.5, ±1, ±2, ±5, ±10 V	0.2, 0.4, 1, 2, 4, 10, 20 Vpp
		Configurable Per Channel	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/ Software/ External Pulse	✓	✓	✓	✓	✓	✓
		Analog Slope	✓	✓	✓	✓	✓	✓
		Advanced Trigger	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop
	Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓
		DMA	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering
Analog Output	Resolution		12-bit	16-bit	16-bit	16-bit	-	-
	Channels		2 (waveform output)	2 (waveform output)	2 (waveform output)	2 (waveform output)	-	-
	Onboard FIFO		4,096 samples	4,096 samples	4,096 samples	4,096 samples	-	-
	Output Range		0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	-	-
	Output Rate		500 kS/s	3 MHz	3 MHz	3 MHz	-	-
	DMA Transfer		Bus mastering	Bus mastering	Bus mastering	Bus mastering	-	-
Digital I/O	Input Channels		24 (shared)	24 (shared)	32 (shared)	32 (shared)	1	-
	Output Channels						2	
Timer/ Counter	Channels		2	2	4 (encoder included)	4 (encoder included)	-	-
	Resolution		32-bit	32-bit	32-bit	32-bit	-	-
	Max. Input Frequency		10 MHz	10 MHz	10 MHz	10 MHz	-	-
Isolation Voltage			-	-	-	-	-	-
Auto Calibration			✓	✓	✓	✓	✓	✓
Board ID Switch			✓	✓	✓	✓	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			68-pin SCSI	68-pin SCSI	100-pin SCSI (female)	100-pin SCSI (female)	1 x 19-pin MINI SCSI (for AI) 1 x HDMI (for Ext. clock and trigger)	4 x BNC (for AI) 1 x HDMI (for Ext. clock and trigger)
Legacy Driver	Windows XP/2000		-	-	-	-	-	-
	WinCE		-	-	-	-	-	-
	Linux		-	-	-	-	-	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	-	-
	WinCE		-	-	-	-	-	-
	Linux		-	-	-	-	-	-
LabVIEW Driver			✓	✓	✓	✓	-	-

* 80 kHz on Pentium® 4-based (or higher) systems.
** SS: Single DMA channel, single A/D channel scan.
✓: supported, - : not supported, △ : optional

Digital I/O and Counter Card Selection Guide






Category			Non-Isolated Digital I/O					
Bus			PCI					
Part Number			PCI-1735U	PCI-1737U	PCI-1739U	PCI-1751	PCI-1753	PCI-1757UP
TTL DI/O	Input Channels		32	24 (shared)	48 (shared)	48 (shared)	96 (shared)	24 (shared)
	Output Channels		32					
	Output Channel	Sink Current	24 mA @ 0.5 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.44 V	24 mA @ 0.5 V
		Source Current	15 mA @ 2.0 V	15 mA @ 2.4 V	15 mA @ 2.4 V	15 mA @ 2.4 V	24 mA @ 3.76 V	24 mA @ 3.7 V
Isolated Digital I/O	Input	Channels	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-
		Input Range	-	-	-	-	-	-
	Output	Channels	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-
		Output Range	-	-	-	-	-	-
		Max. Sink Current	-	-	-	-	-	-
Timer/ Counter	Channels		3	-	-	3	-	-
	Resolution		16-bit	-	-	16-bit	-	-
	Max. Input Frequency		10 MHz	-	-	10 MHz	-	-
Advanced Function	Pattern Match		-	-	-	-	✓	-
	Change of State		-	-	-	-	✓	-
	Board ID Switch		✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		-	-	-	-	-	-
	Output Status Read Back		✓	✓	✓	✓	✓	✓
	Dry/Wet Contact*		-	✓	✓	✓	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	120 x 65 mm (4.7" x 2.5")
Connector			5 x 20-pin	1 x 50-pin	2 x 50-pin	68-pin SCSI	100-pin SCSI	1 x DB25
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-
	Linux		✓	✓	✓	✓	✓	✓
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-
	Linux		-	-	-	✓	-	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, - : not supported, △ : optional

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Category			Isolated Digital I/O				
Bus			PCI Express				
Part Number			PCIE-1730/1730H	PCIE-1752	PCIE-1754	PCIE-1756/ 1756H	PCIE-1760
TTL DI/O	Input Channels		16	-	-	-	-
	Output Channels		16	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.5 V	-	-	-	-
		Source Current	15 mA @ 2.4 V	-	-	-	-
Isolated Digital I/O	Input	Channels	16	-	64	32	8
		Isolation Voltage	2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}
		Input Range	10 ~ 30 V_{DC}	-	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}	4.5 ~ 12 V_{DC}
	Output	Channels	16 (sink)	64 (sink)	-	32 (sink)	6 x Form A 2 x Form C
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}
		Output Range	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	-	5 ~ 40 V_{DC}	1 A @ 125 V_{AC} 2 A @ 30 V_{AC}
		Max. Sink Current	500 mA	500 mA	-	500 mA	
Timer/ Counter	Channels		-	-	-	-	8 x UP CTR 2 x PWM
	Resolution		-	-	-	-	16-bit
	Max. Input Frequency		-	-	-	-	500 Hz
Advanced Function	Pattern Match		-	-	-	-	✓
	Change of State		-	-	-	-	✓
	Board ID Switch		✓	✓	✓	✓	✓
	Channel-Freeze Function		✓	✓	-	✓	-
	Output Status Read Back		✓	✓	-	✓	✓
	Dry/Wet Contact*		✓	-	-	-	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			1 x DB37 4 x 20-pin	100-pin SCSI	100-pin SCSI	100-pin SCSI	1 x DB37
Legacy Driver	Windows XP/2000		-	-	-	-	-
	WinCE		-	-	-	-	-
	Linux		-	-	-	-	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-
	Linux		-	-	-	-	✓
LabVIEW Driver			✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, - : not supported, △ : optional

