

Ihr Distributor:



ADVANTECH Industrial IoT
Channel Partner

Enabling an Intelligent Planet

Product Catalog 2024-2025

Industrial IoT Systems and Devices

Driving Industrial IoT Innovation in AIoT Era

- Edge Software & Industry Solutions
- Intelligent HMI & Monitors
- Automation Computers
- Intelligent Systems
- Mission Critical CompactPCI Platforms
- Transportation & Substation Systems
- Industrial Server & Cloud Solutions
- AI & Advanced Computer Vision
- Video Infrastructure Solutions
- Network & Security Solutions
- Industrial Communication
- Industrial Gateways
- EtherCAT Solutions & Automation Controllers
- Intelligent Motion Control Solutions
- Data Acquisition (DAQ) Solutions
- Remote I/O, Wireless I/O & Sensors
- Serial / USB Communications

ADVANTECH

Enabling an Intelligent Planet

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 Advantech Contact

About Advantech

Co-Creating the Future of the IoT World

Advantech has the corporate vision to "Enable an Intelligent Planet". The company is a global leader in the fields of IoT intelligent systems and embedded platforms. To embrace the trends of AIoT and artificial intelligence, Advantech has fully deployed its sector-driven strategy, focusing particularly on seven major sectors. This deployment aims to nurture market sectors and enhance core competitiveness. In the meantime, Advantech integrates its existing product group - the AIoT + Edge computing hardware platform - with the mature WISE-IoT software platform. Together with our industrial AI solutions and business expertise, this integration will form an "orchestrator" model for seamless industrial chain connections, benefiting both our partners and clients. Advantech is also working with business partners to co-create business ecosystems that accelerate the goal of industrial intelligence.

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

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



Honors & Awards

- No.1 in Industrial PCs Worldwide Market Share



- No.5 in Best Taiwan Global Brands



- No.17 in Top 50 Global Automation Vendors



- No.9 in Top 100 Industrial IoT Companies



- Red Dot Product Design Award



- iF Product Design Award



Corporate Sustainability Statement

Advantech's Environmental, Social, and Governance (ESG) Vision Declaration emphasizes environmental, social, and corporate governance topics that include altruism and co-enrichment, while aiming to enable an intelligent and sustainable planet.

Based upon our corporate vision of "Enabling an intelligent planet," our ESG vision aligns with our core competitiveness, key developments, and response strategies to the United Nations Sustainable Development Goals (SDGs). Leveraging our Artificial Intelligence of Things (AIoT) core competencies and smart solutions, we aim to realize SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action), focusing on improving energy efficiency, energy-saving in buildings and manufacturing, and reducing carbon emissions in logistics and retail. Through our open and innovative environmental and educational initiatives aimed at promoting Internet of Things (IoT) platforms and solutions, we strive to provide exceptional education (SDG 4) and foster global partnerships (SDG 17).

Our diverse range of hardware, software, Industrial Applications (I.Apps), and integration solutions target specific applications such as energy, flood and disaster prevention, sewage treatment, remote education, public safety, public health, telemedicine, smart agriculture, information security, and cloud computing. In 2023, our worldwide revenue for the sale of products used for sustainable purposes accounted for 39.9% of our total revenue. (The result was calculated by EU Taxonomy for sustainable activities) Looking ahead, we aim to integrate sustainability concepts into our strategy blueprint for developing new products across various industries. We remain committed to developing smart solutions that contribute to a cleaner, safer, healthier, and more convenient world, ultimately enabling an intelligent and sustainable planet.

Advantech ESG Vision:

Enabling an Intelligent and Sustainable Planet



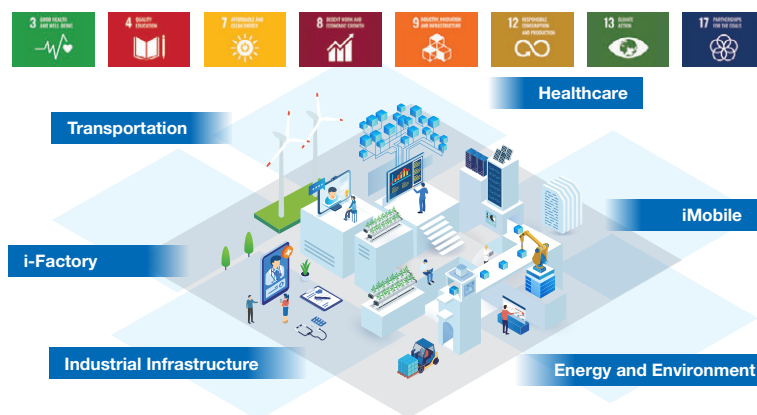
2023 Products and Sustainable Applications: 39.9%

With the vision of “Enabling an Intelligent and Sustainable Planet,” Advantech is dedicated to advancing global sustainable development. Utilizing IoT technology and comprehensive product solutions, we optimize customer resource utilization and enhance production efficiency. This approach concurrently mitigates energy waste and reduces carbon emissions, increasing sustainable progress.

Our IoT software and hardware products span diverse domains including energy management, transportation and logistics, smart agriculture, smart factories, telemedicine, education, and operation and maintenance services. Advantech is committed to incrementally increasing the revenue share of sustainable intelligent solutions. In 2023, our worldwide revenue for the sale of products used for sustainable purposes accounted for 39.9% of our total revenue.

(The result was calculated by EU Taxonomy for sustainable activities)

The current application fields of Advantech’s sustainable products and their corresponding EU Taxonomy classifications are as follows:



Awards and Recognition

Advantech’s commitment to sustainability is laudable, as evidenced by its accomplishments in governance, economics, and social initiatives, coupled with its outstanding performance in sustainability assessments. Through the seamless integration of sustainable practices into its operations and adherence to international frameworks like TNFD, ISSB, and EU sustainability activity indicators, Advantech is positioned to significantly influence sustainability endeavors.

Our strategic approach, underscored by collaboration with industries and supply chain partners, embodies a comprehensive understanding of sustainability. By jointly pursuing shared objectives, Advantech and its partners harness collective expertise and resources to foster meaningful change and contribute to a more sustainable future. Through the prioritization of sustainability in operations and partnerships, Advantech exemplifies its commitment to environmental stewardship, social responsibility, and long-term economic viability.



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 regional service business group (AS+, Advantech Services Plus) focuses on comprehensive regional customer services, such as professional maintenance support, project management and system integration, 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 Maintenance 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 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 project management team provides strong professional and disciplined management skills, cross-function communication, architecture planning, SRP installation, and after-sales maintenance and operation. Our domain-focused customers will provide a total service integrated solution within their vertical market and deliver 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 receive extra warranty and maintenance 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 vendors and product management to provide quality-assured compatible peripherals within short lead times and competitive pricing. Valuable customers receive a one-stop shopping service for industrial peripherals.

- Global standardization management; 100% compatible peripherals
- Trusted quality with revision control
- Short lead times and competitive pricing

Advantech Global Services

Advantech has offices in 28 countries and more than 8,900 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

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

Quality and Environmental Compliance

- ISO 9001 / TL 9000 Certification
- ISO 14001 / 45001 Certification
- ISO 13485 Certification
- ISO 50001 Certification
- ISO 14064 Certification
- ISO 27001 Certification
- ISO 17025 Certification
- RoHS Directive Compliance
- WEEE Directive Compliance
- Authorized Sony Green Partner
- REACH SVHC Directive Compliance
- RMI Conflict Minerals Declaration
- IECEx QAR Certification

Configure-To-Order Services

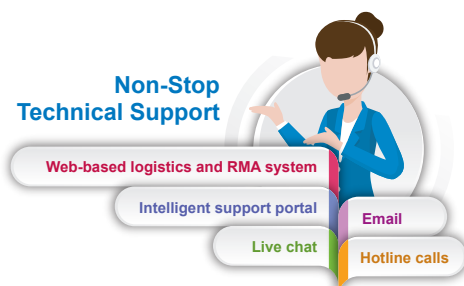
Advantech's Configure-To-Order services (CTOS) increase the accessibility of industrial computing solutions with the provision of web-based configuration tools, complex assembly services that support high-mix low-volume box builds and customized assembly, design modification, system integration, and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

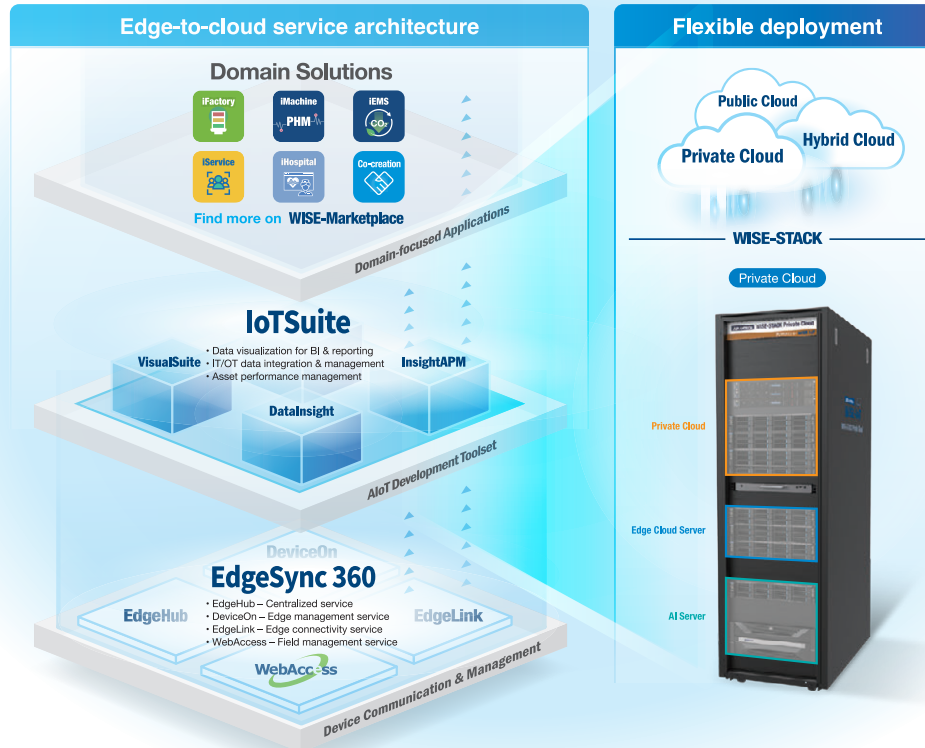
We offer optimized maintenance and support plans by leveraging the full scope of our service portfolio to help you reduce costs and proactively mitigate business risks. In addition to complete technical and service support, we also offer a variety of customizable service packages.



About WISE-IoT

Digital Transformation with Modular Edge-to-Cloud AIoT Software

Step into a realm where connectivity intersects with efficiency. Our IoT Suite, featuring a range of Domain Solutions, addresses unique industry requirements while delivering exceptional data management and performance analytics. Spearheading the integration of smart technology, it leads the way in innovation. Complementing this, our centralized service hub, EdgeSync 360, ensures streamlined device management and communication, forming the backbone of our cutting-edge Edge-to-Cloud service architecture—poised to transform enterprise operations. Additionally, our WISE-STACK deployment options provide unparalleled flexibility, so join us in embracing the future of smart industry.



WISE-Marketplace

Seamless Purchasing and Deployment

Unlock efficiency with WISE-Marketplace, your one-stop place for IoT excellence. Streamline operations with tailored solutions and robust applications, backed by dynamic support for all business partners. Experience the ease of flexible solutions and a wealth of resources designed to elevate your enterprise to the next level. Connect, innovate, and grow with us.



IoTMart Express

Cross-Border Digital Commerce Platform for Next-Level IoT Solutions.

Advantech IoTMart Express (International Site) is a global cross-border digital platform for IoT products ranging from AIoT software and solutions, edge devices, to industrial peripherals. IoTMart Express provides no minimum quantity, dispatch in 24hr, transparent order tracking and facilitates cross-border delivery. These features accelerate the expansion of overseas business and technology transfers, enabling rapid and seamless proof of concept (POC) implementation. IoTMart Express is more than just a platform; it's your strategic partner in navigating the dynamic landscape of IoT products. As a cross-border digital commerce, IoTMart is designed to elevate your IoT business with unparalleled benefits and commitment to seamless transactions.

Precision-Focused Industrial Automation Store

At IoTMart IA Store, our platform is not just a shop; it's a sales-driven powerhouse. Experience unparalleled efficiency with self-service prototyping tailored for new customers and walk-ins, saving valuable business time. Leverage strategic support to dominate non-local markets, as we assist in servicing customers beyond geographical boundaries, pre-developing solutions to nurture and grow these accounts into substantial clients. With a relentless commitment to continuously finding new customers for your business, IoTMart IA store is your dynamic ally for sustained growth and strategic market dominance.



IoTMart
Strategic USPs
for Your Business



Cross-Border Delivery

Benefit from our worldwide presence as IoTMart delivers to 205 countries. Door-to-Door WW Express Services by DHL ensure transit in 2-4 days, allowing you to seamlessly integrate Advantech's Industrial IoT solutions into your global projects.



Multiple Languages

English / 繁體中文 / 日本語 / 한국어 / Deutsch/ français/ Español/ Português

Multiple Currencies

USD/ TWD / JPY / KRW / EUR / GBP

Diverse Payment Methods

Stripe: including Card Payments, Digital Wallets, Buy Now Pay Later, etc.



Dispatch in 24hr enabled by Smart Warehouse Center

Our autonomous mobile robot (AMR) solution empowered smart warehouses ensures clients' orders are processed swiftly, guaranteeing timely deliveries. Experience a supply chain that optimizes efficiency and reduces lead times. Enjoy real-time inventory availability on IoTMart.



No Minimum Quantity for Business Efficiency

Our clients can order exactly what they need without minimum thresholds. Whether you're a small enterprise or a larger corporation, our approach provides a tailored procurement experience with 24/7 online support, transparent order tracking, pricing, and AI-enabled product search, ensuring seamless and business-focused operational efficiency.



About Industrial IoT

Elevate Your Sector with Industrial IoT Innovation

Focusing on IoT edge computing, edge AI, automation control, device connectivity, edge cloud, and device management, the Industrial IoT group innovates in technology and delivers industry-focused product solutions. Our strategy, designed to foster close collaboration with industrial partners and clients, emphasizes Industrial Automation and Industrial Edge System, aiming to provide targeted solutions within these specific markets. This dedication to our sector-driven strategy highlights our commitment to advancing IIoT, enabling partners and clients to enhance operational efficiency, increase manufacturing agility, and develop smart industries. Concentrating on these key areas ensures we deliver superior industrial IoT solutions, keeping our leadership in technological innovation and sustainable industrial progress.

Industrial Automation

Leading the way in industrial automation solutions, we spearhead digital transformation with our focus on the Industrial Internet of Things (IIoT). By leveraging device connectivity, automation control technology, edge computing, and AI, we enhance manufacturing operations. Our comprehensive IIoT solutions and specialized devices serve various sectors, driving Industry 4.0 advancements. Through strategic partnerships and a globally localized approach, we strive for innovation, efficiency, and the development of sustainable smart factories and energy utilities, cementing our role as pioneers in automation and connectivity for the industrial future.

Intelligent Systems

As a leading provider of intelligent edge computing and AI applications for industrial equipment manufacturing, we aim to engage deeply with equipment manufacturers, machine builders, and enterprise clients, boosting their capabilities with advanced edge solutions. Leveraging Industrial Internet of Things (IIoT) technology with edge-to-cloud solutions, our solutions grant superior control, efficiency, and adaptability. Our robust edge computing systems drive transformative advancements in equipment intelligence and networking. We're committed to delivering tailored, cutting-edge solutions that meet the diverse needs of our clients, setting new standards in industrial applications. This strategic initiative prepares our clients for Industry 5.0 challenges and Gen AI opportunities, promoting progress and sustainability in the industrial sector.

Elevate Your Sector with Industrial IoT Innovation



Elevate Your Sector with

Industrial Automation

Intelligent Factory

- Automobile
- Pharmaceutical
- Food & Beverage
- Metal Process

Energy & Utilities

- Energy Management
- Green Energy
- Smart Grid
- Oil & Gas

Automation Control

- Manufacturing Processes
- Process Control
- Motion Control
- Building Automation

AI Fusion

Advancing Domain Solutions with GenAI

The Trio of Alo

Edge



Automation Control



Edge AI



Edge Compute



Sensing Devices



Data Acquisition



Industrial Vis

Edge

Industrial IoT Innovation

Intelligent Systems

Semicon & Industrial Equipment

- Semicon Equipment
- Electronics Equipment
- Robotic Equipment

Intelligent Transportation

- Road Transportation
- Railway Transportation
- In-vehicle Solution

Edge Cloud & AI Solutions

- Industrial AI
- Mobility AI
- Edge Server

Network Security & Broadcasting

- Enterprise Networking
- NFV & SD-WAN
- Broadcasting

T Co-creation

EdgeSync 360

Device and Data Orchestration

IoT Suite

AIoT Development Toolset

Platforms



rs & Servers



IP Video Streaming



Network Edge Appliances

Devices



ion & Camera



Connectivity



Industrial Gateways

Intelligent Factory Solutions

Advantech's intelligent factory solutions are leading a transformative shift in manufacturing toward AI and big data technology, enabling factories to embrace Industry 4.0 or even Industry 5.0 innovations. Our IoT solutions, including cloud-enabled software, smart automation solutions, AI Edge computing, networking, and I/O & controller, assist in upgrading intelligent manufacturing facilities, driving an AI-powered revolution in factory.

