Product Catalog 2022-2023

Industrial IoT Systems and Devices

Driving Industrial IoT Innovation in AIoT Era

- IIoT Software Solutions
- Intelligent Systems
- SKY Servers
- AI & Advanced Computer Vision
- Intelligent HMI and Monitors
- Automation Computers
- Intelligent Transportation Platforms
- Mission Critical CompactPCI Platforms
- Utility and Energy Solutions
- EtherCAT Solutions and Automation Controllers
- Intelligent Motion Control Solutions
- High Speed DAQ Solutions
- Industrial Communication
- Intelligent Edge DAQ Devices
- Remote I/O, Wireless I/O & Sensors
- Serial / USB Communications

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

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About Advantech

Co-Creating the Future of the IoT World

Founded in 1983, Advantech is a leading global provider of intelligent IoT systems and embedded platforms. Embracing the recent trends of IoT, big data, and artificial intelligence, Advantech develops IoT hardware and software solutions based on its WISE-PaaS industrial IoT cloud platform to assist partners and customers with integrating industry chains. Advantech also works with partners to co-create business ecosystems that facilitate intelligent industry and realize its corporate goal of "Enabling an Intelligent Planet".

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.

Honors & Awards

- No.1 in Industrial PCs Worldwide Market Share
- No.5 in Best Taiwan Global Brands
- No.9 in Top 100 Industrial IoT Companies
- No.18 in Top 50 Global Automation Vendors
- Red Dot Product Design Award
- iF Product Design Award

Corporate Sustainability Statement

Enabling an Intelligent and Sustainable Planet

In August–September 2020, Advantech ran the 2025 Vision Depiction Workshop. In September, we officially established the 2025 Vision Declaration, and ESG is a critical part of this. Advantech's ESG Vision Declaration is as follows: "Emphasize environmental, social, and corporate governance topics, implement Lita co-enrichment, and enable an intelligent and sustainable planet."

Advantech's ESG vision began with our corporate vision of "Enabling an intelligent planet." Considering our core competitiveness, key development strategies, and response to the UN SDGs, we aim to leverage our AIoT core competencies and smart solutions to assist in realizing SDG 7 and SDG 13 for improved energy efficiency, energy-saving in buildings and in manufacturing, and low carbon emissions in logistics and retail. Through our open, innovative environment and education efforts aimed at popularizing IoT platforms and solutions, we seek to provide outstanding education (SDG 4) and promote partnerships (SDG 17).

Advantech's hardware, software, I.Apps, and integration solutions consist of various products designed for specific applications, such as in energy (solar energy, wind energy, smart grids, electric vehicle charging stations, building energy-saving, and energy-saving monitors), flood and disaster prevention, sewage treatment, remote education, public safety (smart street lighting, transportation safety), public health, telemedicine, smart medicine, cold chain management (food safety), smart agriculture, information security, and cloud computing. In 2020, our worldwide revenue for the sale of products used for sustainable purposes accounted for 15.79% of our total revenue. In the future, we aim to incorporate sustainability concepts into our strategy blueprint for developing new products in different industries. We will continue to develop smart solution plans to make the world cleaner, safer, healthier, and more convenient, enabling an intelligent and sustainable planet.

Enabling an Intelligent and Sustainable Planet

Community Enrichment
- ABLE Club for employee and community enrichment
- Diverse talent empowerment strategies
- Agile network organization for accelerating innovation

2025: Be included in Dow Jones Sustainability Index (DJSI)

AIoT Popularization
- AIoT InnoWorks
- Elite100 Internship
- Ecosystem partnership

Green Operations
- Climate change strategies and energy management
- Green design and products
- Eco-friendly solutions

- 2021 Received SBTi (science based target initiative) certification
- 2022 Follow TCFD (task force on climate-related financial disclosure)
- 2025 Be listed on CDP (carbon disclosure project)-A List
- 2026 50% renewable energy in Taiwan
- 2032 100% renewable energy in Taiwan

Advantech Services Plus

As a leading global industrial solution provider, Advantech offers professional services relating to customers' real needs. Given that total service solution providers are the mainstream of our long-term business strategy, Advantech's new regional service business group (AS+, Advantech Services Plus) focuses on comprehensive regional customer services, such as professional on-site repair/support, in-house system integration and maintenance, solution leasing, and peripheral procurement, in order to enhance the sustainability of business development. Based on the GIRC (Globally Integrated Regional Competence) concept from Advantech's Y2025 vision, our service teams around the world proactively expand their service scope to more value added plans, in order to fulfill real demands and needs.

Evolution of On-Site Problem Solving and Technical Support

Starting from the Asia area, our specialized onsite support teams offer an on-time door-to-door problem solving and regular inspection service for all kinds of Advantech devices. Clients may contact our call center to receive this service or use the web-based on-site tracking system, which can accelerate the down time of devices as well as the turnaround time of repairs. 24/7 online technical support and document download function allows clients to apply, consult, and verify any hardware/software problem anytime from anywhere.

Strategy of Tactical System Integration Ecosystem

Providing a one-stop SRP (Solution Ready Package) service to our valuable end customers is one of our core competencies. Advantech's dedicated system integration team provides strong professional and project management skills, cross-function communication, architecture planning, SRP installation, and after-sales maintenance and operation. Our domain-focused customers will get a total service integrated solution within their vertical market and receive a more efficient and sufficient support.

Flexibility of Device and Solution Acquisition

Advantech Services Plus team offers highly flexible leasing solutions to our precious clients. As a leaseholder, our clients can enjoy the advantage of better cash flow and turnover rates. More importantly, they will recieve extra warranty, maintenance, and services during the rental duration, as well as the flexibility of determining whether to have a proprietary device and solution after a designated time. Maximum utilization rates of a device during its own life cycle can also reduce material and energy wastage, and align the core ideas of CSR (Corporate Social Responsibility) and ESG (Environmental, Social and Governance).

Compatibility of Industrial Sourcing & Distribution Service (IS&D)

Advantech's global peripheral procurement network consists of local teams that leverage strong relationships with worldwide suppliers and diligent vendor and product management to provide quality-assured compatible peripherals with short lead times and competitive prices. Valuable customers receive a one-stop shopping service for industrial peripherals.

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

Advantech Global Services

Advantech has offices in 28 countries and more than 8,000 employees dedicated to providing efficient, professional services related to customer care, product selection, technical support, and order handling. Our call centers and online stores offer worldwide customers the convenience of multi-service channels as well as accelerated turnaround times. Supported by four logistics centers located in Taiwan, China, Europe, and the United States, Advantech's global service network offers an extensive spectrum of services that includes warehousing, logistics, peripheral certification, sourcing and purchasing, return merchandise authorization, value-added services, and technical support and training.

Manufacturing

Both of Advantech's world-class manufacturing centers located in Taiwan and China maintain precise quality control and deliver comprehensive, timely, and cost-effective production.

Quality and Environmental Compliance

- SO 9001 Certification
- ISO 14001 Certification
- ISO 13485 Certification
- ISO 45001 Certification
- TL9000 Certification
- ISO 17025 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner
- REACH SVHC Directive Compliance
- RMI Conflict Minerals Declaration

Configure-To-Order Services

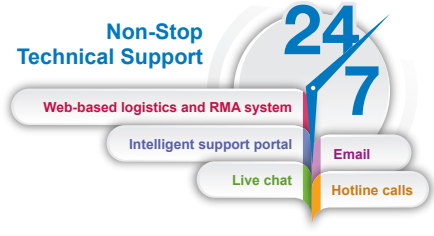
Advantech's Configure-To-Order services (CTOS) increase the accessibility of industrial computing solutions with the provision of web-based configuration tools, complex assembly services that support high-mix low-volume box builds and customized assembly, design modification, system integration, and functional testing services.

Global Logistics Services

With strong integrated ERP and SAP supply chain solutions, our global 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.

Global Customer Support Services

We offer optimized maintenance and support plans by leveraging the full scope of our service portfolio to help you reduce costs and proactively mitigate business risks. In addition to complete technical and service support, we also offer a variety of customizable service packages.



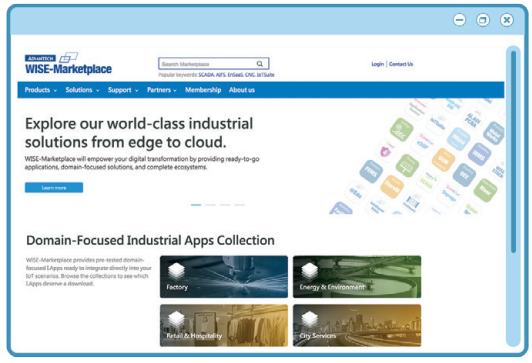
WISE-Marketplace

WISE-Marketplace, where you can unlock innovation with world-class industrial solutions from edge to cloud.

WISE-Marketplace is an open platform originated from Advantech, a world-class leading brand in IoT intelligent systems, that makes shop floors simple, scalable and manageable.

We're dedicated to selecting and delivering ready-to-go applications, software, and devices so you can customize your digital transformation on IoT, Networked-Devices, Data Analytics, AI applications, and intelligent operations. You can explore our products and services via requests for demonstrations and deploy them in your own operations.

To empower success, WISE-Marketplace has strengthened our alliance with diverse Domain focused System Integrators (DFSIs) and business partnerships with Technology Service Providers (TSPs) for co-creating a prosperous industrial eco-system.



WISE-Marketplace Key Features

Transparent Pricing

Barrier-less and friendly pricing models with flexible payment methods to meet the needs of a wide variety of users.

Shorten Development

Leverage Advantech and our partner's toolkits, no need to develop from scratch.

Support Mechanism

Full support from payment, delivery, deployment, technical training, and more.

Complete Modules

Full-range of AIoT modules to evaluate.

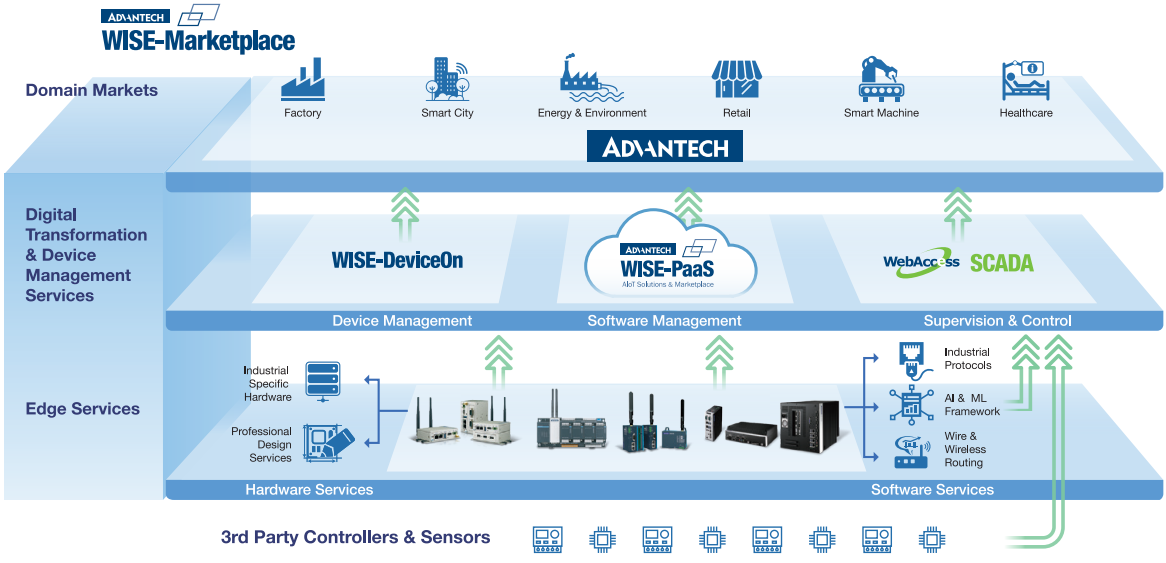
Increase Revenue

Domain know-how involvement to optimize solutions and increase revenue.

Co-create Ecosystem

Become our partner to get the best benefits and leverage Advantech's ecosystem.

What You Can Find in WISE-Marketplace



WISE-PaaS Industrial IoT Platform & Solutions

The WISE-PaaS Industrial IoT platform end-to-cloud architecture provides a comprehensive development environment for data collection, analysis, management, and applications. This cloud-native, low-code data platform improves asset management decision making as well as operational visibility and control for plants, infrastructure, and equipment. WISE-PaaS enables the implementation of innovative domain-specific IoT applications, helps users upgrade their business, and empowers effortless digital transformation!

WISE-PaaS Features

Purpose-built IIoT Platform

Deliver IIoT capabilities with decoupled services and pre-built toolkits that empower digital transformation.

End-to-end Integration

Reduce IoT complexity with seamless data and IT/OT fusion from edge devices, enterprise systems, and cloud services.

Flexibility and Scalability

Multiple deployment options empower users to start small and scale system growth quickly with high resource-efficiency.

Rapid Time-to-market

Accelerate IoT solution development and enable new business models with low-code environment and I.App building blocks on WISE-Marketplace.

Industrial Domain Expertise and Ecosystem

Enable widespread IoT applications with comprehensive resources that leverage over 35-years of industrial experience and strong industry partnerships.

WISE-PaaS Key Functions

WISE-IoTSuite

IoT Hub & Device Monitoring

- Device access and management center
- Edge stream data processing
- Data reports and digital twin visualization
- Remote management and alarm notification

WISE-EnSaaS

Enterprise-level Cloud Native PaaS

- Application and data management
- Multi-tenant management and unified access
- Monitoring and logging
- Microservice management framework

WISE-DataInsight

Big Data & BI

- Data processing (ETL)
- Centralized data management
- Heterogeneous data modeling
- BI (Business Intelligence) visual analytics

WISE-InsightAPM

Digital Twin and APM

- Digital twin model management
- "Zero" code configuration operation
- Rich data analysis components
- Lightweight and flexible deployment mode

WISE-AIFS

AI Industrialization

- Industrial AI training, deployment and lifecycle management
- AI industrial applications
- MLOps (Machine learning + Model Development + Operation)

Feature Solutions Powered by WISE-PaaS

MachineUnite

- Real-time remote monitoring of machine status, production performance, and production line data
- Quickly get started by configuring the machine and going online
- Standardized templates to quickly replicate multiple cases

Energy Management System (EMS)

- One-stop energy-saving services
- Streamlined and AI-based analysis/ diagnosis
- Flexible and expandable with open architecture

Prognostic & Health Management (PHM)

- AI-powered fault diagnosis solution for rotating machinery
- Comprehensive services from anomaly detection, to abnormality predication
- SW/HW integrated for easy implementation

Innovative IIoT Edge to Cloud Technologies

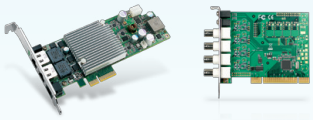
Advanced Computer Vision

Industrial and AI Cameras

Quartz/ICAM-500

Frame Grabber and Video Capture Cards

PCIE/ DVP Series



EtherCAT Control & I/O Systems

Motion Controllers

AMAX-3000/ 300 Series

Edge Controllers

AMAX-5500 Series

I/O Systems

AMAX-5000/ 4800 Series

Domain Platforms

Oil and Gas Applications

TPC/ FPM/ EKI/ ADAM/ UNO/ ULI Series

Railway Applications

ITA/ CPCI/ EKI Series

Utility and Energy Applications

ECU-4000 Series/ ECU-579/ EKI Series

ADVANTECH XNavi

OPC UA

VisionNavi
Machine Vision Application Software

AINavi
Deep-Learning-Based Image Analysis Software

HMINavi
HMI Software for Machine Visualization

MotionNavi
Visualized Designer for Standalone Motion Controller

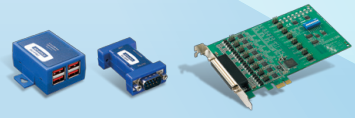
DAQNavi
High Speed Data Acquisition & Condition Monitoring

Serial / USB Communications

USB 2.0 · USB 3.0 · CAN bus

Serial and USB Converters/ Isolators/ USB Hubs/ Serial Repeaters

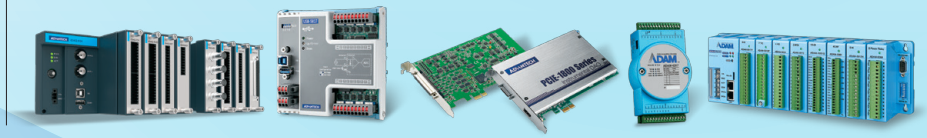
ULI Series and Serial Communication Cards



DAQ and Remote I/O

Modbus · PROFINET · SUPERSPEED USB · OPC UA · MQTT · Azure

iDAQ Series/ USB-5800 Series/ PCI/PCIe Cards/ ADAM-4000/5000/6000 Series



Edge AI Systems

AI Video Systems/ AI Computing Systems

MIC-AI Series Based on NVIDIA Jetson

Edge Computing Systems

Intelligent Systems/ Automation Computers

HMI/ IPC/ MIC/ UNO/ WOP Series

WebAccess/SCADA

IIoT Application Software Platform

WISE-EdgeLink

Powerful Edge-to-Cloud Middleware for Intelligent Gateway Solutions

WISE-DataConnect

Industrial IoT Device, Platform & Data Management

- Device Management
- Data Management
- Application Management

WISE-PaaS

AIoT Solutions & Marketplace

Alibaba Cloud, Google Cloud, Microsoft Azure, CUMULOCITY IoT, amazon web services, ThingsBoard

Wireless I/O and Sensors

Wi-Fi, LoRaWAN, NB-IoT, LTE-M

WISE-2000/ 4000 Series

IIoT Gateways and RTUs

Modbus, PROFINET, EtherNet/IP, OPC UA

Edge/ Communication/ Protocol/ Data Gateways

ADAM-3600/ 6700/ ECU/ EKI/ UNO/ WISE Series

Connectivity and TSN

10 Gigabit Ethernet, 10/100 Ethernet, PoE 802.3at, Security Features, LTE, 5G, TSN

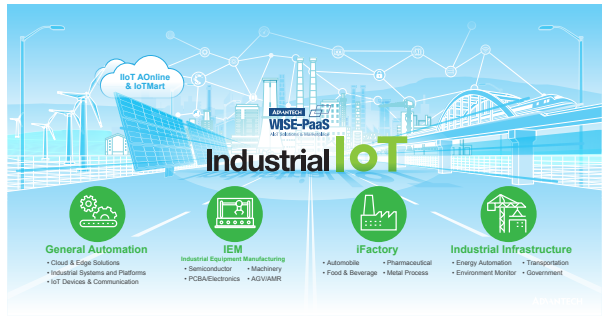
Cellular Routers/ Switches/ Wireless Communication

ICR-2000/ 3000/ 4000 Series, EKI-7000/ 8000 Series

About Industrial IoT

Driving Digital Transformation in Smart Manufacturing and Industrial Infrastructure

Driven by the convergence of information technology (IT) and operational technology (OT), the Industrial Internet of Things (IIoT) is a matrix of networks connecting equipment and devices, collecting data via sensor technology and integrating it into solutions as services. This creates new business models and possibilities. The Advantech IIoT Group focuses on four go-to-market sectors - General Automation, iFactory, Industrial Equipment Manufacturing, and Industrial Infrastructure. These sectors fulfill a diverse range of application needs and facilitate digital transformation.



Industrial IoT Solution Architecture

One-stop IIoT Edge-to-Cloud Product Solutions

To fulfill diverse industrial requirements, Advantech IIoT group offers a one-stop shopping service with its complete edge-to-cloud product lines, including IoT edge sensing devices, industrial communication devices, edge computing platforms, IoT application software, and cloud platforms.

For edge sensing requirements, Advantech provides both wired and wireless I/O modules and sensors that support diverse data acquisition and processing applications. For industrial communication, we provide reliable wired and wireless solutions that securely transmit critical and sensitive information.

For edge computing, we offer a comprehensive range of IPC products with the latest technologies such as Trusted Platform Module for hardware-based security functions. Systems come in a variety of form factors with different computing capabilities and all of them are designed with rugged components for harsh industrial environments. To complete the solution architecture, Advantech's WISE-PaaS cloud native Industrial IoT Platforms provide all the edge-to-cloud software services you need to get up and running fast.

Advantech Industrial IoT Solution Architecture

Industrial IoT Domain's Entry Points

Get the latest IIoT knowledge and Updates

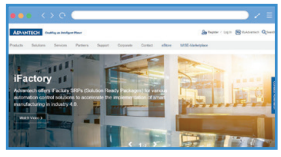
Advantech provides 12 useful Industrial-IoT domain entry points that provide comprehensive solutions and resources according to user demands and their requirements. These entry points cover 4 main industrial sectors, 5 important product technologies, and 3 video streaming and learning sites.

Industrial Sectors

With near four decades of proven industrial experience, our vertical solutions for smart manufacturing and smart city infrastructures deliver efficiency, energy conservation, minimized risk, cost effectiveness and environmental protection to drive your digital transformation.

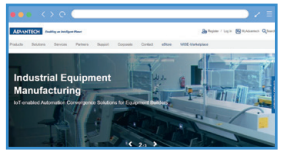
☞ **iFactory:**

iFactory Solution Ready Package (SRP) solution for automation that accelerates smart manufacturing.



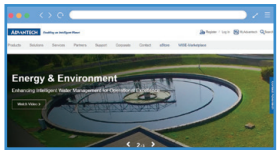
☞ **Industrial Equipment Manufacturing:**

Industrial equipment manufacturing solutions for digitizing smart machinery with AI and data conversion.



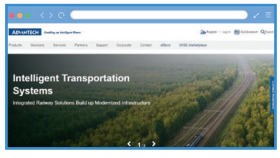
☞ **Energy and Environment:**

Solution for accelerating digital operations and maintenance management for future sustainable energy development.



☞ **Transportation:**

Intelligent transportation solutions integrated with wireless, AI, and 5G technologies.



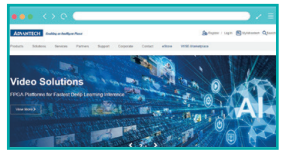
Product Technology

☞ **Industrial & Telecom Servers:**

Server solutions for software-defined everything (SDE) environments and intelligent cloud-native infrastructures.

☞ **Video Solution:**

Video solutions with various applications for broadcasting, medical, transportation, and security.



☞ **Edge Computing:**

Enabling industry 4.0 and IoT with IPCs and edge intelligence solutions for the fundamental of digital transformation.

☞ **Industrial Automation & I/O:**

Intelligent automation solutions integrated with AI, 5G, WiFi and plentiful I/O options.

☞ **Intelligent Connectivity:**

Reliable wired and wireless communication solutions with time sensitive networking (TSN), 5G, and WiFi 6.

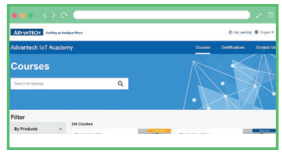
AIoT Video Streaming & Online Learning

☞ **Advantech InnoTalks:**

InnoTalks is an online program that brings eco-system professionals together to share knowledge in IIoT and digital transformation.

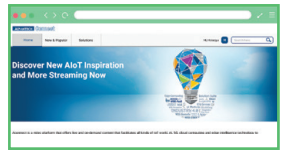
☞ **Advantech IoT Academy:**

IoT Academy is Advantech's consolidated online knowledge platform for learners wanting to keep up to date with IIoT.



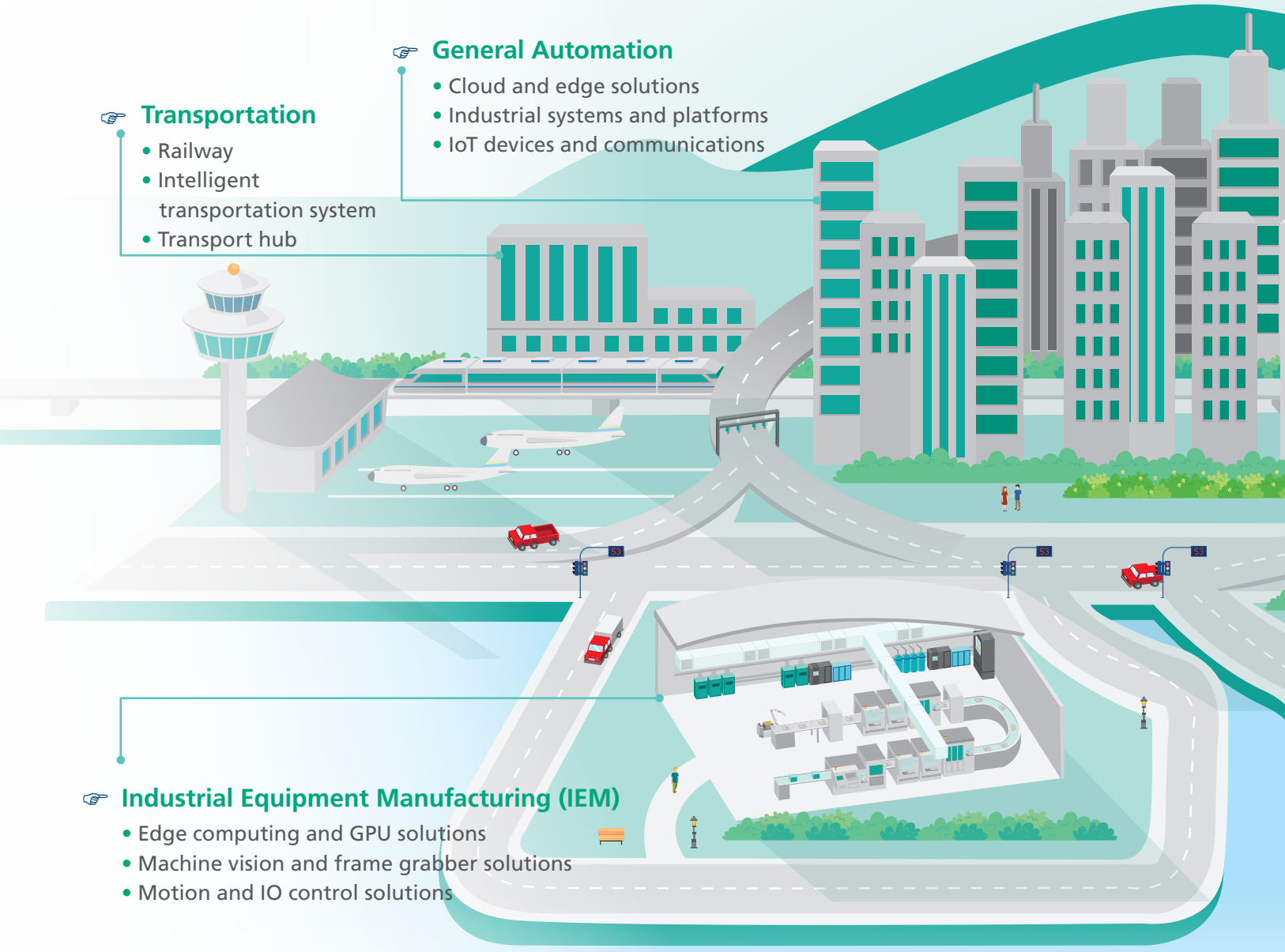
☞ **Advantech Connect:**

A-Connect offers live and on-demand video content to inform viewers and connect with industry-leading experts.



Driving Digital Transformation in Industrial IoT

Advantech Industrial IoT Group continues to explore the latest technologies and what they bring to our industries and lives, including Industrial AI, Edge Computing, Time-Sensitive Networks (TSN) and 5G development. With over three decades of proven experience, we combine information, automation, and communication technologies with efficiency, energy conservation, minimized risk, cost effectiveness, and environmental protection to create solutions to drive digital transformation and enable an intelligent planet.



General Automation

- Cloud and edge solutions
- Industrial systems and platforms
- IoT devices and communications

Transportation

- Railway
- Intelligent transportation system
- Transport hub

Industrial Equipment Manufacturing (IEM)

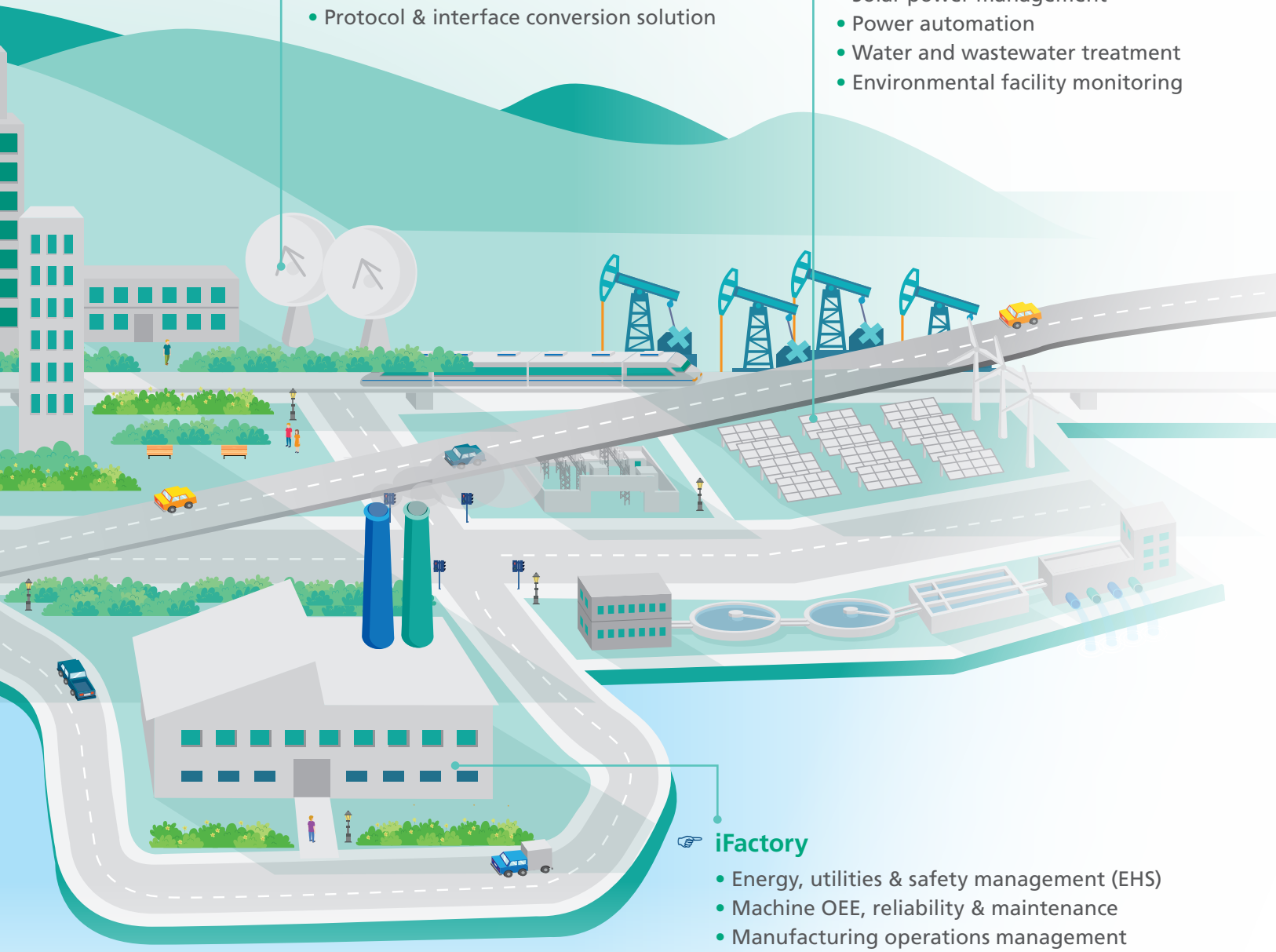
- Edge computing and GPU solutions
- Machine vision and frame grabber solutions
- Motion and IO control solutions

iConnectivity

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

Energy and Environment

- Energy management
- Solar power management
- Power automation
- Water and wastewater treatment
- Environmental facility monitoring

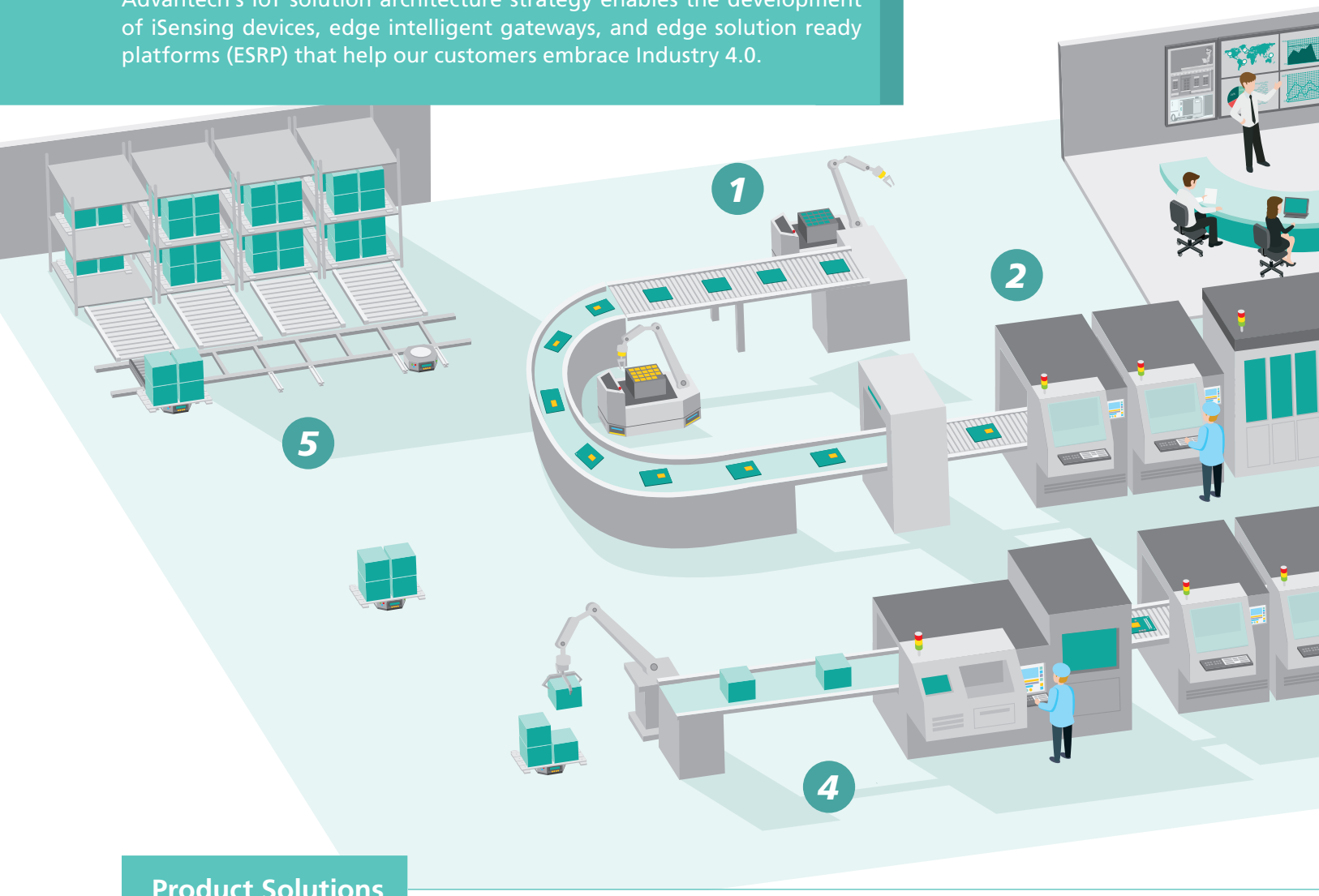


iFactory

- Energy, utilities & safety management (EHS)
- Machine OEE, reliability & maintenance
- Manufacturing operations management
- Material handling

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 edge solution ready platforms (ESRP) that help our customers embrace Industry 4.0.



Product Solutions

WebAccess Software

Advantech WebAccess
- IIoT application software platform

Edge Solution Ready Platforms

ESRP Series
- Software-hardware integrated solutions

Remote I/O, Wireless I/O and Sensors

ADAM-4000/5000/6000 Series
- RS-485, Ethernet and OPC UA

WISE-2000/4000 Series
- Wi-Fi, LPWAN, LoRaWAN, and NB-IoT

Serial Communication

ULI-200/300/400 Series
- Serial/USB converters/isolators, serial repeaters and USB hubs

PCM, PCI/PCIE, PCL Series
- Serial communication cards

1 Machine to Intelligence

- 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 Digital Manufacturing Operations & Situation Room

- Real-time operations tracking & management for efficiency improvements and production optimization.
- Local center of operations center, where data is collected & analyzed for data-driven decision making.
- Data consolidation and visualizations for easy data consumption by management.

4 Factory Energy & Environment Monitoring (EHS)

- 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, CO_2, water and other hazardous materials to ensure the factory environment is safe.
- Calculate carbon footprint of production operations, for compliance with international regulations.

5 Material Handling

- 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, IMC, ICR and ADAM series

- TSN / Ethernet / VDSL wired communication
- 5G / LET / Wi-Fi wireless communication

Industrial Controllers

UNO-100/ 300, AMAX-5000 & MIC-7000 Series

- Automation Controllers
- EtherCAT Edge Controllers
- Codesys Ready Edge Controllers

IIoT Gateways & RTUs

ECU-1000, UNO-2, ADAM, WISE, and EKI Series

- Serial, Modbus, Fieldbus, LoRaWAN, OPC UA gateways
- Remote terminal units
- IoT edge gateway and gateway kits

Intelligent HMI

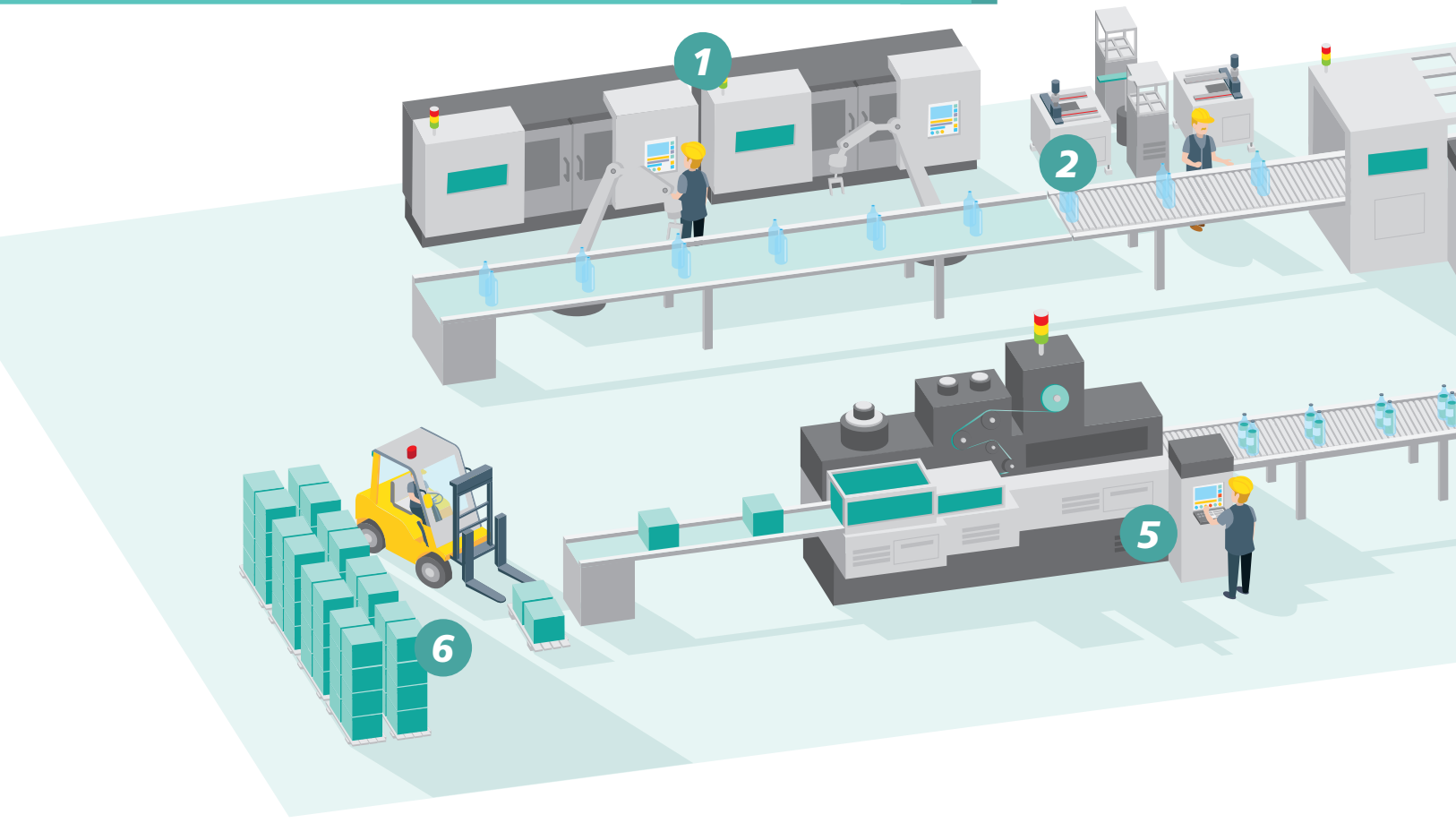
TPC & PPC Series

- Industrial control panels, thin clients, operator panels, and monitors

Industrial Equipment Manufacturing Solutions

Advantech's approach to realizing smart manufacturing is to connect all devices, computing systems, AI inference and equipment together to accomplish data acquisition, analysis, and visualization.

Cloud platform services and remote manageability complete data integration to achieve intelligent manufacturing processes and industry transformation.



Product Solutions

Data Acquisition

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

Industrial Ethernet Switch & Wireless Network

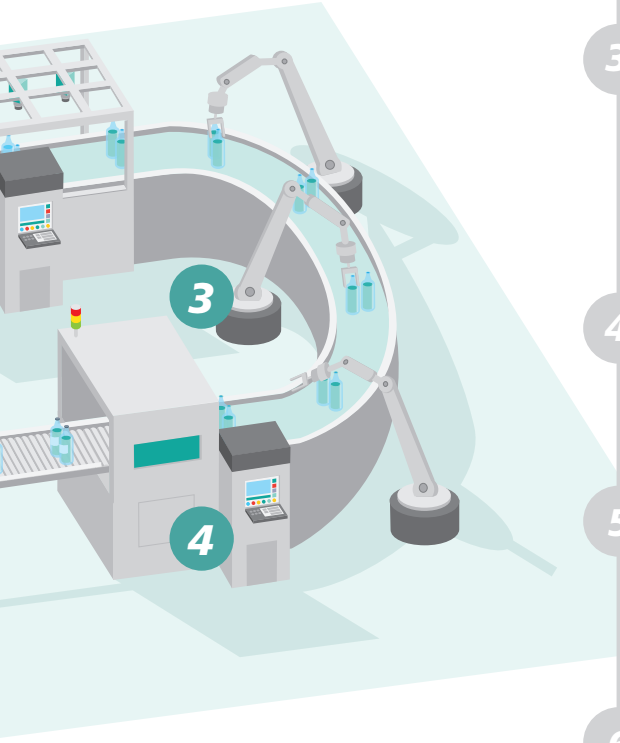
- Wired & wireless network infrastructure

Motion Control

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

Compact Edge Controller

- PC-based integrated solution for easy development
- Supports real-time dual fieldbus data acquisition (PROFINET and EtherCAT)



1

AI Automated Optical Inspection(AOI)

- AI defect inspection for multi-product line and multi-defect applications
- Manual inspection replacement
- Increased reliability and efficiency on the factory floor

2

Data Convergence and Transmission

- 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 times

4

Edge Computing, Analysis and Visualization

- 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

Automation and Control

- 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

Machine Vision & AI AOI

- Easy multi-task configuration without programming
- Intuitive menu-driven GUI shortens the learning curve

Modular IPC

- Comprises compact modularized systems
- Diverse selection of CPUs, flexible I/O expansion, and slot expansion for various applications

Intelligent System

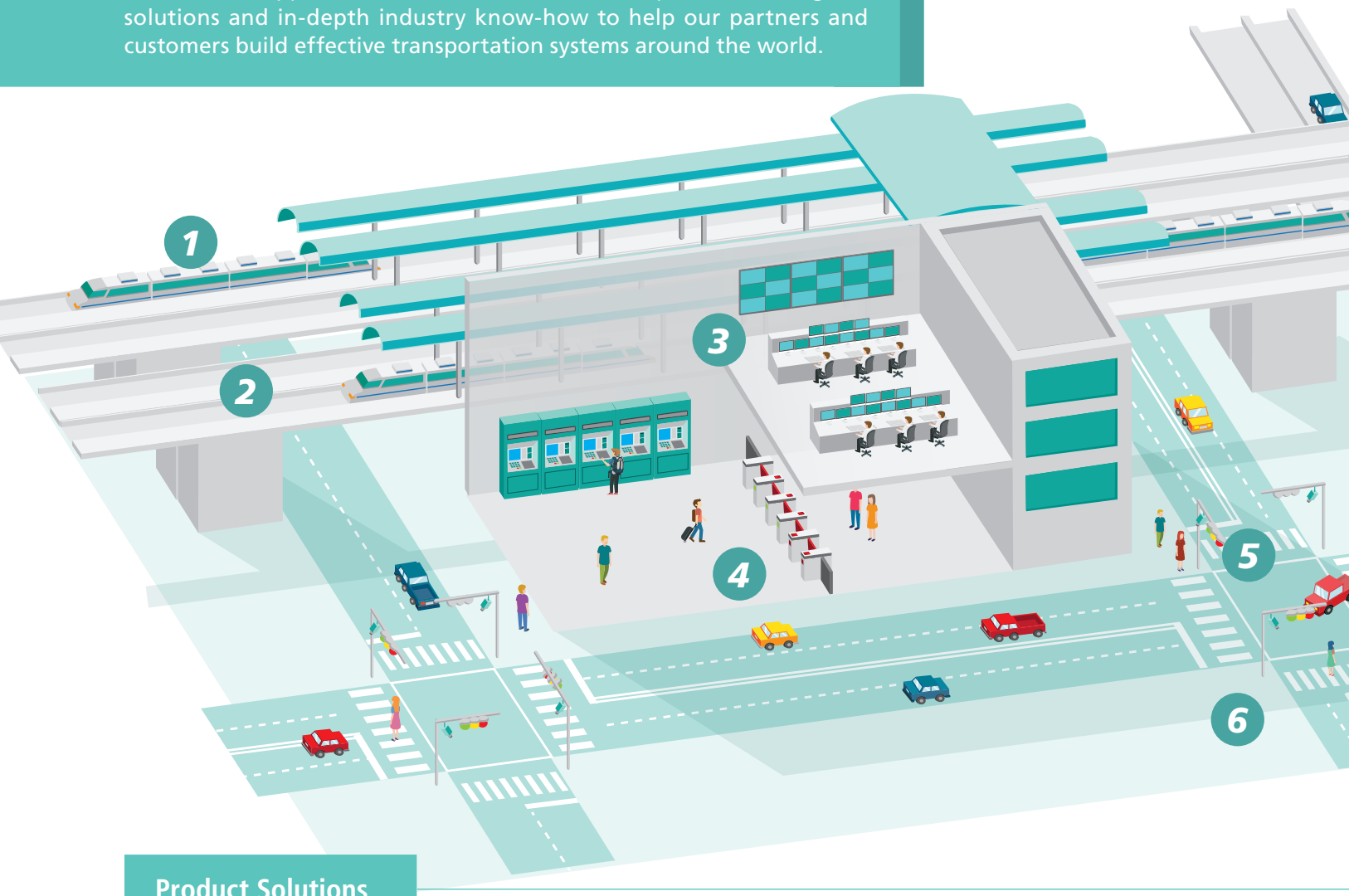
- High performance fan-based system for motion and vision application
- Diverse form factor selection

Server, GPU and Storage

- Xeon® Scalable processor for high performance computing
- CPU/GPU hybrid technology for image analytic 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 Controllers

ITA-5000 Series
- EN 50155 product for railway applications

Edge Computing Platforms

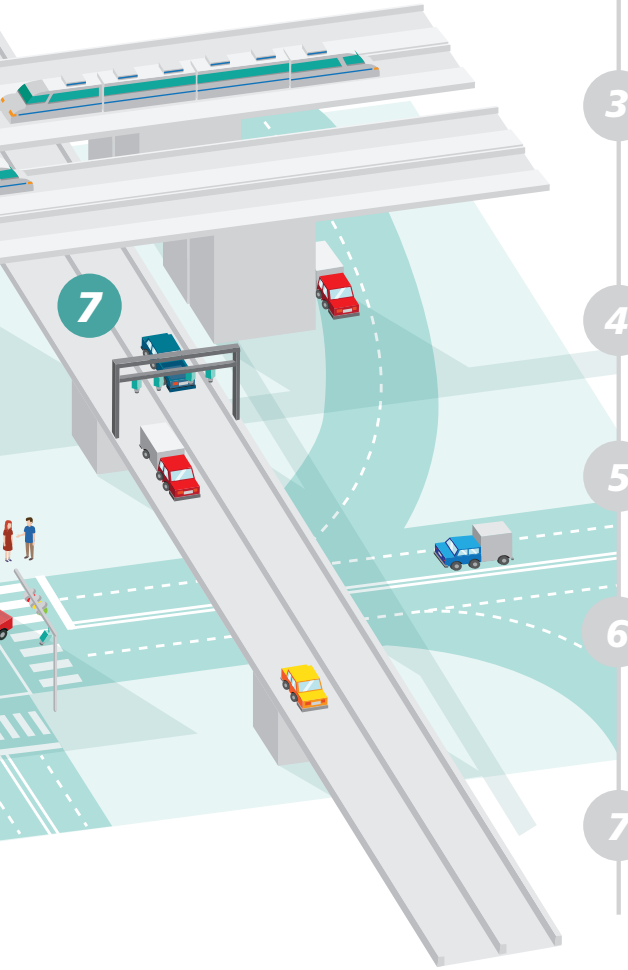
ITA-260, 3650 Series
- Fanless systems for traffic management and AI applications

AFC Controllers

ITA-1000 Series
- Flexible configuration design for multiple COM, secondary display output

Blade IPC Platforms

MIC-3000 series
- EN 50155 3U CPCI solutions



1 Rolling Stock Solutions

- Passenger information system
- CCTV system
- Infotainment system
- Vehicle monitoring system
- Train-to-ground communication system

2 Wayside Control Solutions

- Wayside signaling
- Interlocking system
- Train control system

3 Integrated Supervisory Control Systems

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

4 Automatic Fare Collection Solutions

- Automatic gate machine
- Ticket vending machine

5 Intelligent Video Analytics Solutions

- AI Traffic surveillance System
- License plate recognition system

6 Traffic Management Solutions

- Signal control management
- Road condition monitoring
- Emergency system
- V2X communication

7 Highway Management Solutions

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

Rolling Stock Display Systems

ARS-P Series/ITA-7000
- EN 50155 panel PC

Panel Controllers

ITA-8000 Series
- EN 50155 driver machine interface

Railway & Roadway Ethernet Solutions

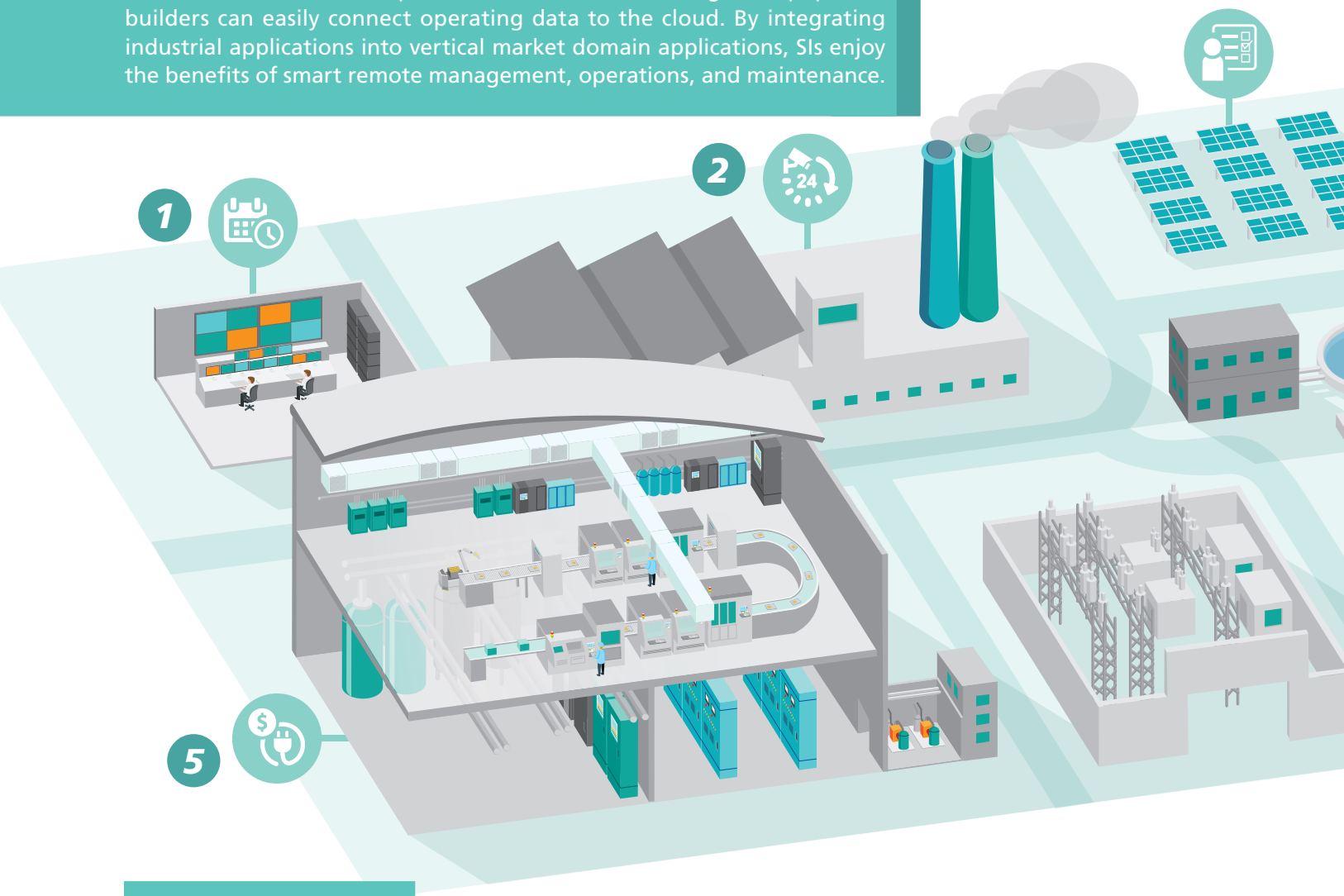
EKI-9500,7700 & IMC Series
- EN 50155, managed and unmanaged Ethernet switches and media converters

Wireless Solutions

WISE/Wzzard/SmartSwarm
- Transportation wireless communications

Cloud-enabled Energy & Environment Solutions

Nowadays, energy and environment practices have evolved to remote management using cloud services. To accelerate the time-to-market, Advantech develops industrial application (I.Apps) based on our integrated solutions and domain experience. With IoT technologies, equipment builders can easily connect operating data to the cloud. By integrating industrial applications into vertical market domain applications, SIs enjoy the benefits of smart remote management, operations, and maintenance.



Product Solutions

Energy Management System

- Real-time monitoring of energy consumption data, with a clear energy indicator dashboard for energy saving

Distributed Solar Power Management System

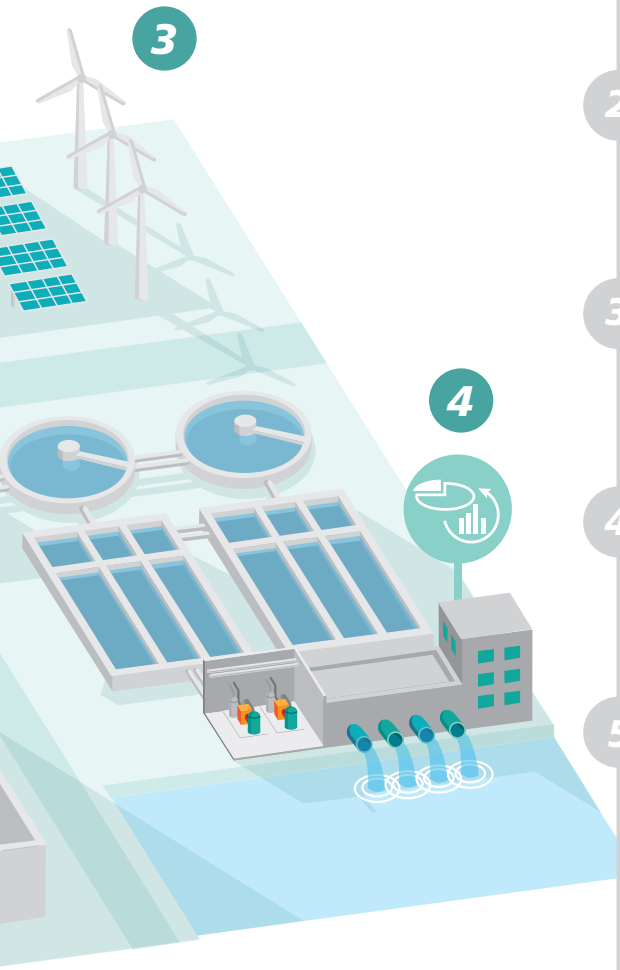
- Distributed monitoring and centralized management for equipment and power generation analysis

Energy Storage Operation and Management System

- Real-time monitoring of battery status and environmental data of energy storage cabinet

Smart Substation Solution

- Improved power quality and reliability with real-time monitoring and management



1

Operation and Maintenance Optimization

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

2

Real-Time Monitoring and Control

- Operations status monitoring and remote control
- Continuous data uploads to cloud service
- Automatically send trends, timings and partial/standard alarms in real-time

3

Fault Detection and Predictive Maintenance

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

4

Device Management

- Regular motor and pump maintenance
- Equipment life cycle management
- Patrol inspection service

5

Operation and Energy Management

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

Water Management Solution

- Cloud-enabled remote equipment management for water and wastewater

Wastewater Chemical Coagulation Dosing Solution

- Intelligent program control technology for manpower saving and cost reduction

Purified Water Chemical Coagulation Dosing Solution

- Based on the correlation of the turbidity after precipitation to control the dosing

Environmental Facility Monitoring Management

- Remote monitoring and centralized management for distributed equipment

Industrial Edge GPU and AI Solutions

Advantech has developed GPU and AI related product series to accommodate the growing prevalence of AI across a range of applications. This innovative series demonstrates Advantech's deepening relationship with NVIDIA, a graphics card company that recently began strategically transforming itself into an AIoT provider. This partnership is playing a significant role in making AI a reality for manufacturing, transportation, and smart city applications. Advantech and NVIDIA are driving innovative industrial AI application transformation by collaborating closely on GPU and AI related product development that accelerates AI in industry.

AI Framework

Machine and Deep Learning Algorithm SDK and Tool Kit

ADVANTECH WISE-PaaS AIoT Solutions & Marketplace

WISE-PaaS/AIFS

TensorFlow — Easy Deployment across CPUs,GPUs,TPUs

CNTK Microsoft — Supports C++, C#, Java, and Python

Caffe — Bindings for Python and MATLAB

ONNX — Standardisation of Machine Learning Models

Mipsology

OpenVINO — Develop for multi platform OpenVINO TM SDK and Tool kit

ASOC Framework Suites | Deep Stream SDK | xtDNN ML Libraries | TensorRT | Libraries CV Libraries | CV libraries | ISP Libraries

Industrial Cameras and Software

QCAM
PoE Industrial Camera

ICAM-500
AI Camera

VisionNavi
Machine Vision Application Software

AINavi
AI software with pre trained model and software

Edge AI Systems

MIC-AILs
Lite AI System With NVIDIA Jetson

MIC-AIs
AI Computing System With NVIDIA Jetson

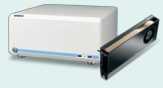
MIC-715
Ruggedize AI System With NVIDIA Jetson

MIC-IVAs
AI Video System with NVIDIA Jetson

GPU IPCs

MIC-7000s
Modular Compact system

ACP-2020G+AIMB-787
Rackmount AI workstation



USM-501
Medical grade computer

ITA-3650G
Fanless roadside AI System

AI Edge Servers

SKY-6200
2U Rackmount GPU Server

SKY-640V2
4U Rackmount GPU Server

HPC-6240+ASMB-622
2U Industrial Inference Server

HPC-7420+ASMB-976
4U Industrial Inference Server

GPU Cards

SKY-TESL-A2-16P
The NVIDIA A2 GPU

SKY-QUAD-RTXA6000
The NVIDIA RTX A6000 GPU

SKY-QUAD-T1000-8-B
The NVIDIA RTX T1000 8GB GPU

SKY-MXM-T1000-4SDB
Mobile PCI Express Module with NVIDIA Embedded T1000

1 Software and Industry Solutions

WebAccess Software

Introduction

The emergence of IoT technology and its related 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. As one of its core IoT solutions, Advantech's WebAccess/SCADA offers more than just a human-machine interface (HMI), supervisory control, and data acquisition (SCADA) solution, it is also a platform for IoT and cloud applications and services.

With Advantech WebAccess/SCADA browser-based IoT application software, users can easily monitor and remotely manage projects via their browser. For the IoT device layer, Advantech WebAccess/SCADA supports multiple protocols and drivers for connecting up to 450 controllers and devices, making WebAccess/SCADA a flexible and powerful software platform for all Industrial IoT (IIoT) applications and projects. Additionally, WebAccess/SCADA provides a foundation for IoT data collection and management with its open architecture and open interfaces, which facilitate the speedy development of numerous vertical applications.

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

Industrial IoT Application Software Platform

DrawDAQ

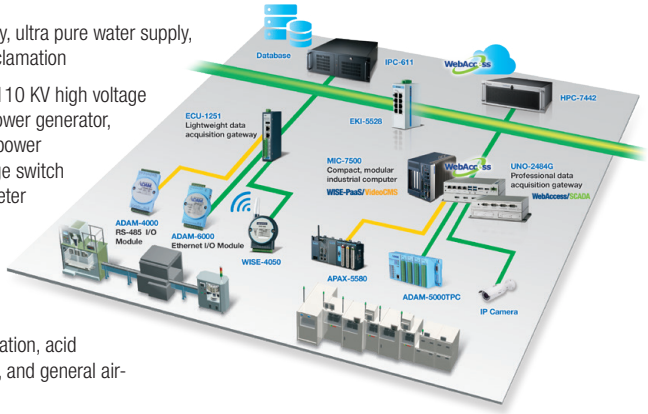
WISE-IoTSuite/Dashboard

WISE-IoTSuite/SaaS Composer

WebAccess/SCADA Focused Solutions

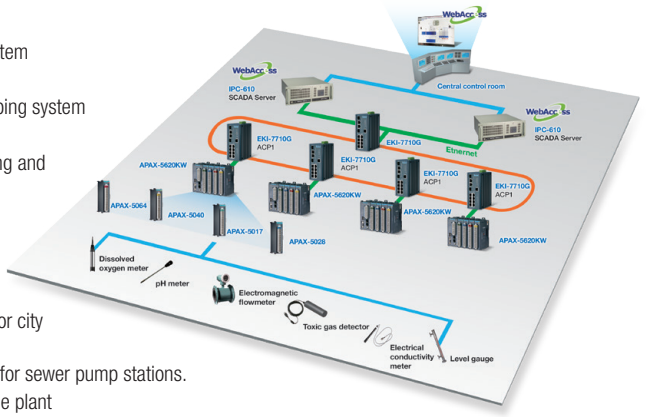
Factory automation solution

- 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



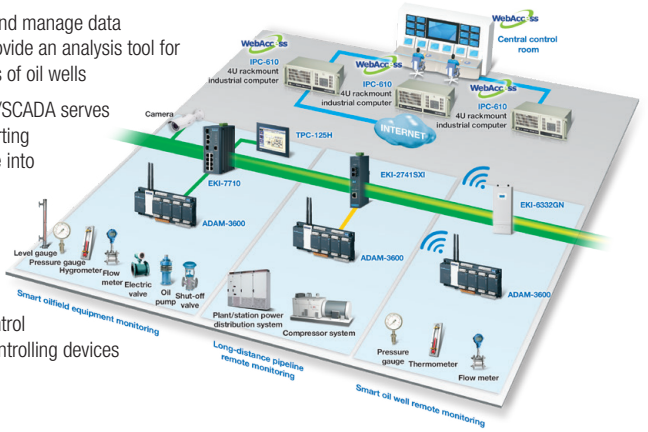
Water treatment solution

- 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



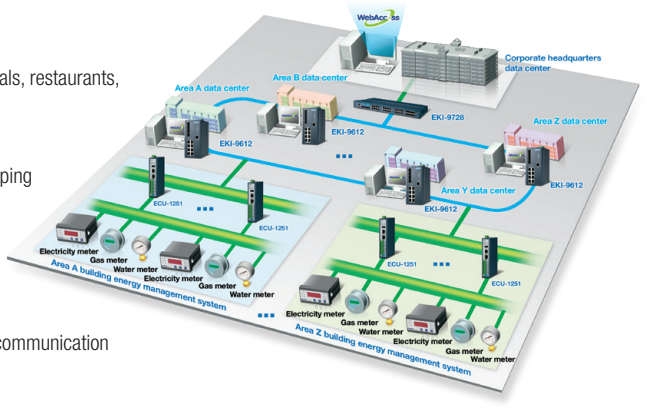
Oil & gas solution

- WA/SCADA 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, WA/SCADA 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, WA/SCADA 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

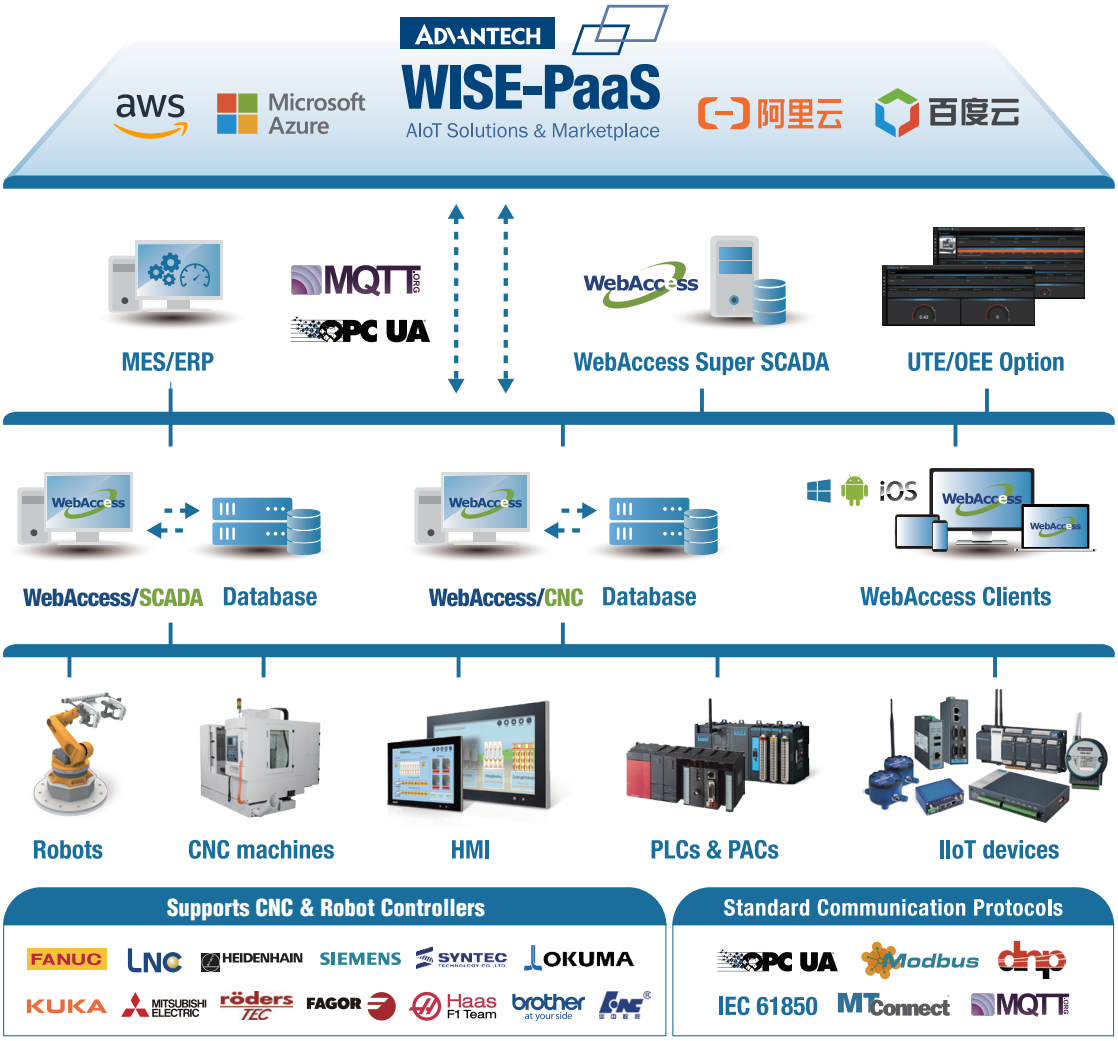


WebAccess/CNC for Metal Processing

Advantech WebAccess/CNC is a core solution for network CNC devices. WebAccess/CNC provides major CNC, PLC and robot networking functions in addition to bringing the advantages of SCADA software to the metal processing market. Auto-build CNC project provides users with quick access to device information.

WebAccess UTE/OEE Option for Device Usage Analysis

Through the flexible configuration interface, the WebAccess UTE/OEE option provides UTE (utilization rates) and OEE analysis per second. Preset event records and visualization templates are included to effectively reduce the development time and cost of integration - coding not required.



WebAccess P/N	Description
32WAMP000001A0	WebAccess 150 base (Rebindable License from Marketplace)
32WAMP020001A0	WebAccess Unlimited Tags (Rebindable License from Marketplace)
WA-P84-U075E	WebAccess Professional, 75 I/O, 75 internal tags, with USB Key
WA-P84-U150E	WebAccess Professional, 150 I/O, 150 internal tags, with USB Key
WA-P84-U300E	WebAccess Professional, 300 I/O, 300 internal tagswith USB Key
WA-P84-U600E	WebAccess Professional, 600 I/O, 600 internal tags, with USB Key
WA-P84-U15HE	WebAccess Professional, 1500 I/O, 1500 internal tags, with USB Key
WA-P84-U50HE	WebAccess Professional, 5,000 I/O, 5000 internal tags, with USB Key
WA-P84-U20KE	WebAccess Professional, 20,000 I/O, 20000 internal tags, with USB Key
WA-P84-U64KE	WebAccess Professional, Unlimted I/O, Unlimted internal tags, with USB Key

WebAccess P/N	Description
32WAMP10000100	Additional Items: SaaS composer
32WSDASHWA0P01	Additional Items: Dashboard (Professional)
WA-CNC-U001E	75 I/O tags, 1 CNC connection for CNC runtime
WA-CNC-U005E	75 I/O tags, 5 CNC connection for CNC runtime
WA-CNC-U010E	75 I/O tags, 10 CNC connection for CNC runtime
WA-CNC-X005E	No I/O tags, 5 CNC connection (upgrade) for CNC runtime
WA-BRO-U001E	75 I/O tags, 1 CNC or robot connection for CNC driver
WA-BRO-U005E	75 I/O tags, 5 CNC or robot connection for CNC driver
WA-BRO-U025E	75 I/O tags, 25 CNC or robot connection for CNC driver
WA-BRO-U050E	75 I/O tags, 50 CNC or robot connection for CNC driver
WA-BRO-X001E	No I/O tags, 1 CNC or robot connection (upgrade) for CNC driver
WA-BRO-X005E	No I/O tags, 5 CNC or robot connection (upgrade) for CNC driver
WA-BRO-X025E	No I/O tags, 25 CNC or robot connection (upgrade) for CNC driver
WA-UTEOEE	WebAccess UTE/OEE upgrade option

WISE-EdgeLink

Transmit Data to the Cloud with WISE-EdgeLink

With the emergence of industrial IoT, companies are seeking solutions that facilitate the use of data analytics to improve service levels, create superior products, and reduce operating costs. The first step in this process is the digitalization of all assets, which means data collected from different equipment must first be analyzed. Equipment operators therefore require an easy and reliable method for collecting data from field-based equipment. Advantech's WISE-EdgeLink provides a data acquisition solution that does not require frequent on-site maintenance and service trips. With this solution, users can monitor critical assets, track equipment performance, receive alarm notifications, and perform system management and configuration using handheld devices. This will substantially reduce costs and ensure field equipment and facilities are better monitored and controlled.

Optimizing efficiency with connected equipment

For industrial boilers, air compressors, chillers, power distribution cabinets, and other equipment, WISE-EdgeLink serves as a hub for data acquisition, storage, and reports, as well as alarm notifications, maximizing equipment efficiency with the provision of accurate data.

Plug-and-play cloud access for rapid deployment

Plug-and-play functionality for data transmissions to the cloud eliminates complex programming and configuration. This ensures data can be easily uploaded for analysis and visualization to provide a useful reference for operational optimization.

Secure data conversion for integrating data with third-party systems

WISE-EdgeLink supports data conversion, enabling equipment used for mass production, such as PLCs, sensors, and inverters, to be directly integrated with SCADA, MESs, and ERP systems for convenient operation and maintenance.

Advantech's WISE-EdgeLink is equipped with key functionalities aimed at edge applications. With downlink data acquisition capabilities integrated with uplink connectivity, security, and intelligence functions, transmitting field data to the cloud becomes an easy task.

WISE-EdgeLink Kernel

WISE-EdgeLink Kernel Architecture

Application Intelligence

MES | SCADA | Private Program | Database

WISE-PaaS | Microsoft Azure | 阿里云 | T-Systems | ERICSSON | 百度云 | aws | CUMULOCITY IoT

OPC UA | Modbus | MQTT | AMQP | MQTT | LightweightM2M

Edge Computing

Linux

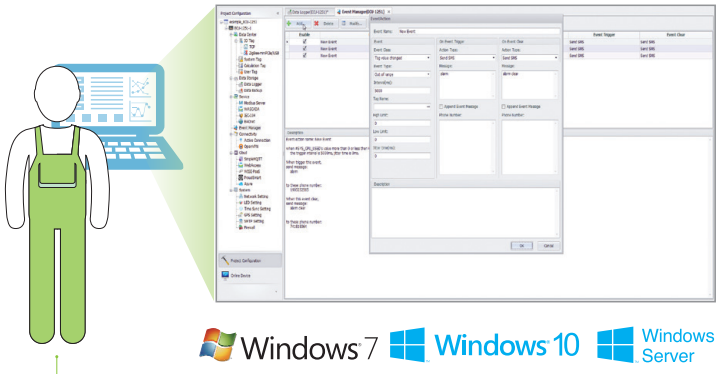
Industrial Compute Edge	Expansion I/O	Industrial Protocol Gateway	Industrial Communication Gateway	All-In-One I/O Gateway
ESRP-CSS-UNO2484 ESRP-CSS-UNO1372 ESRP-CSS-UNO2271	ESRP-PCS-ADAM3600	ESRP-PCS-WISE710 ESRP-PCS-UNO420	ESRP-PCS-ECU1251 ESRP-PCS-ECU1051 ESRP-PCS-ECU4553	ESRP-PCS-ADAM6717 ESRP-PCS-ADAM6750 ESRP-PCS-ADAM6760D

Sensor & Data Networking

OPC UA | Modbus | BACnet | EtherNet/IP | dnp | IEC

Sensor | Database | Smart Meter | PLC & PACs | Machines | Industrial HMI | Remote IO | Ethernet Switches | Data Modules

WISE-EdgeLink Components



Windows 7 Windows 10 Windows Server

EdgeLink studio
(for Windows)

- Project configuration
- Online device monitoring
- Device communication setup
- Data forwarding settings
- System settings

Download projects to the platform via a network

Configuration files

EdgeLink runtime
(for Linux)

- Connects end devices to a network
- Data acquisition and transmission
- Supports 200+ device drivers
- Real-time/historical data log
- Connectivity to the cloud and third-party systems

WISE-EdgeLink Target Applications

Machine-to-Intelligence

- Leasing equipment management
- Overall equipment efficiency
- Pump status monitoring
- Flow pressure monitoring
- HVAC system operating status analysis

Factory Environment

- Facility energy management
- Wastewater discharge
- Continuous emission monitoring systems
- Volatile organic compounds monitoring
- Industrial park energy management

Urban Construction

- Air quality monitoring
- Flood control systems
- Levee monitoring
- Wastewater systems
- Hazardous materials control

Distributed Energy Resources

- Solar power management
- Wind power management
- Geothermal energy management
- Weather station monitoring
- Power generation efficiency monitoring
- Energy storage solution monitoring

XNavi Software Series

Introduction

In the future, intelligent industrial automation will need to be real-time adaptable and agile, and edge solution ready packages are designed to meet this trend. Edge Solutions are software-hardware bundled products developed for use on the network edge, and are thus situated much closer to where the processing takes place. This helps manufacturers deal with issues cropping up in their systems as and when they occur without any lag in the time taken to act upon them. Edge solutions bridge the gap between the cloud and connected devices in the factory. These include specially written application-focused software such as DAQNavi, MotionNavi, VisionNavi, HMINavi, and AINavi, for use on the edge for data collection, motion control, vision inspection, process visualization and AI analysis. This brings processing, communication, and decision making, much closer to edge devices.

Integrated Software Development Suite

Connecting Data, Motion, Vision and HMI from Edge-to-Cloud

DAQNavi

DAQNavi is software package used to enable edge intelligence for your DAQ device. It includes an SDK (Software Development Kit) used to get data from Advantech DAQ cards and modules, but also adds further data processing algorithms in order to gain a better insight from acquired data. The software has 6 parts: 1. Data Acquisition 2. Data Processing 3. Feature Extraction 4. Interpretation and Output 5. External Device/Cloud Connectivity 6. Data Visualization.

Featuring easy configuration and development support tools, the software can easily be deployed in Machine Condition Monitoring, Automated Testing Equipment and Machine Control scenarios. This makes it easier to realize an edge automated monitoring and control system.

MotionNavi

Advantech MotionNavi is a brand new comprehensive and universal software suite for PC-based motion control boards and standalone motion controllers. MotionNavi Designer is an integrated development environment for programming motion control applications. Designer offers BASIC-like commands for multi-process programming inside a controller; Simulation offers tools for off-line programming and preview; 3D path offers display for visualization of XYZ position via time interval; Oscilloscope is for capturing and recording motion velocity data in time intervals for analysis. MotionNavi; and Utility is a universal user interface. For PC-based motion control, Advantech provides several APIs for programming in C/C++, Visual Studio/Net, Python and others.

VisionNavi

Advantech VisionNavi is a programmable machine vision software that facilitates development of menu-driven user interface and helps deploy multiple tasks. It supports a wide range of Advantech industrial PCs and cameras, provides easy system installation and project development while reducing maintenance costs. It is suitable for automated applications aimed at defect inspection and quality assurance which need different conditional branches, steps or loops to complete each task. Any programmer can easily configure each process and determine the next action depending on the results, while the results can be inherited to the next step and become the reference or parameters for that process.

HMINavi

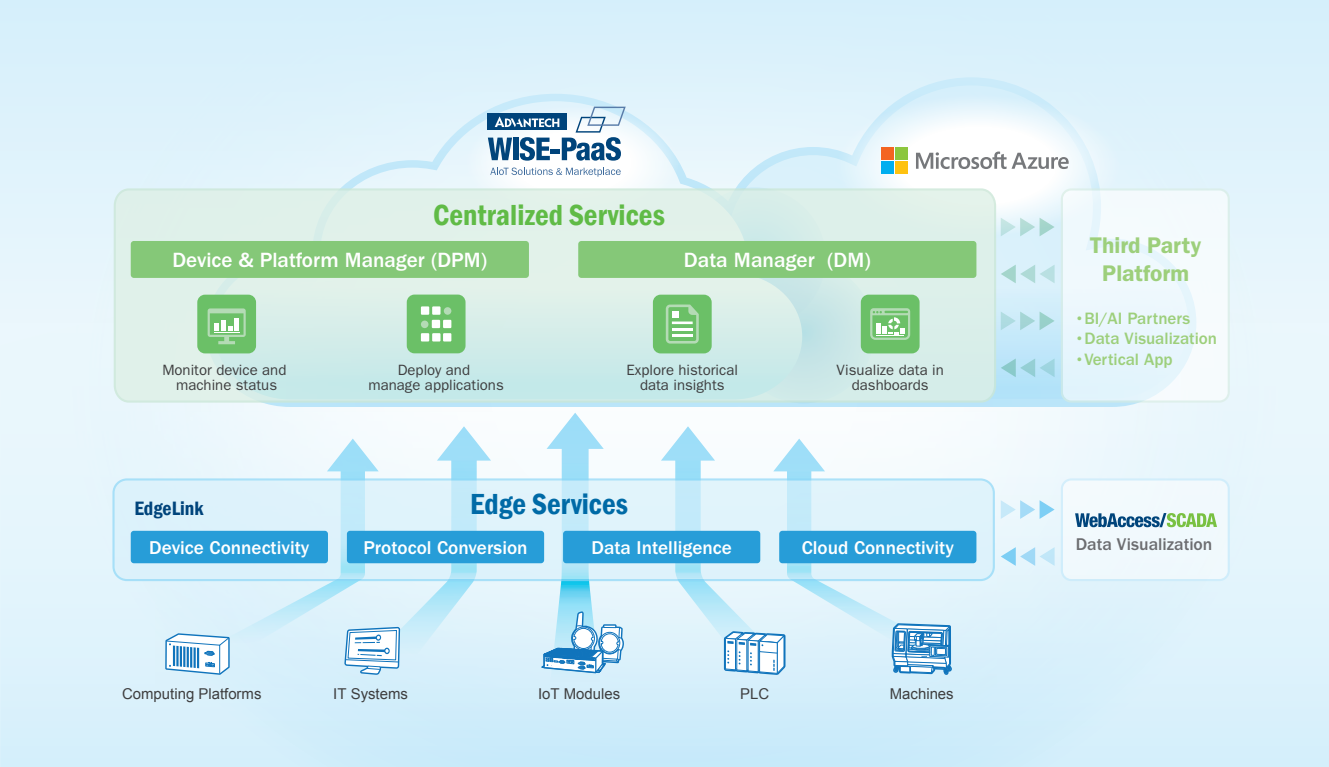
HMINavi is a powerful and intuitive software program for creating comprehensive human machine interface solutions. HMINavi is an easily integrated development tool with proven value in many application fields. Features include solution-oriented screen objects with built-in functionality, high-end vector symbols, graphics, and support for 450 PLC communication protocols. HMINavi also supports online/offline simulation and utility programs such as Data Transfer Helper (DTH), recipe editor, and text editor, ensuring easy development of all HMI applications.

AINavi

AINavi is deep-learning-based image analysis software that includes AI defect inspection tools and independent AI training software. It is designed for inspection in multi-product lines and multi-defect applications. AI defect inspection tool can be easily used in any defect inspection application. It reduces software development times and provides high-tolerance to environmental factors. It can also be implemented to replace manual inspection. The AI trainer software uses the latest neural network recognition judgment and it can train models with only a few images. AINavi lowers the threshold difficulty of applying AI algorithms in automation production lines. It provides a faster and more efficient way to deploy defect inspection tools.

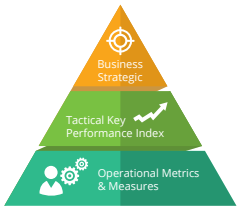
WISE-DataConnect

WISE-DataConnect is the fundamental core for device and Internet of Things management. In addition to edge device gateways or platform remote management, various data from IT database sources as well as data from OT sensors can be constructed to virtual things or virtual objects in order to make sufficient management in a centralized platform. WISE-DataConnect provides a device and platform management portal and allows customers to establish their own connected "things" to make real time monitoring dashboards as well as providing object based inquiry APIs for vertical application extensions, enabling seamless business and manufacturing digital transformation.



Industrial IoT Device, Platform, and Data Management

WISE-DataConnect is designed for managers to monitor connected equipment or devices easily. Engineers can also spend less time sifting through raw data and focus more on improving the reliability and performance of equipment or devices opertaion.



Hierarchical KPI management

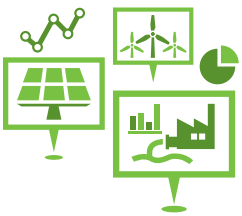
The clear roles and responsibility (R&R) defined in terms of organization structure over equipment management enhances risk assessment control with aid of stacked indexes via dashboard visualization. This provides straightforward KPI monitoring and comparison.

Comprehensive equipment management

Concise equipment effectiveness monitoring together with visualized operation status demonstrates prompt assignment monitoring where proactive decision can be made precisely.

Equipment profile management

Profile templates for equipment in terms of customer defined objects can be stored and used over and over upon site setup once equipment is connected.



Easy visualization setup

In practicee, visualization of domain focused scenarios become true plug and play. When transmitting data, the domain scenario dashboards obtain data automatically from equipment and objects will be displayed without any extra work.

Energy & Environment Solutions

Advantech has developed many solutions for energy and the environment using industrial IoT technologies that focus on the process of sensing, control monitoring, remote communication, and smart data management. By combing these technologies, Advantech can offer cloud-based monitoring and management solutions that perform data integration and analysis used in a wide variety of energy and environment industries.

Data acquisition using multiple communication protocols

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

Remote equipment monitoring and efficiency optimization

Each energy and environment solution 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.

WebAccess/SCADA based application solution

For energy monitoring, 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.

Event monitoring for real-time alarms

With wireless 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.