Digital I/O and Counter Card Selection Guide





Category			Isolated Digital I/O			Non-Isolated Digital I/O	
Bus			PCI Express				
Part Number			PCIE-1761H	PCIE-1762H	PCIE-1765	PCIE-1751	PCIE-1753
TTL DI/O	Input Channels		-	-	-	48 (shared)	96 (shared)
	Output Channels		-	-	-		
	Output Channel	Sink Current	-	-	-	15 mA @ 0.8 V	15 mA @ 0.8 V
		Source Current	-	-	-	15 mA @ 2.0 V	15 mA @ 2.0 V
Isolated Digital I/O	Input	Channels	8	16	-	-	-
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	-	-	-
		Input Range	4.5 ~ 12 V_{DC}	10 ~ 50 V_{DC}	-	-	-
	Output	Channels	6 x Form A 2 x Form C	16**	12 Form C	-	-
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	-	-
		Output Range	1 A @ 125 V_{AC}	0.25 A @ 250 V_{AC}	1A @ 125 V_{AC}	-	-
		Max. Sink Current	2 A @ 30 V_{DC}	2 A @ 30 V_{DC}	2A @ 30 V_{DC}	-	-
Timer/ Counter	Channels		8 x CTR 2 x PWM	-	-	3	-
	Resolution		16-bit (2,500 isolation)	-	-	32-bit	-
	Max. Input Frequency		500 Hz for CTR	-	-	10 MHz	-
Advanced Function	Pattern Match		✓	-	-	✓	✓
	Change of State		✓	-	-	✓	✓
	Board ID Switch		✓	✓	-	✓	✓
	Channel-Freeze Function		-	✓	-	-	-
	Output Status Read Back		✓	✓	-	✓	✓
	Dry/Wet Contact*		-	-	-	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	168 x 100 mm (6.6" x 3.9")	168 x 100 mm (6.6" x 3.9")
Connector			1 x DB37	1 x DB62	1 x DB37	68-pin SCSI	68-pin SCSI
Legacy Driver	Windows XP/2000		-	✓	-	-	-
	WinCE		✓	✓	-	-	-
	Linux		-	✓	-	-	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-
	Linux		-	✓	-	-	-
LabVIEW Driver			✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.
** Jumper selectable Form A / Form B type relay output
✓: supported, - : not supported, △ : optional

Category			Isolated Digital I/O					
Bus			PCI					
Part Number			PCI-1730U	PCI-1733	PCI-1734	PCI-1750/ 1750SO	PCI-1752U/ 1752USO	PCI-1754
TTL DI/O	Input Channels		16	-	-	-	-	-
	Output Channels		16	-	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.5 V	-	-	-	-	-
		Source Current	15 mA @ 2.4 V	-	-	-	-	-
Isolated Digital I/O	Input	Channels	16	32	-	16	-	64
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	-	2,500 V_{DC}	-	2,500 V_{DC}
		Input Range	5 ~ 30 V_{DC}	5 ~ 30 V_{DC}	-	5 ~ 50 V_{DC}	-	10 ~ 50 V_{DC}
	Output	Channels	16 (sink)	-	32 (sink)	16 (sink/source)	64 (sink/source)	-
		Isolation Voltage	2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	-
		Output Range	5 ~ 40 V_{DC}	-	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	-
		Max. Current	300 mA	-	200 mA	200 mA	200 mA	-
Timer/ Counter	Channels		-	-	-	1	-	-
	Resolution		-	-	-	16-bit	-	-
	Max. Input Frequency		-	-	-	1 MHz	-	-
Advanced Function	Pattern Match		-	-	-	-	-	-
	Change of State		-	-	-	-	-	-
	Board ID Switch		✓	✓	✓	-	✓	✓
	Channel-Freeze Function		✓	-	-	-	✓	-
	Output Status Read Back		✓	-	✓	-	✓	-
	Dry/Wet Contact*		✓	✓	-	✓	-	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			1 x DB37 4 x 20-pin	1 x DB37	1 x DB37	1 x DB37	100-pin SCSI	100-pin SCSI
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓
	WinCE		✓	-	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓	✓
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-
	Linux		✓	-	-	✓	✓	-
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, - : not supported, △ : optional

Digital I/O and Counter Card Selection Guide

Category			Isolated Digital I/O						
Bus			PCI						
Part Number			PCI-1756	PCI-1758UDI	PCI-1758UDO	PCI-1758UDIO	PCI-1760U	PCI-1761	PCI-1762
TTL DI/O	Input Channels		-	-	-	-	-	-	-
	Output Channels		-	-	-	-	-	-	-
	Output Channel	Sink Current	-	-	-	-	-	-	-
		Source Current	-	-	-	-	-	-	-
Isolated Digital I/O	Input	Channels	32	128	-	64	8	8	16**
		Isolation Voltage	2,500 V_{DC}	2,500 V_{RMS}	-	2,500 V_{DC}	2,500 V_{DC}	3,750 V_{DC}	2,500 V_{DC}
		Input Range	10 ~ 50 V_{DC}	5 ~ 25 V_{DC}	-	5 ~ 25 V_{DC}	4.5 ~ 12 V_{DC}	5 ~ 50 V_{DC}	10 ~ 50 V_{DC}
	Output	Channels	32 (Sink)	-	128	64	6 x Form A 2 x Form C	4 x Form A 4 x Form C	16
		Isolation Voltage	2,500 V_{DC}	-	2,500 V_{RMS}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}
		Output Range	5 ~ 40 V_{DC}	-	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	1 A @ 125 V_{AC} 2 A @ 30 V_{DC}	8 A @ 250 V_{AC} 2 A @ 30 V_{DC}	0.25 A @ 250 V_{AC} 2 A @ 30 V_{DC}
		Max. Sink Current	200 mA	-	90 mA	90 mA			
Timer/Counter	Channels		-	-	-	-	8 x CTR 2 x PWM	-	-
	Resolution		-	-	-	-	16-bit (2,500 isolation)	-	-
	Max. Input Frequency		-	-	-	-	500 Hz for CTR	-	-
Advanced Function	Pattern Match		-	-	-	-	✓	-	-
	Change of State		-	-	-	-	✓	-	-
	Board ID Switch		✓	✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		✓	-	-	-	-	-	✓
	Output Status Read Back		✓	-	✓	✓	✓	✓	✓
	Dry/Wet Contact*		-	-	-	-	-	-	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	1 x DB37	1 x DB37	1 x DB62
Legacy Driver	Windows XP/2000		-	✓	✓	✓	-	✓	✓
	WinCE		✓	✓	✓	✓	✓	✓	✓
	Linux		-	✓	✓	✓	-	✓	✓
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-	-
	Linux		-	✓	✓	✓	-	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.
** Jumper selectable Form A / Form B type relay output
✓: supported, - : not supported, △ : optional