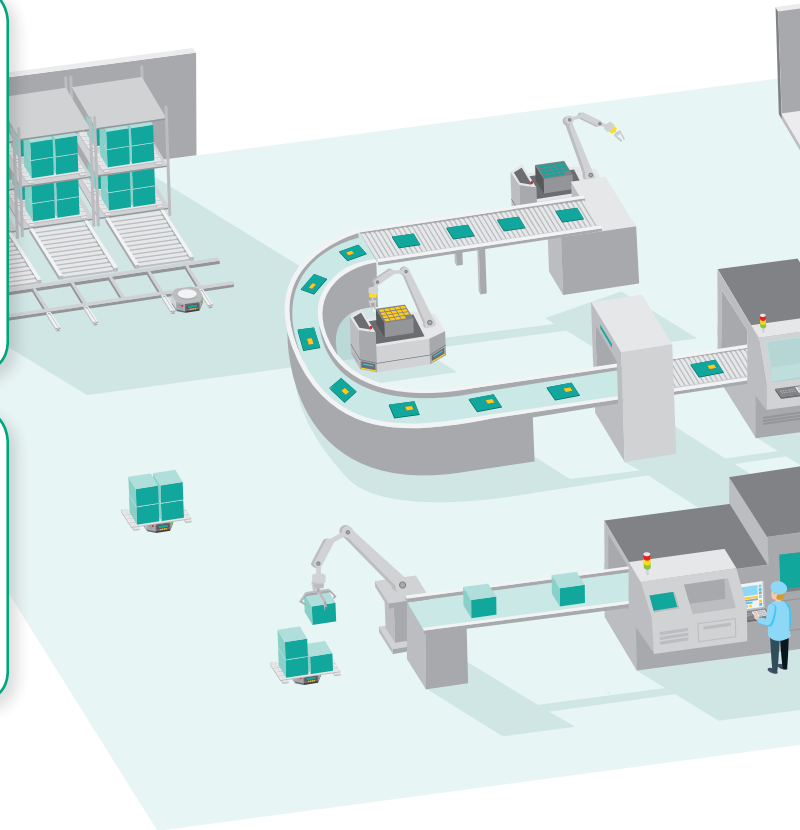
Intelligent Connectivity

- Increase operational efficiency: Protocol conversion aids OT/IT integration. TSN guarantees timely data delivery. This supports data analysis for better decision-making.
- Enhanced flexibility and scalability: Adopting wireless and cloud-based technologies helps reconfiguration and integration.



Energy Management

- Reduction in costs by identifying energy-efficient practices.
- Enhance sustainability by using energy efficiently.
- Achieve carbon neutrality.



Product Solutions

Edge as a Service



EdgeSync 360

- A software suite for device and data orchestration

iFactory Suite



FactoryOEE & EHS with IoTsuite RTM

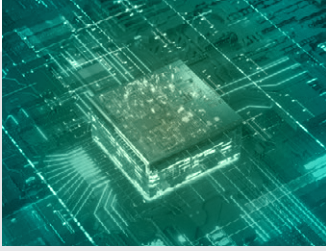
- Includes 1 license of FactoryOEE & EHS for yearly subscription and renewal
- Includes 30 parameters for monitoring OT data

Edge Computing



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

- Edge Industrial PCs
- EtherCAT Edge Controllers
- Codesys Ready Edge Controllers



SEMICON & Electronics



EV & Auto Parts



Textiles & Footwear



Food & Beverage



Digital Manufacturing Operations & Situation Management

- Enhance decision making: digitalization allows for the collection, analysis, and interpretation of data from various operations, which enables making more informed decisions.
- Better communication and collaboration: provides a common platform for discussing operational issues.



Intelligent Facility/Equipment Management

- Better risk management: Intelligent equipment management such as PHM provides a more predictable framework for maintenance activities and budgeting.
- Real-time monitoring and alerts: enabling prompt responses to minimize downtime or quality issues.



Automation Control

- The EtherCAT control system enables extremely fast data exchange, facilitating real-time control and synchronization, which is essential for complex manufacturing processes.
- PC-based control systems offering high compatibility in OT/IT integration. Their high flexibility and scalability make them well suited for rapid-evolving manufacturing environments.



Industrial HMI and Monitors



- TPC, PPC and FPM Series
- All-in-One Control panels, thin clients and web browser terminals
 - Modular Series HMI
 - Industrial Monitors

Industrial Communication



- EKI, IMC, and ICR Series
- TSN / Ethernet / VDSL wired communication
 - 5G / LTE / Wi-Fi wireless communication

IIoT Gateways & RTUs



- ECU-1000, UNO-200, ADAM, WISE, and EKI Series
- Serial, Fieldbus, LoRaWAN, OPC UA gateways
 - IoT software supported

Remote I/O, Wireless I/O and Sensors



- ADAM-200PN/4000/5000/6000 Series
- RS-485, Ethernet, OPC UA and PROFINET
- WISE and EVA Series
- Wi-Fi, LPWAN, LoRaWAN, and NB-IoT

Industrial Equipment Manufacturing Solutions

Advantech is dedicated to enabling the digitalization of smart machinery through the utilization of AI, data analytics, and cloud services for machine builders. Our solutions, including AI Automated Optical Inspection, predictive maintenance, edge computing, robust industrial connectivity, streamline data acquisition and ensure seamless system integration. These advanced technologies support intelligent operations, predictive analytics, and smooth integration across various protocols. This ensures that our customers remain at the forefront of the digital transformation of manufacturing, resulting in improved productivity and a competitive advantage.

AI Automated Optical Inspection (AOI)

- AI-driven defect inspection suitable for multiple product lines and diverse defect applications.
- Serves as a replacement for manual inspection processes.
- Enhances reliability and efficiency on the factory floor.



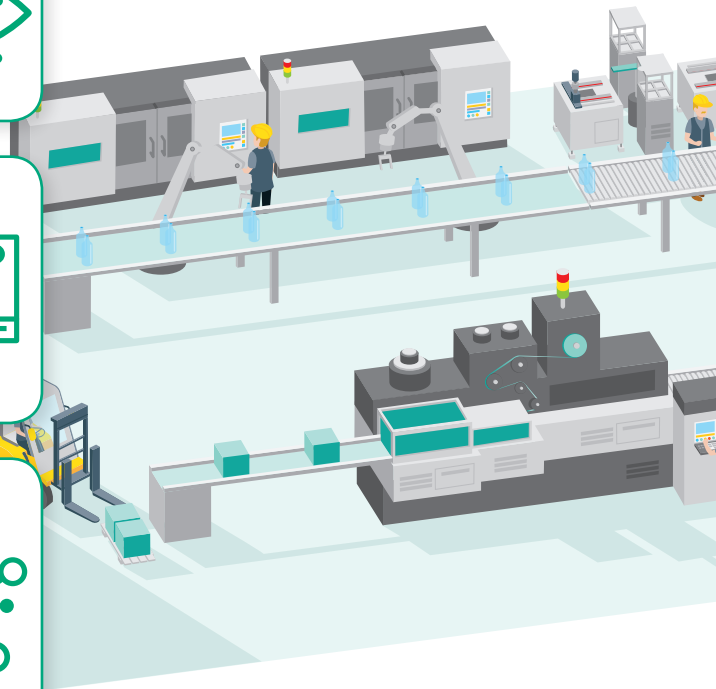
Automation and Control

- Features a unique SoftMotion kernel and an innovative GigE Vision offload engine, utilizing FPGA, DSP, and Arm as core computing platforms.
- Delivers versatile solutions and optimal motion/vision performance to meet the specific needs of OEM machine makers and system integrators.



Industrial Connectivity

- Ensures robust, reliable, and advanced connectivity from the network edge to the core.
- Supports data transmission over copper cables, fiber optics, and wireless connections.
- Offers flexible access to network status through various industrial protocols.



Product Solutions

Data Acquisition

DAQNavi



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

Industrial Communication & Networking



- Reliable wired and wireless industrial communication solutions
- Offers Ethernet switches, cellular routers, gateways, wireless access points/clients, and media converters

Motion Control



- Supports versatile EtherCAT servo/stepping motor
- Software for easy development and effortless control configuration

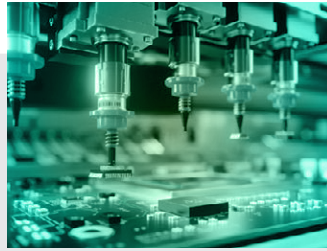
HMI Visualization



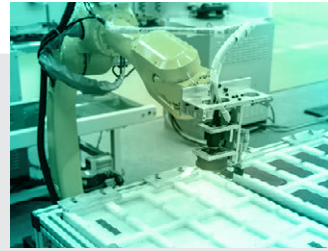
- Modular HMI for easy maintenance and flexible customization
- Supports 500+ PLC Industrial Communication Protocols



Semiconductors



Electronics



Robotics



Food & Beverage

Data Convergence and Transmission

- Supports various widely used industrial protocols, including PROFINET, EtherNet/IP, and EtherCAT.
- Enables seamless conversion between each industrial protocol via EdgeLink.
- Facilitates efficient connection to equipment using different protocols with redundancy and management features.



Predictive Maintenance

- Offers a wide range of industrial data acquisition and control devices with various interfaces and functions.
- Delivers dependable, precise, cost-effective, and versatile solutions for a wide range of industrial automation needs.
- Enables seamless integration of data acquisition cards with the latest platforms, improving performance and reducing development times.



Edge Computing, Analysis and Visualization

- Features a modular design for PC-based controllers, industrial PCs, GPU/IPC hybrid computers, and panel computers.
- Offers Interoperability for data management and control via Codesys Control, EdgeSync 360, EdgeLink Data Aggregation and WebAccess.
- Provides flexible system configuration for diverse applications and minimizes lead times with global Configure-To-Order Services (CTOS).



Machine Vision & AI AOI



- Easy multi-task configuration without programming
- Intuitive menu-driven GUI shortens the learning curve
- All-in-one solution with AI, camera, light & AI AOI software

Edge Computers



- Compact, fanless, modularized systems
- Diverse selection of CPUs, flexible I/O and module expansion

Intelligent Systems



- High performance fan-based system motion, vision, and GPU-accelerated applications
- Diverse form factor selection, including rackmount, tower, wall-mount/desktop

Industrial Servers



- Latest Intel® Xeon® processors and AMD EPYC™ Server processors for high performance computing
- CPU/GPU hybrid technology
- Supreme server DTOS for optimal customization

Intelligent Transportation Systems

Experiencing from railways to roads, airports to seaports, 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 support our partners and customers build effective transportation systems around the world.

Rolling Stock Solutions

- Passenger information system
- CCTV system
- Infotainment system
- Condition monitoring system
- TSN-based ETBN solution
- Obstacle detection & train inspection system



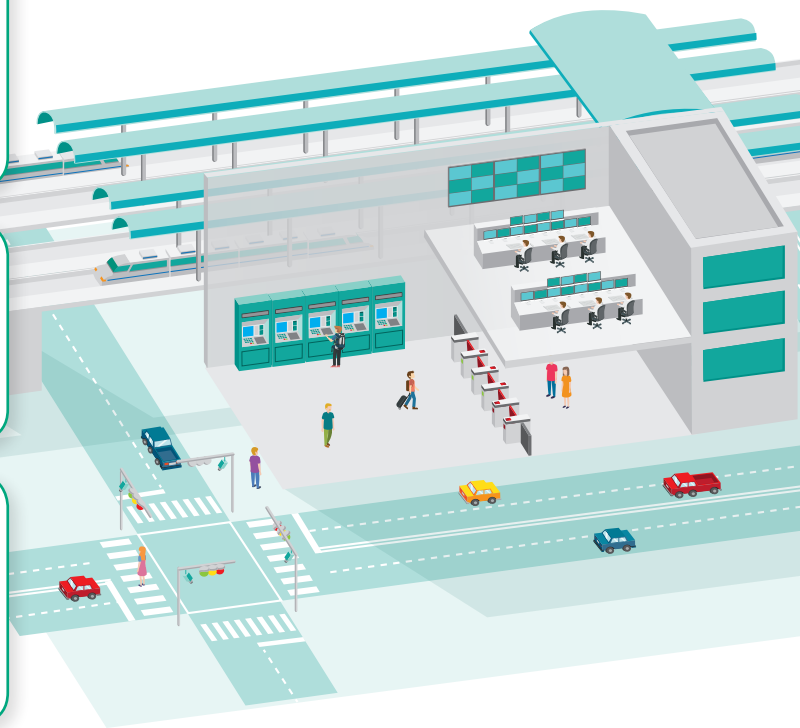
Wayside Control Solutions

- Wayside signaling
- Interlocking system
- Train control system
- Level crossing and relay house monitoring



Integrated Supervisory Control Systems

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



Product Solutions

Rolling Stock Controllers



ITA-5 Series
EN 50155 product for railway applications

Edge Computers



ITA-2, ITA-3 Series
Fanless systems for traffic management and AI applications

AFC Controllers



ITA-1 Series
Flexible configuration design for multiple COM, secondary display output

3U CPCI-Serial on Rolling Stock AI Solution



MIC-3 Series
EN 50155 Blade IPC for X86 platform with MXM GPU, or NVIDIA Jetson Platform



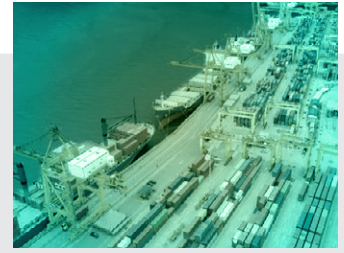
Airports



Roads & In-vehicle



Railways

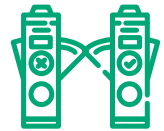


Seaports



Automatic Fare Collection Solutions

- Automatic gate machine
- Ticket vending machine



Intelligent Video Analytics Solutions

- Adaptive traffic signal control system
- AI Traffic surveillance System
- License plate recognition system



Traffic Management Solutions

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



Highway Management Solutions

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



Rolling Stock Display Systems



ITA-7 Series
EN 50155 panel PC designed for passenger information display system (PIDS)

Panel Controllers



ITA-8 Series
EN 50155 driver machine interface

Railway & Roadway Ethernet Solutions



EKI-9500, 7700 & IMC Series
EN 50155/EN 50121 certified Ethernet switches & converters; TSN-ready for ETBN and ISCS

Wireless Solutions



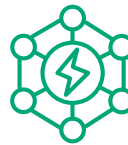
WISE/Wizzard/SmartSwarm
Transportation wireless communications

Energy & Utilities Solutions

Advantech leads energy transformation and digitalization across multiple domains, including renewable energy, battery energy storage systems, smart substations, EV charging station management, and energy and carbon management. Our comprehensive range of solutions, from IEC 61850 certified servers and Ethernet switches to communication gateways and 4G/5G routers, ensures secure and efficient energy operations. With domain-specific expertise, seamless connectivity and device management solutions, we enable reliable energy and grid management. Additionally, our iEMS energy management software makes Advantech your ideal partner for ESG and sustainability initiatives.

Seamless Connection of Smart Grid

- Interconnect distributed energy resources via various protocols (IEC 104, IEC 61850, DNP3, Modbus, CAN, OCPP)
- HSR/PRP redundancy networks minimize downtime risks, advance substation management, and enhance energy infrastructure reliability



Remote Management

- EdgeSync 360, the Edge as a Service for edge-to-cloud connectivity, data visualization and analysis, and enhanced IoT security
- Real-time monitoring and remote configuration
- OTA updates for mass and distributed deployment
- Enhanced security with X.509 certificates through VPN & MQTTs



Energy Saving

- Monitor energy WAGES & renewable energy and energy KPI performance
- Multidimensional energy data analysis to find out the energy saving potentiality
- Manage energy conservation projects & reduce energy cost
- GenAI expert consultation & interaction
- ISO 50001 compliance



Product Solutions

IEC 61850-3 Substation Platforms



- IEC 61850-3 certified servers ensure efficient and reliable operations in digital substations

IEC 61850-3 Ethernet Switches



- Layer 2 & layer 3 modular Ethernet switches
- Modules feature HSR/PRP and IoT functions for substation infrastructure
- WebAccess/NMS for Ethernet network management

Gateways & RTUs



- Data acquisition and multi-protocol conversion
- Easy integration with IoT platforms via MQTT
- IEC 61131 logic control

Cellular Routers



- 4G/5G routers with WebAccess/DMP for multiple sites device management
- WebAccess/VPN to secure the cybersecurity of energy networks



Renewable Energy



Battery Energy Storage Systems



Smart Substations



Factory Energy Management



Carbon Management

- Review organization carbon emissions / product carbon footprint
- Digitalized carbon inventory calculation
- ISO 14064 / ISO 14067 compliance
- Help enterprise manage carbon assets target, achieve carbon neutrality



Centralized SCADA in Substations

- High-performance server optimizes operational efficiency
- IEC 61850-3-certified with inbuilt redundancy guarantees reliability
- Scalable configurations match evolving operational needs



Virtualization Protection and Automation for Digital Substations

- Low-latency control with multiple hypervisor providers
- Enhanced system resilience by software/hardware redundancy
- Extensive application coverage with one powerful server



Energy Domain-focused Product Portfolios

- Complete portfolio from IEC 61850 certified servers and Ethernet switches, to communication gateways and 4G/5G routers



EdgeSync 360

Device and Data Orchestration



EdgeHub

- SaaS for device & data management



DeviceOn

- AI orchestration in private and public cloud



WebAccess

- SCADA for real-time operation



EdgeLink

- IoT gateway software for connectivity

iEMS

Intelligent Energy Management



Carbon Management - CarbonR

- Analyze enterprise carbon emissions and product carbon footprint with digital carbon inventory system
- Ensure ISO 14064 / 14067 compliance



Energy Management - ECOWatch

- Track energy and renewable energy performance KPIs
- Conduct multi-dimensional analysis of energy data and manage energy conservation projects
- Ensure ISO 50001 compliance

Industrial Edge AI and GPU Solutions



Advantech has developed an AI platform and solution incorporating full NVIDIA AI technologies to meet the increasing demand for AI across various sectors including factory automation, smart cities, healthcare, green energy, and robotics. Advantech's close partnership with NVIDIA enables it to stay abreast of the latest AI technology trends and seamlessly integrate with NVIDIA software and hardware resources. Leveraging Advantech's AI ecosystems, the company can expedite AI deployment at the edge. With 40 years of experience in industrial PC design, Advantech offers top-tier AI solutions and design-in services to industrial customers and AI ecosystem partners.