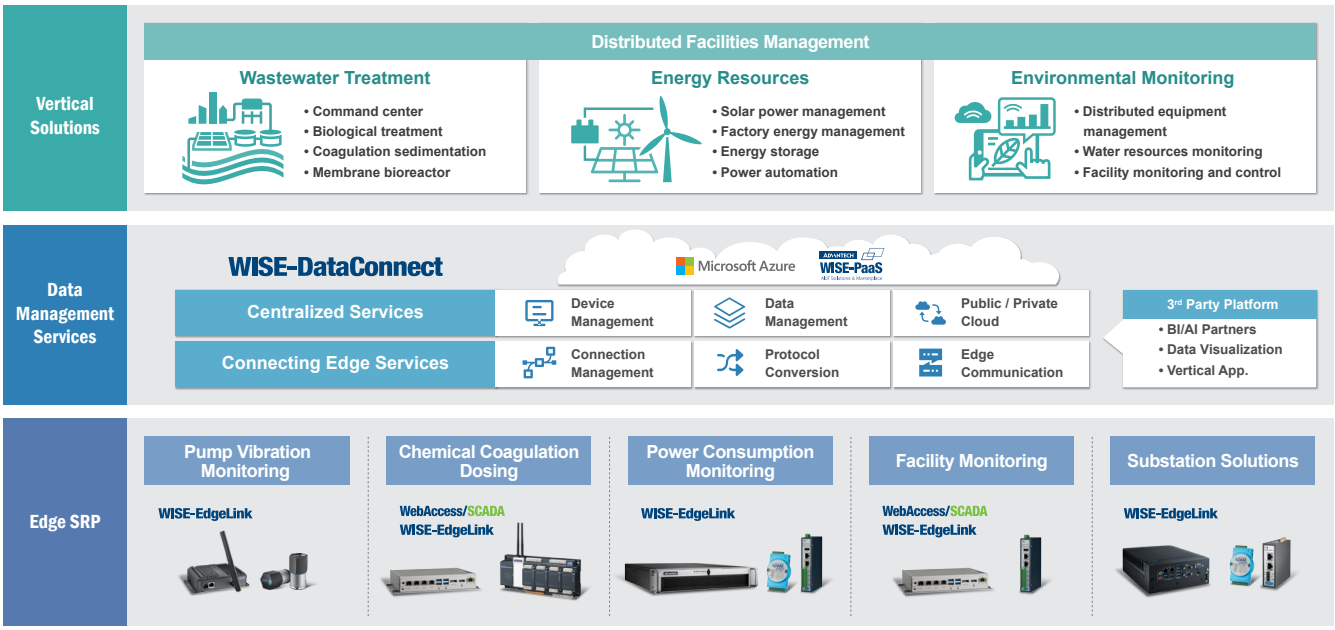
Visualized and integrated cloud platform

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.

Remote equipment diagnostics and predictive maintenance

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

System Architecture



Solar Power Management Solution (SPMS)

Transforming distributed energy resources to drive the grown of the renewable energy market

E&E SPMS

Distributed solar power operation and maintenance management system

- Decentralized control and centralized management
- Qualified for local regulations for seamless real-time process monitoring of station equipment

Energy Management Solution (EMS)

Highly stable and reliable centralized monitoring and management system for key energy consumption equipment

Energy EMS

Energy management system

- Displays electricity usage for analysis
- Graphical dashboard for clear energy indicators
- Data d iagnosis to save energy

Water and Wastewater Treatment

Cloud-enabled remote equipment management for water and wastewater

Water

Water management solution

- Real-time equipment monitoring scenario and dashboard setup
- Data visualization and analysis for water and wastewater treatment management

Water Waste Dosing

Wastewater chemical coagulation dosing solution

- Precise dosing
- Stable discharge water quality

Environmental Facility Monitoring

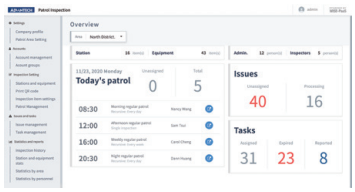
True plug and play standalone application suite for flexible and efficient facility management

E&E Patrol Inspection

Patrol inspection

Patrol inspection system is a true plug and play standalone application suite including an Advantech industrial PC and patrol inspection software system.

- Inspection user group management
- Hierarchical inspection site setup and survey configuration
- Dynamic patrol route scheduling

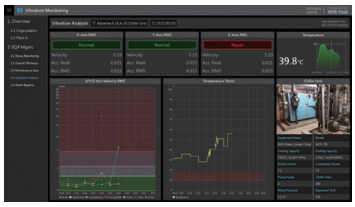


Env. Vibration

Vibration monitoring

Vibration monitoring system is a true plug and play standalone application suite including an Advantech industrial PC and vibration monitoring panel.

- ISO 10816-3 monitoring panel
- WebAccess/SCADA 1500 tags included



WISE-Factory Solutions

To confront the challenges of the future through digital transformation in Industry 4.0, Advantech developed an Industrial app platform to meet these challenges. Advantech provides WISE-Factory I.Apps that allow DFSI (Domain-Focused Solution Integrator) partners to have easy access to multiple I.App modules so they can collaborate with Advantech and develop complete industrial solutions. All WISE-Factory Apps are available on WISE-Marketplace and can be easily subscribed to via Advantech WISE points.

WISE-PaaS AIoT Cloud Platform

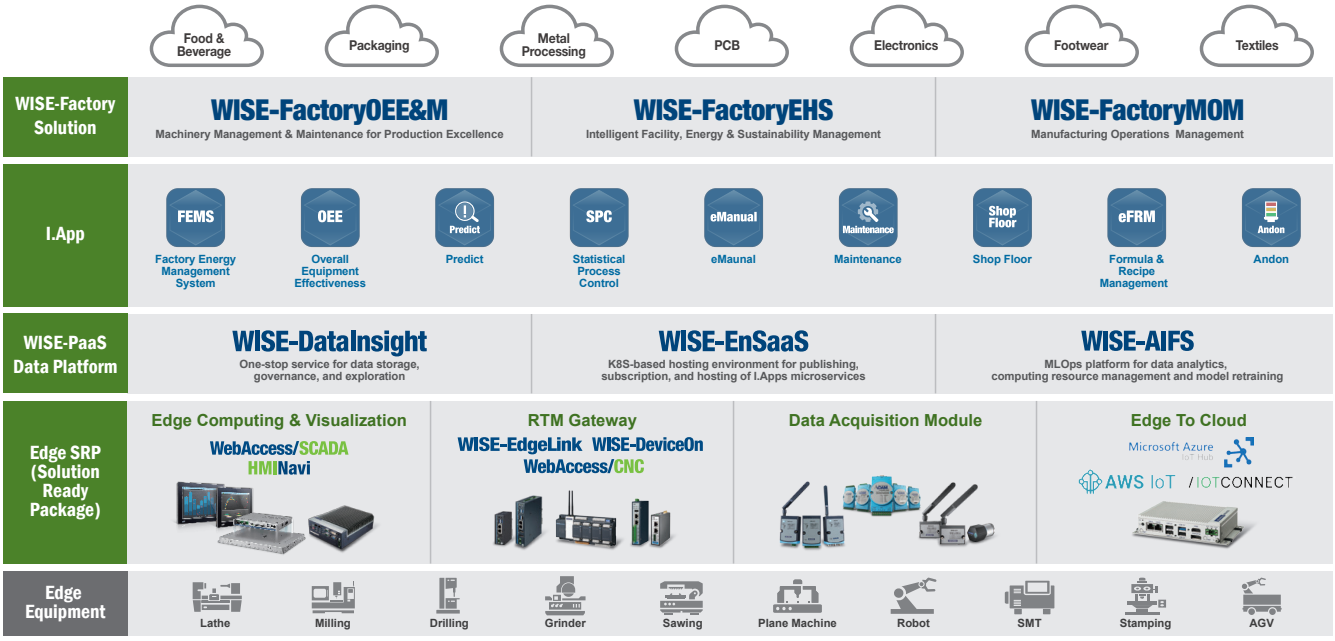
Advantech's WISE-PaaS AIoT cloud platform provides edge-to-cloud software and services to help system integrators, manufacturers, solution developers, and industrial end customers; enabling real AIoT-powered cloud business models in various vertical markets. Leveraging Advantech's extensive hardware portfolio, WISE-PaaS integrates diverse software services for edge connectivity. Data collected on hardware can be sent to the WISE-PaaS/EnSaaS industrial IoT cloud PaaS to help its ecosystem partners quickly develop SaaS and domain-specific IoT solutions based on our data-driven AIoT cloud platform, WISE-PaaS.

WISE-Marketplace

WISE-Marketplace is a trading platform for IIoT solutions that provide customers with subscription services for Industrial apps (I.Apps). The platform invites its ecosystem partners to launch their solutions via the platform. Users are able to subscribe to Edge. SRP, General I.App, Domain I.App, AI modules, as well as consulting services, and training services provided by Advantech and partners on WISE-Marketplace.

WISE-Factory I.Apps for Industry 4.0 Applications

Based on the WISE-PaaS platform, Advantech has developed some significant industrial apps that can be easily integrated and customized for various industries. Moreover, Advantech invites DFSI partners to connect with WISE-PaaS platform and co-create WISE-Factory I.Apps for Industry 4.0 applications, to help vertical industry customers implement rapid digital transformation.



Overall Equipment Effectiveness & Maintenance (OEE&M)

Real-time machine performance and maintenance support for operational excellence

WISE-FactoryOEE&M

Many manufacturers have adopted automated production machinery to improve production throughput and quality. Powerful production machinery can be incredibly complex making it difficult for users to identify and prevent machine problems during production. While machine suppliers have provide support to handle known common issues, trained mechanical professionals are still needed to service the machines and ensure optimal operations.

OEE&M is WISE-Factory's solution suite to enable better machine services and smoother operations. Machine data is aggregated to allow factory management to easily check machine performance and any anomalies. Maintenance and repairs are scheduled and recorded, this helps to ensure all service requests are handled properly with clear health records for production equipment.

Key Features

- Real-time data acquisition from production machinery, with support for multiple industrial protocols.
- Configurable machine performance metrics, including OEE, APQ etc.
- Track and record machine repair and maintenance requests, manage spare part stocks.
- Supports AI analytics methods to predict machine anomalies and remaining useful life for early intervention.
- Easy to use dashboard for composing data visualizations and reports.

Environment, Health & Safety (EHS)

Enabling smart manufacturing facilities for carbon neutral operations and a safer work place

WISE-FactoryEHS

Consumption of energy and water are a daily necessities for manufacturing. They contribute to a significant portion of production costs, as do the personnel needed to operate machines and perform various production work. Providing safeguards for your workforce helps keep them focused on the task at hand and also increases productivity.

EHS is WISE-Factory's solution suite for enabling smart facilities and safeguarding your workforce. Usage of energy and utilities can be monitored and attributed to specific production. Target usage levels can be set to help control resource consumption, with alerts to request intervention. Video analytics help identify personnel entering restricted areas and confirm if they are wearing the correct protective attire. Other analytics assist in forecasting energy needs, further helping to control costs and lowering the carbon footprint.

Key Features

- Whole facility monitoring for energy, utilities & safety.
- Configurable KPI targets to meet carbon targets and reduce waste.
- Calculate and analyze carbon footprint of your manufacturing operations.
- Integrate AI analytics methods to predict usage trends, video-based geofencing and motion analysis.
- Easy to use dashboard for composing data visualizations and reports.

Manufacturing Operations Management (MOM)

Digital transformation of manufacturing operations for flexible capacity

WISE-FactoryMOM

In order to produce a complete product, each piece must go through a series of manufacturing steps. With the impact of COVID on the global supply chain, as well as the increasingly high mix low volume operational model, tracking production progress and adapting production capabilities has never been more complex.

MOM is WISE-Factory's solution suite to support manufacturers along their digital transformation journey. Work plans can be arranged in our solution suite or received from ERP systems. Based on available resources and routing, work can easily be allocated to corresponding areas for execution. Live production data is collected from the shop floor and updated on real-time dashboards. Digital work instructions complement guidance for operators and technicians during work tasks, reducing errors and time needed for training.

Key Features

- Schedule and dispatch production work.
- Guide assembly and machine setup for production.
- Track and record production outcomes, QC results.
- Real-time updates & transparency to support upper management business decisions.
- Easy integration with ERP, PLM and existing IT systems.

2 Intelligent Systems

Intelligent Systems

Full range of industrial computers and integration services for automation applications

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 intelligent systems are 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.

Modular IPCs

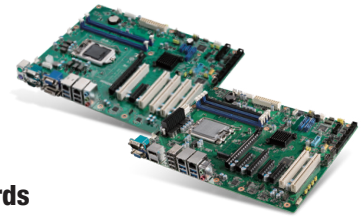
Modular computers are aimed at machine automation applications such as vision inspection, AOI, packaging inspection, process automation and intelligent monitoring. Modular IPCs are suited to service and maintenance applications and this compact system, with POE and the latest Intel Core processors. They can used in edge computing applications as they deliver enhanced computing and graphic performance.

Intelligent Inspection Systems

AIIS Vision system series are applied to machine automation applications such as AOI, label inspection, and alignment inspections which rely on machine vision. With PoE vision, USB3 vision, lighting control and multiple I/O interfaces, AIIS control system deliver performance computing and low power consumption. They offer intelligent management and extended product longevity.

Industrial chassis

Advantech offers a complete selection of industrial computer chassis from 1U to 4U 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-DeviceOn or SNMP sub agent.



Industrial motherboards

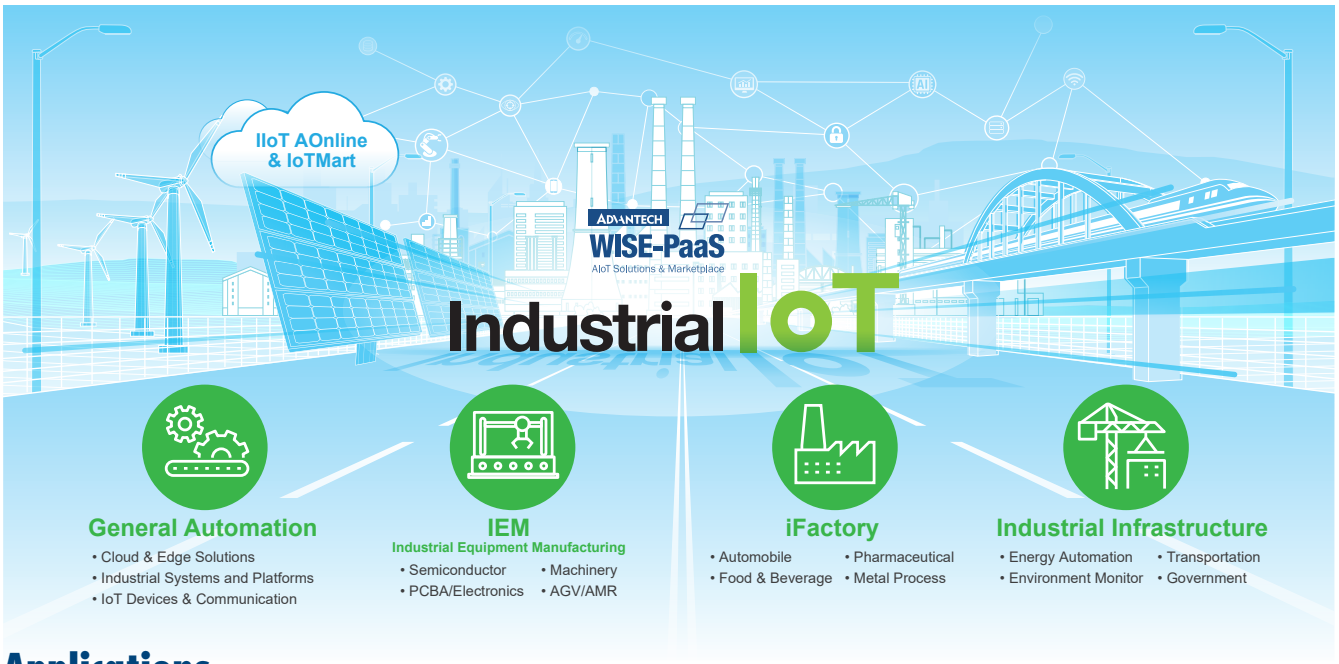
Advantech provides a complete range of industrial motherboards in various form factors, from performance-rich ATX to best price/performance MicroATX and ultra compact highly integrated Mini-ITX. These motherboards are highly integrated and deliver advanced features like multi-core processing and PCI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

Slot SBCs and passive backplanes

Slot single board computers (SBC) and backplanes follow PICMG 1.0 and PICMG 1.3 standards that offer flexibility and performance. Assembled with backplanes, slot SBCs and embedded PCs with multiple I/O and processing elements. We also provide customizable passive backplanes which include PCI boards, ISA boards, PICMG 1.3, PICMG 1.0 full-sized, and half-sized single board computers.

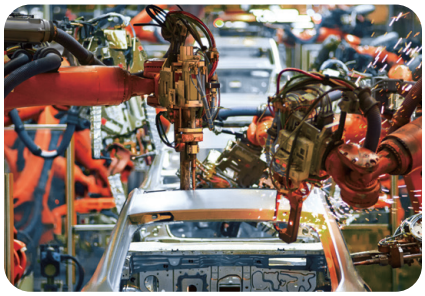
Industrial computer peripherals

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



Applications

Automated Optical Inspection (AOI)



Factory Automation

Predictive Maintenance

Automatic Equipment

Imaging Processing

AI Inference

Start your Business with an IPC Expert

Tool-less thumb screws

Lockable door, with-or-without key

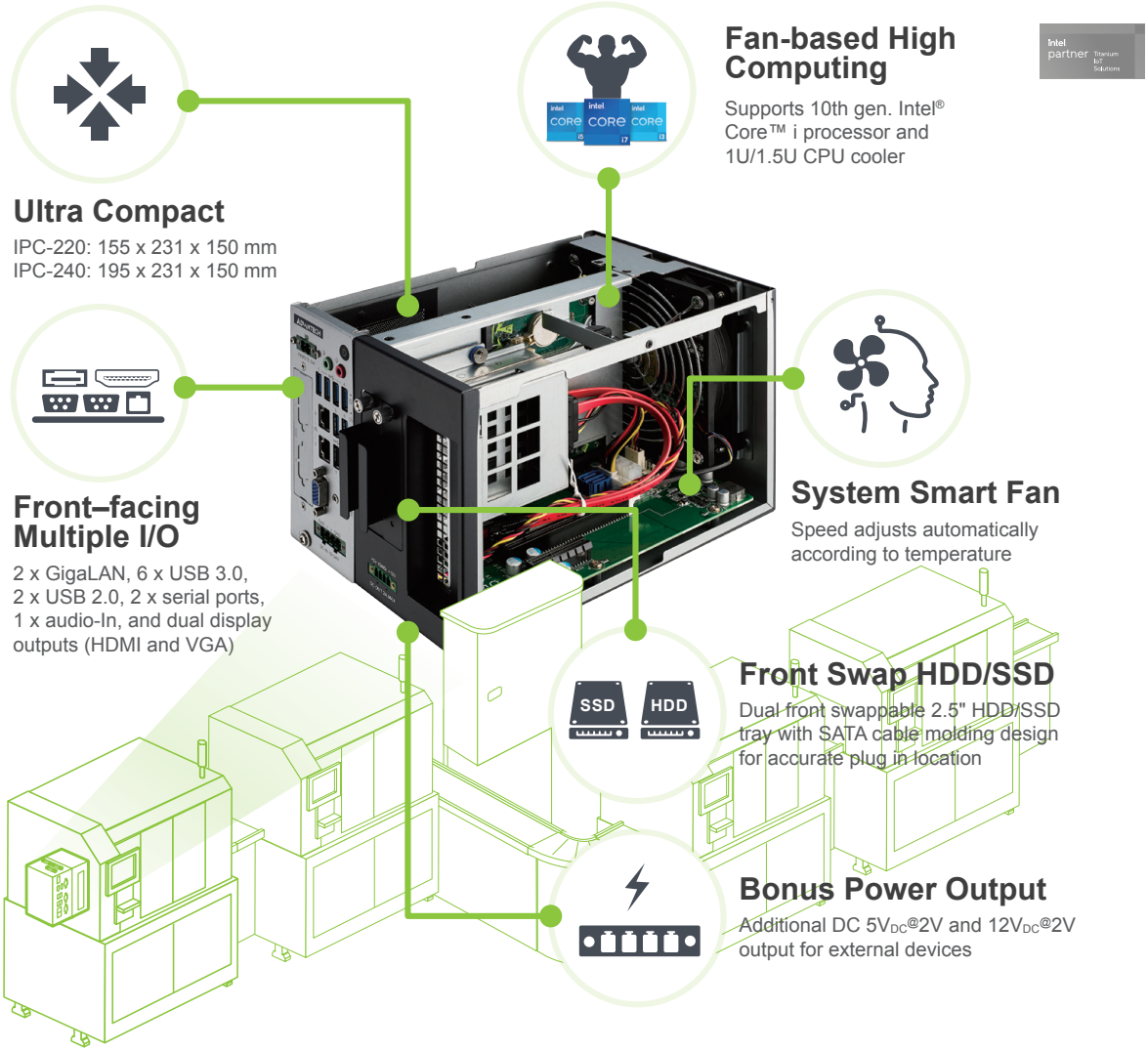
Front-accessible fan without opening top cover

Small footprint chassis design for better work field layout arrangement

Ultra Compact IPCs

Advantech industrial edge computer for intelligent manufacturing

The current industrial automation market is trending towards increasingly compact form factors and intelligent designs that offer space savings and boost efficiency. Advantech's latest IPC-200 series is an ultra-compact industrial edge computer that features a wide operating temperature range, wide input power tolerance, and front-facing I/O for convenient access and easy deployment. Despite its compact size, the IPC-220/240/242 offers high expandability to support machine vision and motion control, making it ideal for industrial automation and equipment manufacturing applications. Moreover, with Advantech's rapid and localized configuration services, the IPC-220/240/242 reduces the time-to-market for machine builders and accelerates the realization of Industry 4.0.



Learn More: https://www.advantech.com/campaign/compact-ipc

Ultra Compact IPCs

Ultra Compact Chassis



Model		IPC-220	IPC-240	IPC-242
Form Factor		Compact	Compact	Compact
Drive Bay	2.5"	2 HDD/SSD (Max 15mm Height)	2 HDD/SSD (Max 15mm Height)	2 HDD/SSD (Max 15mm Height)
Cooling	No. of Fans	1	1	1
	CFM	82	82	46.62
	Air Filter	Yes	Yes	Yes
Power Supply	AC	–	–	250W Flex
	DC	19 ~ 24 V_{DC}, 8A ~ 6.5A		–
	DC Ouput	5V_{DC} and 12V_{DC}, 2A MAX		
	System Power Consumption	150W (without add on card) ~ 230W (with add on card)		AC 250W
Backplane	PCIe x16	1	1	1
	PCIe x4	1	IPC-240-20A1: 3 IPC-240-21A1: 1	IPC-242-00A1: 3 IPC-242-01A1: 1
	PCI	–	IPC-240-20A1: 0 IPC-240-21A1: 2	IPC-242-00A1: 0 IPC-242-01A1: 2
Dimension (W x H x D)	mm	155 x 231 x 150	195 x 231 x 150	333 x 269.2 x 88
	inch	6.1" x 9.05" x 5.9"	7.68" x 9.05" x 5.9"	13.11" x 10.55" x 3.46"
	Weight	3.1 kg	3.3 kg	4.2 kg
Support MB		PCE-2032/PCE-2132/PCE-2033/PCE-2133		

Ultra Compact Motherboards

Model		PCE-2033/PCE-2133	PCE-2132/PCE-2032
Form Factor		Compact	
Processor System	Chipset	Q670E/H610E	Q470E/H420E
	CPU	Intel® 12th Gen Core™ i (LGA1700)	Intel® 10th Gen Core™ i (LGA1200)
	Core	Max. 16	Max. 10
	Cache	Max. 30 MB	Max. 20 MB
	Memory	Dual DDR5 4800 MHz Max. 64 GB	Dual DDR4 2666/2933 MHz Max. 64 GB
Graphic	Graphics Controller	Intel UHD Graphics	Intel® HD Graphics
	VRAM	Shared system memory is subject to OS	
Expansion	Mini PCIe	1	
Storage	SATA Channel	2 with SATA 3.0	
	M.2	PCE-2033-00A1: 0 PCE-2133-00A1: 1 (NVMe M.2 2280 (PCIe Gen3 x4), M-key)	PCE-2032-00A1: 0 PCE-2132-00A1: 1 (NVMe M.2 2280 (PCIe Gen3 x4), M-key)
	mSATA	PCE-2033-00A1: 0 PCE-2133-00A1: 1(SATA/mPCIe/USB)	PCE-2032-00A1: 1(SATA) PCE-2132-00A1: 1(SATA/mPCIe/USB)
	RAID	0/1/5 (Q670E Only)	0/1/5 (Q470E Only)
Ethernet	Ethernet Interface	2 x RJ45	
	Controller	Q670E: LAN1: Intel® I219LM, LAN2: Intel® i225LM H610E: LAN1: Intel® I219V, LAN2: Intel® i225V	Q470E: LAN1: Intel® I219LM, LAN2: Intel® i210AT H420E: LAN1: Intel® I219V, LAN2: Intel® i210AT
Front I/O	Display	VGA + HDMI	
	LAN	2	
	USB	Q670E: 6 x USB 3.2, 2 x USB 2.0, 2 x Internal USB 2.0 H610E: 4 x USB 3.2, 4 x USB 2.0, 2 x Internal USB 2.0	Q470E: 6 x USB 3.2, 2 x USB 2.0, 2 x Internal USB 2.0 H420E: 6 x USB 3.2, 2 x USB 2.0, 2 x Internal USB 2.0
	COM	2 x RS-232/422/485 support auto flow control	
	Audio	2 (1 x line out and 1 x mic in)	
	Remote Power Switch	✓	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1 ~ 255 sec/min	
Support Chassis		IPC-220 / IPC-240 / IPC-242	

✓ : supported, – : not supported, △ : optional

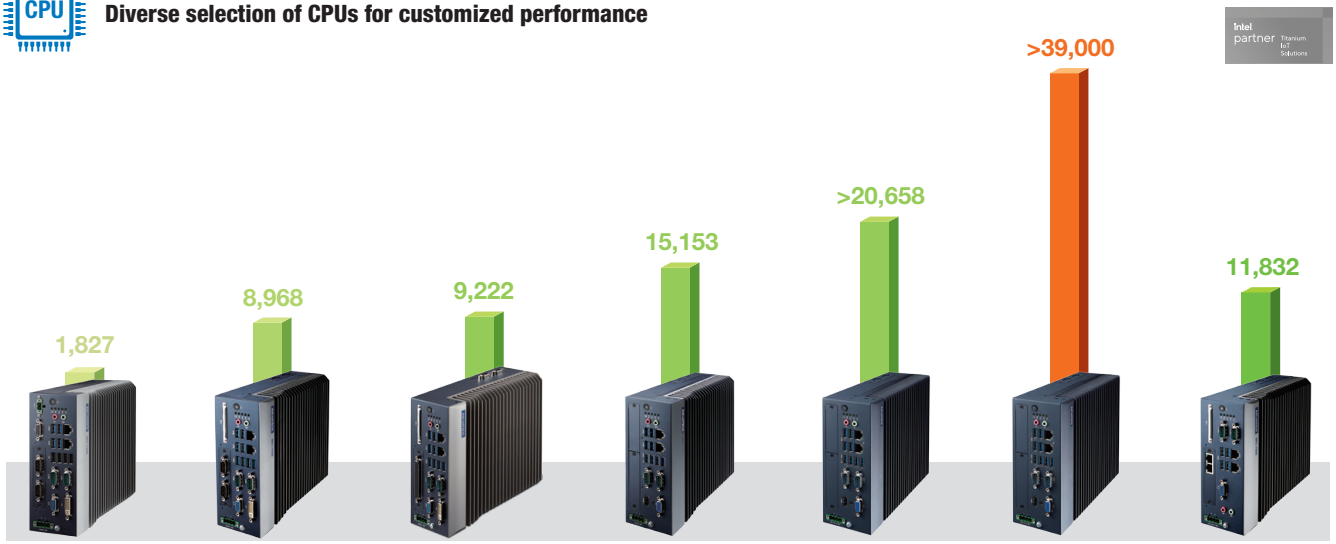
Modular IPCs

Fanless Modular System Introduction

Be flexible, be invincible: fanless edge PCs for the industrial IoT era

To enable the realization of Industry 4.0, field-based edge intelligence is important for developing new IoT applications. Advantech's MIC-7 series PCs provide high-performance computing, multiple I/O interfaces, and flexible expandability with the integration of i-Modules and iDoor, and can be widely deployed to support various industrial IoT applications. The MIC-7 series can be equipped with a wide range of processors to provide custom entry-level and high-end solutions. With the provision of multiple I/O for connecting devices, MIC-7 systems can serve as a data gateways and industrial controllers. Moreover, when integrated with intelligent i-Modules, a variety of add-on cards can be installed for machine automation applications.

Diverse selection of CPUs for customized performance



MIC-7300
- Atom™/APL
- 4 Cores
- 4 Threads

MIC-7500
- 6 Gen Intel® Core™
- 4 Cores
- 8 Threads

MIC-7700
- 6/7 Gen Intel® Core™
- 4 Cores
- 8 Threads

MIC-770
- 8/9 Gen Intel® Core™
- 8 Cores
- 12 Threads

MIC-770 V2
- 10 Gen Intel® Xeon®/Core™
- 10 Cores
- 20 Threads

MIC-770 V3
- 12 Gen Intel® Core™
- 16 Cores
- 24 Threads

MIC-7900
- Xeon®
- 12 Cores
- 24 Threads

Various expansion I/O for flexible communication

Innovative slot expansion for enhanced control

Learn More: https://page.advantech.com/en/global/intelligent-systems/modular-ipc/mic-7-series

Modular IPCs

Fanless Modular System: MIC-7 Series




Model		MIC-770 V3	MIC-770 V2	MIC-770	MIC-7700
Form Factor		Compact	Compact	Compact	Compact
Processor System	Chipset	R680E/H610E	W480E/H420E	Q370/H310	Q170/H110
	CPU	Intel® 12th Gen Core™ i socket type (LGA1700)	Intel® 10th Gen Xeon®/Core™ i socket-type (LGA1200)	Intel® 8th/9th Gen Core™ i socket-type (LGA1151)	Intel® 6th/7th Gen Core™ i socket-type (LGA1151)
	Core	Max. 16	Max. 10	Max. 8	Max. 4
	Cache	Max. 30 MB	Max. 20 MB	Max. 12 MB	Max. 8 MB
	Memory	Dual DDR5 4800 MHz SODIMM Max. 64GB	Dual DDR4 2933 MHz SODIMM Max. 64GB	Dual DDR4 2400/2666 MHz SODIMM Max. 64 GB	Dual DDR4 2400 MHz SODIMM Max. 32 GB
Graphic	Graphics Controller	Intel® UHD 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	Supported via i-Module	Supported via i-Module
	PCIe x8				
	PCIe x4				
	PCIe x1				
	PCI				
	Mini PCIe	2 (R SKU) 1 (H SKU)	2 (W Sku) 1 (H Sku)	2 (Q Sku) 1 (H Sku)	2 (Q Sku) 1 (H Sku)
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	1 x 2.5" internal HDD/SSD bay
	M.2	1 x NVMe M.2 2280 (PCIe Gen3 x4), M-key	–	–	–
	mSATA	1	1	1	1
	CFast	–	–	–	1
	RAID	0/1/5/10 (R SKU only)	0/1/5/10 (W SKU only)	0/1/5/10 (Q SKU only)	0/1/5/10 (Q SKU only)
Ethernet	Ethernet Interface	2 x RJ45 10/100/1000 Mbps	2 x RJ45 10/100/1000 Mbps	2 x RJ45 10/100/1000 Mbps	2 x RJ45 10/100/1000 Mbps
	Controller	R680E: LAN1: Intel® I219LM LAN2: Intel® i210IT H610E: LAN1: Intel® I219V LAN2: Intel® I210IT	W480E LAN1: Intel® I219LM LAN2: Intel® I210IT H420E LAN1: Intel® I219V LAN2: Intel® I210IT	Q370 LAN1: Intel® I219LM, LAN2: Intel® I210IT H310 LAN1: Intel® I219V, LAN2: Intel® I210IT	Q170 LAN1: Intel® I219LM, LAN2 Intel I210IT H110 LAN1: Intel® I219V, LAN2: I210IT
Front I/O	Display	VGA+HDMI	VGA+HDMI	VGA+HDMI	VGA+DVI-D
	LAN	2	2	2	2
	USB	R680E: 2 x USB3.2 (Gen2), 6 x USB3.2 (Gen1), 1 x USB 2.0 (Internal) H610E: 4 x USB3.2 (Gen1), 4 x USB2.0	W480E: 2 x USB 3.2 (Gen2), 6 x USB 3.2 (Gen1) and 1 x internal USB 2.0 H420E: 4 x USB3.2 (Gen1), 4 x USB 2.0	Q370: 2 x USB3.1, 6 x USB3.0 and 1 x internal USB 2.0 H310: 4 x USB 3.0 and 4 x USB 2.0	Q170: 8 x USB 3.0 , 1 x internal USB 2.0 H110: 4 x USB 3.0, 4 x USB 2.0
	COM	2 x RS-232/422/485 supports auto flow control; 4 x RS-232 (Optional)	2 x RS-232/422/485 supports auto flow control; 4 x RS-232 (Optional)	2 x RS-232/422/485 supports auto flow control; 4 x RS-232 (Optional)	2 x RS-232/422/485 supports auto flow control + 4 x RS-232
	Audio	Line out/mic in	Line out/mic in	Line out/mic in	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	–	–	–	–
	Input Range	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}
	Remote Power Switch	△	△	△	△
Cooling	System Fan	–	–	–	–
	Air Filter	–	–	–	–
Physical Characteristics	Dimensions (W x H x D)	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")
	Weight	2.9 kg	2.9 kg	2.9 kg	2.9 kg

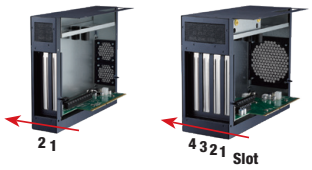
✓ : supported, – : not supported, △ : optional

Modular IPCs

Fanless Modular System: MIC-7 Series

Model		MIC-790	MIC-7900	MIC-7300
Form Factor		Compact / 2U Rackmount	Compact	Compact
Processor System	Chipset	–	–	–
	CPU	Intel® Ice Lake -D Xeon D-2752TER BGA-type	Intel® Xeon® D-1559/D-1539 BGA-type	Intel® Celeron® N3350/ Atom™ x7-E3950 BGA-type
	Core	12	Max. 12	Max. 4
	Cache	Max. 20 MB	Max. 18 MB	2 MB
	Memory	Six DDR4 2666 MHz SODIMM (support ECC) Max. 192GB	Dual DDR4 2400 MHz SODIMM (supports ECC) Max. 32 GB	Dual DDR3L 1867 MHz SODIMM Max. 8 GB
BMC		IPMI supported with Nuvoton N6776D	–	–
Graphic	Graphics Controller	ASPEED AST2600 with PCIe VGA/2D controller	ASPEED AST1400 with 256 MB VGA memory provides basic 2D VGA function	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	2 (via expansion riser card)	Supported via i-Module	–
	PCIe x8	–		–
	PCIe x4	–		–
	PCIe x1	–		Supported via i-Module
	PCI	–		Supported via i-Module
	Mini PCIe	–	1	1
	M.2	1 x M.2 3052 B-key for 5G LTE module 1 x M.2 2242 E-key for Wi-Fi module	–	–
Storage	Storage Bay	2 x 2.5" front accessible SSD	1 x 2.5" internal HDD/SSD bay	1 x 2.5" internal HDD/SSD bay
	M.2	2 x NVMe M.2 2280 (PCIe Gen3 x4), M-key	1 x NVMe M.2 22110 (PCIe Gen3 x4), M-key	–
	mSATA	–	1	1
	CFast	–	1	–
	RAID	–	–	–
Ethernet	Ethernet Interface	2 x RJ45 10GbE, 4 x RJ45 10/100/1000Mbps	2 x RJ45 10/100/1000 Mbps	2 x RJ45 10/100/1000 Mbps
	Controller	1 x Intel® X557-AT2, 4 x Intel® I210IT	4 x Intel® i210IT	2 x Intel® i210AT
Front I/O	Display	VGA	VGA	VGA+DVI-D
	LAN	2+4	4	2
	USB	2 x USB 3.0, 2 x USB 2.0	4 x USB 3.0	2 x USB 3.0 6 x USB 2.0
	COM	1 x COM RS-232	2 x RS-232/422/485 supports auto flow control 2 x RS-232	2 x RS-232/422/485 supports auto flow control + 4 x RS-232
	Audio	Line out/mic in	Line out/mic in	Line out/mic in
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	500W, 12V, 41.7A	–	–
	Input Range	90 ~ 264 V_{AC}, 127 ~ 379 V_{DC}, 47 ~ 63 Hz	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}
	Remote Power Switch	–	–	1
Cooling	System Fan	–	–	–
	Air Filter	–	–	–
Physical Characteristics	Dimensions (W x H x D)	295 x 88 x 350 mm (11.61" x 3.46" x 13.78")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")
	Weight	10 Kg	2.9 kg	2.9 kg

✓ : supported, – : not supported, △ : optional



i-Module Expansion Slot for MIC-7 Series

i-Module	MIC-75M10	MIC-75M11	MIC-75M20	MIC-75M20-01	MIC-75M40	MIC-75M13	MIC-75S20	MIC-75G20	MIC-75G30
Slot 1	PCIe x16*	PCIe x16*	PCIe x4*	PCIe x8*	PCIe x4	PCIe x16*	PCIe x16*	PCIe x16	–
Slot 2	–	PCI	PCIe x16*	PCIe x8*	PCIe x8	PCI	PCIe x4*	–	PCIe x16 (signal PCIe x8) for GPU card
Slot 3	–	–	–	–	PCIe x4	PCI	–	PCIe x4	-
Slot 4	–	–	–	–	PCIe x4	PCI	–	–	PCIe x16 (signal PCIe x8) for GPU card
Slot 5	–	–	–	–	–	–	–	–	PCIe x4
SATA Port	–	1							1
SATA PWR	–	1							1
2.5" HDD/ SSD Bay	–	1**			2		2 x Swappable + 2 x Internal	2 x Swappable	2 x swappable
N.W. (kg)	0.64	0.87			1.16		1.60	2.99	5
G.W. (kg)	1.71	2.02			2.47		2.98	4.79	7
i-Module (W x H x D)	24 x 192 x 230	50 x 192 x 230			90 x 192 x 230			110 x 192 x 350	203 x 192 x 385
MIC-7000 + i-Module (W x H x D)	97 x 192 x 230	123 x 192 x 230			163 x 192 x 230			184 x 192 x 350	276 x 192 x 385
MIC-77X + i-Module (W x H x D)	101 x 192 x 230	127 x 192 x 230			167 x 192 x 230			187 x 192 x 350	280 x 192 x 385
System Fan	–	98R1752000E (Optional)***			98R1751300E (Optional)***			Embedded	Embedded
12VDC Conn	1								
12VDC Conn. for GPU	–							2	4
PCI/PCIe Card Max. Length (with system fan)	190.2 mm				184.75 mm			287.35 mm	331 mm
PCI/PCIe Card Max. Length (without system fan)	210.4 mm							–	–

* If installed on MIC-7300, this slot will be a PCIe x1 signal.
** Need to order 98R1752010E (2.5" HDD/SSD kit for 2-slot i-Module)
*** Suggest to add optional system fan if power consumption of add-on card is more than 45W for better thermal management.

Compatible Table

i-Modules / MIC-7 System	1-Slot	2-Slot			4-Slot		Featured		
	MIC-75M10	MIC-75M11	MIC-75M20	MIC-75M20-01	MIC-75M40	MIC-75M13	MIC-75S20	MIC-75G20	MIC-75G30
MIC-7300	✓	✓	✓	–	–	✓	✓	–	–
MIC-7700Q/ MIC-770V1Q MIC-770V2W	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIC-7700H/ MIC-770V1H/ MIC-770V2H/ MIC-770V3H	✓	✓	✓	–	–	✓	✓	✓	✓
MIC-770V3W	✓	✓	✓	✓	–	✓	✓	✓	✓
MIC-7900	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ : supported, – : not supported, △ : optional

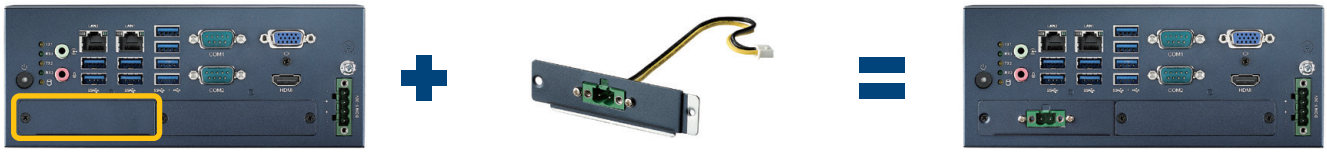
Modular IPCs

Flex I/O Expansion Kit for MIC-7 Series

Flex I/O series modules provide flexible expansion for MIC-7 Series so customers can enjoy display, more control, and better communication via Flex I/O. All Flex I/O are attached directly from connectors reserved on the MIC-7 series main board and installed on the front panel, making it easy to fulfill machine, factory automation, and IEM deployments.

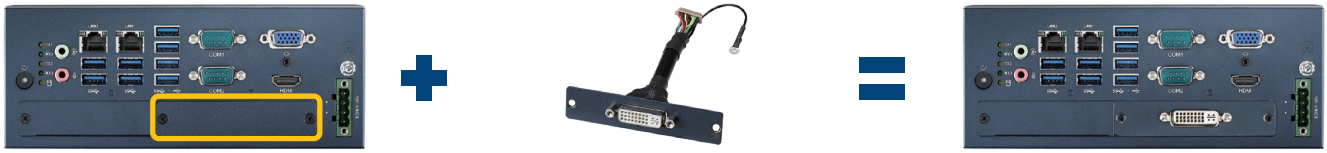
Flex I/O Assembly Example

Small Flex I/O



Default MIC-770 | Small Flex I/O Remote Switch | After Assembly

Regular Flex I/O

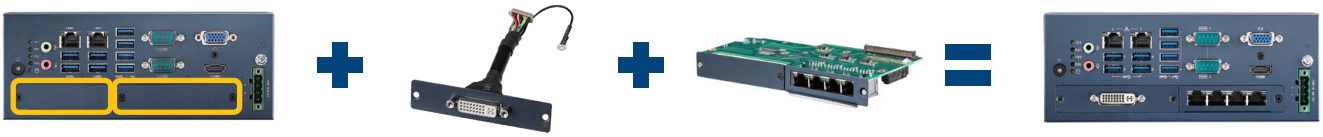


Default MIC-770 | Regular Flex I/O DVI | After Assembly

Default MIC-770 | Small Flex I/O Remote Switch | Regular Flex I/O DVI | After Assembly

Advanced Flex I/O

Default MIC-770 | Advanced Flex I/O NVME + 4x LAN | After Assembly



Default MIC-770 | Regular Flex I/O DVI | Advanced Flex I/O NVME + 4x LAN | After Assembly

Default MIC-770 | Advanced Flex I/O 4 x PoE | After Assembly

Compatible Table

Flex I/O	Function	Part Number	MIC-7300	MIC-7500	MIC-7700		MIC-770		MIC-770 V2		MIC-770 V3		MIC-7900
					Q	H	Q	H	W	H	W	H	
Small FIO													
	Remote Switch	98R17500701	–	–	–	–	✓	✓	✓	✓	✓	✓	–
Regular FIO													
	DVI	98R17500001	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–
	HDMI & Remote Switch	98R17500101	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–
	HDMI	98R17500301	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–
	Remote Switch	98R17500401	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	COM Port	98R17500601	–	–	–	–	✓	✓	✓	✓	✓	✓	–
	Reset & Remote Switch & 5VDC	98R17500801	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	8-bit GPIO	98R17500901	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Dual LAN	9891790040E	–	–	✓	–	–	–	–	–	–	–	–
	GPIO module (32-bit)	AIIS-DIO32-00A1E	–	✓	✓	✓	–	–	–	–	–	–	✓
	TPM module	PCA-TPM-00B1E	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–
Advanced FIO													
	NVME+ 4x LAN	98910770301	–	–	–	–	✓	–	✓	–	✓	–	–
	NVME	98910770401	–	–	–	–	✓	–	✓	–	✓	–	–
	POE	98910770501	–	–	–	–	✓	–	✓	–	✓	–	–

✓ : supported, – : not supported, △ : optional

Intelligent Inspection Systems

Model		AIIS-3411P	AIIS-3411U
Form Factor		Compact	Compact
Processor System	Chipset	H420E	H420E
	CPU	Intel 10th generation Core i CPU(LGA1200)	Intel 10th generation Core i CPU(LGA1200)
	Core	Max. 10	Max. 10
	Cache	Max. 20MB	Max. 20MB
	Memory	Dual channel DDR4 2933/2666 MHz (non-ECC) SODIMM Max. 64 GB	Dual channel DDR4 2933/2666 MHz (non-ECC) SODIMM Max. 64 GB
Graphics	Graphics controller	Integrated Intel HD Graphics	Integrated Intel HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS
Machine Vision Interface	Interface	4-ch PoE	4-ch USB 3.0
	Controller	i210AT	Renesas µPD720202
Industrial I/O	PWM Lighting Output	4 Channels (via Optional AIIS-1882)	4 Channels (via Optional AIIS-1882)
	Lighting Trigger	4 Dedicated Channels (isolated, via optional AIIS-1882)	4 Dedicated Channels (isolated, via optional AIIS-1882)
	Digital I/O	28 Channels (isolated, via optional AIIS-1882)	28 Channels (isolated, via optional AIIS-1882)
Expansion	PCIe x8	1	1
	PCI*	1 x riser card (optional)	1 x riser card (optional)
	mini PCIe	1	1
	Lighting control	Yes, Optional AIIS-1882	Yes, Optional AIIS-1882
Storage	HDD Bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay
	mSATA	1	1
	CFast	–	–
	RAID	–	–
Ethernet	Ethernet interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i210AT	LAN1: Intel i219LM LAN2: Intel i210AT
Front I/O	Display	VGA + HDMI 1.4	VGA + HDMI 1.4
	LAN	2	2
	USB	4 x USB 3.0	4 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	Line out/mic in
Watchdog Timer Output	Output	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min
Power Supply	Output Wattage	–	–
	Input Range	19~24 V_{DC}	19~24 V_{DC}
	Remote Power Switch	1	1
Cooling	System Fan	1 (8cm / 57 CFM)	1 (8cm / 57 CFM)
	Air Filter	–	–
Physical Characteristics	Dimensions (W x H x D)	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	2.56kg	2.56kg

✓: supported, – : not supported, △: optional




Model		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) SODIMM Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) SODIMM Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) SODIMM Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) SODIMM 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
Machine Vision Interface	Interface	4-ch PoE	4-ch USB	4-ch PoE	4-ch USB
	Controller	Intel i210AT	Renesas µPD720202	Intel i210AT	Renesas µPD720202
Industrial I/O	PWM Lighting Output	–	–	–	–
	Lighting Trigger	–	–	–	–
	Digital I/O	8 Channel (isolated) 32 Channels (isolated, via optional AIIS-1750)	8 Channel (isolated) 32 Channels (isolated, via optional AIIS-1750)	8 Channel (isolated) 32 Channels (isolated, via optional AIIS-1750)	8 Channel (isolated) 32 Channels (isolated, via optional AIIS-1750)
Expansion	PCIe x8	–	–	1	1
	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	Ethernet interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i210AT	LAN1: Intel i219LM LAN2: Intel i210AT	LAN1: Intel i219LM LAN2: Intel i210AT	LAN1: Intel i219LM LAN2: Intel i210AT
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	Remote Switch	Yes	Yes	Yes	Yes
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 70.3 x 175 mm (9.06" x 2.77" x 6.89")	230 x 70.3 x 175 mm (9.06" x 2.77" 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

Industrial Chassis

Wallmount





Model			☞ IPC-6806S	☞ IPC-6806	☞ IPC-6806W	☞ IPC-6606 ☞ IPC-6608		☞ IPC-7132
Supported Form Factor			PICMG 1.0/1.3 HL SBC	PICMG 1.0 FL SBC	PICMG 1.0/1.3 FL SBC	PICMG 1.0/1.3 FL SBC		ATX/µATX
Drive Bay	Slim ODD		–	–	–	–	–	–
	5.25"		–	–	1	1	2	1
	2.5"		–	–	–	–	–	–
	3.5"	Hot-swap tray	–	–	–	–	–	–
		External	(no support for IPC-DT-3120E)	1	1	1	1	1
		Internal	1	1	1	1	–	2
Chassis I/O	USB 2.0		2	2	2	2	2	2
	USB 3.0		–	–	–	–	–	–
	PS/2		–	–	–	–	–	–
Cooling	No. of Fans		1	1	1	1	1	1
	CFM		51.5	51.5	58	51.5	82	82
Power Supply	AC Single		250W	250W	350W	300W 500W 700W		300W 500W 700W
	AC Redundant		(mechanical limit)	(mechanical limit)	(mechanical limit)	(mechanical limit)		–
	DC		(mechanical limit)	(mechanical limit)	(mechanical limit)	(mechanical limit)		–
Passive backplane	PICMG 1.0		✓	✓	✓	✓		–
	PICMG 1.3		✓	–	✓	✓		–
Intelligent System Module			–	–	–	–		–
Dimension (W x H x D)	mm		191 x 178 x 290	166 x 178 x 398	198 x 221 x 398	174 x 254 x 396	174 x 315 x 410	200 x 330 x 430
	inch		7.5 x 7.01 x 11.42	6.54 x 7.01 x 15.67	7.8 x 8.7 x 15.67	6.9 x 10 x 15.6	6.9 x 12.4 x 16.1	7.9 x 13 x 16.9
Weight	kg		5.6	6.3	8	9	11	10
	lb		12.3	13.9	17.6	19.8	24.2	21.9

✓: supported, – : not supported, △: optional

Wallmount





Model			☞ IPC-5120 ☞ IPC-7120		☞ IPC-6025	☞ IPC-5122	☞ IPC-7130 ☞ IPC-7130L		☞ IPC-7220
Supported Form Factor			µATX	ATX/µATX	PICMG 1.0/1.3 FL SBC	µATX	ATX/µATX		ATX/µATX
Drive Bay	Slim ODD		–		–	1	–	–	–
	5.25"		1		–	–	1	1	2
	2.5"		–		–	–	–	–	–
	3.5"	Hot-swap tray	–		–	–	2	–	–
		External	1		1	1	–	2	1
		Internal	1		1	1	1	1	1
Chassis I/O	USB 2.0		–		2	2	2	2	2
	USB 3.0		–		–	–	–	–	–
	PS/2		–		–	–	–	–	–
Cooling	No. of Fans		1 + 1		1	1	1 + 1	1	1
	CFM		82 + 11		51.5	82	82 + 27.72	82	82
Power Supply	AC Single		250W 350W		350W	300W 500W 700W	300W 500W 700W		300W 500W 700W
	AC Redundant		(mechanical limit)		(mechanical limit)	(mechanical limit)	500W		500W
	DC		(mechanical limit)		(mechanical limit)	(mechanical limit)	–		–
Passive backplane	PICMG 1.0		–		✓	–	–		–
	PICMG 1.3		–		✓	–	–		–
Intelligent System Module			–		✓	✓	✓	–	✓
Dimension (W x H x D)	mm		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		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		6.5	7	4.7	6.5	12.8		14
	lb		14.4	15.5	10.3	14.3	28.2		30.8

✓: supported, – : not supported, △: optional

Industrial Chassis

Rackmount

Model			1U	2U	2U	2U		2U	2U	2U	4U	4U	
			ACP-1010	IPC-603	ACP-2000	ACP-2010 ACP-2320		ACP-2020	ACP-2020G	IPC-631	IPC-610L IPC-611		
Supported Form Factor			ATX/µATX	ATX/µATX	PICMG 1.0/1.3 FL SBC	ATX/µATX		ATX/µATX	ATX/µATX	ATX/µATX	ATX/µATX	PICMG 1.0/ 1.3 FL SBC	
Drive Bay	Slim ODD		1	1	1	–	1	1	1	1	–		
	5.25"		–	–	–	1	–	–	–	–	3		
	2.5"		3.5*1 or 2.5*2	–	–	–	–	2 x internal 2 x external (hot-swap module optional)	2*external	2 x internal 2 x external (hot-swap module optional)	–		
	3.5"	Hot-Swap Tray	–	–	–	–	2 (3.5" or 2.5")	–	–	–	–		
		External	1	–	2	1	–	–	–	–	1		
		Internal	3.5*1 or 2.5*2	1	–	2		–	–	–	–		
Chassis I/O	USB 2.0		2	–	–	2		2	2	–	2		
	USB 3.0		–	–	–	–	–	–	–	–	–		
	PS/2		–	–	1	1	1	–	–	–	1		
Cooling	No. of Fans		2	2	2	2	2+1	1	2	2	1		
	CFM		24/each	47/each	47/each	47/each	47/each + 28	41	103/each	82/each	82		
Power Supply	AC Single		250W 350W	350W	250W 300W 500W 700W	250W 350W		350W	850W	500W 700W	250W 300W 500W 700W		
	AC Redundant		(mechanical limit)	(mechanical limit)	(mechanical limit)	(mechanical limit)		500W	(mechanical limit)	–	500W		
	DC		–	–	–	–		–	–	–	–		
Passive Backplane	PICMG 1.0		✓	–	✓	–		–	–	–	–	✓	
	PICMG 1.3		✓	–	✓	–		–	–	–	–	✓	
Intelligent System Module			–	–	✓	✓		✓	–	–	–		
Dimension (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 88 x 398	482 x 88 x 450	482 x 177 x 348	482 x 177 x 479		
	inch		19 x 1.7 x 19.6	19 x 3.46 x 12.1	19 x 3.5 x 17.8	19 x 3.46 x 18.9		19 x 3.46 x 15.7	18.96 x 3.46 x 17.52	19 x 7 x 13.7	19 x 7 x 18.9		
Weight	kg		8	6.4	11.3	10.7	11.7	8.6	11.78	8	14.5		
	lb		17.6	14.1	24.9	23.5	25.7	18.96	25.97	17.6	31.9		

✓: supported, – : not supported, △: optional

Rackmount

Model			4U		4U		4U		4U		4U		4U		4U
			☞ IPC-610H		☞ ACP-4000		☞ ACP-4010		☞ ACP-4320		☞ ACP-4020		☞ ACP-4340		☞ IPC-623
Supported Form Factor			ATX/ µATX	PICMG 1.0/1.3 FL SBC	ATX/ µATX	PICMG 1.0/1.3 FL SBC	ATX/ µATX	PICMG 1.0/1.3 FL SBC	ATX/ µATX	PICMG 1.0/1.3 FL SBC	ATX/ µATX	PICMG 1.3 HL SBC	ATX/ µATX	PICMG 1.0/1.3 FL SBC	PICMG 1.0/1.3 FL SBC
Drive Bay	Slim ODD		–		–		–		–		1		1		–
	5.25"		3		3		2		2		–		–		2
	2.5"		–		–		–		–		1 x internal		1 x internal		–
	3.5"	Hot-Swap Tray	–		–		–		2		–		4		–
		External	1		1		1		1		2		–		1
		Internal	–		–		–		–		–		–		–
Chassis I/O	USB 2.0		2		2		4		2		–		–		–
	USB 3.0		–		–		–		–		2		2		–
	PS/2		1		1		–		–		–		–		–
Cooling	No. of Fans		2		2		2		1 + 1		2		1 + 1		3
	CFM		82/each		82/each		82/each		82 + 28		52 / each		82 + 52		150 / each
Power Supply	AC Single		300W 500W 700W		300W 500W 700W		300W 500W 700W		300W 500W 700W		300W 700W	500W	500W 700W	500W	500W 1200W
	AC Redundant		500W		500W		500W		500W		(mechanical limit)		500W	500W	(mechanical limit)
	DC		–		–		–		–		(mechanical limit)		500W (single and RPS)		(mechanical limit)
Passive Backplane	PICMG 1.0		–	✓	–	✓	–	✓	–	✓	–	–	–	✓	✓
	PICMG 1.3		–	✓	–	✓	–	✓	–	✓	–	✓	–	✓	✓
Intelligent System Module			–		–		✓		✓		✓		✓		✓
Dimension (W x H x D)	mm		482 x 177 x 479		482 x 177 x 479		482 x 177 x 479		482 x 177 x 479		482 x 177 x 348		482 x 177 x 479		482 x 177 x 657
	inch		19 x 7 x 18.9		19 x 7 x 18.9		19 x 7 x 18.9		19 x 7 x 18.9		19 x 7 x 13.7		19 x 7 x 18.8		19 x 7 x 26
Weight	kg		15		15.2		16.6		17.6		8.5		12.5		27.4
	lb		33		33.5		36.5		38.7		18.7		27.5		60.41

✓: supported, – : not supported, △: optional

Industrial Motherboards

ATX Motherboards



Model		AIMB-788	AIMB-787	AIMB-786
Processor System	CPU	12th Generation Intel Core™ i9/i7/i5/i3, Pentium®/Celeron®	10th Generation Core™ i9/i7/i5/i3 & Pentium®/Celeron®	8th/9th Generation Core™ i7/i5/i3 & Pentium®/Celeron®
	Socket	LGA1700	LGA1200	LGA1151
	Max. Speed	3.6 GHz	3.8 GHz	3.7 GHz
	Cache	L3: up to 30 MB (depends on CPU)	L3: up to 20 MB (depends on CPU)	L3: up to 12 MB (depends on CPU)
	Chipset	Intel Q670E	Intel Q470E	Intel Q370
	BIOS	AMI 256 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI
Expansion Slot	PCIe x16	1 (Gen4)	1 (Gen3)	1 (Gen3)
	PCIe x8	1 (x 4 link, Gen3)	–	–
	PCIe x4	3 (Gen3)	4 (Gen3)	4 (Gen3)
	PCIe x1	–	–	–
	PCI	2	2	2
Memory	Technology	Dual Channel DDR4 3200 MHz	Dual Channel DDR4 2400/2666/2933 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128 GB	128 GB	128 GB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel UHD Graphics	Intel HD Graphics	Intel HD Graphics
	VRAM	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	GbE LAN1: Intel I219-LM GbE LAN2: Intel I210-AT	GbE LAN1: Intel I219-LM GbE LAN2: Intel I210-AT	GbE LAN1: Intel I219-LM GbE LAN2: Intel I211-AT
M.2	Slot	PCIe x4 M-key 2280 type	PCIe x4 M-key 2280 type	–
SATA	Max. Date Transfer Rate	600 MB/s	600 MB/s	600 MB/s
	Channel	4 (SW RAID)	4 (SW RAID)	5 (SW RAID)
I/O Interface	VGA	1	1	1
	DVI	–	1	1
	DP	1	1	1
	HDMI	1	–	–
	USB	14 (6 USB 3.2 and 8 USB 2.0)	14 (6 USB 3.2 and 8 USB 2.0)	13 (6 USB 3.2 and 7 USB 2.0)
	Serial	6	6	6
	PS/2	-	Optional	Optional
	Ethernet (GbE)	2	2	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

ATX Motherboards



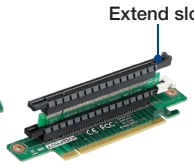
Model		AIMB-708	AIMB-707	AIMB-706
Processor System	CPU	12th Generation Intel Core™ i9/i7/i5/i3, Pentium®/Celeron®	10th Generation Core™ i9/i7/i5/i3 & Pentium®/Celeron®	8th/9th Generation Core™ i7/i5/i3 & Pentium®/Celeron®
	Socket	LGA1700	LGA1200	LGA1151
	Max. Speed	3.6 GHz	3.8 GHz	3.7 GHz
	Cache	L3: up to 30 MB (depends on CPU)	L3: up to 20 MB (depends on CPU)	L3: up to 12 MB (depends on CPU)
	Chipset	Intel H610E	Intel H420E	Intel H310
	BIOS	AMI 256 Mbit SPI	AMI 128 Mbit SPI	AMI 128 Mbit SPI
Expansion Slot	PCIe x16	1 (Gen4)	1 (Gen3)	1 (Gen3)
	PCIe x8	–	–	–
	PCIe x4	2 (Gen3)	2 (x 1 link, Gen3)	1 (Gen2)
	PCIe x1	–	–	–
	PCI	4	4	5
Memory	Technology	Dual Channel DDR4 3200 MHz	Dual Channel DDR4 2400/2666/2933 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	64 GB	64 GB	64 GB
	Socket	2 x 288-pin DIMM	2 x 288-pin DIMM	2 x 288-pin DIMM
Graphics	Controller	Intel UHD Graphics	Intel HD Graphics	Intel HD Graphics
	VRAM	Shared system memory subject to OS	Shared system memory subject to OS	Shared system memory subject to OS
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	GbE LAN1: Intel I219-V GbE LAN2: Intel I225-V (G2 Only)	GbE LAN1: Intel I219-V GbE LAN2: Intel I211-AT (G2 Only)	GbE LAN1: Intel I219-V GbE LAN2: Intel I211-AT (G2 Only)
M.2	Slot	PCIe x2 M-key 2280 type (G2 only)	PCIe x2 M-key 2280 type (G2 only)	–
SATA	Max. Date Transfer Rate	600 MB/s	600 MB/s	600 MB/s
	Channel	4	4	4
I/O Interface	VGA	1	1	1
	DVI	–	1 (G2 Only)	1 (G2 Only)
	DP	–	–	–
	HDMI	1 (G2 Only)	–	–
	USB	G2: 10 (4 USB 3.2 and 6 USB 2.0) VG: 7 (2 USB 3.2 and 5 USB 2.0)	G2: 10 (6 USB 3.2 and 4 USB 2.0) VG: 7 (4 USB 3.2 and 3 USB 2.0)	9 (4 USB 3.2 and 5 USB 2.0)
	Serial	G2: 6 VG: 2	G2: 6 VG: 2	G2: 6 VG: 2
	PS/2	–	Optional	2 (1 x keyboard and 1 x mouse)
	Ethernet (GbE)	G2: 2 VG: 1	G2: 2 VG: 1	G2: 2 VG: 1
	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

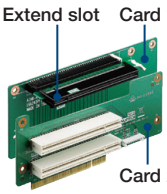
✓: supported, – : not supported, △: optional

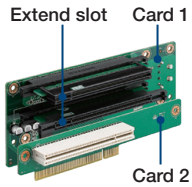
Industrial Motherboards

Riser Cards

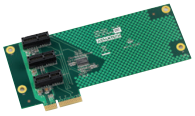
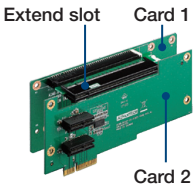


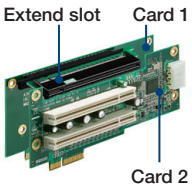




Model		AIMB-RP10P-01A1E	AIMB-R4104-01A1E	AIMB-RF10F-01A1E	AIMB-RP30P-03A1E	AIMB-RP3PF-21A1E	AIMB-RP3P8-12A1E
Interface		PCI	PCIe x4	PCIe x 16	PCI	PCIe x16/PCI	PCIe x16/PCI
Expansion Slots		1 PCI	1 PCIe x4	1 PCIe x 16	3 PCI	1 PCIe x16 + 2 PCI	2 PCIe x8 + 1 PCI
Chassis	1U	✓	✓	✓	–	–	–
	2U	–	–	–	✓	✓	✓
ATX	AIMB-788	–	–	–	–	–	–
	AIMB-787	–	–	–	–	–	–
	AIMB-786	–	–	–	–	–	–
	AIMB-785	–	✓	✓	–	–	–
	AIMB-708	✓	–	✓	✓	✓	–
	AIMB-707	✓	–	✓	✓	✓	–
	AIMB-706	✓	–	✓	✓	✓	–
	AIMB-705	✓	–	✓	✓	✓	–

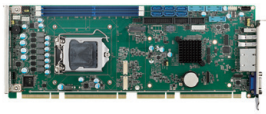


Model		AIMB-R430P-03A2E	AIMB-R4301-03A2E	AIMB-R431F-21A1E	AIMB-R43PF-21A1E	ASMB-RM2F4-11A1
Interface		PCIe x4	PCIe x4	PCIe x16/PCIe x4	PCIe x16/PCIe x4	PCIe x16 / PCIe x4
Expansion Slots		3 PCI	3 PCIe x1	1 PCIe x16 + 2 PCIe x1	1 PCIe x16 + 2 PCI	PCIe x16 / PCIe x4
Chassis	1U	–	–	–	–	–
	2U	✓	✓	✓	✓	✓ (ACP-2020G only)
ATX	AIMB-788	✓	△	□	✓	✓
	AIMB-787	✓	△	□	✓	✓
	AIMB-786	✓	△	□	✓	✓
	AIMB-785	✓	△	□	✓	✓

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

Slot SBCs and Passive Backplanes

PICMG 1.3 Full-Size Single Board Computers

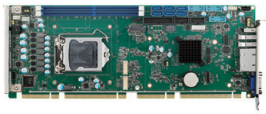
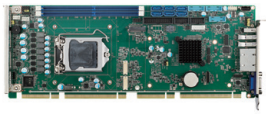


Model		LGA1700 PICMG 1.3 SHB	LGA1700 PICMG 1.3 SHB
		PCE-5033	PCE-5133
Processor System	CPU	LGA1700 12th Generation Intel® Core™ i9/i7/i5/i3/Pentium/ Celeron Processors	LGA1700 12th Generation Intel® Core™ i9/i7/i5/i3 Processors
	Max. Speed	3.6 GHz	3.6 GHz
	Cache	Up to 30 MB (Depends on CPU)	Up to 30 MB (Depends on CPU)
	Chipset	Intel H610E	Intel R680E
	BIOS	AMI 256 Mbit SPI	AMI 256 Mbit SPI
Backplane	PCIe	1 x16, 1 x4	1 x16 or 2 x8, 1 x4
Bus	PCI (32bit/33/66 MHz)	4	4
Memory	Technology	Dual-channel (non-ECC) U-DIMM DDR5 4800 MHz	Dual-channel (non-ECC/ ECC) U-DIMM DDR5 4800 MHz
	Max. Capacity	64 GB (Depends on CPU)	64 GB (Depends on CPU)
	Socket	2 x DDR5 288-pin DIMM	2 x DDR5 288-pin DIMM
Graphics	Controller	Chipset integrated with Intel® HD Graphics	Chipset integrated with Intel® HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS
	Video Out	1st: VGA 2nd: DVI-D/DP/HDMI 3rd: DVI-D/DP/HDMI	1st: VGA 2nd: DVI-D/DP/HDMI 3rd: DVI-D/DP/HDMI
Ethernet	Interface	10M/100M/1000Mbps	10M/100M/1000Mbps
	LAN1/LAN2 Controller	LAN 1: Intel® I225-V LAN 2: Intel® I225-V	LAN 1: Intel® I225-LM LAN 2: Intel® I225-V
	Connector	RJ45 x 2	RJ45 x 2
	Disable in BIOS	✓	✓
SATA	Max. Data Transfer Rate	600 MB/s SATA3.0	600 MB/s SATA3.0
	Channel	4	6
	S/W Raid	–	0, 1, 5, 10
Rear I/O	VGA	1	1
	Ethernet	2	2
	USB2.0	1	1
	USB3.2	2	2
	PS/2	0	0
	Serial	0	0
Internal I/O	USB 2.0	5 (USB Type A * 1 + 4 on backplane)	5 (USB Type A * 1 + 4 on backplane)
	USB 3.2	2	6
	SATA	4	6
	M.2 (2280 Type M)	0	1
	Serial	2	2
	Parallel	0	0
	PS/2	0	0
	OBS(Onboard Security Hardware Monitor)	✓	✓
Watchdog Timer	Output	System reset	System reset
	Interval	Programable, 1~255 sec/min	Programable, 1~255 sec/min
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SAB-2000	–	✓
	AMT	–	✓

✓: supported, – : not supported, △: optional

Slot SBCs and Passive Backplanes

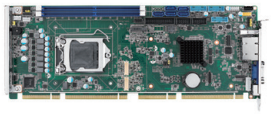
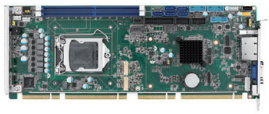
PICMG 1.3 Full-Size Single Board Computers

Model		LGA1200 PICMG 1.3 SHB	LGA1200 PICMG 1.3 SHB	LGA1200 PICMG 1.3 SHB
		☞ PCE-5032	☞ PCE-5132	☞ PCE-7132
Processor System	CPU	LGA1200 10th Generation Intel® Core™ i9/i7/i5/i3/Pentium/Celeron Processors	LGA1200 10th Generation Intel® Core™ i9/i7/i5/i3/Pentium/Celeron Processors	LGA1200 10th Generation Intel® Xeon® W/Core™ i9/i7/i5/i3/Pentium® Processors
	Max. Speed	3.8 GHz	3.8 GHz	3.7 GHz
	Cache	Up to 20 MB (Depends on CPU)	Up to 20 MB (Depends on CPU)	Up to 20 MB (Depends on CPU)
	Chipset	Intel H420E	Intel Q470E	Intel W480E
	BIOS	AMI 128 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI
Backplane Bus	PCIe	1 x16, 1 x4	1 x16, 1 x4	1 x16 or 2 x8, 1 x4
	PCI (32bit/33 MHz)	4	4	4
Memory	Technology	Dual-channel (non-ECC) U-DIMM DDR4 2666/2933 MHz	Dual-channel (non-ECC) U-DIMM DDR4 2666/2933 MHz	Dual-channel (non-ECC/ECC) U-DIMM DDR4 2666/2933 MHz
	Max. Capacity	64 GB (Depends on CPU)	64 GB (Depends on CPU)	64 GB (Depends on CPU)
	Socket	2 x DDR4 288-pin DIMM	2 x DDR4 288-pin DIMM	2 x DDR4 288-pin DIMM
Graphics	Controller	Chipset integrated with Intel® HD Graphics	Chipset integrated with Intel® HD Graphics	Chipset integrated with 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 + DP/DVI-D	VGA + DP/DVI-D + DP/DVI-D	VGA + DP/DVI-D + DP/DVI-D
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	LAN1/LAN2 Controller	LAN 1: Intel® I219-V LAN 2: Intel® I211-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT
	Connector	RJ45 x 2	RJ45 x 2	RJ45 x 2
	Disable in BIOS	✓	✓	✓
SATA	Max. Data Transfer Rate	600 MB/s SATA3.0	600 MB/s SATA3.0	600 MB/s SATA3.0
	Channel	4	6	6
	S/W Raid	-	0, 1, 5, 10	0, 1, 5, 10
Rear I/O	VGA	1	1	1
	Ethernet	2	2	2
	USB2.0	1	1	1
	USB3.2	2	2	2
	PS/2	0	0	0
	Serial	0	0	0
Internal I/O	USB 2.0	5 (USB Type A * 1 + 4 on backplane)	5 (USB Type A * 1 + 4 on backplane)	5 (USB Type A * 1 + 4 on backplane)
	USB 3.2	2	6	6
	SATA	4	6	6
	M.2 (2280 Type M)	0	1	1
	Serial	2	2	2
	Parallel	0	0	0
	PS/2	0	0	0
	OBS (Onboard Security Hardware Monitor)	✓	✓	✓
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programable, 1~255 sec/min	Programable, 1~255 sec/min	Programable, 1~255 sec/min
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SAB-2000	–	✓	✓
	AMT	–	✓	✓

✓: supported, – : not supported, △: optional

PICMG 1.3 Full-Size Single Board Computers

Model		LGA1151 PICMG 1.3 SHB	LGA1151 PICMG 1.3 SHB	LGA1151 PICMG 1.3 SHB
		☞ PCE-5031	☞ PCE-5131	☞ PCE-7131
Processor System	CPU	Intel® Core™ i7/Core™ i5/Core™ i3/ Pentium/Celeron LGA1151 Processors	Intel® Core™ i7/Core™ i5/Core™ i3 LGA1151 Processors	Intel® Xeon® E Family/Core™ i7/i5/i3 LGA1151 processor with C246 chipset
	Max. Speed	3.7 GHz	3.7 GHz	3.7 GHz
	Cache	Up to 12 MB (Depends on CPU)	Up to 12 MB (Depends on CPU)	Up to 16 MB (Depends on CPU)
	Chipset	Intel H310	Intel Q370	Intel C246
	BIOS	AMI 256 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI
Backplane Bus	PCIe	1 x16, 1 x4	1 x16, 1 x4	1 x16 or 2 x8, 1 x4
	PCI (32bit/33 MHz)	4	4	4
Memory	Technology	Dual-channel (non-ECC) DDR4 2400/2666	Dual-channel (non-ECC) DDR4 2400/2666	Dual-channel (non-ECC) DDR4 2400/2666
	Max. Capacity	64 GB (Depends on CPU)	64 GB (Depends on CPU)	64 GB (Depends on CPU)
	Socket	2 x DDR4 288-pin DIMM	2 x DDR4 288-pin DIMM	2 x DDR4 288-pin DIMM
Graphics	Controller	Chipset integrated with Intel® HD Graphics	Chipset integrated with Intel® HD Graphics	Chipset integrated with 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 + DP/DVI-D	VGA + DP/DVI-D + DP/DVI-D	VGA + DP/DVI-D + DP/DVI-D
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	LAN1/LAN2 Controller	LAN 1: Intel® I219-V LAN 2: Intel® I211-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT
	Connector	RJ45 x 2	RJ45 x 2	RJ45 x 2
	Disable in BIOS	✓	✓	✓
SATA	Max. Data Transfer Rate	600 MB/s SATA3.0	600 MB/s SATA3.0	600 MB/s SATA3.0
	Channel	4 x SATA3.0	5 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	2	2
	USB2.0	0	0	0
	USB3.2	1	1	1
	PS/2	1	1	1
	Serial	0	0	0
Internal I/O	USB 2.0	7 USB 2.0 (pin header*2 + USB Type A*1 + 4 on backplane)	7 USB 2.0 (pin header*2 + USB Type A*1 + 4 on backplane)	7 USB 2.0 (pin header*2 + USB Type A*1 + 4 on backplane)
	USB 3.2	2	6	6
	SATA	4	5	5
	M.2 (2280 Type M)	0	1	1
	Serial	2	2	2
	Parallel	1	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/min	Programable, 1~255 sec/min
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SAB-2000	–	✓	✓
	AMT	–	✓	✓

✓: supported, – : not supported, △: optional

Slot SBCs and Passive Backplanes

PICMG 1.3 Half-Size Single Board Computers




Model		PCIe Half-Size SBC			
		☞ PCE-3032	☞ PCE-4132	☞ PCE-3029	☞ PCE-4129
Processor System	CPU	Intel® Core™ i9/i7/i5/i3/ Celeron®/Pentium® LGA 1200 Processor	Intel Xeon W Family series, Core i9/i7/i5/i3 LGA1200 Processors	Intel Core i7/i5/i3/Pentium LGA 1151 Processor	Intel Xeon E3-1200v5 series, Core i7/i5/i3 LGA1151 processors
	Speed	Up to 3.8 GHz	Up to 3.5 GHz	Up to 3.7 GHz	Up to 3.7 GHz
	Cache	Up to 20 MB	Up to 20 MB	Up to 8 MB	Up to 8 MB
	Chipset	Intel H420E	Intel W480E	Intel H110	Intel C236
Bus	BIOS	AMI 128 Mbit SPI Flash	AMI 256 Mbit SPI Flash	AMI 128 Mbit SPI Flash	AMI 128 Mbit SPI Flash
	PCIe	1 x16, 4 x1	1 x16 or 2 x8, 4 x1	1 x16, 4 x1	1 x16 or 2 x8, 4 x1
Graphics	Controller	Chipset integrated with Intel HD graphics	Chipset integrated with Intel HD graphics	Chipset integrated with Intel HD graphics	Chipset integrated with Intel HD graphics
	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	Shared with system memory is subject to OS
	Video Output	VGA + DVI-D/DP	VGA + DVI-D + DP	VGA + DVI-D/DP	VGA + DVI-D + DP
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel I211-AT LAN 2: Intel I211-AT	LAN 1: Intel I210-AT LAN 2: Intel I210-AT	LAN1: Intel® I219-V LAN2: Intel® I211-AT	LAN1: Intel® I219-LM LAN2: Intel® I210-AT
	Connector	RJ-45 x2	RJ-45 x2	RJ-45 x2	RJ-45 x2
	Disabled in BIOS	✓	✓	✓	✓
Memory	Technology	Dual channel (Non-ECC) DDR4 2666/2933 MHz	Dual channel DDR4 ECC 2666/2933 MHz (ECC function depends on processor)	Dual-channel DDR4 1866/2133 MHz	Dual channel DDR4 ECC 1866/2133 MHz (ECC function depends on processor)
	Max. Capacity	64 GB	64 GB	32 GB	32 GB
	Socket	260-pin SO-DIMM x2	260-pin SO-DIMM x2	260-pin SODIMM x2	260-pin SO-DIMM X2
SATA	Max. Data Transfer Rate	600MB/s	600MB/s	600MB/s	600MB/s
	Channel	3	4	4	4
	RAID	–	0,1,5,10	–	0,1,5,10
I/O Interface	USB	4 USB 3.2 + 6 USB 2.0	6 USB 3.2 + 7 USB 2.0	3 USB 3.2 + 7 USB 2.0	3 USB 3.2 + 7 USB 2.0
	mSATA	0	0	1	1
	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 RS-232 by COM module	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 RS-232 by COM module
	Parallel	0	0	1	1
	PS/2	0	0	1	1
	LAN	2	2	2	2
	OBS (Onboard Security Hardware Monitor)	✓	✓	✓	✓
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
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E

✓: supported, – : not supported, △: optional

PICMG 1.0 Single Board Computers

Model		PICMG 1.0 Full-Size SBC	PICMG 1.0 Half-Size SBC
		☞ PCA-6029	☞ PCI-7032
Processor System	CPU	Intel® Core™ i7/i5/i3/Pentium/Celeron LGA1151 Processors	Intel® Celeron J1900/N2930 Processors
	Max. Speed	3.9 GHz	2.0GHz
	Cache	Up to 8MB	Up to 2MB
	Chipset	Intel H110	–
	BIOS	AMI 128Mbit SPI Flash	AMI 64Mb SPI Flash
Bus	PCI	32 bit/33 MHz PCI	32 bit/33 MHz PCI
	ISA	HISA (ISA High Driver)	–
Graphics	Controller	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
	Video Output	VGA + DVI-D/DP	Dual independent display: choosing two interfaces from VGA, LVDS, and DVI
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel® I219-V LAN 2: Intel® I211-AT	LAN 1: Intel® I211 LAN 2: Intel® I211 (G2)
	Connector	RJ45 x 2	RJ45 x 2
	Disabled in BIOS	✓	✓
Memory	Technology	Dual-channel (non-ECC) U-DIMM DDR4 2133/2400	G2: Dual channel DDR3L-1333 VG: DDR3L-1333
	Max. Capacity	64 GB	8 GB (4GB per DIMM)
	Socket	2 x DDR4 288-pin DIMM	DDR3 204-pin SO-DIMM x1 (VG); x2 (G2)
SATA	Max. Data Transfer Rate	600 MB/s	300 MB/s (SATA2.0)
	Channel	4	2
	RAID	–	–
I/O Interface	USB	1 USB 3.2 + 7 USB 2.0	G2: 1 x USB 3.0 + 6 x USB 2.0 VG: 1 x USB 3.0 + 5 x USB 2.0
	Serial	2 RS-232	G2: 4 x RS-232/422/485 VG: 2 x RS-232/422/485
	Parallel	1	–
	M.2	1	–
	PS/2	1	1
	LAN	2	G2: 2 VG: 1
	OBS (Hardware Monitor)	✓	G2: ✓ VG: –
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable, 1~255 sec	Programmable, 1~255 sec
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SAB-2000	–	–

✓: supported, – : not supported, △: optional

Slot SBCs and Passive Backplanes

PICMG1.3 Full-Size SBC Backplanes

Server Grade: Compatible with PCE-7000 Series CPU Boards

Category	Part Number	PCIe				PCI-X			PCI
		x16	x8	x4	x1	64/66	64/100	64/133	32/33
8 slots BP	PCE-7B08-04A1E	–	2	1	–	–	–	–	4
14 slots BP	PCE-7B13-64C1E	–	2	–	–	4	2	–	4
	PCE-7B13-07A2E	–	2	3	–	–	–	–	7

Category	Part Number	Wallmount/Desktop Chassis			
		IPC-6025	IPC-6606	IPC-6806(W)	IPC-6608
8 slots BP	PCE-7B08-04A1E	–	–	–	✓
14 slots BP	PCE-7B10-04A1E	–	–	–	–
	PCE-7B13-64C1E	–	–	–	–
	PCE-7B13-07A2E	–	–	–	–

Category	Part Number	Rackmount Chassis			
		ACP-2000EBP	IPC-510	IPC-610	IPC-611
		3 slot / 2U	14 slot / 4U		
8 slots BP	PCE-7B08-04A1E	–	–	–	–
14 slots BP	PCE-7B10-04A1E	–	✓	✓	✓
	PCE-7B13-64C1E	–	✓	✓	✓
	PCE-7B13-07A2E	–	✓	✓	✓

Category	Part Number	Rackmount Chassis				
		ACP-4000	ACP-4010	ACP-4320	ACP-4340	IPC-623
		14 slot / 4U				20-slot/ 4U
8 slots BP	PCE-7B08-04A1E	–	–	–	–	–
14 slots BP	PCE-7B10-04A1E	✓	✓	✓	✓	–
	PCE-7B13-64C1E	✓	✓	✓	✓	–
	PCE-7B13-07A2E	✓	✓	✓	✓	–

✓: supported, – : not supported, △: optional

PICMG1.3 Full-Size SBC Backplanes

Desktop: Compatible with PCE-5000 Series CPU Boards

Category	Part Number	PCIe				PCI-X			PCI	Wallmount/Desktop Chassis				
		x16	x8	x4	x1	64/66	64/100	64/133	32/33	IPC-6025	IPC-6606	IPC-6806	IPC-6806W	IPC-6608
2U Butterfly BP	PCE-5B06V-00A1E	1	–	–	4	–	–	–	–	–	–	–	–	–
	PCE-5B06V-04A1E	1	–	–	–	–	–	–	4	–	–	–	–	–
5 Slot BP	PCE-5B05-02A1E	1	–	1	–	–	–	–	2	✓	–	–	–	–
	PCE-5B05-03A1E	1	–	–	–	–	–	–	3	✓	–	–	–	–
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-5B12-07A2E	1	–	3	–	–	–	–	7	–	–	–	–	–
	PCE-5B12-64C1E	1	–	–	–	4	2	–	4	–	–	–	–	–
	PCE-5B13-08A2E	1	–	–	3	–	–	–	8	–	–	–	–	–
	PCE-5B12D-04A1E	1	–	–	–	–	–	–	4	–	–	–	–	–
20 Slot BP	PCE-5B16Q-02A1E	1	–	–	–	–	–	–	2	–	–	–	–	–
	PCE-5B18-88B1E	1	–	–	–	8	–	–	8	–	–	–	–	–
	PCE-5B19-00A1E	17	–	1	–	–	–	–	–	–	–	–	–	–

Category	Part Number	Rackmount Chassis								
		ACP-2000	IPC-510	IPC-610	IPC-611	ACP-4000	ACP-4010	ACP-4320	ACP-4360	IPC-623
		3 slot / 2U	14 slot / 4U							20 slot / 4U
2U Butterfly BP	PCE-5B06V-00A1E	✓	–	–	–	–	–	–	–	–
	PCE-5B06V-04A1E	✓	–	–	–	–	–	–	–	–
5 Slot BP	PCE-5B05-02A1E	–	–	–	–	–	–	–	–	–
	PCE-5B05-03A1E	–	–	–	–	–	–	–	–	–
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-5B12-07A2E	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B12-64B1E	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B13-08A2E	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B12D-04A1E	–	–	–	–	–	✓	–	–	–
20 Slot BP	PCE-5B12-00A1E	–	–	–	–	–	–	–	–	✓
	PCE-5B16Q-02A1E	–	–	–	–	–	–	–	–	✓
	PCE-5B18-88A1E	–	–	–	–	–	–	–	–	✓

✓: supported, – : not supported, △: optional

Slot SBCs and Passive Backplanes

PCI/ISA Backplanes

Category	Part Number	Slot per segment					Segment	AT	ATX	2U Chassis	4U Chassis		
		ISA	PCI	PICMG	PICMG/ PCI	ISA/PCI				ACP-2000	IPC-510	IPC-610	IPC-611
										3 slot	14 slot	14 slot	14 slot
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-6119P7-0C2E	10	7	2	–	–	1	✓	△	–	–	–	–
	PCA-6120Q-0B3E	5	–	–	–	–	4	✓	△	–	–	–	–

Category	Part Number	4U Chassis					Wallmount/Desktop Chassis				Cage
		ACP-4000	ACP-4010	ACP-4320	ACP-4340	IPC-623	IPC-6608	IPC-6606	IPC-6806/ IPC-6806W	IPC-6025	IPC-6006
		14 slot	14 slot	14 slot	14 slot	20-slot	8-slot	6-slot	6-slot	5-slot	6-slot
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-6119P7-0C2E	–	–	–	–	✓	–	–	–	–	–
	PCA-6120Q-0B3E	–	–	–	–	✓	–	–	–	–	–

✓: supported, – : not supported, △: optional

Backplanes Compatible with Half-Size SBCs

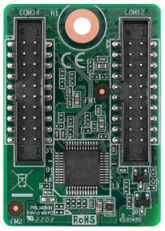
Interface	Category	Part Number	Slots per segment							Segment
			ISA	PCI	PCIe x16	PCIe x 8	PCIe x4	PCIe x1	PICMG	
Pure ISA Backplane	-	PCA-6104-0C2E	3	–	–	–	–	–	1	1
	6-Slot	PCA-6106-0B2E	5	–	–	–	–	–	1	1
	-	PCA-6108-0B2E *	7	–	–	–	–	–	1	1
	8-Slot	PCA-6108E-0C2E	7	–	–	–	–	–	1	1
Pure PCI Backplane	-	PCA-6104P4-0B2E	–	3	–	–	–	–	1	1
	6-Slot	PCA-6105P5-0B2E	–	4	–	–	–	–	1	1
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	Part Number	AT	ATX	ACP-4020	IPC-6806S	IPC-6006S
				Rackmount	Wallmount	Wallmount
				14-slot	6-slot	6-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	✓	✓	–	✓	✓
Half-Size Backplanes	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

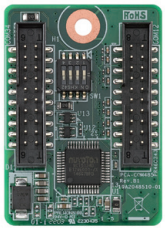
Slot SBCs and Passive Backplanes

Extension Modules for Slot SBCs



PCA-COM232-ESPA1

- 4 RS-232 series ports extension module by eSPI connector on CPU card
- Dimensions (L x H): 30 x 42 mm (1.18" x 1.65")
- Support Model: PCE-5033/5133

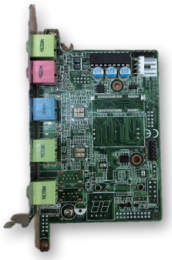


PCA-COM485-ESPA1

- 4 RS-422/485 series ports extension module by eSPI connector on CPU card
- Dimensions (L x H): 30 x 42 mm (1.18" x 1.65")
- Support Model: PCE-5033/5133

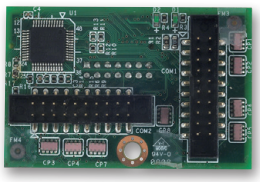
PCA-TPMSPI-00A1

- Trusted platform module compliant with TCG 2.0 specification and TCG software stack 2.0 via SPI connector on CPU card
- Hardware based data protection solution for storage device encryption and decryption
- Dimensions (L x H) : 20 x 22 mm (0.79" x 0.87")
- Support Model: PCE-5033/5133



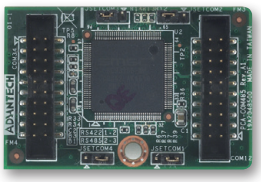
PCA-AUDIO-HDB1E

- HD Audio Extension Module
- Line-out, Mic-in, Line-in, Surround-out, Speak-out, S/PDIF
- Dimensions (L x H): 68 x 125 mm (2.67"inch x 4.92")
- Support Model: PCE-5029/5031/5032/ 5033/5129/5131/5132/ 5133/7129/ 7131/7132/7133; PCE-3029/3032/ 4129/4132



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")
- Support Model: PCE-5029/5031/5032/ 5129/5131/5132/7129/7131/7132; PCE-3029/3032/4129/4132



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")
- Support Model: PCE-5029/5031/5032/ 5129/ 5131/5132/7129/7131/7132; PCE-3029/3032/4129/4132

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
- Support Model: PCE-5029/5031/5032/ 5033/5129/5131/5132/5133/7129/ 7131/7132/7133; PCE-3029/3032/ 4129/4132

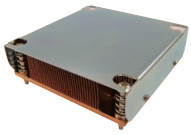
PCA-TPM-00B1E

- 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")
- Support Model: PCE-5029/5031/5032/ 5033/ 5129/5131/5132/5133/7129/ 7131/7132/7133; PCE-3029/3032/ 4129/4132

Industrial Computer Peripherals

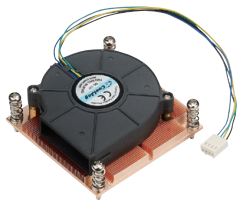
CPU Coolers

Intel® LGA1700/1200/1151


Part Number		1960049408N001	1960050255N001	1960052651N021	1960047669N001
Thermal Dispatch Performance	LGA1700 65W	Intel LGA1151/1200 84W	Intel LGA1151/1200 95W	Intel LGA1151/1200 80W	Intel LGA1151/1200 95W
Fan	9.5 cm/87.7 CFM 5300±10% RPM	–	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	Aluminum & Copper heart	Copper	Copper	Aluminum	Aluminum & Copper heart
Heatsink Dimensions	117.5 x 117.5 x 38 mm (4.63" x 4.63" x 1.5")	85 × 85 × 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	117.5 x 117.5 x 63.5 mm (4.63" 4.63" x 2.5")	–	83 x 83 x 55.73 mm (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	496 g	611 g	582 g	417g	500 g
Minimum Chassis Height	2U	1U	2U	2U/4U	4U
Recommended Chassis	Motherboard/backplane version of chassis	ACP-1010/1320 HPC-7140/7180	Backplane version of chassis	Motherboard/ backplane version of chassis	Motherboard version of chassis
Supported Boards	AIMB-708/788; PCE-5033/5133	AIMB-705/706/707/785/ 786/787; PCE-5029/5031/ 5032/5129/5131/5132/ 7129/7131/7132; ASMB-585/586/587/ 785/786/787	PCE-5029/5031/5032/ 5129/5131/5132/7129/ 7131/7132	AIMB-705/706/707/785/ 786/787; PCE-5029/5031/ 5032/5129/5131/5132/ 7129/7131/7132; ASMB-585/586/587/785/ 786/787	AIMB-705/706/707/785/786/787

Note: CPU cooler's thermal dispatch performance may vary between CPU generations. Please refer to each product's datasheet.