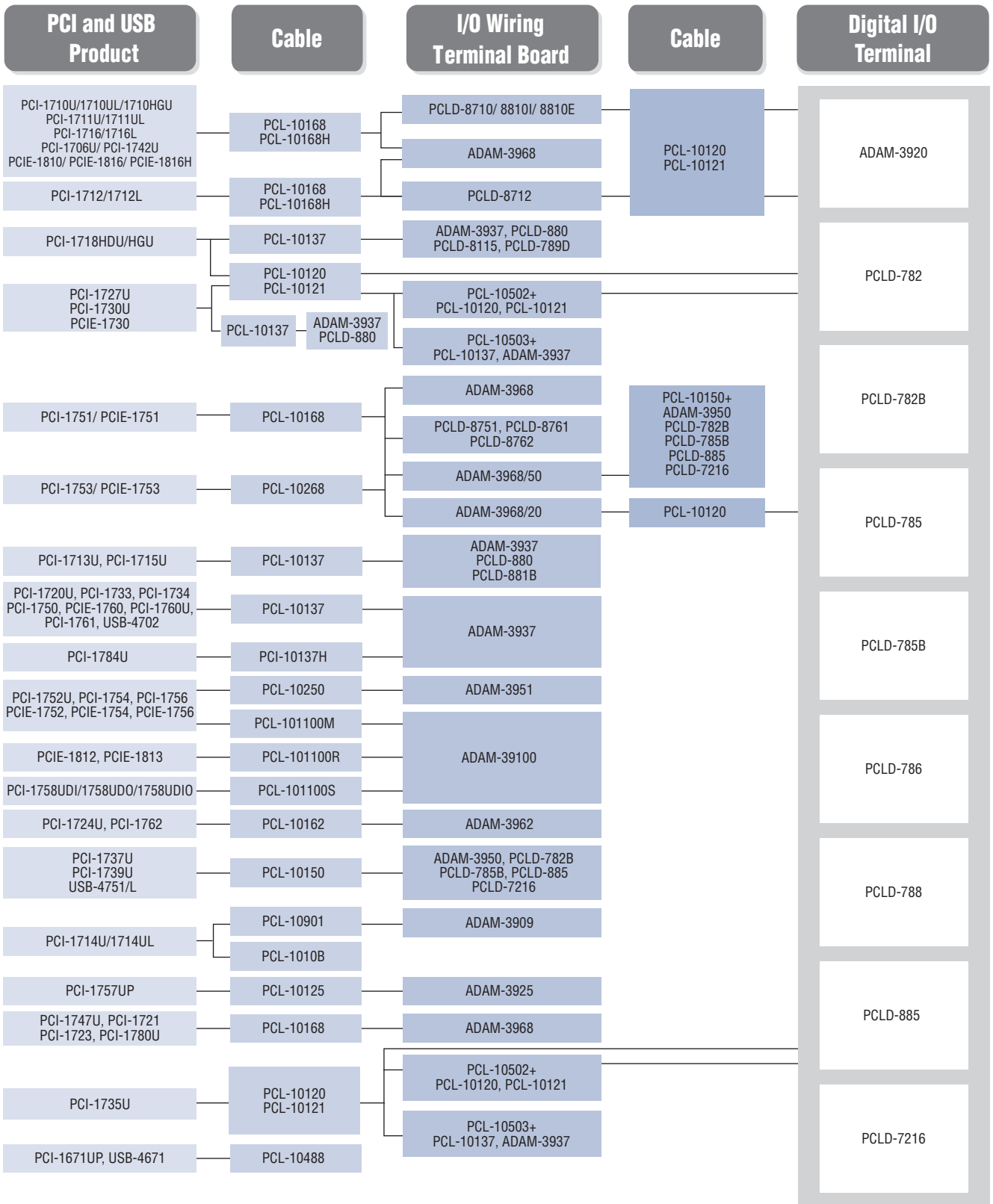



Category			Isolated Digital I/O				Counter	
Bus			PC/104		PCI-104		PCI	PC/104
Part Number			PCM-3725	PCM-3730	PCM-3730I	PCM-3761I	PCI-1780U	PCM-3780
TTL DI/O	Input Channels		8	16	-	-	8	24 (shared)
	Output Channels		8	16	-	-	8	
	Output Channel	Sink Current	-	0.5 V @ 8 mA	-	-	24 mA @ 0.5 V	24 mA @ 0.5 V
		Source Current	-	0.4 mA @ 2.4 V	-	-	15 mA @ 2.4 V	15 mA @ 2.0 V
Isolated Digital I/O	Input	Channels	8	8	16	8	-	-
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	-	-
		Input Range	10 ~ 50 V_{DC}	5 ~ 24 V_{DC}	5 ~ 30 V_{DC}	5 ~ 30 V_{DC}	-	-
	Output	Channels	8 x Form C	8	16	8 x Form C	-	-
		Isolation Voltage	2,000 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,000 V_{DC}	-	-
		Output Range	0.25A @ 240 V_{DC} 1A @ 30 V_{DC}	5 ~ 40 V_{DC}	5 ~ 30 V_{DC}	0.25 A @ 250 V_{AC} 2 A @ 30 V_{DC}	-	-
		Max. Sink Current		200 mA	300 mA		-	-
Timer/ Counter	Channels		-	-	-	-	8 x CTR	2
	Resolution		-	-	-	-	16-bit	16-bit
	Max. Input Frequency		-	-	-	-	20 MHz	20 MHz
Advanced Function	Pattern Match		-	-	-	-	-	-
	Change of State		-	-	-	-	-	-
	Board ID Switch		-	-	-	✓	✓	-
	Channel-Freeze Function		-	-	-	-	-	-
	Output Status Read Back		-	-	-	✓	-	-
	Dry/Wet Contact*		-	-	-	-	-	-
Dimensions (L x H)			96 x 90 mm (3.8" x 3.5")	96 x 90 mm (3.8" x 3.5")	96 x 90 mm (3.8" x 3.5")	96 x 90 mm (3.8" x 3.5")	175 x 100 mm (6.9" x 3.9")	96 x 90 mm (3.8" x 3.5")
Connector			1 x 20-pin 1 x 50-pin	3 x 20-pin	2 x 20-pin	1 x 20-pin 1 x 50-pin	68-pin SCSI	1 x 50-pin 1 x 20-pin
Legacy Driver	Windows XP/2000		✓	✓	✓	✓	✓	✓
	WinCE		✓	✓	✓	✓	-	✓
	Linux		✓	✓	✓	✓	✓	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	WinCE		-	-	-	-	-	-
	Linux		-	-	-	✓	-	-
LabVIEW I/O Driver			✓	✓	✓	✓	✓	✓