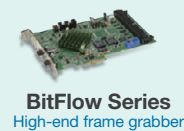
AI Vision Sensor and Software Solutions



Supported NVIDIA Software Framework



Video and Image Captures



Edge AI Systems



GPU IPCs



GPU Servers



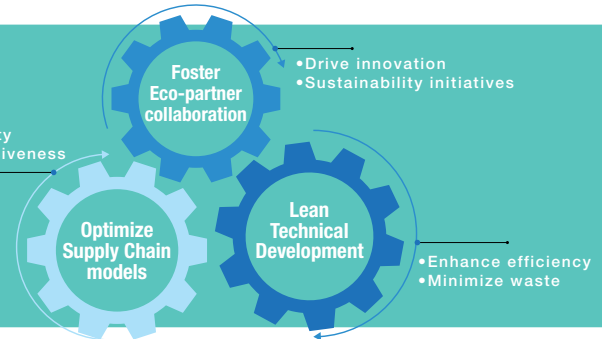
GPU and MXM Accelerator



Industrial Cloud & Video Solutions

Advantech Cloud DMS (Design Manufacture Services) offers a comprehensive solution for businesses seeking to transform their operations, improve competitiveness, and pave the way for future growth in an increasingly dynamic marketplace.

• Dynamic agility
• Great responsiveness



Telco Edge & Cloud



Networking & Security



Video Broadcasting



Video Surveillance

Lean Technical Development

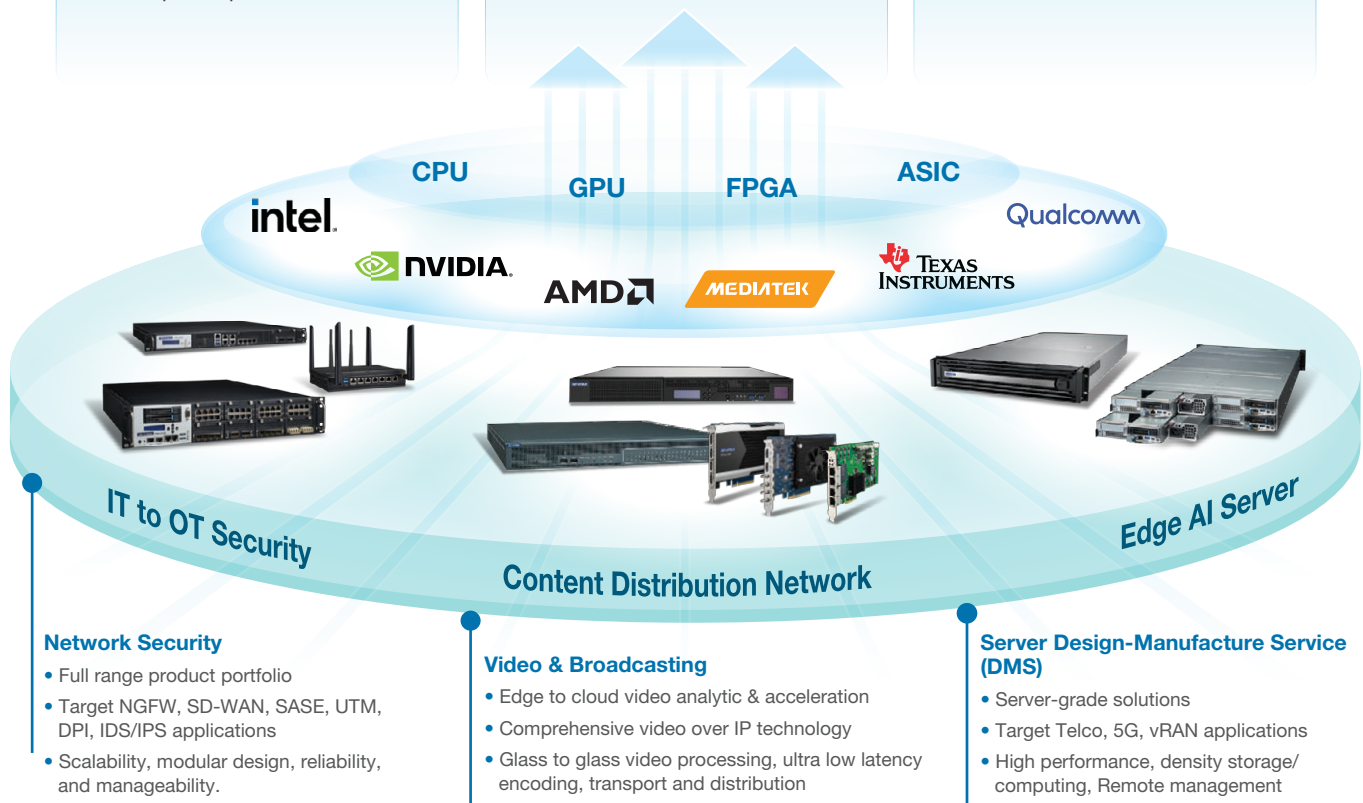
- Streamline development and manufacturing processes.
- Implement AI to optimize the development process.

Optimizing Supply Chain Models

- Global footprint & N+1 production
- Local Assembling for regulation
- Optimized procurement

Eco-partner Collaboration

- Collaborate with leading chip manufacturers and ISVs to facilitate the implementation of cutting-edge technology.



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, 6 important product technologies, and 2 video streaming and learning sites.

Industrial Sectors

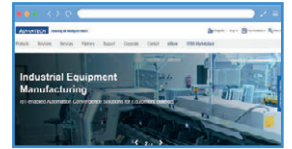
Intelligent Factory

- Connected Equipment
- Factory Visualization
- Automation Control



Industrial Equipment Manufacturing

- Edge AI
- Predictive Maintenance
- Machine Visualization



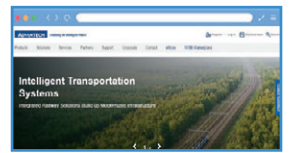
Energy & Utilities

- Sustainability & ESG
- Virtualized Substation
- Distributed Energy Management: BESS, EV Charging



Transportation

- Road Transportation
- Railway Transportation
- In-vehicle Solution



Product Technologies

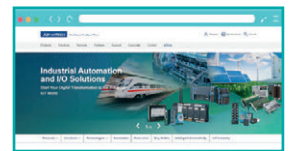
Industrial & Telecom Servers

- Industrial and SKY Servers
- Network Appliance
- Advantech Platform Management



Industrial Automation & I/O

- Solid Data Foundation
- I/O, Sensors, Gateways, Automation Control, HMI's
- Innovative Software



Video Solution

- Broadcasting & AVoIP
- Machine Vision
- Advanced Computer Vision



Intelligent Connectivity

- Reliable Communication
- Network Security
- TSN, 5G, LoRaWAN



Edge Computing

- Intelligent Edge Computers
- Hybrid CPU/GPU Computing
- Edge Service for AIoT Era



Industrial AI Platform & Solution

- AI Solutions from Edge to Cloud
- AI Eco-Partners
- NVIDIA AI GPU Technologies



AIoT Video Streaming & Online Learning

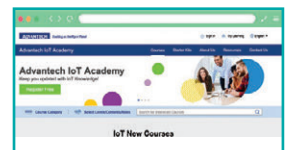
ADVANTECH Connect / InnoTalks

- On-Demand Videos
- Industrial IoT Trends
- Expert Insights



ADVANTECH IoT Academy

- On-Demand Courses
- Product Unboxing
- Technical Training





1

Edge Software & Industry Solutions

- ☞ 1-2 EdgeSync 360
- ☞ 1-5 XNavi
- ☞ 1-7 iEMS Suite
- ☞ 1-9 iFactory Solutions



ADVANTECH
WISE-IoT

ADVANTECH
XNavi

EdgeSync 360

EdgeSync 360

Introduction

As the world is witnessing an incredible surge in the number of connected edge devices - estimated to reach 30 billion worldwide and counting. But at the same time, a crucial question arises: How can we unlock the full potential of these edge devices and harness their data integrity?

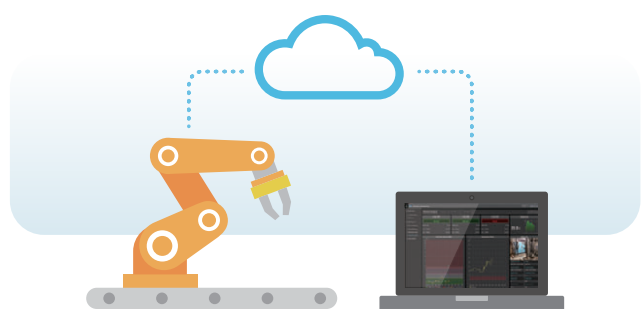
Introducing EdgeSync 360, an advanced Edge-as-a-Service solution for IoT device and data orchestration. It's a suite of software products, featuring EdgeLink, DeviceOn, WebAccess, and EdgeHub, is engineered to transform how industries manage their edge devices and data. Leveraging the power of the software, EdgeSync 360 boasts features that empower seamless device communication through edge-to-cloud connectivity. It enables real-time monitoring of devices, providing remote control capabilities from any location, a critical aspect in mitigating losses and preventing damage. The solution also provides advanced data visualization features for comprehensive views of asset statuses, enabling proactive maintenance.

Why EdgeSync 360



Seamless IoT Integration

Embrace unparalleled edge-to-cloud connectivity capabilities with EdgeSync 360, ensuring seamless IoT integration and communication.



Remote Monitoring and Control

Gain the power to monitor and control devices in real-time, a crucial aspect for system integrators aimed at minimizing downtime and enhancing efficiency.



Advanced Visualization for Proactive Management

Stay ahead with our data visualization tools, providing real-time insights for proactive device management and maintenance.



Enhanced IoT Security

Benefit from EdgeSync 360's advanced IoT security functions, safeguarding data integrity and transforming how data is secured in industrial environments.

Core Components of EdgeSync 360 - A Suite of IoT Excellence



EdgeHub

Cloud Service for Device and Data Management

- Instant device onboarding facilitated by a unified edge agent
- Secured architecture supporting multiple tenants on SaaS
- Remote monitoring and control of devices
- OTA updates for firmware & applications
- Data aggregation via customizable web dashboards or APIs



**EdgeHub
Information**



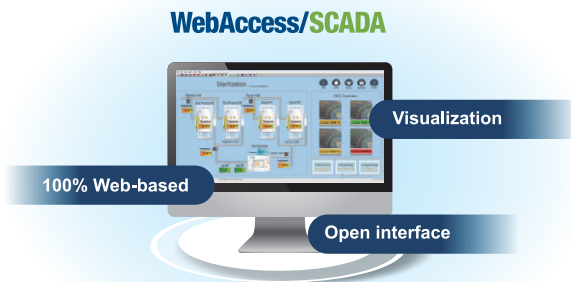
DeviceOn

AI Orchestration in Private and Public Cloud

- Hosted by user in on-prem environment, AWS, or Azure
- Manages over 10,000 AIoT edge devices
- Out-of-band mgmt. via IPMI/iAMT/iBMC/EdgeBMC
- Supports x86/RISC/NVIDIA Jetson
- Supports Windows/Linux/Android



**DeviceOn
Information**



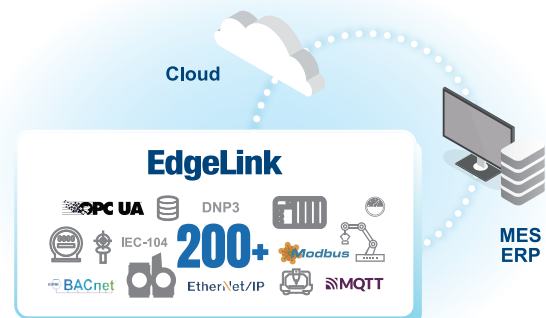
WebAccess

SCADA for Real-time Operation

- Millisecond-level data acquisition
- 2D and 3D visualization
- Data reporting and analysis
- Redundant SCADA architecture for system backup
- Data integration with third-party systems and services



**WebAccess
Information**



EdgeLink

IoT Gateway Software for Multi-Protocol Conversion

- Connections with over 200 PLC and I/O modules
- Event management and easy logic programming tools for preprocessing collected data
- Data publishing through multiple protocols
- Optimal choice for IEC 61850, OCPP, and DLMS applications



**EdgeLink
Information**

1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

7

Industrial Server & Cloud Solutions

8

AI & Advanced Computer Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions & Automation Controllers

14

Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

16

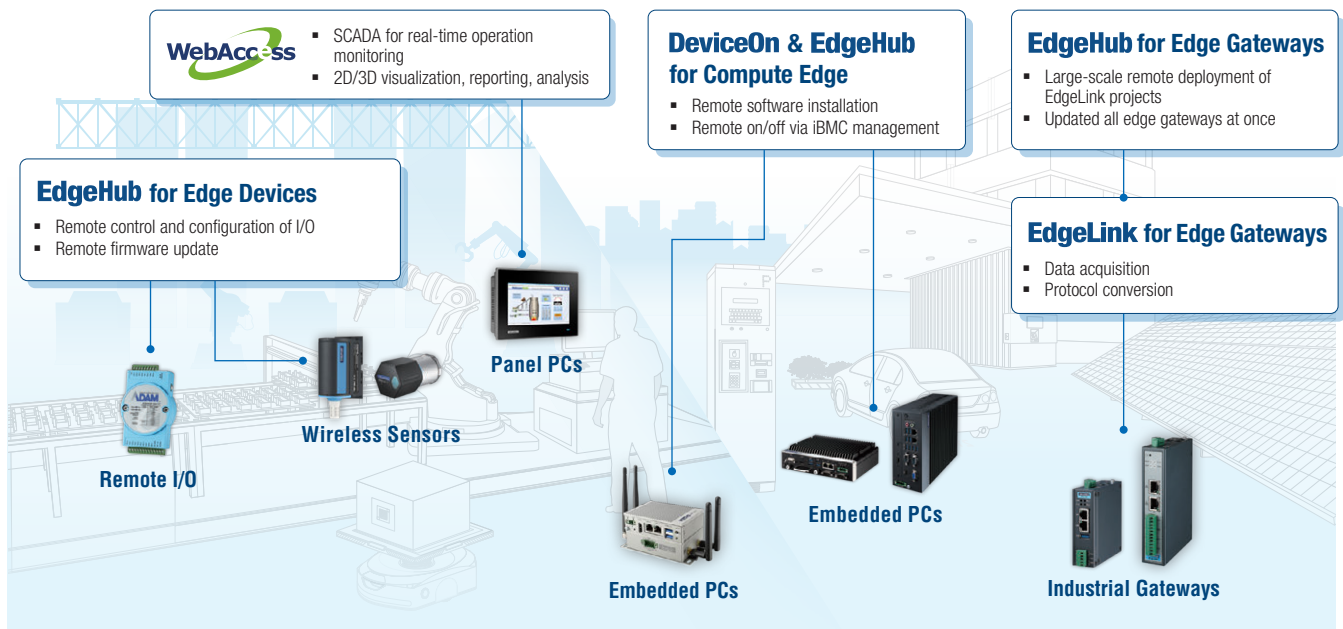
Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Comprehensive Edge Solution

Advantech's integration of hardware with sophisticated edge software creates a powerful solution for remote management across various industrial domains. This fusion not only captures and virtualizes edge data but also renders it in a form that's instantly actionable, ensuring devices and peripherals are within reach from any location. The real-time monitoring capability it provides is not just about observation; it's about enabling prompt action and decision-making in the dynamic world of industrial operations.