Part Number	1970004537N001	1960053207N001
Thermal Dispatch Performance	Intel LGA1151/1200 55W Up to Core i3	Intel LGA1151/1200 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-3012	IPC-3012
Supported Boards	PCE-3029/3032/4129/4132	PCE-3029/3032/4129/4132

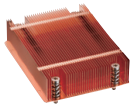
Note: CPU cooler's thermal dispatch performance may vary between CPU generations. Please refer to each product's datasheet.
✓: supported, – : not supported, △: optional

Industrial Computer Peripherals

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	1960081603N101	1960088272T001	1960081155N001	1960081155N101
Fan	6 cm/63.3 CFM 12000 ± 10% RPM	6 cm/50.4 CFM 9000 ± 10% RPM	–	–
Thermal Dispatch Performance	Up to 205W	up to 205W	Up to 165W	Up to 165W
Heatsink Material	Aluminum stack fin & CU block with heatpipe	Aluminum stack fin & fan	Aluminum stack fin & CU block with heatpipe	Aluminum stack fin & CU block with heatpipe
Heatsink Dimensions (L x W x H)	115 x 78 x 64 mm (4.52" x 3.07" x 2.51")	108 x 79.8 x 63.8 mm (4.26" x 3.15" x 2.52")	108 x 78 x 25.5 mm (4.25" x 3.07" x 1")	108 x 78 x 25.5 mm (4.25" x 3.07" x 1")
Dimensions	138x115x85 mm (5.43" x 4.52" x 3.34")	108 x 79.8 x 63.8 mm (4.26" x 3.15" x 2.52")	124 x 100 x 50 mm (4.88" x 3.93" x 1.9")	124 x 100 x 50 mm (4.88" x 3.93" x 1.9")
Weight	464g	250g	257.6g	209.2g
Minimum Chassis Height	2U	2U	1U	1U
Supported Boards / Systems	ASMB-815/825/ 925/935/975	ASMB-815/825/ 925/935/975	ASMB-815/825/ 925/935/975 SKY-6100/6200	SKY-6200/6420
Remark	Narrow Type	Narrow Type	Narrow Type / Full Fin	Narrow Type / Cut Fin

✓: supported, – : not supported, △: optional

Intel® Xeon® LGA-4189


Part Number	1970004902T000	1970004565N001
Fan	6 cm/43.08 CFM 8400 ± 10% RPM	–
Thermal Dispatch Performance	Up to 205W	Up to 165W
Heatsink Material	Aluminum stack fin & CU block with heatpipe	Aluminum stack fin & CU block with heatpipe
Heatsink Dimensions (L x W x H)	113 x 78 x 64 mm (4.25" x 3.07" x 2.51")	113 x 78 x 24 mm (4.44" x 3.07" x 0.94")
Dimensions	183 x 132 x 86 mm (7.36" x 5.35" x 3.54")	130 x 100 x 47 mm
Weight	470g	255g
Minimum Chassis Height	2U	1U
Supported Boards / Systems	ASMB-622 ASMB-816/976 SKY-640V2	ASMB-816
Remark		

Accessories

Slide Rails

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 Trays/Bays

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 mm^3 (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 mm^3 (4" x 1" x 5.47")

9892200013E

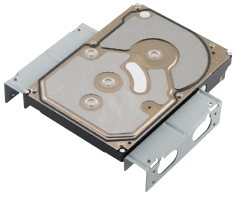
Module to convert a 5.25" drive bay to a slim ODD and a 3.5" drive bay

- 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 mm^3 (5.76" x 3.38" x 8.85")



989K008733

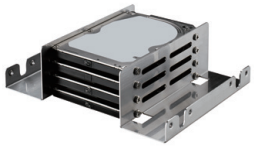
A frame to securely fix a 3.5" HDD in a 5.25" drive bay

- 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)



98R1BTOS000

A frame to securely fix four 2.5" HDD in a 5.25" drive bay

- Accepted Device : 2.5" SATA HDD/SSD x 4 (Device thickness less than 9.6mm); OR 2.5" SATA HDD/SSD x 2 (Device thickness less than 15 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 mm^3 (5.74" x 1.61" x 6.69")

Add-on Card Hold Down Kits

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

Industrial Computer Peripherals

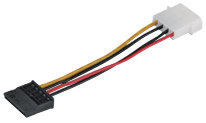
USB Cables





Part Number	1700008461	1700003195	1700002204	1700014398	1700028292-01
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
Description	Display port cable	DP to DVI port cable
Cable Length	25 cm (9.84")	30 cm (11.81")
Remark	Video cable for converting on board DP connector to external DP port supporting DP 1.1a/1.2 signaling For full-sized SBC	Video cable for converting on board DP connector to external DVI-D port For full/half-sized SBC

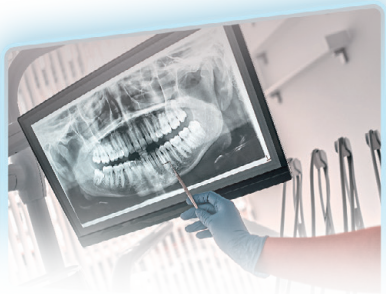
Other Cables

Part Number	1700029268-01	1700024754-01
Description	Power cable for GPU card (Primary) (Two 4-pin 12V connectors to one 6+2 pins PCIe power connector)	Power cable for GPU card (Secondary) (Two B4P Molex connectors to one 6+2 pins PCIe power connector)
Cable Length	10 cm (3.93")	10 cm (3.93")
Remark	For GPU card with 2 power connectors, use 1700029268-01 x1 + 1700024754-01 x1. For GPU card with 1 power connector, use 1700029268-01. Suggest to use Advantech 500W or higher wattage power supply for GPU built-in system.	

Industrial I/O Expansion Module

Model	☞ AIIS-1750	AIIS-1882	AIIS-DIO32
Signal Interface	PCI Express	PCI Express	USB
Connecting Type	Board to Board	Board to Board	Onboard pin header
Lighting Trigger	N/A	4 Channels	N/A
Trigger Input Voltage	N/A	Logic 0: 2V max. Logic 1: 5V min. (24V max.)	N/A
Digital Input	16 Channels	12 Channels	16 Channels
Input Voltage	Logic 0: 2V max. Logic 1: 5V min. (50V max.)	Logic 0: 3V max. Logic 1: 10V min. (40V max.)	Logic 0: 2V max. Logic 1: 5V min. (60V max.)
Digital Output	16 Channels	16 Channels	16 Channels
Load Voltage	5~40V_{DC}	10~40V_{DC}	5~40V_{DC}
Response Time	<1ms	≈50µs	>1ms
Output Type	Sink type (NPN)	Selectable Sink (NPN) or Source (PNP)	Sink type (NPN)
Isolation	2,500V_{DC}	2,500V_{DC}	2,500V_{DC}
Compatible System	AIIS-3400/3410	AIIS-3411	AIIS-3400/AIIS-3410/MIC-7500/MIC-770

Industrial GPU Solutions



High Performance
- New Ampere Architecture
- 2nd Generation RT Cores
- 3rd Generation TENSOR Cores

Industrial-grade Design
- Supports 100+ Professional Software certified by NVIDIA
- Supports Error-Correcting Code Memory
- Multi-GPU Technical Support
- More Memory Capacity

Longevity and Support
- Supports 5-years life cycle
- Strict revision and engineering change control

NVIDIA ELITE PARTNER | NVIDIA CERTIFIED | NVIDIA RTX

Edge AI computing IPC


IPC-7130


ACP-2020G


MIC-770 V2+MIC-75G20


MIC-770 V2+MIC-75GF10


ITA-3650G

NVIDIA MXM GPU cards


SKY-MXM-A2000
SKY-MXM-A2000-4SDA


SKY-MXM-A1000


SKY-MXM-RTX3000
SKY-MXM-R3000-6SDA


SKY-MXM-T1000
SKY-MXM-T1000-4SDB

NVIDIA Quadro GPU cards


NVIDIA RTX A6000
SKY-QUAD-RTXA6000B


NVIDIA RTX A5000
SKY-QUAD-RTXA5000B


NVIDIA RTX A4500
SKY-QUAD-RTXA4500B


NVIDIA RTX A4000
SKY-QUAD-RTXA4000B


NVIDIA RTX A2000 12GB
SKY-QUAD-A2000-12B


NVIDIA RTX A2000
SKY-QUAD-RTXA2000B


NVIDIA T1000 8GB
SKY-QUAD-T1000-8-B


NVIDIA T1000
SKY-QUAD-T1000-AB


NVIDIA T400 4GB
SKY-QUAD-T400-4-B

NVIDIA Tesla GPU cards


NVIDIA A100
SKY-TESL-A100-40P


NVIDIA A30
SKY-TESL-A30-24P


NVIDIA A40
SKY-TESL-A40-48P


NVIDIA A16
SKY-TESL-A16-64P


NVIDIA A2
SKY-TESL-A2-16P

NVIDIA MXM GPU cards

Advantech MXM series are compact in size and rugged in design with a small form factor and low power consumption. They fit perfectly in the limited spaces of applications such as surgery, gaming, and autonomous driving.

NVIDIA Quadro GPU cards

Designed and built to accelerate any professional workflow, NVIDIA RTX and NVIDIA Quadro® professional desktop GPU cards feature large memory, advanced enterprise features, optimized drivers, and certification for industrial applications.

NVIDIA Tesla GPU cards

Accelerating the most demanding HPC and hyperscale data center workloads, this series delivers the horsepower needed to run bigger simulations faster than ever before, and for supporting the highest performance and user density applications.

3 SKY Servers

SKY Servers Overview

Extending the Cloud to the IoT Edge

Advantech SKY Servers are highly configurable platforms designed to maximize compute and storage performance in highly virtualized telecom, industrial, and enterprise hybrid cloud environments.

GPU Servers

Advantech SKY-6000 series are high-density GPU AI training platforms designed to meet the growing trend toward big data and analysis. Powered by dual Intel® Xeon® scalable processors, supporting up to 10 NVIDIA® GPUs. The high-density GPU design maximizes the acceleration of highly parallel applications that require artificial intelligence (AI) like medical and automation applications.

Main Features

- High density GPU cards support
- Thermal & acoustic management
- Remote management

Storage Server and Multi-node Servers

Storage servers are high capacity, cost-effective storage solutions with comprehensive fault-tolerant capabilities and come with H/W RAID and online expansion capability. Multi-node servers deliver high performance in a 2U 4-node design — creating the flexibility to deploy independent workloads on a shared chassis resource which significantly lowers the total cost of ownership.

Main Features

- Space-efficiency & high performance
- Quick maintenance
- Wide support of advanced form-factors including M.2 and U.2.

Edge Accelerator Servers

Advantech Edge Accelerator Servers are specially designed for Edge AI applications. They offer space efficiency and short-depth design and use high-performance server board technology. They also offer PCIe expansion slots for GPU Cards, NIC, and Accelerator Cards and are suitable for edge AI applications such factory automation, machine vision, security inspection, medical imaging and much more.

Main Features

- Enriched expansion slots (GPU, AI accelerate)
- Space efficiency with short-depth design
- Remote management

Industrial Server Boards

Advantech industrial server boards are based on Intel® Xeon® technology and Intelligent Platform Management Interface (IPMI) technology, which are ideal for industrial performance-demanding applications such as AOI, vision inspection, video transcoding, and SCADA applications. Industrial server boards accelerate deployment, ease management, enhance virtualization, and facilitate cloud computing deployment.

Main Features

- Industrial-grade design
- Interoperable and optimized I/O
- High network bandwidth

Industrial Server Chassis

Advantech industrial server chassis provide equipment developers with high performance, efficient, and redundant solutions for industrial environments and critical applications. This product line provides customers with a total solution and value-added services rather than just a regular server product.

Main Features

- High-availability and redundancy
- Industrial-grade design
- Product life cycle management

GPU Server and Multi-node Servers





Model	☞ SKY-6100	☞ SKY-6200	☞ SKY-6400	☞ SKY-6420	☞ SKY-640V2
Key Applications	▪ Cloud Computing ▪ IoT Edge Computing ▪ Big Data Analytics	▪ Cloud Computing ▪ HPC / Data Analytics ▪ DataCenter Applications	▪ Cloud Computing ▪ Big Data Analytics ▪ High End Enterprise Server	▪ Cloud Computing ▪ Big Data Analytics ▪ Research lab/National Lab	▪ Cloud Computing ▪ Big Data Analytics ▪ High End Enterprise Server
Features	▪ 2 2.5" Hot-swap SAS/SATA drive bay ▪ 8 DIMM slots, Intel Optane DCPMM ▪ NVIDIA Tesla P4/T4 Optimized ▪ Unify front bezel design	▪ 8 2.5" Hot-swap SAS/SATA support ▪ 24 DIMM slots, Intel Optane DCPMM ▪ 4 double deck PCI-E cards or 8 single deck PCI-E cards ▪ Unify front bezel design	▪ 8 2.5"/3.5" hot-Swap SAS/SATA support ▪ 12 DIMM slot, Intel Optane DCPMM ▪ 205W CPU support ▪ 6 PCI-E cards support ▪ Unify front bezel design	▪ 12 2.5"/3.5" Hot-swap SAS/SATA support ▪ 24 DIMM slots ▪ Hot-Swappable system fan design ▪ 11 PCI-E cards support ▪ Peer-to-Peer support	▪ 8 2.5"/3.5" hot-Swap SAS/SATA support ▪ 12 DIMM slot, Intel Optane DCPMM ▪ 205W CPU support ▪ 7 PCI-E cards support ▪ Unify front bezel design
Processor Support	Dual Intel® Xeon® Scalable/2nd Gen. Scalable Family Processor(Cascadelake/Skylake) with UPI up to 10.4 GT/s, TDP up to 140W	Dual Intel® Xeon® Scalable/2nd Gen. Scalable Family Processor (Cascadelake/Skylake) with UPI up to 10.4 GT/s, TDP up to 140W	Dual Intel® Xeon® Scalable/2nd Gen. Scalable Family Processor (Cascadelake/Skylake) with UPI up to 10.4 GT/s, TDP up to 205W	Dual Intel® Xeon® Scalable/2nd Gen. Scalable Family Processor (Cascadelake/Skylake) with UPI up to 10.4 GT/s, TDP up to 160W	Dual Intel® Xeon® Scalable/3rd Gen. Scalable Family Processor (Icelake) with UPI up to 11.2 GT/s, TDP up to 205W
Serverboard	SKY-6100	SKY-6200	ASMB-975I	SKY-6420	ASMB-976T2
Chipset	Intel® C622	Intel® C622	Intel® C621	Intel® C622	Intel® C621A
System Memory (Max.)	8 x DDR4 2933 MHz ECC RDIMM/LRDIMM / Intel Optane DCPMM, up to 1TB	24 x DDR4 2933 MHz ECC RDIMM/LRDIMM / Intel Optane™ DCPMM up to 4TB	12 x DDR4 2933 MHz ECC RDIMM/LRDIMM / Intel Optane™ DCPMM, up to 2TB	24 x DDR4 2933 MHz ECC RDIMM/ LRDIMM / Intel Optane™ DCPMM, up to 6TB	16x DDR4 3200 MHz ECC RDIMM/LRDIMM / Intel® Optane™ DCPMM up to 2TB
Expansion Slots	5 PCIE 3.0 x 16 (FH, HL)	4 PCIE 3.0 x 16 (FH, 10.5"L, double deck) or 8 PCIE 3.0 x 8 (FH, 10.5"L, single deck); 1 PCIE 3.0 x 8 (FH, HL)	4 PCIE 3.0 x 16 (FH, 10.5" L, double deck); 1 PCIE 3.0 x 8 (FH single deck); 1 PCIE 3.0 x 4 (FH, single deck)	10 PCIE 3.0 x 16 (FH, 10.5"L, double deck); 1 PCIE 3.0 x 16 (FH, single deck)	4 PCIE 4.0 x16 (FH, 10.5"L, double deck); 3 PCIE 4.0 x8 (FHHL, single deck)
Onboard Storage Controller	Intel® C622 SATA3 (6Gb/s) controller	Intel® C622 SATA3 (6Gb/s) controller	Intel® C621 SATA3 (6Gb/s) controller	Intel® C622 SATA3 (6Gb/s) controller	Intel® C621A SATA3 (6Gb/s) controller
Connectivity	2 Intel® X557 10GBase-T + 1 Intel® I210 Gigabit Ethernet ports; VGA ports; 3 USB 3.2 Gen1 (2 in rear, 1 internal); 2 USB 2.0 at front	2 Intel® X557 10GBase-T + 2 Intel® I210 Gigabit Ethernet ports; VGA ports; 4 USB 3.2 Gen1 ports (rear); 2 USB 2.0 at front; 1 Serial port optional	2 Intel® I210 Gigabit Ethernet ports; VGA ports; 7 USB 3.2 Gen1 ports (4 in rear, 2 at front, 1 type A); 1 Serial port	2 Intel® X557 10GBase-T + 1x Realtek RTL8201EL-VC PHY (dedicated IPMI); VGA ports; 6 USB 3.2 Gen1 ports (4 in rear, 2 at front); 2 Serial port optional	2 Intel® X550 10GBase-T + 2 Intel® I210 Gigabit Ethernet ports; VGA ports; 2 USB 3.2 Gen1 ports (rear); 2 USB 3.2 Gen 1 port at front; 1 Serial port
Management Controller	Aspeed AST2500 BMC	Aspeed AST2500 BMC	Aspeed AST2500 BMC	Aspeed AST2500 BMC	Aspeed AST2500 BMC
Management	IPMI2.0; KVM with share NIC	IPMI2.0; KVM with with share NIC	IPMI2.0; KVM with share NIC LAN; SUSI API; WISE-PaaS RMM	IPMI2.0; KVM with dedicated LAN	IPMI2.0; KVM with dedicate LAN
Peripheral Bays	2 hot-swap 2.5" drive support; 2 SAS/SATA3 ports; on board 1 M.2 2242 SATA	8 hot-swap 2.5" drive support; 8 SAS/SATA3 ports; optional ODD; on board 1 M.2 2280 (SATA + PCIE x4)	8 hot-swap 2.5"/3.5" SAS/SATA3 drive support; 2 internal 2.5" drive support; on board 2 M.2 2242(SATA) for OS mirror	12 hot-swap 2.5"/3.5" SAS/SATA3 ports; on board 1 M.2 2280 (SATA + PCIE x2)	8 hot-swap 2.5"/3.5" SAS/SATA3 drive 2 internal 2.5" drive; on board 2 M.2 2280 (PCIe/SATA) for cache and OS mirror
Power Supply	1200W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply	4800W 3+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply
Cooling System	6 high speed 4056 system fan; 1 internal 4028 system fan; 1 optional 4028 external fan	6 high speed 8038 fan; 2 for CPU, 4 for riser card cage	2 CPU fan; 3 high speed 12038 internal system fan; 2 high speed external 8038 system fan	6 high speed 12038 system fan; 4 optional external 8038 fan	2 CPU fan; 3 high speed 12038 internal system fan; 2 optional high speed external 8038 system fan
Form Factor	1U chassis; enclosure: 438 x 44 x 650 mm (17.2" x 1.7" x 25.6")	2U chassis; enclosure: 438 x 88 x 760 mm (17.24" x 3.46" x 29.92")	4U chassis; enclosure: 435 x 177 x 673 mm (17.12" x 6.96" x 26.49")	4U chassis; enclosure: 438 x 176 x 770 mm (17.24" x 6.93" x 30.31")	4U chassis; enclosure: 435 x 176 x 660 mm (17.12" x 6.9" x 25.9")
Operating Temperature	0 ~ 35° C (32 ~ 95° F)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35° C (32 ~ 85° F) *0 ~ 30° C (32 ~ 85.9° F) for NVidia Tesla P100/V100	0 ~ 35° C (32 ~ 85° F) *0 ~ 30° C (32 ~ 85.9° F) for NVidia Tesla V100	0 ~ 35° C (32 ~ 85° F) support NVIDIA A100 / A30

✓: supported, – : not supported, △ : optional

GPU Server and Multi-node Servers

Model		☞ SKY-9232D3	☞ SKY-9240
Description		2U4N Multinode HCI Server	2U4N Multinode HCI Server
Form Factor		2U - Rack Mount	2U - Rack Mount
Processor System	Processor	Single/Dual 3rd Gen Intel® Xeon® Scalable Processors (per node)	Dual 2nd Gen Intel® Xeon® Scalable Processors (per node)
	Core Number	–	Up to 28C
	Frequency	–	–
	Chipset	Intel® C621A	Intel® C620 Series (per node)
Memory	Technology	DDR4 DIMMs, ECC/REG/RDIMM/LRDIMM, (per node, 8pcs/ CPU) up to 3200MHz	DDR4 DIMMs, ECC/REG/RDIMM/LRDIMM, up to 2666MHz
	Max. Capacity	2TB (per node)	1024 GB/ 64 GB per DIMM (per node)
	Socket	16 x 288-pin RDIMM/LRDIMM	16 x 288-pin RDIMM/LRDIMM
	ECC Support	ECC/REG	ECC/REG
Networking	Controller	–	–
	1GbE	1 x 10/100/1000Mbps BMC/Share NIC ports (per node)	1 x 10/100/1000Mbps BMC/Share NIC ports (per node)
	10GE	–	–
Expansion	PCIe Slot	1 x HH/HL PCIe Gen4 x16 (per node) 1 x PCIe Gen3 OCP 2.0 x8 (per node)	2 x HH/HL PCIe gen 3 x 16 slots (SKU A) 1 x HH/HL PCIe gen 3 x 16 slots (SKU B) (per node) 1 x PCIe Gen3 OCP x8 slot, supporting KR/SFI x2 (per node)
	M.2 PCIe/SSD	2 x M.2 2280 (NVMe/SATA; per node)	2 x M.2 2280 slot (per node)
	mSATA	–	–
Storage	2.5" HDD/SSD	1x 2.5" NVMe SSD (per node)	1 x 2.5" SAS/SATA/NVMe HDD/SSD drives (per node)
	3.5" HDD	12 x 3.5" SATA HDD drives (3 per node)	12 x 3.5" SATA/SAS HDD drives (3 per node)
I/O	Console port	1xMicroUSB/node	1xMicroUSB/node
	USB2.0/USB3.0	1 x USB3.0/USB2.0 Type A port at rear (per node)	2 x USB3.0/USB2.0 Type A port at rear (per node)
	LED Indicator	Power, UID	Power, UID
	Reset button	–	–
	Others	1 x VGA port (per node)	1 x VGA port (per node)
Power	Power Type	Redundant AC 2000W (Redundant power limitation for 100-127VAC is up to 1000W)	Redundant AC 2000W (Redundant power limitation for 100-127VAC is up to 1000W)
	Watts	2000W	2000W
	Input	1000W@100-127VAC/12-9.5A, 1800W@200-220VAC/ 10-9.5A, 1980W@220-230VAC/10-9.8A, 2000W@230-240VAC/10-9.8A	1000W@100-127VAC/12-9.5A, 1800W@200-220VAC/ 10-9.5A, 1980W@220-230VAC/10-9.8A, 2000W@230-240VAC/10-9.8A
	Power Adaptor	AC redundant	AC redundant
Environment	Operating Temperature (air flow 0.7 m/ sec)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 35 °C (32 ~ 95 °F)
	Non-operating Temperature	-40 ~ 60 °C (-40 ~ 140 °F)	-40 ~ 60 °C (-40 ~ 140 °F)
Cooling		4 x 8cm (8076) hot-swappable PWM fans with fan speed control	4 x 8cm (8076) hot-swappable PWM fans with fan speed control
Mechanical	Construction	Iron	Iron
	Mounting	Rack-mounting	Rack-mounting
	Dimensions (W x D x H)	438 x 87.5 x 810 mm	438 x 88 x 774 mm (17.2" x 3.46" x 30.47")
	Weight	50kg	30 Kg (w/o peripherals)
OS Support		–	–
IPMI		Aspeed AST2500 Carrier Grade BMC (IPMI v2.0 compliant) with fail safe updates, Web Interface, KVM, Redfish (Advantech IPMI Core)	Aspeed AST2500 Carrier Grade BMC (IPMI v2.0 compliant) with fail safe updates, Web Interface, KVM, Redfish (Advantech IPMI Core)
Certification		CE/FCC, UL, CB, RoHS, BSMI	CB, UL, FCC, CE, CCC, VCCI, BSMI, RoHS, REACH

✓: supported, – : not supported, △ : optional

Industrial Inference Servers

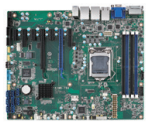
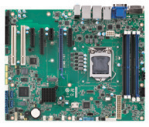
Category	1U	2U	4U
Model	HPC-6120 ASMB-610	HPC-6240 ASMB-622	HPC-7420 ASMB-976
Key Applications	Edge Computing	Edge Computing	Edge Computing
	AOI +AI	Traffic Management +AI	Warehouse Management +AI
Features	18" short-depth with 4x FH PCIe expansion slots	20" short-depth with 8x FH PCIe expansion slots	Front Access Design,17" short-depth with 11 FH PCIe expansion slots
	Support double-deck GPU Card with active Fan	Support two double-deck GPU Card with active Fan	Support two double-deck GPU Card with active Fan
	2 x 2.5" Hot-swap SAS/SATA/SSD drive bay	4 x 2.5" Hot-swap SAS/SATA/SSD drive bay	2 x 3.5" SATA drive, 2 x 2.5" SAS/SATA/SSD Hot-swap drive bay in option
	Unify front bezel support	Unify front bezel support	–
Processor Support	Single Intel® Xeon® W & 10th Gen. Core™ i9/ i7/i5/i3 processors (Comet Lake), TDP up to 95W	Dual Intel® Xeon® Scalable/3rd Gen. Scalable Family Processor (Ice Lake) with UPI up to 11.2 GT/s, TDP up to 165W	Dual Intel® Xeon® Scalable/3rd Gen. Scalable Family Processor (Ice Lake) with UPI up to 11.2 GT/s, TDP up to 165W
Serverboard	ASMB-610	ASMB-622	ASMB-976
Chipset	Intel® W480E chipset	Intel® C621 chipset	Intel® C621 chipset
System Memory (Max.)	4 DIMM slots, Up to 128GB ECC/non-ECC UDIMM, Up to 2933 MHz	16 DIMM slots, Up to 1TB RDIMM, Up to 3200 MHz, Intel Optane DCPMM support	16 DIMM slots, Up to 2TB RDIMM/LRDIMM, Up to 3200 MHz, Intel Optane DCPMM support
Expansion Slots	1 PCIe Gen3 X16 or 2 PCIe Gen3 X8 (FH/10.5"L) 2 PCIe Gen3 X4 (FH/HL)	4 PCIe Gen4 X16 (FH/10.5"L) 3 PCIe Gen4 X8 (FH/HL) 1 PCIe Gen3 X8 slot with X4 signal (FH/HL)	4 PCIe Gen4 X16 (FH/FL) 7 PCIe Gen4 X8 (FHFL)
Connectivity (Front)	2 USB3.2 Gen1 LEDs: power, information, LAN1~ LAN4	2 USB3.2 Gen1 LEDs: power, information, LAN1~ LAN4	2 Gigabit Ethernet RJ-45 2 10GBase-T RJ-45 (in T2 version) 1 dedicated IPMI RJ-45 2 USB3.0 1 VGA 1 COM LEDs: HDD, power, information, LAN1, LAN2
Connectivity (Rear)	4 Gigabit Ethernet RJ-45 1 dedicated IPMI RJ-45 2 USB3.2 Gen2 1 VGA 1 COM	4 Gigabit Ethernet RJ-45 1 dedicated IPMI RJ-45 2 USB3.2 Gen1 1 VGA 1 COM	NA
Management Controller	Aspeed AST2600 BMC	Aspeed AST2500 BMC	Aspeed AST2500 BMC
Management	1 RJ-45 support IPMI function with dedicated NIC	1 RJ-45 support IPMI function with dedicated NIC	1 RJ-45 support IPMI function with dedicated NIC
Peripheral Bays	4 x hot-swap 2.5" SATA/SAS 6Gb drive bays 1 M.2 2280/2242 (PCIe/SATA)	4 x hot-swap 2.5" SATA/SAS 6Gb drive bays 2 x hot-swap 2.5" NVMe drive bays in option 1 M.2 2280 (PCIe/SATA)	2 x 3.5" internal SATA drive (1 x internal 3.5" drive bay can change to 2 x 2.5" SAS/SATA 6Gb Hot-swap drive bay in option) 1 M.2 2280 (PCIe/SATA) 1 M.2 2280 (PCIe)
Power Supply	500W Single Flex ATX PSU 650W 1+0 non-redundancy PSU	1200W 1+1 redundancy PSU	1200W 1+0 non-redundancy PSU
Cooling System	3 x 4056 system fan 2 x 4028 system fan	3 x 8038 system fan 1 x 6038 system fan	3 x 12038 system fan
Physical Characteristics (W x H x D)	438 x 44 x 480 mm (17.24" x 1.73" x 18.9")	438 x 88 x 523 mm (17.24" x 3.46" x 20.59")	438 x 177 x 450mm (17.24" x 6.97" x 17.7")
Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 50 °C (32 ~ 122 °F)
Non-operating Temperature	-40 ~ 70 °C (-40 ~ 158°F)	-40 ~ 70 °C (-40 ~ 158°F)	-40 ~ 70 °C (-40 ~ 158°F)
Humidity	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing

✓: supported, – : not supported, △ : optional

Industrial Server Boards

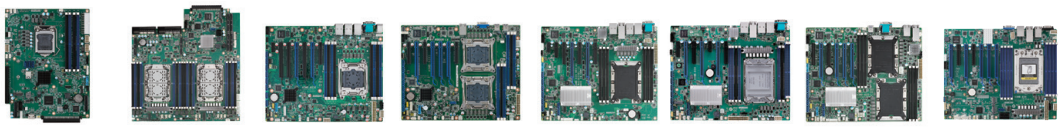




Model		ASMB-260	ASMB-585	ASMB-586	ASMB-587	ASMB-785	ASMB-786	ASMB-787
Form Factor		Mini-ITX	Micro ATX	MicroATX	MicroATX	ATX	ATX	ATX
Processor System	CPU	Intel® Atom® C3000 Series	Intel® Xeon® E3 v5/v6 and 6th/7th Gen. Core™ i3/i5/ i7 Series	Intel® Xeon® E & 8th/9th Gen. Core™ i3/i5/i7 Series	Intel® Xeon® W and 10th Gen. Core™ i9/i7/i5/i3 series	Intel® Xeon® E3 v5/v6 and 6th/7th Gen. Core™ i3/i5/ i7 Series	Intel® Xeon® E & 8th/9th Gen. Core™ i3/i5/i7 Series	Intel® Xeon® W and 10th Gen. Core™ i9/i7/i5/i3 series
	Socket	–	1 x socket LGA 1151	1 x socket LGA 1151	1 x socket LGA 1200	1 x socket LGA 1151	1 x socket LGA 1151	1 x socket LGA 1200
	Max. Speed	2.2 GHz	3.9 GHz	3.7 GHz	3.7 GHz	3.9 GHz	3.7 GHz	3.7 GHz
	L3 Cache	2 MB (based on CPU sku)	8 MB	13.5 MB	20MB	8 MB	13.5 MB	20MB
	Chipset	-	Intel® C236	Intel® C246	Intel® W480E	Intel® C236	Intel® C246	Intel® W480E
	BIOS	AMI 128 Mbit, SPI	AMI 128Mbit, SPI	AMI 256Mbit, SPI	AMI 128Mbit, SPI	AMI 128Mbit, SPI	AMI 256Mbit, SPI	AMI 256Mbit, SPI
Expansion Slot	PCI	–	–	–	–	3	–	2
	PCIe x16	–	1 (Gen3 x16 link)	1 (Gen3 x16 link)	1 (Gen3 x16 link)	1 (switchable to two x 8)	1 (switchable to two x 8)	1 (switchable to two x 8)
	PCIe x8	–	–	–	–	2 (switchable to one x 16)	2 (switchable to one x 16)	2 (switchable to one x 16)
	PCIe x4	1 (1 Gen3 x 4 link)	3 (2 Gen3 x 4 link, 1 Gen3 x 1 link)	2	2	2	2	2
	PCIe x1	–	–	1	–	–	3	1
	M.2	–	–	–	1 x M.2 22110/2280 (PCIe/SATA)	–	–	1 x M.2 2280/2242 (PCIe/SATA)
Memory	Technology	DDR4 Reg/ unbuffered 2400/ 2133/1866/ 1600 Mhz DIMM	DDR4 ECC/ non-ECC Unbuffer 1600/ 1866/2133/ 2400 MHz	DDR4 ECC/ non-ECC Unbuffer 2133/2400/ 2666 MHz	DDR4 ECC/ non-ECC Unbuffer 2400/2666 2933 MHz	DDR4 ECC/ non-ECC Unbuffer 1600/ 1866/2133/ 2400 MHz	DDR4 ECC/ non-ECC Unbuffer 2133/2400/ 2666 MHz	DDR4 ECC/ non-ECC Unbuffer 2400/2666 2933 MHz
	Max. Capacity	128 GB for RDIMM/ 64GB for UDIMM	64 GB	64 GB	128 GB	64 GB	64 GB	128 GB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	AST2500	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-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 maxium shared memory with 2GB 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 installed	1 GB maxium shared memory with 2GB and above system memory installed
Ethernet	Interface	Gigabit & 10GBase-T Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet
	Controller	2 x Intel® I210AT 1 x Intel® X557-AT2	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)
	Connector	RJ-45 x 3 (1 shared with IPMI)	RJ-45 x 4 (G4 SKU)	RJ-45 x 4 (G4 SKU)	RJ-45 x 4 (G4 SKU)	RJ-45 x 4 (G4 SKU)	RJ-45 x 4 (G4 SKU)	RJ-45 x 4 (G4 SKU)
TPM		Optional	Optional	Optional	Optional	Optional	Optional	Optional
SATA	Max. Data Transfer Rate	600MB/s	600 MB/s	600 MB/s	600MB/s	600 MB/s	600 MB/s	600MB/s
	Channel	Up to 8	7	8	5	6	8	5
Rear I/O	VGA/DVI/ HDMI/DP	1 / – / – / –	1 / 2 / – / –	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / 2 / – / –	1 / 1 / 1 / –	1 / 1 / 1 / –
	Ethernet	3	4 (G4 SKU)	4 (G4 SKU)	4 (G4 SKU)	4 (G4 SKU)	4 (G4 SKU)	4 (G4 SKU)
	USB	2 (USB3.2 Gen1)	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen2)	4 (USB 3.2 Gen 2)	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen2)	4 (USB 3.2 Gen 2)
	Audio	–	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232)	1 (RS-232 via cable)	1 (RS-232 via cable)
Onboard I/O	USB	2 (USB 3.2 Gen1)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 6 (USB 2.0) 1 (USB 2.0 Type A)
	Audio	-	1	1	1	1	1	1
	Serial	1	6	1	1	6	1	1
	Parallel	–	–	–	–	1	1	1
	SATA	8	7	8	5	6	8	5
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable, 1~255 sec	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min

✓: supported, – : not supported, △ : optional

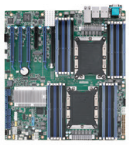


Model		ASMB-610	ASMB-622	ASMB-813	ASMB-823	ASMB-815	ASMB-816	ASMB-825	ASMB-830
Form Factor		Proprietary	Proprietary	ATX	ATX	ATX	ATX	ATX	ATX
Processor System	CPU	Intel® Xeon® W & 10th Gen. Core™ i9/i7/i5/i3 processors	Intel® Xeon® 3rd Gen Scalable Series	Intel® Xeon® E5-1600 v3/v4 and 2600 v3/v4 Series	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® Scalable/2nd Gen Scalable Series	Intel® Xeon® 3rd Gen Scalable Series	Intel® Xeon® Scalable/2nd Gen Scalable Series	AMD EPYC™ 7003 Series
	Socket	1 x socket LGA 1200	2 x socket LGA 4189-P+	1 x socket LGA 2011-R3	2 x socket LGA 2011-R3	1 x socket LGA 3647-P0	1 x socket LGA 4189-P+	2 x socket LGA 3647-P0	1 x socket LGA 4094
	Max. Speed	3.5 GHz	3.6 GHz	3.7 GHz	3.5 GHz	3.6 GHz	3.6 GHz	3.6 GHz	3.6 GHz
	Front Side Bus	–	UPI 11.2 GT/s	QPI 9.6GT/s	QPI 9.6GT/s	UPI 10.4 GT/s	UPI 11.2 GT/s	UPI 10.4 GT/s	–
	L3 Cache	20MB	42MB	30 MB	30 MB	38.5 MB	42MB	38.5 MB	Max 256MB
	Chipset	W480E	Intel® C621A	Intel® C612	Intel® C612	Intel® C620	Intel® C621A	Intel® C620	N/A
	BIOS	AMI SPI 256 Mbit	AMI SPI 256 Mbit	AMI 128 Mbit, SPI	AMI 128 Mbit, SPI	AMI 256 Mbit, SPI	AMI SPI 256 Mbit	AMI 256 Mbit, SPI	AMI SPI 256 Mbit
Expansion Slot	PCIe x16	1 (switchable to two x 8)	4	2 (switchable to four x8)	4	2 (switchable to four x 8)	3	4	5
	PCIe x8	–	4	1	2	1	1	2	2
	PCIe x4	2	–	1	1 (x 8 slot with x 4 link)	1	2	–	–
	PCIe x1	–	–	1	–	1	1	–	–
	M.2	1 x M.2 2280	1 x M.2 2280	–	–	1 x M.2 2280 (PCIe/SATA)	1 x M.2 2280/22110 (PCIe/ SATA)	1 x M.2 2280 (PCIe/SATA)	2 x M.2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)
Memory	Technology	DDR4 ECC/ non-ECC Unbuffer 2400/ 2666/2933 MHz	DDR4 3200/2933/ 2666 MHz RDIMM, Intel Optane DCPMM	DDR4 REG 2400/2133/ 1866/1600 MHz DIMM	DDR4 REG 2400/2133/ 1866/1600 MHz DIMM	DDR4 2933/2666/ 2400/2133 MHz RDIMM, Intel Optane DCPMM	DDR4 3200/2933/ 2666 MHz RDIMM, Intel Optane DCPMM	DDR4 2933/2666/ 2400/2133 MHz RDIMM, Intel Optane DCPMM	DDR4 3200/ 2933/2666 MHz RDIMM
	Max. Capacity	128 GB REG DIMM	1 TB REG DIMM	256 GB REG DIMM	192 GB REG DIMM	768 GB REG DIMM	1 TB REG RDIMM	768 GB REG DIMM	512GB REG DIMM
	Socket	4 x 288-pin DIMM	16 x 288-pin DIMM	8 x 288-pin DIMM	6 x 288-pin DIMM	6 x 288-pin DIMM	8 x 288-pin DIMM	6 x 288-pin DIMM	8 x 288-pin DIMM
Graphics	Controller	AST 2600	AST2510/ AST2500	AST1400/ AST2400	AST1400/ AST2400	AST2510/ AST2500	AST2510/ AST2500	AST2510/ AST2500	AST2500
	VRAM	DDR4 4Gb	DDR4 4Gb	DDR3 64MB	DDR3 64MB	DDR4 4Gb	DDR4 4Gb	DDR4 4Gb	DDR4 4Gb
Ethernet	Interface	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit & 10GBase-T Ethernet	Gigabit & 10GBase-T Ethernet	Gigabit & 10GBase-T Ethernet	Gigabit & 10GBase-T Ethernet
	Controller	1 x Intel® I350AM4	1 x Intel® I350AM4	2 x Intel® I210AT	2 x Intel® I210AT	2 x Intel® I210AT 1 x Intel® X557-AT2 1 x Realtek 8201EL	2 x Intel® I210AT 1 x Intel® X550-AT2 1 x Realtek 8201F	2 x Intel® I210AT 1 x Intel® X557-AT2	2 x Intel® I210AT 1 x Intel® X550-AT2 1 x Realtek 8201F
	Connector	RJ-45 x 5 (1 dedicated for IPMI)	RJ-45 x 5 (1 dedicated for IPMI)	RJ-45 x 3 (1 dedicated for IPMI)	RJ-45 x 3 (1 shared with IPMI)	RJ-45 x 5 (1 dedicated for IPMI)	RJ-45 x 5 (1 dedicated for IPMI)	RJ-45 x 4 (1 shared with IPMI)	RJ-45 x 5 (1 dedicated for IPMI)
TPM		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
SATA	Max. Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	3	4	8	9	9	8	9	9
Rear I/O	VGA/DVI/ HDMI/DP	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	4	4	2	2	4 (T2 SKU)	4 (T2 SKU)	4 (T2 SKU)	4 (T2 SKU)
	USB	2 (USB 3.2 Gen2)	2 (USB 3.2 Gen1)	4 (USB 3.2 Gen1) 2 (USB 2.0)	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen1) 2 (USB 2.0)	4 (USB 3.2 Gen1) 2 (USB 2.0)	2 (USB 3.2 Gen1)	2 (USB 3.2 Gen1)
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	–	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	–	–	2	–	–	–	–	–
Onboard I/O	USB	2 (USB 3.2 Gen1) 1 (USB 3.2 Gen2 Type A)	2 (USB 3.2 Gen1) 2 (USB 3.0 Gen1 Type A)	2 (USB 3.2 Gen1) 2 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 2 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 4 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 4 (USB 2.0) 1 (USB 2.0 Type A)	4 (USB 3.2 Gen1) 4 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 1 (USB 3.2 Gen1 Type A)
	Audio	–	–	1	1	1	1	1	–
	Serial	1	1	1	1	1	1	1	1
	SATA	3	4 (in 1 x SFF-8643)	8	9	8	8	8	9
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec/ min	Programmable, 1 ~ 255 sec

✓: supported, – : not supported, △ : optional

Industrial Server Boards



Model		ASMB-913	ASMB-923	ASMB-925	ASMB-935	ASMB-975	ASMB-976
Form Factor		EATX	EATX	EATX	EATX	Proprietary	Proprietary
Processor System	CPU	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® E5-2600 v3/v4 Series	Intel® Xeon® Scalable/2nd Gen Scalable Series	Intel® Xeon® Scalable/2nd Gen Scalable Series	Intel® Xeon® Scalable/2nd Gen Scalable Series	Intel® Xeon® 3rd Gen Scalable Series
	Socket	2 x socket LGA 2011-R3	2 x socket LGA 2011-R3	2 x socket LGA 3647-P0	2 x socket LGA 3647-P0	2 x socket LGA 3647-P0	2 x socket LGA 4189-P+
	Max. Speed	3.5 GHz	3.5 GHz	3.6 GHz	3.6 GHz	3.6 GHz	3.7 GHz
	Front Side Bus	QPI 9.6GT/s	QPI 9.6GT/s	UPI 10.4 GT/s	UPI 10.4 GT/s	UPI 10.4 GT/s	UPI 11.2 GT/s
	L3 Cache	30 MB	30 MB	38.5 MB	38.5 MB	38.5 MB	42MB
	Chipset	Intel® C612	Intel® C612	Intel® C620	Intel® C620	Intel® C620	Intel® C621A
	BIOS	AMI 128 Mbit, SPI	AMI 128 Mbit, SPI	AMI 256 Mbit, SPI	AMI 256 Mbit, SPI	AMI 256 Mbit, SPI	AMI SPI 256 Mbit
Expansion Slot	PCI	–	–	1	–	–	–
	PCIe x 16	4 (1 for PME)	4	5	5	4	4
	PCIe x 8	–	2	1	1	1	7
	PCIe x 4	–	1	–	–	4	–
	M.2	–	–	–	1 x M.2 2280 (PCIe/SATA)	2 x M.2 2242 (SATA)	1 x M.2 2280 (PCIe/SATA) 1 x M.2 2280 (PCIe)
Memory	Technology	DDR4 REG 2400/2133/1866/ 1600/1333 MHz DIMM	DDR4 REG 2400/2133/1866/ 1600/1333 MHz DIMM	DDR4 2933/2666/ 2400/2133 MHz RDIMM, Intel Optane DCPMM	DDR4 2933/2666/ 2400/2133 MHz RDIMM, Intel Optane DCPMM	DDR4 2933/2666/ 2400/2133 MHz RDIMM, Intel Optane DCPMM	DDR4 3200/ 2933/2666 MHz RDIMM, Intel Optane DCPMM
	Max. Capacity	512 GB REG DIMM	256 GB REG DIMM	1.5 TB REG DIMM	3 TB REG DIMM	1.5 TB REG DIMM	2 TB REG DIMM
	Socket	16 x 288-pin DIMM	8 x 288-pin DIMM	12 x 288-pin DIMM	24 x 288-pin DIMM	12 x 288-pin DIMM	16 x 288-pin DIMM
Graphics	Controller	AST1400/AST2400	AST1400/AST2400	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500
	VRAM	DDR3 64MB	DDR3 64MB	DDR4 4Gb	DDR4 4Gb	DDR4 4Gb	DDR4 4Gb
Ethernet	Interface	Gigabit Ethernet	Gigabit Ethernet	Gigabit & 10GBase-T Ethernet	Gigabit & 10GBase-T Ethernet	Gigabit & 10GBase-T Ethernet	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	2 x Intel® I210AT 1 x Intel® X550-AT2
	Connector	RJ-45 x 4 (1 shared with IPMI)	RJ-45 x 3 (1 dedicated for IPMI)	RJ-45 x 4 (1 shared with IPMI)	RJ-45 x 4 (1 shared with IPMI)	RJ-45 x 4 (1 shared with IPMI)	RJ-45 x 5 1 x Realtek 8201F (1 dedicated for IPMI)
TPM		Optional	Optional	Optional	Optional	Optional	Optional
SATA	Max. Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	8	10	8	10	14	10
Rear I/O	VGA/DVI/ HDMI/DP	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	4	2	4 (T2 SKU)	4 (T2 SKU)	4 (T2 SKU)	4 (T2 SKU)
	USB	2 (USB 3.2 Gen1)	2 (USB 3.2 Gen1) 2 (USB 2.0)	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen1)	2 (USB 3.2 Gen1)
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)
	PS/2	–	2	–	–	–	–
Onboard I/O	USB	2 (USB 3.2 Gen1) 2 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 2 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 4 (USB 2.0) 1 (USB 2.0 Type A)	2 (USB 3.2 Gen1) 4 (USB 2.0) 1 (USB 2.0 Type A)	4 (USB 3.2 Gen1) 2 (USB 2.0) 1 (USB 2.0 Type A)	4 (USB 3.2 Gen1) 1 (USB 3.2 Gen1 Type A) 1 (USB 2.0 Type A)
	Audio	1	1	1	1	1	1
	Serial	1	1	1	1	1	1
	SATA	8	10	8	10	12	10
Watchdog Timer	Output	System reset	System reset	System reset	System reset	System reset	System reset
	Interval	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min	Programmable, 1 ~ 255 sec/min

✓: supported, – : not supported, △ : optional

Industrial Server Chassis

Height (1U = 1.75")		Tower		
Model		☞ HPC-2040	☞ HPC-5000	☞ HPC-7000
Form Factor Support		Mini iTX	Micro ATX	Micro ATX, ATX, EATX
No. of slots / No. of full-height cards		1/0	4/2 (11.73" Length)	7/6
Drive Bay	Slim ODD Bay	1	1	1
	5.25" (front-accessible)	–	–	–
	3.5" (hot-swappable)	4 (3.5" / 2.5")	–	–
	3.5" (internal)	–	2 x 3.5" or 1 x 3.5" + 1 x 2.5"	3 (External)
	2.5" (hot-swappable)	–	–	–
	2.5" (internal)	1	–	–
Cooling	Chassis Fan	1 (12cm / 57.2CFM)	1 (12cm / 82CFM)	2 (12cm/150CFM)
	Air Filter	–	Yes	–
Front I/O	USB 3.0	2	2	2
Interface	USB 2.0	–	2	–
Power Supply	Single Power Supply	250W	300W/500W	500W/1200W
	Redudant Power Supply	–	–	–
Miscellaneous	LED Indicators	System: Power, HDD, LAN1, LAN2, System Information	System: Power	System: Power
	Rear Panel	One DB-9 ports openings	Two DB-9 ports openings	Two USB ports openings
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 122 °F)	0 ~ 40 °C (32 ~ 122 °F)	0 ~ 40 °C (32 ~ 122 °F)
	Non-Operating Temperature	-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
	Non-operating Humidity	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")

✓: supported, – : not supported, △ : optional

Industrial Server Chassis

Height (1U = 1.75")		1U			2U		
Model		☞ HPC-6120	☞ HPC-7120S	☞ HPC-7140	☞ HPC-6240	☞ HPC-7242	☞ HPC-7282
Form Factor Support		Proprietary	Micro ATX, ATX	Micro ATX, ATX	Proprietary	Micro ATX, ATX	Micro ATX, ATX
No. of slots / No. of full-height cards		4/2	1/1	1/1	8/8	3/3	7/0
Drive Bay	Slim ODD Bay	–	–	1	1 (Ultra Slim)	1	1
	5.25" (front-accessible)	–	–	–	–	–	–
	3.5" (hot-swappable)	–	–	4 (3.5" / 2.5")	–	4 (3.5" / 2.5")	8
	3.5" (internal)	–	–	–	–	–	2
	2.5" (hot-swappable)	2	2 (HPC-7120S-35ZXE only)	–	4	–	Optional
	2.5" (internal)	–	2	–	–	2	–
Cooling	Chassis Fan	3 (4cm/34CFM) 2 (4cm/23CFM)	3 (4 cm/23.1 CFM)	4 (4cm / 23 CFM)	3 (8cm/ 132CFM) 1 (6cm/ 75CFM)	1 (8 cm/47CFM) 2 (6 cm/28CFM)	3 (8cm / 52.6 CFM)
	Air Filter	–	–	–	–	Yes	–
Front I/O	USB 3.0	2	2	-	2	2	–
	USB 2.0	-	-	2	–	–	2
Power Supply	Single Power Supply	500W/650W	350W/850W	350W/500W	–	350W/500W	500W/850W
	Redudant Power Supply	650W (optional)	–	–	1200W	550W	550W/800W
Miscellaneous	LED Indicators	System: Power, Information, LAN1, LAN2, LAN3, LAN4 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, System Information. HDD Tray: HDD Power and Activity LED	System: Power, Information, LAN1, LAN2, LAN3, LAN4 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
	Rear Panel	–	–	–	–	Two DB-9 ports openings	–
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	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)	-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 ~ 85% @ 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	10 ~ 95% @ 60 °C, non-condensing
Physical Characteristics	Dimensions (W x H x D)	438 x 44 x 480 mm (17.24" x 1.73" x 18.9")	438 x 43 x 381 mm (17.24" x 1.7" x 15")	437 x 43 x 504mm (17.2" x 1.7" x 19.85")	438 x 88 x 523 mm (17.24" x 3.46" x 20.59")	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")

✓: supported, – : not supported, △ : optional





Height (1U = 1.75")		3U/Tower	4U			
Model		☞ HPC-7320	☞ HPC-7420	☞ HPC-7442	☞ HPC-7484	☞ HPC-7485
Form Factor Support		Micro ATX, ATX, EATX	ATX, EATX, EE-ATX	Micro ATX, ATX, EATX	Micro ATX, ATX, EATX	ATX, EATX, EE-ATX
No. of slots / No. of full-height cards		7/6	11/11	7/7	7/7	11/11
Drive Bay	Slim ODD Bay	1	1	1	1	1
	5.25" (front-accessible)	–	–	–	–	–
	3.5" (hot-swappable)	2 (3.5" / 2.5")	–	4 can upgrade to 8 (3.5" / 2.5")	8 (3.5" / 2.5")	8 (3.5" / 2.5")
	3.5" (internal)	2	2	1	–	–
	2.5" (hot-swappable)	–	2 (optional)	–	–	–
	2.5" (internal)	–	2 (optional)	–	1	2
Cooling	Chassis Fan	2 (8cm/57CFM) 1 (6cm/27.72CFM)	3 (12cm /238 CFM) for HPC-7420-12ZX 3 (8cm /57 CFM) for HPC-7420-85ZX	1 (12cm /114 CFM) 1 (8cm/55 CFM)	2 (12cm /150.33 CFM)	3 (12cm /238 CFM) for HPC-7485-20RX 3 (12cm /232 CFM) for HPC-7485-12RX
	Air Filter	Yes	Yes	Yes	Yes	–
Front I/O	USB 3.0	2	–	2	2	2
	USB 2.0	–	–	–	–	–
Power Supply	Single Power Supply	500W/850W	850W/1200W	500W/700W	700W/1200W	–
	Redudant Power Supply	550W/800W	1200W (optional)	500W	–	1200W/2000W
Miscellaneous	LED Indicators	System: Power, HDD, LAN1, LAN2 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, 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, System Information HDD Tray: HDD Power and Activity LED
	Rear Panel	Two DB-9 ports openings	LED panel and two USB openings	Five DB-9 ports and one 68-pin SCSI openings	Five DB-9 ports and one 68-pin SCSI openings	Two DB-9 ports, two PS/2 and two USB openings
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 50 °C (32 ~ 122 °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)	-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)	426.4 x 132.2 x 480 mm (16.79" x 5.2" x 18.9")	438 x 177 x 450mm (17.24" x 6.97" x 17.7")	426 x 177 x 600 mm (16.7" x 7.0" x 23.6")	426 x 177 x 630mm (16.7" x 7.0" x 24.8")	435 x 176 x 660mm (17.1" x 6.9" x 25.9")

✓: supported, – : not supported, △ : optional

Industrial Server Chassis

Height (1U = 1.75")		1U		2U			3U	4U
Model		☞ HPC-8104	☞ HPC-8108	☞ HPC-8208	☞ HPC-8212	☞ HPC-8224	☞ HPC-8316	☞ HPC-8424
Form Factor Support		Micro ATX, ATX	ATX, EATX	ATX, EATX	Micro ATX, ATX, EATX	ATX, EATX	Micro ATX, ATX	ATX, EATX
No. of slots / No. of full-height cards		1/0	1/0	7/0, 3/3	7/0, 3/3 (1 for Raid Card)	7/0, 3/3 (1 for Raid Card)	7/7 (1 for Raid Card)	7/7 (1 for Raid Card)
Drive Bay	Slim ODD Bay	1 (Ultra Slim)	1	1	–	–	–	–
	5.25" (front-accessible)	–	–	–	–	–	–	–
	3.5" (hot-swappable)	4 x SAS3 or SATA	–	8 x SAS3/SATA	12 x SAS3/SATA	–	16 x SAS3 or SATA	24 x SAS3/SATA
	3.5" (internal)	–	–	–	–	–	–	–
	2.5" (hot-swappable)	–	8 x SAS3 or SATA	–	2 (Rear) only HPC-8212SE-R6A1E	24 x SAS3/SATA	2 (Rear)	2 (Rear)
	2.5" (internal)	2 or 3(optional)	–	2	–	–	–	–
	NVMe Support	–	–	–	4 in 12 Hot-Swappable Drive Bays	4 in 24 Hot-Swappable Drive Bays	–	4 in 24 Hot-Swappable Drive Bays
Cooling	Chassis Fan	4 (4cm)	4 (4cm)	3 (8cm)	4 (8cm)	4 (8cm)	4 (8cm)	4 (8cm)
	Air Filter	–	–	–	–	–	–	–
Front I/O Interface	USB 3.0	2	–	2	–	–	2	–
	USB 2.0	–	1	–	2	2	–	2
Power Supply	Single Power Supply	500W	800W	850W	–	–	–	–
	Redudant Power Supply	650W	650W	550W, 800W	550W, 650W, 800W	800W	550W	800W
Miscellaneous	LED Indicators	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED	LAN1, LAN2,HDD, Power and Information LED
	Rear Panel	–	–	–	–	–	–	–
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 35 °C (32 ~ 95 °F)	0 ~ 40 °C (32 ~ 104 °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 ~ 60 °C (-40 ~ 140 °F)	-40 ~ 60 °C (-40 ~140 °F)	-40 ~ 60 °C (-40 ~ 140 °F)	-40 ~ 60 °C (-40 ~140 °F)	-40 ~ 60 °C (-40 ~140 °F)	-40 ~ 60 °C (-40 ~140 °F)	-40 ~ 60 °C (-40 ~140 °F)
	Operating Humidity	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 35 °C non-condensing	10 ~ 95% @ 40 °C non-condensing	10 ~ 95% @ 35 °C non-condensing	10 ~ 95% @ 35 °C non-condensing	10 ~ 95% @ 35 °C non-condensing	10 ~ 95% @ 35 °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	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 43.9 x 597mm (17.24" x 1.73" x 23.5")	438 x 88 x 620mm (17.25" x 3.46" x 24.4")	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 620 mm (17.24" x 3.48" x 24.41")	435 x 132 x 540 mm (17.13" x 5.2" x 21.26")	438 x 176 x 620 mm (17.24" x 6.93" x 24.41")

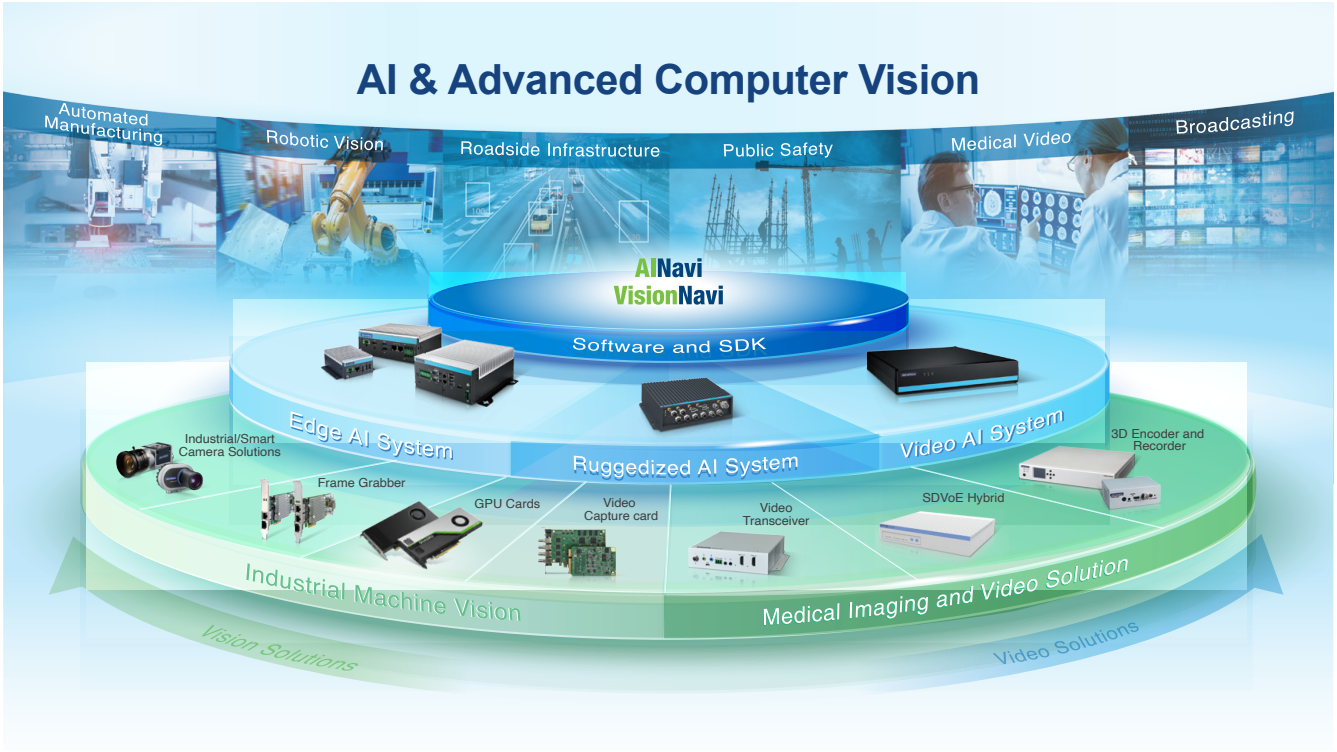
✓: supported, – : not supported, △ : optional

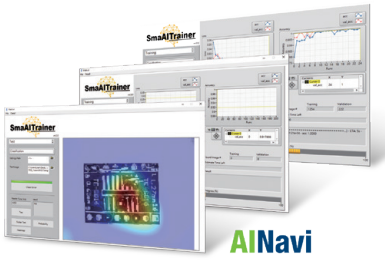
4 AI & Advanced Computer Vision

AI & Advanced Computer Vision

Accelerate video analytics and video transmission at the edge

AI and computer vision are powering a new wave of interactivity in the IoT world. Cameras combined with powerful software that process and interpret images and video captured from production lines enable new automated processes and greatly improve efficiency. Computer vision when coupled with AI machine learning algorithms provide powerful solutions for manufacturing.





AINavi

AINavi is a deep-learning image analysis software for applications in automated optical inspection (AOI), video content management in security and transportation, more. The trained software development kit allows fast deployed of AI models with a user-friendly interface.

VisionNavi

VisionNavi is a programmable machine vision software that facilitates development of a menu-driven user interface and helps deploy multiple tasks. It supports a wide range of Advantech industrial PCs and cameras and provides easy system installation while reducing maintenance costs. It is suitable for automated applications aimed at defect inspection, quality assurance, and more.

Edge AI Platforms

Advantech MIC-Jetson series are highly integrated systems with NVIDIA Jetson platform. With strong computing power, small compact design, industrial I/O support and remote management, MIC-Jetson series allow AI application developers to rapidly create unique AI solutions in smart city, automation manufacturing, medical imaging applications.

NVIDIA GPU Cards

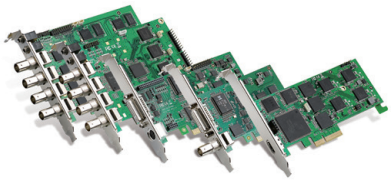
Advantech offers various NVIDIA-Certified GPU cards, including the NVIDIA MXM, Quadro, and Tesla series GPU cards. GPU-accelerated computing is the use of a graphics processing unit (GPU) together with a CPU to accelerate deep learning, analytics and AI. It delivers the best possible experience with solutions and can be applied in the fields of industrial, manufacturing, medical, scientific imaging, transportation, surveillance, telecommunications, gaming, and robotics.

AI Industrial Cameras

Advantech AI Industrial Cameras are dedicated to machine vision applications. AI camera embedded NVIDIA Jetson SoM, lens, and LED illumination inside the camera enables OCR and AI-powered AOI applications at the network edge. AI Industrial cameras fully integrate a compact vision system for industrial automation.

Frame Grabbers

Advantech frame grabbers are designed for connecting industrial cameras in machine vision, factory automation, and medical applications. it is a high-bandwidth industrial-grade expansion card designed for connecting industrial cameras in machine vision.



Video Capture Cards

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.

AV over IP Solution

Advantech's VEGA video platforms are designed to optimize infrastructure performance from acquisition to distribution to maximize resolution.The VEGA 1000 family of AV over IP transceivers support lossless UHD video with almost zero latency transmission.

Edge AI Platforms

Edge AI Computing



Model		☞ MIC-710AIL ☞ MIC-710AILT ☞ MIC-710AILX	☞ MIC-710AI ☞ MIC-710AIT ☞ MIC-710AIX	☞ MIC-730AI
NVIDIA® Platform		NVIDIA Jetson Nano/ Jetson TX2 NX/ Jetson Xavier NX	NVIDIA Jetson Nano/ Jetson TX2 NX/ Jetson Xavier NX	NVIDIA Jetson AGX Xavier
Processor System	CPU	Nano: Quad Core ARM Cortex A57 (Max.Operating Frequency 1.43GHz) TX2 NX: Dual-Core Denver2.0 + Quad Core ARM Cortex A57 NX: Carmel Dual-Core Processor (Max. Operating Frequency 1.9GHz)		8-Core ARM v8.2 64 bit CPU, 8MB L2 + 4MB L3
	CUDA Cores	Nano: 128 Maxwell CUDA Cores TX2 NX: 256 Pascal CUDA Cores NX: 384 Volta CUDA Cores 48 Tensor Cores		512 Volta CUDA Cores and 64 Tensor Cores
	Memory	Nano: 4GB 64-bit LPDDR4/ TX2 NX: 8GB 128-bit LPDDR4/ NX: 8GB 128 bit LPDDR4 1600Hz		32GB 256-bit LPDDR4
	Flash	16GB eMMC	16GB eMMC	32GB eMMC
I/O / Expansion	LAN	1 x RJ-45	2 x RJ-45	2 x RJ-45
	PoE	–	–	–
	HDMI	1 x HDMI	1 x HDMI	1 x HDMI
	USB	External: 1 x USB2.0, 1 x USB3.0 Internal: 1 x USB2.0, 1 x MicroUSB	External: 1 x USB2.0, 1 x USB3.0 Internal: 1 x USB2.0, 1 x MicroUSB	External: 2 x USB 2.0, 2 x USB 3.0 Internal: 1 x USB 2.0
	DI/DO	–	8-bit (4In/4Out)	16-bit (8 In/8 Out)
	Button	Recovery, reset (internal)	Recovery, reset (internal)	Power buttons, recovery, reset (external)
	COM	–	1 x RS232/422/485	2 x RS-232/422/485
	SD Card	1 x Micro SD	1 x Micro SD	–
	SIM Card	–	–	–
	MiniPCIe	1 x MiniPCIe (PCIex1)	1 x MiniPCIe (PCIex1)	1 x MiniPCIe (PCIex1)
	iDoor	✓ (by project)	✓	✓
	PCIe iModule	–	–	MIC-75M10-00A1 MIC-75M20-00C1 *(x16 slot, x8 lanes)
Storage	Storage	1x M.2 2280 (M-key, PCIe)	1 x M.2 (SATA)	1 x 2.5 HDD/SSD 1 x M.2 (NVME PCIex2)
Power	Power Supply	12-24V DC In	19-24V DC In	9-36V DC In
Dimension	H x W x D (mm)	85 x 118 x 45 (mm)	147 x 118 x 52 (mm)	192 x 230 x 87 (mm)

✓: supported, – : not supported, △ : optional

Ruggedized AI System and AI Video Systems



Model		MIC-715	MIC-710IVA MIC-710IVX	MIC-730IVA
NVIDIA® Platform		NVIDIA Jetson Xavier NX	NVIDIA Jetson Nano/ NVIDIA Jetson Xavier NX	NVIDIA Jetson AGX Xavier
Processor System	CPU	Carmel Dual-Core Processor (Max. Operating Frequency 1.9GHz)	Nano: Quad Core ARM Cortex A57 (Max. Operating Frequency 1.43GHz) NX: Carmel Dual-Core Processor (Max. Operating Frequency 1.9GHz)	8-Core ARM v8.2 64 bit CPU, 8MB L2 + 4MB L3
	CUDA Cores	384 Volta CUDA Cores 48 Tensor Cores	Nano: 128 Maxwell CUDA Cores NX: 384 Volta CUDA Cores 48 Tensor Cores	512 Volta CUDA Cores and 64 Tensor Cores
	Memory	8GB 128-bit LPDDR4 1600Hz	Nano: 4GB 64-bit LPDDR4/ NX: 8GB 128-bit LPDDR4 1600Hz	32GB 256-bit LPDDR4
	Flash	16GB eMMC	16GB eMMC	32GB eMMC
I/O Expansion	LAN	2 x M12 X-coded, 8-pin female	1 x RJ-45	2 x RJ-45
	PoE	4 x M12 X-coded, 8-pin female	8 x PoE	8 x PoE (15.4w/ch)
	HDMI	1 x HDMI	1 x HDMI	1 x HDMI
	USB	External: 2 x USB 3.0 Internal: 1 x MicroUSB	External: 1 x USB 2.0, 1 x USB 3.0 Internal: 1 x USB 2.0	External: 2 x USB 3.0 Internal: 1 x USB 3.0
	DI/DO	–	8 bit (4In/4Out)	8 bit (4In/4Out)
	Button	Recovery, reset (Internal)	Power switch (External) recovery, reset (Internal)	Power switch (External) recovery, reset (Internal)
	COM	2 x CAN (Interface: M12 A-coded, 5-pin male)	1 x RS-485	2 x RS-232/422/485
	SD Card	1 x Micro SD	–	–
	SIM Card	1 x SIM slot	–	1 x SIM slot
	MiniPCIe	2 x MiniPCIe (PCIex1)	–	1 x MiniPCIe (PCIex1)
	M.2	1 x M.2 3052, 1 x M.2 2280	–	–
	iDoor	✓ (by project)	–	–
	PCIe iModule	–	–	–
Storage	Storage	1x M.2 2280 (M-key, PCIe)	2 x 3.5 HDD (internal)	2 x 3.5 HDD (internal)
Power	Power Supply	12-24V DC In	AC100-240V 250W ATX	AC100-240V 250W ATX
Dimension	H x W x D (mm)	275 x 220 x 80 (mm)	57 x 300 x 330 (mm)	57 x 300 x 330 (mm)

✓: supported, – : not supported, △ : optional

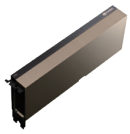
NVIDIA GPU Cards

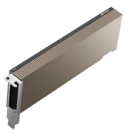
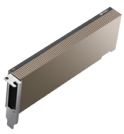
NVIDIA MXM GPU cards




Model	☞ SKY-MXM-A2000	SKY-MXM-A1000	☞ SKY-MXM-RTX3000	☞ SKY-MXM-T1000
Part Number	SKY-MXM-A2000-4SDA	–	SKY-MXM-R3000-6SDA	SKY-MXM-T1000-4SDB
GPU Architecture	Ampere	Ampere	Turing	Turing
GPU Memory	4GB GDDR6 with ECC	4GB GDDR6	6GB GDDR6	4GB GDDR6
Memory Interface Max Clock	128 bit 7000 MHz	128 bit 7000 MHz	192 bit 7000 MHz	128 bit 6000 MHz
Memory BW	224 GB/s	192 GB/s	336 GB/s	192 GB/s
CUDA Cores	2560	2048	1920	896
RT Cores	20	16	30	–
Tensor Cores	80	64	240	–
Tensor Tflops (Dense/Sparse)	34/66	26/52	44/NA	N / A
Max FP 32 Perf.	8.25 TF	6.66 TF	5.3 TF	2.7 TF
GPU Clock Boost Clock	1117 MHz 1612 MHz	1192 MHz 1624 MHz	945 MHz 1380 MHz	1395 MHz 1455 MHz
Form Factor	MXM Type A	MXM Type A	MXM Type B	MXM Type A
Dimensions	82 (W) x 70 (D) mm	82 (W) x 70 (D) mm	82 (W) x 105 (D) mm	82 (W) x 70 (D) mm
Interface	MXM 3.1, PCIe 3.0 x8	MXM 3.1, PCIe 3.0 x8	MXM 3.1, PCI Express 3.0 x 16	MXM 3.1, PCI Express 3.0 x 16
TGP Power	60W	60W	80W	50W
Display Outputs	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz
NVENC NVDEC	1(7th Gen) 2(5th Gen)	1(7th Gen) 2(5th Gen)	1(7th Gen) 3(4th Gen)	1(6th Gen) 3(4th Gen)
Operating Temperature	0°C to 55°C (dependent on CPU and cooler solution)			
Storage Temperature	-40°C to 85°C			
Vibration (Non-operating)	2G			
OS Support	Windows 10, Linux (64 bit)			

NVIDIA Tesla GPU cards

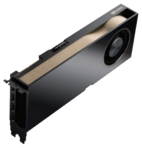


Model	NVIDIA A100 80GB	NVIDIA A30	NVIDIA A40	NVIDIA A16	☞ NVIDIA A2
Part Number	SKY-TESL-A100-80P	SKY-TESL-A30-24P	SKY-TESL-A40-48P	SKY-TESL-A16-64P	SKY-TESL-A2-16P
Form Factor	DS FH 3 NVLINK bridges	DS FH 1 NVLINK bridges	DS FH 1 NVLINK bridges	DS FH	SS LP
GPU Memory	80GB HBM2e	24GB HBM2	48 GDDR6	4 x 16GB GDDR6	16GB GDDR6
Memory Bandwidth	1935GB/s	933GB/s	700GB/s	–	200GB/s
Multi-Instance GPU	Up to 7	Up to 4	N / A	N / A	N / A
Media Acceleration	1 JPEG Decoder, 5 Video Decoder	1 JPEG Decoder, 4 Video Decoder	1 Video Encoder, 2 Video Decoder (+AV1 decode)	4 Video Encoder, 8 Video Decoder (+AV1 decode)	1 Video Encoder, 2 Video Decoder
Ray Tracing	No	No	Yes	Yes	Yes
Fast FP64	Yes	Yes	No	No	No
DL & Compute	Ultimate	Fastest	Fastest	Fast	Fast
Graphics	For in-situ visualization (no vPC/vQuadro)	For in-situ visualization (no vPC/vQuadro)	Best	Good	Good
Max Power	300W	165W	300W	250W	40-60W

✓: supported, – : not supported, △ : optional

NVIDIA Quadro GPU cards

Model	☞ NVIDIA RTX A6000	☞ NVIDIA RTX A5000	☞ NVIDIA RTX A4500	☞ NVIDIA RTX A4000	☞ NVIDIA RTX A2000 12GB	☞ NVIDIA RTX A2000
Part Number	SKY-QUAD-RTXA6000B	SKY-QUAD-RTXA5000B	SKY-QUAD-RTXA4500B	SKY-QUAD-RTXA4000B	SKY-QUAD-A2000-12B	SKY-QUAD-RTXA2000B
GPU Architecture	Ampere					
Memory Size	48 GB GDDR6 w/ ECC	24 GB GDDR6 w/ ECC	20 GB GDDR6 w/ ECC	16 GB GDDR6 w/ ECC	12 GB GDDR6 w/ ECC	6 GB GDDR6 w/ECC
Memory Interface	384-bit	384-bit	320-bit	256-bit	192-bit	
Memory Bandwidth	768 GB / s	768 GB / s	640 GB / s	512 GB / s	288 GB / s	
CUDA Cores	10,752	8,192	7,168	6,144	3,328	
Tensor Cores	336	256	224	192	104	
RT Cores	84	64	56	48	26	
Single-Precision Performance	38.7 TFLOPS	27.8 TFLOPS	23.7 TFLOPS	19.2 TFLOPS	8.0 TFLOPS	
RT Cores Performance	75.6TFLOPS	54.2 TFLOPS	46.2 TFLOPS	37.4 TFLOPS	15.6 TFLOPS	
Tensor Performance	309.7 TFLOPS	222.2 TFLOPS	189.2 TFLOPS	153.4 TFLOPS	63.9 TFLOPS	
Graphics Bus	PCI Express 4.0 x 16	PCI Express 4.0 x 16	PCI Express 4.0 x 16	PCI Express 4.0 x 16	PCI Express 4.0 x 16	
Max Power	300W	230W	200W	140W	70W	
Form Factor	4.4 inches H 10.5 inches L Dual slot, full height	4.4 inches H 10.5 inches L Dual slot, full height	4.4 inches H 10.5 inches L Dual slot, full height	4.4 inches H 9.5 inches L Single slot, full height	2.7 inches H 6.6 inches L Dual slot, low profile	
Display Connectors	4 x DP 1.4	4 x DP 1.4	4 x DP 1.4	4 x DP 1.4	4 x mDP 1.4 with latching mechanism	
Thermal Solution	Active					
Ambient Operating Temperature	0°C to 45°C	0°C to 45°C	0°C to 45°C	0°C to 50°C	0°C to 50°C	
Storage Temperature	-45°C to 75°C					
Max Simultaneous Displays	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	4x 4096 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz	
Graphics APIs	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.18	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.2	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.2	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.2	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.2	
Compute APIs	CUDA, DirectCompute, OpenCL™					
Media Acceleration	1 NVENC, 2 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC, (+AV1 dec)	
NVLink	Yes	Yes	Yes	No	No	
Virtualization Ready	Yes	Yes	No	No	No	
Power Connector	8-Pin CPU	8-Pin PCIe	8-Pin PCIe	6-Pin PCIe	–	

✓: supported, – : not supported, △ : optional

NVIDIA GPU Cards

NVIDIA Quadro GPU cards



Model	☞ NVIDIA T1000 8GB	☞ NVIDIA T1000	☞ NVIDIA T400 4GB
Part Number	SKY-QUAD-T1000-8-B	SKY-QUAD-T1000-AB	SKY-QUAD-T400-4-B
GPU Architecture	Turing		
Memory Size	8 GB GDDR6	4 GB GDDR6	4 GB GDDR 6
Memory Interface	128-bit		64-bit
Memory Bandwidth	160 GB / s		80 GB / s
CUDA Cores	896		384
Tensor Cores	–		
RT Cores	–		
Single-Precision Performance	2.5 TFLOPS		1.09 TFLOPS
RT Cores Performance	–		
Tensor Performance	–		
Graphics Bus	PCI Express 3.0 x 16		
Max Power	50W	50W	30W
Form Factor	2.713 inches H 6.137 inches L single slot, Low profile		
Display Connectors	4 x mDP 1.4 with latching mechanism		3 x mDP 1.4 with latching mechanism
Thermal Solution	Active		
Ambient Operating Temperature	0°C to 55°C		
Storage Temperature	-40°C to 75°C		
Max. simultaneous Displays	4x 3840 x 2160 @ 120 Hz 4x 5120 x 2880 @ 60 Hz 2x 7680 x 4320 @ 60 Hz		3x 3840 x 2160 @ 120 Hz 3x 5120 x 2880 @ 60 Hz
Graphics APIs	DirectX 12.07 Shader Model 5.17 OpenGL 4.68 Vulkan 1.2		
Compute APIs	CUDA, DirectCompute, OpenCL™		
Media Acceleration	1 NVENC, 2 NVDEC,		
NVLink	No		
Virtualization Ready	No		
Power Connector	–		

✓: supported, – : not supported, △ : optional

Machine Vision Camera & Frame Grabbers

Frame Grabber Cards




Model		PCIE-1158	PCIE-1672E	PCIE-1674E	PCIE-1182
Power Requirements	Input Voltage	12 V_{DC} direct from PCIe slot (limited to PCIe design) or AT/ATX system power input	12 V_{DC} direct from PCIe slot, total Max. 18W or AT/ATX system power input		12 V_{DC} direct from PCIe slot, with optional 12 V_{DC} AT/ATX
	Overload Current Protection	Device auto recover after eFuse tripped when rated currents > 2A	Present		
	Connection	AT/ATX Power Jack			
	Power Output	5 V_{DC} power output, max. 4.5W per port	48 V_{DC} PoE Power output, total Max. 18W (total Max. 60W with AT/ATX system power input)		Up to 24 watts for each of 2 12V_{DC} output port
Environment	Operating Temperature	0 ~ 60°C (32 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)		0 ~ 60°C (32 ~ 140°F)
	Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)			
	Operating Humidity	5 ~ 95% RH			
Mechanics	Dimensions (W x D)	153 x 106 mm (6.02" x 4.17")	185 x 110 mm (7.3" x 3.9")		167 x 68.9 mm, PCIe low profile
Communication	Communication	USB	GigE		GigE
	Interface/Compatibility	USB vision	IEEE802.3af		IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3af, IEEE802.3at
	Speed	–	10/100/1000 Mbps		10,000/5,000/1,000 Mbps
	No. of Ports	4	2	4	2, 10GBASE-T MAC and PHY
	Port Connector	8 x USB 3.0 Type A	8-pin RJ45		8-pin RJ45 copper
	Bus Interface	PCI Express Gen2 x4 interface, up to 2.0 GB/s	PCI Express® x 4		PCI Express x4 compliant
	Jumbo Frame	–	9KB		
	Controller	Renesas µPD720202, Compliant with USB 3.0 Specification and Intel® xHCI Specification, Revision 1.0	–	–	–
Safety	ESD	8KV (air), 4KV (contact)			8KV (air), 4KV(contact)
	EFT	2 KV			
	Surge Protection	1 KV			
	Isolation Protection	2.5 KV			
Digital Input/ Output	No. of Channels	4 input and output	–	–	–
	Input/Output range	0-30V opto-isolated	–	–	–
	Max. Frequency	1KHz	–	–	–
	Digital Input Interrupt	Falling and rising edge, normal and invert	–	–	–

AI Camera

Model	ICAM-500		
Image Sensor	1.6MP@60fps, Global Shutter, Monochrome/Color	Sensor Size	SONY IMX296 1/2.9"
Processor	NVIDIA Jetson Nano	RAM/Storage	4GB LPDDR4 /16G eMMC/64G SD card
Lens	12/16 mm programmable focus lens	LED Lighting	8 Pcs (Red and white LED lighting)
Working Distance	100 mm~ 900 mm	Synchronization	Hardware Trigger / Software Trigger / Free-run
USB	USB 3.0 (USB Type C Connector)	Display	HDMI
Digital I/O	2 x Isolated Inputs, 2 x Outputs	LAN	1 x 1000BASE-
Power Input	19-24V_{DC}	Dimensions	78mm (W) x 121mm (H) x 53mm (D)
Environment / Certification	0-45° C, 5Grms, CE/FCC Class B /KCC, IP54	Software / SDK	OS: Ubuntu 18.04 Support Jetpack 4.5.1 Azure Cloud Connecting SW package CAMNavi SDK

✓: supported, – : not supported, △ : optional

Machine Vision Camera & Frame Grabbers

Industrial Cameras (GigE)

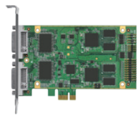
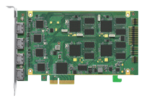
Model		☞ QCAM-GM0640-121CE	☞ QCAM-GM0720-290CE	☞ QCAM-GM1300-060DE	☞ QCAM-GM1440-073CE	☞ QCAM-GM2500-014DE	☞ QCAM-GM2440-020CE	☞ QCAM-GM5400-005CE
Resolution		659 x 494	720 x 540	1280 x 1024	1440 x 1080	2590 x 1942	2448 x 2048	5472 x 3648
Frame Rate		134	291	60	73	14	23	5
Pixel Size (μm)		5.6 x 5.6	6.9 x 6.9	5.3 x 5.3	3.45 x 3.45	2.2 x 2.2	3.45 x 3.45	2.4 x 2.4
Mono/ Color		Mono	Mono	Mono	Mono	Mono	Mono	Mono
Sensor	Company	SONY	SONY	e2v	e2v	Onsemi	Onsemi	SONY
	Model	ICX618 replacement	IMX287	EV76C560	EV76C570	MT9P031	MT9J003	IMX183
	Shutter	Global	Global	Global	Global	rolling	rolling	rolling
	Size	1/4"	1/2.9"	1/1.8"	1/2.9"	1/2.5"	2/3"	1"
	Type	CMOS						
Input		1						
Output		1						
Power Requirements		PoE or 12 V_{DC}						
Power Consumption		2.7 W	2.9 W	2 W	2.1 W	2.2 W	3.3 W	2.6 W
Lens Mount		C						
Size(L x W x H)		42.0 x 29.0 x 29.0 mm						
Weight		90 g						
Operating Temp.		0°~50°C						