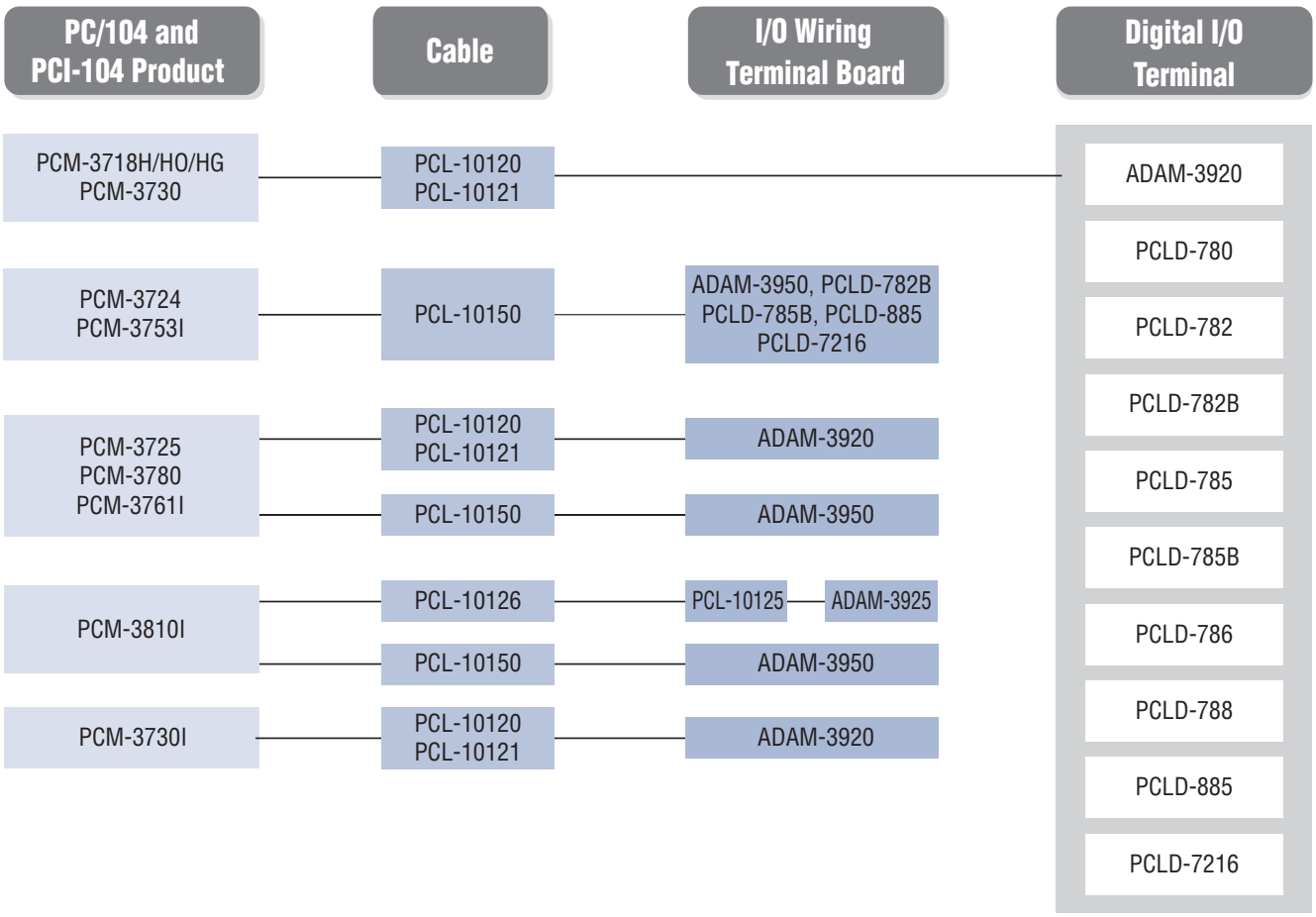
* Simultaneous dry/wet contact within a group is acceptable.
** Jumper-selectable Form A/B-type relay output.
✓: supported, - : not supported, △ : optional

Terminal Board Selection Guide

Recommended Cables, I/O Wiring Terminal Boards, and Isolated Digital I/O Terminals for Connecting to PC/104 and PCI-104 DAQ Products



Recommended Cables, I/O Wiring Terminal Boards, and Isolated Digital I/O Terminals for Connecting to PC/104 and PCI-104 DAQ Products



Cable Accessories

Part Number	Description
PCL-1010B-1E	BNC to BNC wiring cable, 1 m
PCL-101100-1E	100-pin SCSI high-speed cable, 1 m
PCL-101100R-1E	100-pin SCSI shielded cable, 1 m
PCL-101100R-2E	100-pin SCSI shielded cable, 2 m
PCL-101100S-1E	100-pin mini SCSI cable, 1 m
PCL-101100S-2E	100-pin mini SCSI cable, 2 m
PCL-101100S-3E	100-pin mini SCSI cable, 3 m
PCL-101100M-3E	100-pin SCSI shielded cable, 3 m
PCL-10120-0.4E	20-pin flat cable, 0.4 m
PCL-10120-1E	20-pin flat cable, 1 m
PCL-10120-2E	20-pin flat cable, 2 m
PCL-10121-2E	20-pin shielded cable, 2 m
PCL-10125-1E	DB25 cable, 1 m
PCL-10125-3E	DB25 cable, 3 m
PCL-10126-0.2E	26-pin to DB25(f) flat cable, 0.2 m
PCL-10137-1E	DB37 cable, 1 m
PCL-10137-2E	DB37 cable, 2 m
PCL-10137-3E	DB37 cable, 3 m
PCL-10137H-1E	DB37 high-speed cable, 1 m