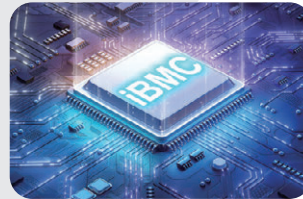
Target Applications

EdgeHub Enables IoT Integration for Solar Energy Management Systems



- Centralized solar plant management
- Instant power generation overview
- Data integration with third-party systems

DeviceOn Integrated with iBMC Technology for Comprehensive Out-of-Band Management



- Remote out-of-band power management
- Easy system upgrades
- Compatible with a wide range of Advantech IPCs

WebAccess Monitors Real-Time Data for Smart Factory Operations



- Real-time monitoring and control of factory operations
- Historical data logging for performance analysis

EdgeLink Empowers Building Energy Management to Achieve Energy Efficiency



- Facilitated data collection from various building systems
- Continuous operation of effective energy consumption

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 DAQNav, MotionNavi, VisionNavi, and HMNavi, for use on the edge for data collection, motion control, vision inspection and process visualization. This brings processing, communication, and decision making, much closer to edge devices.

Integrated Software Development Suite



1

Edge Software & Industry
Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI
Platforms

6

Intelligent Transportation &
Substation Certified Systems

7

Industrial Server & Cloud
Solutions

8

AI & Advanced Computer
Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions &
Automation Controllers

14

Intelligent Motion Control
Solutions

15

Data Acquisition (DAQ)
Solutions

16

Remote I/O, Wireless I/O
& Sensors

17

Serial/USB Communications

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

DAQNavi

DAQNavi is a software package for programmers to develop their application programs using Advantech DAQ boards or devices. This integrated driver package includes device drivers SDK, tutorials, and utilities. With a user-friendly design, even beginners can quickly become familiar with how to utilize DAQ hardware and write programs through the intuitive "Advantech Navigator" utility environment. 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 designed for PC-based motion control boards and standalone motion controllers. MotionNavi Designer serves as an integrated development environment for programming motion control applications. Designer offers BASIC-like commands for multi-process programming inside a controller. The Simulation tool provides features for offline programming and preview, while the 3D path tool offers a display for visualizing XYZ positions over time intervals. The Oscilloscope is designed for capturing and recording motion velocity data at specific time intervals for analysis. MotionNavi API and Utility serve as a universal user interface for PC-based motion control. Advantech provides several APIs for programming in C/C++, Visual Studio/Net, Python, and other languages.

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 Designer is a powerful and intuitive software program for creating comprehensive human machine interface solutions. HMINavi Designer is an easily integrated development tool with proven value in many application fields. The features include solution-oriented screen objects, high-end vector graphics, Windows fonts for multi-language applications, receipts, alarm functions, as well as data and operation logging capabilities. HMINavi Designer also supports utility programs such as Data Transfer Helper (DTH), recipe editor, and text editor. The HMINavi Designer software is free download for usage, user can directly download before purchase. With online/offline simulation user can directly connect to PLC controller to ensure solid connection and screen design without any issue.

HMINavi Runtime, a component of HMINavi, guarantees the reliability and performance of Open Platform because of the minimum system overhead, high data communication rates, sub-second screen switching, and 24/7 operation. Additionally, Advantech's fast response software team is continually adding new functions, communication drivers, and solutions to the software to meet dynamic needs.

iEMS Suite: Intelligent Energy Management Solution

Advantech's WISE-IoT iEMS Suite technology is a cutting-edge solution for corporations striving towards carbon neutrality. This smart energy system aligns with ISO 14064/ISO 14067 and ISO 50001 standards, focusing on carbon asset and energy management. It addresses the pressing need to reduce greenhouse gas emissions, enhancing HVAC, compressed air, and motor efficiency by leveraging GenAI. Ideal for businesses committed to sustainability, iEMS Suite is your partner in achieving environmental goals and contributing to a healthier planet.

HQ ESG Department



Carbon
Carbon Management



ECOEnterprise
Sustainability Management

Add-on

HQ Office Building



ECOWatch
Energy Management



Bulletin
Corporate EnPI Broadcast

Add-on

Product Solutions

Management Level - Carbon & Energy Management

Carbon Management



Analyze enterprise carbon emissions and product carbon footprint with digital carbon inventory system. Ensure ISO 14064 / 14067 compliance.

Sustainability Management



Add-on

A CarbonR add-on module designed to assess the sustainability KPIs of global enterprises, covering energy performance, SBTi, RE100 progress, and energy-saving outcomes.

Energy Management



Track energy and renewable energy performance KPIs. Conduct multi-dimensional analysis of energy data for cost reduction. Manage energy conservation projects. Ensure ISO 50001 compliance.

Corporate EnPI Broadcast



Add-on

An add-on module of ECOWatch for public audiences to quickly understand corporate energy performance.

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Edge Software & Industry Solutions

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Automation Computers

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Intelligent Systems

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Mission Critical CompactPCI Platforms

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Intelligent Transportation & Substation Certified Systems

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Serial/USB Communications



Product Solutions

Operational Level – Equipment Management/Maintenance/Energy Saving

HVAC Equipment Energy Efficiency



Monitor HVAC system & AI control to achieve management efficiency improvement and overall energy cost reduction.

Compressor Equipment Energy Efficiency



Optimize management efficiency and reduce energy costs across the entire compressed air system by combining centralized control, information processing, energy-saving control, and predictive maintenance.

Rolling Pumps Equipment Management



Identify abnormalities or deterioration, understand equipment status, enhance management and maintenance efficiency, extend equipment lifespan, and reduce life cycle operating costs of motor equipment.

Public Facility Equipment Management



Connect all public facility equipment, including chillers, compressors, boilers, heat pumps, generators, etc., onto a single platform to manage their entire lifecycle. Automate repair and maintenance assignments to enhance availability, minimize downtime, and mitigate risks.

iFactory Suite

Enhance Operational Excellence - Elevate Maintenance, Energy Sustainability, Smart AI, and Proactive Insights

iFactory digital solutions transform manufacturing by using a low-code/no-code IoT cloud platform, enhancing equipment effectiveness (FactoryOEE) and ensuring environmental, health, and safety excellence (EHS) for streamlined operations. iFactory facilitates data-driven decisions, fostering increased productivity through agile manufacturing and cross-domain solution integration (I.Apps).

- Rapidly resolve anomaly events
- Control energy consumption
- Augment employee capabilities
- Reduce production time wastage
- Increase production capacity and quality



Service Introduction



FactoryOEE

Effective Total Production Maintenance

FactoryOEE monitors the real-time status of equipment through data capture and dashboards to present only the most important information.

- The digitalization service, integrated with OpenAI, optimizes OEE, yield, performance, quality, and reduces carbon emissions and power consumption.
- Including industrial apps: OEE Pro, Andon, Maintenance, SPC, etc.



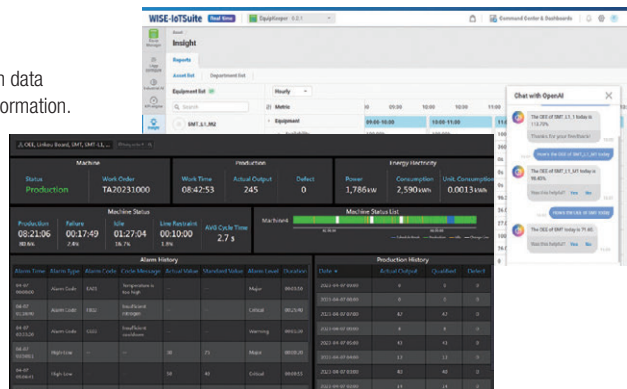
Control Energy Consumption



Boost Productivity



Reduce Ineffective Production



EHS

Energy Sustainability & Work Safety

EHS continuously optimizes energy consumption, achieves optimal energy usage efficiency, and enables people to understand power consumption more deeply.

- Comprehensive system that prioritizes workplace safety, environmental sustainability, and employee well-being.
- Including industrial apps: FMS, Maintenance, Patrol Inspection, etc.



Control Energy KPI Controls



Monitor Critical Power Consumption Utility



Manage Workspace Environment



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Serial/USB Communications

System Diagram & Recommend Solutions

Cloud Solution

FactoryOEE & EHS with IoTsuite RTM

9804INWRK00

- Includes 1 license of FactoryOEE & EHS for yearly subscription and renewal
- Includes 30 parameters for monitoring OT data (PLC, sensors, etc.)

Features & Benefits

- Cost-effective solution with low upfront investment.
- Scalability and flexibility with cloud-based infrastructure.
- Easy to deploy and manage remotely.

On-Premises Solution

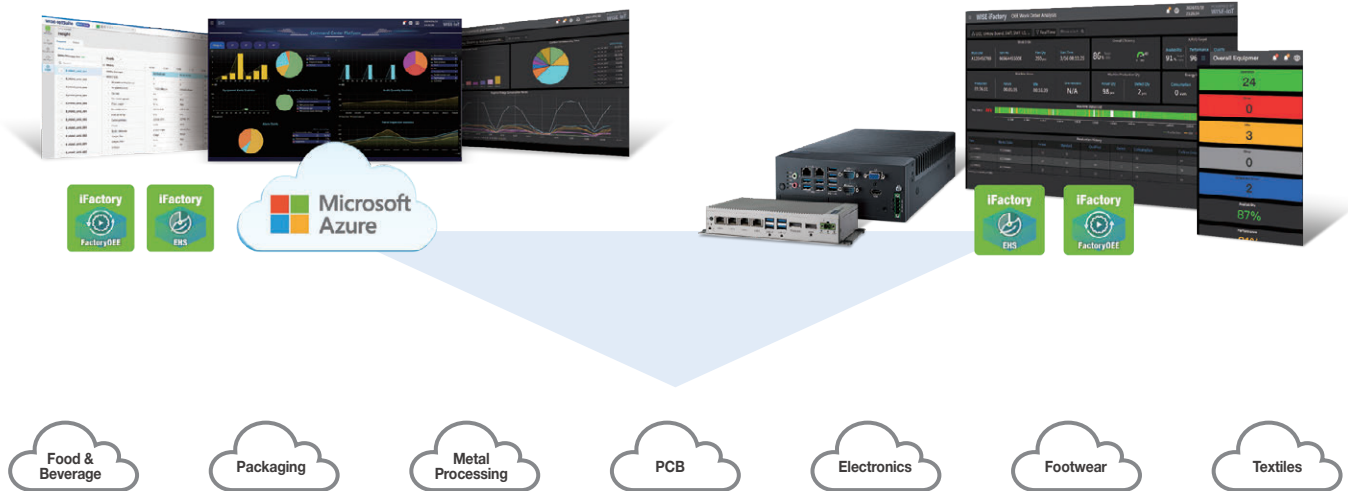
FactoryOEE & EHS with IoTsuite RTM

9804ENWRK00

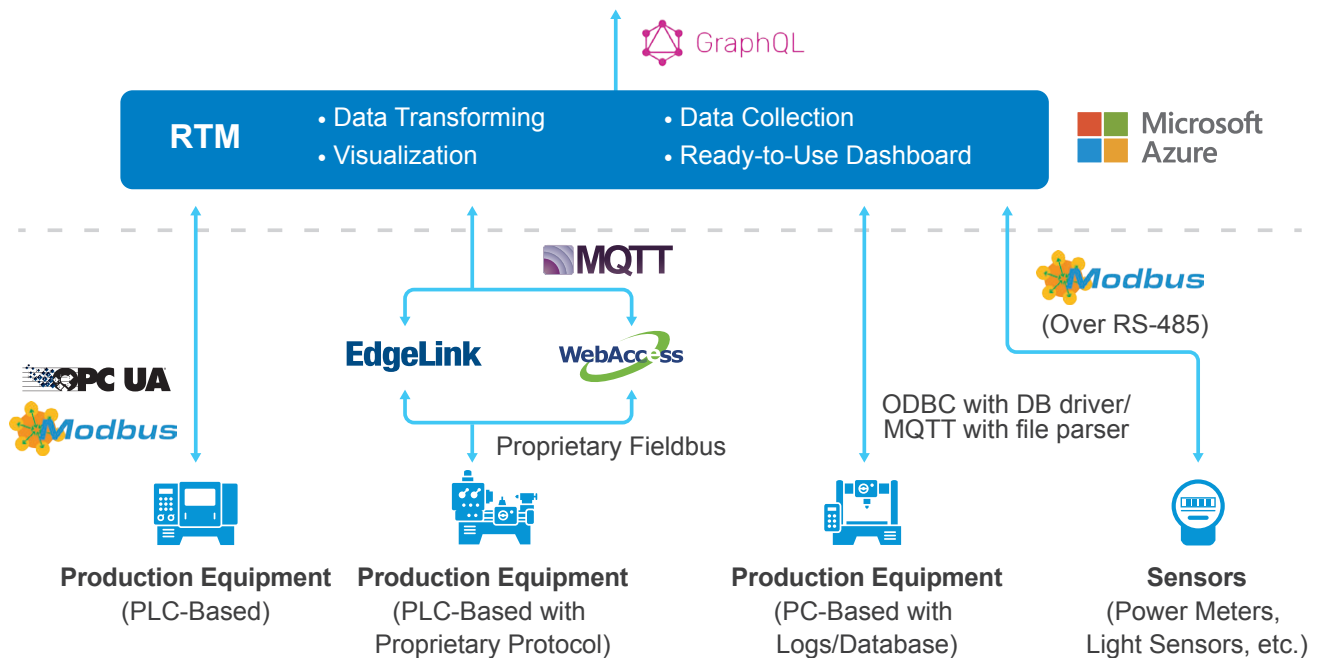
- Works with any Advantech IPC hardware, perpetual license
- Min. requirements: Intel® Celeron® / 8GB RAM / Windows 10 or Linux
- Starting with 1 license for FactoryOEE & EHS and 30 parameters

Features & Benefits

- Robust real-time processing for instant decision-making.
- Enhanced data security within the local network.
- High reliability and stability for uninterrupted operation.



WISE-IoT/FactoryOEE & EHS





2

Intelligent HMI & Monitors

- ☞ 2-4 Modular Panel PCs
- ☞ 2-6 High-Performance Control Panel PCs
- ☞ 2-7 Industrial Thin-Client Terminals
- ☞ 2-8 Industrial Web Browser Terminals
- ☞ 2-10 Domain Focused Panel PCs
- ☞ 2-11 Operator Panels
- ☞ 2-14 Industrial Monitors
- ☞ 2-17 General Panel PCs_Ruggedized All-in-One
- ☞ 2-18 General Panel PCs_Enhanced All-in-One
- ☞ 2-19 General Panel PCs_Scalable High Performance Computing
- ☞ 2-20 General Panel PCs_Accessories



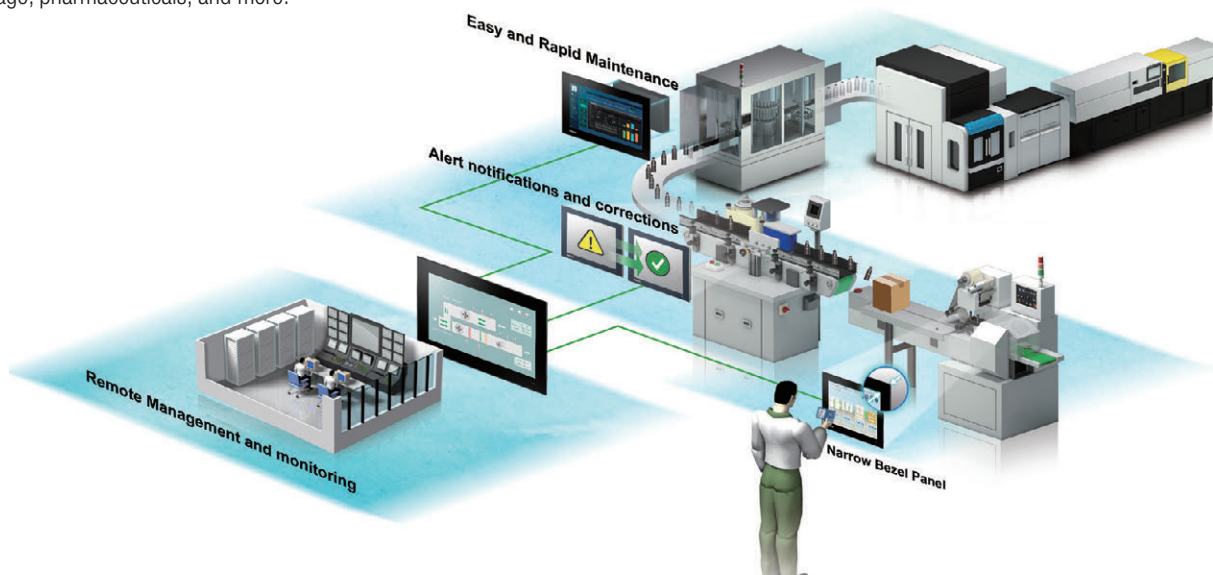
Intelligent HMI and Monitors

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



Advantech's HMI line offers a diverse range of solutions, including the All-in-One Series, Modular Series, and industrial monitors tailored for remote control, data visualization, and equipment management. The All-in-One Series provides flexibility with Arm-based and PC-based options catering to various computing needs across industries like machine building and automotive. Arm-based HMIs function as efficient web-browser terminals, while PC-based options include general panel PCs and thin-client terminals. In response to Industry 4.0 demands, Advantech has introduced a new generation of modular solutions designed for specific usage requirements, ensuring quick maintenance and exceptional expandability. Optimized frame designs with narrower bezels enhance product aesthetics and the user experience.