Industrial Cameras (USB)

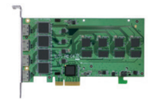
Model		☞ QCAM-UC0640-750CE/QCAM-UM0640-750CE	☞ QCAM-UC0720-520CE/QCAM-UM0720-520CE	☞ QCAM-UC1300-200CE/QCAM-UM1300-200CE	☞ QCAM-UC1440-220CE/QCAM-UM1440-220CE	☞ QCAM-UC2440-035CE/QCAM-UM2440-035CE
Resolution		640 x 480	720 x 540	1280 x 1024	1440 x 1080	2488 x 2048
Frame Rate		751	525	203	227	35
Pixel Size (μm)		4.8 x 4.8	6.9 x 6.9	4.8 x 4.8	3.45 x 3.45	3.45 x 3.45
Mono/ Color		Color/Mono	Color/Mono	Color/Mono	Color/Mono	Color/Mono
Sensor	Company	Onsemi	SONY	Onsemi	SONY	SONY
	Model	PYTHON 300	IMX287	PYTHON 1300	IMX273	IMX 264
	Shutter	Global	Global	Global	Global	Global
	Size	1/4"	1/2.9"	1/2"	1/2.9"	2/3"
	Type	CMOS				
Input		1				
Output		1				
Power Requirements		Via USB3.0 interface				
Power Consumption		2.8 W	3 W	3 W	3.3 W	2.7W
Lens Mount		C				
Size(L x W x H)		29.3 x 29.0 x 29.0 mm				
Weight		80 g				
Operating Temp.		0°~50°C				

✓: supported, – : not supported, △ : optional

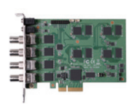
Video Capture Cards

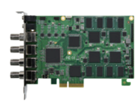
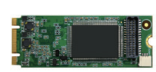



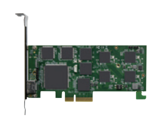




Model		DVP-7621HE	DVP-7637HE	DVP-7636HE	DVP-7612HE	DVP-7021HE	DVP-7031HE
Video	Compression	H/W H.264 / MPEG4	H/W H.264	H/W H.264	H/W H.264	S/W H.264	SW H.264
	Channels	2	4	4	1	2	4
	Host Interface	PCIe x1	PCIe x4	PCIe x4	Mini PCIe x1 (Gen 2)	PCIe x1 (Gen2)	PCIex4 (Gen2)
	Input Interface	2 x HDMI/DVI/VGA/ S-Video/YPbPr	–	–	HDMI/DVI/VGA	SDI/DVI/VGA/ HDMI/Composite/ YPbPr/S-video/VGA	HDMI
	Max. Resolution	1920 x 1080p @60/50	1920 x 1080p @60/50	1920 x 1080p @60/50	1920 x 1080p @60/50	1920 x 1080p @ 60/50	1920 x 1080 @ 60/50
Watchdog		Yes	No	No	No	-	Yes
Physical Characteristic	Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-40 ~ 85°C (-40 ~ 185°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)
	Dimensions (W x H x D)	132.22 x 84.5 mm	167.65 x 101.03 mm	157 x 101.01 mm	30 x 51 mm	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
Operating System	Operating System	Windows XP/XPe/ Vista/7/8/8.1/10; Linux 2.6.14 or higher; 32/64 bits	Windows XP/XPe/ Vista/7/8/8.1; Linux 2.6.14 or higher; 32/64 bits	Windows XP/XPe/ Vista/7/8/8.1; Linux 2.6.14 or higher; 32/64 bits	Windows XP/XPe/ Vista/7/8/8.1/10; Linux 2.6.14 or higher; 32/64 bits	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





Model		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. 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
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)
	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

✓: supported, –: not supported, △ : optional

AV over IP Solutions

UHD Video Convertor



Model			VEGA-1000	VEGA-1100	VEGA-1200
Life Cycle			5 Years	5 Years	5 Years
Platform			AVX200T	AVP2000T	AVP2000T + Ambarella H2
Video Inputs and Outputs	Channels (Max.)		1	1	1
	Video formats	Resolution	480i/480p/720p/1080i/1080p/4K2K	480i/480p/720p/1080i/1080p/4K2K	480i/480p/720p/1080i/1080p/4K2K
		Frame rate	up to 4K60	up to 4K60	up to 4K60
	Chroma Sampling Format		4:4:4	4:4:4	4:4:4
	Bit Depth		8-bit/10-bit/12-bit	8-bit/10-bit/12-bit	8-bit/10-bit/12-bit
	Input Interface		HDMI 2.0	HDMI 2.0	HDMI 2.0 / DP/ 12G-SDI/S-Video/VGA
	Output Interface		HDMI 2.0	HDMI 2.0	HDMI 2.0
Video Coding	Video Encoding	Standard	AVX	SDVoE	SDVoE/HEVC/AVC
		Bit Depth	8-bit/10-bit/12-bit	8-bit/10-bit/12-bit	8-bit/10-bit/12-bit
		Chroma Subsampling	4:4:4/4:2:2/4:2:0	4:4:4/4:2:2/4:2:0	4:4:4/4:2:2/4:2:0
	Video Decoding	Standard	AVX	SDVoE	SDVoE
		Bit Depth	8-bit/10-bit/12-bit	8-bit/10-bit/12-bit	8-bit/10-bit/12-bit
		Chroma Subsampling	4:4:4/4:2:2/4:2:0	4:4:4/4:2:2/4:2:0	4:4:4/4:2:2/4:2:0
VoIP	Connectivity		1 x 10Gb (SFP+ cages)/ 1x10Gb Copper/1Gb Copper	1 x 10Gb (SFP+ cages)/ 1x10Gb Copper/1Gb Copper	1 x 10Gb (SFP+ cages)/ 1 x 1Gb Copper
	Standard Supported		AVX	SDVoE	SDVoE/NDI/SRT
Audio	Channels (Max.)		8	8	8
	Formats		Stereo Multi-channel linear PCM up to 8 channels (7:1)	Stereo Multi-channel linear PCM up to 8 channels (7:1)	Stereo Multi-channel linear PCM up to 8 channels (7:1)
	Audio Connectors		1 x In / 1 x Out	1 x In / 1 x Out	1 x In / 1 x Out
Feature	Operating System		Linux	Linux	Linux
	Streaming Protocol		AVX	SDVoE	SDVoE/NDI/SRT
	Management & Control Interface		Local or remote Control GUI interface	Local or remote Control GUI interface	Local or remote Control GUI interface
	Development Kits		Semtech AVX	Semtech BlueRiver	Semtech BlueRiver
	Local Video Output		HDMI 2.0	HDMI 2.0	HDMI 2.0
	Network Interface		10Gb SFP+ Fiber/ 10Gb Copper/ 1Gb Copper	10Gb SFP+ Fiber/ 10Gb Copper/ 1Gb Copper	10Gb SFP+ Fiber/ 1Gb Copper
	USB Port		3 x USB 1.0 typeA HID	3 x USB 1.0 typeA HID	1 x USB 2.0 TypeA 1 x USB 1.0 TypeA HID
Power	Power Input		12V DC	12V DC	12V DC
	Power Consumption		12.5 Watt [max]	12.5 Watt [max]	20 Watt [max]
Mechanical	Dimensions		172 x 162 x 30mm	172 x 162 x 30mm	266 x 210 x 47.5mm

4K Portable Video Streamer



Model			VEGA-2002-12GS	VEGA-2002-3GS	VEGA-2002R-4X3GS
Life Cycle			5 Years	5 Years	5 Years
Platform			Ambarella H2+ Xilinx Kintex-7 FPGA	Ambarella H2+ Xilinx Kintex-7 FPGA	Ambarella H2+ Xilinx Kintex-7 FPGA
Video Inputs and Outputs	Channels (Max.)		2	2	4
	Video formats	Resolution	HDMI Interface 4K p 60/ 59.94/.../ 25	HDMI Interface 4K p 60/ 59.94/.../25	BNC (3GS-SDI) Interface 4K p 60/ 59.94/.../29.97 (Note: 3840x2160 support by 4 x 3GSDI Quad Link)
		Frame rate	up to 4K60	up to 4Kp60	up to 4Kp60
	Chroma Sampling Format		4:2:2	4:2:2	4:2:2
	Bit Depth		8bit/10bit	8bit/10bit	8bit/10bit
	Input Interface		1 x12G-SDI 1 x HDMI 2.0	1 x 3G-SDI 1 x HDMI 2.0	4 x 3G-SDI
	Output Interface		HDMI 2.0	HDMI 2.0	HDMI 2.0
Video Coding	Video Encoding	Standard	H.265(HEVC)/H.264 (AVC)	H.265(HEVC)/H.264 (AVC)	H.265(HEVC)/H.264 (AVC)
		Bit Depth	8, 10 bit(only HEVC)	8, 10 bit(only HEVC)	8, 10 bit(only HEVC)
		Chroma Subsampling	4:2:0	4:2:0	4:2:0
	Formats		Line-In: stereo 12G(3G)-SDI: 2 stereo HDMI: 2 stereo	Line-In: stereo 3G-SDI: 4 stereo HDMI: 4 stereo	Line-In: stereo 3G-SDI: 2 stereo (Only supports the SDI port next to the line in)
	Sampling Frequenct		HDMI/SDI: 44.1/48Khz Line in: 32/44.1/48Khz	HDMI/SDI: 44.1/48Khz Line in: 32/44.1/48Khz	HDMI/SDI: 44.1/48Khz Line in: 32/44.1/48Khz
	Sampling Bit Depth		16bit	16bit	16bit
	Audio Connectors		1 x In	1 x In	1 x In
Feature	Operation System		Linux	Linux	Linux
	Streaming Protocol		RTSP/RTP/RTMP/HLS/TS over IP/SRT/ NDI HX2 (option)	RTSP/RTP/RTMP/HLS/TS over IP/SRT/ NDI HX2 (option)	RTSP/RTP/RTMP/HLS/TS over IP/SRT/ NDI HX2 (option)
	Management & Control Interface		Remote from Web GUI interface	Remote from Web GUI interface	Remote from Web GUI interface
	Local Video Output		HDMI 2.0	HDMI 2.0	HDMI 2.0
	Network Interface		RJ45	RJ45	RJ45
	USB Port		2 x USB 1.0 typeA	2 x USB 1.0 typeA	2 x USB 1.0 typeA
Power	Power Input		12V DC	12V DC	12V DC
	Power Consumption		17.8 Watt [max]	17.8 Watt [max]	17.8 Watt [max]
Mechanical	Dimensions		130 x 48x 93(mm)	130 x 48x 93(mm)	122 x 43 x 92(mm)

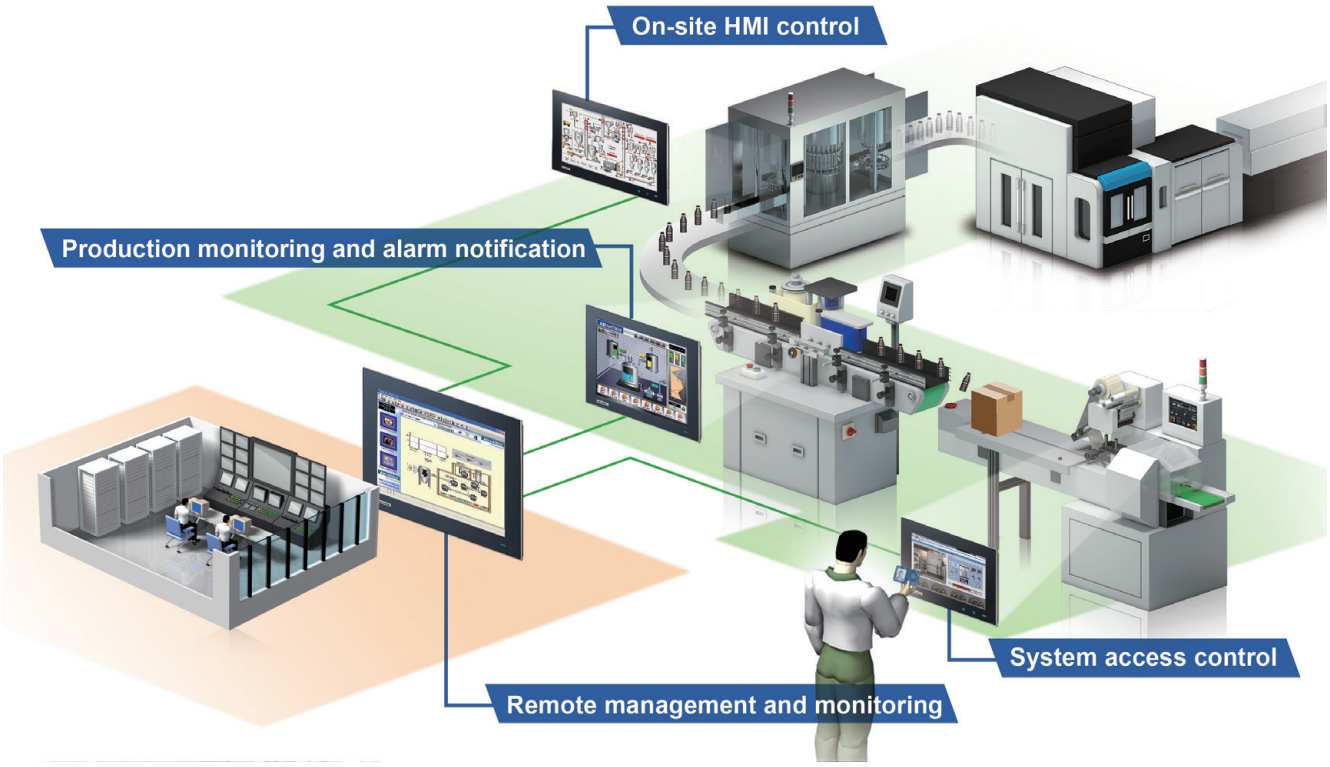
✓: supported, – : not supported, △ : optional

5 Intelligent HMI and Monitors

Intelligent HMI and Monitors

Powerful HMI solutions for realizing the factory IT ecosystem and driving IIoT

Advantech offers a diverse range of general as well as domain focused HMI products of varying size (from 3.5" to 23.8") and screen ratio (4:3 and 16:9). Our HMI product category includes high performance control panels, low-power industrial thin clients, web browser terminals, domain focused HMI, and industrial monitors. In response to Industry 4.0, 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. All Advantech HMI products are equipped with relevant software (HMINavi, WebAcess/SCADA or WISE-PaaS/DeviceOn) 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 Panels

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 23.8"). 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 Panels

Advantech's WebOP series of operator panels feature a range of display sizes (7" to 12") and supports 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 HMI

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/ UL Class 1 Division 2, IEC 61131-2/61010, and EN1672/ FDA 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 23.8"). 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 Modules




Model	FPM-D12T-BE	FPM-D15T-BE	FPM-D15W-FBE	FPM-D17T-BE
Panel Size	12"	15"	15.6"	17"
Resolution	1024 x 768	1024 x 768	1920 x 1080	1280 x 1024
Luminance	600 cd/m²	300 cd/m²	450 cd/m²	350 cd/m²
Touch	5-wire resistive 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
Operating Temperature	-25~60°C (-14~140°F)	-25~60°C (-14~140°F)	-25~60°C (-14~140°F)	-25~60°C (-14~140°F)
Storage Temperature	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)
Weight (Net)	2.5 kg	4 kg	4 kg	4.8 kg

NEW




Model	FPM-D18W-BE	FPM-D19T-BE	FPM-D21W-BE	FPM-D24W-BE
Panel Size	18.5"	19"	21.5"	23.8"
Resolution	1366 x 768	1280 x 1024	1920 x 1080	1920 x 1080
Luminance	250 cd/m²	350 cd/m²	250 cd/m²	350 cd/m²
Touch	Projected capacitive touch	5-wire resistive 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
Operating Temperature	0~55°C (32~131°F)	0~50°C (32~122°F)	0~55°C (32~131°F)	0~55°C (32~131°F)
Storage Temperature	-20~60°C (-4~140°F)	-30~70°C (-22~158°F)	-20~60°C (-4~140°F)	-20~60°C (-4~140°F)
Weight (Net)	5.2 kg	6.6 kg	6.8 kg	7.8 kg

✓: supported, – : not supported, △ : optional

Monitor Box Module

Model	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

*FPM-M700 I/O module is essential for Monitor Box Module to have Video Interfaces and iLink technology.

Configurable I/O Module for Monitor Box




Model	FPM-M700-HDAE	FPM-M700-DPAE	FPM-M700-TRAE	FPM-M700-RXAE
Description	HDMI + USB Touch Module	Display + USB Touch Module	iLINK Tx + Rx Module	iLINK Rx Module

Computing Box Modules

Model	TPC-B200-E12AE	TPC-B200-J12AE	TPC-B500-6C2AE	TPC-B500-633AE	TPC-B500-653AE	TPC-B500-673AE
CPU	Intel® Atom® E3940 Processor	Intel® Celeron® J3455 Processor	Intel® Celeron® 3955U	Intel® Core™ i3-6100U	Intel® Core™ i5-6300U	Intel® Core™ i7-6600U
Memory	4 GB DDR3L 1600 MHz SO-DIMM	4 GB DDR3L 1600 MHz SO-DIMM	4 GB DDR4 2133 MHz SO-DIMM	8 GB DDR4 2133 MHz SO-DIMM	8 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)

NEW NEW NEW NEW NEW

Model	TPC-B510-833AE	TPC-B510-853AE	TPC-B510-873AE	TPC-B610H-A00A	TPC-B610W-A00A
CPU	Intel® Core™ i3-8145UE	Intel® Core™ i5-8365UE	Intel® Core™ i7-8665UE	Intel® 10th Gen. Core™ i Socket CPU (LGA1200)	Intel® 10th Gen. Core™ i Socket CPU (LGA1200)
Memory	8 GB DDR4 2400 MHz SO-DIMM	8 GB DDR4 2400 MHz SO-DIMM	8 GB DDR4 2400 MHz SO-DIMM	Dual channel DDR4 SO-DIMM (each channel supports up to 32G, 2933 MHz)	Dual channel DDR4 SO-DIMM, ECC supported. (each channel supports up to 32G, 2933 MHz)
I/O	2 x RS-232/422/485, 1 x USB 2.0, 4 x USB3.1, 1 x iDoor Slot, 1 x DP, 1 x Line out	2 x RS-232/422/485, 1 x USB 2.0, 4 x USB3.1, 1 x iDoor Slot, 1 x DP, 1 x Line out	2 x RS-232/422/485, 1 x USB 2.0, 4 x USB3.1, 1 x iDoor Slot, 1 x DP, 1 x Line out	1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2) 5 x USB 3.2 (Gen 1) 1 x USB 2.0 1 x Displayport 1.2 1 x Audio line out/Mic in	1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2) 5 x USB 3.2 (Gen 1) 1 x USB 2.0 1 x Displayport 1.2 1 x Audio line out/Mic in
Expansion	1 x Full-size mPCIe slot 1 x M.2 M key 2280 (SATA or NVMe PCIe x4) 1 x M.2 B key 3052 (supports 5G module)	1 x Full-size mPCIe slot 1 x M.2 M key 2280 (SATA or NVMe PCIe x4) 1 x M.2 B key 3052 (supports 5G module)	1 x Full-size mPCIe slot 1 x M.2 M key 2280 (SATA or NVMe PCIe x4) 1 x M.2 B key 3052 (supports 5G module)	1 x PCIe x16 1 x PCI 1 x Full-size mini PCIe 1 x M.2 3052 (5G) 1 x SIM card slot	1 x PCIe x16 1 x PCIe x4 1 x Full-size mini PCIe 1 x M.2 3052 (5G) 1 x SIM card slot
Power Input	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 LTSC, Linux, Android	Microsoft® Windows 10 LTSC, Linux, Android	Microsoft® Windows 10 LTSC, Linux, Android	Microsoft® Windows 10 LTSC, Linux	Microsoft® Windows 10 LTSC, Linux
Mount Options	Panel, Wall, Stand, VESA	Panel, Wall, Stand, VESA	Panel, Wall, Stand, VESA	Panel, Wall, VESA, Desktop	Panel, Wall, VESA, Desktop

✓: supported, – : not supported, △ : optional

High-Performance Control Panels

NEW  NEW  NEW  NEW 

	Model	TPC-324W	TPC-317	TPC-315	TPC-312
	CPU	8th Gen. Intel® Core™ i3/i5/i7 Processor	8th Gen. Intel® Core™ i3/i5/i7 Processor	8th Gen. Intel® Core™ i3/i5/i7 Processor	8th Gen. Intel® Core™ i3/i5/i7 Processor
	Memory	Dual channel DDR4 SO-DIMM (each channel supports up to 32G)	Dual channel DDR4 SO-DIMM (each channel supports up to 32G)	Dual channel DDR4 SO-DIMM (each channel supports up to 32G)	Dual channel DDR4 SO-DIMM (each channel supports up to 32G)
Display	Display Type	FHD TFT LED LCD	SXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD
	Display Size	23.8" (16:9)	17" (4:3)	15" (4:3)	12.1" (4:3)
	Max. Resolution	1920 x 1080	1280 x 1024	1024 x768	1024 x768
	Max. Colors	16.7M	16.7M	16.2M	16.2M
	Luminance (cd/m²)	350	300	300	300
	VieWINg Angle (H/V°)	178/178	160/140	176/176°	178/178
	Backlight Life	30,000 hrs	50,000 hrs	50,000 hrs	50,000 hrs
	Touchscreen	PCAP	5-wire analog resistive	5-wire analog resistive	5-wire analog resistive
	Network (LAN)	2 x 10/100/1000BASE-T	2 x 10/100/1000BASE-T	2 x 10/100/1000BASE-T	2 x 10/100/1000BASE-T
	I/O Ports	2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 (Gen 2) 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in	2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 (Gen 2) 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in	2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 (Gen 2) 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in	2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 (Gen 2) 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in
	Expansion Slots	1 x Full-size mini PCIe 1 x SIM (M.2 B Key 4G/5G module)	1 x Full-size mini PCIe 1 x SIM (M.2 B Key 4G/5G module)	1 x Full-size mini PCIe 1 x SIM (M.2 B Key 4G/5G module)	1 x Full-size mini PCIe 1 x SIM (M.2 B Key 4G/5G module)
	DC Power Input (Voltage)	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
	Dimensions	595.9 x 374.1 x 70 mm (23.46 x 14.73 x 2.76 in)	410.4 x 343.4 x 68 mm (16.16 x 13.52 x 2.68 in)	383.2 x 307.3 x 66.5 mm (15.09 x 12.10 x 2.62 in)	311.8 x 238 x 67 mm (12.28 x 9.37 x 2.64 in)
	Weight	9.3 kg (20.5 lbs)	6.1 kg (13.45 lbs)	5.8 kg (12.79 lbs)	4.1 kg (9.04 lbs)
	Enclosure	Die cast aluminum alloy	Die cast aluminum alloy	Die cast aluminum alloy	Die cast aluminum alloy
	Mounting	VESA Mount, Desktop, Wall or Panel Mount	VESA Mount, Desktop, Wall or Panel Mount	VESA Mount, Desktop, Wall or Panel Mount	VESA Mount, Desktop, Wall or Panel Mount
	Operating Temperature	-10 ~ 50°C (14 ~ 122°F)	-10 ~ 55°C (14 ~ 131°F)	-10 ~ 55°C (14 ~ 131°F)	-10 ~ 55°C (14 ~ 131°F)
	Ingress Protection (Front Panel)	IP66	IP66	IP66	IP66
	Certification	BSMI, CCC, CE, FCC Class A, CB/UL	BSMI, CCC, CE, FCC Class A, CB/UL	BSMI, CCC, CE, FCC Class A, CB/UL	BSMI, CCC, CE, FCC Class A, CB/UL
	Operating System	Windows 10, Android, Linux	Windows 10, Android, Linux	Windows 10, Android, Linux	Windows 10, Android, Linux

✓: supported, – : not supported, △ : optional

Industrial Thin-Client Terminals

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Model		TPC-324W EHL	TPC-317 EHL	TPC-315 EHL	TPC-312 EHL	TPC-1551WP	TPC-1051WP	TPC-651T
CPU		Intel® Atom™ 6425E 2.00 GHz/ Celeron® J6412 2.00 GHz processor	Intel® Atom™ 6425E 2.00 GHz/ Celeron® J6412 2.00 GHz processor	Intel® Atom™ 6425E 2.00 GHz/ Celeron® J6412 2.00 GHz processor	Intel® Atom™ 6425E 2.00 GHz/ Celeron® J6412 2.00 GHz processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor	Intel® Atom™ E3827 1.75 GHz Processor
Memory		1 x SODIMM with 4 GB DDR4 SDRAM (up to 32 GB)	1 x SODIMM with 4 GB DDR4 SDRAM (up to 32 GB)	1 x SODIMM with 4 GB DDR4 SDRAM (up to 32 GB)	1 x SODIMM with 4 GB DDR4 SDRAM (up to 32 GB)	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	FHD TFT LED LCD	SXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD	WXGA TFT LED LCD	WXGA TFT LED LCD	VGA TFT LED LCD
	Display Size	23.8" (16:9)	17" (4:3)	15" (4:3)	12.1" (4:3)	15" (16:9)	10.1" (16:10)	5.7"(4:3)/6.5"(4:3)
	Max. Resolution	1920 x 1080	1280 x 1024	1024 x 768	1024 x 768	1366 x 768	1280 x 800	640 x 480
	Max. Colors	16.7M	16.7M	16.2M	16.2M	16.7M	262K	262K
	Luminance (cd/m^2)	350	300	300	600	400	300	550/800
	VieWINg Angle (H/V°)	178/178	160/140	176/176	178/178	170/160	170/170	160/140
	Backlight Life	30,000 hrs	50,000 hrs	70,000 hrs	50,000 hr	50,000 hr	25,000 hr	50,000 hr
Touchscreen		PCAP	5-wire analog resistive	5-wire analog resistive	5-wire analog resistive	PCAP	PCAP	5-wire analog resistive
Network (LAN)		2 x Intel® I211; 10/100/1000 BASE-T	2 x Intel® I211; 10/100/1000 BASE-T	2 x Intel® I211; 10/100/1000 BASE-T	2 x Intel® I211; 10/100/1000 BASE-T	10/100/ 1000BASE-T x 2	10/100/ 1000BASE-T x 2	10/100/ 1000BASE-T x 2
I/O Ports		1 x RS-232 1 x RS-232/422/485 3 x USB 3.2 1 x USB 2.0 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in 1 x Remote Power Buttom	1 x RS-232 1 x RS-232/422/485 3 x USB 3.2 1 x USB 2.0 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in 1 x Remote Power Buttom	1 x RS-232 1 x RS-232/422/485 3 x USB 3.2 1 x USB 2.0 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in 1 x Remote Power Buttom	1 x RS-232 1 x RS-232/422/485 3 x USB 3.2 1 x USB 2.0 1 x iDoor slot 1 x Displayport (Video output) 1 x Audio line out/ mic in 1 x Remote Power Buttom	1 x RS-232 1 x RS-232/422/485 1 x USB 3.0 1 x USB 2.0	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
Expansion Slots		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 Full-size mini PCIe	1 x Full-size mini PCIe	1 x Full-size mini PCIe
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
Dimensions		595.9 x 374.1 x 70 mm (23.46 x 14.73 x 2.76 in)	410.4 x 343.4 x 68 mm (16.16 x 13.52 x 2.68 in)	383.2 x 307.3 x 67 mm (15.09 x 12.10 x 2.64 in)	311.8 x 238 x 67 mm (12.28 x 9.37 x 2.64 in)	419.7 x 269 x 61.9 mm (16.52 x 10.59 x 2.44 in)	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		9.2 kg (20.28 lbs)	6.1 kg (13.45 lbs)	5.15 kg (11.35 lbs)	4.2 kg (9.26 lbs)	5 Kg (11.02 lbs)	2.6 kg	1.5 kg
Enclosure		Die cast aluminum alloy	Die cast aluminum alloy	Die cast aluminum alloy	Die cast aluminum alloy	Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy
Operating Temperature		-10 ~ 50°C (14 ~ 122°F)	-10 ~ 50°C (14 ~ 122°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 55°C (32 ~ 131°F)	-20 ~ 55°C (-4 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Ingress Protection (Front Panel)		IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel
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	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL
Operating System		Windows 10 Enterprise LTSC, Advantech Linux, Android	Windows 10 Enterprise LTSC, Advantech Linux, Android	Windows 10 Enterprise LTSC, Advantech Linux, Android	Windows 10 Enterprise LTSC, Advantech Linux, Android	Microsoft® WES7 (32/64-bit), Windows 7 (32/64-bit), Windows 10 Enterprise LTSB	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 7, WES7, WEC7, Linux, Windows 10 Enterprise LTSB

✓: supported, – : not supported, △ : optional

Domain-Focused HMI

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Model		SPC-221	IPPC-5211WS	SPC-515	SPC-821	SPC-815
CPU		Intel® 6th. Core™ i7/ i5 / i3 Processor	Intel Celeron J1900	Intel® 6th. Core™ i3 Processor	Intel® 6th. Core™ i7/ i5 / i3 Processor	Intel® 6th. Core™ i7/ i5 / i3 Processor
Memory		8 GB DDR3L SDRAM	4 GB DDR3L SDRAM	8 GB DDR3L SDRAM	8 GB DDR3L SDRAM	8 GB DDR3L SDRAM
Display	Display Type	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD	TFT LED LCD
	Display Size	21.5"	21.5"	15"	21.5"	15.6"
	Max. Resolution	1920 x 1080	1920 x 1080	1024 x 768	1920 x 1080	1366 x 768
	Max. Colors	16.7M	16.7M	16.7M	16.7M	16.7M
	Luminance (cd/m²)	300	300	300	250	400
	VieWINg Angle (H/V°)	178/178	178/178	176 / 176	178/178	170/130
	Backlight MTBF	50,000 hr	50,000 hr	70,000 hr	50,000 hr	50,000 hr
	Touchscreen	Projected capacitive touch	Projected capacitive touch	Projected capacitive touch	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 2	10/100/1000BASE-T x 2
I/O Ports		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-232/422/485 x 1 RS-232 x 1 USB 3.0 x 1 USB 2.0 x1	RS-232 x1 (connection:M12 A-coded, 8-pin male) USB 2.0 x2 (connection:M12 A-coded, 8-pin female) 24 V_{DC} power input (connection:M12 A-coded, 5-pin male)	USB 3.0 x 2 USB 2.0 x1 (Front)	USB 3.0 x 2 USB 2.0 x1 (Front)
HDD (Optional)		2.5" SATA HDD	2.5" SATA HDD	2.5" SATA HDD / Default 64G SSD	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	Full-size mini PCIe x1	Full-size mini PCIe x1
Ingress Protection		All-around IP66	All-around IP69k	All-around IP69k	All-around IP65	All-around IP65
DC Power Input (Voltage)		24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%	24 V_{DC} ± 20%
Enclosure		Front bezel: Die cast aluminum alloy Back housing: Die cast aluminum alloy	Front bezel: Stainless steel Back housing: Aluminum/ stainless steel	Front bezel: 304L Stainless Steel Back housing: 304L Stainless Stee	Front bezel: Die cast aluminum alloy Back housing: Die cast aluminum alloy	Front bezel: Die cast aluminum alloy Back housing: Die cast aluminum alloy
Mounting		VESA	VESA and flange adapter for arm and foot mount	VESA	Pole Mount/VESA (optional)	Pole Mount/VESA (optional)
Weight		9 kg	16 kg	8.5 kg	10.6 kg	8.2 kg
Operating Temperature		0 ~ 55°C (32 ~ 131°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Dimensions		558.4 x 349.8 x 65 mm	555 x 346.5 x 81 mm	389 x 313 x 56 mm	546.69 x 420.34 x 67 mm (w/o flange for arm mount) 546.69 x 420.34 x 160 mm (w/ flange for arm mount)	402.19 x 333.19 x 67 mm (w/o flange for arm mount) 402.19 x 333.19 x 160 mm (w/ flange for arm mount)
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	BSMI, CCC, CE, FCC Class A, UL
Operating System		Windows 10 Enterprise LTSB	Windows 7/8, WES7, WEC7, Linux, Windows 10 Enterprise LTSB	Windows 10 Enterprise LTSB, Linux	Windows 10 Enterprise LTSB	Windows 10 Enterprise LTSB

✓: supported, – : not supported, △ : optional

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Model		TPC-125H	TPC-155H	TPC-318WH	FPM-8151H	FPM-817S	FPM-815S
CPU		Intel® Atom™ E3845 1.91GHz Quad-core	Intel® Atom™ E3845 1.91GHz Quad-core	Intel® Core™ i5-8365UE Processor	–	–	–
Memory		1 x SODIMM with 4 GB DDR3L SDRAM (up to 8 GB)	1 x SODIMM with 4 GB DDR3L SDRAM (up to 8 GB)	8 GB DDR4 SO-DIMM (up to 64GB)	–	–	–
Display	Display Type	XGA TFT LED LCD	XGA TFT LED LCD	Full-HD LCD	TFT LED LCD	SXGA TFT LCD	XGA TFT LED LCD
	Display Size	12"	15"	18.5"	15"	17"	15"
	Max. Resolution	1024 x 768	1024 x 768	1366 x 768	1024 x 768	1280 x 1024	1024 x 768
	Max. Colors	16.2M	16.2M	16.7M	16.2M	16.7M	16.7M
	Luminance (cd/m²)	600	300	300	350	350	500
	VieWINg Angle (H/V°)	178/178	176/176	160/140	160/140	160/140	176/176
	Backlight Life	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	70,000 hr
	Touchscreen	5-wire analog resistive	5-wire analog resistive	5-wire analog resistive	5-wire resistive with enhanced ITO film	5-wire resistive with enhanced ITO film	5-wire resistive with enhanced ITO film
Network (LAN)		2 x Intel® I210; 10/100/1000 BASE-T	2 x Intel® I210; 10/100/1000 BASE-T	2 x Intel® I210; 10/100/1000 BASE-T	–	–	–
I/O Ports		1 x RS-232 1 x RS-232/422/485 1 x USB 3.0 3 x USB 2.0 1 x iDoor slot	1 x RS-232 1 x RS-232/422/485 1 x USB 3.0 3 x USB 2.0 1 x iDoor slot	2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2(Gen 2) 1 x iDoor slot 1 x DP(Video out put) 1 x Audio line out/ mic in	1 x VGA, 1 x DVI, 1 x RS-232, 1 x USB	1 x VGA, 1 x DP, 1 x USB	1 x VGA, 1 x DP, 1 x USB
Expansion Slots		1 x Full-size mPCIe, 1 x iDoor slot	1 x Full-size mPCIe, 1 x iDoor slot	1 x Full-size mPCIe 1 x SIM (M.2 B Key 4G/5G module)	–	–	–
Ingress Protection		IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel
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	24 V_{DC}	24 V_{DC}
Enclosure		Front bezel: Die-cast aluminum alloy Back housing: SECC	Front bezel: Die-cast aluminum alloy Back housing: SECC	Front bezel: Die-cast aluminum alloy Back housing: SECC	Front panel: 316L Stainless steel Rear cover: Stainless steel with ground isolation protection	304 stainless steel bezel, SPCC with anti-rust coating	304 stainless steel bezel, SPCC with anti-rust coating
Mounting		Panel	Desktop/Wall/Panel	VESA mount, Panel mount	Panel, VESA	Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel
Weight		3.12 kg (6.88 lbs)	4.4 kg (9.7 lbs)		8.5 kg (18.74 lbs)	6.2 kg (13.67 lb)	5.4 kg (11.9 lb)
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Dimensions		311.8 x 238 x 55.4 mm (12.28 x 9.37 x 2.18 in)	383.2 x 307.3 x 55.9 mm	488 x 309 x 56 mm	422 x 338 x 68 mm (16.61 x 13.31 x 2.68 in)	432.5 x 365.5 x 59.3 (17.03 x 14.39 x 2.33 in)	405.3 x 329.4 x 59.3 (15.96 x 12.97 x 2.33 in)
Certification		BSMI, CCC, CE, FCC Class A, UL, UL C1D2	BSMI, CCC, CE, FCC Class A, UL, UL C1D2	BSMI, CCC, CE, FCC Class A, UL, UL C1D2	CE, FCC Class A, UL C1D2, CB, BSMI, CCC	CE, FCC Class A, BSMI, CCC, UL	CE, FCC Class A, BSMI, CCC, UL
Operating System		Microsoft® WES7 (32/64-bit), Windows 7 (32/64-bit), Windows 10 Enterprise LTSB	Microsoft® WES7 (32/64-bit), Windows 7 (32/64-bit), Windows 10 Enterprise LTSB	Microsoft® WES7 (32/64-bit), Windows 7 (32/64-bit), Windows 10 Enterprise LTSB	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

✓: supported, – : not supported, △ : optional

Industrial Web Panels



Model		TPC-71W				TPC-61T	TPC-31T
Ordering Information		TPC-71W-N10PA	TPC-71W-N21PA	TPC-71W-N21WA	TPC-71W-N21AA	TPC-61T-E3AE	TPC-31T-E3AE
CPU		NXP® ARM® Cortex™-A9 i.MX6 dual-core processor	NXP® ARM® Cortex™-A9 i.MX6 dual-core processor	NXP® ARM® Cortex™-A9 i.MX6 dual-core processor	NXP® ARM® Cortex™-A9 i.MX6 dual-core processor	TI Cortex-A8 600MHz	TI Cortex-A8 600MHz
Backup Memory		1Mbit	1Mbit	1Mbit	1Mbit	1Mbit	1Mbit
Working Memory		DDR3L 1 GB on board	DDR3L 2 GB on board	DDR3L 2 GB on board	DDR3L 2 GB on board	DDR2 256MB on board	DDR2 256MB on board
Storage		8 GB eMMC on board	8 GB eMMC on board	8 GB eMMC on board	8 GB eMMC on board	512MB on board micro SD card 1 x SD Card slot	512MB on board micro SD card 1 x SD Card slot
Operating System		Linux Ubuntu 16.04	Linux Ubuntu 16.04	Windows Embedded Compact 7	Android 6.0	Microsoft® Windows CE 6.0	Microsoft® Windows CE 6.0
Display	Type	WSVGA (16:9) TFT LCD	WSVGA (16:9) TFT LCD	WSVGA (16:9) TFT LCD	WSVGA (16:9) TFT LCD	QVGA TFT LED LCD	QVGA TFT LED LCD
	Size	7"	7"	7"	7"	5.7"	3.5"
	Max. Resolution	1024 x 600	1024 x 600	1024 x 600	1024 x 600	320 x 240	320 x 240
	Luminance (cd/m²)	400	400	400	400	800	450
	Backlight Life (hr)	50,000	50,000	50,000	50,000	50,000	30,000
Touchscreen		PCAP	PCAP	PCAP	PCAP	4-wire resistive	4-wire resistive
Communication Interface	COM	COM1: RS-232/422/485/ CAN 2.0 B (DB9)	COM1: RS-232/422/485/ CAN 2.0 B (DB9)	COM1: RS-232/422/485/ CAN 2.0 B (DB9)	COM1: RS-232/422/485/ CAN 2.0 B (DB9)	COM1: RS-232 COM2: RS-232 COM3: RS-422/485	COM1: RS-232/485, CAN
	LAN	1 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD	1 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD	1 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD	1 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD	10/100Base-T x 1	10/100Base-T x 1
I/Os		1 x USB 2.0 Type-B Client 2 x USB 2.0 Type-A Host 1 x Micro SD	1 x USB 2.0 Type-B Client 2 x USB 2.0 Type-A Host 1 x Micro SD	1 x USB 2.0 Type-B Client 2 x USB 2.0 Type-A Host 1 x Micro SD	1 x USB 2.0 Type-B Client 2 x USB 2.0 Type-A Host 1 x Micro SD	1 x USB2.0 (Host), 1 x USB2.0 (Client)	1 x USB 2.0 (Host)
Power Supply Voltage		24 V_{DC} ± 10%	24 V_{DC} ± 10%	24 V_{DC} ± 10%	24 V_{DC} ± 10%	18 ~ 32 V_{DC}	18 ~ 32 V_{DC}
Power Consumption		9W Typical	9W Typical	9W Typical	9W Typical	8 W Ttypical	8 W Ttypical
Dimensions W x H x D (mm)		205 x 146.92 x 46 mm (8.07 x 5.78 x 1.81 in)	205 x 146.92 x 46 mm (8.07 x 5.78 x 1.81 in)	205 x 146.92 x 46 mm (8.07 x 5.78 x 1.81 in)	205 x 146.92 x 46 mm (8.07 x 5.78 x 1.81 in)	195 x 148 x 44.4 mm (7.68 x 5.83 x 1.75 in)	120.79 x 85.5 x 26.5 mm (4.76 x 3.37 x 1.04 in)
Cut-out Dimensions W x H (mm)		192 x 138.5 mm (7.56 x 5.45 in)	192 x 138.5 mm (7.56 x 5.45 in)	192 x 138.5 mm (7.56 x 5.45 in)	192 x 138.5 mm (7.56 x 5.45 in)	189 x 142 mm (7.56 x 5.68 in)	115 x 79.5 mm (4.6 x 3.18 in)
Enclosure		Die-cast aluminum alloy front bezel PC + ABS rear housing	Die-cast aluminum alloy front bezel PC + ABS rear housing	Die-cast aluminum alloy front bezel PC + ABS rear housing	Die-cast aluminum alloy front bezel PC + ABS rear housing	PC + ABS Resin	PC + ABS Resin
Net Weight		1.2 kg (2.65 lbs)	1.2 kg (2.65 lbs)	1.2 kg (2.65 lbs)	1.2 kg (2.65 lbs)	0.8 kg (1.76 lb)	0.25 kg (0.55 lb)
Mounting		VESA, Panel	VESA, Panel	VESA, Panel	VESA, Panel	Panel	Panel
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-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)
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)	-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)
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 ~ 95% RH @ 40°C, non-condensing	10 ~ 95% RH @ 40°C, non-condensing
Ingress Protection		IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP65-rated front panel	IP65-rated front panel
Certification		CE, FCC, CB, UL, BSMI, CCC	CE, FCC, CB, UL, BSMI, CCC	CE, FCC, CB, UL, BSMI, CCC	CE, FCC, CB, UL, BSMI, CCC	CE, BSMI, CCC, UL, FCC Class A	CE, BSMI, CCC, UL, FCC Class A

✓: supported, – : not supported, △ : optional

		NEW	NEW	NEW	NEW	NEW
						
Model		TPC-107W	TPC-110W	TPC-115W	PPC-112W	PPC-115W
CPU		i.MX8M Mini Quad NXP i.MX 8M Mini up to 4 Arm Cortex A53 cores, up to 1.6GHz	i.MX8M Mini Quad NXP i.MX 8M Mini up to 4 Arm Cortex A53 cores, up to 1.6GHz	i.MX8M Mini Quad NXP i.MX 8M Mini up to 4 Arm Cortex A53 cores, up to 1.6GHz	Rockchip ARM® RK3399 Dual-core Cortex-A72 and Quad-core Cortex-A53	Rockchip ARM® RK3399 Dual-core Cortex-A72 and Quad-core Cortex-A53
Memory		2GB LPDDR4-1866 MHz	2GB LPDDR4-1866 MHz	2GB LPDDR4-1866 MHz	On-board 2GB LPDDR4-1333	On-board 2GB LPDDR4-1333
Storage		16GB eMMC on board	16GB eMMC on board	16GB eMMC on board	16GB eMMC NAND Flash; 1x Micro SD slot (Max.128G)	16GB eMMC NAND Flash; 1x Micro SD slot
Operating System		Yocto	Yocto	Yocto	Android 10 (default), Linux	Android 10 (default), Linux
Display	Type	WSGA TFT LCD	WXGA TFT LCD	FHD TFT LCD	TFT LCD	TFT LCD
	Size	7"	10.1"	15.6"	11.6"	15.6"
	Max. Resolution	1024 x 600	1280 x 800	1920 x 1080	1366 x 768	1366 x 768
	Luminance (cd/m^2)	425	500	450	250	220
	Backlight Life (hr)	50,000	50,000	50,000	15,000	15,000
Touchscreen		10 Points	10 Points	10 Points	Projected Capacitive Multi-touch	Projected Capacitive Multi-touch
LAN		2 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD (LAN A)	2 x RJ45 with 10/100/1000 Mbps Optional module to support PoE PD (LAN A)	2 x RJ45 with 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
I/O Ports		1 x RS-232/422/485 (COM 1) 1 x selectable mode for RS-285 and CAN 2.0 B 1 x USB 2.0 Type-B Client (Internal) 2 x USB 2.0 Type-A Host 1 x Micro SD (Internal)	1 x RS-232/422/485 (COM 1) 1 x selectable mode for RS-285 and CAN 2.0 B 1 x USB 2.0 Type-B Client (Internal) 2 x USB 2.0 Type-A Host 1 x Micro SD (Internal)	1 x RS-232/422/485 (COM 1) 1 x selectable mode for RS-285 and CAN 2.0 B 1 x USB 2.0 Type-B Client (Internal) 2 x USB 2.0 Type-A Host 1 x Micro SD (Internal)	1 x USB 2.0; 1 x USB 3.0; 2 x USB 2.0 (internal by request) 1x mirco USB OTG 1 x RS 232; 1 x RS232 (internal by request) 1 x DC in 5 x GPIO (by request) (3.3V TTL level)	1 x USB 2.0; 1 x USB 3.0; 2 x USB 2.0 (internal by request) 1x mirco USB OTG 1 x RS 232; 1 x RS232 (internal by request) 1 x DC in 5 x GPIO (by request) (3.3V TTL level)
Expansion		M.2 Key-E 2230 (Wi-fi/BT)	M.2 Key-E 2230 (Wi-fi/BT)	M.2 Key-E 2230 (Wi-fi/BT)	1 x M.2 2230 Key E slot for wireless card 1 x Camera (optional)	1 x M.2 2230 Key E slot for wireless card
Power Supply Voltage		24V$_{DC}$ ± 20%	24V$_{DC}$ ± 20%	24V$_{DC}$ ± 20%	12V$_{DC}$, 36W adapter	12V$_{DC}$, 36W adapter
Dimensions W x H x D (mm)		205 x 146.92 x 52 mm	283.1 x 202.3 x 52 mm	419.7 x 269 x 52 mm	291.7 x 186.6 x 49.2 mm (11.48 x 7.35 x 1.94 in)	402.0 x 260.0 x 53.2 mm (15.83 x 10.24 x 2.09 in)
Cut-out Dimensions W x H (mm)		192.4 x 139.0 mm	274.1 x 193.3 mm	411.9 x 261.2 mm	298.00 x 193.00 mm (11.73 x 7.60 in)	392.00 x 250.00 mm(15.43 x 9.84 in)
Mounting		VESA and Panel Mounting	VESA and Panel Mounting	VESA and Panel Mounting	VESA 100,Panel mounting (optional)	VESA 100,Panel mounting (optional)
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)
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)
Humidity		10 ~ 90% RH @ 40 °C, non-condensing	10 ~ 90% RH @ 40 °C, non-condensing	10 ~ 90% RH @ 40 °C, non-condensing	10 ~ 95% RH (non-condensing)	10 ~ 95% RH (non-condensing)
Ingress Protection		IP66-rated front panel	IP66-rated front panel	IP66-rated front panel	IP65-rated front panel	IP65-rated front panel
Certification		EMC: CE, FCC Class A, BSMI Safety: CB, UL, CCC	EMC: CE, FCC Class A, BSMI Safety: CB, UL, CCC	EMC: CE, FCC Class A, BSMI Safety: CB, UL, CCC	CE, FCC Class B, BSMI, CB, UL, CCC, UKCA	CE, FCC Class B, BSMI, CB, UL, CCC, UKCA

✓: supported, – : not supported, △ : optional

Industrial Operator Panels

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Model		WOP-204K-NAE	WOP-207K-NAE	WOP-208K-NAE	WOP-210K-NAE	WOP-212K-NAE	WOP-215K-NAE
CPU		RISC ARM9 300MHz 32bits					
Backup Memory		128KB					
Backup Battery: Type/ Voltage/Capacity		Manganese dioxide–Li/Organic Electrolyte, 3V, 650mAh					
Working Memory		64 MB SDRAM					
Storage		128M NAND Flash					
Application Software	Operating System	HMI RTOS, HMINavi Designer V4.0					
	Runtime Max Size	64 MB (in NAND Flash)					
	Data Logger Max Size	64 MB (in NAND Flash)					
	Max Programming Screen	7999 Pages					
	Max Macro Commands	Unlimited					
Display	Type	WQVGA TFT LCD	WVGA TFT LCD	SVGA TFT LCD	WSVGA TFT LCD	XGA TFT LCD	XGA TFT LCD
	Size	4.3"	7"	8"	10.1"	12"	15"
	Max. Resolution	480 x 272	800 x 480	800 x 600	1024 x 600	1024 x 768	1024 x 768
	Max. Colors	65,536 colors (16bit)					
	Luminance (cd/m²)	400	400	250	350	500	350
	Backlight Life (hr)	LED, 20,000					
Touchscreen		4 wires Analog resistive					
Communication Interface	COM1	RS-232 (5-Pin Terminal)	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (DB9 Female)
	COM2	RS-422/485 (5-Pin Terminal)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)
	COM3	RS-485 (5-Pin Terminal)	RS-485 (DB9 Female)	RS-485 (DB9 Female)	RS-485 (DB9 Female)	RS-485 (DB9 Female)	RS-485 (DB9 Female)
	Ethernet (RJ45)	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT	10/100-BaseT
I/Os	USB Client	Yes	Yes	Yes	Yes	Yes	Yes
	USB Host	Yes	Yes	Yes	Yes	Yes	Yes
	Power Isolation	Yes	Yes	Yes	Yes	Yes	Yes
Power Supply Voltage		24V_{DC} ± 10%					
Power Consumption		10W	20W	20W	20W	20W	20W
Dimension W x H x D (mm)		129 x 103 x 31.3mm (5.08" x 4.06" x 1.23")	189.6 x 144.9 x 36mm (7.46" x 5.70" x 1.42")	233 x 176 x 43.3mm (9.17" x 6.93" x 1.7")	270.1 x 212.1 x 43.4mm (10.63" x 8.35" x 1.71")	335.4 x 245.8 x 60.3mm (13.21" x 9.68" x 2.37")	399.1 x 297.6 x 57.3mm (15.71" x 11.72" x 2.26")
Cut-out Dimension W x H (mm)		118.5 x 92.5mm (4.67" x 3.64")	175 x 132.5mm (6.89" x 5.22")	221 x 164mm (8.70" x 6.44")	259.5 x 201.5mm (10.22" x 7.93")	302 x 228.5mm (11.89" x 9")	384.5 x 283mm (15.14" x 11.14")
Front Panel thickness (mm)		5 mm	6 mm	6 mm	6 mm	6 mm	6 mm
Enclosure		PC				Die-cast aluminum alloy front bezel	
Net Weight		0.23 kg (0.51 lbs)	0.55 kg (1.21 lbs)	1 kg (2.2 lbs)	1.1 kg (2.43 lbs)	2 kg (4.41 lbs)	3 kg (6.61 lbs)
Reliability Certification	Operating Temperature	-10 ~ 60°C (14 ~ 140°F)					
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)					
	Humidity	95% RH @ 40°C					
	Shock Vibration	5 ~ 500Hz (X,Y,Z direction, 1 Grms, 1 hour per axis)					
	Ingress Protection	Front panel: IP66					
	CE	EN61000-6-2, EN61000-6-4					
	EMI	FCC Part 15 Class A					
	UL	UL61010					

✓: supported, – : not supported, △ : optional

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

✓: supported, – : not supported, △ : optional

Industrial Monitors

Model		FPM-5191G	FPM-5171G	FPM-5151G	FPM-3191G	FPM-3171G	FPM-3151G	FPM-3121G
Display	Display Type	SXGA	SXGA	XGA	SXGA	SXGA	XGA	XGA
	Display Size	19"	17"	15"	19"	17"	15"	12.1"
	Max. Resolution	1280 x 1024	1280 x 1024	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768
	Max.Colors	16.7M	16.7M	16.2M	16.7M	16.7M	16.2M	16.2M
	Luminance (cd/m²)	350	350	400	350	350	350	600
	Viewing Angle (H/V°)	170/160	160/140	160/140	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	50,000 hr
Video Port		VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DVI-D	VGA/DVI-D
Touchscreen		Combo	Combo	Combo	Combo	Combo	Combo	Combo
OSD (onscreen display)		Rear panel control buttons, lockable	Rear panel control buttons, lockable	Rear panel control buttons, lockable	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)	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	10 ~ 30 V	10 ~ 30 V	10 ~ 30 V
Operating Temperature		0 ~ 50°C	0 ~ 50°C	0 ~ 50°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Storage Temperature		-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-30 ~ 80°C	-30 ~ 80°C	-30 ~ 80°C	-30 ~ 80°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	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		454 x 338 mm	454 x 338 mm	424 x 293 mm	441 x 376.4 mm	447.2 x 329.2 mm	303.5 x 229.5 mm	303.5 x 229.5 mm
Weight		8.5 kg	7 kg	6 kg	10.65 kg	9.25 kg	7.73 kg	4.07 kg
Certifications		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	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	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux	Windows XP/ Vista/7/8/10/XPE, Linux

✓: supported, – : not supported, △ : optional

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Model		FPM-221W	FPM-215W	FPM-219	FPM-217	FPM-215	FPM-212
Display	Display Type	Full HD	Full HD	SXGA TFT LCD	SXGA TFT LCD	XGA TFT LCD	XGA TFT LCD
	Display Size	21.5"	15.6"	19"	17"	15"	12"
	Max. Resolution	1920 x 1080	1366 x 768	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768
	Max. Colors	16.7M	16.7M	16.7M	16.7M	16.2M	16.2M
	Luminance (cd/m²)	250	300	350	250	300	600
	ViewING Angle	178/178	160/160	170/160	170/160	176/176	178/178
	Backlight Life	50,000 hr	50,000 hr	70,000 hr	50,000 hr	70,000 hr	50,000 hr
Video Port		HDMI or VGA	HDMI or VGA	HDMI, DP, and VGA	HDMI, DP, and VGA	HDMI, DP, and VGA	HDMI, DP, and VGA
Touchscreen	Type	PCAP	PCAP	5-wire analog resistive	5-wire analog resistive	5-wire analog resistive	5-wire analog resistive
	Interface	12V: USB	12V: USB	USB/RS232	12V: USB 24V: USB/RS232	12V: USB 24V: USB/RS232	12V: USB 24V: USB/RS232
OSD (onscreen display)		12V: Windows OSD utility	12V: Windows OSD utility	Rear panel control buttons	12V: Windows OSD utility 24V: Rear panel control buttons	12V: Windows OSD utility 24V: Rear panel control buttons	12V: Windows OSD utility 24V: Rear panel control buttons
DC Power Input Voltage		12V	12V	24V	12V/24V	12V/24V	12V/24V
Ingress Protection		Front Panel IP66	Front Panel IP66	Front Panel IP66	Front Panel IP66	Front Panel IP66	Front Panel IP66
Enclosure		Die-casting aluminium	Die-casting aluminium	Die-casting aluminium	Die-casting aluminium	Die-casting aluminium	Die-casting aluminium
Operating Temperature		0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Dimensions		558.4 x 349.8 x 56.2 mm (21.98 x 13.77 x 2.21 in)	419.7 x 269 x 56.2 mm (16.52 x 10.59 x 2.21)	454 x 379.8 x 51.5 mm (17.87 x 14.95 x 2.03 in)	410.4 x 343.4 x 54 mm (16.15 x 13.51 x 2.12 in)	383.2 x 307.3 x 53.20 mm (15.08 x 12 x 2.09 in)	: 311.8 x 238.0 x 53 mm (12.27 x 9.37 x 2.08 in)
Cut-out Dimensions		550.30 x 341.8 mm (21.67 x 13.46 in)	412.40 x 261.70 mm (16.24 x 10.30 in)	443.5 x 369.3 mm (17.46 x 14.53 in)	401.3 x 334.8 mm (15.8 x 13.18 in)	374.5 x 298.5 mm (14.74 x 11.75 in)	303 x 229 mm (11.93 x 9.02 in)
Weight		6 kg	4 kg	6.2 kg	5.4 kg	4.6 kg	3.2 kg
Mounting		Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel	Stand, Wall, VESA, Panel
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
Certification		BSMI, CCC, CE, FCC Class A, UL	BSMI, CCC, CE, FCC Class A, UL	CB/UL, CE, FCC Class A, CCC, BSMI	CB/UL, CE, FCC Class A, CCC, BSMI	CB/UL, CE, FCC Class A, CCC, BSMI	CB/UL, CE, FCC Class A, CCC, BSMI

✓: supported, – : not supported, △ : optional

General Panel PCs

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Model	☞ PPC-306/310/312/315 EHL				☞ PPC-315W/318W/321W/324W EHL				PPC-315W/318W/321W/324W TGL				☞ PPC-3100/3120	
CPU	Intel® Celeron® N6210 1.2 GHz Processor (Dual Core)	Intel® Celeron® J6412 2.0 GHz Processor(Quad Core)			Intel® Celeron® J6412 2.0 GHz Processor (Quad Core)				Intel® 11th Gen Core i/Celeron processor				Intel® Atom™ E3940 1.6GHz Processor (Quad Core)	
Memory	1 x SO-DIMM DDR4 3200 MHz (max. 32GB)	1 x SO-DIMM DDR4 3200 MHz (max. 32GB)			1 x SO-DIMM DDR4 3200 MHz (max. 32GB)				2x SO-DIMM DDR4 3200 MHz(max 32GB x 2)				1 x SO-DIMM DDR3L 1600/1866 MHz(max. 8 GB)	
Display Size	6.5" / 7"	10.4"	12"	15"	15.6"	18.5"	21.5"	23.8"	15.6"	18.5"	21.5"	23.8"	10.4"	12.1"
Screen Ratio	4:3	4:3	4:3	16:9	16:9	16:9	16:9	16:9	16:9	16:9	16:9	16:9	4:3	4:3
Max. Resolution	640 x 480 / 1024 x 600	800 x 600 /1024 x 768	1024 x 768	1024 x 768	1366 x 768	1366 x 768	1920 x 1080	1920 x 1080	1920 x 1080	1366 x 768	1920 x 1080	1920 x 1080	800 x 600	1024 x 768
Luminance (cd/m²)	800 /425	400/350	500	300	400	300	300	350	450	450	250	350	400	600
Viewing Angle (H/V°)	160,140 / 170, 170	160,140 /176,176	160,140	176,176	170,160	170,160	178,178	178,178	170,170	170,160	178,178	178,178	160, 140	178, 178
Backlight MTBF	50,000 hr	30,000 hr	30,000 hr	70,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	50,000 hr	30,000 hr	50,000 hr
Touchscreen	Projected capacitive multi-touch/5-wire resistive				Projected capacitive multi-touch/5-wire resistive				Projected capacitive multi-touch				5-wire resistive	
Network (LAN)	2 x GbE (Intel I225LM, Intel I219LM)	2 x GbE (Intel I225LM,Intel I219LM)			2 x GbE (Intel I225LM,Intel I219LM)				2 x GbE (Intel I225LM,Intel I219LM)				2 x GbE (Intel I210-IT)	
IO Ports	2 x Serial ports (1 x RS-232 and 1 x RS-232/ 422/485); 2 x USB 2.0, 1 x USB 3.0; 1 x TPM2.0	2 x Serial ports (1 x RS-232 and 1 x RS-232/422/485);2 x USB 2.0, 2 x USB 3.0, 2 x USB 2.0 internal; 1 x HDMI ; 1 x Type C (USB3.1 only); 1 x TPM2.0			2 x Serial ports (1 x RS-232 and 1 x RS-232/422/485);2 x USB 2.0, 2 x USB 3.0, 2 x USB 2.0 internal ; 1 x HDMI ; 1 x Type C (USB3.1 only); 1 x TPM2.0				1 x RS-232, 1 x RS-232/422/485 (Adjustable through BIOS) ; 3 x USB 3.2, 1 x USB 2.0, 2 x USB 2.0 (internal); 1 x Type C USB3 only; 1 x HDMI1.4; 1 x TPM2.0; 1 x Line out				5 x serial ports: 4 x RS-232, 1 x isolated RS-422/485 (adjustable via BIOS); 4 x USB 3.0; 1 x DB15 VGA,1 x HDMI; 1 x GPIO (8 channels, TTL level, internal); 1 x line out, 1 x mic in	
Storage	1 x 2.5" SATA Bay; 1 x M.2 2280 bay (for storage only)	1 x 2.5" SATA Bay ; 1 x M.2 2280 bay (for storage only)			1 x 2.5" SATA Bay ; 1 x M.2 2280 bay (for storage only)				1 x 2.5" SATA Bay; 1 x M.2 2280 bay (for storage only)				1 x 2.5" SATA bay; 1 x mSATA bay	
Expansion	1 x M.2 2230 E-key for wireless card	1 x M.2 2230 E-key for wireless card			1 x M.2 2230 E-key for wireless card				1 x M.2 2230 E-key for wireless card				1 x Full-size mini PCIe	1 x Full-size mini PCIe; Optional: 1 x PCIe x1 or 1 x PCI
Power Input (Voltage)	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	12 ~ 30 V_{DC}	9 ~ 32 V_{DC}	9 ~ 32 V_{DC}
Enclosure	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Aluminum alloy	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic
Ingress Protection	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	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	Panel, VESA 75, wall, stand, ARM	Panel, VESA 75, wall, stand, ARM	Panel, VESA 75, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-40 ~ 60°C (-40 ~ 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 50 mm (10.7" x 8.5" x 1.97")	317 x 246 x 52.7 mm (12.5" x 9.7" x 2.07")	392 x 314 x 55mm (15.4" x 12.3" x 2.17")	419.7 x 269 x 55 mm (16.52" x 10.59" x 2.17")	488 x 309 x 55 mm (19.21" x 12.17" x 2.17")	558.4 x 349.8 x 56.2 mm (22" x 13.8" x 2.2")	595.9 x 374.1 x 58.4 mm (23.5" x 14.7" x 2.3")	419.7 x 269.0 x 62.1 mm (16.5" x 10.6" x 2.4")	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")	595.9 x 374.1 x 61.5 mm (23.5" x 14.7" x 2.4")	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	3.3kg	3.69 kg	4kg	5.4kg	7kg	7.5kg	8kg	4.8 kg	7.6 kg	8.1kg	8.7kg	2.8 kg	3.4 kg
Certification	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL, UKCA, CE, FCC Class B	BSMI, CCC, CB, UL, UKCA, CE, FCC Class B	BSMI, CCC, CB, UL, UKCA, CE, FCC Class B	BSMI, CCC, CB, UL, UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B
Operating System	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64-bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64-bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64-bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64-bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android

✓: supported, – : not supported, △ : optional

NEW

NEW

NEW

Model	PPC-415/417/419-EHL			PPC-412	PPC-415 TGL	PPC-415W/421W ADL	
CPU	Intel® Atom™ x6414RE 1.5GHz Processor (Quad Core)			7th Gen Intel® Core™ i processor (Dual Core)	11th Gen Intel® Core™ i processor (Quad Core)	12th Gen. Intel® Core™ i Processor (Quad Core)	
Memory	1 x SO-DIMM DDR4 3200 MHz (max. 32GB)			1 x SO-DIMM DDR4 1866/2133 MHz (max. 16 GB)	2 x SO-DIMM DDR4 1866/2133 MHz (max. 64 GB)	2 x SO-DIMM DDR5 4800 MHz (max. 64 GB)	
Display Size	15"	17"	19"	12"	15"	15.6"	21.5"
Screen Ratio	4:3	4:3	4:3	4:3	4:3	16:9	16:9
Max. Resolution	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768	1920 x 1080	1920 x 1080
Luminance (cd/m²)	500	350	350	600	500	450	300
Viewing Angle (H/V°)	176, 176	160, 140	170, 160	178, 178	176, 176	170, 170	178, 178
Backlight MTBF	70,000 hr	50,000 hr	50,000 hr	50,000 hr	70,000 hr	50,000 hr	50,000 hr
Touchscreen	5-wire resistive			5-wire resistive	Projected capacitive multi-touch	Projected capacitive multi-touch	
Network (LAN)	2 x GbE (Intel® I225LM)			2 x GbE (Intel® I210-AT, I219LM)	2 x GbE (Intel® I225LM)	2 x GbE (Intel® I225LM)	2 x GbE (Intel® I225LM)
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 isolated RS-422/485(adjustable via BIOS); 4 x USB 3.2; 1 x HDMI, 1 x DP1.2; 1 x GPIO (8 channels, TTL level) via internal pin header (requires optional module); 1 x line out, 1 x mic in			4x serial ports: 3 x RS-232, 1 x isolated RS-422/485 (adjustable via BIOS); 4 x USB 3.0; 1 x VGA, 1 x DP 1.2; 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 (2 x via internal pin header, requires additional optional module); 1 x isolated RS-422/485 (adjustable via BIOS); 4 x USB 3.2; 1 x HDMI, 1 x DP 1.2; 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 (2 x via internal pin header, requires additional optional module); 1 x isolated RS-422/485(adjustable via BIOS); 4 x USB 3.2; 1 x HDMI,1 x DP 1.2; 1 x GPIO (8 channels, TTL level) via internal pin header; 1 x line out, 1 x mic in	
Storage	1 x 2.5" SATA Bay; 1 x M.2 2280 bay (for storage only)			1 x 2.5" SATA bay; 1 x M.2 bay (22 x 42 mm)	1 x 2.5" SATA bay; 1 x M.2 bay (22 x 42 mm or 22 x 80 mm)	1 x 2.5" SATA bay; 1 x M.2 bay (22 x 42 mm or 22 x 80 mm)	
Expansion	1 x M.2 2230 E-key for wireless card; 1 x PCI; 1 x PCIe x1 (in the accessory box)			1 x Full-size mini PCIe; 1 x PCI; 1 x PCIe x4 (in the accessory box)	1 x M.2 2230 E Key slot for wireless card; 1 x M.2 3052(3042) B Key slot for 4G/5G; 1 x PCI; 1 x PCIe x4 (in the accessory box)	1 x M.2 2230 E Key slot for wireless card; 1 x M.2 3052(3042) B Key slot for 4G/5G; 1 x PCI; 1 x PCIe x4 (in the accessory box)	
Power Input (Voltage)	9 ~ 32 VDC	9 ~ 32 VDC	9 ~ 32 VDC	9 ~ 32 VDC	9 ~ 32 VDC	9 ~ 32 VDC	9 ~ 32 VDC
Enclosure	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic	Front: Aluminum alloy; Back: Plastic
Ingress Protection	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65	Front panel: IP65
Mounting	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM	Panel, VESA 100, wall, stand, ARM
Operating Temperature	0 ~ 50°C (32 ~ 122°F) with SSD; -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or SSD	0 ~ 50°C (32 ~ 122°F) with SSD; -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or SSD	0 ~ 50°C (32 ~ 122°F) with SSD; -20 ~ 60°C (-4 ~ 140°F) with -40 ~ 85°C mSATA or SSD	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)	-30 ~ 60°C (-40 ~ 140°F)	-30 ~ 60°C (-40 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Dimensions	392.2 x 313.5 x 55.1mm (15.4" x 12.3" x 2.1")	437.0 x 357.0 x 565 mm (17.2" x 14.0" x2.22")	454.0 x 379.8 x 62.1 mm (17.8" x 14.9" x 2.4")	317 x 246 x 60.5 mm (12.5" x 9.7" x 2.4")	392.2 x 313.5 x 55.1mm (15.4" x 12.3" x 2.1")	419.7 x 269 x 59 mm (16.5" x 10.6" x 2.3")	558.4 x 349.8 x 63.6 mm (22" x 13.8" x 2.5")
Weight	5.3 kg	6.3 kg	7.0 kg	3.4 kg	5.4 kg	5.4 kg	7.8 kg
Certification	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B	BSMI, CCC, CB, UL,UKCA, CE, FCC Class B
Operating System	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux, Android	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux

✓: supported, – : not supported, △ : optional

General Panel PCs

NEW




Model	PPC-6121	PPC-6151C/6171C/6191C-RTAE PPC-MB-8260AE PPC-MB-610 PPC-MB-620			PPC-615W/618W/621W PPC-MB-8260AE PPC-MB-610 PPC-MB-620			PPC-6151C/6171C/6191C-RMAE support certified mini-ITX MBs		
CPU	8th/9th generation Intel® Core™ i/Celeron® processors	6th/7th/8th/9th/12th Gen. Intel® Core™ i/ Celeron® Processor			6th/7th/8th/9th/12th Gen. Intel® Core™ i/ Celeron® Processor			Processor supports up to 45W TDP depending on the Mini-ITX motherboard		
Memory	2 x SO-DIMM DDR4 2666 MHz (max. 32 GB)	1 x SO-DIMM DDR4 2133 MHz (max. 16 GB)(for PPC-MB-8260AE) 2 x SO-DIMM DDR4 2666 MHz (max. 32 GB) (for PPC-MB-610) 2 x SO-DIMM DDR5 4800 MHz (max. 64 GB) (for PPC-MB-620)			1 x SO-DIMM DDR4 2133 MHz (max. 16 GB)(for PPC-MB-8260AE) 2 x SO-DIMM DDR4 2666 MHz (max. 32 GB) (for PPC-MB-610) 2 x SO-DIMM DDR5 4800 MHz (max. 64 GB)(for PPC-MB-620)			Subject to mini-ITX motherboard specifications		
Display Size	12.1"	15"	17"	19"	15.6"	18.5"	21.5"	15"	17"	19"
Screen Ratio	4:3	4:3			16:9			4:3		
Max. Resolution	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024	1920 x 1080	1366 x 768	1920 x 1080	1024 x 768	1280 x 1024	1280 x 1024
Luminance (cd/m²)	600	500	350	350	450	450	250	500	350	350
Viewing Angle (H/V°)	178,178	176,176	160,140	170,160	170,170	170,160	178,178	176,176	160,140	170,160
Backlight MTBF	50,000 hr	50,000 hr			50,000 hr			50,000 hr		
Touchscreen	Projected capacitive multi-touch/5-wire resistive	Projected capacitive multi-touch/5-wire resistive			Projected capacitive multi-touch			Projected capacitive multi-touch/5-wire resistive		
Network (LAN)	2 x GbE (Intel I210, Intel I219LM)	2 x GbE (Intel I210) (for PPC-MB-8260AE) 2 x GbE (Intel I225,Intel I219LM); (for PPC-MB-610/620)			2 x GbE (Intel I210) (for PPC-MB-8260AE) 2 x GbE (Intel I225,Intel I219LM); (for PPC-MB-610/620)			Subject to mini-ITX motherboard specifications		
IO Ports	4 x RS-232, 1 x RS-422/485 with 1K VDC isolation, 4 x USB3.1 1 x DB15 VGA, 1 x HDMI 1.4 1 x Mic in, 1 x Line out 1 x GPIO(TTL, 8 pin programmable) 1 x TPM2.0 (optional)	RS-232 (by cabling), 1 x RS-232/422/485, 1 x RS-232, 4 x USB3.0 (for PPC-MB-8260AE)/ 6 x USB3.0 (for PPC-MB-610/620) 1 x DP 1.2, 2 x USB2.0 (int. pin head) 1 x VGA(for PPC-MB-8260AE/610)/ 1 x HDMI(for PPC-MB-620) 1 x line out, 1 x mic in 1 x GPIO (8-bit) (by cabling)			RS-232 (by cabling), 1 x RS-232/422/485, 1 x RS-232, 4 x USB3.0 (for PPC-MB-8260AE)/ 6 x USB3.0 (for PPC-MB-610/620) 1 x DP 1.2, 2 x USB2.0 (int. pin head) 1 x VGA(for PPC-MB-8260AE/610)/ 1 x HDMI(for PPC-MB-620) 1 x line out, 1 x mic in 1 x GPIO (8-bit) (by cabling)			4 x Reserved ports Subject to mini-ITX motherboard specifications		
Storage	1 x 2.5" SATA bay 1 x mSATA bay	1 x 2.5" SATA bay 1 x mSATA bay or 1 x M.2(2280,M key)			1 x 2.5" SATA bay 1 x mSATA bay or 1 x M.2(2280,M key)			2 x 2.5" SATA bay		
Expansion	1 x M.2 2230(E key) 1 x PCIe x4 or 1 x PCI (optional)	1 x PCIe x4 (standard); 2 x PCI (in the accessory box) 2 x PCIe x1;1 x PCIe x1 + 1 x PCI(optinal) 2 x PCIe x8 (optional, for PPC-MB-610/620) 1 x PCIe x16 (optional, for PPC-MB-610/620) 1 x Full-size mini PCIe or 1 x mSATA Bay			1 x PCIe x4 (standard); 2 x PCI (in the accessory box) 2 x PCIe x1;1 x PCIe x1 + 1 x PCI(optinal) 2 x PCIe x8 (optional, for PPC-MB-610/620) 1 x PCIe x16 (optional, for PPC-MB-610/620) 1 x Full-size mini PCIe or 1 x mSATA Bay			Subject to mini-ITX motherboard specifications		
Power Input (Voltage)	12 ~ 30 VDC	100 ~ 240 VAC			24VDC / 100 ~ 240 VAC			100 ~ 240 VAC		
Enclosure	Front: Aluminum alloy Back: Plastic	Front: Aluminum alloy Back: Plastic			Front: Aluminum alloy Back: Plastic			Front: Aluminum alloy Back: Plastic		
Ingress Protection	Front panel: IP65	Front panel: IP65			Front panel: IP65			Front panel: IP65		
Mounting	Panel, VESA 75, wall, stand, ARM	Panel, VESA 75/100, wall, stand, ARM			Panel, VESA 75/100, wall, stand, ARM			Panel, VESA 75/100, wall, stand, ARM		
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)			0 ~ 50°C (32 ~ 122°F)			0 ~ 50°C (32 ~ 122°F)		
Storage Temperature	-40 ~ 60°C (-40 ~ 140°F)	-30 ~ 60°C (-22 ~ 140°F)			-30 ~ 60°C (-22 ~ 140°F)			-30 ~ 60°C (-22 ~ 140°F)		
Dimensions	317 x 246 x 73 mm (12.48" x 9.69" x 2.87")	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")	419 x 269 x 108.2mm (16.5" x 10.6"x 4.2")	488 x 309 x 108.2mm (19.2" x12.1" x 4.2")	558 x 349.8 x 108.2mm (21.9" x 13.7" x 4.26")	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")
Weight	3.8 kg	5.03 kg	5.4 kg	5.8 kg	6.1 kg	7.6 kg	8.4 kg	5.03 kg	5.4 kg	5.8 kg
Certification	BSMI, CCC, CB, UL, UKCA, CE, FCC Class A	CCC, CB, UL, UKCA, CE, FCC Class A			CCC, CB, UL, UKCA, CE, FCC Class A			CB, UL, UKCA, CE, FCC classA		
Operating System	Microsoft® Windows 10 (64 bit), Windows 10 IOT LTSC, Linux	Microsoft® Windows 7/8.1/10, Windows 10 IOT LTSC, Linux			Microsoft® Windows 7/8.1/10, Windows 10 IOT LTSC, Linux			Subject to mini-ITX motherboard specifications		

✓: supported, – : not supported, △ : optional

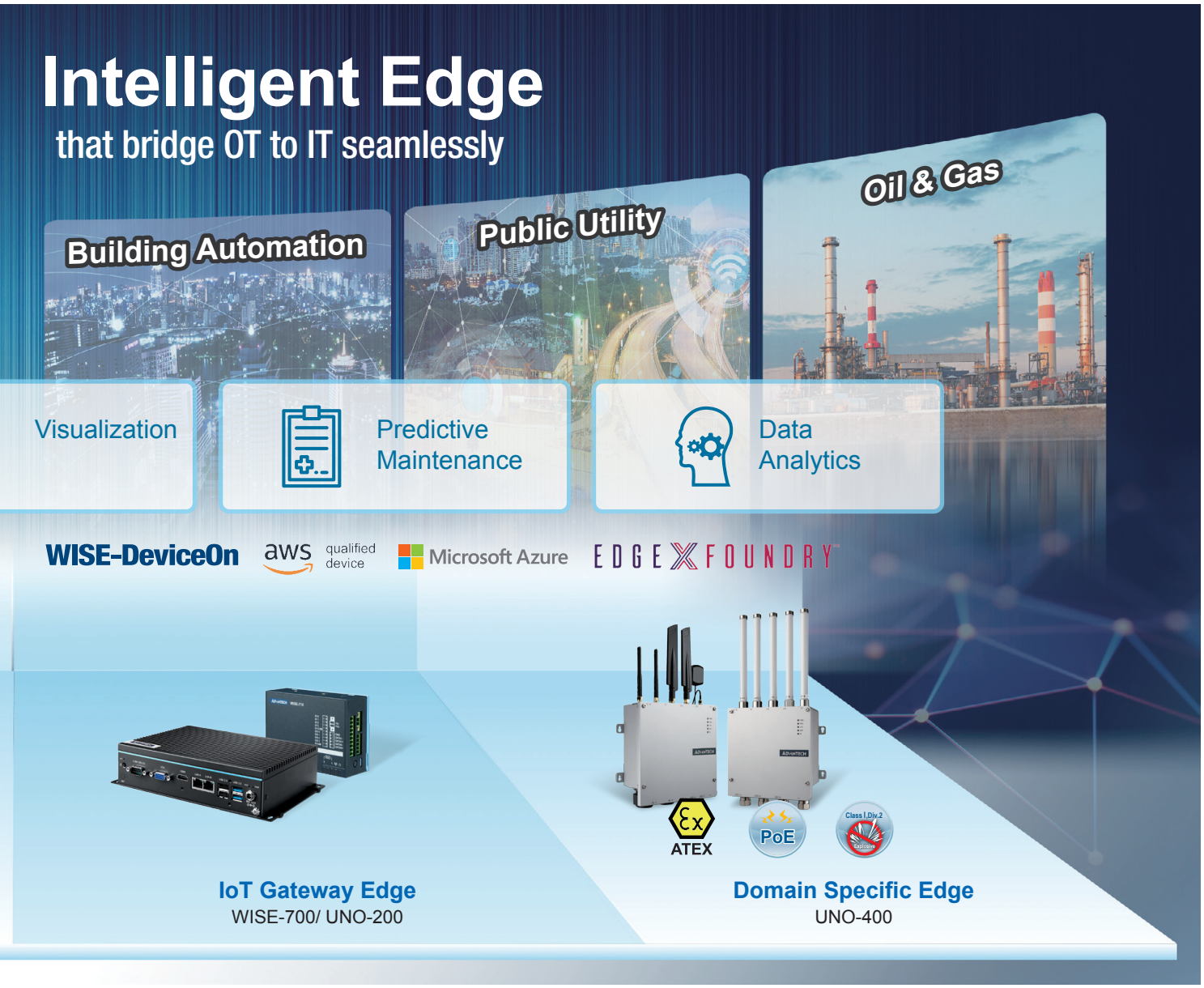
6 Automation Computers

M2I Control Edge

Advantech's latest UNO-100/300 series of Embedded Edge Controllers are designed to deliver high-performance computing and maximum flexibility. With support of the latest range of expansion interfaces, including PCIe for high density I/O, iDoor for fieldbus modules, and PCI for motion cards, Advantech provides a reliable Machine-to-Intelligence Control Edge solution to bridge the gap between OT and IT.

Industrial Computing Edge

Advantech's IoT automation gateways offer flexible and expandable features based on new modular designs. Integrated with iDoor expandability and stackable modular design, the UNO-2000 is adapted for different kinds of embedded automation applications. The units can be easily integrated with Advantech WISE-PaaS software which helps bridge the gap between IT and OT. UNO-2000 is suitable for individual design requirements that enable flexible and manageable configurations.



IoT Gateway Edge

Advantech's WISE-7 and UNO-2 series are the bridge for data from edge devices to the cloud and play a central role in IoT Edge Gateway applications. Thanks to their digital and analog I/O, this series offers the capability of fast connectivity to edge devices. All collected data can be delivered to the cloud by Giga LAN and high speed RF technologies. With UNO-2 series installed, your system will benefit from video output features that will allow you to visualize information on a dashboard and monitor.

Domain Specific Edge

Advantech's UNO-400 offers domain-focused edge gateways which satisfy diverse industry requirements. For smart infrastructure and industrial manufacturing, UNO-420 PoE powered Sensing Gateway ensures less cabling and easy installation in awkward or remote locations that may be difficult to reach with a power cable. Flexible programmable GPIO supports both 8-channel ADC and DAC for data acquisition. UNO-410 supports C1D2+IEC ATEX (opentype) certification and wide temperature ranges from -40~70°C, which are perfect for control cabinet usage. The new UNO-430 IP66 ruggedized outdoor gateways support C1D2 + ATEX (standalone) certification which are suitable for outdoor usage with waterproof and dustproof features along with -40~70°C wide temperature range support.

Edge Intelligence Services

As developments in the application space continue with micro-services and packaged business capabilities, customers are becoming more demanding, particularly around the services required for IoT-related projects. Consequently, the impact is that the priority for many vendors is no longer the IoT platform but the applications and services supported by the platform.

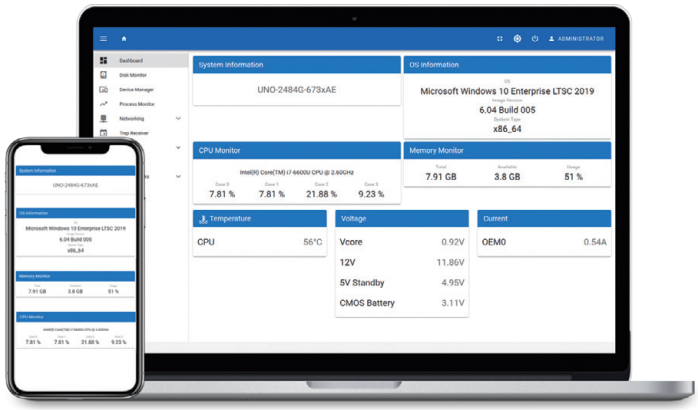
Advantech's Edge Services solution was developed to shift from offering stand-alone IoT platforms to IoT-enabled applications. Aligned with Advantech's WISE-DataConnect open cloud-based industrial IoT platform, our device management portal is used for real-time monitoring and zero-touch software deployment. All data, such as CPU performance, temperature, and input voltages collected from different platforms can be standardized for integration and visualization using WISE-DataConnect.

The intuitive user interface allows customers to easily deploy software, firmware, and docker containers remotely via a web browser. With advanced integration functions, WISE-DataConnect can accelerate the setup of domain application command centers. Overall, with the aid of our Edge Services, companies can focus on their business insights and realize business value faster.

Learn More: https://page.advantech.com/en/global/industrial-automation/embedded-automation-computers/edge-intelligence-services

Accelerating Digital Transformation with Advantech's Platform Portal

Advantech's Platform Portal was developed for aggregating all process and application information at the edge and visualizing the data on a webpage that can be easily accessed by users. The Platform Portal employs container technology that can be implemented on all Advantech IT gateway devices. Moreover, the Portal's secure open-software architecture enables users/ developers to access the system via a HTML browser and integrate unique analytics and connectors.



EDGE X FOUNDRY™ docker

Hardware Monitoring

- Status monitoring and diagnostics
- Event alarms and notifications

Software Monitoring

- Process monitoring and shutdown
- Software installation and updates

Communication Configuration

- Network configuration
- Cloud protocol configuration

Optimizing Smart Device Management with WISE-DataConnect

Advantech's WISE-DataConnect is an open cloud-based industrial IoT platform that provides a device management portal for real-time monitoring and zero-touch software deployment. All data, such as CPU performance, temperature, and input voltage, collected from different platforms can be standardized for integration and visualization using WISE-DataConnect. The intuitive user interface allows customers to easily deploy software, fireware, and docker containers remotely via a web browser. With advanced integration functions, WISE-DataConnect can accelerate the setup of domain application command centers.