Part Number	Description
PCL-10137H-3E	DB37 high-speed cable, 3 m
PCL-10141-0.2E	40-pin to DB37(f) flat cable, 0.2 m
PCL-10150-1.2E	50-pin flat cable, 1.2 m
PCL-10162-1E	DB62 cable, 1 m
PCL-10162-3E	DB62 cable, 3 m
PCL-10168-1E	68-pin SCSI shielded cable, 1 m
PCL-10168-2E	68-pin SCSI shielded cable, 2 m
PCL-10168H-1E	68-pin SCSI shielded cable with noise rejection, 1 m
PCL-10168H-2E	68-pin SCSI shielded cable with noise rejection, 2 m
PCL-10250-1E	100-pin SCSI to 2 x 50-pin SCSI cable, 1 m
PCL-10250-2E	100-pin SCSI to 2 x 50-pin SCSI cable, 2 m
PCL-10268-1E	100-pin SCSI to 2 x 68-pin SCSI cable, 1 m
PCL-10268-2E	100-pin SCSI to 2 x 68-pin SCSI cable, 2 m
PCL-10488-2	IEEE-488 cable, 2 m
PCL-10502-AE	Dual 20-pin to PC slot plate extender
PCL-10503-AE	Dual 20-pin to DB37 adapter
PCL-10901-3E	DB9 to PS/2 cable, 3 m

DAQ-Embedded Computer Selection Guide




Category			Multifunction Platform			
CPU			Intel Celeron 1047UE	Intel Core™ i3-3217UE	Intel Celeron 1047UE	Intel Core™ i3-3217UE
Memory			DDR3 4GB			
Part Number			MIC-1810-S4A1E	MIC-1810-S6A1E	MIC-1816-S4A1E	MIC-1816-S6A1E
Analog Input	Resolution		12-bit	12-bit	16-bit	16-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.
	Onboard FIFO		4,096 samples	4,096 samples	4,096 samples	4,096 samples
	Sampling Rate		500 kS/s	500 kS/s	1MSPS	1MSPS
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V
		Bipolar Inputs	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V
		Configurable Per Channel	✓	✓	✓	✓
	Trigger Modes	Pacer/ Software/ External Pulse	✓	✓	✓	✓
		Analog Slope	✓	✓	✓	✓
		Advanced Trigger	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop
	Data Transfer Modes	Software	✓	✓	✓	✓
		DMA	Bus mastering	Bus mastering	Bus mastering	Bus mastering
Analog Output	Resolution		12-bit	12-bit	16-bit	16-bit
	Channels		2 (waveform output)	2 (waveform output)	2 (waveform output)	2 (waveform output)
	Onboard FIFO		4,096 samples	4,096 samples	4,096 samples	4,096 samples
	Output Range		0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V
	Output Rate		500 kHz	500 kHz	3 MHz	3 MHz
	DMA Transfer		Bus mastering	Bus mastering	Bus mastering	Bus mastering
Digital I/O	Input Channels		24 (shared)	24 (shared)	24 (shared)	24 (shared)
	Output Channels					
Timer/ Counter	Channels		2	2	2	2
	Resolution		32-bit	32-bit	32-bit	32-bit
	Max. Input Frequency		10 MHz	10 MHz	10 MHz	10 MHz
Isolation Voltage			-	-	-	-
Auto Calibration			✓	✓	✓	✓
Board ID Switch			✓	✓	✓	✓
Dimensions (L x H)			165 x 130 x 59 mm (6.49" x 5.12" x 2.32")	165 x 130 x 59 mm (6.49" x 5.12" x 2.32")	165 x 130 x 59 mm (6.49" x 5.12" x 2.32")	165 x 130 x 59 mm (6.49" x 5.12" x 2.32")
Legacy Driver	Windows XP/2000		-	-	-	-
	WinCE		-	-	-	-
	Linux		-	-	-	-
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓
	WinCE		-	-	-	-
	Linux		-	-	-	-
LabVIEW Driver			✓	✓	✓	✓

* 80 kHz on Pentium® 4-based (or higher) systems.
** SS: Single DMA channel, single A/D channel scan.
✓: supported, - : not supported, △ : optional

Signal Conditioner Selection Guide



Model		ADAM-3011	ADAM-3013	ADAM-3014
Signal Type		Thermocouple	RTD	DC input
Channel		1	1	1
Input Type	Voltage	-	-	±10 mV, ±50 mV, ±100 mV, ±0.5 V, ±1 V, ±5 V, ±10 V, 0 ~ 10 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 0.5 V, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V
	Current	-	-	0 ~ 20, ±20 mA
	Others	J, K, T, E, S, R, B Type	Pt or Ni	-
Output	Voltage	0 ~ 10 V	0 ~ 5, 0 ~ 10 V	0 ~ 10, ±5, ±10 V
	Current	-	0 ~ 20 mA	-




Model		ADAM-3016	ADAM-3017	ADAM-3112	ADAM-3114
Signal Type		Strain Gauge	IEPE input	AC/DC input	Current input
Channel		1	1	1	1
Input Type	Voltage	±10, ±20, ±30, ±100 mV (electrical voltage)	4 ~ 24 V (IEPE sensor with up to 10 mA current source)	AC: 0 ~ 120, 0 ~ 250, 0 ~ 400 V DC: 0 ~ 120, 0 ~ 250, 0 ~ 400 V	-
	Current	-	-	-	AC: 0 ~ 5 A_{rms} DC: 0 ~ 5 A
	Others	-	-	-	-
Output	Voltage	0 ~ 10, ±5, ±10 V	DC Couple: 4~24 V AC Couple: ±11 V	0 ~ 5 V_{DC}	0 ~ 5 V_{DC}
	Current	-	-	-	-