All Advantech HMI products come equipped with essential software, including HMInavi, WebAccess/SCADA, and innovative iDoor technology. This comprehensive software suite enhances versatility, making Advantech HMI solutions suitable for diverse applications in manufacturing, food and beverage, pharmaceuticals, and more.



Intelligent HMI and Monitors

All-in-One HMIs

General Panel PCs

☞ PPC-300/400 Series

Fanless and reliable operation, coupled with EMC & safety certifications ensuring enhanced durability and rich I/O flexibility.

Web Browser Terminals

☞ TPC-100W/ PPC-100 Series

Contain the RISC-based series and Arm-based series for machine control and data visualization.

Operator Panels

☞ WOP Series

IoT HMI solutions, incorporate the WOP-200 series and powerful HMInavi software. The WOP-200 series, with connectivity to over 500 PLC protocols, is built to withstand the demanding conditions of industrial environments.

Modular Series

☞ Computing Box Modules and Panel Modules



Scalable Panel PCs

☞ PPC-600 Series

Configurable panel PCs are high-performance fan-based panel PCs that come with selectable PPC-MB mini-ITX motherboards, offering flexibility and high computing power.

Thin-Client Terminals

☞ TPC-300 EHL Series

Industrial thin client HMI are fanless and low-power with Intel Atom® processors and mainly used as a process visualization tool and MES system.

The computing box module can be interchangeably combined with different sized display modules for specific applications and flexibility. This year we offered new computing boxes and more modular panels with high-brightness features, expanding the range of sizes to 12"-24."

☞ Industrial Monitors



Industrial monitors integrate the latest LCD and touchscreen technology to facilitate data visualization used for industrial applications. With screen ratios available in both 4:3 and 16:9, users can choose the ideal display format for their specific requirements, whether it's for monitoring critical processes or displaying interactive information.

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Modular Panel PCs

Panel Modules



Model		FPM-D12T-CE	FPM-D15T-CE	FPM-D17T-CE	FPM-D19T-CE
Display	Size	12" (4:3)	15" (4:3)	17" (5:4)	19" (5:4)
	Max. Resolution	1024 x 768		1280 x 1024	
	Luminance (cd/m ²)	600	300	350	350
Touch		PCAP			
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)			
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)			
Ingress Protection		Front IP66			
Special Treatment		Anti-glare, UV protection			



Model		 <u>FPM-D15W-FCE</u>	 <u>FPM-D18W-FCE</u>	 <u>FPM-D21W-CE</u>	 <u>FPM-D23W-CE</u>
Display	Size	15.6" (16:9)	18.5" (16:9)	21.5" (16:9)	23.8" (16:9)
	Max. Resolution	1920 x 1080			
	Luminance (cd/m²)	450	350	250	350
Touch		PCAP			
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)		0 ~ 55°C (32 ~ 131°F)	
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)		-20 ~ 60°C (-4 ~ 140°F)	
Ingress Protection		Front IP66			
Special Treatment		Anti-glare, UV protection			



Model		FPM-D12T-HE	FPM-D15T-HE	FPM-D15W-FHE	FPM-D21W-HE
Display	Size	15.6" (16:9)	18.5" (16:9)	21.5" (16:9)	21.5" (16:9)
	Max. Resolution	1024 x 768		1920 x 1080	
	Luminance (cd/m ²)	1000	1,800	1,200	1,400
Touch		PCAP			
Sunlight Readable		✓			
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)			
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)			
Ingress Protection		Front IP66			
Special Treatment		Anti-glare, UV protection			

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

Modular Panel PCs

Computing Box Modules



Model	 TPC-B300-J20A	 TPC-B300-E20A	 TPC-B520-D30AE	 TPC-B520-D50AE	 TPC-B520-D70AE
CPU	Intel® Celeron® processor J6412	Intel Atom® x6425E processor	Intel® Core™ processors (13th Gen)	Intel® Core™ processors (13th Gen), i5-1335UE	Intel® Core™ processors (13th Gen), i7-1365UE
Memory	1 x DDR4 SO-DIMM Slot		1 x DDR5 SO-DIMM Slot		
Storage	1 x PCIe/SATA M.2 SSD slot (2280 M-Key), 1 x 2.5" SSD/HDD Bay		1 x NVMe/SATA M.2 SSD slot (2280 M-Key) (Optional) 1 x 2.5" SSD/HDD Bay		
I/O	2 x RS-232/422/485 3 x USB 3.2 1 x USB 2.0 2 x 2.5 GbE LAN 1 x DP 1 x Line-Out		2 x RS-232/422/485 2 x USB 3.2 1 x Type-C (USB 3.2, DP, 5V with 3A max) 2 x USB 2.0 2 x 2.5 GbE LAN 1 x DP (Optional) 2 x 4Ω Speaker for Audio out		
Expansions	1 x Full-size mPCIe slot, 1 x M.2 AE-Key 2230		1 x M.2 B Key 3042, 3052, 3080, 1 x M.2 B Key 3052 (5G LTE), 1 x M.2 E-Key 2230, 1 x SIM Card Slot		
Power Supply Input Voltage	24 V _{DC} ±20%		19 - 24 V _{DC} ± 15%		
OS Support	Microsoft® Windows 10 LTSC, Linux, Android		Microsoft® Windows 11 GAC, Microsoft® Windows 10 LTSC, Linux, Android		
Mounting	Panel, Wall, Stand, VESA				



Model	 TPC-B610H-A00A	 TPC-B610W-A00A	 TPC-B510-833AE	 TPC-B510-853AE	 TPC-B510-873AE
CPU	Intel® Core™ processors (10th Gen)		Intel® Core™ processors (8th Gen), i3-8145UE	Intel® Core™ processors (8th Gen), i5-8365UE	Intel® Core™ processors (8th Gen), i7-8665UE
Memory	2 x SO-DIMM DDR4 Slots	2 x SO-DIMM DDR4 Slots, ECC supported	2 x SO-DIMM DDR4 Slot, 1 x 8G DDR4 SO-DIMM (Built-in)		
Storage	2 x 2.5" SSD/HDD Bay, 1 x M.2 M-Key 2280 (SATA), 1 x M.2 B-Key 2242 (SATA)	2 x 2.5" SSD/HDD Bay, 1 x M.2 M-Key 2280 (NVMe), 1 x M.2 B-Key 2242 (SATA)	1 x NVMe/SATA M.2 SSD slot (2280 M-Key)		
I/O	1 x RS-232/422/485 1 x RS-232 5 x USB 3.2 1 x USB 2.0 1 x DP 1 x Audio Line out/Mic in		2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.1 1 x iDoor Slot 1 x DP 1 x Audio Line out/Mic in		
Expansions	1 x PCIe x16, 1 x PCI 1 x Full-size mini PCIe 1 x M.2 B key 3025 1 x SIM card slot	1 x PCIe x16, 1 x PCIe x4 1 x Full-size mini PCIe 1 x M.2 B key 3025 1 x SIM card slot	1 x Full-size mPCIe Slot, 1 x M.2 B-Key 2242, 3042, 3052		
Power Supply Input Voltage	24 V _{DC} ±20%				
OS Support	Microsoft® Windows 10 LTSC, Linux		Microsoft® Windows 10 LTSC, Linux		
Mounting	Panel, Wall, Stand, VESA				

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High-Performance Control Panel PCs



Model		☞ TPC-317	☞ TPC-315	☞ TPC-312
CPU		Intel® Core™ processors (8th Gen) i3-8145UE, i5-8365UE, i7-8665UE		
Memory		1 x SO-DIMM with 8 GB DDR4 2400 MHz, 2 x DDR4 SO-DIMM Slot		
Storage		1 x M.2 M-key 2280 (SATA or NVMe PCIe4) 1 x M.2 B-Key 2242 (SATA) 1 x 2.5" SSD/ HDD (SATA, Max. 7mm)		
Display	Type	SXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD
	Size	17" (4:3)	15" (4:3)	12.1" (4:3)
	Max. Resolution	1280 x 1024	1024 x 768	1024 x 768
	Max. Colors	16.7M	16.2M	16.2M
	Luminance (cd/m²)	300		
	Viewing Angle (H/V°)	160/140	176/176	178/178
	Backlight Life (hrs)	50,000		
Touchscreen		5-wire resistive		
LAN		1 x 10/100/1000 Mbps, 1 x 10/100/1000/2500 Mbps		
I/O		2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 1 x iDoor Slot 1 x DP Audio Line out/Mic in		
Expansions		1 x Full-size mPCIe Slot, 1 x M.2 B-Key 2242, 3042, 3052		
Power Supply		24 V _{DC} ± 20%		
Dimension W x H x D (mm)		410.4 x 343.4 x 68	383.2 x 307.3 x 66.5	311.8 x 238 x 67
Weight (Net)		6.1 kg (13.45 lb)	5.8 kg (12.79 lb)	4.1 kg (9.04 lb)
Enclosure		Die-cast aluminum alloy		
Mounting		Stand, Wall, VESA, Panel		
Operating Temperature		-10 ~ 55°C (14 ~ 131°F)		
Ingress Protection (Front Panel)		IP66		
Certification		CB, UL, CE, FCC Class A, CCC, BSMI		
Operating System		Microsoft® Windows 10 LTSC, Linux, Android		

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

Industrial Thin-Client Terminals



NEW

NEW

Model		TPC-317 EHL	TPC-315 EHL	TPC-312 EHL	TPC-307W	TPC-310W
CPU		Intel® Atom® processor x6425E Intel® Celeron® processor J6412			Intel Atom® processor x6211E	Intel® Atom® processor x6425E Intel® Celeron® processor J6412
Memory		1 x SO-DIMM with 4 GB DDR4 2666 MHz			1 x DDR4 SO-DIMM Slot	
Storage		1 x SATA M.2 SSD slot (2242/2280 B-Key) 1 x M.2 B-Key 3042/3052 1 x 2.5" SSD/HDD Bay			1 x SATA M.2 SSD slot (2242/2280 M-Key)	
Display	Type	SXGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD	XGA TFT LED LCD	WXGA TFT LED LCD
	Size	17" (4:3)	15" (4:3)	12.1" (4:3)	7" (16:9)	10.1" (16:9)
	Max. Resolution	1280 x 1024	1024 x 768	1024 x 768	1024 x 600	
	Max. Colors	16.7 M	16.2 M	16.2 M	16.7 M	
	Luminance (cd/m²)	300	300	600	500	
	Viewing Angle (H/V°)	160/140	176/176	178/178	160/140	178/178
	Backlight Life (hrs)	50,000	70,000	50,000	50,000	
Touchscreen		5-wire resistive			PCAP	
LAN		2 x 10/100/1000 Mbps			2 x 10/100/1000 Mbps	
I/O		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 DP 1 x Line-Out, Microphone 1 x Power Switch			1 x RS-232 1 x RS-232/422/485 2 x USB 3.0 2 x USB 2.0 1 x Line-Out, Microphone 1 x Power Switch	
Expansions		1 x Full-size mPCIe 1 x M.2 AE-Key 2230			1 x M.2 B-Key 2280 1 x M.2 E-Key 2230	
Power Supply Input Voltage		24 V _{DC} ± 20%			24 V _{DC} ± 20%	
Dimension W x H x D (mm)		410.4 x 343.4 x 68 mm	383.2 x 307.3 x 67 mm	311.8 x 238 x 67 mm	205 x 146 x 56 mm	205 x 146 x 56 mm
Weight (Net)		6.1 kg (13.45 lb)	5.15 kg (11.35 lb)	4.2 kg (9.26 lb)	1.5 kg (3.3 lb)	2.6 kg (5.7 lb)
Enclosure		Die-cast aluminum alloy			Die-cast aluminum alloy	
Operating Temperature		-10 ~ 50°C (14 ~ 122°F)			-20 ~ 60°C (-4 ~ 140°F)	
Ingress Protection		Front Panel IP66			Front Panel IP66	
Certification		CB, UL, CE, FCC Class A, CCC, BSMI			CB, UL, CE, FCC Class A, CCC, BSMI	
OS Support		Microsoft® Windows 10 LTSC, Linux, Android			Microsoft® Windows 10 LTSC, Linux, Android	

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Industrial Web Browser Terminals



Model		 TPC-107W	 TPC-110W	 TPC-115W	 TPC-121W	 TPC-107WX	 TPC-110WX
CPU		NXP® Arm® Cortex™ A53 i.MX8M 1.6 GHz Quad-Core					
Memory		1 x LPDDR4 with 4 GB					
Storage		16 GB eMMC, 1 x micro SD Slot				32 GB eMMC, 1 x micro SD Slot	
OS Support		Yocto 4.0 / Android 13					
Display	Type	WSGA TFT LCD	WXGA TFT LCD	FHD TFT LCD	WSGA TFT LCD	WXGA TFT LCD	FHD TFT LCD
	Size	7"	10.1"	15.6"	21.5"	7"	10.1"
	Max. Resolution	1024 x 600	1280 x 800	1920 x 1080	1920 x 1080	800 x 480	1280 x 800
	Luminance (cd/m²)	425	500	450	250	1000	1200
	Backlight Life (hrs)	50,000					
Touchscreen		PCAP					
LAN		2 x 10/100/1000 Base-T Ethernet (Optional module to support PoE)	2 x 10/100/1000 Base-T Ethernet (Optional module to support PoE)	2 x 10/100/1000 Base-T Ethernet	2 x 10/100/1000 Base-T Ethernet	2 x 10/100/1000 Base-T Ethernet	2 x 10/100/1000 Base-T Ethernet
I/O		1 x RS-232/422/485 1 x RS-232 or 1 x CAN Bus (selectable mode) 1 x Internal USB 2.0 2 x USB 2.0 (Host)					
Expansions		1 x M.2 E-Key 2230					
Power Supply Voltage		24V _{DC} ± 20%					
Dimension 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	558.4 x 349.8 x 52 mm	283.1 x 202.3 x 52 mm	205 x 146.92 x 52 mm
Cut-out Dimension W x H (mm)		192.4 x 139.0 mm	274.1 x 193.3 mm	411.9 x 261.2 mm	549.8 x 341.3 mm	192.4 x 139.0 mm	274.1 x 193.3 mm
Mounting		VESA, Panel					
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)				-30 ~ 70°C (-22 ~ 158°F)	
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)					
Humidity		10 ~ 90% RH, non-condensing					
Ingress Protection		Front Panel IP66					
Certification		CB, UL, CE, FCC Class A, CCC, BSMI					

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

Industrial Web Browser Terminals



Model		TPC-31T	TPC-61T	PPC-112W	PPC-115W
CPU		TI® Arm® Cortex™ A8 AM3517		Rockchip Arm® RK3399 (Dual-core Cortex-A72 and Quad-Core Cortex-A53)	
Memory		1 x SO-DIMM with 256 MB DDR2		1 x LPDDR4 with 4 GB	
Storage		1 x DDR2 (256MB), 1 x SD Card Slot		1 x eMMC (32 GB), 1 x Micro SD Slot	
Operating System		Microsoft® Windows CE 6.0		Android, Debian	
Display	Type	QVGA TFT LED LCD		TFT LCD	
	Size	3.5"	5.7"	11.6"	15.6"
	Max. Resolution	320 x 240		1366 x 768	1920 x 1080
	Luminance (cd/m²)	450	800	250	250
	Backlight Life (hrs)	30,000	50,000	15,000	15,000
Touchscreen		4-wire resistive		PCAP	
LAN		1 x 10/100 Mbps		1 x 10/100/1000 Mbps	
I/O		1 x RS-232/485, 1 x USB 2.0 1 x CAN Bus	2 x RS-232 1 x RS-422/485 2 x USB 2.0	1 x USB 2.0, 1 x USB 3.0, 1 x Micro USB OTG, 1 x RS-232, 5 x GPIO	
Expansion		–	–	1 x M.2 E-Key 2230, 1 x Camera (Optional)	1 x M.2 E-Key 2230
Power Supply Input Voltage		18 ~ 32 V _{DC}		12 V _{DC} , 36W adapter	
Dimension W x H x D (mm)		120.79 x 85.5 x 26.5 mm	195 x 148 x 44.4 mm	291.7 x 186.6 x 49.2 mm	402.0 x 260.0 x 53.2 mm
Cut-out Dimension W x H (mm)		115 x 79.5 mm	189 x 142 mm	298 x 193 mm	392 x 250 mm
Mounting		Panel		VESA, Panel (Optional)	
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)		0 ~ 50°C (32 ~ 122°F)	
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)		-20 ~ 60°C (-4 ~ 140°F)	
Humidity		10 ~ 95% RH (non-condensing)		10 ~ 95% RH (non-condensing)	
Ingress Protection		Front Panel IP65		Front Panel IP65	
Certification		CB/UL, CE, FCC Class A, CCC, BSM		CE, FCC Class B, BSMI, CB, UL, CCC, UKCA	