- Device connection setup & configuration
- Real time trend & monitoring
- Device event history
- Firmware OTA management & update
- Platform software installation management
- Remote configuration setup management

M2I Control Edge

NEW NEW NEW NEW




Model	☞ UNO-127	☞ UNO-137	☞ UNO-148	☞ UNO-348
Certification	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI
CPU	ntel® Atom® Quad core x6413E, 1.5 GHz	Intel® Atom® E3940, 1.6 GHz	Intel® Core™ i7-1185G7E Quad-core, 1.8 GHz, Intel® Core™ i5-1145G7E Quad-core, 1.5 GHz, Intel® Core™ i3-1115G4E Dual-core, 2.2 GHz	Intel® Core™ i5-10500TE, 2.3 GHz, 6 cores Intel® Core™ i9-10900TE, 1.8 GHz, 10 cores
Onboard RAM	Built-in 4/8 GB DDR4	Built-in 8 GB DDR3L	Built-in 8 GB DDR4	Built-in 8/16 GB DDR4L, up to 64 GB
Display	1 x HDMI	2 x DP	2 x DP	1 x DP, 1 x HDMI
I/O	2 x USB, 2 x GbE	2 x isolated RS232/422/485, 2 x GbE, 4 x USB, 8 x DI, 8 x DO	4 x isolated RS-232/422/485, 3 x GbE, 4 x USB, 8 x DI, 8 x DO	2 x RS-232/422/485, 1 x RS-232, 3 x GbE, 6 x USB
PCIe/PCI Expansion	1 x Full size mPCIe/ mSATA	1 x Full-size mPCIe 1 x M.2 B key (SATA/USB 3.0)	1 x Full size mPCIe, 1 x M.2 E key (PCIe), 1 x M.2 B key (SATA/USB 3.0)	1 x Full-size mPCIe; UNO-348-AXX1A: 1 x PCIex16; UNO-348-AXX3A: 1 x PCIex16, 2 x PCI
Storage	64G eMMC	1 x 2.5" HDD/SDD bay	1 x M.2 M key (PCIe x 4)	2 x 2.5" HDD/SDD bay, 1 x M.2 B key (SATA/USB 3.0)
SIM Card Slot	–	1 (nano)	1 (nano)	1 (nano)
Default OS	–	–	–	–
Operating Systems	Win10, Win10 LTSC, Ubuntu Core 20, Ubuntu 20.04, AdvLinux	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, AdvLinux
TPM	TPM 2.0 onboard	TPM 2.0 onboard	TPM 2.0 onboard	TPM 2.0 onboard
Mounting	DIN rail	DIN rail	DIN rail	Wall mount, Stand mount
Power Input Range	10 ~ 30 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	-20 ~ 60 °C	-40 ~ 70°C	-20 ~ 60 °C	-20 ~ 50°C
Power Consumption Typical	18.5W	21W	31W	59W
Dimensions (W x D x H)	33.5 x 70 x 100mm (1.3 x 2.8 x 3.9 in)	35 x 105 x 150 mm (1.4 x 4.1 x 5.9 in)	35 x 140 x 200mm (1.4 x 5.5 x 7.8 in)	UNO-348-AXX1A: 200 x 140 x 120 mm (7.8 x 5.5 x 4.7 in) UNO-348-AXX3A: 200 x 140 x 160 mm (7.8 x 5.5 x 6.3 in)
Weight	0.5 kg	1 kg	1 kg	3.5 kg




Expension Kit	Second-stack extension kit to support 4 x COM + 1 x GbE on UNO-127	Second-stack extension kit to support 1 x iDoor on UNO-137	Second-stack extension kit to suppot 1 x iDoor slot + 1 x 2.5" SSD/HDD slot on UNO-148	Second-stack extension kit to support 1 slot for PCIe x 4 on UNO-148
Part Number	UNO-127-RS1EA	UNO-137-ID1EA	UNO-148-IS2EA	UNO-148-P11EA
Ports	2 x RS-232/422/485, 2 x RS-232, 1 x GbE, 1 x M.2 B key (SATA/USB 3.0)	1 x iDoor Slot (chassis only)	1 x iDoor slot with 1 x mPCIe slot 1 x 2.5 SSD/HDD	1 slot for PCIe x 4
Dimensions	30 x 70 x 100mm (1.18 x 2.8 x 3.9 in)	35 x 105 x 150 mm (1.4 x 4.1 x 5.9 in)	45 x 140 x 200 mm (1.7 x 5.5 x 7.8 in)	45 x 140 x 200 mm (1.7 x 5.5 x 7.8 in)
Description	UNO-127 2nd stack extension kit for 4 x COM & 1 x LAN	UNO-137 2nd stack extension kit for iDoor	UNO-148 2nd stack extension kit for iDoor & SSD/HDD	UNO-148 2nd stack expansion kit for PCIe card

✓: supported, – : not supported, △ : optional

Industrial Computing Edge

NEW NEW NEW



Model	UNO-2271G V2	UNO-2372G	UNO-2484G V2
CPU	Intel® Celeron® Dual core N6210 1.2GHz Elkhart lake Intel® Celeron® Dual core N6415 1.2GHz Elkhart lake	Intel® Celeron J6412 2.0GHz Quad core Elkhart lake	Intel® Core™ i7-1185G7E 1.8GHz Tigerlake Qual Core Intel® Core™ i5-1145G7E 1.5GHz Tigerlake Qual Core Intel® Core™ i3-1115G4E 2.2GHz Tigerlake Dual Core Intel® Celeron® 6305E 1.8GHz dual core
Onboard RAM	4GB/ 8GB DDR4	8 GB DDR4, up to 32 GB	8 GB DDR4, up to 64 GB
Display	1 x HDMI	1 x DP++, 1 x HDMI1.4	1 x DP++, 1 x HDMI1.4
Audio	–	Line out	Line out
I/O	2 x USB 3.0 2 x GbE	1 x USB 3.0 3 x USB 2.0 2 x GbE 4 x RS-232/422/485	3 x USB 3.2 Gen2 1 x USB 2.0 4 x GbE 4 x RS-232/422/485
Hardware Security	TPM 2.0	TPM 2.0	TPM 2.0
Expansion Slot	1 x Full-size mPCIe/mSATA slot	1 x M.2 B key slot (USB Signal for 3042/3052 LTE/5G Module, SATA Signal for 2242 storage) 1 x M.2 E key (PCIe x 1/ USB2.0 for Wifi Module)	1 x M.2 B key slot (USB Signal for 3042/3052 LTE/5G Module, SATA Signal for storage) 1 x M.2 M key (PCIe x 4)
Onboard Storage	32 GB eMMC	–	–
Storage Expansion	1 x mSATA shared with mPCIe slot	1 x mPCIe slot 1 x 2.5" HDD/SDD bay	2 x mPCIe slot (PCIe, USB 2.0 Signal) 1 x 2.5" HDD/SDD bay
Antenna Hole	2 x reserved antenna hole	2 x reserved antenna hole	4 x reserved antenna hole
Operating Systems	Win10, Win10 LTSC, Ubuntu Core 20, Ubuntu 20.04, AdvLinux	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, AdvLinux
Mounting	Stand, Wall (Optional VESA, DIN rail)	Stand, Wall (Optional VESA, DIN rail)	Stand, Wall (Optional VESA, DIN rail)
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	12 W	18.4 W	55 W
Power Input Range	10 ~ 30 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Dimensions (W x D x H)	100 x 70 x 30 mm (3.9" x 2.8" x 1.2")	150 x 105 x 35 mm (5.8" x 4.2" x 1.4")	200 x 140 x 40 mm (7.8" x 5.6" x 1.6")
Weight	0.5 kg	0.8 kg	1.4 kg





Expension Kit	2nd stack expansion module for support 1 x iDoor	2nd stack expansion module for support 2 x COM, 1 x POE (PD), M.2 B Key	2nd stack expansion module for support 2 x COM, 1 x M.2 B key, 1 x M.2 E key	2nd stack expansion module for support 2 x iDoor (1 x mPCIe on UNO-2372G V3)	2nd stack expansion module for support 4 x iDoor (2 x mPCIe slot on UNO-2484G V2)
Part Number	UNO-2271G-EKBE	UNO-2271G-RP1EA	UNO-2271G-RS2EA	UNO-2372G-EKCE	UNO-2484G-EKCE
I/O & Expansion	1 x iDoor (Chassis only)	2 x COM (RS-232/422/485) 1 x PoE+ (802.3at) (PD) 1 x M.2 B key (USB3.0/ SATA)	2 x COM (RS-232/422/485) 1 x M.2 B key (USB3.0/ SATA) 1 x M.2 E key (PCIe)	2 x iDoor (Chassis only)	2 x iDoor (Chassis only)
Dimensions	100 x 70 x 30 mm	100 x 70 x 30 mm	100 x 70 x 30 mm	150 x 155 x 35 mm	200 x 140 x 40 mm
Description	UNO-2271G V2 2nd stack extension kit for iDoor	UNO-2271G V2 2nd stack expansion module for support 2 x COM, 1 x POE (PD), M.2 B Key	2nd stack expansion module for support 2 x COM, 1 x M.2 B key, 1 x M.2 E key	UNO-2372G 2nd stack expansion module	UNO-2484G 2nd stack expansion module for 4 iDoor

✓: supported, – : not supported, △ : optional

IoT Gateway Edge

WISE-DeviceOn

NEW

RaspberryPi

NEW

RaspberryPi

Model	☞ UNO-247	☞ UNO-238	☞ UNO-220 Raspberry Pi 4 IoT Gateway Kit	
CPU	Intel® Celeron® J3455 1.5GHz	Intel® i7-8665UE Intel® i5-8365UE Intel® i3-8145UE	–	
Onboard RAM	–	–	–	
Display	1 x HDMI 1 x VGA	1 x HDMI 1 x DP	–	
I/O	2 x USB 2.0 2 x USB 3.0 4 x RS-232 2 x RS485 2 x GbE	2 x RS-232/422/485 2 x LAN 4 x USB 1 x 8-bit GPIO 1 x Line out	4 x GPIO 1 x RS232/RS485	8 x GPIO 1 x RS232/RS485
PCIe/PCI Expansion	1 x Full size mPCIe slot 1 x M.2 E key	1 x 3042 M.2 (B Key), 1 x 2230 M.2 (E Key)	–	
Storage	–	Built-in 32G eMMC	8GB Micro SD card	
SIM Card Slot	1 x Micro SIM card slot	1 x Nano SIM card slot	–	
Operating Systems	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, AdvLinux	Linux (Raspbian)	
TPM	Supported by project	TPM 2.0	–	TPM 2.0
Mounting	Stand, Wall (Optional Din rail)	Stand, Wall (Optional Din rail)	Stand, Wall (Optional Din rail)	
Power Input Range	12 V_{DC} (bundle 110-240V_{AC} adapter)	12 V_{DC} (bundle 110-240V_{AC} adapter)	5 V_{DC} Min 3A (USB Type C)	
Operating Temperature	-20 ~ 60°C/-4 ~ 140°F	-20 ~ 60°C/-4 ~ 140°F	0 ~ 50°C (32~122°F)	
Power Consumption Typical	17W	31W	15W	
Dimensions (W x D x H)	200 x 140 x 50 mm (7.8" x 5.5" x 1.9")	150 x 107 x 60 mm (5.91 x 4.22 x 2.36 in)	100 x 70 x 32 mm (3.9" x 2.8" x 1.26")	100 x 70 x 40 mm (3.9" x 2.8" x 1.57")
Weight	1 kg	1.8 kg	0.5 kg	

✓: supported, – : not supported, △ : optional

Domain Specific Edge

NEW

WISE-EdgeLink

NEW

Model	☞ UNO-410	☞ UNO-420	☞ UNO-430	☞ UNO-430 EXP
Certification	C1D2, ATEX, CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	C1D2, ATEX, CE, FCC, UL, CCC, BSMI
Protection	IP40	IP40	IP69K, IP68	IP66
CPU	Intel® Atom® E3950 quad core, 1.6GHz	Intel® Atom® E3815, 1.46 GHz	Intel® Atom® E3950 quad core, 1.6GHz	Intel® Atom® E3950 quad core, 1.6GHz
Onboard RAM	Built-in 8GB DDR3L	Onboard 2GB DDR3L	Built-in 8GB DDR3L	Built-in 8GB DDR3L
Onboard Storage	–	32GB eMMC	–	–
Hardware Security	Onboard TPM 2.0	Onboard TPM 2.0	Onboard TPM 2.0	Onboard TPM 2.0
Display	2 x DP	1 x HDMI	1 x DP (internal maintenance interface)	1 x DP (internal maintenance interface)
I/O	2 x isolated RS-232/422/485 4 x USB3.1 Isolated 8DI/ 8DO 2 x GbE	2 x RS-232/422/485 1 x RS-485 2 x GbE (1 x PoE-IN) 1 x USB3.0	2 x isolated RS-422/485 1 x RS-232 (console) 2 x GbE 2 x USB (internal maintenance interface)	2 x isolated RS-422/485 1 x RS-232 (console) 2 x GbE 2 x USB (internal maintenance interface)
PCIe/PCI Expansion	1 x Full-size mPCIe	1 x Full-size mPCIe slot 1 x Half-size mPCIe slot	1 x M.2 B key (USB3.0) 1 x M.2 E key (PCIe/USB2.0)	1 x M.2 B key (USB3.0) 1 x M.2 E key (PCIe/USB2.0)
Storage	1 x M.2 B key (SATA, USB3.0) 1 x 2.5" SSD bay	1 x M.2 B-key (SATA)	1 x M.2 B-key (SATA)	1 x M.2 B-key (SATA)
SIM Card Slot	1 (nano)	1 (micro)	1 (standard)	1 (standard)
Operating Systems	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, Ubuntu Core 20, Ubuntu 20.04, AdvLinux	Win10, Win10 LTSC, AdvLinux	Win10, Win10 LTSC, AdvLinux
Mounting	Din rail	Wall mount	Wall mount	Wall mount
Power Input Range	10 ~ 36 V_{DC}	10 ~ 30 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Power Consumption Typical	21W	12W (typical)	21W (typical)	21W (typical)
Dimensions (W x D x H)	70 x 105 x 150 mm (2.8 x 4.1 x 5.9in)	125 x 125 x 50 mm (4.9 x 4.9 x 1.96in)	200 x 68 x 200 mm (7.87 x 7.87 x 2.67in)	200 x 68 x 200 mm (7.87 x 7.87 x 2.67in)
Weight	1 kg	1.5 kg	3 kg	3 kg

✓: supported, – : not supported, △ : optional

iDoor Technology Modules

iDoor Multiple I/O & Peripheral




Model	PCM-2300MR	PCM-23U1DG	PCM-24U2U3	PCM-27J3AU
Description	MR4A16B, MRAM, 2 MB, mPCIe	USB slot w/ lock for USB dongle, half-size mPCIe	2-port USB 3.0, mPCIe, USB-A type	3-port audio stereo, mPCIe, 3.5-mm jack

iDoor Wireless Communication




Model	PCM-24S2WF	PCM-24S34G	PCM-24BXWF	PCM-24BX4G
Description	Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, half-size mPCIe, antennas	LTE/HSPA+/GPRS and GPS, full-size mPCIe, 4G/GPS antennas	Wi-Fi 802.11 a/b/g/n 2T2R w/ Bluetooth 4.0, idoor box, antennas	4G Cat.6,LTE-A/UMTS/HSPA+, idoor box, 4G/GPS antennas

iDoor Industrial Fieldbus Communication

Model	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, Profitbus, DB9	2-port Hilscher netX100 FieldBus mPCIe, Profitbus, 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

iDoor Smart I/O & Communication

Model	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-24R1TP	PCM-24R2PE	PCM-24R2GL	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	1-port Gigabit Ethernet, Intel® i225 TSN, mPCIe, RJ45	2-port Gigabit Ethernet, IEEE 802.3af (PoE)-compliant, mPCIe, RJ45	2-port Gigabit Ethernet, Intel® i350, mPCIe, RJ45	24-ch isolated digital I/O with counter mPCIe, DB37

iDoor Accessories


Model	PCM-28P1AD	PCM-28P1BK
Description	PCIe to mPCIe, 2-slot mPCIe, iDoor I/O plate expansion	iDoor PCIe I/O plate

iDoor Industrial Domain Application

Model	PCM-29R1TX
Description	1-Port iLink(TX), Long Distant Display Out, RJ45

7 Intelligent Transportation Platforms

Intelligent Transportation Platforms

Comprehensive Solutions for Modernizing Infrastructure

Advantech is dedicated to developing systems that fulfill our vision of building intelligent cities worldwide. With over a decade of successful experience, we have considerable expertise designing and developing products in the urban transportation sector. Advantech offers a full product range for rail and roadway applications, such as railway automatic fare collection, wayside control, rolling stock, urban traffic management, highway management, and transportation hub management.

Product Offerings

AFC Controllers

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.

Intelligent Wayside Controllers

ITA-2000 series

Wayside controller series provide various applications such as wayside monitor for electrical system or foreign invasion, communication-based train control, wayside signaling management, our wayside controller system includes CTC and ATC systems that provide a secure monitoring and operating environment.

Roadway Traffic Management

ITA-3000 series

ITA-3000 series works as edge computing platform, providing flexible configuration for local in-time analysis of video images to shorten the time in analyzing real-time and historical traffic data, enabling incident detection, law enforcement and traffic counting in traffic management application.

In-vehicle Controllers

ITA-4000 series

ITA-4000 series is an AI-based in-vehicle platform with visual recognition, and it provides an intelligent in-vehicle solution for smart transportation.

Application-oriented Rolling Stock Controllers

ITA-5000/ARS-2600 series

Rolling stock controller caters for rolling stock applications including CCTV, Infotainment, passenger information system, vehicle monitoring system and more.

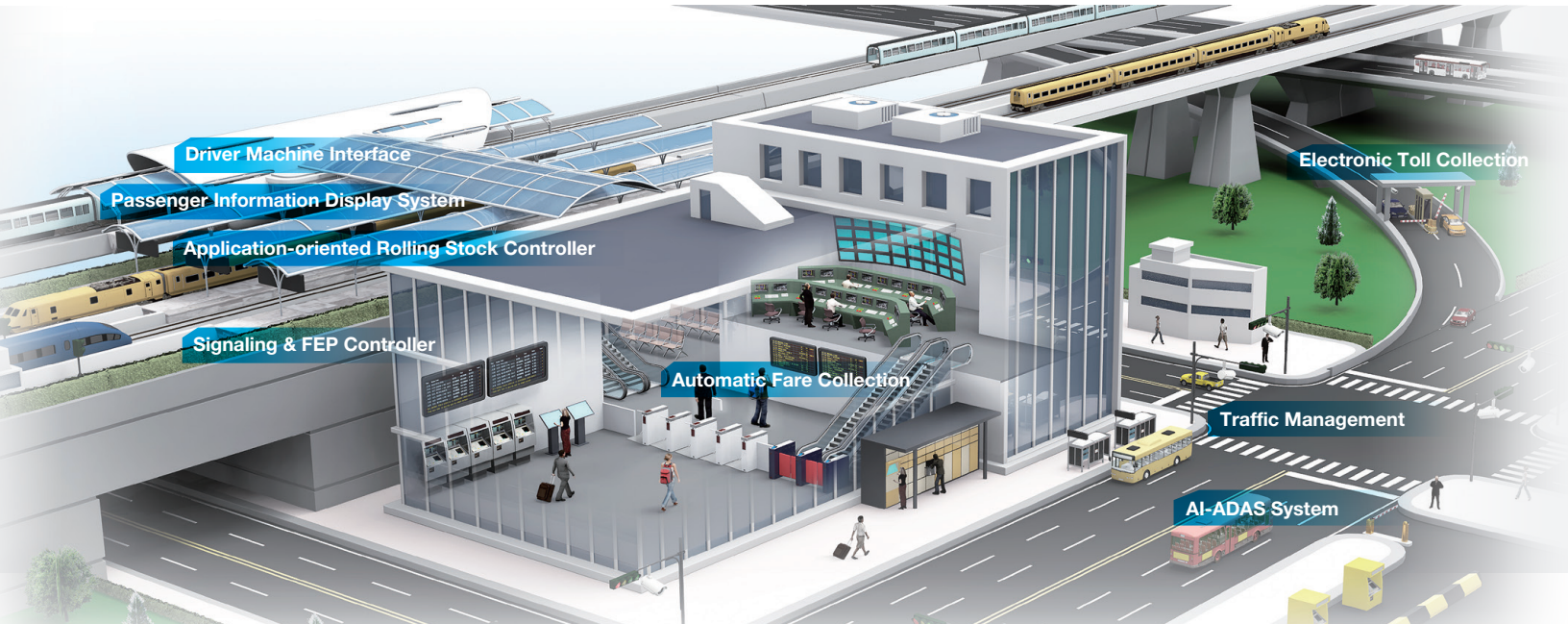
Onboard Display Systems

ARS-P/ITA-7220 series

Advantech ARS-P Series and ITA-7220 are Passenger Information Display Systems. It features a stretched LCD panel, with high brightness to ensure easy readability even in light-insufficient environments.

ITA-8000 series

ITA-8000 series is a driver machine interface (DMI) with projective capacitive touchscreen, auto dimming and UIC 612-01 keypads for installation in driver cabins, while the configuration flexibly allows it to be adjusted for specific applications and different train models.



AFC Controllers

Model		☞ ITA-1611	☞ ITA-1711	☞ ITA-1711N
Processor System	CPU	Intel® Celeron™ J1900	Intel® Celeron™ J1900	Intel® Celeron™ J1900
	Processor Base Frequency	2.0 GHz	2.0 GHz	2.0 GHz
	Cache	2 MB	2 MB	2 MB
	Core Number	4	4	4
	TDP	10W	10W	10W
	Operating Temperature	-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)
Memory	Technology	Dual channel DDR3 1333	Dual channel DDR3 1333	Dual channel DDR3 1333
	Capacity	4 GB onboard (Max. 8 GB with SO-DIMM)	4 GB onboard (Max. 8 GB with SO-DIMM)	8 GB onboard
Graphics	Chipset	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
	Multiple Display	Dual	Dual	Dual
	Display Interface	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	2 x VGA or VGA + DVI-D or VGA + LVDS Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz
	LVDS (optional)	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz	Supports 18/24-bit dual channel, up to 1920 x 1080 @ 60 Hz
Ethernet	Inteface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	2 x Intel® I211	2 x Intel® I211	4 x Intel® I211
	Connector	2 x RJ-45	2 x RJ-45	4 x RJ-45
Storage	Internal	1 x mSATA	1 x mSATA	1 x mSATA
	External	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD
I/O	Main Display	VGA	VGA	VGA
	Second Display	LVDS/VGA/DVI	LVDS/VGA/DVI	LVDS/VGA/DVI
	SATA	2 x SATA	2 x SATA	2 x SATA
	USB 2.0	5	5	7
	USB 3.0	1	1	1
	LAN	2 x RJ-45	2 x RJ-45	4 x RJ-45
	Serial Port	6	14	14
	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
	Digital I/O	8 GPIO	Up to 24 DI and 24 DO	48 programmable GPIO
Expansion Slot	Mini PCIe	1	1	2
Power	Input Voltage	9~36 V_{DC}	9~36 V_{DC}	9~36 V_{DC}
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
Mechanical Features	Dimension (W x H x D)	200 x 70 x 190 mm	200 x100 x 190 mm	220 x 80 x 190 mm
Certification	EMC	CE/FCC, CCC, BSMI	CE/FCC, CCC, BSMI	CE/FCC, CCC, BSMI
	Safety	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

✓: supported, – : not supported, △ : optional

Intelligent Wayside Controllers




Model		☞ ITA-260	☞ ITA-2111	☞ ITA-2211	☞ ITA-2231
Processor System	CPU	Intel® 11th Tiger Lake UP3 core i7 / i3	Intel® Atom™ E3845	Intel® Atom™ E3845	Intel® Core™ i7-6822EQ
	Processor Base Frenquency	i7: 2.8 GHz/1.8 GHz /1.2GHz i3: 3.0 GHz/2.2 GHz /1.7GHz	1.91 GHz	1.91 GHz	2.0 GHz
	Cache	12MB / 6MB	2 MB	2 MB	8 MB
	Core Number	Max to 4	4	4	4
	TDP	28W /15W /12W	10W	10W	25W
	Chipset	–	–	–	QM170
	BIOS	AMI® SPI 64 Mb	AMI® SPI 64 Mb	AMI® SPI 64 Mb	AMI® SPI 128 Mb
Memory	Technology	Dual-channel DDR4	Dual channel DDR3 1333	Dual channel DDR3 1333	Dual-channel DDR4 2133
	Max. Capacity	SO-DIMM (up to 64 GB with 2 SO-DIMM slots)	Onboard 4 GB (up to 8 GB with SO-DIMM)	Onboard 4 GB (up to 8 GB with SO-DIMM)	Onboard 16 GB (Up to 32 GB with SO-DIMM)
	Socket	1 x 260 pin SO-DIMM	1 x 204 pin SO-DIMM	1 x 204 pin SO-DIMM	1 x 204 pin SO-DIMM
Graphics	Chipset	Intel® Iris® Xe Graphics	Intel® HD Graphics for Intel Atom® Processor Z3700 series	Intel® HD Graphics for Intel Atom® Processor Z3700 series	Intel® HD Graphics 530
	VRAM	–	Shared system memory up to 256 MB SDRAM	Shared system memory up to 256 MB SDRAM	Shared system memory up to 512 MB SDRAM
	Display Ports	1 x HDMI support HDMI1.4 standard 3840 x 2160 @60 HZ	1 x VGA and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	1 x VGA and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz	1 x DVI-I and 1 x DVI-D Single channel maximum: 1920 x 1080 @ 60 Hz Dual channel maximum: 1920 x 1080 @ 60 Hz
Ethernet	Interface	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	4 x Intel® I211 2 x Intel® I225LM	4 x Intel® I210IT	2 x Intel® I210IT	1 x Intel® I219IT, 1 x Intel® I210IT
	Connector	4 x RJ-45 2 x SFP	4 x RJ-45	2 x RJ-45	2 x RJ-45
Storage	SSD	1 x SATA3.0 and 1 x mSATA&mPCIe co-lay	1 x mSATA (optional with SATA2)	1 x mSATA (optional with SATA2)	1 x M.2 (with SATA interface)
	HDD	–	1 x 3.5" or 2 x 2.5" HDD bay	1 x 3.5" or 2 x 2.5" HDD bay	1 x 3.5" or 2 x 2.5" HDD bay
I/O Interface	VGA	–	1	1	–
	DVI-I	–	–	–	1
	DVI-D	–	1	1	1
	LAN	6	4	2	2
	USB	2 x USB 2.0, 2 x USB 3.0	6 x USB 2.0, 1 x USB 3.0	6 x USB 2.0, 1 x USB 3.0	4 x USB 3.0, 3 x USB 2.0
	Serial	2 x DB9 (RS-232/422/485)	2 x DB9 (RS-232/422/485) and 8 x RS-232/422/485 with 2 x 20-pin terminal block	2 x DB9 (RS-232/422/485)	2 x DB9 (RS-232/422/485) with 2.5KV isolation
	CAN	–	2	–	–
	PS/2	–	1	1	1
	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 x4W amplifier, 1 x Mic-in
Expansion Slots	ITA-EM	–	–	3	3
	PCI104	–	1	1	1
	Mini PCIe	2 x Mini PCIe & 2 x M.2 & 1 x SIM slot	1	1	1
Power		DC-IN	Single Power Module	Single Power Module / Dual Power Module	Single Power Module / Dual Power Module
	Input Range	9-48V V_{DC}	100~240 V_{AC} / 110 V_{DC}	100~240 V_{AC} / 110 V_{DC} / Dual 100~240 V_{AC} / 110 V_{DC}	100~240 V_{AC} / 110 V_{DC} / Dual 100~240 V_{AC} / 110 V_{DC}
	Connector	–	1 x 3pin 5.08mm Terminal Block	1 x 3pin 5.08mm Terminal Block / 2 x 3pin 5.08mm Terminal Block	1 x 3pin 5.08mm Terminal Block / 2 x 3pin 5.08mm Terminal Block
	Wattage (60°C)	60W	110W	110W (Load Balance)	110W (Load Balance)
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
Environment	Temperature	Operating (with SSD): -40 ~ 60°C Non-Operating: -40 ~ 85°C	Operating (with SSD): -25 ~ 60°C Operating (with HDD): 0 ~ 40°C Non-Operating: -40~85°C	Operating (with SSD): -25 ~ 60°C Operating (with HDD): 0 ~ 40°C Non-Operating: -40~85°C	Operating (with SSD): -25 ~ 60°C Operating (with HDD): 0 ~ 40°C Non-Operating: -40 ~ 85°C
Physical Characteristics	Dimensions (W x H x D)	70 x 150 x 120 mm/ 100 x 150 x 120 mm	426 x 44.4 x 326.65 mm	427 x 88 x 325 mm	427 x 88 x 325 mm
	Install	Wall mount & DIN rail bracket	(19" x 1.75" x 13.8") with mounting kits	(19" x 3.46" x 13.57") with mounting kits	(19" x 3.46" x 13.57") with mounting kits
Certification	EMC	CE,FCC,CCC	CE,FCC,CCC	CE,FCC,CCC	CE,FCC,CCC
	Safety	UL,CB,CCC	UL,CB,CCC	UL,CB,CCC	UL,CB,CCC
	Compliance	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS	EN 50121-4, Level 4 EMS

✓: supported, – : not supported, △ : optional

Roadway Traffic Management




Model		ITA-3650N		ITA-3650E		ITA-3650G		ITA-3650T	
Processor System	CPU	G3900TE	G4400TE	i3-6100TE	i5-6500TE	i7-6700TE	i3-6100	i5-6500	i7-6700
	Processor Base Frequency	2.30 GHz	2.40 GHz	2.70 GHz	2.30 GHz	2.40 GHz	3.70 GHz	3.20 GHz	3.40 GHz
	L2 Cache	2 MB	3 MB	4 MB	6 MB	8 MB	3 MB	6 MB	8 MB
	Core Number	2	2	2	4	4	2	4	4
	TDP	35W	35W	35W	35W	35W	51W	65W	65W
	Chipset	H110		H110		C236		C236	
	Operating Temperature	35W: -25 ~ 60°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)				51W/65W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)			
Processor System	CPU	G3930TE	i3-7101TE	i5-7500T	i7-7700T	i3-7101E	i5-7500	i7-7700	–
	Processor Base Frequency	2.70 GHz	3.40 GHz	2.70 GHz	2.9 GHz	3.90 GHz	3.40 GHz	3.60 GHz	–
	L2 Cache	2 MB	3 MB	6 MB	8 MB	3 MB	6 MB	8 MB	–
	Core Number	2	2	4	4	2	4	4	–
	TDP	35W	35W	35W	35W	54W	65W	65W	–
	Chipset	H110		H110		C236		C236	–
	Operating Temperature	35W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)				54W/65W: -25 ~ 50°C (with Industry SSD) -25 ~ 40°C (with MXM GPU support) -25 ~ 50°C (with M.2/miniPCIe GPU support)			–
Memory	Technology	Dual-channel DDR4 2133 MHz (without ECC)							
	Capacity	8 GB on board (Max. 32 GB with SO-DIMM)		8 GB on board (Max. 32 GB with SO-DIMM)		16 GB on board (Max. 32 GB with SO-DIMM)		16 GB on board (Max. 32 GB with SO-DIMM)	
Graphics	Controller	Intel® HD Graphics 630/610/530/510							
	VGA	1 x DB15, max resolution up to 1920x1080@60Hz							
	HDMI	1 x HDMI, support HDMI1.4 standard, max to 3840x2160@30Hz							
	DP	Box Header on board		Box Header on board		4 x DP, max resolution up to 4096 x 2160 @ 60Hz		Box Header on board	
	Display Option	HDMI+VGA		HDMI+VGA		HDMI+VGA+4DP		HDMI+VGA	
Ethernet	Inteface	10/100/1000 Mbps							
	Controller	1 x Intel® I210; 1 x IWGI219LM;4 x Intel® I211		1 x Intel® I210; 1 x IWGI219LM;2 x Intel® I211		1 x Intel® I210; 1 x IWGI219LM;4 x Intel® I211		1 x Intel® I210;1 x IWGI219LM	
	Connector	6 x RJ-45		4 x RJ-45		6 x RJ-45		2 x RJ-45	
Storage	Internal	1 x mSATA							
	External	2 x 2.5" storage bay							
I/O	Main Display	HDMI							
	Second Display	VGA							
	SATA	2 x SATA							
	USB	4 x USB3.0 & 2 x USB2.0		4 x USB3.0 & 2 x USB2.0		6 x USB3.0		6 x USB3.0	
	LAN	6 x RJ-45		4 x RJ-45		6 x RJ-45		2 x RJ-45	
	Serial Port	8 x DB9 (RS232/422/485 with automatic flow control)		8 x DB9 (RS232/422/485 with automatic flow control)		2 x DB9 (RS232/422/485 with automatic flow control)		2 x DB9 (RS232/422/485 with automatic flow control)	
	Audio	1 x Speaker out with 8W amplifier, 1 x Mic-in							
	Digital I/O	1 x DB25 (12 DI and 12 DO)		1 x DB25 (12 DI and 12 DO)		–		–	
Expansion Slot	Mini PCIe / M.2	1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot; 2 x Mini PCIe or 2 x M.2 2280 for AI Acceleration Module	
	PCI/PCIe	–		1 x PCI & 1 x PCIe x 8 slot or 2 x PCI slot		–		–	
	MXM Slot	–		–		1 x MXM slot		–	
Power	Input Voltage	9~36 V_{DC}							
Watchdog Timer	Output	System reset							
	Interval	Programmable 1~255 sec/min							
Environment	Operating Temperature	Industry SSD: max to -25 ~ 60°C		Industry SSD: max to -25 ~ 60°C		-25 ~ 40°C (with Industry SSD) with 0.7m/s air flow		-25 ~ 50°C (with Industry SSD) with 0.7m/s air flow	
	Storage Temperature	-40~85°C							
Mechanical Features	Dimension (W x H x D)	210 x 118 x 240 mm (8.27" x 4.65" x 9.45")		210 x 122 x 240 mm (8.27" x 4.8" x 9.45")		210 x 120 x 240 mm (8.27" x 4.72" x 9.45")		210 x 78 x 240 mm (8.27" x 3.07" x 9.45")	
	Install	Wall mount bracket							
Certification	EMC	CE/FCC, CCC, BSMI							
	Safety	UL, CCC, BSMI							

✓: supported, – : not supported, △ : optional

In-Vehicle Controllers

Model		ITA-460	ITA-460G
Computer system	CPU	Intel® 8th/9th Gen. Core™ i7/i5/i3/Celeron	Intel® 8th/9th Gen. Core™ i7/i5/i3/Celeron
	CPU TDP	35W/65W	35W/65W
	BIOS	AMI 256Mb SPI Flash (limited to TDP 35W in default)	AMI 256Mb SPI Flash (limited to TDP 35W in default)
	Chipset	Intel® H310	Intel® H310
Memory	Technology	Dual channel DDR4 2666	Dual channel DDR4 2666MHz
	Capacity	Up to 32 GB	Up to 32 GB
	Onboard Memory	8 GB (16GB optional)	8 GB (16GB optional)
	SO-DIMM Slot	1	1
Graphics	Chipset	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	MXM GPU Expansion	–	1 x MXM3.1 Type A/Type B (< 60W)
Ethernet	Controller	2 x Intel® i210-IT	2 x Intel® i210-IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	2 x M12 X-coded	2 x M12 X-coded
I/O	USB	2 x USB 3.0 /3.1(Type A)	2 x USB 3.0 /3.1(Type A)
	Audio	1 x M12 A-Coded (1 x line out and 1 x mic in)	1 x M12 A-Coded (1 x line out and 1 x mic in)
	Serial	1 x DB9 (2 x RS-232/422/485 software programmable)	1 x DB9 (2 x RS-232/422/485 software programmable)
	Display	1 x HDMI	1 x HDMI
Expansion Interface	Mini PCIe	3	3
	SIM Slots	1	1
	Interface	PCIe / USB	PCIe / USB
Storage	mSATA	1 x mSATA SSD	1 x mSATA SSD
	SSD	2 x 2.5" SSD slot (9mm)	2 x 2.5" SSD slot (9mm)
Software	Operating System	Windows 10, Linux Ubuntu 20.04	Windows 10, Linux Ubuntu 20.04
Power	Input Voltage	12V/24V (8~32V_{DC}* wide power input); 9.6V ~28.8V full loading (*: Power input constraint at low power 8~9.6V) (6-Pin M16)	12V/24V (8~32V_{DC}* wide power input); 9.6V ~28.8V full loading (*: Power input constraint at low power 8~9.6V) (6-Pin M16)
Enviornment	Operating Temperature	-25°C ~ +60°C with 0.7 m/s air flow	-25°C ~ +60°C with 0.7 m/s air flow
	Vibration, Shock	MIL-STD-810; 75G 11 ms	MIL-STD-810; 75G 11 ms
	Ingress Protection	IP-65	IP-65
Physical Characteristics	Dimensions (W x H x D)	190 x 70 x 220 mm	190 x 130 x 220 mm
	Weight	4 kg	6.5 kg
Certification	EMC	CE/FCC Class B	CE/FCC Class B
	Safety	CB/UL, CCC, Emark, ISO 7637-2, BSMI	CB/UL, CCC, Emark, ISO 7637-2, BSMI

✓: supported, – : not supported, △ : optional

Application-oriented Rolling Stock Controllers






Model		ITA-510/560	ITA-5231G	ITA-5231 ITA-5231S	ITA-5831	ARS-2610/2610K ARS-2620/2620K	ARS-2110
Computer system	CPU	NVIDIA® Jetson AGX Xavier™ 8-core NVIDIA	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® 6th Gen. Core™ i7/i5/Celeron	Intel® i7-6600U (ARS-2610/2620) Intel® i7-7600U (ARS-2610K/2620K)	Intel® Atom™ E3845
	GPU	NVIDIA® Volta GPU 512 Volta CUDA cores and 64 Tensor cores	NVIDIA® Quadro Embedded T1000	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	CPU TDP	30W	25W	25W	25W	15W	10W
	Frequency	-	Up to 2.8 GHz	Up to 2.8 GHz	Up to 2.8 GHz	Up to 3.9 GHz	Up to 1.9 GHz
	Core Number	8	4	4	4	2	4
	GPU Core Number	512 Volta CUDA cores and 64 Tensor cores	–	–	–	–	–
	Cache	8 MB	8 MB	8 MB	8 MB	4 MB	2 MB
	BIOS	–	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI EFI 64Mbit
	Chipset	–	Intel® QM170	Intel® QM170	Intel® QM170	–	–
Memory	Technology	–	Dual channel	Dual channel	Dual channel	Single channel	Single channel
		LPDDR 4	DDR4 2133	DDR4 2133	DDR4 2133	DDR4 2133	DDR3L 1333
	Capacity	32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 16 GB	Up to 8 GB
	Onboard Memory	32 GB	8 GB (16GB optional)	8 GB (16GB optional)	8 GB (16GB optional)	–	–
	SO-DIMM Slot	–	1	1	1	1 (8GB default)	1 (4 GB default)
Display	Graphic Memory	–	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 512 MB	Shared with system memory up to 256 MB
	Multiple Display	Single	Dual	Dual	Dual	Dual	Dual
Ethernet	Controller	3 x Intel® i210-IT + 1 x Marvell 88E1512-A0	1 x Intel® i219LM + 2 x Intel® i210-IT	1 x Intel® i219LM + 2 x Intel® i210-IT	1 x Intel® i219LM + 2 x Intel® i210-IT	2 x Intel® i210-IT	2 x Intel® i210
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	4 x M12 X-coded	3 x M12 X-coded	3 x M12 X-coded	3 x M12 X-coded	2 x M12 X-coded	2 x M12 A-coded
	PoE port / Max. Power Budget	4 x M12 X-coded up to 30W (ITA-510, optional)	–	–	–	4 x M12 X-coded up to 60 Watts	–
Storage	Onboard Slot	On-board eMMC 5.1 32GB	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA
	M.2 2230 E-key (SATA interface)	1	–	–	–	–	–
	Easy Swap Module	1x 2.5" SSD (ITA-560)	Max. 4 x 2.5" SSD, supports RAID 0/1/5/10	Max. 4 x 2.5" SSD (ITA-5231 & ITA-5231S with key latch design), supports RAID 0/1/5/10	Max. 3 x 2.5" SSD by ITA-EM expansion, supports RAID 0/1/5/10	Max. 2 x 2.5" SSD by AIO-EM expasion	Max. 2 x 2.5" SSD by AIO-EM expasion
Expansion Interface	Mini PCIe	1	3	3	3	3	3
	SIM Slots	1	2	2	2	2	1
	ITA-EM / AIO-EM	-	4	4 (ITA-5231) 1 (ITA-5231S)	2	2	2
	MXM Type-A Slot	–	1	–	–	–	–
I/O	Display	1 x HDMI	1 x DVI-I	1 x DVI-I	1 x DVI-I	2 x DVI-D	1 x VGA + 1 x 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	Line-out, Mic-in, Line-in	Line-out, Mic-in, Line-in
	Ethernet	4	3	3	3	2 (ARS-2610/2610K) 6 (ARS-2620/2620K)	2
	USB3.0	–	2 (Type A)	2 (Type A)	2 (Type A)	2 (Type A)	1 (Type A)
	USB2.0	2 (Type-A)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)	1 (M12 A-coded)
	COM	1+1(internal)	2	2	2	2	2
	CAN	1+1(internal)	–	–	–	–	–
	Digital I/O	1x 8 bit	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO	3 x DI & 3 x DO by AIO-EM expansion	3 x DI & 3 x DO by AIO-EM expansion
Power	Input Voltage	24/48/72/110 V_{DC} (selectable) (M12 S-coded)	24/48/72/110 V_{DC} (selectable) (M12 S-coded)	24/48/72/110 V_{DC} (selectable) (M12 S-coded)	24/48/72/110 V_{DC} (selectable) (M12 S-coded)	24/48/72/110 V_{DC} (selectable) (M12 A-coded)	24/72/110 V_{DC} (selectable) (M12 A-coded)
Physical Characteristics	Dimensions (W x H x D)	430 x 44 x 194.6 mm (ITA-510) 190 x 60 x 160 mm (ITA-560)	427 x 88 x 230 mm	427 x 88 x 200 mm	220 x 88 x 200 mm	313 x 103 x 180 mm (ARS-2610/2610K) 313 x 127 x 180 mm (ARS-2620/2620K)	267 x 87.5 x 175 mm
Environment	Operating Temperature	EN 50155 OT1	EN 50155 OT4 (without MXM T1000) EN 50155 OT1 (with MXM T1000) (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)	EN 50155 TX -40 ~ 70°C (with SSD)	EN 50155 OT4 -40 ~ 70°C (with SSD)
	Ingress Protection	IP-40	IP-50 (with IO caps)	IP-50 (with IO caps)	IP-50 (with IO caps)	IP-40	IP-40
Regulation	EMC	CE, EMC, CCC	CE, EMC, CCC	CE, EMC, CCC	CE, EMC, CCC	CE, FCC	CE, FCC
	Safety Certifications	UL, CB	UL, CB	UL, CB	UL, CB	UL, CB	UL, CB
	Railway Standards	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2007 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2017 EN 50121-3-2 EN 45545-2

✓: supported, – : not supported, △ : optional

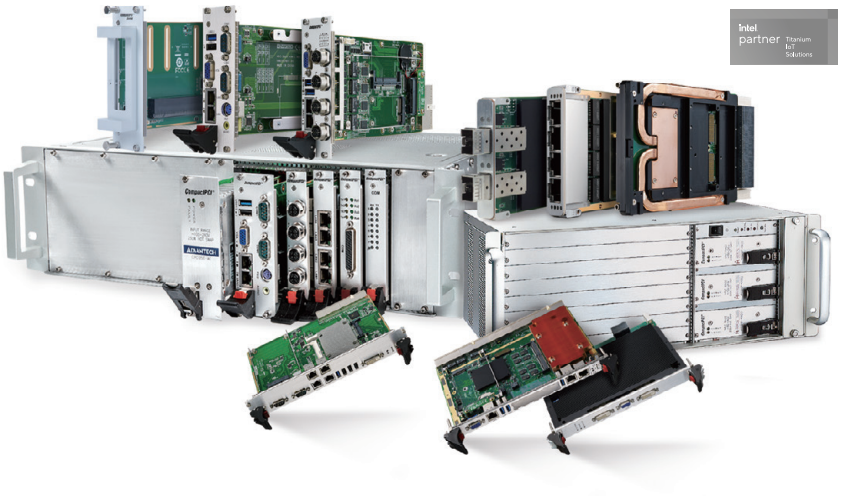
Onboard Display Systems




Model		ITA-8100/8100B	ITA-8120	ARS-P2800/P2800F	ITA-7220/7220F
Computer System	CPU	Intel® Atom™ x7-E3950	Intel® Atom™ x7-E3950	Intel® Celeron® J1900	Intel® Celeron® J1900
	Frequency	Up to 2.00 GHz	Up to 2.00 GHz	2.00 GHz	2.00 GHz
	Core	4	4	4	4
RAM	Memory	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)	1 x DDR3L SO-DIMM (Default 4 GB, up to 8 GB)
Storage	M.2	1 x M.2 2242 SSD (Default 64 GB)	1 x M.2 2242 SSD (Default 64 GB)	1 x mSATA SSD (Default 64 GB)	1 x mSATA SSD (Default 64 GB)
Graphics	Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	Display Ports	–	–	1 x DVI-D	1 x DVI-D
Display	Display Type	10.4" TFT LCD panel (Max. resolution 1024 x 768 XGA)	12.1" TFT LCD panel (Max. resolution 1024 x 768 XGA)	28" TFT LCD panel (Max. resolution 1920 x 357, 16:3)	22" TFT LCD panel (Max. resolution 1920 x 1080, 16:9)
	Brightness	500 nits (ITA-8100) 1300 nits (ITA-8100B)	600 nits	1000 nits	400 nits
	Contrast Ratio	1000:1 (ITA-8100) 700:1 (ITA-8100B)	1000:1	6500:1	1000:1
Touch Panel and Function Keys	Touch Type	Projected capacitive touchscreen (Multi-touch)	Projected capacitive touchscreen (Multi-touch)	–	–
	Brightness Adjustment	Auto (built-in light sensor)	Auto (built-in light sensor)	–	–
	Function Keys	32 keypads (UIC 612-01 Compliant)	32 keypads (UIC 612-01 Compliant)	–	–
I/O Interface	LAN	2 x 10/100/1000 Mbps (M12 X-coded)	2 x 10/100/1000 Mbps (M12 X-coded)	1 x 10/100/1000 Mbps (M12 X-coded) / 2 x 10/100/1000 Mbps (M12 X-Coded) (ARS-P2800F)	1 x 10/100/1000 Mbps (M12 X-coded) / 2 x 10/100/1000 Mbps (M12 X-Coded) (ITA-7220F)
	Serial Port	2 x RS-422/485 (M12 A-coded)	2 x RS-422/485 (M12 A-coded)	–	–
	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) + 1 x USB 2.0 (Type A)	1 x USB 2.0 (M12 A-coded) + 1 x USB 2.0 (Type A)
	Digital I/O	5 Inputs / 1 Output, isolated (M12 A-coded)	5 Inputs / 1 Output, isolated (M12 A-coded)	–	–
Software	Operating System	Windows 10, Linux	Windows 10, Linux	Windows 7 and 10, Linux	Windows 7 and 10, Linux
Power	Input Voltage	24/48/72/110 V_{DC} (selectable) (M12 A-coded)	24/48/72/110 V_{DC} (selectable) (M12 A-coded)	24/48/72/110 V_{DC} (selectable) (M12 A-coded)	24/48/72/110 V_{DC} (selectable) (M12 A-coded)
Environment	Operating Temperature	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT1: -25 ~ 55°C	EN 50155 OT1: -25 ~ 55°C
	Shock and Vibration	IEC 61373	IEC 61373	IEC 61373	IEC 61373
	Ingress Protection	IP65-rated front panel	IP65-rated front panel	IP65-rated whole system	IP40-rated
Physical Characteristics	Dimensions (W x H x D)	310 x 214 x 70 mm	350 x 260 x 71.5 mm	814 x 178 x 56 mm	575 x 299 x 56 mm
	Weight	4.5 kg	5 kg	8.3 kg (ARS-P2800F) 8 kg (ARS-P2800)	7 kg (ITA-7200F) 6.5 kg (ITA-7220)
Certification	Railway Standards	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4, IEC 60571	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4, IEC 60571	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4	EN 50155:2017, EN 45545-2 EN 50121-3-2, EN 50121-4
	EMC and Safety	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368

✓: supported, – : not supported, △ : optional

8 Mission Critical CompactPCI Platforms



Intelligent CompactPCI and VPX Platforms

At the core of business and mission critical solutions

Advantech has been a key provider in the CompactPCI and VPX market for mission critical applications in the telecom, railway, defense, and aviation industries. Advantech's CPCI and VPX solutions feature fixed BOM, longevity of supply, EoL alternatives, and last-time-buy services to assure continuous supply and support for customers. In addition, Advantech's unique PIN definitions and customization services offer the best extendibility and cost effectiveness.

Our CompactPCI and VPX solutions are compliant with the following specifications:

- PICMG 2.0 R3.0 CompactPCI specification
- PICMG 2.0 R2.0 CompactPCI specification PCI hot swap
- PICMG CPCI-S.0
- VITA 46/48/65 compliant

Product Offerings

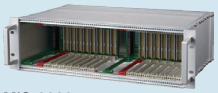
Railway

Intelligent Wayside Signaling Control

3U CPCI Legacy Solution

- 3U or 4U height 19 inch on-rack, AC input
- Entry Atom CPU, fanless, -40°C ~ 70°C wide temperature operation
- Dual systems for redundancy
- Front LED, all I/Os on the rear side
- EMC/Safety EN50121-4,GB/T 24338.5
- MTBF>100000 hours.

MIC-3329/MIC-3332
CPU blade



MIC-3023
CPCI-legacy chassis

MIC-3955A/B
4/8-port COM card + RTM

MIC-3958D
3 or 5-port switch card

MIC-3958A/B
4-port GbE card RJ45
or M12 X-code + RTM

MIC-3956
110V/120W or 250W
CPCI legacy DC power

AI/Machine Vision on Rolling Stock

3U CPCI-Serial Solution

- 3U or 4U height 19 inch on-rack, DC input
- High-performance Xeon/Core i7/i5, 2 or 3 systems
- All I/Os on the front side for easy maintenance.
- EMC/Safety EN50155, GB/T 24338.4, GB/T 25119, GB/T 21563

MIC-3810
PCIe x 16 carrier

MIC-3811
Dual mini-PCIe carrier for
Advantech i-door module

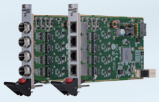
MIC-3820
2.5" SATA carrier

MIC-3954D/E
Quad M.2 or
mini-PCIe carrier

MIC-330
CPU blade

MIC-300
11-slot/21-slot
CPCI-serial chassis

MIC-3890
110V/250W CPCI
serial DC power



MIC-3860
4-port GbE card RJ45
or M12 X-code

Defense and Automation

6U CPCI Solution

High-performance digital signal controlling platform for defense/industrial/machine automation/medical applications

MIC-3666
Dual 10 Gigabit Ethernet XMC

MIC-3667
Quad Gigabit Ethernet XMC

MIC-3398
AtomCPU blade

MIC-3399
Core I CPU blade

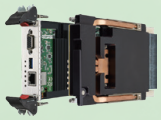
3U/6U VPX Solution

Extreme rugged, high-performance computing in compact size for defense/aviation applications

MIC-6030
3U VPX GbE switch

MIC-6130
3U VPX NvME carrier

MIC-6131
3U VPX XMC carrier

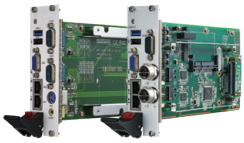


MIC-6330
3U VPX blade

MIC-6314
6U VPX blade

MIC-6110
6U VPX MXM carrier

3U CPCI Legacy



Model		MIC-3329	MIC-3332
Form Factor		3U CPCI Legacy Processor Board	
Processor System	CPU	Intel® Atom™ Processor SOC E3827/E3845,Up to 2MB L2 Cache, 1.91 GHz	Intel® 6th gen Skylake™ Processor Core i/Xeon: Intel® Core i7-6822EQ,4C/8T, 2.0GHz,w/o ECC, TDP 25W Intel® Core i7-6820EQ,4C/8T,2.8GHz,w/o ECC, TDP 45W Intel® E3-1505LV5,4C/8T,2.0GHz, w/ ECC, TDP 25W Intel® E3-1505MV5,4C/8T,2.8GHz, w/ ECC, TDP 45W
	Chipset	NA	CM236
Memory	Memory	Single channel DDR3L -1333 MHz with ECC Up to 4GB on board (8GB per request)	Single channel DDR4@2133 MHz with ECC or non-ECC Up to 16GB soldered on board
Onboard Features	Storage & Others	Speed: SATAII SKU1: 1x 2.5" SATA & 1x CFast socket SKU2: 1x 2.5" SATA & 1x CFast on RTM (mux with NAND flash, upon request)	Speed: SATAIII SKU1: 1x 2.5" SATA & 1x CFast socket & 1x Micro-SD socket SKU2: 1x 2.5" SATA & 1x CFast socket SKU3: 2x SATA M.2 (2280 Size)
Front I/O	I/O Ports	SKU1: 2x RJ45 GbE, 1x USB3.0, 1x USB2.0, 1x VGA, 1x COM, 2x M12 X-code GbE SKU2: 2x RJ45 GbE, 1x USB3.0, 1x USB2.0, 1x VGA, 2x COM, 1x PS2, 1x Audio	SKU1: 2x RJ45 GbE, 2x USB3.0, 1x VGA, 4x RJ45/M12 X-Code GbE SKU2: 2x RJ45 GbE, 3x USB3.0, 1x VGA, 1x COM, 1x HDMI, 2x RJ45/M12 X-Code GbE SKU3: 2x RJ45 GbE, 2x USB3.0, 1x VGA
	LED Indicators	Hot swap/HDD/Power/Master/Drone mode/LAN LED, Reset button	Power/HDD/Hot swap/Master/Drone/LAN LED, Reset button
Backplane Interface	J1	32-bit/33MHz PCI bus	32-bit/33MHz PCI bus
	J2	RTM (MIC-3329R1-D1E)	RTM (MIC-3332R1-S1E)
Operating System	Compatibility	Windows7, Windows 10, Linux, CentOS6.6, VxWorks 6.9 & 7.0	Windows10, Windows7, Ubuntu 18.04, Centos7.5, Vxworks 7.0
Power Consumption	System Full Loading	up to 15W	up to 50W
Physical Characteristics	Dimensions (W x D)	3U/8HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/4HP & 8HP 160.00 x 100.00 mm (6.30" x 3.95")
Environment	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F) fanless	0 ~ 70°C (32 ~ 158°F) with forced air
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
	Railway Standards	EN50121-4 and EN50155	EN50121-4 and EN50155
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R2.0	PICMG2.0 R3.0, PICMG2.1 R2.0

Model		MIC-3955	MIC-3958A&B	MIC-3958D	MIC-3022	MIC-3023
Form Factor		3U CPCI Legacy Peripheral Board			4U/3U CPCI Legacy Chassis	
Main Function		4 ports/8 ports - RS232/422/485 serial communication card speed up to 921600bps(Conditional)	4 ports RJ45/M12 X-code GbE card	3 ports/5 ports GbE switch card	3+1 U CPCI 84HP enclosure 1x BP with 1x system , 7x peripheral	3U CPCI 44HP/84HP enclosure 44HP enclosure with 1x BP, which contains 1x system, 7x peripheral 84HP enclosure with dual BP
	I/O Ports	SKU1: 4ports-1x DB44(F) SKU2: 8ports-1x DB62(F)	SKU1: 4 x RJ45 ports SKU2: 4 x M12 ports	SKU1: 3 x M12 ports SKU2: 5 x M12 ports	–	–
	LED Indicators	Rx/Tx LED	LAN LED	LAN LED	–	–
Backplane Interface	J1	32-bit/33MHz PCI bus	32-bit/33MHz PCI bus	–	32-bit/33 MHz/66MHz PCI Bus	32-bit/33 MHz PCI Bus
	J2	RTM (MIC-3527 series)	RTM (MIC-3958R1-S1E)	Reserve 6 x MDI/MDIX signal to Rear	Rear transition x 8	Rear transition x 8
Chassis Features	Backplane	–	–	–	Single 10-slot backplane 1x system, 7x peripheral CPCI PSU & RIO supported	Single or dual 10-slot backplane 1x system, 7x peripheral CPCI PSU & RIO supported
	Cooling	–	–	–	2 Blowers (30.5CFM/FAN)	Fanless or low noise fan (9.9CFM/FAN)
Operating System	Compatibility	CentOS 6/7, Neokylin 6, Ubuntu 16.04, Ubuntu 18.04, VxWorks 6.9/7.0	Windows7/10,Vxworks 6.9/7.0, Linux CentOS 6.5/6.6	Windows7/10,Vxworks 6.9/7.0, Linux CentOS 6.5/6.6	–	–
Power Consumption	System Full Loading	3.5W/ 5W	10W	10W	–	–
Physical Characteristics	Dimensions (W x D)	3U/4HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/4HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/4HP & 8HP 160.00 x 100.00 mm (6.30" x 3.95")	440 x 177 x 295 mm	279.4 x 295.5 x 132.5 mm 482.6 x 295.5 x 132.5 mm
Environment	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	0 ~ 55°C (32 ~ 122°F)	0 ~ 55°C (32 ~ 122°F)
Regulatory	Conformance	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS
Compliance	Standards	PICMG2.0 R3.0	PICMG2.0 R3.0	–	PICMG 2.0, PICMG2.11	PICMG 2.0, PICMG2.11
	Railway Standards	EN50121-4	EN50121-4	EN50121-4	–	–

✓: supported, – : not supported, △ : optional

3U CPCI Serial

Model		☞ MIC-330 V1
Form Factor		3U CPCI-Serial Processor Board
Processor System	CPU	9th Generation Coffeelake Refresh Intel® Xeon/Core™ i3/i5/i7 mobile processors up to 2.7 GHz Intel® Xeon® E-2276ML, 6C/12T,1.9GHz, TDP 25W, ECC Intel® Core™ i7-9850HL, 6C/12T,2.0GHz, TDP 25W, non ECC Intel® Core™ i3-9100HL, 4C/4T, 1.6GHz, TDP 25W, ECC
	Chipset	CM246
Memory	Memory	Dual channel DDR4 2666 MHz Max capacity: Up to 32GB, 16GB soldered &16GB SO-DIMM extension
Onboard Features		Speed: SATAIII SKU1: 2* 2280 M.2 sockets SKU2: 1* 2280 M.2 socket, 1* Super cap & 1* FeRAM reserved for customer request
Front I/O	I/O Ports	SKU1: 2* RJ45 GbE, 2* USB3.0, 2*DP SKU2: 2* RJ45 GbE, 2* USB3.0, 2*DP, 2* M12 X-code GbE, 1* DB9 COM(RS232/422/485)
	LED Indicators	1 x blue/orange for hot swap/ HDD, 1 x green for PWR, 1 x green for master/drone, 1 x Reset button
Backplane Interface	P1/P2/P3/P4/P5/P6	P1 PCIex4; 1 x USB3.0 (1 x USB2.0) P2 PCIex4, PCIex8, 3 x USB2.0 P3 4 x SATA, 1 x USB3.0, 4 x USB2.0 P4 2 x PCIex4, 2 x PCIex1 P5 Clock P6 Up to 3 x GbE (2 GbE to M-1, max 3 GbE to M-2)
	RTM	No
Operating System	Compatibility	Windows10, Linux, Vxworks
Power Consumption	System Full Loading	12V / 60W
Physical Characteristics	Dimensions (W x D)	4HP or 8HP, 160.00 x 100.00 mm
Environment	Operating Temperature	0 ~ 70°C (32 ~ 185°F) under forced-air cooling
Regulatory	Conformance	FCC Class A, CE, RoHS
	Railway Standards	EN50121-4 & EN50155
Compliance	Standards	PICMG® CompactPCI® Serial



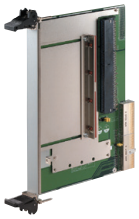



Model		☞ MIC-3810	☞ MIC-3811	☞ MIC-3820	MIC-3860	MIC-3954 D&E	MIC-300
Form Factor		3U CPCI-Serial Peripheral Board					3U CPCI-Serial Chassis
Main Function		PCIe x16 carrier	Dual MniPCIe carrier	2.5" SATA SSD carrier	4 ports RJ45 or M12 X-code GbE card	Quad M.2 or miniPCIe carrier	3U height 44/84HP enclosure
Front I/O	I/O Ports	PCIe Gen3	PCIe Gen2/USB2.0	SATA 3.0	SKU1: 4 x RJ45 ports SKU2: 4 x M12 ports	PCIe Gen2	–
	LED Indicators	Power	Power	Power	LAN LED: Link/ Activity	Power	–
Backplane Interface	P1/P2/P6	P1: PCIe x4 P2: PCIe x4	P1: PCIe x1	P1: SATA 3.0	P1: PCIe x4	P1: PCIe x1	–
	P3/P4/P5 RTM	–	–	–	–	–	–
Chassis Features	Backplane	–	–	–	–	–	SKU1:9 slot CPCI-Serial backplane SKU2:7 slot CPCI-Serial backplane
	Cooling	–	–	–	–	–	12x low-noise, single fan with airflow: 9.9 CFM
Operating System	Compatibility	–	–	–	–	–	–
Power Consumption	System Full Loading	Power consumption depending on plugged in module	Power consumption depending on plugged in module	Power consumption depending on plugged in module	10W	Power consumption depending on plugged in module	–
Physical Characteristics	Dimensions (W x D)	3U/8HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/8HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/8HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/4HP 160.00 x 100.00 mm (6.30" x 3.95")	3U/8HP 160.00 x 100.00 mm (6.30" x 3.95")	SKU1: 482.60 x 251.50 x 132.55 mm SKU2: 279.40 x 254.50 x 132.55 mm
Environment	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)	-40 ~ 70°C (-40 ~ 158°F)
Compliance	Standards	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0
	Railway Standards	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4

✓: supported, – : not supported, △ : optional

6U CPCI

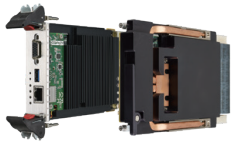
Model		MIC-3398	MIC-3399
Form Factor		6U CPCI Legacy Processor Board	
Processor System	CPU	Intel® Atom™TM SoC (22nm) E3845,4C/4T,1.91 GHz Intel® Celeron J1900,4C/4T,2.00 GHz up to quad core 2.00 GHz	Intel® Core™ i3-6100E,2C/4T,2.7 GHz Intel® Core™ i7-6820EQ,4C/8T,2.8 GHz mobile processors up to 2.8 GHz
	Chipset	-	Intel® C230 Series Chipsets
Memory	Memory	DDR3L 1333 MHz, dual channel without ECC support Up to 8GB	DDR4 2133 MHz, dual channel and ECC support (optional) Up to 32GB (max. 16GB on-board, max. 16GB SODIMM)
Onboard Features	Storage & Others	Speed: SATA II 1 x CFast, 2 x SODIMM	Speed: SATA III SODIMM
Front I/O	I/O Ports	1 x DVI-D, 1 x USB3.0, 3 x USB2.0, 2 x D-Sub9, 2 x RJ45 (can up to 4 x RJ45)	1 x VGA, 3 x RJ45, 3 x USB3.0
	LED Indicators	1 x yellow for HDD, x1 green for Master/Drone mode, and x1 green for Power	1 x blue for Hot Swap, 1x yellow for HDD, x1 green for Master/ Drone mode, x1 green BMC Heartbeat, and x1 green for Power
Backplane Interface	J1/J2	64-bit/33MHz/66MHz	64-bit/33MHz/66MHz
	J3/J4/J5	NO RTM	RTM: RIO-3316 J3: 2 x RJ45, LAN3, LAN4, 1 x USB3.0; 2 x SATA,1 x USB3.0 J4: 1 x DVI; Pin Header 1 x 2USB3.0, 1 x Audio J5: 1 x USB2.0, 1 x USB3.0, 2 x LAN, 1 x COM, 1 x DVI
Operating System	Compatibility	Win7/WES7, Win8/WES8, Linux, VxWorks 6.x (upon request)	Win7 64bit, Win10 64bit, Linux, VxWorks (upon request)
Power Consumption	System Full Loading	up to 20.41W,+5V:3.91A	Maximum: up to 75W depending on CPU type, +5V: 12A, +3.3V: 5.5A
Physical Characteristics	Dimensions (W x D)	233.35 x 160.0 mm	233.35 x 160.0 mm
Environment	Operating Temperature	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0	PICMG2.0 R3.0, PICMG2.1 R1.0, PICMG2.9 R1.0, PICMG2.16 R1.0



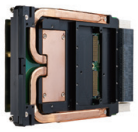
Model		MIC-3961	MIC-3042	MIC-3666	MIC-3667
Form Factor		6U CPCI Legacy Peripheral Board	6U CPCI Legacy Chassis	XMC Carrier	
Main Function		PCI carrier	4U chassis with 8-slot 6U CPCI Legacy BP, with fan, support RIO	Dual 10GbE LAN card	Quad GbE LAN card
Front I/O	I/O Ports	–	–	2x SFP+ with support for presence detect, status and ID EEPROM	4 x RJ45 ports
	LED Indicators	–	–	Network Link, Activity	4x2 status LEDs to signal link status and activity
Backplane Interface	J1/J2	32-bit/33 MHz, 64-bit/66 MHz	–	–	–
	J3/J4/J5	–	–	–	–
Chassis Features	Backplane	–	System x 1, Peripheral x 7, Rear transition x 8	–	–
	Cooling	–	2 x Fans (front: 193 CFM, rear: 61.3 CFM)	–	–
Operating System	Compatibility	–	–	Linux (with X86 Kernel 2.6.x) Windows Server2003, Server2008	Windows®; Linux
Power Consumption	System Full Loading	1 W @ 33 MHz	AC 100 ~ 254 V @ 50 ~ 60 Hz, full range (MIC-3042X-A)	8.5W	4W
Physical Characteristics	Dimensions	233.35 x 160 mm (9.2" x 6.3") (W x D), 4HP(H)	440 x 177 x 320 mm (17.3" x 7" x 12.6") (W x D x H)	74 x 149 mm (2.9" x 5.78") (W x D)	74 x 139 mm (2.9" x 5.39") (W x D)
Environment	Operating Temperature	0 ~ 60°C (32 ~ 140°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 60°C (32 ~ 140°F)	0 ~ 60°C (32 ~ 140°F)
Regulatory	Conformance	–	RoHS, CE, FCC, UL, CCC	VITA 42.0-2005, 42.3-2006 XMC specifications	VITA 42.0-2005, 42.3-2006 XMC specifications
Compliance	Standards	PICMG 2.0 R3.0 CompactPCI Specification	PICMG 2.0,PICMG 2.1,PICMG 2.11,PICMG 2.16	IEEE Std 1386.1-2001 PMC specification	IEEE Std 1386.1-2001 PMC specification

✓: supported, – : not supported, △ : optional

VPX



Model		MIC-6314	MIC-6330
Form Factor		6U VPX Processor Board	3U VPX Processor Board
Processor System	CPU	Intel Boardwell-H/Haswell-H Intel® Core™ I7-5850EQ, 4C /8T, 3.4 GHz;Intel® Core™ i5-4402E 2Core, 1.6GHz	Intel® Xeon® E3v5 and E3v6 Processor family E3-1505LV5 4C/8T 2.0GHz 25W; E3-1505LV6 4C/8T 2.2GHz 25W
	Chipset	Intel® QM87	Intel® CM236 Intel® CM238
Memory	Memory	Dual channel DDR3L-1600MHz,support ECC Up to 16GB (max 8GB on board,max 8GB SODIMM)	Dual channel DDR4-2133MHz, support ECC 16GB on board
Onboard Features	Storage	Support 2.5" SSD, 64GB on board NAND Flash 1 M.2 SATA board (optional)	64GB on Board NAND Flash
	Others	1 x XMC HW Monitor, SuperIO,CPLD	HW Monitor, SuperIO;CPLD
Front I/O	I/O Ports	1 x DVI or VGA 2 x 1GbE (RJ45 with LED) 2 x USB 3.0 (Compatible to USB 2.0) + 1 x USB 2.0 1 x COM for console output (RJ45) XMC Site	1 x VGA 1 x GbE 10/100/1000BASE-T (RJ45 with LED) 1 x USB 3.0 (compatible to USB 2.0)
	Button	System reset button/BMC reset button	System reset button/BMC reset button
	LED Indicators	Hot swap/HDD/Power/BMC	Hot swap/HDD/Power/BMC
Backplane Interface	P0	Power+IPMB	Power+IPMB
	P1	2 x PCIe x8 configurable to 1 x 16 or 4 x 4	1 x PCIe x8 (NT Capable, configurable to 2 x PCIe x 4 or 4x PCIe x 2 from Gen.3 switch); 1 x USB 3.0; 2 x USB 2.0; 2 x 10/100/1000Base-T; 2 x 1000Base-BX
	P2	2 x PCIex8 (1 port NT capable)	2 x SATA-III; DPx1; 2 x USB 2.0; 2 x UART (mode selectable via FPGA setting); 1 x HDA
	P3	–	–
	P4	8d+12d XMC IO; 2x 10/100/1000BT (alter-tive of SerDes)	–
	P5	2 x USB3.0; 2 x USB 2.0; 3 x SATA III; DVI x2+VGA; 2 x COM	–
	P6	2 x 10/100/1000BT; Audio; 3 x USB 2.0; PS/2; 1 x SATA III; 2 x COM	–
	RTM	RIO-6313-A1A1E	No RTM
Operating System	Compatibility	Linux; Windows7	Linux (with the kernel 3.10 or above); Windows10, Windows 7(will need to patch the proper driver)
Power Consumption	System Full Loading	59 W total power envelope with 47W CPU	45W total power envelope with 25W CPU
Physical Characteristics	Dimensions	233.35 x 160 mm (9.2" x 6.3") (WxD), 4HP(H)	160.00 x 100.00 mm (6.3" x 3. 95") (WxD), 5HP (H)
Environment	Operating Temperature	-40 ~ 70°C (with 30 CFM airflow)	-40 ~ 70°C (convection cooled) -40 ~ 85°C (card edge, conduction cooled)
Regulatory	Conformance	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) FCC class A, CE, RoHS	FCC class A, CE, RoHS
Compliance	Standards	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0



Model		MIC-6110	MIC-6030	MIC-6130	MIC-6131
Form Factor		6U VPX peripheral board		3U VPX peripheral board	
Main Function		Graphics card carrier	PCIe/Ethernet hybrid switch card	PCIe/ SATA M.2 carrier	XMC carrier
Front I/O	I/O Ports	2 x DVI; 1 x Displayport (output capability depends on the MXM selected) *Note:Available for air-cooled model only	Ethernet: 1 x RJ-45, 10/100/1000BASE-T COM: 1 x miniUSB connector (BMC RS232 console redirection port) SPF+: 10G (available on the multiple-host SKU only)	No front I/O	No front I/O
	LED Indicators	–	–	Hot-Swap, Power, SSD1_active, SSD2_active, SSD3_active	Hot-Swap, Power
Backplane Interface	P0	Power	Power+IPMB	Power	Power
	P1	1x PCIex16	4x PCIe x4	1x PCIe x4	Data Plane 1x PCIe x8 + optional PCIe output 1 x PCIe x8
	P2	–	2x PCIex4; 6x1000Base-BX; 1x10/100/1000BASE-T; RS232	2x SATA III	Optional X24S+X8D+X12D pin out
	P3	–	–	–	–
	P4	–	–	–	–
	P5	4x Displayport	–	–	–
	P6	–	–	–	–
Operating System	Compatibility	Windows 7 or above; Linux (depends on the selected MXM module)	Linux and Windows 8.1, Windows 10, Windows Server 2012, Windows Server 2016	Windows 7 or above; Linux (depends on the selected M.2 module)	–
Power Consumption	System Full Loading	71W total power envelope with GTX 1060 MXM module	29W total power envelope with multi-host NIC	–	Depends on the actual XMC power consumption
Physical Characteristics	Dimensions	160 x 100mm (6.3" x 3. 95") (W x D), 5HP (H)	160 x 100 mm (6.3" x 3. 95") (W x D), 5HP (H)	160 x 100 mm (6.3" x 3. 95") (W x D), 5HP (H)	160 x 100 mm (6.3" x 3. 95") (W x D), 5HP (H)
Environment	Operating Temperature	-30 ~ +85°C (Depends on the selected MXM module)	-40 ~ +85°C	–	–
Regulatory	Conformance	–	FCC class A, CE, RoHS FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	–	FCC class A, CE, RoHS FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)
Compliance	Standards	OpenVPX (VITA 65), REDI (VITA 48)	OpenVPX (VITA 65), REDI (VITA 48)	OpenVPX (VITA 65), REDI (VITA 48)	OpenVPX (VITA 65), REDI (VITA 48)

✓: supported, – : not supported, △ : optional

9 Utility and Energy Solutions

Utility and Energy IoT Solutions

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.

Smart Substation Solutions

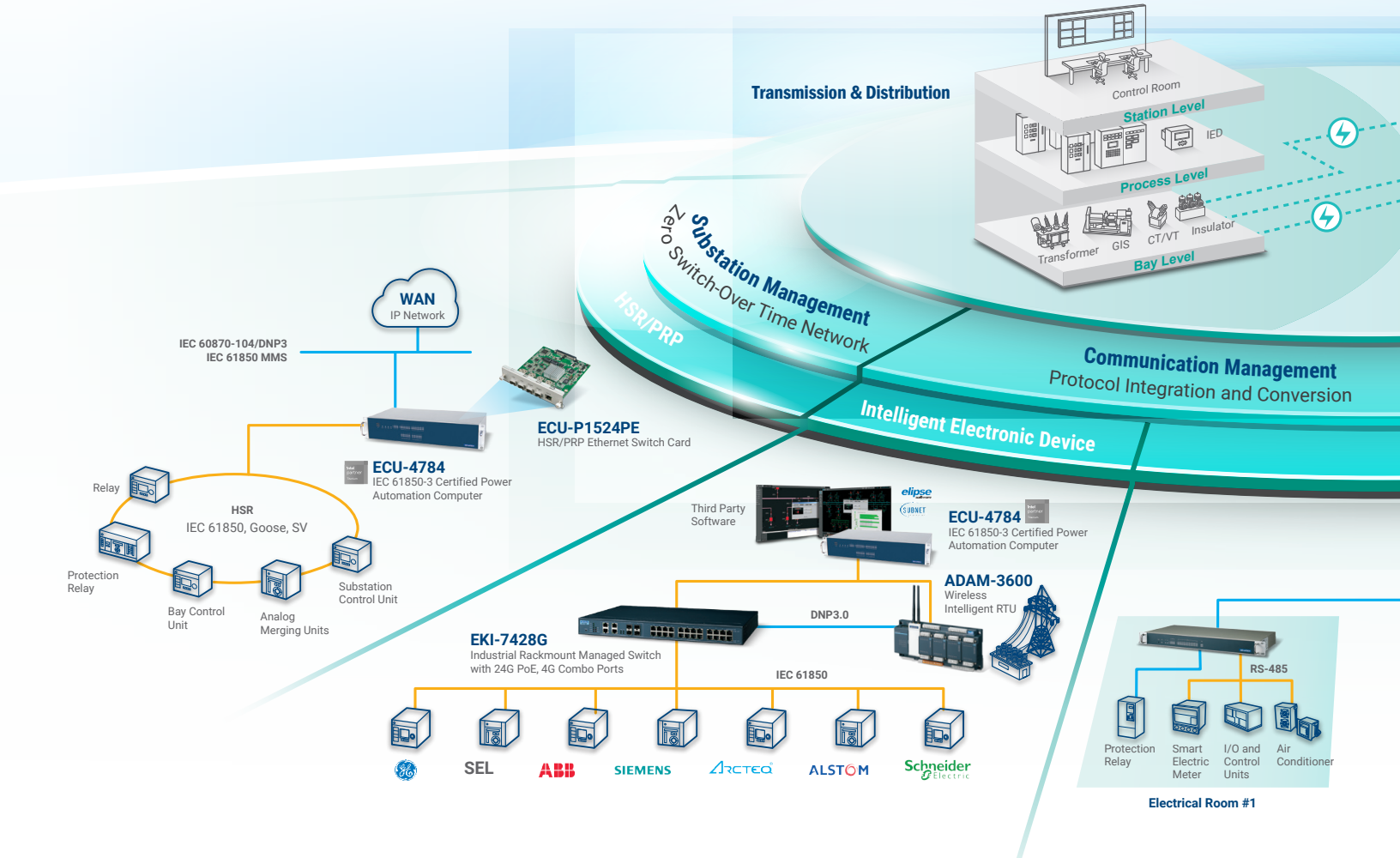
In smart substations, traditional primary devices including voltage transformers, GIS, and other isolated switches, normally operate without precaution, monitoring unified communication protocols. Along with the development of modern smart substations, the IEC-61850 standard is latest trend in substation 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.

SCADA applications

In smart substations, it's essential to be able to remotely monitor substations from a central management center. To achieve this, high performance computing platforms integrate HMI/DATA collection, data monitoring, and environmental status, which helps operators accurately evaluate equipment status and take action if necessary.

Communication and 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.



Distributed Energy Monitoring in Renewable Energy

With the increased construction of solar power plants, energy operators are finding it difficult to handle all the communication protocol requests caused by unstable communications made worse because of the lack of intelligent monitoring software. To address this, Advantech provides high-performance computing platforms, data acquisition modules, communication protocol gateways, network communications, and cloud software solutions with multiple communication protocols. In addition, Ethernet or wireless communications, network switchboards, and remote intelligent monitoring software provide all the hardware and software support needed to operate a modern solar power plant.

Wireless communication on distributed solar power

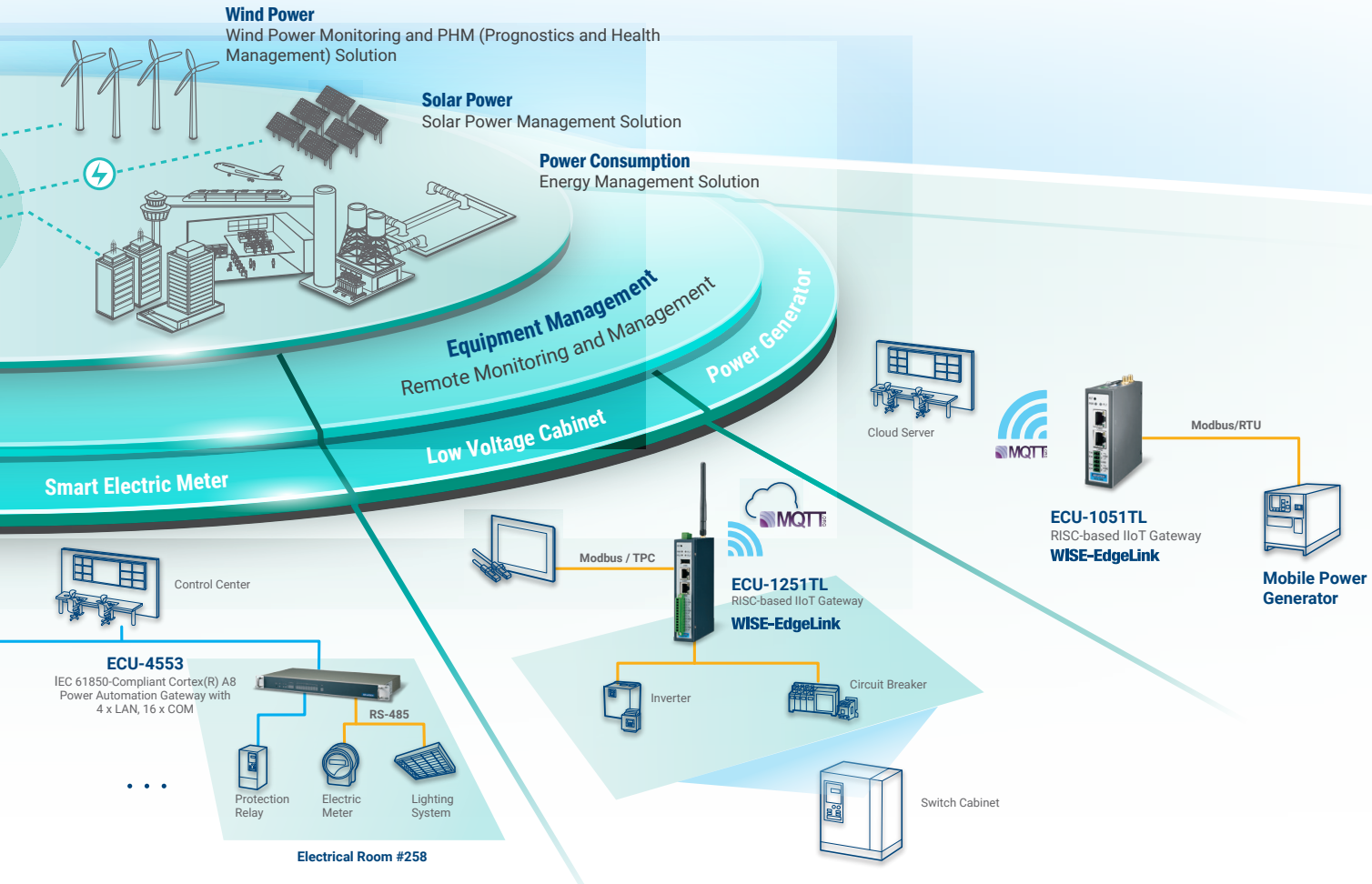
Distributed solar power farms are scattered over vast and remote areas, and establishing stable communication networks is not easy. To reduce wiring costs and maintain reliability, Advantech provides gateways capable of supporting 2G/3G/Wi-Fi/4G wireless for stable networks with data integrity.

Distributed Energy Monitoring in Energy Consumption

In order to reduce production costs and increase profitability, manufacturing requires integrated monitoring, management, and optimization processes to manage high energy-consumption facilities. Advantech not only provides practical and easy-to-implement energy management solutions, but also has a comprehensive hardware/software portfolio including smart meters, data acquisition modules, and control hosts. We also offer back-end management platforms and complete solutions for enterprises to achieve maximum energy efficiency.

High energy-consuming equipment monitoring applications

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



Communication Central Platforms

x86-based Industrial Automation Computers



Model	☞ ECU-4574	☞ ECU-4674	☞ 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 China Electricity Certificate IV level
CPU	Intel® Atom® E3930 1.3GHz	Intel® Atom® E3930 1.3GHz	Intel® Celeron® 3955U/ Intel® Core™ i5-6300U/ i7-6600U
RAM	2G DDR3	4G DDR3	8G/16G DDR3L
Display	1 x VGA	1 x VGA	1 x DVI-D, 1 x DVI-I
Serial Ports	2 x isolated RS-232 8 x isolated RS-232/485	2 x isolated RS-232 1 x IRIG-B 16 x Isolated RS-232/485	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)
Ethernet Ports	8 x 10/100/1000 Base-T	8 x 10/100/1000 Base-T	8 x 10/100/1000Base-T
USB Ports	5 (1 x internal)	5 (1 x internal)	6 (1 x internal)
Expansion	1 x PCIE	1 x PCIE	2 x PCI/PCIE
Onboard I/O	–	8 x isolated DI, 8 x isolated DO	–
Watchdog Timer	✓	✓	✓
Storage	1 x Internal (CF)	1 x Internal (CF)	1 x M.2 (Key M)
2.5" HDD Expansion	2 x SATA	2 x SATA	3 x SATA
Operating Systems	WES7, Windows7, Linux	WES7, Windows7, Linux	Windows Server 2016, 2019, Linux
Mounting	1U Rackmount	2U Rackmount	2U Rackmount
Anti-Vibration	2 G w/CF, 1 G w/HDD	2 G w/CF, 1 G w/HDD	2 G w/M.2, 1 G w/HDD
Anti-Shock	30 G w/CF, 20 G w/HDD	30 G w/CF, 20 G w/HDD	30 G w/M.2, 20 G w/HDD
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-25 ~ 70°C (-13 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
Power Requirements	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant Power Input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
Dimensions (W x D x H)	440 x 272 x 44 mm	440 x 220 x 88 mm	440 x 280 x 88 mm
Weight	4.6 kg	6.0 kg	6.0 kg
Ordering Information	ECU-4574-A64SCE	ECU-4674-LA64SCE	ECU-4784-C36SCE ECU-4784-E36SCE/U ECU-4784-E45SCE/U

✓: supported, – : not supported, △ : optional



Model	☞ ECU-4784 6th Xeon	☞ ECU-4784 8th Xeon	☞ ECU-579
Certification	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
CPU	Intel 6th Xeon® E3-1505L v5	Intel 8th Xeon® E-2276ML	Intel® Xeon® Scalable Family
RAM	16/32G DDR4	32/64G DDR4	up to 768G DDR4
Display	1 x VGA, 1 x DVI-D	1 x DVI-D, 1 x DVI-I	1 x VGA, 2 x DVI-D
Serial Ports	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)	–
Ethernet Ports	8 x 10/100/1000Base-T	8 x 10/100/1000Base-T	4 x 10/100/1000Base-T
USB Ports	6 (1 x internal)	6 (1 x internal)	5 (2 x internal)
Expansion	2 x PCI/PCIE	2 x PCI/PCIE	4 x PCIe
Onboard I/O	–	–	–
Watchdog Timer	✓	✓	✓
Storage	1 x Internal (CFast)	1 x M.2 (Key M)	1 x M.2 2280 SATA SSD
2.5" HDD Expansion	2 x SATA	3 x SATA	4 x SATA
Operating Systems	WES7, Windows7, Windows 8, Windows Server 2012R2, Windows Server 2008R2(64bits), Windows Embedded 8 (64bits)	Windows 10, Windows Server 2016, 2019, Linux	Windows 10, Windows Server 2016, 2019, Linux
Mounting	2U Rackmount	2U Rackmount	2U Rackmount
Anti-Vibration	2 G w/CF, 1 G w/HDD	2 G w/M.2, 1 G w/HDD	1 G
Anti-Shock	30 G w/CF, 20 G w/HDD	30 G w/M.2, 20 G w/HDD	10 G
Operating Temperature	-20 ~ 60°C with 50% CPU/ I/O loading, without 2D/3D -20 ~ 45°C with 100% CPU/ I/O loading	-20 ~ 60°C with 50% CPU/ I/O loading, without 2D/3D (-4 ~ 140°F)	-20 ~ up to 60°C (Depends on CPU model and configuration) (-4 ~ 140°F)
Power Requirements	Supports Redundant power input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant Power Input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}	Supports Redundant Power Input Power 1: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC} Power 2: 100 ~ 240 V_{AC} or 100 ~ 240 V_{DC}
Dimensions (W x D x H)	440 x 280 x 88 mm	440 x 280 x 88 mm	440 x 280 x 88 mm
Weight	6.0kg	6.0 kg	10.0 kg
Ordering Information	ECU-4784-E56DAE ECU-4784-E56SAE ECU-4784-E57SAE	ECU-4784-G57SCE/U ECU-4784-G58SCE	ECU-579-SSDA ECU-579-SSNA

✓: supported, – : not supported, △ : optional

Edge Intelligent IoT Gateways

RISC-based Industrial Communication Gateways

Module	ECU-1251	ECU-1152	ECU-4553
Certification	CE/FCC	CE/FCC	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 isolated 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
IRIG-B	–	–	✓
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

✓: supported, – : not supported, △ : optional

10 EtherCAT Solutions and Automation Controllers

EtherCAT Solution and Automation Controller Overview

Introduction

EtherCAT is a standard protocol able to connect drives, sensors and I/O devices, and is now a popular control fieldbus in the Industrial Automation sector. Advantech, to fulfill demands of smart factories and equipment manufacturers, provides an EtherCAT IO and EtherCAT master controller portfolio.