USB Digital I/O Module and USB Hub Selection Guide

Category			USB 3.0 Isolated Digital I/O					
Model			USB-5830-AE	USB-5856-AE	USB-5850-AE	USB-5855-AE	USB-5860-AE	USB-5862-AE
Isolated Digital I/O	Input	Channels	16	32	16	32	8	16
		Input Range	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)
		Isolation Protection	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}
	Output	Channels	16	32	-	-	-	-
		Load Voltage	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	-	-	-	-
		Load Current	350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C	350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C	-	-	-	-
		Isolation Protection	2,500 V_{DC}	2,500 V_{DC}	-	-	-	-
		Opto-Isolator Response Time	100 µs	100 µs	-	-	-	-
Relay Output	PhotoMOS SPST(Form A)	Channels	-	-	8	16	-	-
		Load Voltage	-	-	60V (AC peak or DC)	60V (AC peak or DC)	-	-
		Load Current	-	-	1.2A/ch	1.2A/ch	-	-
		Isolation Protection	-	-	1,500 V_{DC}	1,500 V_{DC}	-	-
		Response Time	-	-	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	-	-
	Relay Output Form A	Channels	-	-	-	-	8	16
		Contact Rating (resistive)	-	-	-	-	2A @ 250 V_{AC}, 2A @ 30 V_{DC}	2A @ 250 V_{AC}, 2A @ 30 V_{DC}
		Max. Switching Power	-	-	-	-	500 VA, 60 W	500 VA, 60 W
		Max. Switching Voltage	-	-	-	-	270 V_{AC}, 125 V_{DC}	270 V_{AC}, 125 V_{DC}
		Response Time	-	-	-	-	Operating time: 10 ms (max.) Release time: 5 ms (max.)	Operating time: 10 ms (max.) Release time: 5 ms (max.)
Dimensions			120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")
Board ID Switch			✓	✓	✓	✓	✓	✓
Operating Temperature			0 ~ 60 °C (32 ~ 140 °F)					
Supported Operating Systems			Windows XP/7/8/10 and Linux					

✓: supported, - : not supported, △ : optional




Category			USB 2.0 Digital I/O			
Model			USB-4750-AE	USB-4751-AE	USB-4751L-AE	USB-4761-AE
DI/O	Input	Channels	16	48 (Shared)	24 (Shared)	8
		Input Range	Logic 0: 2 V max. Logic 1: 5 V min. (60 V max.)	Logic 0: 0.8 V max. Logic 1: 2 V min. (5 V/TTL)	Logic 0: 0.8 V max. Logic 1: 2 V min. (5 V/TTL)	Logic 0: 2 V max. Logic 1: 5 V min. (30 V max.)
		Isolation Protection	2,500 V_{DC}	-	-	2,500 V_{DC}
	Output	Channels	16	48 (Shared)	24 (Shared)	-
		Load Voltage	5 ~ 40 V_{DC}	Logic 0: 0.5 V max. Logic 1: 3.8 V min	Logic 0: 0.5 V max. Logic 1: 3.8 V min	-
		Load Current	200mA/ch (sink)	Sink: 12 mA @ 0.5 V Source: 5 mA @ 3.8 V for all channels in high status	Sink: 12 mA @ 0.5 V Source: 5 mA @ 3.8 V for all channels in high status	-
		Isolation Protection	2,500 V_{DC}	-	-	-
		Opto-Isolator Response Time	100 µs	-	-	-
Relay Output		Channels	-	-	-	8 x Form C
		Contact Rating (resistive)	-	-	-	0.25A@250V_{AC}, 1A@30V_{DC}
		Max. Switching Power	-	-	-	62.5 VA, 60 W
		Max. Switching Voltage	-	-	-	250 V_{AC}, 220 V_{DC}
		Response Time	-	-	-	Operating time: 6 ms (max.) Release time: 4 ms (max.)
Counter		Channels	2	2	2	-
		Isolation Protection	2,500 V_{DC}	-	-	-
		Max. Input Frequency	1 MHz	8 MHz	8 MHz	-
Dimensions			132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
Supported Operating Systems			Windows XP/7/8/10 and Linux			



Category		Industrial USB Hub		
Model		USB-4620-AE	USB-4622-BE	USB-4630-AE
Connectivity	Ports	1 x Upstream (Type B) 5 x Downstream (Type A)	1 x Upstream (Type B) 5 x Downstream (Type A)	1 x Upstream (Type B) 4 x Downstream (Type A)
	Compatibility	USB 2.0 Full Speed	USB 2.0 High Speed	USB 3.0 SuperSpeed
	Transfer Speed	12 Mbps	480 Mbps	5 Gbps shared by all downstream ports
	Supply Current	500 mA max. per port	500 mA max. per port	External power: 900 mA max. per port USB bus power: 700 mA max. shared by all ports
Isolation Protection		3,000 V_{DC}	-	2,500 V_{DC}
General	Dimensions	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")		
	DC Input	10 ~ 30 V_{DC}		
	Operating Temperature	0 ~ 60°C (32 ~ 140°F)	0 ~ 60°C (32 ~ 140°F)	0 ~ 70°C (32 ~ 158°F)