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Domain-Focused Panel PCs



Model		TPC-318WH	SPC-515	SPC-815-MLA (Monitor)	SPC-821-MLA (Monitor)
CPU		Intel® Core™ processor (8th Gen), i5-8365UE	Intel® Core™ processor (6th Gen), i3-6100U	–	–
Memory		1 x SO-DIMM with 8GB DDR4 3200 MHz	2 x SO-DIMM with 8GB DDR3L	–	–
Display	Type	Full-HD LCD	TFT LED LCD	TFT LED LCD	
	Size	18.5"	15"	15.6"	21.5"
	Max. Resolution	1366 x 768	1024 x 768	1366 x 768	1920 x 1080
	Max. Colors	16.7M	16.7M	16.7M	16.7M
	Luminance (cd/m²)	300	300	400	250
	Viewing Angle (H/V°)	160/140	176/176	170/130	178/178
	Backlight Life (hrs)	50,000	70,000	50,000	
Touchscreen		10-point multi-touch projected capacitive	PCAP	PCAP	
LAN		2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	–	–
I/O		2 x RS-232/422/485 1 x USB 2.0 4 x USB 3.2 1 x iDoor Slot 1 x DP 1 x Line-Out, Mic-In	1 x RS-232 2 x USB 2.0 1 x M-12 A-coded 5-pin male	1 x USB 2.0, 2 x USB 3.0, 1 x HDMI, 1 x DP	
Storage		1 x SATA M.2 SSD slot (2280 M-Key), 1 x 2.5" SSD/HDD Bay, 1 x mSATA, 1 x M.2 B-Key	2.5" SATA HDD / Default 64G SSD	–	–
Expansions		1 x Full-size mini PCIe, 1 x SIM Card Slot	1 x Full-size mPCIe Slot	–	–
Ingress Protection		Front Panel IP66	All-around IP69k	Front Panel IP65	
Power Supply Input Voltage		24 V _{DC} ± 20%	24 V _{DC} ± 20%	24 V _{DC} ± 20%	
Enclosure		Front bezel: Die-cast aluminum alloy Back housing: SECC	Front bezel: 304L Stainless Steel Back housing: 304L Stainless Steel	Front bezel: Die-cast aluminum alloy Rear housing: Die-cast aluminum alloy Front push button bracket: Metal sheet	
Mounting		Panel, Wall, Stand, VESA	VESA	Pole, VESA (Optional)	
Weight (Net)		6.3 kg (13.89 lb)	10 kg (22.04 lb)	7.2 kg (15.9 lb)	8 kg (17.64 lb)
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	
Dimension W x H x D (mm)		488 x 309 x 56 mm	389 x 313 x 56 mm	402.19 x 333.19 x 67 mm (without flange for arm mount) 402.19 x 333.19 x 160 mm (with flange for arm mount)	402.19 x 333.19 x 67 mm (without flange for arm mount) 402.19 x 333.19 x 160 mm (with flange for arm mount)
Certification		BSMI, CCC, CE, FCC Class A, UL, UL CID2	CB, UL, CE, FCC Class A, CCC, BSMI	CB, UL, CE, FCC Class A, CCC	
OS Support		Microsoft® WES7, Windows 7, Microsoft® Windows 10 LTSC	Microsoft® Windows 10 LTSC, Linux	Microsoft® Windows 7/ 8/ 10/ XPe/ CE, Linux	

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

Industrial Operator Panels



HMINavi

HMINavi is powerful open HMI software that encompasses an HMI runtime engine for HMI operations. Its HMI engineering tool is designed with a user-friendly interface and offers solution-oriented screen objects for HMI project development. The WOP-200 series operator panels are added to HMINavi software for HMI applications to reduce labor and improve manufacturing efficiency through visualization

Supports 500+ PLC Industrial Communication Protocols

HMINavi can connect to 90% of global PLC devices. The data exchanger function can easily exchange various types of PLC data. Its powerful connectivity makes HMINavi a perfect fit for existing or future IoT solutions.

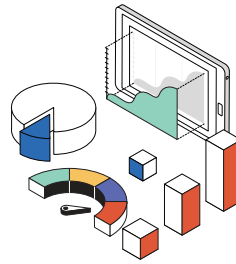
Attain Effortless Cloud Access via the MQTT Protocol

HMINavi simplifies OT & IT integration using the latest MQTT uplink communication protocol. Users can effortlessly transform legacy machinery into intelligent systems, with all critical data and backups handled by cloud services.



Object-Oriented

- Switch Button Object Unit
- Unlimited Internal Tags
- Schedule Table Control
- Macros Script Control
- Data Exchange
- Uplink Communication



Data Visualization

- Lamps & Animated Display
- Historic Curve & Path Trend Graphic
- Bar Chart & Graphic Display
- Meter & Circular Display
- Pipeline & Path Display
- Rotation Indicator & Radar Chart



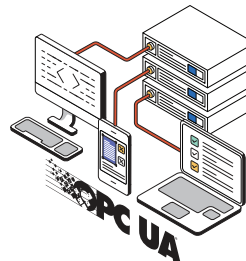
Data Management

- Alarm Management
- Historical Data Logger
- Operation Data Logger
- Recipe Management
- Documentation CSV Format
- Documentation PDF Format



Security Protection

- Project File Protection
- Screen Protection
- Due Date Protection
- Runtime Load Protection
- User Level Protection
- User Group Protection



Data Exchange

- Breakpoint Resume
- OPC UA Server/Client
- VB Script User Coding
- JScript User Coding
- Browser/Media Container
- Database Connection

Simplified 3-Step PLC Controller Integration

- ① **Create A Project & Link**
 - Initiate a new project and create a new link
 - Select the connection type (Serial/Ethernet)
- ② **Select Your PLC Model**
 - Choose the PLC brand
 - Select the PLC type/model
- ③ **Parameter Setup**
 - Configure baud rate transmission
 - Set up the IP address/port/sub-link



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Industrial Operator Panels



Model		WOP-204K-NAE	WOP-207K-NAE	WOP-208K-NAE	WOP-210K-NAE
CPU		RISC ARM9 300 MHz 32-bit			
Backup Memory		128 KB			
Backup Battery: Type/Voltage/Capacity		Manganese dioxide-Li/Organic Electrolyte, 3 V, 650 mAh			
Working Memory		64 MB SDRAM			
Storage		128 MB 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
	Size	4.3"	7"	8"	10.1"
	Max. Resolution	480 x 272	800 x 480	800 x 600	1024 x 600
	Max. Colors	65,536 colors (16-bit)			
	Luminance (cd/m ²)	400	400	250	350
	Backlight Life (hrs)	LED, 20,000			
Touchscreen		4-wire analog resistive			
Communication Interface	COM1	RS-232 (5-Pin Terminal)	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)
	COM3	RS-485 (5-Pin Terminal)	RS-485 (DB9 Female)	RS-485 (DB9 Female)	RS-485 (DB9 Female)
	Ethernet (RJ-45)	10/100-Base-T Ethernet	10/100-Base-T Ethernet	10/100-Base-T Ethernet	10/100-Base-T Ethernet
I/O	USB Client	✓	✓	✓	✓
	USB Host	✓	✓	✓	✓
	Power Isolation	✓	✓	✓	✓
Power Supply Input Voltage		24 V _{DC} ± 10%			
Power Consumption		10 W	20 W	20 W	20 W
Dimension (W x H x D)		129 x 103 x 31.3 mm	189.6 x 144.9 x 36 mm	233 x 176 x 43.3 mm	270.1 x 212.1 x 43.4 mm
Cut-Out Dimension (W x H)		118.5 x 92.5 mm	175 x 132.5 mm	221 x 164 mm	259.5 x 201.5 mm
Front Panel Thickness		5 mm	6 mm	6 mm	6 mm
Enclosure		PC			
Weight (Net)		0.23 kg (0.51 lb)	0.55 kg (1.21 lb)	1 kg (2.2 lb)	1.1 kg (2.43 lb)
Reliability Certification	Operating Temperature	-15 ~ 65°C (5 ~ 149°F)			
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)			
	Humidity	95% RH @ 40°C			
	Vibration Protection	5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)			
	Ingress Protection	Front Panel IP66			
	CE	EN 61000-6-2, EN 61000-6-4			
	EMI	FCC Part 15 Class A			
UL		UL-61010-1, UL-61010-2-201			

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

Industrial Operator Panels



NEW

NEW

Model		WOP-212K-NAE	WOP-215K-NAE	WOP-207T-NAE	WOP-210T-NAE
CPU		RISC ARM9 300 MHz 32-bit		RISC ARM9 300 MHz 32-bit	
Backup Memory		128 KB		1 MB	
Backup Battery: Type/Voltage/Capacity		Manganese Dioxide-Li/Organic Electrolyte, 3 V, 650 mAh		Manganese Dioxide-Li/Organic Electrolyte, 3 V, 650 mAh	
Working Memory		64 MB SDRAM		128 MB SDRAM	
Storage		128 MB NAND Flash		128 MB NAND Flash	
Application Software	Operating System	HMI RTOS, HMInavi Designer V4.0		HMI RTOS, HMInavi Designer V4.0	
	Runtime Max Size	64 MB (in NAND Flash)		64 MB (in NAND Flash)	
	Data Logger Max Size	64 MB (in NAND Flash)		64 MB (in NAND Flash)	
	Max Programming Screen	7999 Pages		7999 Pages	
	Max Macro Commands	Unlimited		Unlimited	
Display	Type	XGA TFT LCD	XGA TFT LCD	WVGA TFT LCD	WSVGA TFT LCD
	Size	12"	15"	7"	10.1"
	Max. Resolution	1024 x 768	1024 x 768	800 x 480	1024 x 600
	Max. Colors	65,536 colors (16-bit)		65,536 colors (16-bit)	
	Luminance (cd/m²)	500	350	1000	1000
	Backlight Life (hrs)	LED, 20,000		LED 30,000	
Touchscreen		4-wire analog resistive		4-wire analog resistive	
Communication Interface	COM1	RS-232 (DB9 Female)	RS-232 (DB9 Female)	RS-232 (5-Pin Terminal)	RS-232 (5-Pin Terminal)
	COM2	RS-422/485 (DB9 Female)	RS-422/485 (DB9 Female)	RS-485 (5-Pin Terminal)	RS-485 (5-Pin Terminal)
	COM3	RS-485 (DB9 Female)	RS-485 (DB9 Female)	Optional	Optional
	Ethernet (RJ-45)	10/100-Base-T Ethernet	10/100-Base-T Ethernet	2 x 10/100-Base-T Ethernet	2 x 10/100-Base-T Ethernet
I/O	USB Client	✓	✓	✓	✓
	USB Host	✓	✓	✓	✓
	Power Isolation	✓	✓	✓	✓
Power Supply Input Voltage		24 V _{DC} ± 10%		24 V _{DC} ± 10%	
Power Consumption		20 W	20 W	20 W	20 W
Dimension (W x H x D)		335.4 x 245.8 x 60.3 mm	399.1 x 297.6 x 57.3 mm	202.9 x 147.9 x 39.2 mm	270.9 x 212.9 x 46.8 mm
Cut-Out Dimension (W x H)		302 x 228.5 mm	384.5 x 283 mm	192 x 138.5 mm	259.5 x 201.5 mm
Front Panel Thickness		6 mm	6 mm	6 mm	7.2 mm
Enclosure		Die-cast aluminum alloy front bezel		Die-cast aluminum alloy front bezel + PC	
Weight (Net)		2 kg (4.41 lb)	3 kg (6.61 lb)	0.9 kg (1.98 lb)	1.7 kg (3.75 lb)
Reliability Certification	Operating Temperature	-15 ~ 65°C (5 ~ 149°F)		-25 ~ 75°C (-13 ~ 167°F)	
	Storage Temperature	-20 ~ 70°C (-4 ~ 158°F)		-30 ~ 80°C (-22 ~ 176°F)	
	Humidity	95% RH @ 40°C		95% RH @ 40°C	
	Vibration Protection	5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)		5 ~ 500 Hz (X, Y, Z directions, 1 Grms, 1 hour per axis)	
	Ingress Protection	Front Panel IP66		Front Panel IP66	
	CE	EN 61000-6-2, EN 61000-6-4		EN 61000-6-2, EN 61000-6-4	
	EMI	FCC Part 15 Class A		FCC Part 15 Class A	
	UL	UL-61010-1, UL-61010-2-201		UL-61010-1, UL-61010-2-201, CID2	

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

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Industrial Monitors

Comprehensive-Featured



Model		FPM-719	FPM-717	FPM-715	FPM-724W	FPM-721W	FPM-715W
Display	Type	SXGA TFT LCD	SXGA TFT LCD	XGA TFT LCD	Full HD	Full HD	Full HD
	Size	19"	17"	15"	23.8"	21.5"	15.6"
	Max. Resolution	1280 x 1024	1280 x 1024	1024 x 768	1920 x 1080	1920 x 1080	1920 x 1080
	Max.Colors	16.7M	16.7M	16.2M	16.7M	16.7M	16.7M
	Luminance (cd/m ²)	350	350	300	350	350	450
	Viewing Angle (H/V°)	170/160	170/160	176/176	178/178	178/178	160/160
	Backlight Life (hrs)	70,000	50,000	70,000	30,000	30,000	50,000
I/O		HDMI, DP, VGA					
Touchscreen		PCAP	PCAP	PCAP	5-wire resistive	5-wire resistive	5-wire resistive
Touchscreen Interface		USB/RS232	USB/RS232	USB/RS232	USB	USB	USB
OSD (On-Screen Display)		Rear panel control buttons					
Power Supply Input Voltage		24 V _{DC}					
Ingress Protection		Front Panel IP66					
Enclosure		Die-casting aluminium					
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)					
Storage Temperature		-30 ~ 70°C (-22 ~ 158°F)					
Dimension W x H x D (mm)		454 x 379.8 x 48.5 mm	410.4 x 343.4 x 51 mm	383.2 x 307.3 x 50 mm	595.9 x 374.1 x 53 mm	558.4 x 349.8 x 53.2 mm	419.7 x 269 x 52 mm
Cut-out Dimension W x H (mm)		443.5 x 369.3 mm	401.3 x 334.8 mm	374.5 x 298.5 mm	587 x 365.3 mm	549.8 x 341.3 mm	412.4 x 261.7 mm
Mounting		Stand, Wall, VESA, Panel					
Weight (Net)		6.2 kg (13.6 lb)	5.4 kg (11.9 lb)	4.6 kg (10.1 lb)	5.4 kg (11.9 lb)	7 kg (15.4 lb)	4 kg (8.8 lb)
Certification		CB, UL, CE, FCC Class A, CCC, BSMI					
OS Support		Microsoft® Windows XP/Vista/7/8/10/XPE, Linux					

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

Industrial Monitors

Entry Level



Model		 FPM-221W	 FPM-215W	 FPM-219	 FPM-217	 FPM-215	 FPM-212
Display	Type	Full HD	Full HD	SXGA TFT LCD	SXGA TFT LCD	XGA TFT LCD	XGA TFT LCD
	Size	21.5"	15.6"	19"	17"	15"	12"
	Max. Resolution	1920 x 1080	1280 x 1024	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	350	350	250	300	600
	Viewing Angle (H/V°)	178/178	89/89	170/160	170/160	176/176	178/178
	Backlight Life (hrs)	50,000	50,000	70,000	50,000	70,000	50,000
Video Port		HDMI, VGA			HDMI, DP, VGA		
Touchscreen		PCAP		5-wire resistive			
Touchscreen Interface		USB: 12 V _{DC}			USB: 12/24 V _{DC} RS-232: 24 V _{DC}		
OSD (On-Screen Display)		Windows OSD utility					
Power Supply Input Voltage		12 V _{DC}	12 V _{DC}	24 V _{DC}	12/24 V _{DC}	12/24 V _{DC}	12/24 V _{DC}
Ingress Protection		Front Panel IP66					
Enclosure		Die-casting aluminium					
Operating Temperature		0 ~ 50°C (32 ~ 122°F)					
Storage Temperature		-20 ~ 60°C (-4 ~ 140°F)					
Dimension W x H x D (mm)		558.4 x 349.8 x 56.2 mm	419.7 x 269 x 56.2 mm	454 x 379.8 x 51.5 mm	410.4 x 343.4 x 54 mm	383.2 x 307.3 x 53.20 mm	311.8 x 238.0 x 53 mm
Cut-out Dimension W x H (mm)		550.30 x 341.8 mm	412.40 x 261.70 mm	443.5 x 369.3 mm	401.3 x 334.8 mm	374.5 x 298.5 mm	303 x 229 mm
Weight (Net)		6 kg	4 kg	6.2 kg	5.4 kg	4.6 kg	3.2 kg
Mounting		Stand, Wall, VESA, Panel					
OS Support		Microsoft® Windows XP/Vista/7/8/10/XPE, Linux					
Certification		BSMI, CCC, CE, FCC Class A, UL					