Real-time I/O for Industry 4.0

To bridge IT and OT, data needs to be aggregated from the field. Following current trends, different data types and volume from the field will grow exponentially, therefore traditional SCADA systems with standard I/O will become overwhelmed trying to handle complex and time sensitive tasks. In the meantime, Ethernet-based real-time I/O solutions have become price-acceptable in the market. Controllers with time-deterministic responses and low cycle-times not only provide a very good solution, but they also reduce the huge effort required for integrators to handle all data communications.

Real-time I/O for Machine Control

EtherCAT features high speeds, deterministic data performance, and synchronization. These can fulfill serial servo network requirements oforequipment manufactures. With standard based EtherCAT, machine builders can design with off-the-shelf ETG certified products. In addition, all products from different vendors connected on the same EtherCAT bus can communicate with each other to achieve complex motion and IO control.

Control Platform with EtherCAT Slice I/O Expansion

The trend in controller platforms is for smaller and more powerful applications. AMAX-5500 series are designed for automation users. Their fanless design provides high reliability and their compact size facilitates installation in space limited cabinets. A front-accessible design facilitates easy installation and maintenance. They are not only reliable and user friendly, but they also enhance I/O scalability. I/O expansion is through an EtherCAT slice I/O interface on the right hand side. One the other side, it can be expanded for GigE PoE / USB 3.0 / serial / CAN / Wireless interfaces (AMAX-5580 only). Its high flexibility makes it a perfect embedded automation platforms that can fulfill most requirements for smart factory solutions.

AMAX-4800/AMAX-5000 with EtherCAT

AMAX-4800 series is a pioneer of EtherCAT I/O. It features high volume I/O with good C/P ratio and user friendly designs. If a customer faces the challenge of limited space, AMAX-5000 series offers great flexibility for future I/O expansion. It has an EtherCAT modularized slice I/O architecture in a very compact and slim form factor. Plus, the easy slide-in design reserves space for extra expansion capability for future demands.

APAX-5000 with EtherIO

APAX-5000 is the first generation of real-time I/O systems from Advantech. It has hot swappable and high density I/O features, and is a competitive solution for facility and factory monitoring applications. APAX-5000 I/O system can be attached to general embedded systems, and can easily enable an embedded system to deliver 1ms real-time capability for a maximum 768 I/O points.

AMAX-5400 PCIe Expansion Module

- Supports Max 4 slots, and supports PCIex4 for first slot
- Auto board ID configuration for software identification
- Full-bandwidth USB3.0 for vision application
- Multiple interface : USB3.0, PoE /GigE, RS-232/422/485, CAN, Wireless
- AMAX-5400E with PCI-mini +SIM card slot for cellular networking

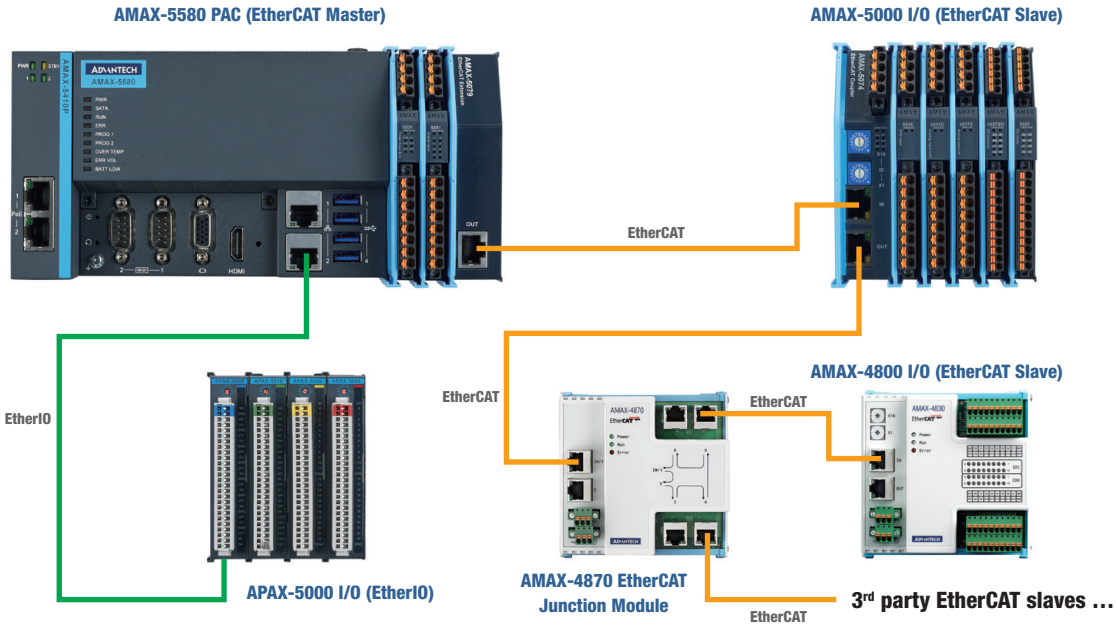
AMAX-5000 EtherCAT Slice I/O Module

- Standard EtherCAT slave
- Compact design and easy for slide-in
- Removable push-in terminal
- Supports centralized and decentralized I/O topology
- Supports multi-range for one module
- Sample rate 100S/s per channel for analogue Input
- LED indicator for status check
- Wide operation temperature from -25~60°C

AMAX-5500 Control Platform

- Intel 6th Generation Core i7/ i5/ Celeron / Intel Atom X series
- DDR4 4G/8G memory
- Internal expansion slot for PCIe-mini card / M.2
- Rich peripherals: HDMI, GbE, serial, CAN, USB
- Windows Embedded 10 support
- Dual power input and hardware monitoring
- CE/FCC/UL certification

AMAX-5000 System



AMAX-5500 series:

EtherCAT Master Controller

- **AMAX-5580** Intel® Core™ i7/i5/Celeron® Control Platform (Selectable CODESYS ready solution)

- **AMAX-5570** Intel® Atom™ Control Platform (Selectable CODESYS ready solution)

AMAX-5000 series:

EtherCAT Slave I/O

- **AMAX-5001** EtherCAT power module
- **AMAX-501X** EtherCAT AI module
- **AMAX-502X** EtherCAT AO module
- **AMAX-505X** EtherCAT DIO module
- **AMAX-508X** EtherCAT counter /encoder module
- **AMAX-5060** EtherCAT relay module

- **AMAX-5074** EtherCAT coupler module
- **AMAX-5079** EtherCAT extension module

AMAX-5400 series:

PCIe Expansion module for AMAX-5580 controller

- **AMAX-5400E** PCIe mini card expansion module

- **AMAX-5410** GigE vision frame grabber module
- **AMAX-5410P** PoE vision frame grabber module

- **AMAX-5424V** USB3.0 module

- **AMAX-5490** RS-232/422/485 communication module
- **AMAX-5495** CAN Port Module
- **AMAX-5493M** PROFIBUS DP Master Module

AMAX-4800 series:

EtherCAT Slave I/O

- **AMAX-4870** EtherCAT junction module
- **AMAX-486X** EtherCAT relay output module
- **AMAX-481X** EtherCAT AI module
- **AMAX-482X** EtherCAT AO module
- **AMAX-483X** **AMAX-485X** EtherCAT DIO module

APAX-5000 series:

I/O Backplane

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

Analog I/O Modules

- **APAX-501X** Analog input modules
- **APAX-502X** Analog output modules

Digital I/O Modules

- **APAX-504X** Digital IO modules
- **APAX-5060** Relay output modules
- **APAX-5080** Counter modules

Remote Serial Modules

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

Control Platform

Preliminary

Model		AMAX-5580	AMAX-5570
Description		Intel® Core™ i7 / i5 / Celeron® Control Platform With EtherCAT Slice IO Expansion	Intel® Atom™ X Series® Control Platform With EtherCAT Slice IO Expansion
Sysem Hardware	BIOS	AMI EFI 128Mbit Flash BIOS	
	Watchdog Timer	Programmable 255 levels timer interval, from 1 to 255 sec	
	Processor	Intel® Core™ i7-6600U 2.6GHz Skylake Dual Core, 4MB L2 Intel® Core™ i5-6300U 2.4GHz Skylake Dual Core, 3MB L2 Intel® Celeron 3955U 2.0GHz Skylake Dual Core, 2MB L2	Intel® Atom™ x6413E 1.5GHz Elkhart Lake Quad core, 1.5MB L2
	Memory	DDR4 2666MHz, 4GB for Celeron / 8GB for i5/i7 (two socket support up to 16G)	DDR4 2666MHz, 4GB
	Graphics Engine	Intel® Gen 9 LP GT2	Intel® Gen 10th UHD Graphics
	Ethernet	Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az	
	LED Indicators	LEDs for Power, Storage, Run (Program) and Abnormal status, LAN (LINK, ACT)	LEDs for Power, Run (Programmable), LAN (LINK, ACT)
	Storage	1 x M.2 2280 M-Key slot for SATA Storage	64GB eMMC on board
	Expansion	1 x Full-size mPCIe (PCIe / USB 2.0 signal) AMAX-5400 PCIe modules, optional for left side (max.4) AMAX-5000 Slice I/O modules, optional for right side	1 x Full-size mPCIe (PCIe / USB 2.0 / SATA signal) 1 x M.2 2242 B-Key (USB 3.0 / SATA signal)
I/O Interfaces	Serial Ports	2 x RS-232/422/485 (DB9), 50 ~ 115.2kbps	1 x RS-232/422/485 (terminal), 50 ~ 115.2kbps 1 x 485 (terminal), 50 ~ 115.2kbps, 2 x CAN Bus (terminal)
	LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T
	USB Ports	4 x USB ports (USB 3.0 compliant), 1 x internal USB	2 x USB ports (USB 3.2 compliant)
	Display	1 x VGA, support up to 1920 x 1200 @60Hz 1 x HDMI, support up to 4096 x 2160 @24Hz	1 x HDMI, support up to 1920 x 1080 @60Hz
	Isolation	–	CAN & Serial Port isolation (2500Vdc)
	Grounding Protection	Chassis grounding	
	Power Connector	1 x 7 Pins, Dual power input with alarm output	1 x 2 Pins
General	Power Requirement	24 V_{DC} ± 20%	
	Power Consumption	15 W (Typical), 42 W (Max)	9W (Typical), 48W (local IO), 85W (SliceIO local supply)
	OS Support	Support Microsoft® Windows 10 64bit, WES 7 32/64bit	Support Microsoft® Windows 10 64bit
	Enclosure	Aluminum alloy and Ziny Alloy housing	Aluminum housing
	Mounting	DIN-rail	
	Weight (Net)	Approx. 1.3kg	Approx. 0.6kg
	Dimensions (W x H x D)	139 x 100 x 80 mm	48.5 x 100 x 70 mm
	Certification	CE, FCC, UL, CCC, BSMI	CE, FCC, UL61010-1, CCC, BSMI
Environment	Operating Temperature	-10 ~ 60°C (14 ~ 140°F) @ 5 ~ 85% RH with 0.7m/s airflow	-20 ~ 60°C (-4 ~ 140°F) @ 5 ~ 85% RH with 0.7 m/s airflow
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	-40 ~ 85°C (-40 ~ 185°F)
	Relative Humidity	95% RH @ 40°C, non-condensing	95% RH @ 40°C, non-condensing
	Shock Protection	Operating, IEC 60068-2-27, 10G, half sine, 11 ms	Operating, IEC 60068-2-27, 50G, half sine, 11 ms
	Vibration Protection	Operating, IEC 60068-2-64, 1 Grms, random, 5 ~ 500 Hz, 1hr/axis (M.2)	Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (eMMC)

✓: supported, – : not supported, △ : optional

CODESYS Ready Edge Controller Overview

Introduction

PC-Based edge controllers are powered by CODESYS control kernel Soft-PLC equipped with Industrial Ethernet and Fieldbus for OT applications. Support for IEC-61131-3 PLCopen languages enables engineers to easily program PLCs and SoftMotion and CNC Robotics modules for various motion control applications. To provide comprehensive control solutions, Advantech also offers flexible expansion options, including industrial Ethernet I/O, peripheral I/O, slice I/O, and distributed I/O modules. Moreover, to ensure easy data access with IT-OT integration, uplink connectivity with MQTT, OPC UA and ODBC (database) protocol support is provided. The platform portal utility's self-diagnosis function enhances controller reliability. Furthermore, Advantech's WISE-PaaS platform can be leveraged for field-side management to improve legacy machinery to intelligent (M2I) to enhance productivity and equipment flexibility.

Real-Time Industrial Ethernet & Fieldbus SoftLogic for OT Control

AMAX-600 series offer split-core and split-systems to make edge control more reliable by integrating IPC platform and PLC to provide a cost effective field application. IEC-61131-3 PLC open cross language platform for PLC programming shortens development schedule. (IL/ST/LD/FBD/SFC) CODESYS control kernel Soft-PLC supports real-time 50 µs processing cycle time and is equipped with standard industrial Ethernet and fieldbus protocols for easy connection with a variety I/O in the field. Comprehensive diagnostics functionality display, check and detect bus status, messages, communication problems, and error codes directly from controller application. With a distributed control structure design users can easily maintain and upgrade their controller for a variety of applications.

EtherCAT PROFINET EtherNet/IP CANopen Modbus

Turn your PLC into a Motion Controller

Develop your motion tasks without leaving your familiar logic controller development environment. CODESYS SoftMotion is an add-on component for the system and is seamlessly integrated in the IEC-61131-3 development interface. Thanks to the integration and availability of logic and motion control in one device with a single engineering interface, you save costs for additional hardware and engineering tools. Cabling and data exchange between logic and motion control are greatly simplified. SoftMotion controls single-axis and synchronized multi-axis movements like electronic cams or electronic gears. CNC robots could convert G-code, handling Interpolator overrides, coordinate transformations, path pre-processing and modulation, and even 2D/ 3D Kinematics for up to 6-axis robots.

Seamlessly IT-OT Integrated Communication Protocols

In a connected Industry 4.0 architecture, modern controllers also exchange their information with other systems. The CODESYS PLC handler is an easy-to-use software interface (API) for the communication between CODESYS controllers and external client systems. An external client like a service panel can access the IEC 61131-3 variables and the online services of the controller using this API. OPC UA and MQTT (Sparkplug) are another standard Interface for communication in smart factory systems. Moreover, the ODBC the function also provides a standard format that gives the user easy access to a variety of database like MySQL, SQLite, MsSQL etc.

OPC UA MQTT SQL Server ORACLE Sun SAP MaxDB MySQL SQLite

Make Your Machinery more Intelligent

Edge controller default package includes SoftPLC and Visualization tools. Users can visit Advantech's WISE-Marketplace to upgrade licenses for SoftMotion or CNC Robotics. The Platform Portal utility's self-diagnosis function enhances controller reliability and lets the user monitor hardware information and CODESYS task updates. Furthermore, Advantech WISE-PaaS platform can be leveraged for field-side management to enhance productivity and equipment flexibility. With these add-on value features, users can realize Industrial 4.0 smart manufacturing.

WISE-PaaS WISE-IoTSuite/AppHub DeviceOn/BI Microsoft Azure amazon web services 阿里云

CODESYS Ready Edge Controller

AMAX-600 series Real-Time SoftLogic Controller

Preliminary




Model		AMAX-658	AMAX-637	AMAX-637S	AMAX-657
Description		Intel® Core™ i7 / i5 / Celeron® Modular Controller with Slice I/O Expansion	Intel® ATOM™ X Series E3940® Cabinet Controller with 1 x iDoor Expansion	Intel® ATOM™ X Series E3940® Cabinet Controller with 2 x Slice I/O Expansion	Intel® ATOM™ X Series x6413E® Cabinet Controller with Slice I/O Expansion
CODESYS SoftLogic	Runtime	CODESYS V3.5 Control RTE SL + Visualization (Target & Web)			
	Visualization	Target Visualization (Local HMI), Web Visualization (Web Browser)			
	Advance Motion Control	SoftMotion & CNC Robotic (Optional-Upgrade from Advantech Marketplace)			
	Industry Ethernet	EtherCAT Master, PROFINET Master, EtherNet/IP Scanner (IEC/CIFX) MODBUS/TCP Server (Slave) and Client (Master)			
	Fieldbus Support	MODBUS/RTU Client (Master) PROFIBUS Master & CANopen Master (optional by iDoor module)			
	Uplink	OPC UA Server, MQTT (Sparkplug), ODBC for Database			
	Motion Control Capability	i7 256-axis with 1ms cycle time i5 128-axis with 1ms cycle time Celeron 64-axis with 1ms cycle time	32-axis with 1ms cycle time		64-axis with 1ms cycle time
Sysem Hardware	BIOS	AMI EFI 128Mbit Flash BIOS			
	Processor	Intel® Core™ i7-6600U 2.6GHz Skylake Dual Core, 4MB L2 Intel® Core™ i5-6300U 2.4GHz Skylake Dual Core, 3MB L2 Intel® Celeron 3955U 2.0GHz Skylake Dual Core, 2MB L2	Intel® Atom™ x5-E3940 1.6GHz, Apollo Lake Quad Core, 2MB L2		Intel® Atom™ x6413E 1.5GHz Elkhart Lake Quad core, 1.5MB L2
	Memory	4GB for Celeron / 8GB for i5/i7	8GB		4GB
	Ethernet	Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az			
	LED Indicators	LEDs for Power, Storage, LAN, RUN (CODESYS program run), and Abnormal status	LEDs for Power, RTC Battery, LAN, RUN (CODESYS program run)		LEDs for Power, LAN, RUN (CODESYS program run)
	Storage	128GB SSD	128GB SSD		64GB eMMC
	Expansion	AMAX-5400 PCIe modules, optional for left side (max.4) AMAX-5000 Slice I/O modules, optional for right side	1 x Full-size mPCIe (PCIe / USB 2.0 signal) 1 x 2.5" SSD/HDD slot	2 x AMAX-5000 Slice I/O slot 1 x 2.5" SSD/HDD slot	1 x M.2 B-Key (USB 3.0 / SATA signal)
I/O Interfaces	Local Digital IO	–	8 Digital Input (Wet/Dry), 8 Digital Output (Sink)		–
	Serial Ports	2 x RS-232/422/485 (DB9)	2 x RS-232/422/485 (terminal)		1 x RS-232/422/485 (terminal), 1 x 485 & 2 x CAN Bus (terminal)
	LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	3 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T
	USB Ports	4 x USB ports (USB 3.0 compliant), 1 x internal USB	3 x USB ports (USB 3.2 compliant), 1 x USB ports (USB 2.0 compliant)		2 x USB ports (USB 3.2 compliant)
	Display	1 x VGA, support up to 1920 x 1200 @60Hz 1 x HDMI, support up to 4096 x 2160 @24Hz	2 x DP 1.2, support up to 4096 x 2306 @60 Hz		1 x HDMI, support up to 1920 x 1080 @60Hz
	Isolation	–	DI & DO & Serial Ports (2500V_{DC})		CAN & Serial Port isolation (2500V_{DC})
	Grounding Protection	Chassis grounding			
	Power Connector	1 x 7 Pins, Dual power input with alarm output	1 x 2 Pins		1 x 2 Pins
General	Power Requirement	24 V_{DC} ± 20%	10 ~ 36 V_{DC}		24 V_{DC} ± 20%
	Power Consumption	15 W (Typical), 42 W (Max)	21W (Typical), 47W (Max)	21W (Typical), 55W (Max)	9W (Typical), 48W (local IO), 85W (Slice I/O local supply)
	OS Support	Microsoft® Windows 10 IoT Enterprise LTSC 64bits			
	Enclosure	Aluminum and Ziny Alloy housing	Aluminum Alloy housing		Aluminum Alloy housing
	Mounting	DIN-rail			
	Weight (Net)	Approx. 1.3kg	Approx. 1.1kg	Approx. 1.3kg	Approx. 0.6kg
	Dimensions (W x H x D)	139 x 100 x 80 mm	75 x 150 x 105 mm	80 x 150 x 105 mm	48.5 x 100 x 70 mm
	Certification	CE, FCC, UL62368, CCC, BSMI	CE, FCC, UL61010, CCC, BSMI		CE, FCC, UL61010-1, CCC, BSMI
Environment	Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	-40 ~ 85°C (-40 ~ 185°F)		-40 ~ 85°C (-40 ~ 185°F)
	Relative Humidity	10 ~ 95% RH @ 40°C, non-condensing	10 ~ 95% RH @ 40°C, non-condensing		10 ~ 95% RH @ 40°C, non-condensing
	Shock Protection	Operating, IEC 60068-2-27, 10G, half sine, 11 ms	Operating, IEC 60068-2-27, 50G, half sine, 11ms		Operating, IEC 60068-2-27, 50G, half sine, 11 ms
	Vibration Protection	Operating, IEC 60068-2-64, 1 Grms, random, 5 ~ 500 Hz, 1hr/axis (M.2)	Operating, IEC 60068-2-64, 4 Grms, random, 5 ~ 500 Hz, 1hr/axis (SSD) Operating, IEC 60068-2-64, 0.3 Grms, random, 5 ~ 500 Hz, 1hr/axis (HDD)		Operating, IEC 60068-2-64, 2 Grms, random, 5 ~ 500 Hz, 1hr/axis (eMMC)

✓: supported, – : not supported, △ : optional

PCIe Expansion Modules

PCIe Module



Model	AMAX-5400E	AMAX-5410	AMAX-5410P
Description	PCIe mini card expansion module	2-port GigE vision frame grabber module	2-port PoE vision frame grabber module
Communication	**PCI mini card** **Interface:** Full size mini PCI express 2.0 **SIM card slot:** Nano SIM card **Antenna:** 1x SMA hole on the top	**Ethernet** **Compatibility:** IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3af **Speed:** 10/100/1000 Mbps **No. of Ports:** 2 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports. **Input Voltage:** 24 V_{DC} direct from AMAX-5000 controller	**Ethernet** **Compatibility:** IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3af **Speed:** 10/100/1000 Mbps **No. of Ports:** 2 Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports. **Input Voltage:** 24 V_{DC} direct from AMAX-5000 controller **Output PoE:** Power 48 V_{DC} PoE Power output, 15.4W per port, total Max. 20W
LED Indicator	PWR, Standby		
Enclosure	Aluminum housing		
Interface	PCIe x1		
Power Consumption	0.5W@24V_{DC}	2.5W@24V_{DC}	
Isolation Voltage	2,500 V_{DC}		
Operation/Storage Temperature	-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)		
Operating/Storage Humidity	5 ~ 95% RH (non-condensing)		
Certification	CE, FCC class A		

Preliminary




Model	AMAX-5424V	AMAX-5490	AMAX-5495	AMAX-5493M
Description (English)	4-port USB3.0 vision frame grabber module	2-port Isolated RS-232/422/485 communication module	2-port CAN module	1-port PROFIBUS DP Master Module
Communication	**USB 3.0** **Host Bus:** 4-lane Gen 2.0 PCIe interface, compliant with PCI Express Base Specification, Revision 2.0 **Controller:** Host Controller – Fresco FL1100 Compliant with USB 3.0 Specification and Intel® xHCI Specification, Revision 1.0 **Max. current:** 1500 mA maximum per port **Data Transfer Rate:** SuperSpeed (5.0 Gbps); High Speed (480.0 Mbps); Full Speed (12.0 Mbps); Low Speed (1.5 Mbps)	**Serial Communication** **Data Bits:** 5, 6, 7, 8 **Stop Bits:** 1, 1.5, 2 **Parity:** None, even, odd **Baud Rate:** 50 bps ~ 230.4 kbps **Data Signals:** RS-232: TxD, RxD, GND RS-422: Tx+, Tx-, Rx+, RX RS-485: Data+, Data- **FIFO:** 256 bytes **Flow Control:** Xon/Xoff	**CAN** **Protocol:** CAN2.0 AB **Max. Speed:** 1Mbit/s **Signal Support:** CAN_H, CAN_L	**PROFIBUS DP** **Controller:** Hilscher netX100 **Protocol:** PROFIBUS DP V1 **Signal interface:** Iso. RS-485, RxD/TxD-P, RxD/TxD-N **Speed:** 9.6 kbps ~ 12 Mbps
LED Indicator	PWR, Standby	PWR, STBY, TX1, RX1, TX2, RX2		PWR, STBY
Enclosure	Aluminum housing			
Interface	PCIe x4 (1st. slot on the left side of AMAX-5580)	PCIe x1		
Power Consumption	2.5W@24V_{DC}	2W@24V_{DC}	3W@24V_{DC}	3W@24V_{DC}
Isolation Voltage	2,500 V_{DC}			
Operation/Storage Temperature	-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)			
Operating/Storage Humidity	5 ~ 95% RH (non-condensing)			
Certification	CE, FCC class A			

✓: supported, – : not supported, △ : optional

EtherCAT Slice I/O Modules

Digital I/O






Model		AMAX-5051	AMAX-5052	AMAX-5056	AMAX-5057	AMAX-5056SO	AMAX-5057SO
Description		8-ch DI module	16-ch DI module	8-ch sink type DO module	16-ch sink type DO module	8-ch source type DO module	16-ch source type DO module
Digital Input/ Output	Input Channels	8-ch.	16-ch.	–	–	–	–
	Output Channels	–	–	8-ch.	16-ch.	8-ch.	16-ch.
	Rating	**Dry Contact** Logic level 1: close to Iso.GND Logic level 0: open **Wet Contact** Rated voltage: 24V_{DC} Logic level 1: 10~30 V_{DC} and -10~-30 V_{DC} Logic level 0: -3~3 V_{DC}		**Rated Voltage** 10~30 V_{DC} **Rated Current Output** Logic level 1: 0.3 A per channel Logic level 0: 25 µA per channel (leakage current)		**Rated Voltage** 10~30 V_{DC} **Rated Current Output** Logic level 1: 0.5 A per channel Logic level 0: 10 µA per channel (leakage current)	
	Input / Output Delay	From logic level 0 to 1: 4ms From logic level 1 to 0: 4ms		From logic level 0 to 1: 10us From logic level 1 to 0: 100us		From logic level 0 to 1: 150us From logic level 1 to 0: 2ms	
	Digital Filter	3ms		–		–	
LED Indicator		Pwr, Run, Error, DIO status					
Interface		100Mbps EtherCAT					
Power Consumption		2W@24V_{DC}			2.5W@24V_{DC}	2W@24V_{DC}	2.5W@24V_{DC}
Isolation Voltage		2,000 V_{DC}					
Watchdog Timer		System (1.6 seconds)					
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)					
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)					
Certification		CE, FCC class A					

Digital I/O w/ Timestamp


Model		AMAX-5051T		AMAX-5056T
Description (English)		8-ch DI module (2-ch w/ timestamp, 6-ch w/o timestamp)		2-ch sink type DO module w/ timestamp
Digital Input/Output	Input Channels	2-ch. w/ timestamp	6-ch. w/o timestamp	–
	Output Channels	–	–	2-ch. w/ timestamp
	Rating	**Wet Contact:** Logic level 1: 11~30 V_{DC} Logic level 0: -3~5 V_{DC} (similar to EN 61131-2, type 3)	**Dry Contact:** Logic level 1: Close GND Logic level 0: Open **Wet Contact:** Logic level 1: 11~30 V_{DC} Logic level 0: -3~5 V_{DC} (similar to EN 61131-2, type 3)	**Rated Voltage** 10~30 V_{DC} **Rated Current Output:** Logic level 1: 0.3A per channel Logic level 0: 25 µA per channel (leakage current)
	Input / Output Delay	< 0.5us	< 10us	<0.5us
	Resolution Timestamp	1ns	N/A	1ns
	DI Latch / DO Sync	First Edge & Last Edge DI Latch	N/A	DO Sync.
LED Indicator		Pwr, Run, Error, DI status		Pwr, Run, DO status
Interface		100Mbps EtherCAT		
Power Consumption		2W@24V_{DC}		
Isolation Voltage		2,000 V_{DC}		
Watchdog Timer		System (1.6 seconds)		
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)		
Operating/Storage Humidity		20 ~ 95 % RH (non-condensing) / 5 ~ 95% RH (non-condensing)		
Certification		CE, FCC class A		

Relay Module

Preliminary

Model		AMAX-5060
Description (English)		4-ch Relay w/ 2-ch DI Module
I/O	Relay Channels	4-ch.
	Relay Type	Form A (SPST)
	Contact Rating	250 V_{AC} @ 5 A 30 V_{DC} @ 5 A
	Breakdown voltage	500 V_{AC} (50/60 Hz)
	DI Channels	2-ch.
	DI Rating	**Wet Contact** Rated voltage: 24 V_{DC} Logic level 1: 10~30 V_{DC} Logic level 0: 0~3 V_{DC}
	DI Filter	Selectable
LED Indicator		PWR, RUN, ERROR, DI/O status
Interface		100Mbps EtherCAT
Power Consumption		2W@24V_{DC}
Isolation Voltage		2,000 V_{DC}
Watchdog Timer		System (1.6 seconds)
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)
Operating/Storage Humidity		20 ~ 95 % RH (non-condensing) / 5 ~ 95% RH (non-condensing)
Certification		CE, FCC class A

✓: supported, – : not supported, △ : optional

Analog I/O




Model		AMAX-5017C	AMAX-5017V	AMAX-5017H	AMAX-5024
Description		6-Ch Current AI Module	6-Ch Voltage AI, multi-gain, 16-bit	4-Ch High speed AI module	4-Ch AO multi-gain, 16-bit
Analog Input	Channels	6-ch.	6-ch.	4-ch.	4-ch.
	Input Type	mA	V, mV	V, mA	V, mV, mA
	Input Impedance	120Ω	>10M Ω	Differential 800 kΩ, Common-mode 200 kΩ for voltage input Differential 500 Ω, Common-mode 200 kΩ for current input	–
	Input / Output Range	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA	±150 mV, ±500 mV, ±1V, ±5 V, ±10 V	±10 V, 0~20mA	0~5V, 0~10V, ±5V, ±10V, 4~20mA, 0~20mA
	Resolution	16-bit with ±0.2% FSR accuracy @25°C	16-bit with ±0.1% FSR accuracy @25°C	16-bit with ±0.1% FSR accuracy @25°C	16-bit with ±0.01% FSR accuracy @25°C
	Sample Rate	100 sample/s (per channel)		10k sample/s (per channel)	–
	Burn-out detection	✓	–	–	–
	Slew Rate	–	–	–	Configurable
	Drift	–	–	–	± 50 ppm/°C
	Current Load Resistor	–	–	–	Max. 500 Ω
	Voltage Load Resistor	–	–	–	Min. 1KΩ
LED Indicator		Pwr, Run, Error			
Interface		100Mbps EtherCAT			
Power Consumption		2W@24V$_{DC}$		2.5W@24V$_{DC}$	3.5W@24V$_{DC}$
Isolation Voltage		2,000 V$_{DC}$			
Watchdog Timer		System (1.6 seconds)			
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)			
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)			
Certification		CE, FCC class A			

Temperature Module


Model		AMAX-5015	AMAX-5018
Description (English)		4-Ch RTD (2/3 wire)	6-Ch Thermocouple (Open detect)
Analog Input	Channels	4-ch.	6-ch.
	Input Type	RTD: 2 or 3 wire	mV, V, T/C: J, K, T, E, R, S, B
	Input Impedance	-	>2MΩ
	Voltage Range	-	±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V
	Temperature Range	**Pt 100 RTD:** Pt -50°C to 150°C Pt 0°C to 100°C Pt 0°C to 200°C Pt 0°C to 400°C Pt -200°C to 200°C IEC RTD 100 ohms (a = 0.00385) JIS RTD 100 ohms (a = 0.00392) **Pt 1000 RTD** -40°C to 160°C **Balco 500 RTD** -30°C to 120°C **Ni 518 RTD** -80°C to 100°C 0°C to 100°C	Type J (-210 ~ 1200° C) Type K (-270 ~ 1372° C) Type T (-270 ~ 400° C) Type E (-270 ~ 1000° C) Type R (0 ~ 1768° C) Type S (0 ~ 1768° C) Type B (300 ~ 1820° C)
	Resolution	16 bit with ±0.1% FSR accuracy	
	Sample Rate	100 sample/s (per channel)	
	Burn-out detection	Yes	–
LED Indicator		Pwr, Run, Error	
Interface		100Mbps EtherCAT	
Power Consumption		2W@24V$_{DC}$	
Isolation Voltage		2,000 V$_{DC}$	
Watchdog Timer		System (1.6 seconds), Communication (Programmable)	
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)	
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)	
Certification		CE, FCC class A	

✓: supported, – : not supported, △ : optional

EtherCAT Slice I/O Modules

Encoder / Counter Module

Preliminary



Model		AMAX-5080	AMAX-5081	AMAX-5082
Description		2-Ch Counter/Encoder 32-bit	1-Ch TTL/RS-422 Encoder/Counter	1-ch SSI Encoder Module
Encoder / Counder Input	Channels	2-ch.	1-ch.	1-ch.
	Counting Range	32-bits	32-bits	ST: 0~16-bits, MT: 0~16-bits
	Counter Mode	- up/down - bi-direction - up - A/B phase - Quadrature mode - Frequency measurement	- Event counting - Frequency measurement - Pulse width measurement - PWM output - PSO (Position Synchronized Output) - Quadrature mode	- Latch Counter Value - Comparator *2 - Compare trigger Output *2
	Signal Input	Logic level 0: 0~5V_{DC} Logic level 1: 11~30V	Single-ended 5V RS-422 differential	SSI signal (Binary/Gray)
	Sample Rate	1 MHz * 4	10MHz *4	2 MHz clock rate
LED Indicator		Pwr, Run, Error, A+, A-, B+, B-, Z+, Z-, L+, L-		PWR, R/E, CLK, Data, DO0, DO1, L
Interface		100Mbps EtherCAT		
Power Consumption		2W@24V_{DC}		3W@24V_{DC}
Isolation Voltage		2,000 V_{DC}		
Watchdog Timer		System (1.6 seconds), Communication (Programmable)		
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)		-25 ~ 45°C (-14 ~ 113°F) / -40 ~ 85°C (-40 ~ 185°F)
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)		
Certification		CE, FCC class A		

Infrastructure



Model		AMAX-5001	AMAX-5074	AMAX-5079
Description (English)		Power input modue w/ 4-ch. DI	EtherCAT coupler w/ power input	EtherCAT extension module
Power Input	Rated Voltage	24V_{DC} (± 20%)		–
	Dual Power Input	Supported		–
	Max Current on Bus	2A		–
	Diagnosis Function	Over/under voltage for input 1&2 Over current output on bus		–
Digital Input	Input Channels	4-ch.	–	–
	Rating	Wet Contact Rated voltage: 24V_{DC} Logic level 1: 10~30 V_{DC} and -10~-30 V_{DC} Logic level 0: -3~3 V_{DC}	–	–
	Input Delay	From logic level 0 to 1: 4ms From logic level 1 to 0: 4ms	–	–
	Digital Filter	3ms	–	–
EtherCAT Coupler / Extention	Function	–	Coupling EtherCAT IO modules to 100BASETX EtherCAT network	
	Cable	–	Ethernet/EtherCAT cable (min. Cat. 5), shielded	
	Distance Between Stations	–	Max. 100 m (100BASETX)	
	Bus Interface		2 x RJ45 (1 x Input, 1 x Output)	1 x RJ45
LED Indicator		Pwr, Run, Error, Power Diagnosis LED		–
Interface		100Mbps EtherCAT		
Power Consumption		2W@24V_{DC}	2.5W@24V_{DC}	No power from bus
Isolation Voltage		2,000 V_{DC}		
Watchdog Timer		System (1.6 seconds)		
Operation/Storage Temperature		-25 ~ 60°C (-14 ~ 140°F) / -40 ~ 85°C (-40 ~ 185°F)		
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)		
Certification		CE, FCC class A		

✓: supported, – : not supported, △ : optional

EtherCAT I/O Modules

Digital I/O





Model		AMAX-4830-AE	AMAX-4830SO-AE	AMAX-4833-AE	AMAX-4834-AE	AMAX-4856-AE
Description		16-ch DI / 16-ch DO module (Sink)	16-ch DI / 16-ch DO module (Source)	32-ch DI module	32-ch DO module (Sink)	32-ch DI / 32-ch DO module (Sink)
Digital Input/ Output	Input Channels	16-ch.		32-ch.	–	32-ch.
	Output Channels	16-ch.		-	32-ch.	32-ch.
	Digital Input	**Input Voltage:** Logic 0: 3V_{DC} max. Logic 1: 10~30 V_{DC}		**Input Voltage:** Logic 0: 3V_{DC} max. Logic 1: 10~30 V_{DC}	–	**Input Voltage:** Logic 0: 3V_{DC} max. Logic 1: 10~30 V_{DC}
	Digital Output	**Load voltage:** 5 ~ 40 V_{DC} **Load current:** 350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C **Opto-isolator** **Response Time:** 100us	**Load voltage:** 5 ~ 40 V_{DC} **Load current:** 250mA/ch (sink) @ 25°C 200mA/ch (sink) @ 60°C **Opto-isolator** **Response Time:** 100us	–	**Load voltage:** 5 ~ 40 V_{DC} **Load current:** 350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C **Opto-isolator** **Response Time:** 100us	**Load voltage:** 5 ~ 40 V_{DC} **Load current:** 350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C **Opto-isolator** **Response Time:** 100us
LED Indicator		Pwr, Run, Error				
Interface		100Mbps EtherCAT				
Power Consumption		Typical 85mA @24V Max. 110mA @24V				Typical 85mA @24V Max. 130mA @24V
Isolation Voltage		2,500 V_{DC} (IO)				
Operation/Storage Temperature		-20 ~ 60°C (-4 ~ 140°F) / -40 ~ 70°C (-40 ~ 158°F)				
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)				
Certification		CE, FCC class A				

Analog I/O


Model		AMAX-4817-AE	AMAX-4820-AE
Description		8-ch, 16-bit AI module	4-ch, 16-bit AO module
Analog Input	Channels	8-ch.	4-ch.
	Input Type	V	V, mA
	Input Impedance	120Ω	–
	Input / Output Range	0~10 V, ±10 V	**Voltage:** 0~5 V, 0~10 V, ±5 V, ±10 V **Current:** 0~20 mA, 4~20 mA
	Common-Mode Voltage Range	±275 V	–
	Resolution	16-bit with ±0.1% FSR accuracy @25°C	16-bit with ±0.1% FSR accuracy @25°C
	Sample Rate	10k sample/s (per channel)	
	Current Load Resistor	–	< 625 Ω
	Voltage Load Resistor	–	> 1 kΩ
LED Indicator		Pwr, Run, Error	
Interface		100Mbps EtherCAT	
Power Consumption		Typical 160 mA @24 V; Max.190 mA @24 V	
Isolation Voltage		2,500 V_{DC} (IO)	
Operation/Storage Temperature		-20 ~ 60°C (-4 ~ 140°F) / -40 ~ 70°C (-40 ~ 158°F)	
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)	
Certification		CE, FCC class A	

✓: supported, – : not supported, △ : optional

EtherCAT I/O Modules

Digital Input + Relay Output

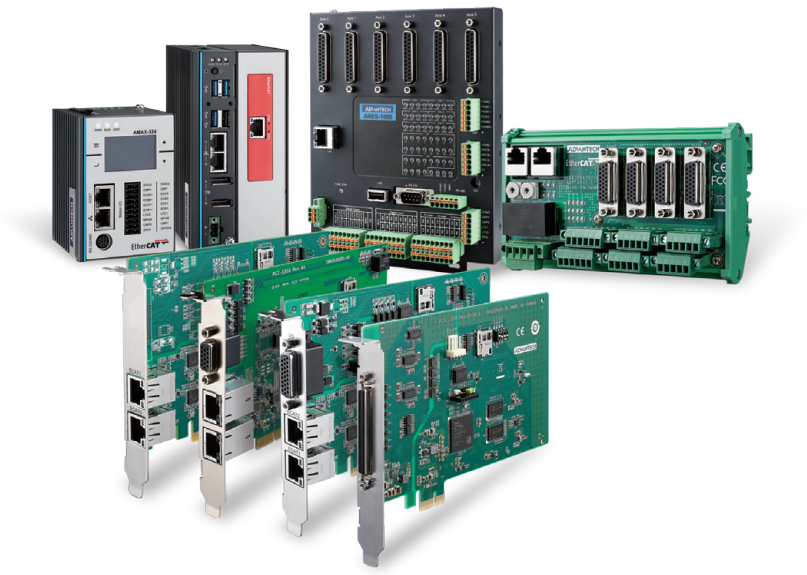
Model		☞ AMAX-4862-AE
Description		16-ch DI / 16-ch Relay module
Digital Input/ Relay Output	Input Channels	16-ch.
	PhotoMOS Relay Channels	–
	Relay Channels	16-ch.
	Digital Input	**Input Voltage:** Logic 0: 3V_{DC} max. Logic 1: 10~30 V_{DC}
	Relay Output	**Relay type:** Form A **Contact Rating (resistive):** 2A@250V_{AC}, 2A@30V_{DC} **Max. Switching Power:** 500VA, 60W **Max. Switching Voltage:** 270V_{AC}, 125V_{DC} **Resistance:** 30mΩ max. **Operating Time:** Max. 10ms **Releasing Time:** Max. 5ms **Life Expectancy:** Mechanical 2 x 107 ops. at no load. Electrical 3 x 104 ops. @2A/250V_{AC}
LED Indicator		Pwr, Run, Error
Interface		100Mbps EtherCAT
Power Consumption		Typical 85mA @24V Max. 130mA @24V
Isolation Voltage		1,500 V_{DC} (PhotoMOS Relay) / 2,500 V_{DC} (IO)
Operation/Storage Temperature		-20 ~ 60°C (-4 ~ 140°F) / -40 ~ 70°C (-40 ~ 158°F)
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)
Certification		CE, FCC class A

✓: supported, – : not supported, △ : optional

Junction

Model		☞ AMAX-4870-AE
Description		6-port EtherCAT junction module
EtherCAT Junction	Ports	In: 1 port Out: 5 ports
	Cable	Ethernet CAT 5E
LED Indicator		Pwr, Run, Error
Interface		100Mbps EtherCAT
Power Consumption		Typical 140 mA @24 V; Max.190 mA @24 V
Operation/Storage Temperature		-20 ~ 60°C (-4 ~ 140°F) / -40 ~ 70°C (-40 ~ 158°F)
Operating/Storage Humidity		5 ~ 95% RH (non-condensing)
Certification		CE, FCC class A

11 Intelligent Motion Control Solutions



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.

Motion Control Technology

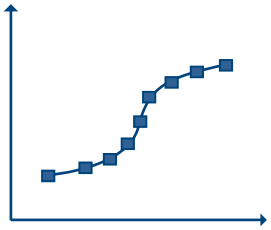
There are three basic types of motion control system: point-to-point, contouring, and synchronization.

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.

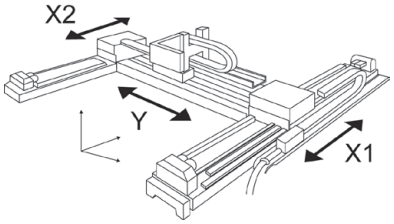
Contouring (continuous trajectory)

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.

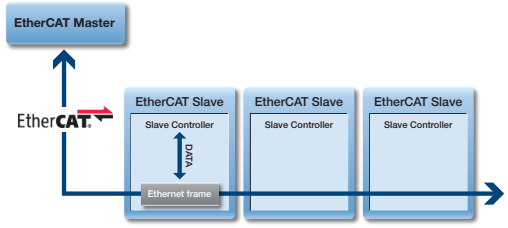


EtherCAT

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.



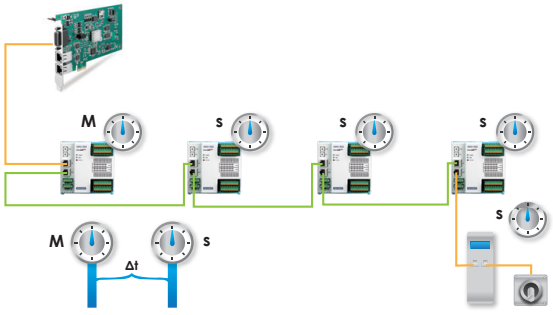
Data exchanges are cyclically updated between EtherCAT masters and slaves.

Topology

EtherCAT supports a variety of network topologies, including line, tree, ring, and star. 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.

Distributed Clock (DC)

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, distributes its clock cyclically and synchronize between slaves in DC mode by internal clocks in hardware. Therefore, EtherCAT can guarantee the time jitter is less than 1us.



PC-based Motion Controllers

The AMAX-3 series which is a PC-based motion controller supports Advantech MotionNavi Utility software environment. AMAX-3 controller also supports EtherCAT distributed solutions which can connect up to 32 EtherCAT motors and 512 bytes I/O processing to reduce wiring time and maintenance cost. Furthermore, AMAX-3 controller has a powerful built-in Softmotion kernel which is dedicated to motion control and allows customers to focus on their own machine development.

Open platform multi-axis controller

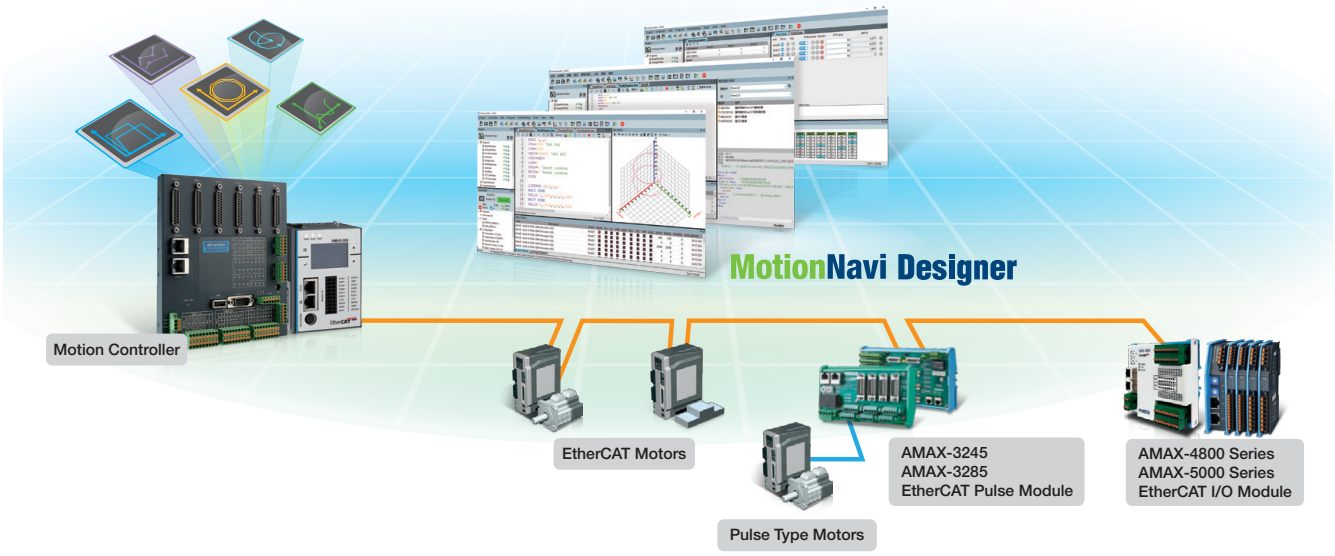
- Seamlessly integrated motion control, machine vision, I/O
- Open standard interface for communication

One programming tool - MotionNavi

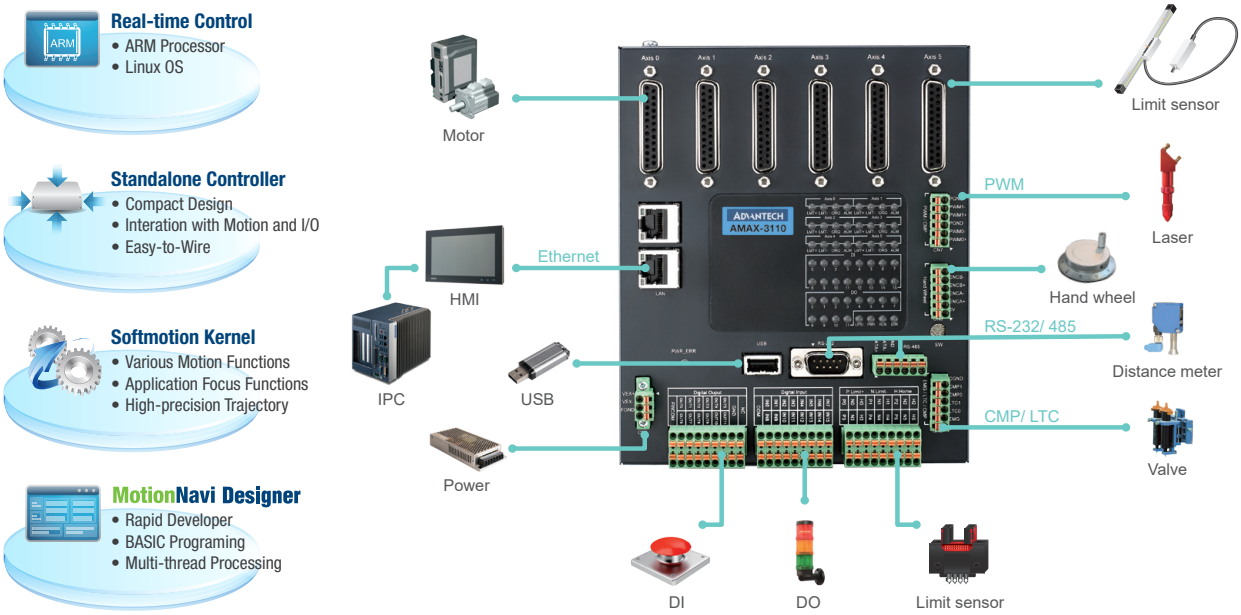
- Easy to program with BASIC language to shorten learning curve
- Extensive debugging tools for machine control applications
- Faster to learn, program and service

Real-time SoftMotion kernel

- Max. 6 axes interpolation, trajectory planning and tracking
- Varied motion functionalities for XYZ tables, SCADA control



The AMAX-3110 is a 6 axes pulse train standalone motion controller with compact design to save panel space. It is based on the ARM processor that makes it ideal for real time motion and I/O control and has built-in Softmotion kernel which provides 2-6 linear interpolation, 3D circular interpolation and various application motion functions such as position compare, trigger, and latch in. The AMAX-3110 solutions also provides MotionNavi software which supports BASIC programming language to shorten the development time.



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 SoftMotion excludes the inherent limitations of ASIC specifications, Advantech is able to offer 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 Electronic Machine Automation (EMA) and Traditional Machine Automation (TMA) 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-1245L	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1265 PCI-1285	PCIE-1245	PCI-1203 (6/10/16/32axis)	PCIE-1203IO-00AE (0axis)	PCIE-1203L-64AE (64axis)	PCIE-1203-64AE (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	2 / 4 Group	2 / 4 Group	2 / 3 / 4 Group	2 Group	8 Group	–	8 Group	8 Group
		Line	2 axis	2 axis	2/3 axis	2/3 axis	2/3 axis	2/3 axis	–	2/3 axis	2/3 axis
		2-axes Circular	–	–	✓	✓	✓	✓	–	–	✓
		Speed Override	–	–	✓	✓	✓	✓	–	–	✓
		Helical	–	–	-	✓	✓	✓	–	–	✓
		Pause & Resume	–	✓	✓	✓	✓	✓	–	–	✓
	Home	16 Home Mode	✓	✓	✓	✓	✓	✓	–	✓	✓
	Motion Trajectory Planning	Table	–	2 tables (10K points)/ 4 tables (7K points)	2 tables (10K points)/ 4 tables (7K points)	2 tables (10K points)/ 3 tables (10K points)/ 4 tables (7K points)	2 tables (10K points)	6 tables (7k points)	–	–	6 tables (7k points)
		Start / End Motion List	–	✓	✓	✓	✓	✓	–	–	✓
		Line Trajectory: Up to 8 Axes	–	2/3-axis line, 2~4 axis direct	2/3-axis line, 2~8 axis direct	2/3-axis line, 2~8 axis direct	2/3-axis line, 2~4 axis direct	2/3-axis line, 1~8 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	–	–	4 / 8 Channel	4 / 6 / 8 Channel	2 Channel	–	–	–	2 Channel
	Table Compare	Up to 2 Channels	–	–	✓	✓	✓	–	–	–	✓
	Linear Compare	(Table Size: 100K Points)	–	–	✓	✓	✓	–	–	–	✓
I/O	Remote	DI/O	–	–	–	–	–	1024/1024	1024/1024	1024/1024	1024/1024
		AI/O	–	–	–	–	–	128/128	128/128	128/128	128/128
	Device	DI/O	–	–	–	8DI, 8DO (PCI-1265)	–	8DI, 4DO	–	–	4DI, 2DO
		AI/O	–	–	–	2 AI (PCI-1265)	–	–	–	–	–

✓: supported, – : not supported, △ : optional

PCI/PCIE Motion Cards

Centralized Motion Control Solutions

NEW





Category		Motion Control				
Bus		Bus PCI				
Model		PCI-1245L	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1265 PCI-1285	PCIE-1245
Axis	Number of Axis	4	4/8	4/8	4/6/8	4
	Linear Interpolation	✓	✓	✓	✓	✓
	2/3-axis Circle Interpolation	–	–	✓	✓	✓
Advanced Functions	Encoder Channels	4	4/8	4/8	4/6/8	4
	Limit Switch Input Channels	8	8/16	8/16	8/12/16	8
	Home Input Channels	4	4/8	4/8	4/6/8	4
	Emergency Stop Input Channels	1	1	1	1	1
	General Purpose DI Channels	16	16/32	16/32	16/32/32	8
	Servo On Output Channels	4	4/8	4/8	4/6/8	4
	General Purpose DO Channels	16	16/32	16/32	16/32/32	8
	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




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

✓: supported, – : not supported, △ : optional

PCI/PCIE Motion Cards

EtherCAT Master Control Card

NEW




Model		PCI-1203	PCIE-1203IO	PCIE-1203L	PCIE-1203
Axis		6/10/16/32	0	64	64
Advanced Functions	General Purpose DI Channels	8	–	–	4
	General Purpose DO Channels	4	–	–	2
	Encoder In	–	–	–	2
	MPG	–	–	–	1
	Position Trigger	–	–	–	2
	Position Latch	–	–	–	2
	Remote Motion	32 Servo drive max.	–	64 Servo drive max.	64 Servo drive max.
	Remote I/O	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	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
Dimensions (L x H)		175 x 100 mm			
Connectors		2 x RJ45, D-sub 15	2 x RJ45	2 x RJ45	2 x RJ45, D-sub 26

Motion Controllers

Embedded Machine Automation Solution

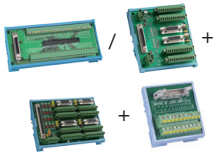
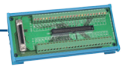
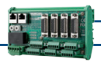
NEW


Model		AMAX-337	AMAX-3110
Hardware	CPU	Intel® Atom® E3940 processor (1.6 GHz)	ARM-based
	Memory	8G DDR3L	4G DDR3
	Storage	M.2 2242 SSD 128GB	eMMC 8GB
Communication	Ethernet	2	1
	EtherCAT	1	0
	USB	3 x USB 3.2, 1 x USB 2.0	1
	Serial	2 COM	1 x RS-232, 1 x RS-485
Pulse Control & Special I/O Function	Axes	–	6
	Pulse Input	–	CW/CCW, AB phase
	Pulse Output	–	CW/CCW, pulse/Dir, AB phase
	Hand Wheel	–	1
	PWM	–	2
	Compare Trigger	–	2
	Position Latch	–	2
I/O	On-board DI / DO	8 / 8	16 /12
	EtherCAT I/O	512 Bytes	–
Other	Input Voltage	DC 10~36V	DC 24V
	Library	Visual.Net, BCB, LabVIEW	MotioNavi BASIC
	Dimensions (W x H x D)	35 x 105 x 150 mm	148 x 180 x 22 mm

✓: supported, – : not supported, △ : optional

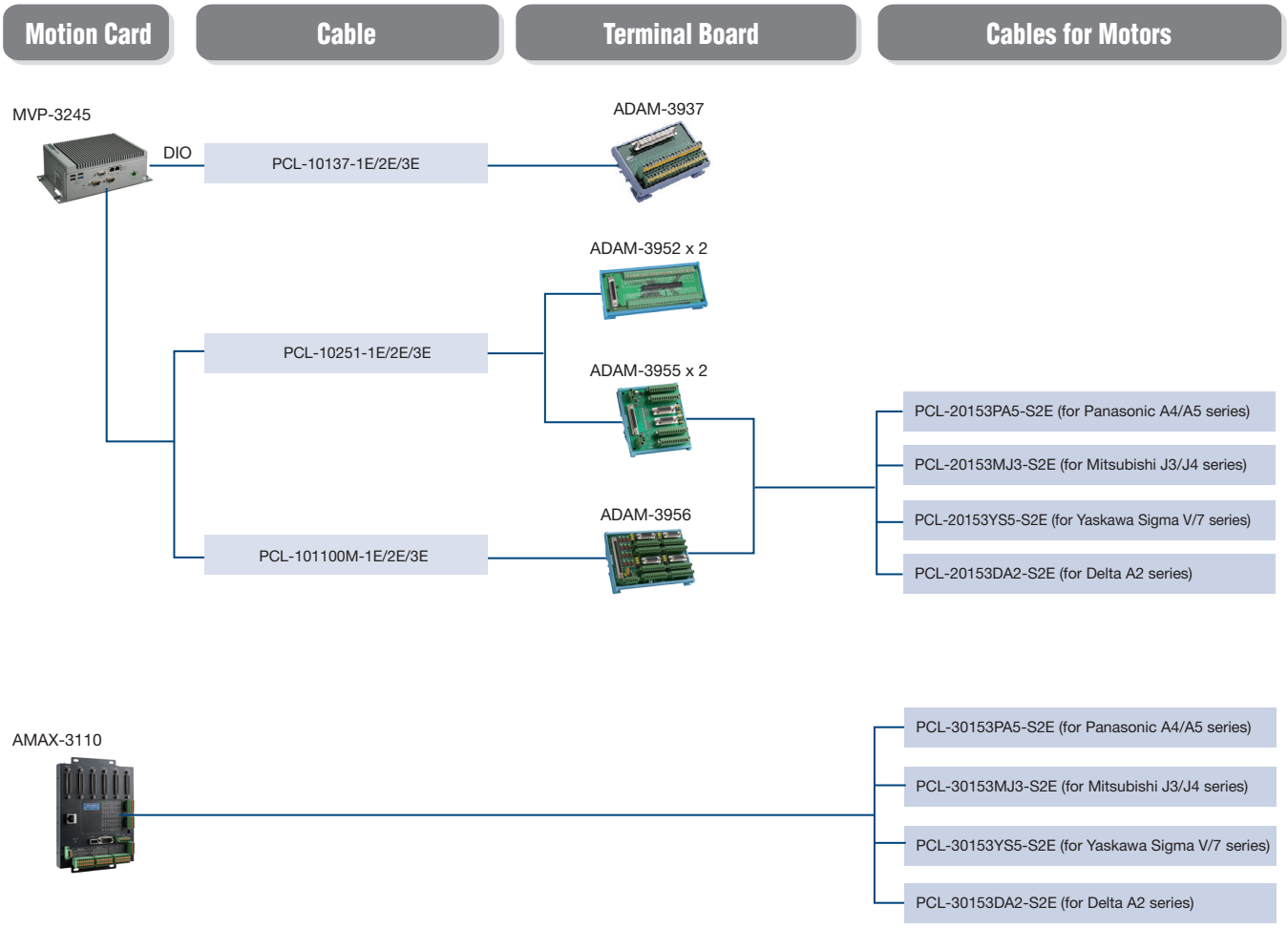
Terminal Boards and Cables

Motion Cards

Motion Card	Cable	Terminal Board	Cables for Motors
PCI-1285/85V/85E 	PCL-101100SB-1E/2E/3E x 2	ADAM-3956 x 2 	PCL-20153PA5-S2E (for Panasonic A4/A5 series) PCL-20153MJ3-S2E (for Mitsubishi J3/J4 series) PCL-20153YS5-S2E (for Yaskawa Sigma V/7 series) PCL-20153DA2-S2E (for 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-20153PA5-S2E (for Panasonic A4/A5 series) PCL-20153MJ3-S2E (for Mitsubishi J3/J4 series) PCL-20153YS5-S2E (for Yaskawa Sigma V/7 series) PCL-20153DA2-S2E (for 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-20153PA5-S2E (for Panasonic A4/A5 series) PCL-20153MJ3-S2E (for Mitsubishi J3/J4 series) PCL-20153YS5-S2E (for Yaskawa Sigma V/7 series) PCL-20153DA2-S2E (for Delta A2 series)
	PCL-101100M-1E/2E/3E	ADAM-3956 	
PCIE-1245 	PCL-31068-1E/ 2E/ 3E	MTB-400 	PCL-30153PA5-S2E (for Panasonic A4/A5 series) PCL-30153MJ3-S2E (for Mitsubishi J3/J4 series) PCL-30153YS5-S2E (for Yaskawa Sigma V/7 series) PCL-30153DA2-S2E (for Delta A2 series)
PCI-1203 PCIE-1203 PCIE-1203L 	AMAX-3285  AMAX-3245 	AMAX-4800 Series  AMAX-5000 Series 	PCL-20153PA5-S2E (for Panasonic A4/A5 series) PCL-20153MJ3-S2E (for Mitsubishi J3/J4 series) PCL-20153YS5-S2E (for Yaskawa Sigma V/7 series) PCL-20153DA2-S2E (for Delta A2 series)

Terminal Boards and Cables

Motion Controllers



12 High Speed DAQ Solutions

Advantech Data Acquisition Solutions Overview

As a leading supplier of data acquisition products worldwide, Advantech offers a wide range of I/O devices with various interface and solutions from signal conditioning modules, plug-in PCI/PCIE cards, portable USB modules, DAQ-embedded computers, and modular DAQ systems as well as DAQNavi/SDK software development package and DAQNavi/MCM machine condition monitoring software. Advantech's industrial I/O products are designed for all kinds of industrial automation applications from machine automation control, test measurement, to machine condition monitoring.

Selection Guide

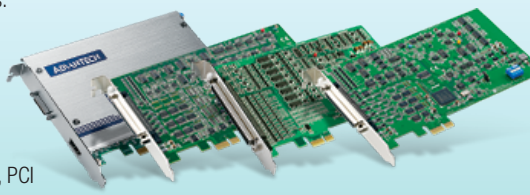
Conditioned Signal

Data Acquisition Hardware

DAQ Edge Embedded Systems

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.

* All-in-one anti-vibration solution



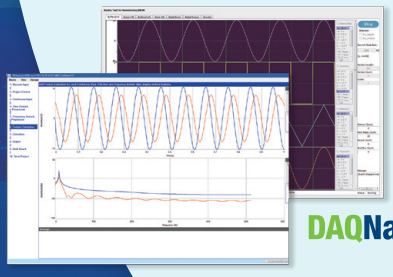
DAQ Cards

Advantech offers dedicated products for USB, PCI, PCI Express, ISA, CompactPCI, PC/104 or PCI-104 interfaces. So regardless if the platform is an IPC, embedded PC, desktop computer or laptop, customer requirements are covered.

* For high channel count measurement

Digital Data

Data Acquisition Software



DAQNavi

Software Development Package

DAQNavi/SDK, Advantech's driver package, delivers higher performance, compatibility, and reliability through a brand new driver and SDK.

* For a flexible system development

Signal Conditioning

Analog Signal

Signal Sensing

Physical Properties

Signal Conditioners

Advantech signal conditioners provide sensor and signal conditioning on a per-module basis for various types of sensors signals.

* For noise filtering

Intelligent Vibration Sensing Gateway

PHM solution-ready, WISE-750 built-in DAQ and AI-based modeling can diagnose any vibrated-equipment without programming.

* Predictive maintenance solution-ready package

USB DAQ Modules

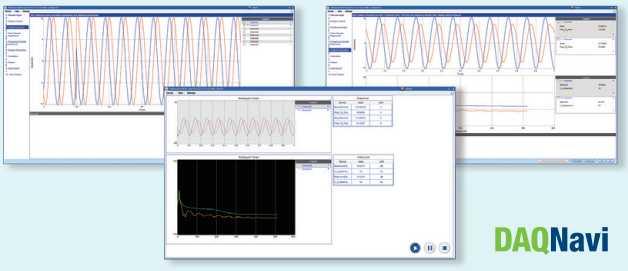
Advantech's USB DAQ modules are famous for user-friendly design and ability to replace traditional serial and parallel devices as they eliminate the need for external power and allow hot swapping.

* For portable and plug-and-play application

Modular DAQ System

iDAQ is a modularized chasssis design that is fast-to-install and easy-to-expand. Modular DAQ systems seamlessly integrate into your equipment.

* Modular and plug-and-play design for flexible expansion, installation, maintainance and suitable for mixed-measurement type application



Application Software

DAQNavi/MCM is an integrated application software based on DAQNavi/SDK. It provides easy sensor signal acquisition, signal analysis, feature extraction, data management and interpretation, and sends alerts. Engineers or system integrators can configure settings to meet the needs of different applications.

* Solution-ready software for various test and measurment, and machine condiction monitoring applications

Modular DAQ Systems





Model			iDAQ-934	iDAQ-964	iDAQ-801	iDAQ-815	iDAQ-817
Chassis	iDAQ Slot		4	4	–	–	–
	Interface		USB 3.0	PCI Express*	–	–	–
	PFP		2	2	–	–	–
	Power Input		10~30VDC	BUS powered*	BUS powered	BUS powered	BUS powered
Analog Input	Resolution		–	–	24-bit	24-bit	16-bit
	Channels		–	–	4	8	8
	Onboard FIFO		–	–	512 Samples	512 Samples	512 Samples
	Sampling Rate		–	–	256 kS/s/ch	600 S/s	200 kS/s
	Input Ranges	Unipolar Inputs	–	–	–	–	–
		Bipolar Inputs	–	–	±12 V, ±6 V, ±3 V, ±1.5 V, ±0.75 V, ±0.375 V, or ±0.1875 V	–	±10 V or ±20 mA
		Configuable Per Channel	–	–	Yes	Yes	Yes
	Trigger Modes	Pacer/ Software/ External Pulse	–	–	Yes***	Yes***	Yes***
		Analog Slope	–	–	Yes	Yes	Yes
		Advanced Trigger	–	–	start/stop/delayed start/delayed stop	start/stop/delayed start/delayed stop	start/stop/delayed start/delayed stop
	Data Transfer Modes	Software	–	–	–	–	–
		DMA	–	–	–	–	–
Analog Output	Resolution		–	–	–	–	–
	Channels		–	–	–	–	–
	Updating Rate		–	–	–	–	–
	Output Ranges	Unipolar Outputs	–	–	–	–	–
		Bipolar Outputs	–	–	–	–	–
Isolated DI/O	Input	channels	–	–	–	–	–
		Isolation Voltage	–	–	–	–	–
		Input Range	–	–	–	–	–
	Output	Channels	–	–	–	–	–
		Isolation Voltage	–	–	–	–	–
		Output Range	–	–	–	–	–
		Max. Sink Current	–	–	–	–	–
Advanced Functions	Output Status Read Back		–	–	–	–	–
	Dry/Wet Contact*		–	–	–	–	–
Dimensions (W x D x H)			178 x 71 x 100 mm (7.01" x 2.80" x 3.93")	139.5 x 84.2 x 100 mm (5.49" x 3.31" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")
Connector			–	–	4 x BNC connectors	2 x 20-pin terminal blocks	2 x 10-pin terminal blocks
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓

* Connect to AMAX-5000 Series Controller (e.g. AMAX-5580). BUS-powered via PCI express.
** Digital I/O direction is software configurable
*** External digital trigger via PFP or trigger sources on other iDAQ modules
✓: supported, – : not supported, △ : optional





Model			iDAQ-841	iDAQ-821	iDAQ-731	iDAQ-751	iDAQ-763D
Chassis	iDAQ Slot		–	–	–	–	–
	Interface		–	–	–	–	–
	PFP		–	–	–	–	–
	Power Input		BUS powered	BUS powered	BUS powered	BUS powered	BUS powered
Analog Input	Resolution		16-bit	–	–	–	–
	Channels		8	–	–	–	–
	Onboard FIFO		512 samples	–	–	–	–
	Sampling Rate		1 MS/s/ch	–	–	–	–
	Input Ranges	Unipolar Inputs	–	–	–	–	–
		Bipolar Inputs	±20 V, ±12.5 V, ±10 V, ±5 V, or ±20 mA	–	–	–	–
		Configuable Per Channel	Yes	–	–	–	–
	Trigger Modes	Pacer/ Software/ External Pulse	Yes***	–	–	–	–
		Analog Slope	Yes	–	–	–	–
		Advanced Trigger	Start/Stop/Delayed Start/Delayed Stop	–	–	–	–
	Data Transfer Modes	Software	–	–	–	–	–
		DMA	–	–	–	–	–
Analog Output	Resolution		–	16-bit	–	–	–
	Channels		–	4	–	–	–
	Updating Rate		–	50 kS/s/ch	–	–	–
	Output Ranges	Unipolar Outputs	–	0~5 V, 0~10 V, 0~20mA, 4~20mA	–	–	–
		Bipolar Outputs	–	±5 V, ±10 V	–	–	–
Isolated DI/O	Input	channels	–	–	16	48**	–
		Isolation Voltage	–	–	600 VRMS	60 V_{DC}	–
		Input Range	–	–	5~30V_{DC}	-0.25 V ~ 5.25 V	–
	Output	Channels	–	–	16	48**	16
		Isolation Voltage	–	–	600 V_{RMS}	60 V_{DC}	600 V_{RMS}
		Output Range	–	–	10 ~ 40V_{DC}	0.3 ~ 5.2 V	0 ~ 60 V_{DC}
		Max. Sink Current	–	–	350 mA	5 mA	1.3A
Advanced Functions	Output Status Read Back		–	–	Yes	Yes	Yes
	Dry/Wet Contact*		–	–	Yes	Yes	
Dimensions (W x D x H)			25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")	25 x 80 x 100 mm (0.98" x 3.15" x 3.94")
Connector			2 x 10-pin terminal blocks	1 x 10-pin terminal blocks	2 x 20-pin terminal blocks	DB 62 connector (female)	2 x 20-pin terminal blocks
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓

* Connect to AMAX-5000 Series Controller (e.g. AMAX-5580). BUS-powered via PCI express.
** Digital I/O direction is software configurable
*** External digital trigger via PFP or triggers sources on other iDAQ modules
✓: supported, – : not supported, △ : optional

DAQ Edge Embedded Systems

Category			Multifunction Platform					
CPU			Intel Celeron 3955U	Intel Core™ i3-6100U	Intel Celeron 3955U	Intel Core™ i3-6100U	ARM Cortex™-A9 i.MX6	–
Memory			DDR3 4GB				DDR3 2GB	–
Model			☞ MIC-1810-U0A1E	☞ MIC-1810-U3A1E	☞ MIC-1816-U0A1E	☞ MIC-1816-U3A1E	☞ MIC-1816R-AE	☞ WISE-750-02A1E
Analog Input	Resolution		12-bit	12-bit	16-bit	16-bit	16-bit	16-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	4-ch IEPE and 8-ch general AI (Voltage/Current)	4
	Onboard FIFO		4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples
	Sampling Rate		500 kS/s	500 kS/s	1 MS/s	1 MS/s	1 MS/s	200 kS/s/ch
	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, 4~20mA	±10V
		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	0-20mA
		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	–
Analog Output	Resolution		12-bit	12-bit	16-bit	16-bit	16-bit	–
	Channels		2 (waveform output)	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	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	0 ~ 5, 0 ~ 10, ±5, ±10 V, 4~20mA	–
	Output Rate		500 kHz	500 kHz	3 MHz	3 MHz	3 MHz (V), 20KHz (A)	–
	DMA Transfer		Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering	–
Digital I/O	Input Channels		8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	4 (Isolated)
	Output Channels		8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	4 (Isolated)
Timer/Counter	Channels		2	2	2	2	2	–
	Resolution		32-bit	32-bit	32-bit	32-bit	32-bit	–
	Max. Input Frequency		10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	–
Isolation Voltage			2500 V_{DC}	2500 V_{DC}	2500 V_{DC}	2500 V_{DC}	–	2500 V_{DC}
Auto Calibration			✓	✓	✓	✓	✓	–
Dimensions (W x D x H)			200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	165 x 130 x 65 mm (6.49" x 5.11" x 2.56")	40 x 98 x 133 mm (1.57" x 3.86" x 5.24")
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	–	✓
	Linux		-	-	-	-	✓	–
LabVIEW Driver			✓	✓	✓	✓	–	–

✓: supported, – : not supported, △ : optional

Analog I/O and Multifunction Cards

Category			Multifunction & Analog Input						
Sampling / Updating			Multiplexer						
Model			PCI-1710U/ 1710UL	PCI-1710HGU	PCI-1711U/ 1711UL	PCI-1712	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	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
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	Linux		–	–	✓	–	–	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓

* All channels should be set to the same range.
✓: supported, – : not supported, △ : optional

Analog I/O and Multifunction Cards

Category			Multifunction & Analog Input				
Sampling / Updating			Multiplexer			Simultaneous Sampling	
Model			☞ PCI-1716/1716L	☞ PCI-1718HDU	☞ PCI-1747U	☞ PCI-1714U/ 1714UL	☞ PCI-1706U
Analog Input	Resolution		16-bit	12-bit	16-bit	12-bit	16-bit
	Channels		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	32,768/8,192 samples	8,192 samples
	Sampling Rate		250 kS/s	100 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	–	–
		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	±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	✓
Analog Output	Resolution		16-bit	12-bit	–	–	12-bit
	Channels		2 (PCI-1716 only)	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, 0 ~ 20, 0 ~ 24, 4 ~ 20 mA
	Output Rate		Static update	Static update	–	–	Static update
	DMA Transfer		–	–	–	–	–
Digital I/O	Input Channels		16	16	–	–	16 (shared)
	Output Channels		16	16	–	–	
Timer/ Counter	Channels		1	1	–	–	2
	Resolution		16-bit	16-bit	–	–	32-bit
	Max. Input Frequency		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")
Connector			68-pin SCSI	DB37	68-pin SCSI	4 x BNC	68-pin SCSI
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	Linux		✓	–	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓

* All channels should be set to the same range.
✓: supported, – : not supported, △ : optional

Category			Multifunction & Analog Output				
Sampling / Updating			Static Update				Dynamic Update
Model			PCI-1720U	PCI-1727U	PCI-1724U	PCI-1723	PCI-1721
Analog Input	Resolution		–	–	–	–	–
	Channels		–	–	–	–	–
	Onboard FIFO		–	–	–	–	–
	Sampling Rate		–	–	–	–	–
	Input Ranges	Unipolar Inputs	–	–	–	–	–
		Bipolar Inputs	–	–	–	–	–
		Configurable Per Channel	–	–	–	–	–
	Trigger Modes	Pacer/ Software/ External Pulse	–	–	–	–	–
		Analog Slope	–	–	–	–	–
		Advanced Trigger	–	–	–	–	–
	Data Transfer Modes	Software	–	–	–	–	–
		DMA	–	–	–	–	–
Analog Output	Resolution		12-bit	14-bit	14-bit	16-bit	16-bit
	Channels		4	12	32	8	4 (waveform output)
	Onboard FIFO		–	–	–	–	1,024 samples
	Output Range		0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20, 4 ~ 20 mA	±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	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
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	Linux		✓	✓	✓	–	✓
LabVIEW Driver			✓	✓	✓	✓	✓

✓: supported, – : not supported, △ : optional

Analog I/O and Multifunction Cards

Category			Multifunction & Analog Input							
Sampling / Updating			Multiplexer			Simultaneous Sampling				
Model			PCIE-1805	PCIE-1810	PCIE-1816/H	PCIE-1812	PCIE-1813	PCIE-1802/ 1802L	PCIE-1803	PCIE-1840/ 1840L
Analog Input	Resolution		16-bit	12-bit	16-bit	16-bit	26-bit	24-bit	24-bit	16-bit
	Channels		32 SE/ 16 diff.	16 SE/8 diff.	16 SE/8 diff.	8 diff.	4 diff.	8 diff./ 4 diff.	8 diff.	4 SE
	Onboard FIFO		4096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4096 samples	1 G samples
	Sampling Rate		128 kS/s	500 kS/s	500 KSPS/ 1MSPS	250 kS/s	38.4 kS/s	216 kS/s	128 kS/s	125/80 MS/s
	Input Ranges	Unipolar Inputs	0~20 mA, 4~20 mA	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	±1 V, ±2 V, ±5 V, ±10 V	±10 V, ±5 V, ±2.5 V, ±1.25 V, ±0.625 V	±10 V, ±5 V, ±2.5 V, ±1.25 V, ±0.625 V	±10 V, ±5 V, ±2.5 V, ±1.25 V, ±0.625 V	±10 V, ±5 V, ±2.5 V, ±1.25 V, ±625 mV, ±312.5 mV	±10 V, ±5 V, ±2 V, ±1 V, ±0.5 V, ±0.2 V	±10 V, ±5 V, ±2 V, ±1 V	±20 V, ±10 V, ±4 V, ±2 V, ±1 V, ±0.4 V, ±0.2 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	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	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	1	–
	Output Channels							2	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)			168 x 98 (6.6" 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")	168 x 100 (6.6" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			DB 62 (female)	68-pin SCSI (female)	68-pin SCSI (female)	100-pin SCSI (female)	100-pin SCSI (female)	1 x 19-pin MINI SCSI (for AI) 1 x HDMI (for Ext. clock and trigger)	1 x 36-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)
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	–	✓	–
	Linux		✓	✓	✓	–	–	✓	✓	–
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓	✓

✓: supported, – : not supported, △ : optional

Digital I/O Cards






Category			Non-Isolated Digital I/O					
Bus			PCI					
Model			☞ 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
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		–	✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.
✓: supported, – : not supported, △ : optional

Digital I/O Cards

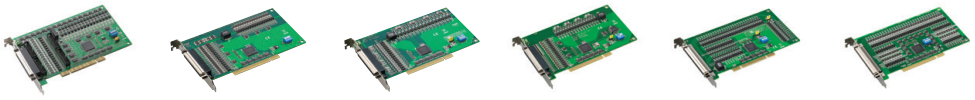
Category			Isolated Digital I/O							
Bus			PCI Express							
Model			☞ PCIE-1730/ 1730H	☞ PCIE-1750U	☞ PCIE-1752	☞ PCIE-1754	☞ PCIE-1756/ 1756H	☞ PCIE-1758UDI	☞ PCIE-1758UDO	☞ PCIE-1758UDIO
TTL DI/O	Input Channels		16	–	–	–	–	–	–	–
	Output Channels		16	–	–	–	–	–	–	–
	Output Channel	Sink Current	24 mA @ 0.5 V	–	–	–	–	–	–	–
		Source Current	15 mA @ 2.4 V	–	–	–	–	–	–	–
Isolated Digital I/O	Input	Channels	16	16	–	64	32	128	–	64
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	–	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}	10 ~ 30 V_{DC}	10 ~ 30 V_{DC}	–	10 ~ 30 V_{DC}
	Output	Channels	16 (sink)	16 (Sink or Source)	64 (sink)	–	32 (sink)	–	128	64
		Isolation Voltage	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 Range	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}	–	5 ~ 40 V_{DC}	–	5 ~ 40 V_{DC}	5 ~ 40 V_{DC}
		Max. Sink Current	500 mA	500 mA	500 mA	–	500 mA	–	90 mA	90 mA
Timer/ Counter	Channels		–	–	–	–	–	–	–	–
	Resolution		–	–	–	–	–	–	–	–
	Max. Input Frequency		–	–	–	–	–	–	–	–
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")	168 x 100 mm (6.6" 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			1 x DB37 4 x 20-pin	DB 37	100-pin SCSI	100-pin SCSI	100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓	✓
	Linux		✓	✓	✓	–	✓	–	–	–
LabVIEW Driver			✓	✓	✓	✓	✓	✓	✓	✓

*** Simultaneous dry/wet contact within a group is acceptable.**
✓: supported, – : not supported, △ : optional

Category			Relay Output					Non-Isolated Digital I/O	
Bus			PCI Express						
Model			PCIE-1760	PCIE-1761H	PCIE-1762H	PCIE-1763AH/DH	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	8	16	16	–	–	–
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	–	–	–
		Input Range	4.5 ~ 12 V_{DC}	4.5 ~ 12 V_{DC}	10 ~ 50 V_{DC}	10 ~ 30 V_{DC}	–	–	–
	Output	Channels	6 x Form A 2 x Form C	6 x Form A 2 x Form C	16**	16 x Form A	12 Form C	–	–
		Isolation Voltage	2,500 V_{DC}	2,500 V_{DC}	2,500 V_{DC}	1,500 V_{DC}	2,500 V_{DC}	–	–
		Output Range	0.5 A @ 125 V_{AC}	2 A @ 250 V_{AC}	0.25 A @ 250 V_{AC}	400 V_{AC} / 60 V_{DC}	2 A @ 250 V_{AC}	–	–
		Max. Sink Current	1 A @ 30 V_{DC}	2 A @ 30 V_{DC}	0.5 A @ 30 V_{DC}	1.2 A_{RMS} / 1.2 A	2A @ 30 V_{DC}	–	–
Timer/Counter	Channels		8 x UP CTR 2 x PWM	8 x CTR 2 x PWM	–	–	–	3	–
	Resolution		16-bit	16-bit (2,500 isolation)	–	–	–	32-bit	–
	Max. Input Frequency		500 Hz	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")	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 DB37	1 x DB62	DB 62	1 x DB37	68-pin SCSI	68-pin SCSI
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

Digital I/O Cards



Category			Isolated Digital I/O					
Bus			PCI					
Model			☞ 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
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓

*** Simultaneous dry/wet contact within a group is acceptable.**
✓: supported, – : not supported, △ : optional

Category			Isolated Digital I/O						
Bus			PCI						
Model			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}	0.5 A @ 125 V_{AC} 1 A @ 30 V_{DC}	2 A @ 250 V_{AC} 2 A @ 30 V_{DC}	0.5 A @ 250 V_{AC} 0.5 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
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	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

Digital I/O Cards

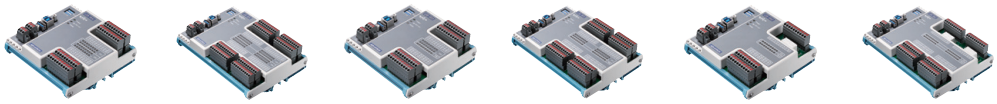




Category			Isolated Digital I/O		Counter	Encoder	
Bus			PCI-104		PCI	PCI	PCIE
Model			☞ PCM-3730I	☞ PCM-3761I	☞ PCI-1780U	☞ PCI-1784U	☞ PCIE-1884
TTL DI/O	Input Channels		–	–	8	–	–
	Output Channels		–	–	8	–	–
	Output Channel	Sink Current	–	–	24 mA @ 0.5 V	–	–
		Source Current	–	–	15 mA @ 2.4 V	–	–
Isolated Digital I/O	Input	Channels	16	8	–	4	4
		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}	–	10 ~ 30 V_{DC}	5 ~ 50 V_{DC}
	Output	Channels	16	8 x Form C	–	4	4
		Isolation Voltage	2,500 V_{DC}	2,000 V_{DC}	–	2,500 V_{DC}	2,500 V_{DC}
		Output Range	5 ~ 30 V_{DC}	0.25 A @ 250 V_{AC} 2 A @ 30 V_{DC}	–	TTL level	TTL level
		Max. Sink Current	300 mA		–	50mA	24mA
Timer/ Counter	Channels		–	–	8 x CTR	4	4
	Resolution		–	–	16-bit	32-bit	32-bit
	Max. Input Frequency		–	–	20 MHz	2 MHz (8 MHz for quadrature X4)	10 MHz (40 MHz for quadrature X4)
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")	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			2 x 20-pin	1 x 20-pin 1 x 50-pin	68-pin SCSI	1 x DB37	1 x DB37
DAQNavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓
	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

USB I/O Modules and USB Hubs



Category			USB 3.0 Isolated Digital I/O					
Model			USB-5830	USB-5856	USB-5850	USB-5855	USB-5860	USB-5862
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 (L x W x H)			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

USB I/O Modules and USB Hubs



Category			USB 3.0 Analog Input Modules		
Model			☞ USB-5801	☞ USB-5817	☞ USB-5820
Analog Input	Resolution		24	16	–
	Channels		4 diff./pseudo-diff.	8 diff.	–
	Sampling Rate		192KS/s, Simultaneous	200kS/s, Multiplexed	–
	IEPE		2mA	–	–
	Value Range	Unipolar	–	–	–
		Bipolar	±10 V, ±1 V	0- 20mA, ±10V	–
		Configurable Per Channel	✓	✓	–
	Trigger Modes	Pacer/ Software	✓	✓	–
		External Pulse	✓	✓	–
Analog Output	Resolution		24	–	16
	Channels		2	–	4
	Updating Rate		192KS/s, Simultaneous	–	200kS/s, Multiplexed
	Output Range		±1 V, ±10 V	–	0-5V, 0-10V, ±5V, ±10V, 0-20mA, 4-20 mA
Tachometer	Channels		2	–	–
	Input Range		Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	–	–
	Input Frequency		5kHz	–	–
Isolated Digital I/O	Input Channels		4	–	–
	Output Channels		4	–	–
	Opto-Isolator Response Time		100us	–	–
	Isolation Protection		2,500 V_{DC}	–	–
Dimensions (L x W x H)			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")	120 x 120 x 40 mm (4.72" 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 3.0 Multifunction		USB 2.0 Multifunction	
Model			☞ USB-4711A	☞ USB-4716	☞ USB-4702	☞ USB-4704
Analog Input	Resolution		12-bit	16-bit	12-bit	14-bit
	Channels		16 SE/8 diff.	16 SE/8 diff.	8 SE/4 diff.	8 SE/4 diff.
	Onboard FIFO		1,024 samples	1,024 samples	512 samples	512 samples
	Sampling Rate		150 kS/s	200 kS/s	10 kS/s	48 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 V ±0.625 V	±10, ±5, ±2.5, ±1.25 V ±0.625 V	±10, ±5, ±4, ±2.5, ±1.25, ±1 V	±10, ±5, ±4, ±2.5, ±1.25, ±1 V
		Configurable Per Channel	✓	✓	✓	✓
	Trigger Modes	Pacer/Software	✓	✓	✓	✓
		External Pulse	✓	✓	✓	✓
	Data Transfer	Software	✓	✓	✓	✓
Analog Output	Resolution		12-bit	16-bit	12-bit	12-bit
	Channels		2	2	2	2
	Output Range		0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5 V	0 ~ 5, 0 ~ 10 V
	Output Rate		Static update	Static update	Static update	Static update
Digital I/O	Input Channels		8	8	8	8
	Output Channels		8	8	8	8
Timer/ Counter	Channels		1	1	1	1
	Resolution		16-bit	16-bit	32-bit	16-bit
	Max. Input Frequency		1 KHz	1 KHz	5 MHz	10 MHz
Auto Calibration			✓	✓	✓	✓
Dimensions (L x W x H)			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")	70 x 70 mm (2.76" x 2.76")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
Connector			Onboard screw terminal	Onboard screw terminal	DB37	Onboard screw terminal
Supported Operating Systems			Windows XP/7/8/10 and Linux			
LabVIEW Driver			✓	✓	✓	✓

✓: supported, – : not supported, △ : optional

Signal Conditioners and Terminal Boards

Signal Conditioners



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	–

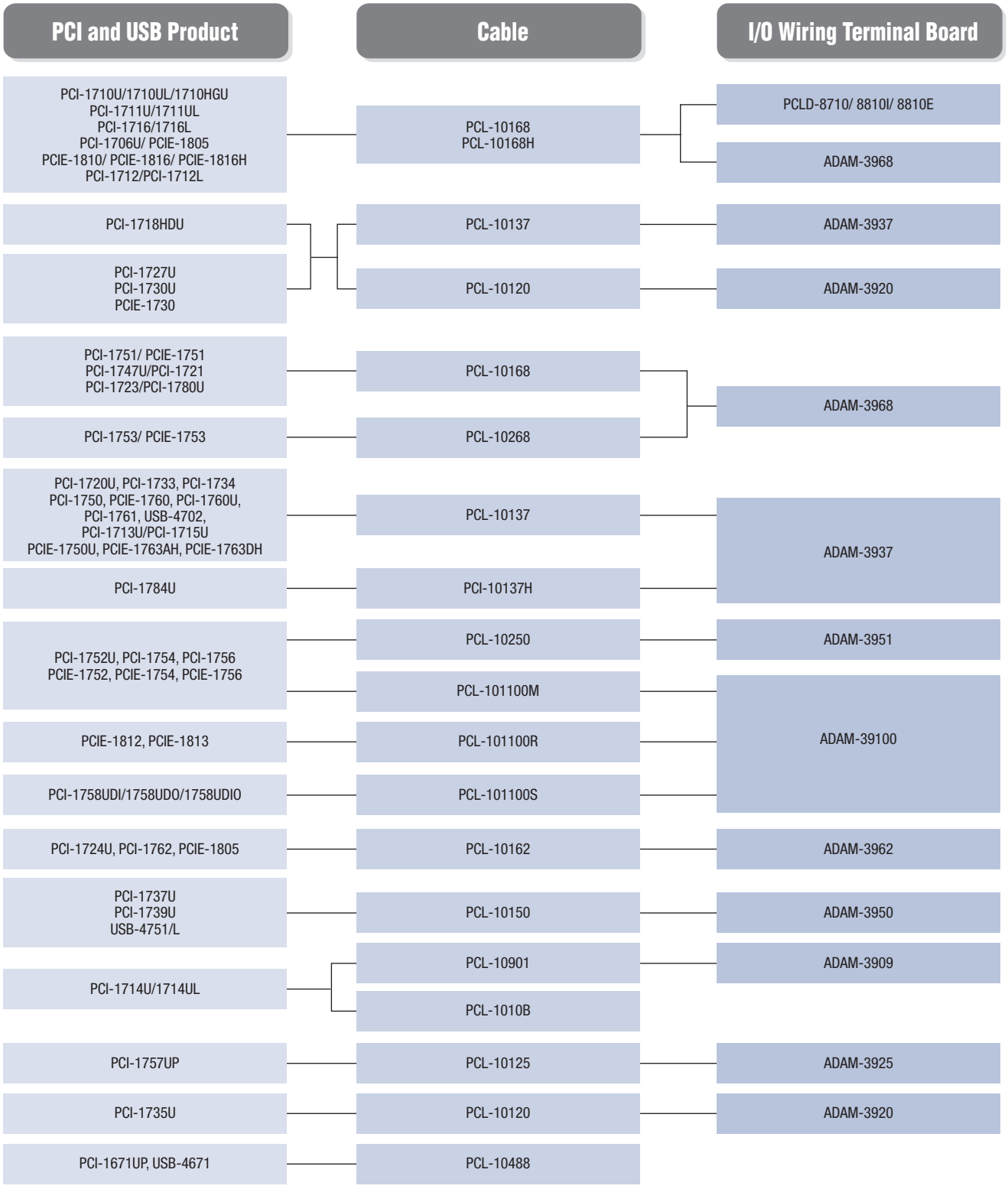



Model		ADAM-3016	ADAM-3017	ADAM-3112	ADAM-3114
Signal Type		Strain gauge	IEPE input	AC/DC input	Current input
Channel		1	1	1	1
Input Type	Voltage	±10, ±20, ±30, ±100 mV (electrical voltage)	4 ~ 24 V (IEPE sensor with up to 10 mA current source)	AC: 0 ~ 120, 0 ~ 250, 0 ~ 400 V DC: 0 ~ 120, 0 ~ 250, 0 ~ 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	–	–	–	–

✓: supported, – : not supported, △ : optional

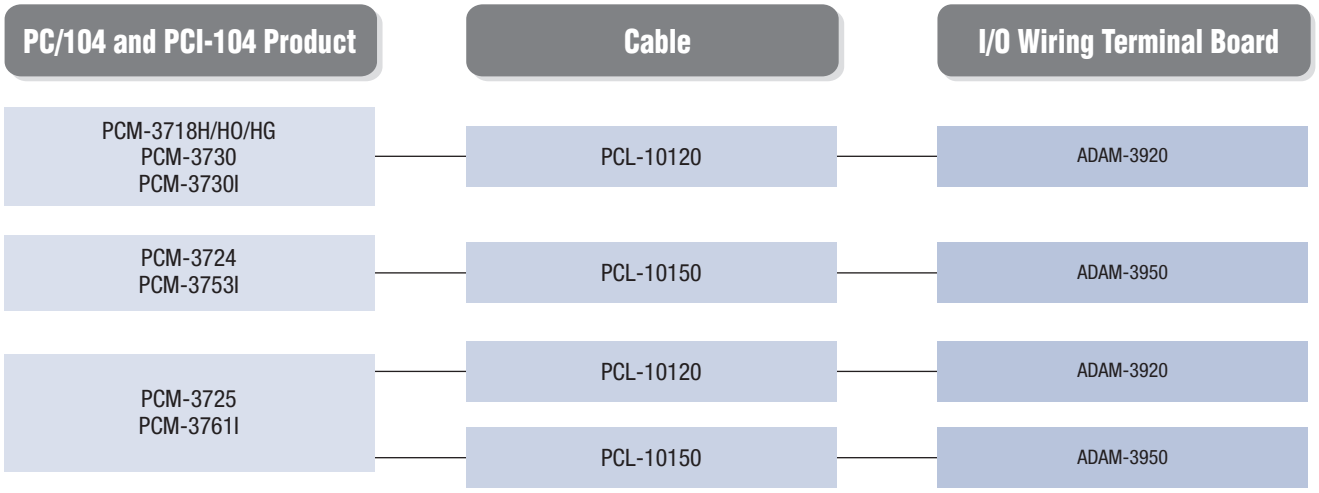
Signal Conditioners and Terminal Boards

Recommended cables, I/O wiring terminal boards, and isolated digital I/O terminals for connecting to PC/104 and PCI-104 DAQ products



Signal Conditioners and Terminal Boards

Recommended cables, I/O wiring terminal boards, and isolated digital I/O terminals for connecting to PC/104 and PCI-104 DAQ products



Functional Wiring Board Accessories

Part Number	Description
PCLD-780-BE	Screw terminal board with flat cables
PCLD-782B-AE	16/24-ch opto-isolated DI board
PCLD-782-BE	Opto-Isolated D/I board
PCLD-785-AE	16-ch relay output wiring board
PCLD-785B-AE	24-ch relay output wiring board
PCLD-8762-AE	48-ch relay output wiring board
PCLD-788-AE	Relay scanner/multiplexer board
PCLD-8115-AE	Industrial wiring terminal board with CJC circuit
PCLD-8710-AE	DIN-rail wiring terminal board with CJC circuit
PCLD-8712-AE	DIN-rail wiring terminal for PCI-1712/L
PCLD-8751-AE	48-ch opto-isolated DI board
PCLD-8761-AE	24/24-ch relay output/isolated DI board
PCLD-880-AE	Wiring terminal board with flat cables and adapter
PCLD-8810E-AE	Screw terminal board with CJC for PCIE-18 series
PCLD-8810I-AE	Screw terminal board with CJC for PCI-17 series
PCLD-8811-AE	Low-pass active filter board
PCLD-8813-AE	Advanced signal conditioning board for PCIE-1812/ PCIE-1813
PCLD-881B-AE	Wiring terminal board for PCI-1713 & PCL-813L
PCLD-8840-AE	20-pin DIN-rail HDMI cable wiring board
PCLD-885-AE	16-ch power relay output wiring board

Part Number	Description
PCL-10137H-3E	DB37 high-speed cable, 3 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-10488-2E	IEEE-488 cable, 2 m
PCL-10502-AE	Dual 20-pin to PC slot plate extender

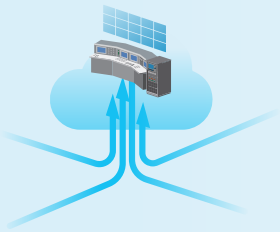
13 Industrial Communication

Industrial Communication in the IoT Era

Providing Interconnected Solutions for Advantech's Mission of Enabling an Intelligent Planet

In the age of Internet of Things (IoT), the trend in industrial communication is for all devices, equipment, and machines to be 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 the best-in-class industrial communication solutions including both wired and wireless technologies that can truly help users leverage the full potential of IoT in the most efficient and productive way.