Multifunction DAQ USB Module Selection Guide

Category			USB 2.0 Multifunction				
Part Number			USB-4702-AE	USB-4704-AE	USB-4711A-AE	USB-4716-AE	USB-4718
Analog Input	Resolution		12-bit	14-bit	12-bit	16-bit	16-bit
	Channels		8 SE/4 diff.	8 SE/4 diff.	16 SE/8 diff.	16 SE/8 diff.	8 diff.
	Onboard FIFO		512 samples	512 samples	1,024 samples	1,024 samples	-
	Sampling Rate		10 kS/s	48 kS/s	150 kS/s	200 kS/s	10 S/s
	Input Ranges	Unipolar Inputs	-	-	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 20, 4 ~ 20 mA Thermocouple J, K , T, E, R, S, B 0 ~ 1, 0 ~ 2.5, 0 ~ 0.015, 0 ~ 0.05, 0 ~ 0.1, 0 ~ 0.5 V
		Bipolar Inputs	±20, 10, 5, 4, 2.5, 1.25, 1 V	±20, 10, 5, 4, 2.5, 1.25, 1 V	±10, 5, 2.5, 1.25 V 0.625 V	±10, 5, 2.5, 1.25 V 0.625 V	-
		Configurable Per Channel	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software	✓	✓	✓	✓	✓
		External Pulse	✓	✓	✓	✓	✓
	Data Transfer	Software	✓	✓	✓	✓	✓
Analog Output	Resolution		12-bit	12-bit	12-bit	16-bit	-
	Channels		2	2	2	2	-
	Output Range		0 ~ 5 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	-
	Output Rate		Static update	Static update	Static update	Static update	-
Digital I/O	Input Channels		8	8	8	8	8 (isolated)
	Output Channels		8	8	8	8	8 (isolated)
Timer/ Counter	Channels		1	1	1	1	-
	Resolution		32-bit	16-bit	16-bit	16-bit	-
	Max. Input Frequency		5 MHz	10 MHz	1 KHz	1 KHz	-
Auto Calibration			✓	✓	✓	✓	-
Dimensions (L x H)			70 x 70 mm (2.76" x 2.76")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
Connector			DB37	Onboard screw terminal	Onboard screw terminal	Onboard screw terminal	Onboard screw terminal
Supported Operating Systems			Windows XP/7/8/10 and Linux				
LabVIEW Driver			✓	✓	✓	✓	✓

✓: supported, - : not supported, △ : optional

Serial Communication Card Selection Guide

Serial Communication Cards

NEW

Bus		PCI Express								
Part Number		PCI-1602	PCI-1602UP	PCI-1604	PCI-1604L	PCI-1610	PCI-1612	PCI-1620	PCI-1622	PCI-1680U
I/O Ports		2	2	2	2	4	4	8	8	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	✓	✓	-
	RS-422	✓	✓	-	-	-	✓	-	✓	-
	RS-485	✓	✓	-	-	-	✓	-	✓	-
	CAN	-	-	-	-	-	-	-	-	✓
Drivers		Windows XP/7/8/10 and Linux								
Protection	ESD	15 kV (air), 8 kV (contact)								8 kV (air), 4 kV (contact)
	Isolation	3,000 V_{DC}	2,500 V_{DC}	3,000 V_{DC}	-	3,000 V_{DC}	3,000 V_{DC}	-	3,000 V_{DC}	1,000 V_{DC}

Bus		PCI Express						
Part Number		PCIE-1602	PCIE-1604	PCIE-1610	PCIE-1612	PCIE-1620	PCIE-1622	PCIE-1680
I/O Ports		2	2	4	4	8	8	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	-
	RS-422	✓	-	-	✓	-	✓	-
	RS-485	✓	-	-	✓	-	✓	-
	CAN	-	-	-	-	-	-	✓
Drivers		Windows XP/7/8/10 and Linux						
Protection	ESD	15 kV (air), 8 kV (contact)						
	Isolation	3,000 V_{DC}	3,000 V_{DC}	-	3,000 V_{DC}	-	3,000 V_{DC}	2,500 V_{DC}

✓: supported, - : not supported, △ : optional

Serial Communication Card Selection Guide

PC/104 Communication Modules







Bus		PC/104						
Part Number		PCM-3680	PCM-3660	PCM-3610	PCM-3612	PCM-3614	PCM-3618	PCM-3641
I/O Ports		2	2	2	2	4	8	4
Communication Interfaces	Ethernet	-	✓	-	-	-	-	-
	RS-232	-	-	✓	-	-	-	✓
	RS-422	-	-	✓	✓	✓	✓	-
	RS-485	-	-	✓	✓	✓	✓	-
	CAN	✓	-	-	-	-	-	-
Protection	ESD	8 kV (air), 4 kV (contact)						
	Isolation	2,500 V_{DC}	-	2,500 V_{DC}	-	-	-	-

PCI-104 Communication Modules




Bus		PCI-104	
Part Number		PCM-3680I	PCM-3612I
I/O Ports		2	4
Communication Interfaces	Current Loop	-	-
	RS-232	-	V
	RS-422	-	V
	RS-485	-	V
	CAN	V	-
Protection	ESD	8 kV (air), 4 kV (contact)	15 kV (air), 8 kV (contact)
	Isolation	2,500 V_{DC}	-

Bus	MIOe PCI Express	
Part Number	MIOe-3680-AE	MIOe-3674-AE
Protocol	CAN 2.0 A/B	802.3af (PoE)
Ports	2	4 Gigabit Ethernet MAC and PHY ports
Protection	2,500 V_{DC}	ESD 8 kV, EFT 2 kV

Accessories





Part Number		1700018791	OPT4A	OPT8C	OPT8H	OPT8J
Length		30 cm	30 cm	1 m	1 m	1 m
Communication Interfaces	Connector Type	DB37 Male	DB37 Male	DB62 Male	DB62 Male	DB78
	Qty	1	1	1	1	1
	Connector Type	DB25 Male	DB9 Male	DB25 Male	DB9 Male	DB9 Male
	Qty	4	4	8	8	8
Applications		PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C	PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C	PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B	PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B	PCI-1622C, PCIE-1622C

✓: supported, - : not supported, △ : optional

Intelligent Video Solution

Innovative Video Platform with Intelligent Video Analytics

Advantech offers an extensive range of video products, including video capture cards (PCIe, mini PCIe, and M.2) and industrial-grade video processing systems, to meet various market needs. From lecture recording to medical imaging, event broadcasting, live video streaming, and 24-hour surveillance, Advantech's intelligent video platforms are capable of supporting diverse video-related applications. These integrated hardware and software solutions are also pre-installed with intelligent video analysis software and equipped with a powerful software development kit that enables developers to more efficiently implement unique application software, thereby shortening overall development time.

Completed Architecture

Efficient Development

Professional Service

Multiple Applications Supported

Stability Performance

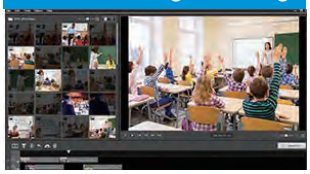
High-Efficiency Video Coding

High Compatibility

Medical Imaging

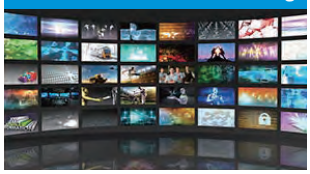
Advantech's video capture cards are designed to deliver precise imaging for medical applications. The inclusion of a powerful software development kit and support for various programming languages allows system integrators to easily develop unique applications.