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Industrial Monitors

Rugged & Domain Focused



Model		 FPM-8151H	 FPM-817S	 FPM-815S	 FPM-3191G	 FPM-3171G	 FPM-3151G	 FPM-3121G
Display	Display Type	XGA	SXGA	XGA	SXGA	SXGA	XGA	XGA
	Display Size	15"	17"	15"	19"	17"	15"	12.1"
	Max. Resolution	1024 x 768	1280 x 1024	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768
	Max.Colors	16.2M	16.7M	16.7M	16.7M	16.7M	16.2M	16.2M
	Luminance (cd/m²)	350	350	500	350	350	350	600
	Viewing Angle (H/V°)	160/140	160/140	176/176	170/160	160/140	160/140	160/140
	Backlight Life (hrs)	50,000	50,000	70,000	50,000			
Video Port		VGA, DVI		VGA, DP		VGA, DVI-D		
Touchscreen		5-wire resistive						
OSD (On-Screen Display)		Rear panel control buttons				Front panel control buttons		
Power Consumption		24V (Optional adapter)			18 W + 20%	23 W +20%	12 W +20%	13 W +20%
Power Supply Input Voltage		24 V _{DC}			10~30 V _{DC}			
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)			
Storage Temperature		-30 ~ 80°C (-22 ~ 176°F)	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)	-30 ~ 80°C (-22 ~ 176°F)			
Dimension W x H x D (mm)		422 x 338 x 68 mm	432.5 x 365.5 x 59.3 mm	405.3 x 329.4 x 59.3 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 Dimension W x H (mm)		396 x 296 mm	382 x 320 mm	350 x 277 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 (Net)		8.5 kg (18.74 lb)	6.2 kg (13.67 lb)	5.4 kg (11.90 lb)	10.65 kg (23.46 lb)	9.25 kg (20.39 lb)	7.73 kg (17.04 lb)	4.07 kg (8.975 lb)
Certification		CB, UL, CE, FCC Class A, CCC, BSMI, Cid2	CB, UL, CE, FCC Class A, CCC, BSMI		CB, UL, CE, FCC Class A, CCC, BSMI, Energy Star			
OS Support		Windows 2000, XP, Vista, 7, XPe, CE and Linux	Microsoft® Windows XP/ Vista/7/8/10/XPE, Linux		Microsoft® Windows XP/Vista/7/8/10/XPE, Linux			

General Panel PCs

Ruggedized All-in-One



Model		 PPC-306/310/312/315/321W EHL					 PPC-3150SW/3180SW/324W APL			 PPC-315W/318W/321W/324W TGL				 PPC-310/312 ASL		 PPC-312/315/317 RPL			 PPC-315W/318W/321W ADL					
CPU		Intel® Celeron® processor N6210					Intel® Celeron® processor J6412			Intel® Pentium® processor N4200			Intel® Core™ processors (11th Gen)/ Intel® Celeron® processor				Intel Atom® x7433RE processor		Intel® Core™ processors (13th Gen)/ Intel® Celeron® processor			Intel® processor N97		
Memory		1 x SO-DIMM with 32 GB DDR4					1 x SO-DIMM with 8 GB DDR3L			2 x SO-DIMM with 32 GB DDR4				1 x SO-DIMM with 16 GB DDR5		1 x SO-DIMM with 48 GB DDR5			1 x SO-DIMM with 16 GB DDR5					
Display	Size	6.5"	10.4"	12"	15"	21.5"	15.6"	18.5"	23.8"	15.6"	18.5"	21.5"	23.8"	10.4"	12.1"	12"	15"	17"	15.6"	18.5"	21.5"			
	Screen Ratio	4:3	4:3	4:3	4:3	16:9	16:9	16:9	16:9	16:9	16:9	16:9	16:9	4:3	4:3	4:3	4:3	4:3	16:9	16:9	16:09			
	Max. Resolution	640 x 480	1024 x 768	1024 x 768	1024 x 768	1920 x 1080	1366 x 768	1366 x 768	1920 x 1080	1920 x 1080	1366 x 768	1920 x 1080	1920 x 1080	800 x 600	1024 x 768	1024 x 768	1024 x 768	1280 x 1024	1920 x 1080	1366 x 768	1920 x 1080			
	Luminance (cd/m ²)	800	350	500	300	250	400	450	350	450	450	250	350	400	600	500	300	250	350	450	250			
	Viewing Angle (H/V°)	178/ 178	160/ 176	160/ 176	160/ 176	178/ 178	170/ 160	170/ 160	178/ 178	160/ 170	170/ 160	178/ 178	178/ 178	160/ 140	178/ 178	178/ 178	176/ 176	178/ 178	160/ 140	178/ 178	178/ 178			
	Backlight Life (hrs)	70,000	30,000	30,000	70,000	50,000	50,000	50,000	30,000	50,000	50,000	50,000	30,000	30,000	50,000	30,000	70,000	50,000	50,000	50,000	50,000	50,000		
Touchscreen		5-wire resistive		5-wire resistive/ PCAP		PCAP	PCAP			PCAP				5-wire resistive				PCAP						
LAN		2 x 10/100/1000/2500 Mbps										1 x 10/100/1000 Mbps, 1 x 10/100/1000/2500 Mbps				2 x 10/100/1000/2500 Mbps								
I/O		1 x RS-232, 1x RS-232/422/485, 1 x USB 2.0, 2 x USB 3.0		1 x RS-232, 1x RS-232/422/485, 2 x USB 2.0, 2 x USB 3.1, 1 x Type-C, 1 x HDMI, 1 x TPM 2.0			1 x RS-232, 1 x RS-232/422/485, 2 x USB 3.0, 2 x USB 2.0, 1 x Line-Out, 1 x HDMI			1 x RS-232, 1 x RS-232/422/485, 3 x USB 3.2, 1 x USB 2.0, 1 x Type-C, 1 x HDMI, 1 x TPM 2.0, 1 x Line-Out				2 x RS-232/422/485, 3 x USB 3.2, 1 x USB 2.0, 1 x DP, 1 x Line-Out		2 x RS-232/422/485, 3 x USB 3.2, 1 x USB 2.0, 1 x DP, 1 x Line-Out, 1 x iDoor			2 x RS-232/422/485 , 3 x USB 3.2, 1 x USB 2.0, 1 x DP 1 x Line-Out, 1 x iDoor					
Storage		1 x SATA M.2 SSD slot (2242 M-Key)		1 x SATA M.2 SSD slot (2242/2280 M-Key)			1 x 2.5" SSD/HDD Bay, 1 x SATA Bay			1 x 2.5" SSD/HDD Bay, 1 x NVMe/SATA M.2 SSD slot (2242/2280 M-Key)				1 x 2.5" SSD/HDD Bay, 1 x NVMe/SATA M.2 SSD slot (2242/2280 M-Key)		1 x 2.5" SSD/HDD Bay, 1 x NVMe/SATA M.2 SSD slot (2242/2280 M-Key)			1 x 2.5" SSD/HDD Bay, 1 x NVMe/SATA M.2 SSD slot (2242/2280 M-Key)					
Expansion		1 x M.2 E-Key 2230					1 x M.2 E-Key 2230			1 x M.2 E-Key 2230				1 x M.2 B-Key 2242/2280 or 3042/3052 1 x M.2 E-Key 2230		1 x M.2 E-Key 2230 1 x M.2 B key 2242 or 3052 1 x PCI or PCIe x1			1 x M.2 E-Key 2230 1 x M.2 B key 2242 or 3052 1 x PCI or PCIe x1					
Power Supply Input Voltage		12 – 24 Vdc			12 – 30 Vdc		12 – 24 Vdc			12 – 30 Vdc				24 Vdc ± 20%		24 Vdc ± 20%			24 Vdc ± 20%					
OS Support		Windows 10 LTSC, Windows 11, Linux					Windows 10 LTSC, Linux			Windows 10 LTSC, Windows 11, Linux				Windows 10 LTSC, Windows 11, Linux, Android		Windows 10 LTSC, Windows 11, Linux			Windows 10 LTSC, Windows 11, Linux					
Enclosure		Die-cast aluminum alloy					Die-cast aluminum alloy			Die-cast aluminum alloy				Die-cast aluminum alloy		Die-cast aluminum alloy			Die-cast aluminum alloy					
Dimension W x H x D (mm)		197.6 x 150.6 x 41 mm	271.8 x 216.8 x 49.7 mm	317 x 246 x 52.7 mm	392 x 314 x 55 mm	558 x 350 x 61 mm	419.7 x 269 x 58.6 mm	488 x 309 x 58.5 mm	595.9 x 374.1 x 58.4 mm	419.7 x 269.0 x 62.1 mm	488 x 309 x 61.7 mm	558.4 x 349.8 x 62.2 mm	595.9 x 347.1 x 61.5 mm	256.0 x 204.0 x 50.4 mm	395.3 x 233.8 x 50.4 mm	395.3 x 233.8 x 50.4 mm	359.6 x 283.6 x 50.4 mm	393.4 x 325.8 x 53.4 mm	395.6 x 245.1 x 50.4mm	464.5 x 285.5 x 53.4mm	529.6 x 321.3 x 53.4mm			
Weight (Net)		1.5 kg	3.1 kg	3.16 kg	5 kg	7.2 kg	4.7 kg	5.4 kg	8.4 kg	4.8 kg	5.7 kg	6.6 kg	8.6 kg	3.1 kg	3.16 kg	3.16 kg	4 kg	6.3 kg	4.2 kg	5.1 kg	6 kg			
Ingress Protection		Front Panel IP65	Front Panel IP66				Front Panel IP66			Front Panel IP66				Front Panel IP66		Front Panel IP66			Front Panel IP66					
Mounting		Panel, VESA (75)					Panel, VESA (75)			Panel, VESA (100)				Panel, VESA (75)		Panel, VESA (75)			Panel, VESA (75)					
Operating Temperature		-10 – 50°C (14 – 122°F)					0 – 50°C (32 – 122°F)			-10 – 50°C (14 – 122°F)				-20 – 60°C (-4 – 140°F)		-10 – 50°C (14 – 122°F)			-10 – 50°C (14 – 122°F)					
Certification		CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC					CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC			CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC				CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC		CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC			CE, FCC Class B, EN60601-1-2, BSMI, UKCA, CB, UL, CCC					

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Intelligent Motion Control Solutions

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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

General Panel PCs

Enhanced All-in-One



Model		PPC-3100/3120		PPC-415/417/419 EHL			PPC-412	PPC-415 TGL	PPC-415W/421W RPL	
CPU		Intel Atom® E3940 processor		Intel Atom® x6425E processor			Intel® Core™ processors (7th Gen)	Intel® Core™ processors (11th Gen)	Intel® Core™ processors (13th Gen)	
Memory		1 x SO-DIMM with 8 GB DDR3L		1 x SO-DIMM with 32 GB DDR4			1 x SO-DIMM with 16 GB DDR4	2 x SO-DIMM with 32 GB DDR4	2 x SO-DIMM with 32 GB DDR5	
Display	Size	10.4"	12.1"	15"	17"	19"	12.1"	15"	15.6"	21.5"
	Screen Ratio	4:3		4:3			4:3	4:3	16:9	
	Max. Resolution	800 x 600	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024	1024 x 768	1024 x 768	1920 x 1080	1920 x 1080
	Luminance (cd/m²)	400	600	500	350	350	600	500	450	350
	Viewing Angle (H/V°)	160/140	178/178	176/176	160/140	170/160	178/178	176/176	170/170	178/178
	Backlight Life (hrs)	30,000	50,000	70,000	50,000	50,000	50,000	70,000	50,000	30,000
Touchscreen		5-wire resistive		5-wire resistive			5-wire resistive	PCAP	PCAP	
LAN		2 x 10/100/1000/2500 Mbps		2 x 10/100/1000/2500 Mbps			2 x 10/100/1000 Mbps	2 x 10/100/1000/2500 Mbps	2 x 10/100/1000/2500 Mbps	
I/O		4 x RS-232, 1 x isolated RS-422/485 4 x USB 3.0 1 x Line-out 1 x Mic-in 1 x VGA 1 x HDMI 1 x GPIO		2 x RS-232 1 x RS-422/485 2 x RS-232 2 x USB 3.2 2 x USB 2.0 1 x Line-out 1 x Mic-In 1 x HDMI 1 x DP 1 x GPIO 1 x TPM2.0			3 x RS-232 1 x RS-422/485 4 x USB 3.0 1 x Line-out 1 x Mic-in 1 x VGA 1 x DP 1 x TPM 2.0	3 x RS-232 1 x RS-422/485 4 x USB 3.0 1 x Line-out 1 x Mic-in 1 x VGA 1 x DP 1 x TPM 2.0	2 x RS-232 1 x RS-422/485 2 x RS-232 3 x USB 3.2 1 x USB 2.0 1 x Line-out 1 x Mic-In 1 x HDMI 1 x DP 1 x GPIO	
Storage		1 x 2.5" SSD/HDD Bay, 1 x mSATA		1 x 2.5" SSD/HDD Bay, 1 x M.2 B-Key 2242/2280 (SATA/ USB3.0)/ 3042/3052 (5G), 1 x 2.5" SSD/HDD Bay			1 x SATA M.2 SSD slot (2242 B-Key), 1 x 2.5" SSD/HDD Bay	1 x 2.5" SSD/HDD Bay, 1 x NVMe PCIe x 4/SATA M.2 slot (2242/2280 M-Key)	1 x SATA M.2 SSD slot (2242 B-Key), 1 x 2.5" SSD/HDD Bay	
Expansion		1 x Full-size mPCIe slot		1 x M.2 E-Key 2230, 1 x PCIe x1 or 1 x PCI, 1 x CFAST card			1 x Full-size mPCIe slot	1 x M.2 E-Key 2230, 1 x M.2 B-Key 3052/3042, 1 x PCIe x4 or 1 x PCI	1 x M.2 E-Key 2230, 1 x PCIe x4 or 1 x PCI	
Power Supply Input Voltage		9 ~ 32 V _{DC}		9 ~ 32 V _{DC}			9 ~ 32 V _{DC}	9 ~ 32 V _{DC}	9 ~ 32 V _{DC}	
OS Support		Microsoft® Windows 10 LTSC, Linux, Android		Microsoft® Windows 10 LTSC, Windows 11, Linux, Android			Microsoft® Windows 10 LTSC, Linux, Android	Microsoft® Windows 10 LTSC, Windows 11, Linux, Android	Microsoft® Windows 10 LTSC, Windows 11, Linux, Android	
Enclosure		Front bezel: Die cast aluminum alloy Rear: PC+ABS		Front bezel: Die cast aluminum alloy Rear: ABS			Front bezel: Die cast aluminum alloy Rear: PC+ABS	Front bezel: Die cast aluminum alloy Rear: ABS	Front bezel: Die cast aluminum alloy Rear: PC+ABS	
Dimension W x H x D (mm)		271.8 x 216.8 x 57.5 mm	317 x 246 x 60.5 mm	392.2 x 313.5 x 55.1 mm	437 x 357 x 56.5 mm	454.0 x 379.8 x 62.1 mm	317 x 246 x 60.5 mm	392.3 x 313.6 x 55.2 mm	419.7 x 269 x 59 mm	558.4 x 349.8 x 63.8 mm
Weight (Net)		2.8 kg	3.4 kg	5.3 kg	6.3 kg	7.0 kg	3.4 kg	5.4 kg	5.4 kg	7.7 kg
Ingress Protection		Front Panel IP66		Front Panel IP66			Front Panel IP66	Front Panel IP66	Front Panel IP66	
Mounting		Panel, VESA (75)		Panel, VESA (75)			Panel, VESA (75)	Panel, VESA (75)	Panel, VESA (75/100)	
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)		-20 ~ 60°C (-4 ~ 140°F)			0 ~ 50°C (32 ~ 122°F)	-10 ~ 50°C (14 ~ 122°F)	-20 ~ 60°C (-4 ~ 140°F)	
Certification		CE, FCC Class B, EN 61000-6-2, BSMI, UKCA, CB, UL, CCC,		CE, FCC Class B, EN 61000-6-2, BSMI, UKCA, CB, UL, CCC,			CE, FCC Class B, EN 61000-6-2, BSMI, UKCA, CB, UL, CCC,	CE, FCC Class B, EN 61000-6-2, BSMI, UKCA, CB, UL, CCC,	CE, FCC Class B, EN 61000-6-2, BSMI, UKCA, CB, UL, CCC,	