Our Technologies



Intelligent Connectivity Software

Advantech intelligent connectivity software platform provides provisioning and management software, aiming at serving users a tailored management solution based on different user scenarios.

- WebAccess/DMP for provisioning and managing status of each routing device and application
- WebAccess/NMS for monitoring the interconnectivity status of the whole network system
- WebAccess/VPN for remote asset control and management

Network Edge

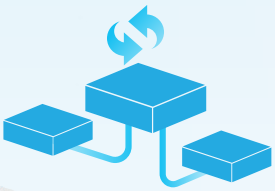
Advantech's cellular routing solutions open up endless IoT possibilities. Advantech's cellular routers support direct communication between MQTT-enabled devices and the cloud. Built-in Node-RED technology enables smart data processing for fast dashboard development and monitoring using Advantech's WISE/PaaS management software cloud solution.

- Support for inter-operation with global 5G/LTE/3G coverage
- Cyber security protection by firewall, NAT, and VPN
- Intelligent gateway support for LoRaWAN, or Mesh networks for Industrial IoT
- Intelligent ODB cellular gateway supports G5 CatM1

Wired and Wireless Network Infrastructure

Advantech provides a comprehensive product portfolio to help users build a robust, secure and scalable wired or wireless networking infrastructure.

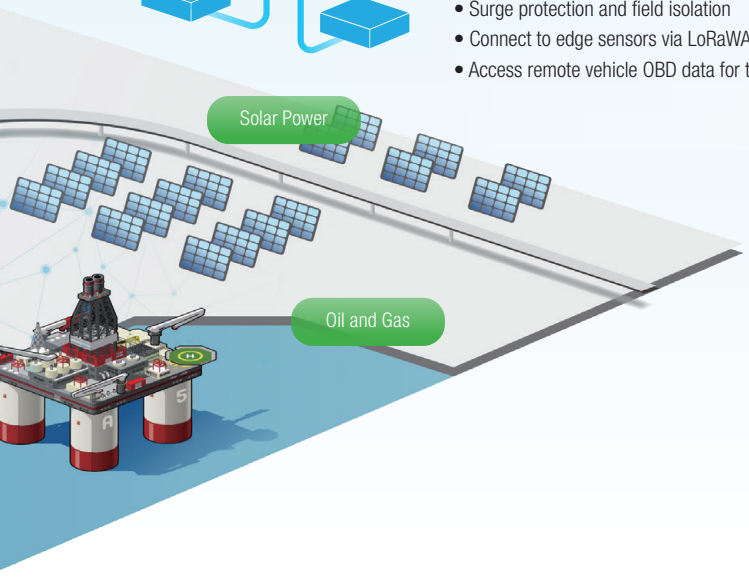
- Supports various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, ODVA, etc.
- Compliant with C1D2, ATEX, IECEx certifications for hazardous environments
- Cyber security protection within the network
- Layer 3 Routing Protocols: RIP, OSPF, and VRRP
- Advantech's patented IXM technology for rapid deployment, saving up to 90% of engineering time and resources
- Advantech security gateway with firewall and Ethernet switch with security pack protects against internal and external cyber attacks



Protocol and Interface Conversion Solutions

Advantech offers numerous wired and wireless products to convert different industrial protocols and interfaces to modern networking systems to avoid a complete overhaul of existing equipment & devices, saving cost and avoiding software programming errors.

- Supports various industrial Ethernet protocols including TCP/IP, Ethernet/IP, PROFINET, BACnet, OPC UA and more
- Surge protection and field isolation
- Connect to edge sensors via LoRaWAN, MESH technologies
- Access remote vehicle OBD data for telematics services providers (TSP) and fleet management applications



Industrial Ethernet Solutions

EN50155 Ethernet Switches

	Model	EKI-9512E-4GETB EKI-9512G-4GETB	EKI-9528E-12GMPW EKI-9528E-12GMPX	EKI-9528E-8GMPW EKI-9528E-8GMPX	EKI-9528G-4GMPW EKI-9528G-4GMPX	EKI-9528E-12GMW EKI-9528E-12GMX	EKI-9528E-8GMW EKI-9528E-8GMX	EKI-9528G-4GMW EKI-9528G-4GMX
	Description	EN50155 12-Port Ethernet Train Backbone Router	EN50155 28-Port L2 Managed PoE Switch	EN50155 28-Port L2 Managed PoE Switch	EN50155 28-Port L2 Managed PoE Switch	EN50155 28-Port L2 Managed Switch	EN50155 28-Port L2 Managed Switch	EN50155 28-Port L2 Managed Switch
Interface	Number of Ports	12	28	28	28	28	28	28
	10/100Base-TX	8 (EKI-9512E-4GETB)	–	–	–	–	–	–
	100BaseFX	–	–	–	–	–	–	–
	10/100/1000Base-TX	8 (EKI-9512G-4GETB)	4 (EKI-9528E-12GMPX)	4 (EKI-9528E-8GMPX)	4 (EKI-9528E-8GMPX)	8 (EKI-9528E-12GMW) 12 (EKI-9528E-12GMX)	4 (EKI-9528E-8GMW) 8 (EKI-9528E-8GMX)	24 (EKI-9528G-4GMW) 28 (EKI-9528G-4GMX)
	10/100/1000Base-TX with Bypass function	4	4 (EKI-9528E-12GMPW)	4 (EKI-9528E-8GMPW)	4 (EKI-9528E-8GMPW)	4 (EKI-9528E-12GMW)	4 (EKI-9528E-8GMW)	4 (EKI-9528G-4GMW)
	PoE(10/100Mbps)	–	16	20	–	–	–	–
	PoE(10/100/1000Mbps)	–	8	4	24	–	–	–
	DI/DO	–	–	–	–	–	–	–
	Console	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓
Power	24-48V_{DC}	–	–	–	–	–	–	–
	72-110V_{DC}	–	–	–	–	–	–	–
	24-110V_{DC}	✓	✓	✓	✓	✓	✓	✓
	IP level	IP67	IP54	IP54	IP54	IP54	IP54	IP54
Rolling Stock Application	Ethernet Train Backbone (IEC61375-2-3 & -2-5)	✓	–	–	–	–	–	–
	EN50155	✓	✓	✓	✓	✓	✓	✓
	EN50121-3-2	✓	✓	✓	✓	✓	✓	✓
	EN61373	✓	✓	✓	✓	✓	✓	✓

✓ : supported, – : not supported, △ : optional

EN50155 Ethernet Switches

Model		☞ EKI-9516E-4GMPW ☞ EKI-9516E-4GMPX	☞ EKI-9516G-4GMPW ☞ EKI-9516G-4GMPX	☞ EKI-9516E-8GMPW ☞ EKI-9516E-8GMPX	☞ EKI-9516E-4GMW ☞ EKI-9516E-4GMX	☞ EKI-9516G-4GMW ☞ EKI-9516G-4GMX	☞ EKI-9512E-4GMPW ☞ EKI-9512E-4GMPX	☞ EKI-9512G-4GMPW ☞ EKI-9512G-4GMPX
Description		EN50155 16-Port L2 Managed PoE Switch	EN50155 16-Port L2 Managed PoE Switch	EN50155 16-Port L2 Managed PoE Switch	EN50155 16-Port L2 Managed Switch	EN50155 16-Port L2 Managed Switch	EN50155 16-Port L2 Managed PoE Switch	EN50155 16-Port L2 Managed PoE Switch
Interface	Number of Ports	16	16	16	16	16	16	16
	10/100Base-TX	–	–	–	–	–	–	–
	100BaseFX	–	–	–	–	–	–	–
	10/100/1000Base-TX	4 (EKI-9516E-4GMPX)	4 (EKI-9516G-4GMPX)	4 (EKI-9516G-4GMPX)	4 (EKI-9516E-4GMPX)	12 (EKI-9516G-4GMPW) 16 (EKI-9516G-4GMPX)	4 (EKI-9512E-4GMPX)	4 (EKI-9512G-4GMPX)
	10/100/1000Base-TX with Bypass function	4 (EKI-9516E-4GMPW)	4 (EKI-9516G-4GMPW)	4 (EKI-9516G-4GMPW)	4 (EKI-9516E-4GMPW)	4 (EKI-9516G-4GMPW)	4 (EKI-9512E-4GMPW)	4 (EKI-9512G-4GMPW)
	PoE(10/100Mbps)	12	–	8	–	–	8	–
	PoE(10/100/1000Mbps)	–	12	4	–	–	–	8
	DI/DO	–	–	–	–	–	–	-
	Console	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓
Power	24-48V_{DC}	–	–	–	–	–	–	–
	72-110V_{DC}	–	–	–	–	–	–	–
	24-110V_{DC}	✓	✓	✓	✓	✓	✓	✓
	IP level	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Rolling Stock Application	Ethernet Train Backbone (IEC61375-2-3 & -2-5)	–	–	–	–	–	–	–
	EN50155	✓	✓	✓	✓	✓	✓	✓
	EN50121-3-2	✓	✓	✓	✓	✓	✓	✓
	EN61373	✓	✓	✓	✓	✓	✓	✓

✓ : supported, – : not supported, △ : optional

Industrial Ethernet Solutions

EN50155 Ethernet Switches






Model		☞ EKI-9512E-4GMW ☞ EKI-9512E-4GMX	☞ EKI-9512G-4GMW ☞ EKI-9512G-4GMX	☞ EKI-9508E series	☞ EKI-9508G series	☞ EKI-9510E series	☞ EKI-9510G series
Description		EN50155 16-Port L2 Managed Switch	EN50155 16-Port L2 Managed Switch	EN50155 8-Port L2 Ethernet Switch	EN50155 8-Port L2 Ethernet Switch	EN50155 10-Port L2 Ethernet Switch	EN50155 10-Port L2 Ethernet Switch
Interface	Number of Ports	16	16	8	8	8	8
	10/100Base-TX	8	–	△8	–	△8	–
	100BaseFX	–	–	–	–	–	–
	10/100/1000Base-TX	4 (EKI-9512E-4GMPX)	8 (EKI-9512G-4GMPW) 12 (EKI-9512G-4GMPX)	–	△8	–	△8
	10/100/1000Base-TX with Bypass function	4 (EKI-9512E-4GMPW)	4 (EKI-9512G-4GMPW)	–	–	2	2
	PoE(10/100Mbps)	–	–	△8	-	△8	-
	PoE(10/100/1000Mbps)	–	–	–	△8	–	△8
	DI/DO	–	–	–	–	–	–
	Console	✓	✓	△	△	△	△
Network Management	Redundancy	✓	✓	△	△	△	△
	Diagnostics	✓	✓	△	△	△	△
	VLAN	✓	✓	△	△	△	△
	Configuration	✓	✓	△	△	△	△
	SNMP	✓	✓	△	△	△	△
	Security	✓	✓	△	△	△	△
	Traffic Control	✓	✓	△	△	△	△
Power	24-48V_{DC}	–	–	△	△	△	△
	72-110V_{DC}	–	–	△	△	△	△
	24-110V_{DC}	✓	✓	–	–	–	–
	IP level	IP67	IP67	IP40	IP40	IP40	IP40
Rolling Stock Application	Ethernet Train Backbone (IEC61375-2-3 & -2-5)	–	–	–	–	–	–
	EN50155	✓	✓	✓	✓	✓	✓
	EN50121-3-2	✓	✓	✓	✓	✓	✓
	EN61373	✓	✓	✓	✓	✓	✓

✓: supported, – : not supported, △ : optional

L3 Managed Switches

Model		EKI-9728G-4X8CI	EKI-9628G-4CI	EKI-9612G-4FI
Description		L3 28-port Managed Switch	L3 28-port Managed Switch	L3 12-port Managed Switch
Interface	Number of Ports	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 x SFP+ (10G)	4 (combo)	4 x SFP
	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	90~264 VAC	–	–
	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 61010	–	✓	✓
Others		–	LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1

✓: supported, – : not supported, △ : optional

IEC 61850-3 Managed Industrial Ethernet Switches

Model		EKI-9228G-8COI EKI-9228G-8CMI	EKI-9226G-20FOI EKI-9226G-20FMI
Description		28-port Full Giga Managed Switch	26-port Full Giga Managed Switch
Interface	Number of Ports	28	26
	10/100Base-T (X)	–	–
	100BaseFX	–	–
	10/100/1000Base-T (X)	24 + 8 (combo)	6
	1000Base-SX/LX/ LHX/XD/ZX/EZX	8 x SFP (combo)	20 x SFP
	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	EKI-9228G-20FMI (48 VDC)	EKI-9226G-20FMI (48 VDC)
	24 ~ 110 V DC	-	-
	100 ~ 240 V AC	EKI-9228G-20FMI (90 ~ 264 VAC)	EKI-9226G-20FOI (90 ~ 264 VAC)
	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		ICE 61850-3	ICE 61850-3

Industrial Ethernet Solutions

Managed Ethernet Switches

	Model	EKI-7428G-4X	EKI-7412G-4XP	EKI-7428G-4CA	EKI-7706E-2F/I	EKI-7706G-2F/I	EKI-7708E-4F/I	EKI-7708G-4F/I	EKI-7708G-2FVI	EKI-7708G-2MI/2SI
	Description	24GE+4SFP 10G Managed Switch w/ AC Input	8GE + 4 SFP 10G, PoE 10/100/1000 Managed Switch w/ AC Input	24GE+4SFP Giga Managed Redundant Switch w/ AC Input	4FE+2SFP Giga Managed Redundant Industrial Switch	4GE+2SFP Giga Managed Redundant Industrial Switch	4FE+4SFP Giga Managed Redundant Industrial Switch	4GE+4SFP Giga Managed Redundant Industrial Switch	4GE + 2VDSL+2SFP Giga Managed Redundant Industrial Switch	6GE+2SFP Managed Redundant Industrial Switch
Interface	Number of Ports	28	12	28	6	6	8	8	8	8
	10/100Base-T (X)	–	–	–	4	–	4	–	4	–
	100BaseFX	–	–	–					–	–
	10/100/1000Base-T (X)	24	–	24 + 4 (combo)	–	4	-	4	–	6
	1000Base-SX/LX/LHX/XD/ZX/EZX	4 x SFP+ (10G)	4 x SFP+ (10G)	4 (combo)	2	2	4	4	4 (2SFP+ 2VDSL)	2 (multi/single)
	PoE (10/100 Mbps)	–	–	–	–	–	–	–	–	–
	PoE (10/100/1000 Mbps)	–	8	–	–	–	–	–	–	–
	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	–	–	–	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	0 ~ 60°C (32 - 140°F)	0 ~ 60°C (32 - 140°F)	-10 ~ 55°C (14 - 131°F)	EKI-7706E-2F	EKI-7706G-2F	EKI-7708E-4F	EKI-7708G-4F	–	–
	-40 ~ 75°C (-40 ~ 167°F)	–	–	–	EKI-7706E-2FI	EKI-7706G-2FI	EKI-7708E-4FI	EKI-7708G-4FI	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	–	–	–	–	–	–	–	–	✓
Certifications	CE	✓	-	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	–	–	✓	–	–	–	–	–	–
	Class 1, Division 2	–	–	–	–	–	–	–	–	–
	UL 508	–	–	–	–	–	–	–	–	–
	Others	LVD 62368-1	LVD 62368-1	LVD 62368-1	EN50121-4 UL 61010 LVD 62368-1	EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	LVD 62368-1

✓: supported, – : not supported, △ : optional

Managed Ethernet Switches

Model		☞ 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	☞ EKI-7716G-4F4CI	☞ EKI-7720E-4F ☞ EKI-7720E-4FI	☞ EKI-7720G-4F ☞ EKI-7720G-4FI
Description		8FE+2G Gigabit Managed Redundant Industrial Switch	8GE+2G Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8FE+4SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8GE + 2VDSL+2SFP Giga Managed Redundant Industrial Switch	8G+4G SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8GE+4SFP + 4G Combo Managed Redundant Industrial Switch	16FE+4G SFP Gigabit Managed Redundant Industrial Switch with Wide Temperature	16GE+4G SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature
Interface	Number of Ports	10	10	12	12	12	16	20	20
	10/100Base-T (X)	8	–	8	–	–	–	16	–
	100BaseFX	–	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	2 (combo)	8 + 2 (combo)	–	8	8	8 + 4 (Combo)	–	16
	1000Base-SX/LX/ LHX/XD/ZX/EZX	2 (combo)	2 (combo)	4	4 (2SFP+ 2VDSL)	4	4 + 4 (Combo)	4	4
	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	IP40	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-7710E-2C	EKI-7710G-2C	✓	–	EKI-7712G-4F	–	EKI-7720E-4F	EKI-7720G-4F
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7710E-2CI	EKI-7710G-2CI	✓	✓	EKI-7712G-4FI	EKI-7716G-4FI	EKI-7720E-4FI	EKI-7720G-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 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	MENA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1	NEMA TS2 EN50121-4 LVD 62368-1

✓: supported, – : not supported, △ : optional

Industrial Ethernet Solutions

Entry-level Managed Switches







Model		☞ EKI-5526I-MB ☞ EKI-5526I-PN ☞ EKI-5526I-EI	☞ EKI-5528I-MB ☞ EKI-5528I-PN ☞ EKI-5528I-EI	☞ EKI-5626CI-MB ☞ EKI-5626CI-PN ☞ EKI-5626CI-EI	☞ EKI-5629CI-MB ☞ EKI-5629CI-PN ☞ EKI-5629CI-EI	☞ EKI-5726I-MB	☞ EKI-5728I-MB	☞ EKI-5729I-MB
Description		16FE Entry-level Managed Switch	8FE Entry-level Managed Switch	16FE+2GE Combo Ports Entry-level Managed Switch	8FE+2GE Combo Ports Entry-level Managed Switch	16GE Entry-level Managed Switch	8GE Entry-level Managed Switch	8GE + 2 SFP Entry-level Managed Switch
Interface	Number of Ports	16	8	16+2	8+2	16	8	8+2
	10/100Base-T (X)	16	8	16	8	–	–	–
	100BaseFX	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	–	–	2/2 (combo)	2/2 (combo)	16	8	8
	1000Base-SX/LX/LHX/XD/ZX/EZX	–	–	2/2 (combo)	2/2 (combo)	–	–	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	EKI-5524SI/MMI Series	EKI-5525SI/MI Series	EKI-5528I EKI-5525I	EKI-5626CI	EKI-5629CI	EKI-5725I EKI-5728I	EKI-5726I
	Description	4-port + 2x100FX port (Single/ Multimode, SC/ST type), Fast Ethernet Switch	4-port +1x100FX port (Single/Multi-mode, SC/ST type), Fast Ethernet Switch	8/5-port Fast Ethernet Switch	16FE + 2GE Combo Ethernet Switch	8FE + 2GE Combo Ethernet Switch	5/8-port Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch
Interface	Number of Ports	6	4	8/5	18	10	5/8	16
	10/100Base-T (X)	4	4	8/5	16	8	–	–
	100BaseFX	2	1	–	–	–	–	–
	10/100/1000Base-T (X)	–	–	–	2 (combo)	2 (combo)	5/8	16
	1000Base-SX/LX/ LHX/XD/ZX/EZX	–	–	–	2 (combo)	2 (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	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		EKI-5726FI	EKI-5729FI	EKI-2428G-4CA	EKI-2525MI/SI-ST	EKI-2525MI/SI
Description		16-port+2 SFP Gigabit Ethernet Switch	8-Port+2 SFP Gigabit Ethernet Switch	24GFE+4SFP Giga ports Unmanaged Switch w/ AC Input	4+1 100FX Port Multi-mode/ Single-mode ST connector type Unmanaged Industrial Ethernet Switch	4+1 100FX Port Multi-mode/ Single-mode Unmanaged Industrial Ethernet Switch
Interface	Number of Ports	16	8	28	5	5
	10/100Base-T (X)	–	–	–	4	4
	100BaseFX	✓	✓	–	1	1
	10/100/1000Base-T (X)	16	8	24 + 4 (combo)	–	–
	1000Base-SX/LX/ LHX/XD/ZX/EZX	✓	✓	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	–	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	–	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°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	–	–	LVD 62368-1	–	–

✓: supported, – : not supported, △ : optional

Unmanaged Ethernet Switches






Model		EKI-2525LI-AE	EKI-2526M/S	EKI-2725/I	EKI-2728/I	EKI-2728S/2728SI	EKI-2728M/MI
Description		5 x Fast Ethernet Ports Slim Type Unmanaged Switch	4+2 100FX Port Multi-mode/ Single-mode Industrial Ethernet Switch	5-port Gigabit Unmanaged Industrial Ethernet Switch	8-port Gigabit Unmanaged Industrial Ethernet Switch	6GE+2G Single-Mode Fiber Port Unmanaged Ethernet Switch	6G+2G Multi-Mode Unmanaged Ethernet Switch
Interface	Number of Ports	5	6	5	8	8	8
	10/100Base-T (X)	5	4	–	–	–	–
	100BaseFX	–	2	–	–	–	–
	10/100/1000Base-T (X)	–	–	5	8	6	6
	1000Base-SX/LX/ LHX/XD/ZX/EZX	–	–	–	–	2 x SC Single Mode	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	40	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	–	✓	EKI-2725	EKI-2728	EKI-2728S	EKI-2728M
	-40 ~ 75°C (-40 ~ 167°F)	✓	–	EKI-2725I	EKI-2728I	EKI-2728SI	EKI-2728MI
	-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

Power over Ethernet (PoE) Switches

	Model	EKI-7708E-4FP/I	EKI-7708G-4FP/I	EKI-7708G-2FVPI	EKI-7710E-2CP EKI-7710E-2CPI	EKI-7710G-2CPI EKI-7710G-2CP	EKI-7712E-4FP EKI-7712E-4FPI	EKI-7712G-4FP EKI-7712G-4FPI	EKI-7712G-4FMPI	EKI-7712G-2FVPI	EKI-7720G-4FPI
	Description	4FE+4SFP Managed Redundant Industrial PoE Switch	4GE+4SFP Managed Redundant Industrial PoE Switch	4GE+2VDSL+ 2SFP Managed Redundant Industrial PoE Switch	8FE+2SFP Managed Redundant Industrial PoE Switch	8GE+2SFP Managed Redundant Industrial PoE Switch	8FE + 4SFP Managed Redundant Industrial PoE Switch	8GE+4SFP Managed Redundant Industrial PoE Switch	8GE+4SFP Managed Redundant Industrial PoE Switch	8GE+2VDSL + 2SFP Managed Redundant Industrial PoE Switch	16GE+2SFP Managed Redundant Industrial PoE Switch
Interface	Number of Ports	8	8	8	10	10	12	12	12	12	20
	10/100Base-T (X)	–	–	4	–	–	–	–	–	–	–
	100BaseFX	–	–	–	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	–	–	–	2 (combo)	2 (combo)	–	–	–	8	–
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4	4	4 (2SFP+2VDSL)	2 (combo)	2 (combo)	4	4	4	4 (2SFP+2VDSL)	4
	PoE (10/100 Mbps)	4	–	–	8	–	8	–	–	–	–
	PoE (10/100/1000 Mbps)	–	4	–	–	8	–	8	8	–	16
	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	48 VDC	53 ~ 57 VDC	48 VDC	55 VDC
	24 ~ 110 V DC	–	–	–	–	–	–	–	–	–	–
	100 ~ 240 V AC	–	–	–	–	–	–	–	–	–	–
	Relay Output	✓	✓	✓	–	–	✓	✓	✓	✓	✓
	Power Budget	120W	120W	120W	120W	120W	240W	240W	370W	240W	420W
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	–	–	–	–	–	–	–	–	–	–
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	EKI-7708E-4FP	EKI-7708G-4FP	–	EKI-7710E-2CP	EKI-7710G-2CP	EKI-7712E-4FP	EKI-7712G-4FP	–	–	–
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7708E-4FPI	EKI-7708G-4FPI	✓	EKI-7710E-2CPI	EKI-7710G-2CPI	EKI-7712E-4FPI	EKI-7712G-4FPI	✓	✓	✓
	-40 ~ 85°C (-40 ~ 185°F)	–	–	–	–	–	–	–	–	–	–
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	–	–	–	–	–	–	–	–	–	–
	Class 1, Division 2	–	–	–	–	–	–	–	–	–	–
	UL 508	–	–	–	✓	✓	✓	✓	–	–	–
	Others	NEMA TS2 EN 50121-4 LVD 62368-1 UL 61010	NEMA TS2 EN 50121-4 LVD 62368-1 UL 61010	NEMA TS2 EN 50121-4 LVD 62368-1 UL 61010	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1	UL 62368-1 NEMA TS2 EN50121-4	UL 61010	UL 62368-1 NEMA TS2 EN50121-4

✓ : supported, – : not supported, △ : optional

Power over Ethernet (PoE) Switches







Model		EKI-2525P	EKI-2525PA	EKI-2526PI	EKI-2528PAI	EKI-2726FHPI	EKI-5624P/5624PI	EKI-5729P/5729PI
Description		5-port Industrial PoE Switch	5-port Industrial PoE Switch with 24/48 V DC Power Input	6-port Industrial PoE Switch with Wide Temperature	8-port Industrial PoE Switch with 24/48V_{DC} Power Input and Wide Temperature	4G+2 SFP W/ 4 IEEE 802.3 High Power PoE Industrial Wide Temperature 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}
Interface	Number of Ports	5	5	6	8	6	6	8
	10/100Base-T (X)	1	1	2	4	-	4	-
	100BaseFX	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	–	–	–	–	4	2	–
	1000Base-SX/LX/LHX/XD/ZX/EZX	–	–	–	–	2	–	–
	PoE (10/100 Mbps)	4	4	4	4	4 (PoE+, 30W)	–	–
	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}	24/48 V_{DC}	48 V_{DC}	24/48 V_{DC}	48 V_{DC}	12 ~ 24 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

Industrial Wireless and Protocol Gateway Solutions

Wireless Access Points/Clients

Model		EKI-6333AC-2G	EKI-6333AC-4GP	EKI-6333AC-M12
Description		Industrial IEEE 802.11 Ind. 802.11 a/b/g/n/ac Wi-Fi AP/Client	Industrial IEEE 802.11 a/b/g/n/ac Wi-Fi AP with PoE PSE	EN50155 IEEE 802.11 a/b/g/n/ac Wi-Fi AP/Client
Connectivity	10/100/1000Based-T, Fixed	2	–	△2 (M12 Connector)
	10/100Base-TX, Fixed	–	4	
	RS-232 Only	–	–	–
	RS-232/422/485	–	1x RS–232/RS–485	–
	Serial Connector Type	–	Terminal Block Male	–
Operating Mode	Mobility/Roaming	–	–	–
	Multi-Hopping	–	–	–
	AP/CPE	✓	✓	✓
Enclosure & Mount kit	Enclosure	IP55	–	Metal shell with solid mounting kits
	DIN-rail	–	✓	–
	Wall	✓	–	✓
	VESA Mount	–	–	–
	Pole Mount	✓	–	–
Power	Power Input (VDC)	–	24 ~ 56 VDC	24 ~ 48VDC (LV model), 72/96/110VDC (HV model)
	Power Input (PoE)	Passive 24V	PoE 802.3at PSE	-
	Power Connector	RJ45	Terminal block	M12 A-Code male (5-pin)
Environment	Operating Temp.	-20 ~ 70 °C (-4~158°F)	-30 ~ 70 °C	-40 ~ 75 °C (-40 ~ 166 °F)
	Operating Humidity	10 ~ 95%	10 ~ 95%	10 ~ 95%
	Input Reverse Protection	–	–	–
Software	Netwrok Protocol	–	–	–
	Firewall	–	–	–
	Router	–	–	–
	Configuration Options	Web-based	Web-based	Web-based
	Authentication	Username/Password	Username/Password	Username/Password
	Standard Operation Mode	Access Point, Client, Repeater mode	Access Point/Bridge mode	Access Point/Bridge/Client mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac	a/b/g/n/ac
	Radio Number	2	2	2
	Security	WEP, WPA/WPA2-Perso-I, WPA/WPA2-Enterprise	–	Open System , Shared Key, Lagacy 8021X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)
RF	Frequency	2.4G/5GHz	2.4G/5GHz	2.4G/5GHz
	MIMO	2T2R	2T2R	2T2R
Certification	UL60950-1	–	–	–
	EN60950-1	–	–	–
	CE	✓	✓	✓
	FCC	✓	–	✓
	EN50155	–	–	✓

EN50155 Wireless Devices

Model		EKI-9502G
Description		EN50155 Train-To-Ground Wi-Fi/Cellular Router
Connectivity	10/100Base-TX, Fixed	–
	10/100/1000 Based-T, Fixed	2
	RS-232 only	–
	RS-232/422/485	2
	Serial connector type	Terminal Block Male
Operating Mode	Mobility/Roaming	–
	Multi-Hopping	–
	AP/CPE	✓
Enclosure & Mount kit	Enclosure	Metal shell with solid mounting kits
	DIN-rail	–
	Wall	✓
	VESA Mount	–
	Pole Mount	–
Power	Power Input (VDC)	24-110 VDC
	Power Input (PoE)	–
	Power Connector	M12 A-coded with (4-pin)
Environment	Operating Temp.	-40 ~ 70°C (-40 ~ 158°F)
	Operating Humidity	10 ~ 95%
	Input Reverse Protection	–
Software	Netwrok Protocol	IPv4, TCP/IP, UDP, ARP
	Firewall	✓
	Router	NAT/PAT, Firewall, QoS, Static Route, Port Forwarding, DMZ, IPSec/PPTP/L2TP passthrough, OpenVPN Server/Client, GRE
	Protocol	DHCP Server, DHCP Client, DNS Proxy
	Management	HTTP, Telnet, SSH, System Log, E-mail, SMS, SNTP
	Configuration Options	Web-base
	Authentication	Authentication (X.509 certificate, Pre-shared key, PW)
	Standard Operation Mode	Access Point/Client mode
WLAN	IEEE Standard	802.11 a/b/g/n/ac
	Radio Number	up to 2 (module type design)
	Security	Open System, Shared Key, Lagacy 802.1X
RF	Frequency	2.4G/5G
	MIMO	3T3R
WAN	LTE	Cat 4/6/12 (base on LTE module type)
	Radio Number	Up to 4 (Module type design)
	SIM Card Slot	8
Certification	UL60950-1	–
	EN60950-1	–
	CE	✓
	FCC	✓
	EN50155	✓

*** Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.**
✓ : supported, – : not supported, △ : optional

Fieldbus Gateways






Model		EKI-1242IEIMS	EKI-1242IPNMS	EKI-1242IECMS	EKI-1242IBNMS	EKI-1242INR	EKI-1242IOUMS
Description		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	Node-RED Fieldbus Gateway	Modbus TCP/RTU to OPC UA Fieldbus Gateway
Connectivity	10/100Base-TX, Fixed	4	4	4	4	4	4
	RS-232/422/485	2	2	2	2	2	2
	Serial Connector Type	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓	✓
Power	Power Input (V_{DC})	(12~48V)	(12~48V)	(12~48V)	(12~48V)	12~48V	12~48V
	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.	-10~60°C	-10~60°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 RTU/TCP EtherNet/IP	Modbus RTU/TCP PROFINET	Modbus RTU/TCP EtherCAT	Modbus RTU/TCP BACnet	Node-RED	Modbus RTU/TCP, OPC UA
	Configuration Options	Web-based	Web-based	Web-based	Web-based	Web-base	Web-base
	Authentication	Username/Password	Username/Password	Username/Password	Username/Password	Username/ password	Username/ password
	Standard Operation mode	ModbusRTU/TCP Master Ethernet/IP Adapter	ModbusRTU/TCP Master PROFINET Slave	ModbusRTU/TCP Master EtherCAT Slave	ModbusRTU/TCP Master BACNet Slave	–	–
Certification	UL60950-1	✓	✓	✓	✓	✓	✓
	CE (EN55022 class A, EN55024)	✓	✓	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓	✓	✓

Modbus Gateways

Modbus Routers






Model		EKI-1221/I/CI	EKI-1222/I/CI	EKI-1224/I/CI	EKI-1221R	EKI-1222R	EKI-1224R
Description		1-Port Modbus Gateway	2-Port Modbus Gateway	4-Port Modbus Gateway	1-Port Modbus Router	2-Port Modbus Router	4-Port Modbus Router
Connectivity	10/100Base-TX, Fixed	2	2	2	2	2	2
	RS-232/422/485	1 (CI version: RS-422/485)	2 (CI version: RS-422/485)	4 (CI version: RS-422/485)	1 (CI version: RS-422/485)	2 (CI version: RS-422/485)	4 (CI version: RS-422/485)
	Serial Connector Type	DB9 Male	DB9 Male	DB9 Male	DB9 Male	DB9 Male	DB9 Male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30	IP30	IP30	IP30
	DIN-rail	✓	✓	✓	✓	✓	✓
	Wall	✓	✓	✓	✓	✓	✓
Power	Power Input (V_{DC})	2* (12~48V)	2* (12~48V)	2* (12~48V)	2* (12~48V)	2* (12~48V)	2* (12~48V)
	Power Connector	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V_{DC}) Watts	5.2W	5.2W	6.3W	5.2W	5.2W	6.3W
Environment	Operating Temp.	-10 ~ 60°C 'CI & I' models: -40 ~70°C	-10 ~ 60°C 'CI & I' models: -40 ~70°C	-10 ~ 60°C 'CI & I' models: -40 ~70°C	-10 ~ 60°C 'CI & I' models: -40 ~70°C	-10 ~ 60°C 'CI & I' models: -40 ~70°C	-10 ~ 60°C 'CI & I' models: -40 ~70°C
	Operating Humidity	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%
Software	Netwrok Protocol	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII	Modbus RTU, Modbus TCP, Modbus ASCII
	Configuration Options	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser	Windows Utility, Web Browser
	Standard Operating Mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode	Modbus RTU Master/Slave mode Modbus ASCII Master/ Slave mode
Certification	UL60950-1	✓	✓	✓	✓	✓	✓
	CE (EN55022 class A, EN55024)	✓	✓	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓	✓	✓
	Hazardous Location (Class I, Division 2)	✓	✓	✓	✓	✓	✓

✓ : supported, – : not supported, △ : optional

Industrial Wireless and Protocol Gateway Solutions

Serial Device Servers



Model		EKI-1511L	EKI-1511IL	EKI-1511X
Description		1 Port RS-232 Serial Device Server	1 Port RS-232 Serial Device Server	1 Port RS-422-485 Serial Device Server
Connectivity	10/100Base-TX, Fixed	1	1	1
	Serial Connector Type	DB9 Male	DB9 Male	DB9 Male
Enclosure & Mount kit	Enclosure	IP30	IP30	IP30
	DIN-rail	✓	✓	✓
	Wall	✓	✓	✓
Power	Power Input (Vdc)	9~36V	9~36V	9~36V
	Power Connector	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48Vdc) Watts	1W	1W	1W
Environment	Operating Temp.	-10 ~ 60°C	-40 ~75°C	-10 ~ 60°C
	Operating Humidity	10~95%	10~95%	10~95%
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP
	Configuration Options	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser	Windows utility, Telnet console, Web Browser
	Standard Operating Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode	COM Port redirection (Virtual COM) TCP/UDP Server (Polling) Mode TCP/UDP Client (event handling) Mode Pair Connection (P2P) Mode
Certification	CE(EN55022 class A, EN55024)	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓




Model		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 (EKI-1524: 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	✓	✓	–	–
Power	Power Input (Vdc)	2* (12~48V)	2* (12~48V)	EKI-1528(I)/EKI-1526(I): 100 ~ 240 VAC, 50 ~ 60 Hz EKI-1528T(I)/EKI-1526T(I): 12 ~ 48 VDC, Terminal Block	(10~30V)
	Power Connector	Terminal block	Terminal block	6-pin removable screw terminal	Terminal block
	Power Consumption (12/24/48Vdc) 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 ~ 80°C	-40 ~ 70°C	-10 ~ 60°C (14 ~ 140°F) "I" Model: -40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C
	Operating Humidity	10 ~ 95%	10 ~ 95%	10 ~ 95%	5 ~ 95%
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
	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
	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	✓	✓	–	–
	CE(EN55022 class A, EN55024)	✓	✓	✓	✓
	FCC (part 15 subpart B class A)	✓	✓	✓	✓
	Hazardous Location (Class I, Division 2)	✓	–	–	–

✓: supported, – : not supported, △ : optional

Console Servers

Model		☞ EKI-1528NL-CS ☞ EKI-1526NL-CS
Description		8/16-Port RS-232/422/485 Console Server
Connectivity	10/100Base-TX, Fixed	–
	10/100/1000Based-T, Fixed	2
	RS-232 Only	–
	RS-232/422/485	8/16
	Serial Connector Type	RJ-45 (Cisco compliant)
Enclosure & Mount kit	Enclosure	SECC chassis
	DIN-rail	Rackmount
	Wall	–
	VESA Mount	–
	Pole Mount	–
Power	Power Input (V_{DC})	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
	Power Input (PoE)	–
	Power Connector	6-pin removable screw terminal
	Power Consumption (12/24/48V_{DC}) Watts	5.6 W
Environment	Operating Temp.	-10 ~ 60°C (14 ~ 140°F) "I" Model: -40 ~ 75°C (-40 ~ 167°F)
	Operating Humidity	10 ~ 95%
	Input Reverse Protection	–
Software	Network Protocol	ARP, ICMP, IPv4, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP, NTP
	Firewall	–
	Router	–
	Configuration Options	Windows utility, Telnet console, Web Browser, serial console
	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
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	–

Wireless Devices

Model		☞ EKI-1361 ☞ EKI-1362	☞ EKI-6333AC
Description		1/2-port RS-232/422/485 to 802.11b/g/n WLAN Serial Device Server	IEEE 802.11 a/b/g/n/ac 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	–
Operating Mode	Mobility/Roaming	✓	–
	Multi-Hopping	–	–
	AP/CPE	✓	✓
Enclosure & Mount kit	Enclosure	IP30	IP30
	DIN-rail	✓	✓
	Wall	✓	✓
	VESA Mount	–	–
	Pole Mount	–	–
Power	Power Input (V_{DC})	12~48V	12~48V
	Power input (PoE)	–	–
	Power Connector	Terminal block	Terminal block
	Power Consumption (12/24/48VDC) Watts	8W (EKI-1361) 9W (EKI-1362)	8W
Environment	Operating Temp.	-40 ~ 75°C	-40 ~ 75°C
	Operating Humidity	10 ~ 95%	10 ~ 95%
	Input Reverse Protection	✓	✓
Software	Netwrok Protocol	–	–
	Firewall	–	–
	Router	–	–
	Configuration Options	Web-base, windows utility	Web-base
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Station Mode	Access Point
WLAN	IEEE Standard	a/b/g/n	a/b/g/n/ac
	Radio Number	1	1
	Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WAP/WAP2-Persona, WAP/WAP2-Enterprise
RF	MIMO	2T2R	2T2R
	Maximum Transmit Output Power	19dBm (11n)	19dBm (11n)
	Receive Sensitivity	-93dBm (11g Rx0+Rx1)	-93dBm (11g Rx0+Rx1)
	Antenna Connector	R-SMA	R-SMA
Cellular	Standard	–	–
	Five-band Option in UMTS	–	–
	Quad-band Option 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	–	–

✓: supported, – : not supported, △ : optional

Industrial Cellular Routers and Gateways

Industrial Modulized Cellular Routers

Model		LR77 v2 Libratum	UR5i v2 Libratum	LR77 v2	UR5i v2	XR5i v2E	XR5i v2F
Region	EMEA	✓	✓	✓	✓	✓	✓
	NAM	–	–	–	–	–	ERT31x
	ASIA & LATAM	–	✓		✓	✓	✓
	AUS & NZ	–	✓	–	–	–	–
Mobile Wireless Network Technology	GPRS/EDGE	✓	✓	✓	✓	–	–
	UMTS/HSPA+	✓	✓	✓	✓	–	–
	LTE	Cat.3	–	Cat.3	–	–	–
	LTE 450	–	–	–	–	–	–
	WAN Ethernet	✓	✓	△	△	✓	✓
	Two VF modules	–	–	–	–	–	–
Communication Interfaces and Expansions	Ethernet 10/100	2x	2x	1x - 3x	1x - 3x	2x	1x - 3x
	PoE PSE / PoE PD	–	–	–	–	–	–
	SD Card Holder	–	–	△	△	–	△
	Wi-Fi (IEEE 802.11 b, g, n)	△	△	△	△	△	△
	USB Host	–	–	✓	✓	–	✓
	RS232/RS422/RS485	–	–	△	△	–	△
	MBUS, Wireless MBUS	–	–	△	△	–	△
	I/O CNT (4x bin. IN, 2x analog IN, 1x output)	–	–	△	△	–	△
	I/O (1 x IN/1 x OUT)	–	–	✓	✓	–	✓
	GPS Receiver	–	–	△	△	–	
CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions	CPU Power (MHz)	333	333	333	333	333	333
	Flash RAM / RAM / M-RAM (MB / MB / kB)	16 / 64 / 128	16 / 64 / 128	16 / 64 / 128	16 / 64 / 128	16 / 64 / 128	16 / 64 / 128
	Consumption - Idle / Average / Peak / Sleep Mode	2,3 / 3,5 / 5,5W / –	2,3 / 3,5 / 5,5W / –	2,3 / 4 / 6W / –	2,3 / 4 / 6W / –	2,3 / 4 / 6W / –	2 / 2,5 / 3W / –
	2 x SIM Card	✓	✓	optional	optional	-	-
	Power Supply (V DC)	9 - 36	9 - 36	9 - 36	9 - 36	9 - 36	9 - 36
	Op. Temperature (°C)	-40 to +75	-40 to +75	-40 to +75	-40 to +75	-40 to +75	-40 to +75
	Plastic Casing (mm)	51x87x116	51x87x116	51x87x116	51x87x116	51x87x116	51x87x116
	Metal Casing (mm)	42x87x113	42x87x113	42x87x113	42x87x113	42x87x113	42x87x113
	DIN holder TS35/TS32	✓	✓	✓	✓	✓	✓
Functions	Linux	✓	✓	✓	✓	✓	✓
	IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN	✓	✓	✓	✓	✓	✓
	Authentication (X.509 certificate, Pre-shared key, PW)	✓	✓	✓	✓	✓	✓
	Firewall, NAT/PAT	✓	✓	✓	✓	✓	✓
	DHCP Server, Client, Relay	✓	✓	✓	✓	✓	✓
	HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client	✓	✓	✓	✓	✓	✓
	DynDNS	✓	✓	✓	✓	✓	✓
	FTP Server	✓	✓	✓	✓	✓	✓
	SNMP, VRRP, PPPoE Bridge	✓	✓	✓	✓	✓	✓
	SMTP, E-mail, SMS Functions	✓	✓	✓	✓	✓	✓
	VLAN 802.1Q	✓	✓	✓	✓	✓	✓
	QoS, IGMP, BGP, OSPF, RIP	△	△	△	△	△	△
	IPv6 Dual Stack	✓	✓	✓	✓	✓	✓
	COM Port TCP/UDP Server/ Client	–	–	✓	✓	–	✓
	MODBUS RTU/TCP Gateway	–	–	△	△	–	△
	4 Configuration Profiles	✓	✓	✓	✓	✓	✓
	Automatic Configuration and FW Update	✓	✓	✓	✓	✓	✓
Additional Software Support	Supports Software User Modules (free space for UM)	2 MB	2 MB	2 MB	2 MB	2 MB	2 MB
	WebAccess/DMP	✓	✓	✓	✓	✓	✓
	R-SeeNet	✓	✓	✓	✓	✓	✓
	WebAccess/VPN	✓	✓	✓	✓	✓	✓
	Python, Node-RED						

✓: supported, – : not supported, △ : optional

Industrial Advanced Cellular Routers




Model		SmartFlex LAN	SmartFlex	SmartMotion	SmartStart
Region	EMEA	BB-SR300	BB-SR303, BB-SR304, BB-SR307	BB-ST352, BB-ST355	BB-SL305
	NAM	BB-SR300	BB-SR305	–	BB-SL302
	ASIA & LATAM	BB-SR300	BB-SR304	–	BB-SL306, BB-SL305
	AUS & NZ	BB-SR300	BB-SR308	–	–
Mobile Wireless Network Technology	GPRS/EDGE	–	✓	✓	✓
	UMTS/HSPA+	–	✓	✓	✓
	LTE	–	Cat.3/Cat.4	Cat.3	Cat.1/Cat.4
	LTE 450	–	SR307	ST355	–
	WAN Ethernet	✓	✓	✓	–
	Two VF Modules	–	–	✓	-
Communication Interfaces and Expansions	Ethernet 10/100	5x	2x - 5x	2x	1x
	PoE PSE / PoE PD	△	△	△	–
	SD Card Holder	✓	✓	✓	–
	Wi-Fi (IEEE 802.11 b, g, n)	△	△	△	△
	USB Host	✓	✓	✓	
	RS232/RS422/RS485	–	△	–	RS232
	MBUS, Wireless MBUS	–	–	–	–
	I/O CNT (4x bin. IN, 2x analog IN, 1x output)	–	–	–	–
	I/O (1 x IN/1 x OUT)	2xIN / 1xOUT	2xIN / 1xOUT	2xIN / 1xOUT	✓
	GPS Receiver	-	by module	✓	-
CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions	CPU Power (MHz)	1000	1000	1000	1000
	Flash RAM / RAM / M-RAM (MB / MB / kB)	256 / 512 / 128	256 / 512 / 128	256 / 512 / 128	256 / 512 / 128
	Consumption - Idle / Average / Peak / Sleep Mode	2,5 / 4 / 11 W / 10mW	2,5 / 4 / 11 W / 10mW	2,5 / 4 / 11 W / 10mW	2,7 / 5.5 / 11 W / 40mW
	2 x SIM Card	–	✓	4x	a
	Power Supply (V DC)	10 - 60	10 - 60	10 - 60	9 - 36
	Op. Temperature (°C)	-40 to +75	-40 to +75 (-40 to +70 LTE450)	-40 to +75 (-40 to +70 LTE450)	-40 to +75
	Plastic Casing (mm)	55x97x125	55x97x125		30x87x127
	Metal Casing (mm)	55x97x125	55x97x125	55x97x125	
	DIN holder TS35/TS32	✓	✓	✓	Wall / DIN
Functions	Linux	✓	✓	✓	✓
	IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN	✓	✓	✓	✓
	Authentication (X.509 Certificate, Pre-shared Key, PW)	✓	✓	✓	✓
	Firewall, NAT/PAT	✓	✓	✓	✓
	DHCP Server, Client, Relay	✓	✓	✓	✓
	HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client	✓	✓	✓	✓
	DynDNS	✓	✓	✓	✓
	FTP Server	✓	✓	✓	✓
	SNMP, VRRP, PPPoE Bridge	✓	✓	✓	✓
	SMTP, E-mail, SMS Functions	✓	✓	✓	✓
	VLAN 802.1Q	✓	✓	✓	✓
	QoS, IGMP, BGP, OSPF, RIP	△	△	△	△
	IPv6 Dual Stack	✓	✓	✓	✓
	COM Port TCP/UDP Server/ Client	–	✓	✓	✓
	MODBUS RTU/TCP Gateway	–	△	△	△
	4 Configuration Profiles	✓	✓	✓	✓
	Automatic Configuration and FW Update	✓	✓	✓	✓
Additional Software Support	Supports Software User Modules (free space for UM)	128 MB	128 MB	128 MB	128 MB
	WebAccess/DMP	✓	✓	✓	✓
	R-SeeNet	✓	✓	✓	✓
	WebAccess/VPN	✓	✓	✓	✓
	Python, Node-RED	✓	✓	✓	✓

✓: supported, – : not supported, △ : optional

Industrial Cellular Routers and Gateways

Industrial IoT Cellular Routers

Model		ICR-3200w	ICR-3201	ICR-3831	ICR-2031	ICR-2431
Region	EMEA	ICR-3231	ICR-3201	ICR-3831	✓	✓
	NAM	ICR-3241, ICR-3211	ICR-3201	–	–	–
	ASIA & LATAM	-	ICR-3201	–	–	–
	AUS & NZ	ICR-3232	ICR-3201	–	–	–
Mobile Wireless Network Technology	GPRS/EDGE	✓	–	✓	✓	✓
	UMTS/HSPA+	✓	–	✓	✓	✓
	LTE	Cat.4/Cat M1	–	Cat.4	✓	✓
	LTE 450	–	–	–	–	–
	WAN Ethernet	✓	✓	✓	✓	✓
	Two VF Modules	–	–	–	–	–
Communication Interfaces and Expansions	Ethernet 10/100	2x	2x	2x (M12 connector)	1	2
	PoE PSE / PoE PD	–	–	PoE PD	–	–
	SD Card Holder	–	–	✓	–	–
	Wi-Fi (IEEE 802.11 b, g, n)	△	△	–	–	–
	USB Host	–	–	✓ (M12 connector)	–	–
	RS232/RS422/RS485	RS232/RS485	RS232/RS485	RS232 (M12 connector)	–	RS232/485
	MBUS, Wireless MBUS	–	–	–	–	–
	I/O CNT (4x bin. IN, 2x analog IN, 1x output)	–	–	–	–	–
	I/O (1 x IN/1 x OUT)	✓	✓	2xIN / 2xOUT (M12 connector)	✓	✓
	GPS Receiver	△	△	✓	–	–
CPU, Ram, Consuption, Sim, Design, Environmental, Dimensions	CPU Power (MHz)	1000	1000	1000	600	600
	Flash RAM / RAM / M-RAM (MB / MB / kB)	2x 256 MB – FW 512 MB – User data storage 838 MB – Space for User Modules	2x 256 MB – FW 512 MB – User data storage 838 MB – Space for User Modules	256 / 512 / 128	Flash 64MB, 12MB for RouterAPP	Flash 64MB, 12MB for RouterAPP
	Consumption - Idle / Average / Peak / Sleep Mode	2.5 / 4 W / 11 W / 10 mW	2.5 / 4 W / 11 W / 10 mW	2,5 / 4 / 11 W / 10mW	1/3.5/10 No sleep mode	1/3.5/10 No sleep mode
	2 x SIM Card	a/ eSIM	–	✓	✓	✓
	Power Supply (V DC)	9 - 36	9 - 36	12 - 48	9 - 48	9 - 48
	Op. Temperature (°C)	-40 to +75	-40 to +75	-40 to +70	-40 to +75	-40 to +75
	Plastic Casing (mm)				-	-
	Metal Casing (mm)	55 x 97 x 125	55 x 97 x 125	59 x 113 x 203	103 x 95 x 23	103 x 95 x 23
	DIN holder TS35/TS32	Wall / DIN	Wall / DIN	Wall	Wall/DIN	Wall/DIN
Functions	Linux	✓	✓	✓	✓	✓
	IPSec, OpenVPN, PPTP, L2TP, GRE, Easy VPN	✓	✓	✓	✓	✓
	Authentication (X.509 Certificate, Pre-shared Key, PW)	✓	✓	✓	✓	✓
	Firewall, NAT/PAT	✓	✓	✓	✓	✓
	DHCP Server, Client, Relay	✓	✓	✓	✓	✓
	HTTP/HTTPS Server, Telnet/ SSH, NTP Server, NTP Client	✓	✓	✓	✓	✓
	DynDNS	✓	✓	✓	✓	✓
	FTP Server	✓	✓	✓	✓	✓
	SNMP, VRRP, PPPoE Bridge	✓	✓	✓	✓	✓
	SMTP, E-mail, SMS Functions	✓	✓	✓	✓	✓
	VLAN 802.1Q	✓	✓	✓	✓	✓
	QoS, IGMP, BGP, OSPF, RIP	△	△	△	△	△
	IPv6 Dual Stack	✓	✓	✓	✓	✓
	COM Port TCP/UDP server/ client	✓	✓	✓	✓	✓
	MODBUS RTU/TCP Gateway	△	△	△	△	△
	4 Configuration Profiles	✓	✓	✓	✓	✓
	Automatic Configuration and FW Update	✓	✓	✓	✓	✓
Additional Software Support	Supports Software User Modules (free space for UM)	838 MB	838 MB	128 MB	12 MB	12 MB
	WebAccess/DMP	✓	✓	✓	✓	✓
	R-SeeNet	✓	✓	✓	–	–
	WebAccess/VPN	✓	✓	✓	✓	✓
	Python, Node-RED	✓	✓	✓	–	–

✓: supported, – : not supported, △ : optional

Industrial Network Infrastructure

IMC-700

Intelligent Modular Media Converters

Centralized powered chassis design with SNMP management increases installation flexibility for high-end deployment.

- Supports iView² with capacity of more than 400 devices
- High-port density modules for Ethernet to fiber applications
- Comes with AC or DC power inputs for redundancy
- Supports Network management via iView² and SNMP for remote management
- Wide speed ranges up to 10GE transmission

Intelligent Modular Chassis

Part Number	Slot	Power Input
IMC-711	1	AC / DC
IMC-712	2	AC / DC
IMC-713*	3	Dual AC/DC
IMC-716*	6	Dual AC/DC
IMC-719*	20	Dual AC/DC

* Needs to work with a centralized SNMP module IMC-710 for network management.
IMC-710: 2 x 10/100Mbps RJ-45 Slide-In SNMP Management Module

Unmanaged Slide-in Modules

Part Number	Optical Speed	Optical Mode	Wavelength	Distance	Optical Connector	Wide Temp.
IMC-790-2XFP	10Gbps	Various	Various	Various	2 x XFP	–
IMC-790-2SFP	10Gbps	Various	Various	Various	2 x SFP+	–
IMC-771-MM	1000Mbps	Multi-Mode	850 nm	550 m	1 x SC	–
IMC-771-SM	1000Mbps	Single-Mode	1310 nm	10 km	1 x SC	–
IMC-771-SE	1000Mbps	Single-Mode	1310 nm	40 km	1 x SC	–
IMC-771-SXL	1000Mbps	Single-Mode	1550 nm	100 km	1 x SC	–
IMC-771-SST	1000Mbps	Single-Strand	1310T/1550R	10 km	1 x SC	–
IMC-771-SSR	1000Mbps	Single-Strand	1550T/1310R	10 km	1 x SC	–
IMC-771-SSET	1000Mbps	Single-Strand	1310T/1550R	40 km	1 x SC	–
IMC-771-SSER	1000Mbps	Single-Strand	1550T/1310R	40 km	1 x SC	–
IMC-771-SS4T	1000Mbps	Single-Strand	1490T/1550R	70 km	1 x SC	–
IMC-771-SS4R	1000Mbps	Single-Strand	1550T/1490R	70 km	1 x SC	–
IMC-771I-SFP	1000Mbps	Various	Various	Various	1 x SFP	–
IMC-770-MM	10/100/1000Mbps	Multi-Mode	850 nm	550 m	1 x SC	–
IMC-770-SM	10/100/1000Mbps	Single-Mode	1310 nm	10 km	1 x SC	–
IMC-770-SSR	10/100/1000Mbps	Single-Strand	1550T/1310R	10 km	1 x SC	–
IMC-770-SFP	10/100/1000Mbps	Various	Various	Various	1 x SFP	–
IMC-770I-2SFP	10/100/1000Mbps	Various	Various	Various	2 x SFP	–
IMC-751-SST	100Mbps	Single-Strand	1310T/1550R	20 km	1 x SC	–
IMC-751-SSR	100Mbps	Single-Strand	1550T/1310R	20 km	1 x SC	–
IMC-751-SSET	100Mbps	Single-Strand	1310T/1550R	40 km	1 x SC	–
IMC-751-SSER	100Mbps	Single-Strand	1550T/1310R	40 km	1 x SC	–
IMC-751-SE	100Mbps	Single-Mode	1310nm	40 km	1 x SC	–
IMC-751I-2SFP	100Mbps	Various	Various	Various	2 x SFP	–
IMC-750-SST	10/100Mbps	Single-Strand	1310T/1550R	20 km	1 x SC	–
IMC-750-SSR	10/100Mbps	Single-Strand	1550T/1310R	20 km	1 x SC	–
IMC-750-SSET	10/100Mbps	Single-Strand	1310T/1550R	40 km	1 x SC	–
IMC-750-SSER	10/100Mbps	Single-Strand	1550T/1310R	40 km	1 x SC	–
IMC-750I-SFP	10/100Mbps	Various	Various	Various	1 x SFP	✓
IMC-750-SE	10/100Mbps	Single-strand	Various	Various	1 x SC	–

Managed Slide-in Modules

Part Number	Optical Speed	Optical Mode	Wavelength	Distance	Optical Connector	Wide Temp.
IMC-784I-SFP	10/100/1000 Mbps	Various	Various	Various	2 x SFP	✓
IMC-782-SFP	10/100/1000 Mbps	Various	Various	Various	1 x SFP	–
IMC-762-SST	10/100 Mbps	Single-Strand	1310T/1550R	20 km	1 x SC	–
IMC-762-SSR	10/100 Mbps	Single-Strand	1550T/1310R	20 km	1 x SC	–
IMC-762-SSET	10/100 Mbps	Single-Strand	1310T/1550R	40 km	1 x SC	–
IMC-762-SSER	10/100 Mbps	Single-Strand	1550T/1310R	40 km	1 x SC	–
IMC-762-SFP	10/100 Mbps	Various	–	Various	1 x SFP	–
IMC-721I-MMST	DS1	Multi-Mode	1310nm	40 km	1 x ST	✓
IMC-721I-MM	DS1	Multi-Mode	1310nm	40 km	1 x SC	✓
IMC-721I-SEST	DS1	Single-Mode	1300nm	5 km	1 x ST	✓
IMC-721I-SE	DS1	Single-Mode	1300nm	5 km	1 x SC	✓
IMC-721I-SL	DS1	Single-Mode	1310nm	80 km	1 x SC	✓
IMC-721I-SST	DS1	Single-Strand	1310T/1550R	20 km	1 x SC	✓
IMC-721I-SSR	DS1	Single-Strand	1550T/1310R	20 km	1 x SC	✓
IMC-721I-SSET	DS1	Single-Strand	1310T/1550R	40 km	1 x SC	✓
IMC-721I-SSER	DS1	Single-Strand	1550T/1310R	40 km	1 x SC	✓
IMC-721I-SFP	DS1	Various	Various	Various	1 x SFP	✓

✓: supported, – : not supported, △ : optional

Industrial Network Infrastructure

Compact Media Converter Series

Part Number	Ethernet Speed	Optical Mode	Wavelength	Distance	Optical Connector
IMC-450-MM-A	10/100 Mbps	Multi-Mode	1300 nm	5 km	SC / ST
IMC-450-SE-A	10/100 Mbps	Single-Mode	1310 nm	40 km	SC / ST
IMC-450-SL-A	10/100 Mbps	Single-Mode	1310 nm	80 km	SC / ST
IMC-470-MM	10/100/1000 Mbps	Multi-Mode	850 nm	550 m	SC
IMC-470-M1	10/100/1000 Mbps	Multi-Mode	1300 nm	2 km	SC
IMC-470-SM	10/100/1000 Mbps	Single-Mode	1310 nm	10 km	SC
IMC-470-SE	10/100/1000 Mbps	Single-Mode	1310 nm	40 km	SC
IMC-470-SFP	10/100/1000 Mbps	Various	Various	Various	SFP

10/100Mbps Miniature Media Converters

Part Number	Optical Mode	Wavelength	Distance	Optical Connector
IMC-350-M8ST-PS-A	Multi-Mode	850 nm	2 km	ST
IMC-350-M8ST-A	Multi-Mode	850 nm	2 km	ST
IMC-350-M8-PS-A	Multi-Mode	850 nm	2 km	SC
IMC-350-M8-A	Multi-Mode	850 nm	2 km	SC
IMC-350-USB-A	Multi-Mode	850 nm	2 km	SC
IMC-350-MMST-PS-A	Multi-Mode	1300 nm	5 km	ST
IMC-350-MMST-A	Multi-Mode	1300 nm	5 km	ST
IMC-350-MM-PS-A	Multi-Mode	1300 nm	5 km	SC
IMC-350-MM-A	Multi-Mode	1300 nm	5 km	SC
IMC-350-SEST-PS-A	Single-Mode	1310 nm	40 km	ST
IMC-350-SEST-A	Single-Mode	1310 nm	40 km	ST
IMC-350-SE-PS-A	Single-Mode	1310 nm	40 km	SC
IMC-350-SE-A	Single-Mode	1310 nm	40 km	SC
IMC-350-SL-PS-A	Single-Mode	1310 nm	80 km	SC
IMC-350-SL-A	Single-Mode	1310 nm	80 km	SC
IMC-350-SSMT-PS-A	Single-Strand	1310T/1550R	2 km	SC
IMC-350-SSMR-PS-A	Single-Strand	1550T/1310R	2 km	SC
IMC-350-SST-PS-A	Single-Strand	1310T/1550R	20 km	SC
IMC-350-SSR-PS-A	Single-Strand	1550T/1310R	20 km	SC
IMC-350-SFP-PS-A	Various	Various	Various	SFP
IMC-350-SFP-A	Various	Various	Various	SFP

Industrial Grade 10/100Mbps Miniature Media Converters with PoE-PD

Part Number	Optical Mode	Wavelength	Distance	Optical Connector
IMC-350I-M8ST-PS-A	Multi-Mode	850 nm	2 km	ST
IMC-350I-M8ST-A	Multi-Mode	850 nm	2 km	ST
IMC-350I-M8-PS-A	Multi-Mode	850 nm	2 km	SC
IMC-350I-M8-A	Multi-Mode	850 nm	2 km	SC
IMC-350I-MMST-PS-A	Multi-Mode	1300 nm	5 km	ST
IMC-350I-MMST-A	Multi-Mode	1300 nm	5 km	ST
IMC-350I-MM-PS-A	Multi-Mode	1300 nm	5 km	SC
IMC-350I-MM-A	Multi-Mode	1300 nm	5 km	SC
IMC-350I-SEST-PS-A	Single-Mode	1310 nm	40 km	ST
IMC-350I-SEST-A	Single-Mode	1310 nm	40 km	ST
IMC-350I-SE-PS-A	Single-Mode	1310 nm	40 km	SC
IMC-350I-SE-A	Single-Mode	1310 nm	40 km	SC
IMC-350I-SL-PS-A	Single-Mode	1310 nm	80 km	SC
IMC-350I-SST-PS-A	Single-Strand	1310T/1550R	20 km	SC
IMC-350I-SST-A	Single-Strand	1310T/1550R	20 km	SC
IMC-350I-SSR-PS-A	Single-Strand	1550T/1310R	20 km	SC
IMC-350I-SSR-A	Single-Strand	1550T/1310R	20 km	SC
IMC-350I-SFP-PS-A	Various	Various	Various	SFP

10/100/1000Mbps Miniature Media Converters

Part Number	Optical Mode	Wavelength	Distance	Optical Connector
IMC-370-MM-PS-B	Multi-Mode	850 nm	550 m	SC
IMC-370-MMST-PS-B	Multi-Mode	850 nm	550 m	ST
IMC-370-SM-PS-B	Single-Mode	1310 nm	10 km	SC
IMC-370-SE-PS-B	Single-Mode	1310 nm	40 km	SC
IMC-370-SL-PS-B	Single-Mode	1550 nm	80 km	SC
IMC-370-SST-PS-B	Single-Strand	1310T/1550R	15 km	SC
IMC-370-SSR-PS-B	Single-Strand	1550T/1310R	15 km	SC
IMC-370-SFP-PS-B	Various	Various	Various	SFP

Industrial Grade 10/100/1000Mbps Miniature Media Converters

Part Number	Optical Mode	Wavelength	Distance	Optical Connector
IMC-370I-MM-B	Multi-Mode	850 nm	550 m	SC
IMC-370I-MM-PS-B	Multi-Mode	850 nm	15 km	SC
IMC-370I-SM-B	Single-Mode	1310 nm	15 km	SC
IMC-370I-SM-PS-B	Single-Mode	1310 nm	15 km	SC
IMC-370I-SE-PS-B	Single-Mode	1310 nm	30 km	SC
IMC-370I-SST-PS-B	Single-Strand	1310T/1550R	15 km	SC
IMC-370I-SSR-PS-B	Single-Strand	1550T/1310R	15 km	SC
IMC-370I-SFP-B	Various	Various	Various	SFP
IMC-370I-SFP-PS-B	Various	Various	Various	SFP

For IMC-350 and IMC-370 series, "-PS-A" means a universal power adapter with US/EU/UK/AU/JP plugs are included

PoE+/ PoE Media Converters

1 Gbps PoE & PoE+ Media Converters w/ 2 x RJ-45

Part Number	PSE	Optical Mode	Wavelength	Distance	Optical Connector	Internal Power
IMC-380-SFP	1 x PoE	Various	Various	Various	SFP	–
IMC-390-MM	2 x PoE+	Multi-Mode	850 nm	550 m	SC	–
IMC-390-M1	2 x PoE+	Multi-Mode	1310 nm	2 km	SC	–
IMC-390-SM	2 x PoE+	Single-Mode	1310 nm	15 km	SC	–
IMC-390-SFP	2 x PoE+	Various	Various	Various	SFP	–
IMC-595MPI	2 x PoE+++	Various	Various	Various	SFP	–
EKI-2741FPI	1 x PoE+	Various	Various	Various	SFP	–
EKI-2742FPI	2 x PoE+	Various	Various	Various	SFP	–
EKI-2741FHPI	1 x PoE++	Various	Various	Various	SFP	–

Industrial Extenders

Combining data and power together, IMC-150LPI and IMC-150LI long reach extenders are brand new products which break the 100-meter limitation to extend Power over Ethernet (PoE) power and data transmission distance. The extenders flexibly lengthen existing PoE networks to reach remote IP devices. Compliant with IEEE 802.3at PoE+ standards, they deliver power over cables without distance limitations of traditional copper wires. DIP switches for various LAN data rates strike the perfect balance of data rates and distance for each device.

Part Number	Ethernet Speed	PoE+	UTP	Coaxial
IMC-150LPI	10/100 Mbps	PSE/PD	2 x RJ-45	–
IMC-150LI	10/100 Mbps	–	2 x RJ-45	1 x BNC
IMC-150LPC-M/R	10/100 Mbps	PSE/PD	1 x RJ45	1 x BNC

✓: supported, – : not supported, △ : optional

IMC-574I-SFP

Industrial 10/100/1000Mbps Intelligent Media Converter

A value-based, managed Gigabit Ethernet solution that comes with two SFP ports and two fixed 10/100/1000Base-T copper ports. They support wide operating temperatures for use in extreme or harsh environments and features OAM and 1+1 with troubleshooting functionality.

- Converts Ethernet data to fiber optic signals
- Supports wide temperature operation for harsh environments
- Offers Link Fault Pass Through (LFPT) for easy troubleshooting fault conditions
- Supports OAM and 1+1 protection

Ordering P/N: IMC-574I-SFP-PS-A

Intelligent Media Converter, Wide-Temp, 1000Base-TX/FX, SFP

Industrial Network Infrastructure

Media Converters



Model	EKI-2741SL/ML	EKI-2741FL	EKI-2541SL/ML
Standard	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.3z	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.3z	IEEE 802.3, 802.3u, 802.3x
RJ45 Port Interface	1 x 10/100/1000Base-T(X)	1 x 10/100/1000Base-T(X)	1 x 10/100Base-T(X)
RJ45 Transmission Distance	1000 m	1000 m	100 m
Fiber Port Interface	SL: Singel Mode ML: Multi Mode	SFP	SL: Singel Mode ML: Multi Mode
Fiber Port Connector	1	1	1
Fiber Transmission Distance	SL: Up to 10km ML: Up to 550m	–	SL: Up to 30km ML: Up to 2km
Switch Fabric Speed	1.25Gbps	1.25Gbps	125Mbps
Jumbo Frame	9216 bytes	9216 bytes	–
Dimensions (W x H x D) mm	22 x 101 x 75 mm	23 x 60 x 75 mm	22 x 101 x 75 mm
Dimensions (W x H x D) mm	75 x 22.6 x 101.2 mm	60.88 x 23 x 75.58 mm	75 x 22.6 x 101.2 mm
Dimensions (W x H x D) inch	2.95" x 0.89" x 3.98"	2.4" x 0.91" x 2.98"	2.95" x 0.89" x 3.98"
IP Grade	IP30	IP30	IP30
Enclosure	Metal	Metal	Metal
Weight	226 g	158 g	213 g
Operating Temperature	0~50°C	0~50°C	0~50°C
Storage Temperature	-40~70°C	-40~70°C	-40~70°C
Relative Humidity (Non-condensing)	5% ~ 90% RH (non-condensing)	5% ~ 90% RH (non-condensing)	5% ~ 90% RH (non-condensing)
Time (25 degree C)	1269493 hours	1031686 hours	1776203 hours
Method	Telcordia (Relax), GB	Telcordia (Relax), GB	Telcordia (Relax), GB
Operating Voltage	90-264 V_{AC}	90-264 V_{AC}	90-264 V_{AC}
Operating Current (DC 5V)	SL: 0.61 A ML: 0.6 A	0.52 A	SL: 0.31 A ML: 0.3 A
Power Consumption (DC 5V)	SL: 3.1 W ML: 3.0W	2.6 W	SL: 1.6 W ML: 1.5 W
Reverse Polarity	Present	Present	Present
Safety	LVD EN60950	LVD EN60950	LVD EN60950
EMC	CE, FCC	CE, FCC	CE, FCC
EMI	EN55024/EN 55032 Class A, FCC Part 15 Subpart B Class A		
EMS	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN61000-4-11		
Freefall	IEC 60068-2-32		
Vibration	IEC 60068-2-6		
Warranty Period	2 years		

✓: supported, – : not supported, △ : optional

VDSL Solutions





Model	☞ EKI-1751	☞ EKI-1751I	☞ EKI-1751PI-M/R	☞ EKI-7708G-2FV	☞ EKI-7712G-2FV
Standard	IEEE 802.3, 802.3u, 802.3x	IEEE 802.3, 802.3u, 802.3x	M: IEEE 802.3, 802.3u, 802.3x R: IEEE 802.3, 802.3u, 802.3x, 802.3af/at	IEEE 802.3, 802.3u, 802.3x, 802.3ad, 802.3ab, 802.3z, 802.1D, 802.1w, 802.1s, 802.1P, 802.1Q, 802.1X	
RJ45 Port Interface	1 * 10/100BaseT(X) + 1 * VDSL	2 * RJ45 Etherent port + 1 * M12 Ethernet port	4* RJ45 PoE Port	4 x RJ45 (Gigabit Ethernet) 2 x SFP (mini-GBIC) 2 x VDSL ports	8 x RJ45 (Gigabit Ethernet) 2 x SFP (mini-GBIC) 2 x VDSL ports
RJ45 Transmission Distance	100 m	100 m	100 m	Ethernet: Up to 100 m SFP: Up to 110 km (depends on SFP) VDSL2: With the rate of 100Mbps speed up to 400 m	
RJ45 w/ PoE Quantity	–	–	4	0	0
MAC Table Size	1024	2K	–	8K	8K
Packet Buffer Size	1024 byte	1M bit	1M bit	4.1Mbit	4.1Mbit
Switch Fabric Speed	100Mbps	100Mbps	100Mbps	Supports 1000/100	Supports 1000/100
Jumbo Frame	–	–	–	1,518-10,240	1,518-10,240
Dimensions (W x H x D)	72.5x 22.8 x 96.2 mm	62 x 135 x 106.5 mm	62 x 135 x 106.5 mm	74 x 152 x 105 mm	74 x 152 x 105 mm
IP Grade	IP30	IP30	IP30	IP30	IP30
Enclosure	Metal	Metal	Metal	Metal	Metal
Weight	0.22kg	0.67kg	M: 0.7kg R: 0.75kg	1.1kg	1.1kg
Mounting Type	Din Rail	Din Rail or Wall Mount	Din Rail or Wall Mount	Din Rail or Wall Mount	Din Rail or Wall Mount
Operating Temperature	0~45°C (32~113°F)	-40~75°C (-40~167°F)	-40~75°C (-40~167°F)	-20~45C	-20~45C
Storage Temperature	-40~70°C (-40~158°F)	-40~85°C (-40~185°F)	-40~85°C (-40~185°F)	-40~85C	-40~85C
Relative Humidity (Non-condensing)	0 ~ 95%	5 ~ 95%	5 ~ 95%	10 ~ 95%	10 ~ 95%
Time	901,329	225,664	M: 175496 R: 159617		
Method	MIL-HDBK-217 FN2	MIL-HDBK-217 FN2	MIL-HDBK-217 FN2		
Operating Voltage	12 V_{DC}	12- 48 V_{DC}	48 - 57V_{DC}	12- 48 V_{DC}	12- 48 V_{DC}
Power Consumption	4.2 W (system)	5 W (system)	M: 65 W (system) R: 125 W (system)	15W@48Vdc (system)	15W@48Vdc (system)
Connectors	DC Jack (power)	6-pin removable screw terminal (power & relay)		6-pin screw terminal block connector 4-pin for power; 2-pin for relay	
Safety	UL 60950 LVD EN 62368	UL 60950 LVD EN 62368	UL 60950 LVD EN 62368	UL61010 LVD EN62368	UL61010 LVD EN62368
EMC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC
EMI	EN 55032 EN 61000-6-4, FCC Part 15 Subpart B EN 61000-6-4, FCC Part 15 Subpart B	EN 55011/ EN 55032 EN 61000-6-4, FCC Part 15 Subpart B		EN 55032 Class A, EN 61000-6-4, FCC Part 15 Sub-part B Class A	
EMS	EN 61000-4-2 , EN 61000-4-3 , EN 61000-4-4 , EN 61000-4-5 , EN 61000-4-6 , EN 61000-4-8			EN 61000-4-2	EN 61000-4-2
Shock	–	IEC 60068-2-27	IEC 60068-2-27	IEC 60068-2-27	IEC 60068-2-27
Freefall	–	IEC 60068-2-32	IEC 60068-2-32	IEC 60068-2-32	IEC 60068-2-32
Vibration	–	IEC 60068-2-6	IEC 60068-2-6	IEC 60068-2-6	IEC 60068-2-6
Warranty Period	5 years	5 years	5 years	5 years	5 years

✓: supported, – : not supported, △ : optional

Industrial Network Infrastructure

PoE Injectors





Model		EKI-2701HPI	EKI-2701HP	EKI-2701HP-AC	EKI-2701MPI	EKI-2701MPI-5G
Connectivity	10/100/1000Based-Tx, Fixed	1	1	–	–	–
	10/100/1000Base-T PoE, Fixed	1	1	1	1	1 (multi data rate 10M / 100M / 1G / 2.5G / 5G)
	Auto Negotiation	–	–	✓	✓	✓
	Store-and-Forward Switching	–	–	✓	✓	✓
	MTBF	1419817Hrs	1419817Hrs	1,999,263 Hrs	–	–
Physical	Housing Dimensions (W x H x D) mm	37 x 140 x 95 mm	30 x 140 x 95 mm	65 x 36 x 140 mm	84 x 80 x 25 mm	84 x 80 x 25 mm
	Mounting Type	DIN-Rail/Wall mount	DIN-Rail/Wall mount	Desktop	DIN-Rail/Wall mount	DIN-Rail/Wall mount
	IP Rating	IP30	IP30	–	IP30	IP30
Power	Power Input Voltage	24 - 48V_{DC}	24 - 48V_{DC}	100 - 240V_{DC}	54 - 57V_{DC}	54 - 57V_{DC}
	Power Consumption	33.36W	33.36W	<36W	Max 92W	Max 92W
	Reverse Protection	✓	✓	–	✓	✓
Certification	UL60950-1	–	–	UL62368	UL62368	UL62368
	FCC	✓	✓	✓	✓	✓
	CE	✓	✓	✓	✓	✓


Model		EKI-2701PSI	BB-EPSG202
Connectivity	10/100/1000Based-Tx,fixed	1	1
	10/100/1000Base-T PoE, Fixed	1	1
Physical	Dimensions (WxHxD) mm	37x140x95	30x140x95
	Mounting Type	DIN-rail/Wall mount	DIN rail (sold separately)
	IP rating	IP30	IP30
Power	Power Input voltage	44~57V_{DC}	48V_{DC}
	PoE output power	12.95 W @24 V_{DC}	25W @24 V_{DC}
	Reverse protection	Power isolation & short circuit protection	✓
Certification	UL60950-1	✓	–
	UL508	–	✓
	UL-C1D2	–	–
	FCC	✓	–
	CE	✓	✓

✓: supported, – : not supported, △ : optional

SFP Modules

The small form-factor pluggable (SFP) is a hot-swappable optical module transceiver in a compact size and a variety of transmitter and receiver specifications for data communications. They are used for when a transmission service is needed between points further than 100 meters beyond where traditional copper cables can reach, SFP modules can easily overcome these problems.