Video Recording/Streaming



Advantech's video capture cards also support video streaming, specifically multi-stream channel recording and file exporting/merging. This allows hospitals to record and stream video in various formats for medical education and training.

Multi-Platform Broadcasting



Equipped with transcoding and multi-streaming protocols, Advantech's video card solutions can be used to broadcast multimedia content to a wide variety of client devices and facilitate multi-platform streaming operations.

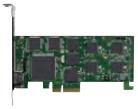
Video Surveillance

Advantech provides a full range of capture card solutions for the video surveillance market. These high-performance cards support diverse video output interfaces to enable flexible support for diverse applications.

DVP Video Capture Card

NEW NEW

Model Name		DVP-7011HE	DVP-7013HE	DVP-7016HE	DVP-7017HE	DVP-7019HE	DVP-7021HE	DVP-7031HE
Video	Compression	SW H.264	SW H.264	S/W H.264	S/W H.264	S/W H.264	S/W H.264	SW H.264
	Channels	1	1	1	1	1	2	4
	Host Interface	PCIe x1 (Gen2)	PCIe x1 (Gen 2)	Mini PCIe x1 (Gen 2)	Mini PCIe x1 (Gen2)	PCIe x1 (Gen1)	PCIe x1 (Gen2)	PCIex4 (Gen2)
	Input Interface	SDI/HDMI/DVI/ VGA/YPbPr/ Composite/ S-Video	HDMI/DVI/ VGA/YPbPr/ Composite/ S-Video	1 x HDMI/DVI/ YPbPr/VGA	1 x SDI	SDI/DVI/ VGA/HDMI/ Composite/ YPbPr/S-video	SDI/DVI/ VGA/HDMI/ Composite/ YPbPr/S-video/ VGA	HDMI
	Max. Display Resolution	1920 x 1080p @ 60/50	1920 x 1080p @ 60/50	1920 x 1080 @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 60/50	1920 x 1080 @ 60/50
	Max. Recording Resolution	1920 x 1080p @ 60/50	1920 x 1080p @ 60/50	1920 x 1080 @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 60/50	1920 x 1080 @ 60/50
	Max. Display Rate	60/50 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)
	Max. Recording Rate	60/50 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)
	Video Outputs	-	HDMI/DVI/ YPbPr/ Composite/ S-Video Loop Through	-	1 x SDI (Loop Through)	-	-	-
Audio	Audio Inputs	1 x SDI, 1 x HDMI, 2 x RCA	1 x HDMI / 2 x RCA	1 x HDMI / 2 x RCA	1 x SDI + 2 x RCA	HDMI/SDI/ Audio (L/R)	2 x HDMI / Audio (L/R)	4 x HDMI
	Format	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz
Watchdog		Yes	Yes	No	NO	-	-	Yes
Physical Characteristic	Operating Temperature	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)
	Storing Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	Dimensions (W x H x D)	107 x 101 mm (4.21" x 3.97")	135 x 69 mm (5.31" x 2.71")	30 x 51 mm (1.18" x 2")	30 x 51 mm (1.18" x 2")	105 x 69 mm (4.13" x 2.71") PCIe Low profile	108 x 85 mm (4.25" x 3.34") PCIe Full Height	168 x 93 mm (6.64" x 3.66")
	Safety	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Operating System	Operating System	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/XPe/ Vista/7/8/8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/ Win8/Win8.1/ Win10; Linux 2.6.14 or higher; 32/64-bit

		NEW	NEW	NEW	NEW	NEW 4K ULTRA HD
							
Model Name		DVP-7033HE	DVP-7035HE	DVP-7635HE	DVP-7011MHE	DVP-7012MHE	DVP-7011UHE
Video	Compression	SW H.264	S/W H.264	H/W H.264	S/W H.264	S/W H.264	S/W H.264
	Channels	4	4	4	1	1	1
	Host Interface	PCIe x4 (Gen2)	PCIe x4 (Gen2)	PCIe x 4	PCIeM.2	PCIeM.2	PCIe x 4
	Input Interface	3G-SDI/HD-SDI/ SDI	TVI/CVI/AHD/ Composite (CVBS)	TVI/CVI/AHD/ Composite (CVBS)	HDMI/DVI/VGA/ YPbPr	SDI	HDMI 2.0
	Max. Display Resolution	1920 x 1080 @ 60/50	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	4096 x 2160p @ 60/50
	Max. Recording Resolution	1920 x 1080 @ 60/50	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	1920 x 1080p @ 30/25	4096 x 2160p @ 60/50
	Max. Display Rate	60/50 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)
	Max. Recording Rate	60/50 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	30/25 fps (NTSC/PAL)	60/50 fps (NTSC/PAL)
	Video Outputs	-	-	-	-	SDI x 1 (Loop through)	-
Audio	Audio Inputs	4 x SDI + 2 x 3.5mm Audio	2 x 3.5mm Audio	-	1 x HDMI / Audio (L/R)	1 x SDI / Audio (L/R)	HDMI/SDI/ Audio (L/R)
	Format	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz	Stereo, 16-bit, 32 ~ 48 kHz
Watchdog		Yes	-	Yes	-	-	Yes
Physical Characteristic	Operating Temperature	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)	-20 ~ 70 °C (-4~ 158 °F)
	Storing Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	Dimensions (W x H x D)	140 x 101 mm (5.51" x 3.97")	128 x 101mm (5.03" x 3.97") PCIe Full Height	150 x 101 mm (5.9" x 3.97")	22 x 60 mm (0.86" x 2.36") M.2 Type B/M	22 x 60 mm (0.86" x 2.36") M.2 Type B/M	145 x 69 mm (5.7" x 2.71") PCIe Low profile
	Safety	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Operating System	Operating System	Windows XP/ XPe/Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/XPe/ Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/XPe/ Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit	Windows XP/ XPe/Vista/7/Win8/ Win8.1/Win10; Linux 2.6.14 or higher; 32/64-bit

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