Industrial Grade 1.25 Gbps SFP Modules w/ DDM

Part Number	Wavelength	Optical Mode	Distance	Optical Connector	Sensitivity (dB)
SFP-GMM-550	850 nm	Multi-Mode	550 m	LC	-17
SFP-GMM-2K	1310 nm	Multi-Mode	2 km	LC	-19
SFP-GSM-20K	1310 nm	Single-Mode	20 km	LC	-23
SFP-GSM-30K	1310 nm	Single-Mode	30 km	LC	-24
SFP-GSM-40K	1550 nm	Single-Mode	40 km	LC	-24
SFP-GSS-40KTX-LC	1310T/1550R	Single-Strand	40 km	LC	-23
SFP-GSS-40KRX-LC	1550T/1310R	Single-Strand	40 km	LC	-23
SFP-GS4-70KTX-LC	1490T/1550R	Single-Strand	70 km	LC	-24
SFP-GS4-70KRX-LC	1550T/1490R	Single-Strand	70 km	LC	-24
SFP-GSS-20KTX	1310T/1550R	Single-Strand	20 km	SC	-23
SFP-GSS-20KRX	1550T/1310R	Single-Strand	20 km	SC	-23
SFP-GSS-40KTX	1310T/1550R	Single-Strand	40 km	SC	-23
SFP-GSS-40KRX	1550T/1310R	Single-Strand	40 km	SC	-23
SFP-GS4-70KTX	1490T/1550R	Single-Strand	70 km	SC	-24
SFP-GS4-70KRX	1550T/1490R	Single-Strand	70 km	SC	-24

Industrial Grade 1.25 Gbps SFP Modules

Part Number	Wavelength	Optical Mode	Distance	Optical Connector	Sensitivity (dB)
SFP-GSX/LCI-AE	850 nm	Multi-Mode	550 m	LC	-17
SFP-GLX/LCI-10E	1310 nm	Single-Mode	10 km	LC	-20
SFP-GLX/LCI-20E	1310 nm	Single-Mode	20 km	LC	-23
SFP-GLX/LCI-40E	1310 nm	Single-Mode	40 km	LC	-23

1.25 Gbps SFP Modules

Part Number	Wavelength	Optical Mode	Distance	Optical Connector	Sensitivity (dB)
SFP-GSX/LC-AE	850 nm	Multi-Mode	550 m	LC	-17
SFP-GLX/LC-10E	1310 nm	Single-Mode	10 km	LC	-20
SFP-GLX/LC-20E	1310 nm	Single-Mode	20 km	LC	-23
SFP-GLX/LC-40E	1310 nm	Single-Mode	40 km	LC	-23

Industrial Grade 100-155 Mbps SFP Modules w/ DDM

Part Number	Wavelength	Optical Mode	Distance	Optical Connector	Sensitivity (dB)
SFP-FMM850-2K	850 nm	Multi-Mode	2 km	LC	-26
SFP-FMM-2K	1300 nm	Multi-Mode	2 km	LC	-32
SFP-FSM-20K	1310 nm	Single-Mode	20 km	LC	-35
SFP-FSM-40K	1310 nm	Single-Mode	40 km	LC	-36
SFP-FSM-80K	1310 nm	Single-Mode	80 km	LC	-36
SFP-FSS-20KTX	1310T/1550R	Single-Strand	20 km	SC	-32
SFP-FSS-20KRX	1550T/1310R	Single-Strand	20 km	SC	-32
SFP-FSS-40KTX	1310T/1550R	Single-Strand	40 km	SC	-34
SFP-FSS-40KRX	1550T/1310R	Single-Strand	40 km	SC	-34

Industrial Network Infrastructure

Industrial Grade 100-155 Mbps SFP Modules

Part Number	Wavelength	Optical Mode	Distance	Optical Connector	Sensitivity (dB)
SFP-FXM/LCI-AE	1310 nm	Multi-Mode	2 km	LC	-32
SFP-FXS/LCI-30E	1310 nm	Single-Mode	30km	LC	-34

10 Gbps SFP+ & XFP Modules w/ DDM

Part Number	Wavelength	Optical Mode	Distance	Connector	Sensitivity (dB)
SFP-XMM-33-XFP	850 nm	Multi-Mode	33 m	LC	-9.9
SFP-XSM-10K-XFP	1310 nm	Single-mode	10 km	LC	-14.4
SFP-XSM-40K-XFP	1550 nm	Single-mode	40 km	LC	-16
SFP-XSM-80K-XFP	1550 nm	Single-mode	80 km	LC	-23
SFP-XMM-33	850 nm	Multi-Mode	33 m	LC	-9.9
SFP-XSM-10K	1310 nm	Single-mode	10 km	LC	-14.4
SFP-XMM-LC-400	850nm	Multi-mode	400 m	LC	-11.1
SFP-XSM-LC-10K	1310nm	Single-mode	10 km	LC	-12.6
SFP-XSM-LC-20K	1310nm	Single-mode	20 km	LC	-12.6
SFP-XSM-LC-40K	1310nm	Single-mode	40 km	LC	-12.6
SFP-XSM5-LC-40K	1550nm	Single-mode	40 km	LC	-15.5
SFP-XSM-LC-80K	1550nm	Single-mode	80 km	LC	-23
SFP-XSS-10KTX-LC	1270T/1330R	Single-mode	10 km	LC	-15.5
SFP-XSS-10KRX-LC	1330T/1270R	Single-mode	10 km	LC	-15.5
SFP-XSS-40KTX-LC	1270T/1330R	Single-mode	40 km	LC	-15.5
SFP-XSS-40KRX-LC	1330T/1270R	Single-mode	40 km	LC	-15.5

Industrial Grade 10 Gbps SFP+ & XFP Modules w/ DDM

Part Number	Wavelength	Optical Mode	Distance	Connector	Sensitivity (dB)
SFP-XMM-LCI-400	850nm	Multi-mode	400 m	LC	-11.1
SFP-XSM-LCI-10K	1310nm	Single-mode	10 km	LC	-12.6
SFP-XSM-LCI-20K	1310nm	Single-mode	20 km	LC	-12.6
SFP-XSM-LCI-40K	1310nm	Single-mode	40 km	LC	-12.6
SFP-XSM5-LCI-40K	1550nm	Single-mode	40 km	LC	-15.5
SFP-XSM-LCI-80K	1550nm	Single-mode	80 km	LC	-23

Copper SFP Modules

Part Number	Speed	Distance	Wide Temp.
SFP-GTX	10/100/1000 Mbps	100 m	–
SFP-GTXB	1000 Mbps	100 m	–
SFP-GTX/RJ45I-AE	1000 Mbps	100 m	✓
SFP-10GTX	1G/2.5G/5G/10Gbps	100m-1G; 50m-2.5/5G; 10m-10G	–
SFP-10GTXI	1G/2.5G/5G/10Gbps	100 m	✓

✓: supported, – : not supported, △ : optional

Intelligent Telematics Gateways

Advantech Model WISE-4773 series, Intelligent OBD Cellular Data Interface, collects data from GPS, Bluetooth beacons, and your vehicle's OBD port. The plug-and-play, self-installing device wirelessly transmits the data over the new G5 CAT M1 cellular network to your fleet management or analytics systems. Transport Layer Security (TLS) allows secure data connections to a configurable IP address via JSON over HTTPS and/or Cloud Management Platform for device management. All data in and out of the device is secure and encrypted.

WISE-4773-S52U - Additional Features

- European vehicle support
- Bluetooth beacon forwarding
- WiFi access point supporting up to 8 devices on a WLAN
- One BT serial connection profile
- One smart peripheral on either WiFi or Bluetooth communicating on an API
- Configure which peripheral port is smart
- Digital input report on change
- Digital output set from cellular connection
- User API

☞ WISE-4773-S51U and ☞ WISE-4773-S52U

Specification	Description
Vehicle Protocols	J1939, J1708/J1587, OBDII (NATAM)
Cellular	LTE, Category-M1, LTE CATM bands (USA), AT&T
Accelerometer	Digital, 3-axis, self-orientating (acceleration, braking, cornering)
Bluetooth	BT 4.1 (BTLE)
GPS/GLONASS/AGPS	At least 2.5 M CEP location accuracy
Wi-Fi	802.11 b/g/n/e/i, AP or Client
Internal Antennas	GPS, Cellular, Bluetooth, Wi-Fi
Data Rate	Up to 15 Mbps
Transmit Power	1MB: 12.5dBm; 54MB: 12.25dBm; 65MB: 9.25dBm
Receive Sensitivity	1MB: -91dBm; 54MB: -75dBm; 65MB: -71dBm
Port Connector	(4) Terminal Block (digital I/O) (1) J1962 (OBD) / ISO 15031 Type A
LEDs	Green = cellular network connection Red = vehicle network connection
Buzzer Indicator	Hard braking, acceleration, cornering
Security	TLS cellular connection. Tamper alert. Automatic Ignition detection.
Configuration	Over cellular or CLI.
Data Transmission	Automatic cellular transmission. Configurable interval. Store-&-forwarding if cellular connection not available.

Common Features

Specification		Description
Digital Outputs	Output Voltage Range	0 - 30 V DC
	Output Type	Open drain
	Output Current	Not to be less than 100 mA
	Protection	Current limit protection
	Isolation	None
Digital Inputs	Input Voltage Range	0 - 48 V DC
	VIL	0.4 V, maximum
	VIH	2.5 V, minimum
	Pull-up Current	65 uA
	Type	Sinking (NPN) Input
	Isolation	None
	Power Source	Direct power via OBD J1962P port Battery backup Low-power states.
	Operating Voltage	9 to 36 V DC
	Power Consumption	<5 mA @ 12V DC deep sleep <15 mA @ 12V DC network sleep <150 mA @ 12V DC active
	Operating Temperature	-30 to +75ºC (-22 to +167ºF)
	Enclosure Dimensions	68.6x48.3x25.4 mm (1.7x1.9x1.0 in) approx.

OBD2 Vehicle Converters

These Intelligent OBD vehicle data converters connect your PC, driver terminal, Java-enabled phone, or other on-board computing device to the OBD diagnostic bus of light-duty or heavy-duty vehicles. They enable the retrieval of the most commonly used parameters in telematics service provider (TSP) and fleet management system applications. With proprietary vehicle detection algorithm and embedded database, these converters provide a simple, operational protocol to communicate with the OBD bus on any compliant vehicle.

Model	BB-LD3IC-S	BB-LD3-1939P1D	BB-HD3-A3
Vehicle Interfaces	ISO 15765 (CAN), LSGMLAN, Ford Secondary CAN	ISO 15765 (CAN), LSGMLAN, Ford Secondary CAN	J1939 & J1708/J1587
OBD Data Support	2008 and newer light-duty vehicles	2008 and newer light-duty vehicles	1996 and newer heavy-duty vehicles
Host Connection	RS-232: DB9 female, DCE	J1939: DB9 female	RS-232: DB9 female, DCE
Ignition On / Signal Output	RS-232 CTS/DB9 Pin 6	–	–
Power Consumption	0.20W in Operating Mode 0.15W in Automatic Sleep Mode (Key Off)	0.2W in Operating Mode 0.1W in Automatic Sleep Mode (Key Off)	0.6W typical, 1.6W maximum (Key On)
Operating Voltage	8 to 30 V_{DC}	8 to 30 V_{DC}	10 to 42 V_{DC}
Operating Temperature	-40 to +85°C (-40 to +185°F)	-40 to +85°C (-40 to +185°F)	-40 to +85°C (-40 to +185°F)
Enclosure Dimensions	68.6 x 48.3 x 25.4 mm (2.7 x 1.9 x 1.0 in)	104.1 x 43.2 x 20.3 mm (4.1 x 1.7 x 0.8 in)	104.1 x 43.2 x 20.3 mm (4.1 x 1.7 x 0.8 in)
Y-Cable	Integrated J1962/ISO 15031 Type B	Available J1962/ISO 15031 Type B	Available Deutsch 6, Deutsch 9, Deutsch 9 Type2
Available Form Factors	Device; embedded software	–	–
Regulatory & Testing	SAE J1113/41 - radiated RF interference SAE J1113/11 - load dump and transient protection SAE J1113/13 - ESD immunity IEC-60068-2-6 - vibration IEC-60068-2-27 - shock IEC-60068-2-32 - drop	SAE J1113/41 - radiated RF interference SAE J1113/11 - load dump and transient protection SAE J1113/13 - ESD immunity IEC-60068-2-6 - vibration IEC-60068-2-27 - shock IEC-60068-2-32 - drop	SAE J1113/41 - radiated RF interference SAE J1113/11 - load dump and transient protection SAE J1113/13 - ESD immunity IEC-60068-2-6 - vibration IEC-60068-2-27 - shock IEC-60068-2-32 - drop

✓: supported, – : not supported, △ : optional

14 Intelligent Edge DAQ Devices

Intelligent Edge DAQ Devices

Introduction

In the Industrial IoT era, companies and government are seeking solutions that can help them to utilize data analytics to raise service levels, create better products, and reduce operational costs. Ideally, the first step is the digitalization of assets such as factory equipment and infrastructure facilities. This means that increasingly more data needs to be acquired and analyzed, and both the volume and diversity of such data from different assets are also increasing. Equipment manufacturers, owners, and maintainers require an easy and reliable way to collect and monitor data from all kinds of field sites.

Advantech's WISE-EdgeLink, Node-RED, and Python edge data acquisition solutions are designed to simplify remote monitoring. These solutions improve service quality by facilitating product care, enabling equipment monitoring, and allow for efficiency and energy consumption analysis. This allows end users to gain insight on usage behavior through the analysis of big data.

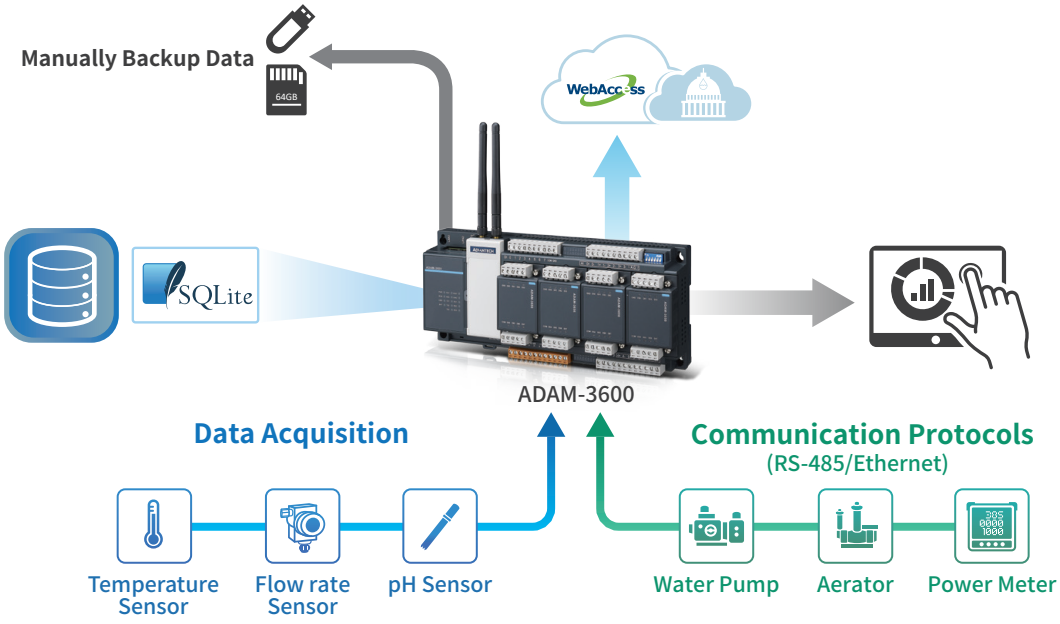
Edge DAQ Solutions

Advantech provides different types of edge data acquisition devices with various data monitoring software to meet all your needs for data management.

ADAM-3600

Intelligent Remote Terminal Units (RTUs)

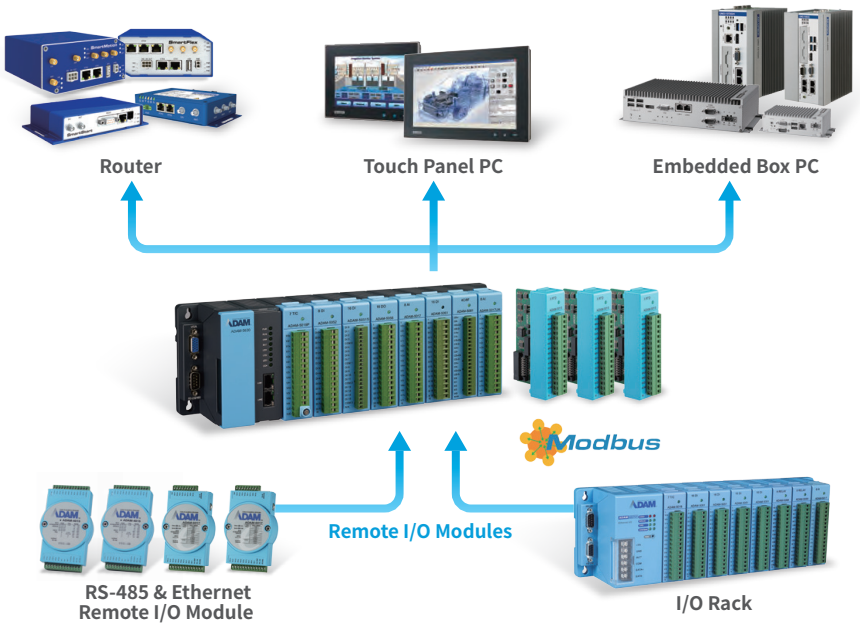
ADAM-3600 is an intelligent remote terminal unit with multiple wireless function capability, multiple I/O selection, wide temperature range, and flexible communication protocols for oil, gas, and water applications.



ADAM-5630

Intelligent Remote Terminal Units (RTUs)

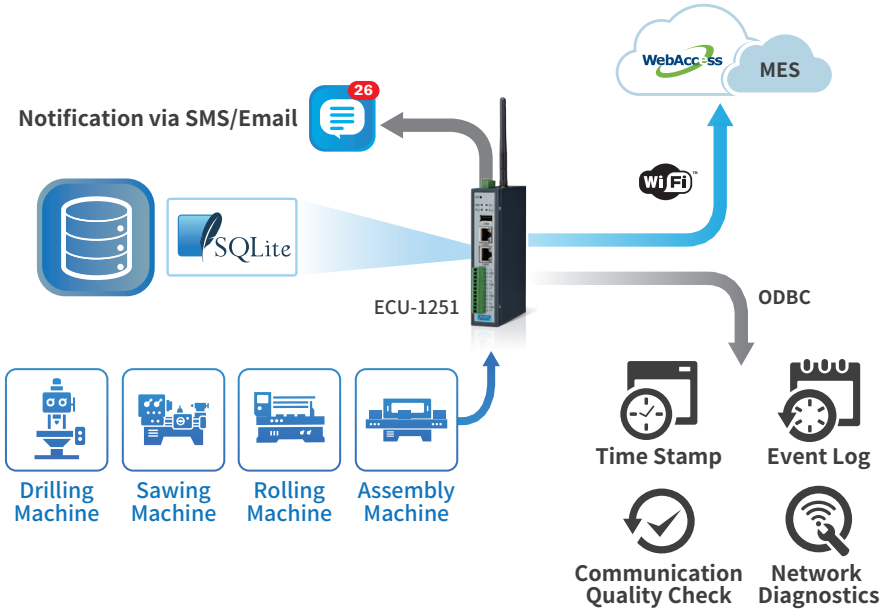
ADAM-5000/485 series is an edge intelligent I/O rack specifically developed for industrial applications to transmit high data rates over long distances. Without a repeater, they can cover a communication distance of up to 100M. They allow remote configuration via Ethernet and eight PCs can simultaneously access the data. They also provides high expansion capability by supporting SNMP, Modbus/RTU and Modbus/TCP functions.



ECU-1000 Series

Intelligent communication gateways

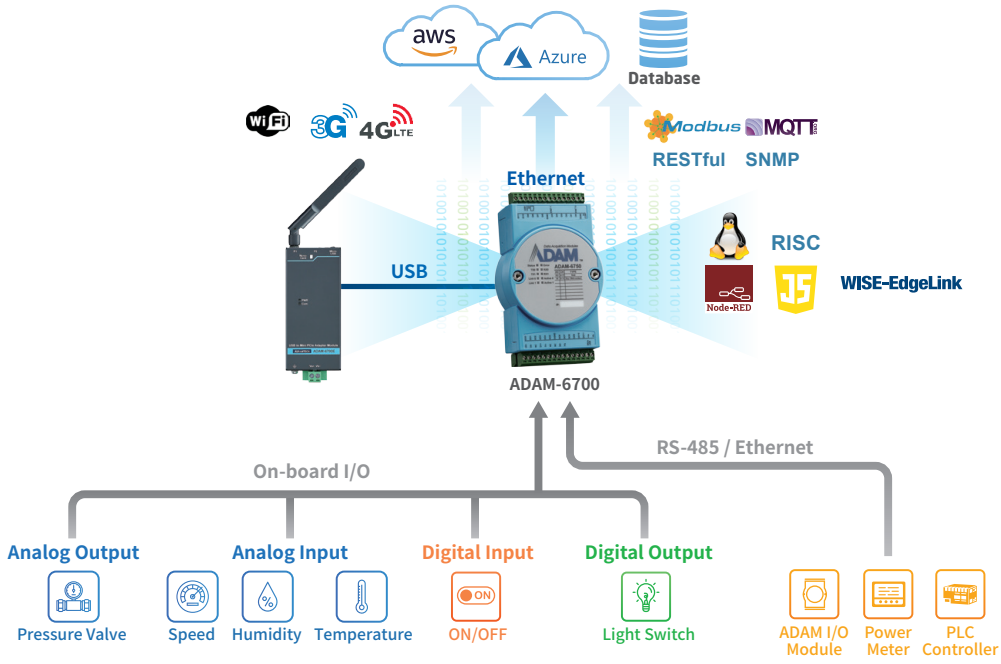
ECU-1000 series is a RISC-based gateway with robust platform design, wireless and Ethernet communication, multiple protocol support and WISE EdgeLink integration. It is especially designed for energy management and equipment monitoring applications related to building, smart manufacturing, and substations.



ADAM-6700

Intelligent IoT I/O gateways

ADAM-6700 is an all-in-one intelligent IoT I/O gateway that provides an integrated solution in the form of a Linux-based gateway capable of performing multiple tasks at the edge. ADAM-6700 is equipped with a range of I/O for comprehensive data acquisition functionality.



Intelligent Remote Terminal Units (RTUs)

Model		ADAM-3600
Description		Intelligent RTU
System	CPU	Cortex A8
	Operating system	Linux RT 3.12
	Programming interface	C (Linux), IEC-61131-3
	Communication protocols	Modbus/RTU, Modbus/TCP, DNP3, IEC-60970-104, OPCUA
	Wireless communication	Cellular, Wi-Fi, Zigbee
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 Modules

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
ADAM-3668	Relay Module	4	ADAM-3668-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 Modules

96PD-RYUW131

Full/Half-sized mini card, supports 802.11bgn

1750006043 SMA(M) cable, 15 cm

1750000318 2-dBi antenna, 11 cm

96PD-EC25EFA

LTE CAT.4 Module with GNSS (Quectel EC25 series)

1750006264 SMA(F) cable, 15 cm

1750005865 Dipole antenna, 11 cm

Intelligent Remote Terminal Units (RTUs)

Model		☞ ADAM-5630	☞ ADAM-5630E
CPU		Cortex A8 600 MHz	Cortex A8 600 MHz
RAM		512 MB DDR3L	512 MB DDR3L
Flash ROM		–	–
Flash Memory		–	–
Flash Disk		1 GB	1 GB
OS		RT-Linux	RT-Linux
Control Software		Linux C SDK KW Softlogic	Linux C SDK KW Softlogic
Real-time Clock		✓	✓
Watchdog Timer		✓	✓
COM1		RS-232/485	RS-232/485
COM2		RS-485	RS-485
COM3		RS-485	RS-485
COM4		RS-232/485	RS-232/485
I/O Slots		4	8
Power Consumption		8W (for 5630 series only)	
Isolation	Communication	2500 V_{DC} (COM1~COM3) (for 5630 series only)	
	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)	
	Self Test	Yes, while ON	
	Software Diagnosis	✓	
Communication	Interface	RS-232/485	
	Speeds	300 bps ~ 115.2 kbps	
	Max. Distance	4,000 feet (1.2 km)	
	Max. Nodes	32	32
	Protocol	User Defined, Modbus/RTU Modbus/TCP, SNMP	User Defined, Modbus/RTU Modbus/TCP, SNMP
	Remote I/O	Modbus Device	
	Power Requirements	10 ~ +30 V_{DC}	
Environment	Operating Temperature	-20 ~ 70°C	
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)	
	Humidity	5 ~ 95%	
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75

✓: supported, – : not supported, △ : optional

Intelligent Communication Gateways






Model		ECU-1050TL	ECU-1051TL	ECU-1251TL	ECU-1251D	ECU-1252	ECU-150
Description		Industrial communication gateway	Industrial communication gateway	Industrial communication gateway	Industrial communication gateway	Industrial communication gateway	Industrial communication gateway
System	CPU	Cortex A8 600MHz	Cortex A8 600MHz	Cortex A8 800MHz	Cortex A8 600MHz	Cortex A9 600MHz	Cortex A53 1.3G
	Operating System	Linux Kernel 4.9	Linux Kernel 4.9	Linux Kernel 4.9	Linux Kernel 4.9	Linux Kernel 4.9	Linux Kernel 4.9
	Programming Interface	Linux C, Phython	Linux C, Phython	Linux C, Phython	Linux C, Phython	Linux C, Phython	Linux C, Phython
	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	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104
	Wireless Communication	GRPS, 3G,4G, LTE, Wi-Fi	GRPS, 3G,4G, LTE, Wi-Fi	GRPS, 3G,4G, LTE, Wi-Fi	GRPS, 3G,4G, LTE, Wi-Fi	GRPS, 3G,4G, LTE, Wi-Fi	GRPS, 3G,4G,5G 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	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting
Serial Port	Number of Ports	–	2	4	2	2	2
	Type	–	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485
CAN Port	Number of Ports	–	–	–	–	2	–
DI/O	Number of Ports	–	–	–	4DI/4DO	–	–
Network Port	Number of Channels	1	2	2	2	2	2
	Independent IP Number	1	2	2	2	2	2
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	1x100/1x1000	10/100/1000 Mbps
	IP Specifications	IPv4/IPv6	IPv4/IPv6	IPv4/IPv6	IPv4/IPv6	IPv4/IPv6	IPv4/IPv6
I/O	SIM Card Slot	2	2	1	2	1	1
	Expansion Slots	2 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie
USB	USB2.0	2	1 (ECU-1051TL-R10AB)	1	1	–	1
Display Interface	LED	PWR/Serial/Prog/ LAN	PWR/Serial/Prog/ LAN	PWR/Serial/Prog/ LAN	PWR/Serial/Prog/ LAN	PWR/Serial/Prog/ LAN	PWR/Serial/Prog/ LAN
Storage Interface	SD	1 x micro SD slot	1 x micro SD slot	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					
PLC 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	-40 ~ 70°C	-40 ~ 70°C
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Part Number		ECU-1050TL-R10AAE	ECU-1051TL-R10AAE ECU-1051TL-R10AB	ECU-1251TL-R10AAE	ECU-1251D-R10AA	ECU-1252TL-R22AA	ECU-150-12A

✓: supported, – : not supported, △ : optional

Wireless Expansion Modules

96PD-RYUW131

Full/Half-sized mini card, supports 802.11bgn

1750006043 SMA(M) cable, 15 cm

1750000318 2-dBi antenna, 11 cm

96PD-EC25EFA

LTE CAT.4 Module with GNSS (Quectel EC25 series)

1750006264 SMA(F) cable, 15 cm

1750005865 Dipole antenna, 11 cm

Intelligent IoT I/O Gateways



Model		ADAM-6750	ADAM-6717	ADAM-6760D
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External Storage		microSD (Optional)		
OS		Real-time Linux V3.12		
Programming		Node-Red(Graphic programming environment based on javascript),Linux C		
Operation Temperature		-40 ~ 70°C		
Interface	RS-485	2	2	2
	LAN	2	2	2
	USB	1 x USB type A, 1 x Micro USB		
Digital Input	Channel	12	5	8
	Type	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}
	Counter Input	3kHZ	–	3kHz
Digital Output	Channel	12	4	–
	Voltage	Sink 30 V_{DC}, 0.1A max. per channel	Sink 30 V_{DC}, 0.1A max. per channel	Sink 30 V_{DC}, 0.1A max. per channel
	Pulse Output	3kHz	–	–
Analog Input	Channel	–	8	–
	Sampling Rate	100 Hz (total)		
Relay Output	Channel	–	–	8
	Contact Rating (Resistive Load)	–	–	30 V_{DC} @ 1 A
Dimensions (W x L x H)		70 x 122 x 38 mm		

Model	ADAM-6700E			
Description	USB to MiniPCIe adaptor module	Accessories	Type	Part Number	Description
Sim Card Slot	1 x Nano SIM card slot		Wall-mount kit	1960094069N001	Wall-mount kit for ADAM-6700E 432C
USB Port	Micro-B USB		USB molding cable	96PD-YH3874	USB molding cable, 90Degree
MiniPCIe Slot	Wi-Fi/3G/4G		Wi-Fi 2.4G	96PD-RYUW131	2.4GHz Wi-Fi full/half size Mini PCIe card
Power Input	10 ~ 30 V_{DC}		LTE-Cat4/3G	96PD-EC25EFA	Quectel 4G(Cat.4), miniPCIe, Europe, EMEA, South Korea, Thailand, India (Manufacturer P/N: EC25EFA-MINIPCIE)
Operating Temperature	-20 °C ~ 70 °C			96PD-EC20CEFAG	Quectel 4G(Cat.4) R2.1, miniPCIe, China (Manufacturer P/N: EC20CEFAG-MINIPCIE)

✓: supported, – : not supported, △ : optional

Intelligent IoT I/O Gateways



Model		ADAM-6715	ADAM-6718	ADAM-6724
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External Storage		microSD (Optional)		
OS		Real-time Linux V3.12		
Programming		Node-Red (Graphic programming environment based on Javascript), Linux C		
Operation Temperature		-40 ~ 70°C		
Interface	RS-485	2	2	2
	LAN	2	2	2
	USB	1 x USB type A, 1 x Micro USB		
Digital input	Channel	4	4	5
	Type	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}	Dry contact Logic 0: open Logic 1: closed to GND Wet contact logic 0: 0 ~ 3 V_{DC} logic 1: 10 ~ 30 V_{DC}
Digital Output	Channel	4	7	6
	Voltage	Sink 30 V_{DC}, 0.1A max. per channel	Sink 30 V_{DC}, 0.1A max. per channel	Sink 30 V_{DC}, 0.1A max. per channel
	Pulse Output	3kHz	–	–
RTD	Channel	6	–	–
	Type	Pt100, Pt1000	–	–
Thermocouple	Channel	–	7	–
	Type	–	J, K, T, E, R, S, B type	–
Analog Output	Channel	–	–	3
	Type	–	–	Voltage,Current
Analog Input	Channel	–	–	3
	Type	–	–	Voltage,Current
Dimensions (W x L x H)		70 x 122 x 38 mm		

✓: supported, – : not supported, △ : optional

Modular I/O Systems




Model		☞ 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	✓			
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

✓: supported, – : not supported, △ : optional

Analog Input/Output Modules

Model		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.

Model		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.
✓: supported, – : not supported, △ : optional

Digital Input/Output Modules





Model		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}	–






Model		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}	–

✓: supported, – : not supported, △ : optional

15 Remote I/O, Wireless I/O and Sensors

Ethernet I/O Modules: ADAM-6000/6200/6300

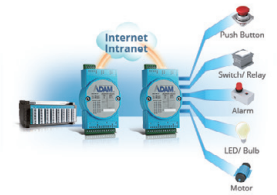
Introduction

Advantech's ADAM-6000/6200/6300 Ethernet I/O modules are easily integrated so they can remotely monitor and control devices more flexibly.

Feature Highlights

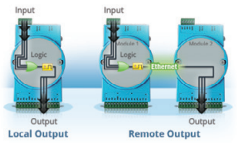
Simple and intuitive logic control

Advantech's ADAM-6000/6200 Peer-to-Peer (P2P) and Graphic Condition Logic (GCL) modules can perform as standalone products for measurement, control, and automation.



Peer-to-Peer(P2P) connection

- Easy channel mapping from different I/O modules without extra programming effort or additional controllers.
- Utilizes Peer-to-Peer modules, just configure settings through ADAM.NET utility.

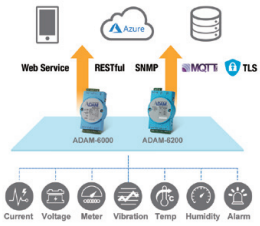


Graphic condition logic (GCL)

- GCL function is built-in ADAM-6000 and ADAM-6200 modules for users to easily set up logic rules in any application.
- User defined logic rules through graphical configuration environment in ADAM.NET utility.
- No additional controllers or programming is needed.

Communication with IoT protocols

The ADAM-6000/6200 series supports multiple protocols for IoT applications: MQTT, SNMP, Restful APIs, and Modbus, which are very flexible and can be easily integrated with Microsoft Azure, Database, Network and SCADA systems.



Cloud

- Supports Azure IoT Hub

MQTT

- Actively publish MQTT messages with user defined intervals.
- Shortens downtime with alarm event notification.
- Privacy assured with the TLS (Transport Layer Security).
- User defined topic to integrate existing systems.

SNMP

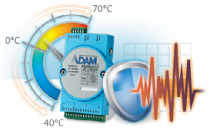
- Simple way to monitor I/O data on NMS (Network Management System).
- SNMP trap to notify alarm events.
- Reduces implementation cost with ADAM MIB (Management Information Base) file.

Communication interface

Flexible deployment with daisy chain networking and auto-bypass protection

ADAM-6200/6300 series supports daisy chain connectivity that offers flexible cabling and space saving capabilities. With Ethernet auto-bypass function supported to prevent accidental power failures if one of the modules unexpectedly shuts down.

Industrial design / isolation & wide-operating temp.



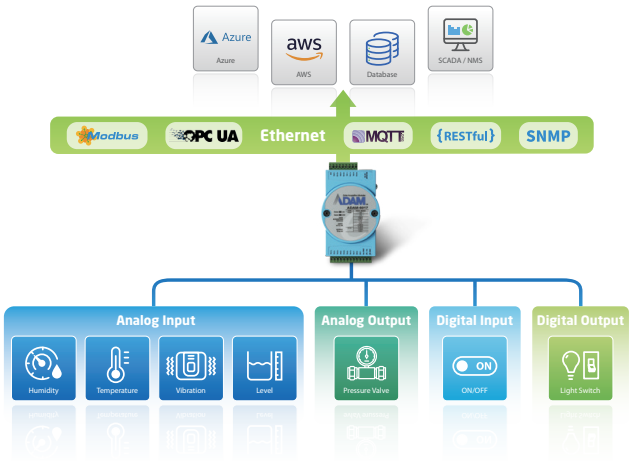
ADAM-6000/6200/6300 series has a rugged design.

- Supports isolation protection to avoid system damage from high-energy noise.
- Supports operating temperatures of between -40 ~70°C and can perform in most harsh environments.

ADAM-6000/6200/6300 Series Comparison

Series Name		ADAM-6000 Series	ADAM-6200 Series	ADAM-6300 Series
Daisy-chain Connectivity		–	✓	✓
Protocols	MQTT	✓	✓	–
	SNMP	✓	✓	–
	Modbus	✓	✓	✓
	RESTful	✓	✓	–
	OPC UA	–	–	✓

Application Structure



Ethernet I/O Modules: ADAM-6000/6200





Model		ADAM-6015	ADAM-6017	ADAM-6018+	ADAM-6022	ADAM-6024
Interface		1x RJ-45 LAN port, 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	10/100 Hz	10 Hz	10 Hz	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)
	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	–
Protocols		D version :Modbus TCP, RESTful, MQTT, SNMP,ASCII			Modbus TCP	D version: Modbus TCP,RESTful, MQTT, SNMP,ASCII
Certificate		C1D2, UL, CE, FCC	C1D2, UL, CE, FCC	C1D2, UL, CE, FCC	CE, FCC	C1D2, UL, CE, FCC





Model		ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066
Interface		1x RJ-45 LAN port, 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}				
Protocols		D version: Modbus TCP,RESTful, MQTT, SNMP,ASCII				
Certificate		C1D2, UL, CE, FCC	C1D2, UL, CE, FCC	C1D2, UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

✓: supported, – : not supported, △ : optional

Ethernet I/O Modules: ADAM-6000/6200

Model		ADAM-6217	ADAM-6224	ADAM-6250	ADAM-6251	ADAM-6256	ADAM-6260	ADAM-6266
Interface		2x RJ-45 LAN port (Daisy-chain), 10/100 Mbps 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, 0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V	–	–	–	–	–	–
	Current Input	0 ~ 20, 4 ~ 20, ±20 mA	–	–	–	–	–	–
	Sampling Rate	10 Hz	–	–	–	–	–	–
	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, RESTful, MQTT, SNMP, ASCII						
Power Requirements		10 ~ 30 V_{DC} (24 V_{DC} standard)						
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)						
Certification		CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL

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.
✓: supported, – : not supported, △ : optional

OPC UA Ethernet I/O Modules: ADAM-6300

Model		ADAM-6317	ADAM-6350	ADAM-6360D	ADAM-6366	ADAM-6315	ADAM-6318	ADAM-6324
Description		IoT OPC UA Ethernet I/O - Analog Input Module	IoT OPC UA Ethernet I/O - Digital I/O Module	IoT OPC UA Ethernet I/O - SSR Relay Output Module	IoT OPC UA Ethernet I/O - Relay Output Module	IoT OPC UA Ethernet I/O - RTD Input Module	IoT OPC UA Ethernet I/O - T/C Input Module	IoT OPC UA Ethernet I/O - Analog Output Module
General	Power Input	10 ~ 30 V_{DC}						
	LAN Port	2 x RJ-45 10/100 Mbps						
	Connectors	2 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)						
	Watchdog	System and Communication						
	Protocol	OPC UA, Modbus/TCP						
Protection	Isolation	2500 V_{DC}						
	Power Reversal Protection	Yes						
OPC UA	Max Monitored Items	600 (including all sessions)						
	Max Sessions	4 (including security or non-security session)						
	Max Subscriptions per Session	1						
	Support security/ certificate management	Yes						
Modbus/TCP Connections		4						
Environment	Operating Temperature	-25° C ~ 70° C (-13 ~ 158°F)						
LED Indicator		Status, Error, Link, Active						
Analog Input	Channels	8	–	–	–	8	7	–
	Voltage Input	0 ~ 150mV, 0 ~ 500mV, 0 ~ 1V, 0 ~ 5V, 0 ~ 10V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V,	–	–	–	RTD: Pt 100, Pt 1000, Balco 500, Ni 518	Thermocouple: J, K, T, E, R, S, B	–
	Current Input	0 ~ 20 mA, 4 ~ 20mA, ± 20mA	–	–	–	–	–	–
	Sampling Rate	10/100 Hz (total)	–	–	–	10 Hz (total)	10 Hz (total)	–
	Burn-out Detection	Yes (4~20 mA)	–	–	–	Yes	Yes	–
	Resolution	16-bit	–	–	–	16-bit	16-bit	–
Digital Input	Digital Input Channels	11	18	14	18	10	10	11
	Counter Input	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)	3 kHz (DI4~DI9)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)
	Frequency Input	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)	3 kHz (DI4~DI9)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)
Digital Output	Digital Output Channels	10	18	6	6	10	13	12
	Relay Output Channels	–	–	8 SSR (Form A)	6 (Form A)	–	–	–
	Contact Rating	–	–	1 A @25°C @ 30 V_{DC} 0.7A @70°C @30 V_{DC}	0.25A@ 25°C @ 250V_{AC} 2A@ 25°C@ 30V_{DC}	–	–	–
	Pulse Output	3 kHz (DO4~DO9)	3 kHz (DO12~DO17)	3 kHz (DO0~DO5)	3 kHz (DO0~DO5)	3 kHz (DO4~DO9)	3 kHz (DO7~DO12)	3 kHz (DO6~DO11)
Analog Output	Channels	–	–	–	–	–	–	4
	Type	–	–	–	–	–	–	0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V, 0 ~ 20 mA, 4 ~ 20 mA

✓: supported, – : not supported, △ : optional

RS-485 I/O Modules: ADAM-4000/4100

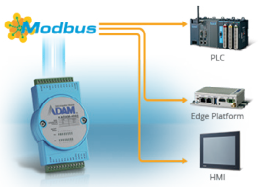
Introduction

The ADAM-4000/ 4100 series feature rugged industrial-grade cases which are specially designed for reliable operation in harsh environments. Built-in microprocessors independently provide intelligent signal conditioning, analog I/O, digital I/O, data display, and RS-485 communication through Modbus protocols.

Feature Highlights

The most used protocol for industrial automation development

The new ADAM-4000/ 4100 modules feature Modbus/RTU remote data transmission protocol.



Standardized protocol

- One of the most widely used standard communication protocols for eAutomation development

Centralized control

- Universal remote I/O modules operate the system via Modbus

Easy integration

- We provide sample code and commands for user programming

Non-stop monitoring with watchdog timer and protection

For stable and constant performance, ADAM-4000/ 4100 features a Watchdog Timer and maximum protection to ensure the highest level of system reliability.

Noise protection

- Data accuracy assured by enhanced ESD / EFT / Surge Protection

Module stability ensured

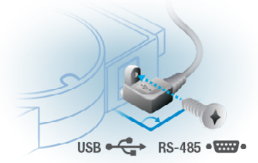
- Once a problem is detected, the Watchdog Timer automatically recovers the system

Save on maintenance costs

- The Watchdog Timer enhances system stability and reduces maintenance costs

Various interfaces to meet your needs

Integration with embedded systems or PLC systems via USB or RS-485



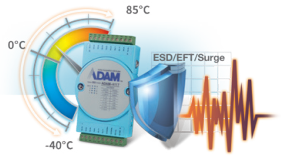
Friendly L-shaped cable design*

- Optional 90 degree input micro USB to a Type-A USB cable with locking mechanism.

Micro USB interface*

- New ADAM-4100 series can be powered and transmit data via micro USB interface

Robust design for industrial IoT applications

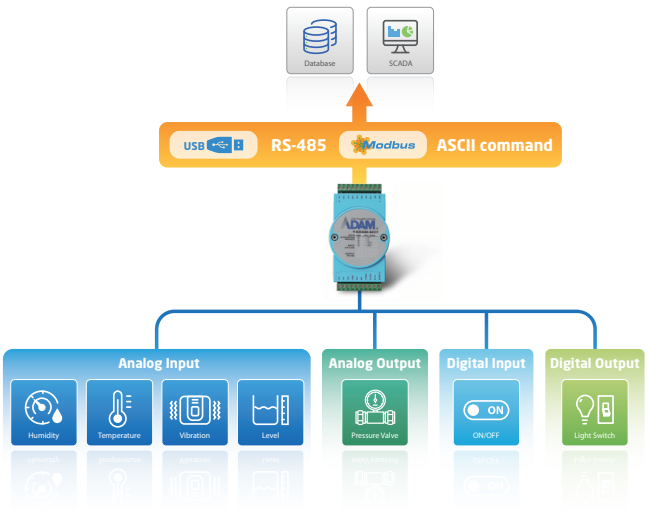


- Level-4 ESD/EFT/ surge & isolation protection
- Wide operating temperature support, up to -40°C ~ +85°C
- Wide power input range, up to 10 ~ 48 V_{DC}

ADAM-4000/4100 Series Comparison

Series Name		ADAM-4000 Series	ADAM-4100 Series
Operation Temperature		-10 ~ 70°C	-40 ~ 85°C
Power Input		10 ~ 30V_{DC}	10 ~ 48V_{DC}
ESD		8KV Air, 4KV contact	8KV Air, 6KV contact
EFT		2KV	4KV
Surge		0.5KV	4KV
Communication Interface	RS-485	✓	✓
	USB	–	✓

Application Structure



RS-485 I/O Modules: ADAM-4000/4100

Analog Input





Model		ADAM-4015	ADAM-4017	ADAM-4017+	ADAM-4018+	ADAM-4019+
Resolution		16 bit				
Analog Input	Channels	6 differential	8 differential	8 differential	8 differential	8 differential
	Sampling Rate	10 Hz			10 Hz	10 Hz
	Voltage Input	–	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 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, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	–	0 ~ 100 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, ±100 mV, ±500 mV, ±1 V, ±5 V, ±10 V
	Current Input	–	0 ~ 20, ±20 mA	0 ~ 20, 4 ~ 20, ±20 mA	4 ~ 20, ±20 mA	0 ~ 20, 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 VDC				
Watchdog Timer		✓ (system and comm.)	–	✓ (system and comm.)	✓ (system and comm.)	✓ (system and comm.)
Modbus Support *		✓	–	✓	✓	✓
Certification		UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

*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 VDC	3,000 VDC
Digital LED Indicator		–	–
Watchdog Timer		✓ (system)	✓ (system and comm.)
Safety Setting		–	✓
Modbus Support *		supported after F version	✓
Certification		UL, CE, FCC	UL, CE, FCC

Digital Input/Output



Model	ADAM-4050	ADAM-4051	ADAM-4052
Resolution	–	–	–
Channels	–	–	–
Voltage Output	–	–	–
Current Output	–	–	–
Input Channels	7	16	8
Output Channels	8	–	–
Alarm Settings	–	–	–
Isolation Voltage	–	2,500 VDC	5,000 VRMS
Digital LED Indicator	–	Yes	-
Watchdog Timer	✓ (system)	✓ (system and comm.)	✓ (system)
Safety Setting	–	–	–
Modbus Support *	supported after E version	✓	–
Certification	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

*All ADAM-4000 I/O modules support ASCII commands
✓: supported, – : not supported, △ : optional

RS-485 I/O Modules: ADAM-4000/4100

Digital Input/Output

Relay Output

Counter







Model		ADAM-4053	ADAM-4055	ADAM-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 after E version	✓	✓	supported after E version	✓	✓	supported in E version
Certification		UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

***All ADAM-4000 I/O modules support ASCII commands**
✓: supported, – : not supported, △ : optional

RS-485 I/O Modules: ADAM-4000/4100





Model		ADAM-4115	ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution		16 bits	16 bits		–	–
Analog Input	Channels	6	8 differential		–	–
	Sampling Rate	10/100 Hz (Total)	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	0 ~ 15 mV, 0~ 50 mV, 0 ~ 100 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 2.5 V, ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V	–	–
	Current Input		0 ~ 20, 4 ~ 20, ±20 mA	0 ~ 20, 4 ~ 20, ±20 mA	–	–
	Direct Sensor Input	Pt100,Pt1000,Ni 50, Ni 508	-	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}	1.2 W @ 24 V_{DC}	0.5 W @ 24 V_{DC}	0.7 W @ 24 V_{DC}	1.8 W @ 24 V_{DC}
Communication Interface		RS-485, Micro USB				
Certification		UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

✓: supported, – : not supported, △ : optional

Wireless I/O & Sensors

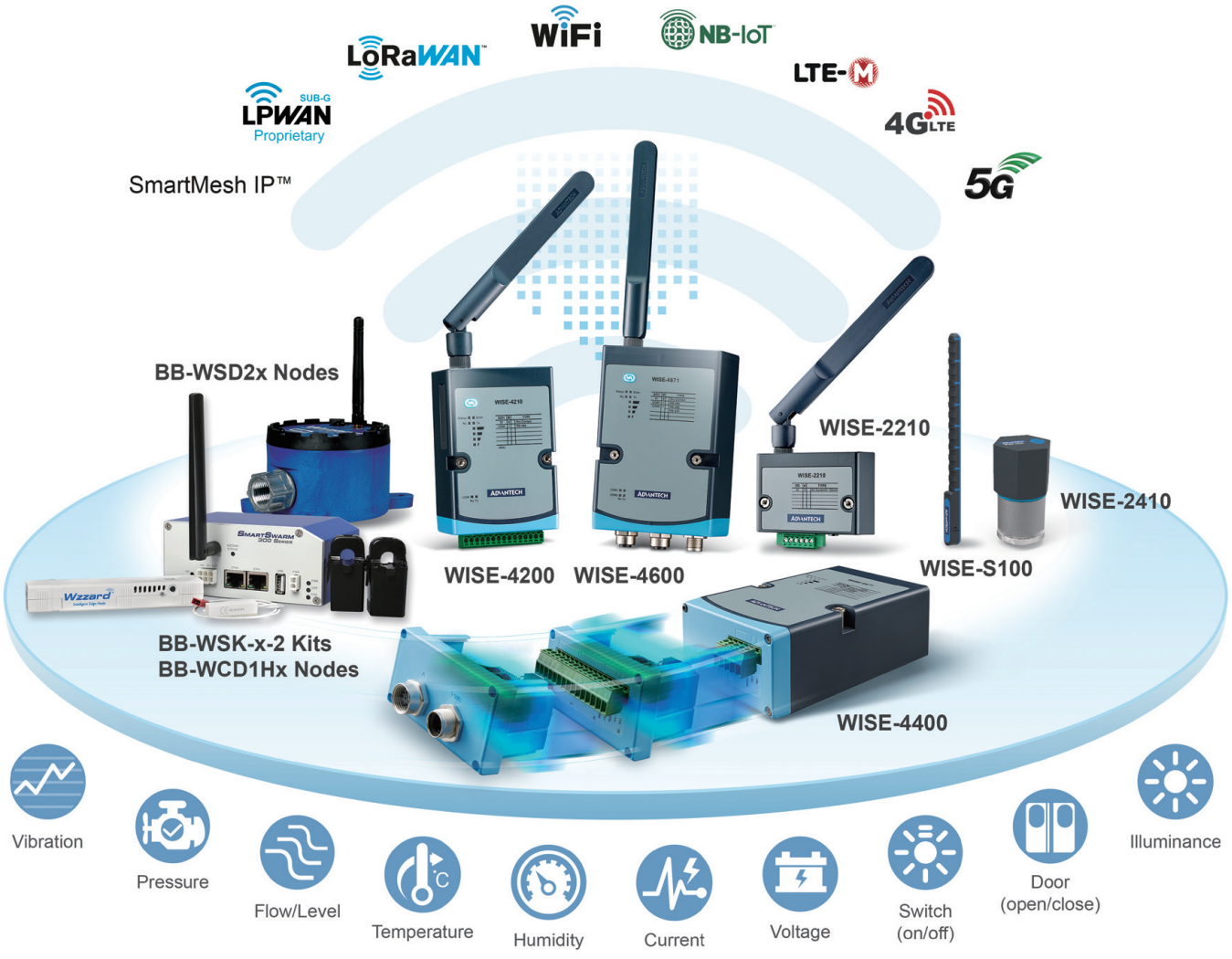
Overview

Designed to be a complete IoT sensing solution, the WISE-4000 series goes beyond merely providing wireless communication for sensors—it also provides cloud connectivity for additional user applications. With support for IoT protocols such as MQTT, the WISE-4000 series can communicate with cloud services or other web services via secure web sockets. For wide area communication, WISE-4000 I/O modules and sensor nodes have been designed with LPWAN, LoRa, NB-IoT/LTE-M, 4G/LTE, and IP65-rated features, making them highly suitable for many kinds of industrial application. WISE-2000 sensor devices are all-in-one devices designed for specific applications and domain focused scenarios.

IoT wireless I/O module and sensor node with modularized high adaptability design

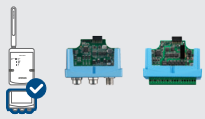
Low Power Wide Area Networks (LPWAN) are created for Machine-to-Machine (M2M) and Internet of Things (IoT) networks. They are not a single technology, but rather a variety of low-power, wide area network technologies. Compared with a traditional mobile network, LPWANs are known for offering low power efficiency and longer range transmission. To shorten the gap between field site data and the cloud, WISE-4000 series provides wireless I/O and sensor modules that can get and pass data directly to the cloud by utilizing a variety wireless communication technologies.

For more domain focussed applications, WISE-2000 series offers a wireless and sensing all-in-one solution to simplify and accelerate the implementation of IoT applications. Industrial BB-WSx wireless edge sensor starter kits and nodes create a low power, dynamic and scalable mesh network that does not disrupt existing networks. Starter kits provide Node-RED dashboards and Advantech WISE-PaaS cloud connectivity.



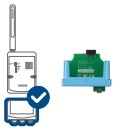
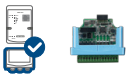
LoRaWAN I/O Modules

LoRaWAN

Category	Industrial LoRa/LoRaWAN Wireless Module			Industrial LoRa/LoRaWAN Wireless Module			Industrial LoRa/LoRaWAN Wireless Module
Model	WISE-4610P-NA	WISE-4610P-EA	WISE-4610P-JA	WISE-4610-NA	WISE-4610-EA	WISE-4610-JA	WISE-2200-MNA WISE-2200-MEA
Frequency Range	US 902~923 MHz	EU 863~870 MHz	AS 923~923.5 MHz	US 902~923 MHz	EU 863~870 MHz	AS 923~923.5 MHz	EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)
Function	Wireless board			Wireless board			Wireless board
Positioning	GPS/Galileo/BeiDou/GLONASS			–			–
Power Input	4100 mAh Lithium rechargeable battery			–			–
	10~50V$_{DC}$ external power			10~50V$_{DC}$ external power			5-50V$_{DC}$
	17~21V$_{DC}$ solar panel			17~21V$_{DC}$ solar panel			–
Configuration Interface	Micro-B USB			Micro-B USB			Micro-B USB
I/O Module							–
Model	WISE-S614-A	WISE-S614T-A	WISE-S615-A	WISE-S615T-A	WISE-S617-A	WISE-S617T-A	WISE-S672-A	WISE-S600 / WISE-S600T	WISE-S100-A	–
Spec	4AI&4DI (M12)	4AI&4DI (terminal block)	4RTD (M12)	4RTD (terminal block)	2AI, 2DI, 1 DO & 1 RS-485 with 12V power output (M12)	2AI, 2DI, 1 DO & 1 RS-485 with 12V power output (M12)	6DI, 1 RS-485 & 1 RS-485/232	Customization upon request *MOQ required	Stack light monitoring sensor	1 RS-485
WISE-4610 Optional	1654011516-01 M12, A-code, 8-pin, male 1655005903-01 M12, A-code, 4-pin, female 1700028162-01 M12, A-code, 4-pin, female with 1m cable 1700028163-01 M12, A-code, 8-pin, male with 1m cable									–

WiFi I/O Modules

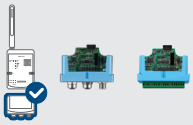
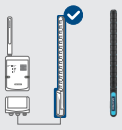
Wi-Fi

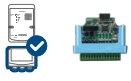
Category	WiFi 2.4G Wireless Module					Built-in Temperature & Humidity Sensor*	Dual-band WiFi 2.4G/5G Wireless Module			Built-in Temperature & Humidity Sensor*
Model	WISE-4220-A					WISE-4220-S231A	WISE-4250AS-A			WISE-4250AS-S231-A
Standard	802.11 b/g/n						802.11 a/b/g/n			
Frequency	2.4GHz						2.4GHz/5GHz			
Function	Wireless board						Wireless board			
Power Input	10~50V$_{DC}$ external power						10~50V$_{DC}$ external power			
Configuration Interface	Micro-B USB						Micro-B USB			
Outdoor Range (LOS)	100m						–			
I/O Module						*Modularization does not effect WISE-4220-S231 series				*Modularization does not effect WISE-4250AS-S231 series
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S200-A	WISE-S100-A		WISE-S214-A	WISE-S250-A	WISE-S251-A	
Spec	4AI&4DI	6DI, 2DO&1RS-485	6DI &1RS-485	Stack light monitoring sensor	Customization upon request *MOQ required		4AI&4DI	6DI, 2DO & 1RS-485	6DI & 1RS-485	

✓: supported, – : not supported, △ : optional

Wireless I/O & Sensors

NB-IoT/LTE-M I/O Modules

Category	Advanced Industrial Cat.NB1/Cat.M1 Wireless Module								
Model	☞ WISE-4671-UA								
Standard	3GPP release13								
Band	B2,3,4,5,8,12,13,20,28								
SIM Type	Nano SIM/4FF								
Function	Wireless board								
Positioning	GPS/Galileo/BeiDou/GLONASS								
Power Input	4100 mAh Lithium Rechargeable Battery 10~50V_{DC} External Power 17~21 V_{DC} Solar Panel								
Configuration Interface	Micro-B USB								
I/O Module									
Model	WISE-S614-A	WISE-S614T-A	WISE-S615-A	WISE-S615T-A	WISE-S617-A	WISE-S617T-A	WISE-S672-A	WISE-S600/ WISE-S600T	WISE-S100-A
Spec	4AI & 4DI (M12)	4AI & 4DI (Terminal Block)	4RTD (M12)	4RTD (Terminal Block)	2AI,2DI, 1DO & 1RS-485 (M12)	2AI,2DI, 1DO & 1RS-485 (Terminal Block)	6DI, 1RS-485 & 1RS-485/232	Upon Customization Request *MOQ required	Stack Light Monitoring Sensor
WISE-4671 Optional	1654011516-01 M12, A-code, 8-pin, male 1655005903-01 M12, A-code, 4-pin, female 1700028162-01 M12, A-code, 4-pin, female with 1m cable 1700028163-01 M12, A-code, 8-pin, male with 1m cable								

Category	Industrial Cat.NB1/Cat.M1 Wireless Module					
Model	☞ WISE-4471-UA					
Standard	3GPP release 13					
Band	B2,3,4,5,8,12,13,20,28					
SIM Type	Micro SIM/3FF					
Function	Wireless board					
Power Input	10~50V_{DC} external power					
Configuration Interface	Micro-B USB					
I/O Module						
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S472-A	WISE-S200-A	WISE-S100-A
Spec	4AI & 4DI	6DI, 2DO & 1RS-485	6DI &1RS-485	1DI, 1RS-485 & 1RS-485 or 1RS-232	Customization upon request *MOQ required	Stack light monitoring sensor

✓: supported, – : not supported, △ : optional

Proprietary LPWAN I/O Modules

SUB-G LPWAN Proprietary




Category	Proprietary LPWAN(SUB-G) Wireless Module		Proprietary LPWAN(SUB-G) Built-in Temperature & Humidity Sensor*	Propriety LPWAN (SUB-G) Wireless CT Node	Propriety LPWAN (SUB-G) Wireless Analog Input Modules
Function	AP	Node/Wireless Board	Sensor Node	Self-Powered Node	
Model	☞ WISE-4210AP-NA	☞ WISE-4210-NA	☞ WISE-4210-S231NA	☞ WISE-2210-NA	☞ WISE-2211-NA
Frequency	868MHz/ 923MHz	868MHz/ 923MHz	868MHz/ 923MHz	868MHz/ 923MHz	868MHz/ 923MHz
Standard	IEEE 802.15.4g FSK/GFSK modulation				
Data Rate	625 bps, 2.5k bps, 5k bps, 50k bps	625 bps, 50k bps		625 bps, 2.5k bps, 5k bps, 50k bps	
Power Input	10~50V_{DC} external power			Self powered	
Configuration Interface	Micro-B USB				
Network Capacity	64 clients				
Outdoor Range (LOS)	5KM@625bps				

I/O Module					
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S200-A	WISE-S100-A
Spec	4AI&4DI	6DI, 2DO & 1RS-485	6DI &1RS-485	Customization upon request *MOQ required	Stack light monitoring sensor

*Modularization doesn't effect WISE-4210-S231 and WISE-221x series

** WISE-S250 does not support power saving mode
✓: supported, – : not supported, △ : optional

Wireless I/O & Sensors

LoRaWAN Smart Vibration Sensor

Category		LoRaWAN Smart Vibration Sensor	Explosion Proof LoRaWAN Smart Vibration Sensor
Model		WISE-2410-NB WISE-2410-EB	WISE-2410X-E21NA WISE-2410X-A02NA WISE-2410X-A02EA
Wireless Communication	Topology	Star (LoRaWAN)	
	Frequency Band	EU 863-870 (MHz) / RU 864-870 (MHz) US 902-928 (MHz) / AU 915-928 (MHz) AS 919-924 (MHz) / TH 920-925 (MHz) JP 920-928 (MHz)	
	Spreading Factor	7~12	
	Transmit Power	Up to +18dBm	
	Data Rate	50 kbps at FSK mode EU868;21.9 kbps at SF7 mode US915;5.47 kbps at SF7 mode JP923	
Vibration Sensor	Axis	X-Y-Z	
	Frequency Range	10~1000Hz	
	Amplitude Range	±2/4/8/16g	
	Output Data Rate	6600Hz	
	Noise (MAX. TA = 25°C. 0g)	±40mg	
Temperature Sensor	Operating Range	-20°C ~ 85°C (USB powered); -20°C ~ 70°C (Battery powered)	-20°C ~ 85°C (USB powered); 0°C ~ 70°C (Battery powered)
	Resolution	12 bit	
	Accuracy	±2.0°C (±35.6°F) (vertical installation)	
Mechanical	Enclosure	IP66	IP65
	Mounting	Mounting stud; curved surface magnet; adhesives	
	Dimension (L x W x H)	42 x 40.2 x 84.7 mm	42 x 63.5 x 84.7 mm
General	Power Input	3.6V AA battery *2pcs (not included)	WISE-2410X-E21NA: 3.6V AA battery *1pcs (not included) WISE-2410X-A02NA/WISE-2410X-A02EA: 3.6V AA battery *2pcs (not included)
	Configuration Interface	Micro-B USB	
	Temperature (Operating)	-20°C ~ 85°C (USB powered); -20°C ~ 70°C (Battery powered)	-20°C ~ 85°C (USB powered); 0°C ~ 70°C (Battery powered)
	Temperature (Storage)	-25°C ~ 90°C	
	Humidity (Operating)	10% ~ 95% RH	
	Humidity (Storage)	5% ~ 95% RH	

✓: supported, – : not supported, △ : optional

Intelligent RFID Gateway

Model		WISE-2834-CA
Wireless Communication	RFID Standard	EPC Global Class 1 Gen. 2 (ISO18000-6C)
	Frequency Band	US 902.75MHz - 927.25MHz; EU 865.7MHz - 867.5MHz; TW 922.25MHz - 927.75MHz
	Transmit Power	Available to adjust from +10dBm ~ +31.5dBm
	Receiver Sensitivity	-82dBm
	Antenna Connector	4 RP-TNC
General	Chipset	ARM Cotex-A8, 300MHz for system; ARM Cortex-M0 32-Bit 32MHz for I/O
	Memory	512MB DDR3L
	Storage	NAND Flash 512MB
	OS Support	Linux 3.12
	LED Indicators	Status, Serial (Tx, Rx), Wi-Fi communication, RFID channel on/off, Wi-Fi signal strength
	Power Input	10V ~ 30V DC; Power Consumption: 3W (TYP.), 15W (Max.)
	Slot	1 x Micro SD card
	USB	1 x USB2.0 High Speed (Up to 480Mbps)
	Communication Speed	1 x 10/100 Based-T RJ-45; 1 x RS-485: 50 ~ 115.2 kbps
	Digital Input	4 dry/wet contact
	Digital Output	4 sink type
	Configuration Tool	WISE studio
	Dimensions (L x W x H)	190mm x 120mm x 30.2mm
Mechanical	Mounting	DIN 35 rail, wall, pole
Operating System	Temperature (Operating)	-25°C ~ 50°C
	Temperature (Storage)	20% ~ 95% RH
	Humidity (Operating)	-40°C ~ 85°C
	Humidity (Storage)	0% ~ 95% RH

Wireless IoT Sensing Devices: Wzzard™ Mesh Sensor Nodes – for Industrial Application Sensors

BB-WSD2x industrial series

Model	☞ BB-WSD2C21150	☞ BB-WSD2C06010	☞ BB-WSD2C31010	☞ BB-WSD2M06010	☞ BB-WSD2M31010	☞ BB-WSD2M3101P2K	☞ BB-WSD2M3101R100
Description	Industrial cooler, HVAC node	Industrial digital input node	Industrial power monitor node	Industrial digital input node	Industrial power monitor node	Industrial power monitor node	Industrial power monitor node
Wireless Technology	Low power 802.15.4e, SmartMesh IP (to SmartSwarn 342 gateway) via MQTT protocol						
Connector	Conduit (UL Type 3 outdoor approved) 12.7mm (0.5 in)	Conduit (UL Type 3 outdoor approved) 12.7mm (0.5 in)	Conduit (UL Type 3 outdoor approved) 12.7mm (0.5 in)	M12	M12	M12	M12
Includes	2 AI, 1 DI, 1 DO, 2 Thermocouples, 2 Thermistors, internal temperature, antenna, cable	6 DI, internal temperature, antenna, cable	3 AI, 1 DI, internal temperature, antenna, cable	6 DI, internal temperature, antenna, cable	3 AI, 1 DI, internal temperature, antenna, cable	2 AI, Vbat measurement, 1 DI, internal temperature, Switched Vbat Power Out (2 sec.), antenna, cable	12 AI, Vref measurement, 1 DI, internal temperature, Switched 3.3V Power Out (100 ms), antenna, cable
External Antenna (included)	RP-SMA, Omni-directional, 3.8 dBi, 2.4 GHz						
Power	Internal Power: (2) 3.6V 2400 mAH Lithium Thionyl Chloride AA Batteries Battery Life: >5 years – based on 1 min. sensor sampling and reporting external input voltage: 10-30 V_{DC} @ 40mA peak						
Sensor Power Out	Switched Vbat: Battery Power – Turned on at time of measurement (20 mA max.) Switched Vref: 3.3V (± 0.1%) – Turned on at time of measurement (20 mA max.)						
Sensors	Analog Input (0 -10 VDC, 0 - 20 mA, 4 - 20 mA) Digital Input (0 - 48 V_{DC}) Digital Input Frequency 1-1K Hz (accuracy ± 1 Hz) Digital input counter integrated temperature Thermocouple (J, K, N, R, S, T, B, E) Digital output, sinking, up to 100mA @ 30V_{DC}						
Wireless Security	Device authentication, 128-bit, AES-based wncryption with multiple keys, message integrity check (MIC), synchronized key changeovers, customized key rotation						
Temperature	-40 to +80 °C (operating)						
Enclosure	IP67 rated fiber reinforced polyester PBT						
Mounting Option	(4) Mounting ears, M5 (#10) screws (UL approved option)						
Mounting Option	Magnetic Mounting (via internal enclosure magnet) Pull Force 2.13 kg (4.7 lb) Note: Magnetic mounting models not rated for UL installations.						
Certifications	UL C1/D2, CE, FCC, EN62479 (lower power), shock, vibration	UL C1/D2, CE, FCC, EN62479 (lower power), shock, vibration	UL C1/D2, CE, FCC, EN62479 (lower power), shock, vibration	CE, FCC, EN62479 (lower power), shock, vibration	CE, FCC, EN62479 (lower power), shock, vibration	CE, FCC, EN62479 (lower power), shock, vibration	CE, FCC, EN62479 (lower power), shock, vibration
UL Listed C1/D2 Conditions	Yes. Indoor / Outdoor, w/ mounting ear installation	(pending)	Yes. Indoor / Outdoor, w/ mounting ear installation	No (M12 connector not UL)	No (M12 connector not UL)	No (M12 connector not UL)	No (M12 connector not UL)
	WIDE	WIDE	WIDE	WIDE	WIDE	WIDE	WIDE

Wireless IoT Sensing Devices: Wzzard™ Mesh Starter Kits – for Industrial & Commercial Applications

BB-WSK-xxx-2 kit series




Model	BB-WSK-CBM-2	BB-WSK-HAC-2	BB-WSK-REF-2	BB-WSK-NRG-2
Description	Condition-based monitoring starter kit	Energy starter kit	Refrigeration monitoring starter kit	HVAC/Compressor / fan monitoring starter kit
Product Sensor & Format	Industrial low-power wireless sensing – temperature, vibration	Industrial low-power wireless sensing – current, differential temperature	Commercial low-power wireless sensing – temperature, humidity, current, door	Industrial low-power wireless sensing – current
Contents - Bundled Kits Include:	Wzzard Node, sensors & cables, gateway with cloud license and Node-RED starter flow with web server			

NOTE: Starter kits include everything to get started.

Wireless IoT Sensing Devices: Wzzard™ Mesh Sensor Nodes – for Commercial Application Sensors

BB-BB-WCD1Hx commercial series


Model	☞ BB-WCD1H2102H	☞ BB-WCD1H3001HP100
Description	HVAC/cooler node for temperature & humidity sensing	AI, vBAT Out temperatue & humidity sensing node
Wireless Technology	Low power 802.15.4e, 2.4GHz SmartMesh IP (to SmartSwarn 342 gateway) via MQTT protocol	
Physical Connector	Molex 6-pin MicroClasp	
Sensors (industry standard type)	(2) Analog Inputs (1) DI (1) Thermistor	(3) AI
Integrated Sensors (within node)	(1) Temperature (1) Humidity	(1) Temperature (1) Humidity
Antenna	Internal, included.	
Power	Internal: 3.6V 1650 mAH Lithium Thionyl Chloride 2/3 AA battery. Battery Life: 5-year battery life, based on 1 minute sensor sampling interval	
Power Backup	–	vBat Out operating mode
LED Indication	Network Connectivity, Node Status	
Wireless Security	Device authentication, 128-bit, AES-based wncryption with multiple keys, Message Integrity Check (MIC), Synchronized key changeovers, Customized key rotation	
Installation	Indoor	
Operating Temperature	-20 to +70 °C (-4 to +158 °F)	
Mounting	Mounting bracket (included) VHB adhesive strip (included) Zip tie (ties not included)	
Certifications	UL C1/D2, CE, FCC, Industry Canada (RSS210), shock, vibration, drop	
UL Listed C1/D2 Conditions	UL C1/D2 rating is voided when using non UL-specified batteries. Do not mix old and new batteries	

✓: supported, – : not supported, △ : optional

16 Serial / USB Communications

Serial / USB Communications for the Industrial World

Robust Features & Reliable Performance for Rugged Applications

Bridging the connectivity gap

In the hazardous industrial world, equipment investment often rely on standard serial interfaces to communicate. Advantech connectivity solutions are designed with features that allow them to operate successfully in challenging environments. These devices help industrial equipment communicate reliably with each other while protecting them from damaging and costly power spikes, surges and transients.

Advantech serial and USB protocol devices have been supporting data communications and protecting mission critical applications for more than 30 years. Advantech's USB devices are reliably implemented on many factory floors with features such as high data transfer rates, isolation protection, Ethernet conversion, high retention USB ports, and more.

ULI series and ADAM-4500 modules are suitable for establishing cost effective industrial networks. ULI serial and USB converters/repeaters are the best solution for converting RS-232, RS-422, RS-485 and USB, and extending the range of data communication in rugged conditions.

Advantech also has complete range of industrial communication cards-PCI/PCIE series that use the RS-232/422/485 and CAN interfaces. With industrial-grade certification and protection, Advantech serial communication cards are designed for various industrial automation applications.

Features of ULI series, ADAM-4500, and industrial communication cards:

Isolation protection – Isolates data lines from electrical noise

Surge protection – Suppresses and dissipates power line surges

ESD protection – Safeguards against ESD transients

Wide operating temperature – Performance in extreme environments

Port powering – No separate power supply needed

High retention USB ports – Secures USB cables in high vibration use

Modbus support – Widely used industrial device protocol

Approvals, directives, standards – Tested to global compliance standards

Serial Converters, Isolators and Repeaters




Model		ULI-211C	ULI-211CI	ULI-212CI	ULI-213CI
P/N to Order		BB-FOSTCDR	BB-FOSTCDRi	BB-FOSTCDRI-ST	BB-FOSTCDRI-SC
INTERFACE 1	Interface	RS-232, RS-422/485	RS-232, RS-422/485	RS-232, RS-422/485	RS-232, RS-422/485
	Connector	Terminal block	Terminal block	Terminal block	Terminal block
	Port/s	1	1	1	1
INTERFACE 2	Interface	Fiber Optic	Fiber Optic	Fiber Optic	Fiber Optic
	Connector	MM, ST	MM, ST	SM, ST	SM, SC
	Port/s	1	1	1	1
Operating Temperature		-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C
Protection		Isolation: 2kV	Isolation: 2kV	Isolation: 2kV	Isolation: 2kV
Power Input		10-30 V_{DC}	10-48 V_{DC}	10-48 V_{DC}	10-48 V_{DC}
Mounting		DIN Rail	DIN Rail	DIN Rail	DIN Rail
Certificates		CE, FCC, KCC UL Recognized (backward R)	CE, FCC, UL C1/D2	CE, FCC, UL 508	CE, FCC, UL 508




Model		ULI-223D	ULI-223T	ULI-224D	ULI-224T
P/N to Order		BB-422PP9R	BB-422PP9TB	BB-4WSD9R	BB-4WSD9TB
INTERFACE 1	Interface	RS-232	RS-232	RS-232	RS-232
	Connector	DB9 female	DB9 female	DB9 female	DB9 female
	Port/s	1	1	1	1
INTERFACE 2	Interface	RS-422	RS-422	RS-422/485 (2&4W)	RS-422/485 (2&4W)
	Connector	DB9 female	Terminal block	DB9 female	Terminal block
	Port/s	1	1	1	1
Operating Temperature		0 to +70°C	0 to +70°C	0 to +70°C	0 to +70°C
Protection		–	–	–	–
Power Input		Port-powered from RS-232	Port-powered from RS-232 (Optional external 12-16 V_{DC} power supply)	Port-powered from RS-232 (Optional external 12 V_{DC} power supply)	Port-powered from RS-232 (Optional external 12 V_{DC} power supply)
Mounting		Inline installation	Inline installation	Inline installation	Inline installation
Certificates		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, – : not supported, △ : optional

Serial Converters, Isolators and Repeaters




Model		☞ ULI-224TC	☞ ULI-224TCI	☞ ULI-224TCL	☞ ULI-226D
P/N to Order		BB-485LDRC9	BB-485DRCI	BB-4WSD9OTB	BB-485SD9R
INTERFACE 1	Interface	RS-232	RS-232	RS-232	RS-232
	Connector	DB9 female & Terminal block	DB9 female	DB9 female	DB9 female
	Port/s	1	1	1	1
INTERFACE 2	Interface	RS-422/485	RS-422/485	RS-422/485	RS-485
	Connector	Terminal blocks	Terminal block	Terminal block	DB9 female
	Port/s	1	1	1	1
Operating Temperature		-40 to +80°C	-40 to +80°C	0 to +70°C	0 to +70°C
Protection		Isolation: 2kV	Isolation: 2kV	Isolation: 2kV	–
Power Input		10-30 V_{DC}	10-48 V_{DC}	10-48 V_{DC}	Port-powered from RS-232
Mounting		DIN Rail	DIN Rail	Inline installation	Inline installation
Certificates		CE, FCC, cULus, UL508	CE, FCC, KCC, UL C1/D2, UL508	CE, FCC	CE, FCC




Model		☞ ULI-226J	☞ ULI-226T	☞ ULI-227D3	☞ ULI-227D5
P/N to Order		BB-485SD9RJ	BB-485SD9TB	BB-232LPTTL33	BB-232LPTTL
INTERFACE 1	Interface	RS-232	RS-232	RS-232	RS-232
	Connector	DB9 female	DB9 female	DB9 female	DB9 female
	Port/s	1	1	1	1
INTERFACE 2	Interface	RS-485	RS-485	3.3 Vdc TTL	5 Vdc TTL
	Connector	RJ11 female	Terminal block	DB9 male	DB9 male
	Port/s	1	1	1	1
Operating Temperature		0 to +70°C	0 to +70°C	0 to +70°C	0 to +70°C
Protection		–	–	–	–
Power Input		Port-powered from RS-232	Port-powered from RS-232 (Optional external 12 V_{DC} power supply)	Port-powered from RS-232	Port-powered from RS-232
Mounting		Inline installation	Inline installation	Inline installation	Inline installation
Certificates		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, – : not supported, △ : optional

Serial Isolators and Repeaters




Model	☞ ULI-232DC	☞ ULI-232TC	☞ ULI-234TC	☞ ULI-234TCI
P/N to Order	BB-232OPDRI	BB-232OPDR	BB-485OPDR	BB-485OPDRI
Interface	RS-232	RS-232	RS-422/485	RS-422/485
Connector	DB9 female, DB9 male	Terminal block	Terminal block	(2) Terminal block
Operating Temperature	-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C
Protection	Isolation: 2kV on input/output/ power ESD: 8kV	Isolation: 2kV	Isolation: 2kV Surge: 6.5 bi-directional avalanche breakdown device 500W peak power dissipation	Isolation: 2kV on input/output/ power Surge: 600W peak power dissipation
Power Input	10-48 V_{DC}	10-30 V_{DC}	10-30 V_{DC}	10-48 V_{DC}
Enclosure	IP30, plastic	IP30, plastic	IP20, plastic	IP20, plastic
Mounting	DIN rail	DIN rail	DIN rail	DIN rail
Certificates	CE, FCC, KCC, UL C1/D2, UL508	CE, FCC, cULus Listed, UL508	CE, FCC, KCC, cULus Listed, UL508, UL Recognized	CE, FCC, KCC, UL C1/D2

Serial Surge Suppressor and Data Tap/ Splitter



Model		☞ ULI-244TI
P/N to Order		BB-HESP4DR
Serial Technology	Interface	RS-422/485
	Lines Protected	(5) RS-422/485
	Connectors, line	5-position terminal blocks
	Connectors, Equipment	5-position terminal blocks
	Grounding	Dedicated chassis ground lug
	Connections	Protected signal ground connection Rugged terminal block connections
	Power Input	No power required
Surge Suppression	Clamping Voltage	72 V_{DC}, minimum
	- stage 1: Gas Discharge Tube	108 V_{DC}, maximum
	Series Resistance - stage 2: Series Resistor	2.7 Ohms
	Clamping Voltage	6.45 V_{DC}, minimum
	- stage 3: Transient Voltage Suppressor	7.14 V_{DC}, maximum
	Clamping Time	Less than 5 x10-9 seconds
	Operating Temperature	-40 to 80°C
	Mounting	DIN Rail
	Certifications	CE

Model	☞ ULI-252D	☞ ULI-262D
P/N to Order	BB-9PCDT	BB-9PMDS
Interface	RS-232	RS-232
Connector	DB9 male	DB9 male
Operating Temperature	0 to +70°C	0 to +70°C
Type	RS-232 Data Tap	RS-232 Data Splitter
Power Input	No power required	No power required
Enclosure	plastic	plastic
Mounting	Inline installation	Inline installation
Certificates	CE, FCC	CE, FCC

USB Converters and Isolators




Model		☞ ULI-321D	☞ ULI-321DC	☞ ULI-341TC	☞ ULI-341TCK
P/N to Order		BB-232USB9M	BB-USO9ML2-A	BB-USOPTL4	BB-USOPTL4-LS
INTERFACE 1	Interface	USB	USB	USB	USB
	Connector	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)
	Port/s	1	1	1	1
	High Retention	–	✓	✓	✓
INTERFACE 2	Interface	RS-232	RS-232	RS-422/485	RS-422/485
	Connector	DB9 male	DB9 male	Terminal block	Terminal block
	Port/s	1	1	1	1
Operating Temperature		0 to +70°C	0 to +70°C	0 to +70°C	0 to +70°C
Protection		–	Isolation: 2kV ESD: 4 kV Contact, 8 kV Air	Isolation: 2kV	Isolation: 2kV
Locked serial Number		–	–	–	✓
Power Input		USB 5 V_{DC}	USB 5 V_{DC}	USB 5 V_{DC}	USB 5 V_{DC}
Mounting		Inline installation	Inline installation	Inline installation	Inline installation
Certificates		CE, FCC	CE, FCC	CE, FCC	CE, FCC




Model		☞ ULI-342TC	☞ ULI-361D	☞ ULI-361T	☞ ULI-361TK
P/N to Order		BB-USOPTL4DR-2	BB-485USB9F-2W	BB-485USBTB-2W-A	BB-485USBTB2WLS-A
INTERFACE 1	Interface	USB	USB	USB	USB
	Connector	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)	Type B (Type B to Type A, cable included)
	Port/s	1	1	1	1
	High Retention	✓	✓	✓	✓
INTERFACE 2	Interface	RS-422/485	RS-485	RS-485	RS-485
	Connector	Terminal block	DB9 Female	Terminal block	Terminal block
	Port/s	2	1	1	1
Operating Temperature		0 to +70°C	0 to +70°C	0 to +70°C	0 to +70°C
Protection		Isolation: 3kV	–	–	–
Locked serial Number		–	–	–	✓
Power Input		USB 5 V_{DC}	USB 5 V_{DC}	USB 5 V_{DC}	USB 5 V_{DC}
Mounting		DIN Rail	Inline installation	Inline installation	Inline installation
Certificates		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, – : not supported, △ : optional

USB Isolators and Hubs




Model		☞ ULI-414CI	☞ ULI-414H	☞ ULI-414I	☞ ULI-414LI
P/N to Order		BB-UHR304	BB-USH204	BB-UHR204	BB-UH104
USB Type		USB 2.0	USB 3.0	USB 2.0	USB 2.0
Downstream	Interface	4	4	4	4
	Type	Type A female	Type A female	Type A female	Type A female
	High Retention	✓	–	✓	✓
Operating Temperature		-40 to +80°C	0 to +40°C	-40 to +80°C	-40 to +80°C
Protection		Isolation: 4kV ESD: 15 kV air, 8kV contact	ESD: 8kV contact	ESD: 15 kV air, 8kV contact	ESD: 15 kV air, 8kV contact
Power Input		10-30 V_{DC}	9-24 V_{DC}	10-30 V_{DC}	USB 5V
Enclosure		IP30, metal	Metal	IP30, metal	IP30, plastic
Mounting		DIN Rail, Desk, Panel	DIN rail	DIN Rail, Desk, Panel	Panel
Certificates		CE, FCC, KCC, UL C1/D2	CE, FCC, KCC	CE, FCC, KCC	CE, FCC




Model		☞ ULI-414LIB	☞ ULI-417CI	☞ ULI-417H	☞ ULI-421CL
P/N to Order		BB-USBHUB4OEM	BB-UHR307	BB-USH207	BB-UH401
USB Type		USB 2.0	USB 2.0	USB 3.0	USB 2.0
Downstream	Interface	4	7	7	1
	Type	Type A female	Type A female	Type A female	Type A female
	High Retention	✓	✓	–	✓
Operating Temperature		-40 to +80°C	-40 to +80°C	0 to +40°C	-40 to +80°C
Protection		ESD: 15 kV air, 8kV contact	Isolation: 4kV ESD: 15 kV air, 8kV contact	ESD: 8kV contact	Isolation: 4kV ESD: 15 kV air, 8kV contact
Power Input		USB 5V	10-30 V_{DC}	9-24 V_{DC}	USB 5V
Enclosure		Open board	IP30, metal	Metal	IP30, plastic
Mounting		OEM	DIN Rail, Desk, Panel	DIN rail	Inline
Certificates		CE, FCC	CE, FCC, KCC, UL C1/D2	CE, FCC, KCC	CE, FCC

✓: supported, – : not supported, △ : optional

USB Isolators

Model		☞ ULI-422C
P/N to Order		BB-UHR402
Product Series		2-port, 4kV, 12 Mbps Ruggedized
USB Ports	Number of Ports	2
	High Retention USB	✓
	Upstream Port	1 Type B, High Retention
	Downstream Port	2 Type A, High Retention
	Downstream Power	500 mA
	Speed	Smart-selectable: 12 Mbps (full speed) or 1.5 Mbps (low speed)
	USB Protocol	1.1, 2.0
Protection	Isolation	4kV
	ESD Protection (Level 4)	8 kV Contact, 15 kV Air
Specifications	Temperature	0 to +50°C
	Power Input	10 to 30 V_{DC}, external
	DIN Rail Mount	Yes (w/ optional DIN adapter clips)
	Panel Mount	✓
	Shock/Vibration/ Drop	✓
	Certifications	FCC, CE, KCC

✓: supported, – : not supported, △ : optional

Model		☞ USB-4630
P/N to Order		USB-4630-BE
Product Series		USB Hub
Usb Ports	Number of Ports	4
	High Retention USB	–
	Upstream Port	1 Type B
	Downstream Port	4 Type A
	Downstream Power	Ext. Power: 900mA per port BUS Powered: 700mA max., shared by all ports
	Speed	5Gbps (shared by all downstream ports)
	USB Protocol	3.0
Protection	Isolation	2500 V_{DC}
	ESD Protection (Level 4)	8kV (contact) 15kV (air)
Specifications	Temperature	0 ~ 60°C
	Power Input	10 to 30 V_{DC}
	DIN Rail Mount	✓
	Panel Mount	✓
	Shock/Vibration/ Drop	✓
	Certifications	CE/FCC

Serial Communication Cards

Serial Communication Cards

Bus		PCI Express						
Part Number		PCI-1602	PCI-1604	PCI-1610	PCI-1612	PCI-1620	PCI-1622	PCI-1680U
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)						8 kV (air), 4 kV (contact)
	Isolation	3,000 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 Cards

PC/104 Communication Modules

Bus		PC/104
Part Number		☞ PCM-3680
I/O Ports		2
Communication Interfaces	Ethernet	–
	RS-232	–
	RS-422	–
	RS-485	–
	CAN	✓
Protection	ESD	8 kV (air), 4 kV (contact)
	Isolation	2,500 V_{DC}

Accessories






Part Number		1700018791-11	OPT4A	OPT8C	☞ OPT8H	☞ OPT8J	☞ OPT1-DB9E
Length		30 cm	30 cm	1 m	1 m	1 m	–
Communication Interfaces	Connector Type	DB37 Male	DB37 Male	DB62 Male	DB62 Male	DB78 Male	DB9 Female
	Qty	1	1	1	1	1	1
	Connector Type	DB25 Male	DB9 Male	DB25 Male	DB9 Male	DB9 Male	10pin Screw Terminal
	Qty	4	4	8	8	8	1
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	PCI-1602, PCI-1604, PCIE-1602, PCIE-1604 PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C, PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B, PCI-1680, PCIE-1680, MIOE-3680

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