General Panel PCs

Scalable High Performance Computing

Chassis



Model		PPC-615W/618W/621W			PPC-612/6151C/6171C/6191C			
CPU		Intel® Core™ processors (13th/12th/9th/8th/7th/6th Gen)/ Intel® Celeron® processors			Intel® Core™ processors (13th/12th/9th/8th/7th/6th Gen)/ Intel® Celeron® processors			
Display	Size	15.6"	18.5"	21.5"	12"	15"	17"	19"
	Screen Ratio	16:9			4:3			
	Max. Resolution	1920 x 1080	1366 x 768	1920 x 1080	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024
	Luminance (cd/m²)	450	450	250	600	500	350	350
	Viewing Angle (H/V°)	170/170	170/160	178/178	178/178	176/176	160/140	170/160
	Backlight Life (hrs)	50,000			50,000			
Touchscreen		PCAP			5-wire resistive/ PCAP			
I/O		4 x Reserved ports (DB9) 2 x WLAN antenna holes 1 x DC-In 1 x Power switch Reserved opening: According to the PPC-MB series motherboard specifications			4 x Reserved ports (DB9) 2 x WLAN antenna holes 1 x DC-In 1 x Power switch Reserved opening: According to the PPC-MB series motherboard specifications			
Storage		1 x 2.5" SATA HDD Bay, 2 x 2.5" SATA HDD Bay (optional)	2 x 2.5" SATA HDD Bay		1 x 2.5" SATA HDD Bay	1 x 2.5" SATA HDD Bay, 2 x 2.5" SATA HDD Bay (optional)		
Expansion		1 x PCIe x4 (standard); or 2 x PCI (in the accessory box) 2 x PCIe x1 (optional) 1 x PCIe x1 + 1 x PCI (optional) 2 x PCIe x8 (optional, only for PPC-MB-6X0) 1 x PCIe x16 (optional, only for PPC-MB-6X0)			1 x PCI (optional) 1 x PCIe x4 (optional) 1 x PCIe x16 (optional, only for PPC-MB-6x0)	1 x PCIe x4 (standard); 2 x PCI (in the accessory box) 2 x PCIe x1; 1 x PCIe x1 + 1 x PCI (optional) 2 x PCIe x8 (optional, for PPC-MB-610/620) 1 x PCIe x16 (optional, for PPC-MB-610/620) 1 x Full-size mPCIe Slot		
Power Input (Voltage)		24V _{DC} ±20%			24V _{DC} ±20%		100 ~ 240 V _{AC}	
Enclosure		Front: Aluminum alloy Back: Plastic			Front: Aluminum alloy Back: Plastic			
Ingress Protection		Front Panel IP66			Front Panel IP66			
Mounting		Panel, VESA 75/100			Panel, VESA 75/100			
Operating Temperature		0 ~ 50°C (32 ~ 122°F) (With 35 W CPU) 0 ~ 45°C (32 ~ 113°F) (With 65 W CPU)			0 ~ 50 °C (32 ~ 122 °F) (With 35W CPU)		0 ~ 45°C (32 ~ 113°F) (With 65W CPU)	
Storage Temperature		-30 ~ 60°C (-22 ~ 140°F)			-40 ~ 60°C (-40 ~ 140°F)		-30 ~ 60°C (-22 ~ 140°F)	
Dimension W x H x D (mm)		419 x 269 x 108.2 mm	488 x 309 x 108.2 mm	558 x 349.8 x 108.2 mm	317 x 246 x 83.2 mm	391.4 x 312.5 x 103.6 mm	437 x 357 x 107.6 mm	454 x 379.8 x 107.5 mm
Weight (Net)		6.1 kg (13.45 lb)	7.6 kg (16.75 lb)	8.4 kg (18.5 lb)	3.98 kg (8.76 lb)	5.03 kg (11.08 lb)	5.4 kg (11.9 lb)	5.8 kg (12.8 lb)
Certification		CCC, CB, UL, UKCA, CE, FCC Class A, UKCA, VCCI						
OS Support		According to the PPC-MB series specifications						

Motherboard



Model	PPC-MB-8260	PPC-MB-610	PPC-MB-620
CPU	Intel® Core™ processors (6th/7th Gen), up to 65 W	Intel® Core™ processors (8th/9th Gen), up to 65 W	12/13th Gen Intel Core I LGA 1700 processor up to 65 W
Chipset	H110	Q370	Q670E H610E
Memory	1 x SO-DIMM with 16 GB DDR4	2 x SO-DIMM with 32 GB DDR4	2 x SO-DIMM with 64 GB DDR5
LAN	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps, 2 x 10/100/1000/2500 Mbps	1 x 10/100/1000 Mbps, 2 x 10/100/1000/2500 Mbps
I/O	1 x RS232/422/485, 1 x RS232, 1 x DP, 1 x VGA, 6 x USB 3.1, 1 x Line-Out, 1 x Mic-In	1 x RS232/422/485, 1 x RS232, 1 x DP, 1 x VGA, 6 x USB 3.1, 1 x Line-Out, 1 x Mic-In	1 x RS-232, 1 x RS-232/422/485, 6 x USB 3.2, 1 x HDMI, 1 x DP, 1 x Line-Out, 1 x Mic-In 1 x RS-232, 1 x RS-232/422/485, 4 x USB 3.2, 2 x USB 2.0, 1 x HDMI, 1 x DP, 1 x Line-Out, 1 x Mic-In
Expansion	1 x Full-size mSATA or mini PCIe, 1 x PCIe x4 slot	1 x NVMe/SATA M.2 SSD slot (2280 M-key), 1 x M.2 E-Key 2230, 1 x PCIe x16	1 x NVMe/SATA M.2 SSD slot (2280 M-Key), 1 x M.2 E-Key 2230, 1 x M.2 B-Key 3042/3052
Dimension W x H (mm)	170 x 170 mm	170 x 170 mm	170 x 170 mm
OS Support	Microsoft® Windows 7, Microsoft® Windows 8.1, Microsoft® Windows 10 LTSC (**KBL CPU only supports windows 10)	Microsoft® Windows 10 LTSC, Microsoft® Windows 11, Linux	Microsoft® Windows 10 LTSC, Microsoft® Windows 11, Linux

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Data Acquisition (DAQ) Solutions

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Serial/USB Communications

Installation Accessories

PPC-STAND-A1E

Stand Kit For All PPC Models



PPC-WLAN-D1/D2

Wi-Fi Module, M.2, Wi-Fi 6 +BT5.2, 2T2R, with Antenna



PPC-ARM-A03

CHASSIS, PPC ARM VESA Standard (A-CLEVER)



PPC-RFID 98R3P300010

RFID, Reads only 13.56MHz & 125k



PPC-174T-WL-MTE

Wall Mount Kit For All PPC Models



PPC-IPS

Uninterruptible Power Supply Module





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Automation Computers

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Advantech

Ideal for diverse edge computing applications



Machine Builder

Equipment Facility

Factory Automation

Machine Control

Protocol Conversion

WISE-DeviceOn

CODESYS

EdgeLink

WISE-DeviceOn

M2I Control Edge
UNO-100/ UNO-300

Industrial Automation Edge
UNO-2000

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 series is adapted for different kinds of embedded automation applications. The units can be easily integrated with Advantech software which helps bridge the gap between IT and OT. The UNO-2000 series is suitable for individual design requirements that enable flexible and manageable configurations.

Industrial Edge

That seamlessly bridge OT to IT

Building Automation

Public Utility

Oil & Gas

Visualization



Predictive Maintenance



Data Analytics

EdgeSync 360



Microsoft Azure



THINMANAGER
A ROCKWELL AUTOMATION TECHNOLOGY



Application-Oriented Edge

UNO-200/ UNO-400

Application-Oriented Edge

IoT Gateway Edge UNO-200

Advantech's UNO-200 series is the bridge for data from edge devices to the cloud and plays 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 Gigabit LAN and high speed RF technologies. With the UNO-200 series installed, your system will benefit from video output features that will allow you to visualize information on a dashboard and monitor.

Explosion Proof Edge UNO-400

Advantech's UNO-400 offers domain-focused edge gateways which satisfy diverse industry requirements. The UNO-410 supports C1D2+IEC ATEX (open type) certification and wide temperature ranges from -40 ~ 70°C, which are perfect for control cabinet usage. The UNO-430 is a IP66 and C1D2 + ATEX (stand alone) certified ruggedized outdoor gateway, which is also suitable for outdoor usage with waterproof and dust-proof, featuring along with -40 ~ 70°C wide temperature range support.

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Serial/USB Communications

Industrial Automation Edge

NEW

NEW



Model		UNO-2271G V3	UNO-2271G V2	UNO-2271G
CPU		Intel Atom® x7211RE processor	Intel® Celeron® processor N6210 Intel® Pentium® processor N6415	Intel Atom® E3815 processor Intel® Celeron® processor E3825
Memory		1 x LPDDR5 with 8 GB	1 x DDR4 with 4 GB/8 GB	1 x DDR3L with 4 GB
Storage		1 x eMMC (64 GB)	1 x eMMC (32 GB/64 GB), 1 x mSATA (shared with mPCIe)	1 x eMMC (32 GB), 1 x mSATA (shared with mPCIe)
I/O Interface	Displays	1 x HDMI	1 x HDMI	1 x HDMI
	Audio	-	-	-
	USB Ports	1 x USB 3.2 1 x Type-C	2 x USB 3.2	UNO-2271G-E21BE/E021AE/E23BE/ E023AE: 1 x USB 3.0 UNO-2271G-E22BE/E022AE: 3 x USB 2.0, 1 x USB 3.0
	Expansion	1 x M.2 B-Key	1 x Full-size mPCIe Slot	1 x Full-size mPCIe Slot
Antenna Hole		2 x reserved antenna hole	2 x reserved antenna hole	3 x reserved antenna hole
OS Support		Windows10, Windows 11, Linux	Windows 10 LTSC, Windows 11, Linux, Ubuntu 20.04, Ubuntu Core 20	Windows 10 2019 LTSC, WE7, Linux
Hardware Security		TPM2.0	TPM 2.0	TPM 2.0
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)
Power Consumption		12W	12W	12W
Power Input		10 ~ 30 V _{DC}	10 ~ 30 V _{DC}	10 ~ 30 V _{DC}
Mechanical	Mounting	Stand, Wall (Optional VESA)	Stand, Wall (Optional VESA and DIN-rail)	Stand, Wall (Optional VESA and DIN-rail)
	Dimension (W x H x D)	100 x 40 x 70 mm	100 x 30 x 70 mm	100 x 30 x 70 mm
	Weight (Net)	0.5 kg (1.1 lb)	0.5 kg (1.1 lb)	0.5 kg (1.1 lb)



Expansion 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
Part Number	UNO-2271G-EKBE UNO-2271G-EKCE (for V3)	UNO-2271G-RP1EA UNO-2271G-RP1EB (for V3)	UNO-2271G-RS2EA UNO-2271G-RS2EB (for V3)
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)
Dimension (W x H x D)	100 x 30 x 70 mm	100 x 30 x 70 mm	100 x 40 x 70 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

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

Industrial Automation Edge

NEW

NEW



Model		UNO-2372G V2	UNO-2372G	UNO-2484G V2	UNO-2484G
CPU		Intel® Celeron® processor J6412	Intel Atom® E3845 processor Intel® Celeron® processor J1900/ J3455	Intel® Core™ processors (11th Gen)	Intel® Core™ processors (6th/7th Gen)
Memory		1 x DDR4 with 8 GB	1 x DDR3 with 4 GB	2 x DDR4 with 8 GB	1 x DDR4 with 8 GB
Storage		1 x NVMe/SATA M.2 SSD slot (2242 M-Key), 1 x 2.5" SSD/HDD Bay	1 x mSATA (shared with mPCIe), 1 x 2.5" SSD/HDD Bay	1 x NVMe/SATA M.2 SSD slot (2280 M-Key), 1 x 2.5" SSD/HDD Bay	1 x mSATA (shared with mPCIe), 2 x 2.5" SSD/HDD Bay
I/O Interface	Displays	1 x HDMI, 1 x DP	1 x HDMI, 1 x DP	1 x HDMI, 1 x DP	1 x HDMI, 1 x DP
	Audio	Line out	Line out	Line out	Line out
	USB Ports	3 x USB 3.2 1 x USB 2.0	E3845/J1900: 1 x USB 3.0, 3 x USB 2.0 J3455: 4 x USB 3.0	3 x USB 3.2 1 x USB 2.0	4 x USB 3.0
	Expansion	1 x M.2 B-Key	2 x Full-size mPCIe Slots	1 x M.2 B-Key slot	1 x Full-size mPCIe Slot for single stack version 4 x Full-size mPCIe Slots for double stack version
Antenna Hole		2 x reserved antenna hole	2 x reserved antenna hole	4 x reserved antenna hole	4 x reserved antenna hole
OS Support		Windows 10, Windows 11, Advantech Linux (Ubuntu 20.04)	Windows 7, Windows 10, Advantech Linux (Ubuntu 18.04/20.04)	Windows 10, Windows 11, Advantech Linux (Ubuntu 20.04 Desktop/ Server)	Windows 10 2021 LTSC, Windows 11, Advantech Linux (Ubuntu 22.04)
Hardware Security		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
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)
Power Consumption		19W	E3845/J1900: 30W J3455: 18.4W	55W	55W
Power Input		10 ~ 36 V _{DC}	10 ~ 36 V _{DC}	10 ~ 36 V _{DC}	10 ~ 36 V _{DC}
Mechanical	Mounting	Stand, Wall (Optional VESA, DIN-rail)	Stand, Wall (Optional VESA, DIN-rail)	Stand, Wall (Optional VESA, DIN-rail)	Stand, Wall (Optional VESA, DIN-rail)
	Dimension (W x H x D)	150 x 35 x 105 mm	150 x 35 x 105 mm	200 x 40 x 140 mm	200 x 40 x 140 mm
	Weight (Net)	0.8 kg (1.76 lb)	0.8 kg (1.76 lb)	0.8 kg (1.76 lb)	0.8 kg (1.76 lb)



Expansion Kit	2nd stack expansion module for support 2 x iDoor (1 x mPCIe on UNO-2372G V2)	2nd stack expansion module for support 4 x iDoor (2 x mPCIe slot on UNO-2484G V2)
Part Number	UNO-2372G-EKCE	UNO-2484G-EKCE
I/O & Expansion	2 x iDoor (Chassis only)	2 x iDoor (Chassis only)
Dimension (W x H x D)	150 x 35 x 105 mm	200 x 40 x 140 mm
Description	UNO-2372G 2nd stack expansion module	UNO-2484G 2nd stack expansion module

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

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M2I Control Edge

NEW

NEW



Model		UNO-127	UNO-137 V2	UNO-148 V2	UNO-348
CPU		Intel Atom® x6413E processor	Intel Atom® x6413E processor Intel Atom® x6425RE processor	Intel® Core™ processors (13th Gen)	Intel® Core™ processors (10th Gen)
Memory		1 x DDR4 with 4/8 GB	1 x DDR4 with 8 GB	1 x DDR5 with 8 GB	2 x DDR4 with 8 GB
Storage		1 x eMMC (64 GB), 1 x mSATA (shared with mPCIe)	1 x SATA M.2 SSD slot (2242 M-Key)	2 x NVMe/SATA M.2 SSD slot (2280 M-Key)	2 x 2.5" HDD/SDD Bay
I/O Interface	Displays	1 x HDMI	2 x DP	2 x DP	1 x DP, 1 x HDMI
	USB Ports	2 x USB 3.2	3 x USB 3.2, 1 x USB 2.0	3 x USB 3.2, 1 x USB 2.0	4 x USB 3.2, 2 x USB 2.0
	Serial Ports	2 x RJ-45	2 x RS-232/422/485	2 x RS-232/422/485	1 x RS-232, 2 x RS-232/422/485
	Expansion	1 x Full-size mPCIe Slot	1 x Full-size mPCIe Slot, 1 x M.2 E-Key 2230, 1 x SIM Card Slot	1 x Full-size mPCIe Slot, 1 x M.2 E-Key 2230	1 x Full-size mPCIe, 1 x M.2 B-Key (UNO-348-AXX1A) 1 x PCIe x16 (UNO-348-AXX3A) 1 x PCIe x16, 2 x PCI
SIM Card Slot		Nano SIM card	Nano SIM card	Nano SIM card	Nano SIM card
Default OS		–	–	–	–
OS Support		Windows 10 LTSC, Windows 11, Ubuntu 20.04, Ubuntu Core 20	Win 10 2019 LTSC, Win 11, Advantech Linux (Ubuntu 20.04)	Windows 10 LTSC, Windows 11, AdvantechLinux	Windows 10 2019 LTSC, Windows 11, Advantech Linux(Ubuntu 18.04)
Certification		CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CB, UL, CE, FCC Class A, CCC, BSMI
Hardware Security		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
Operating Temperature		-20 ~ 60°C (-4 ~ 140°F)	-40 ~ 70°C (-40 ~ 158°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 50°C (-4 ~ 122°F)
Power Consumption		18.5W	21W	31W	59W
Power Input		10 ~ 30 V _{DC}	10 ~ 30 V _{DC}	10 ~ 30 V _{DC} (TBD)	10 ~ 30 V _{DC}
Mechanical	Mounting	DIN-rail	DIN-rail	DIN-rail	Stand, Wall
	Dimension (W x H x D)	33.5 x 100 x 70 mm	35 x 150 x 105 mm	53 x 200 x 140 mm	UNO-348-AXX1A: 120 x 140 x 200 mm UNO-348-AXX3A: 160 x 140 x 200 mm
	Weight (Net)	0.5 kg (1.1 lb)	0.8 kg (1.7 lb)	1 kg (2.2 lb)	3.5 kg (7.7 lb)



Expansion Kit	UNO-127 2nd stack extension kit	UNO-137 V2 2nd stack extension kit	UNO-148 V2 2nd stack extension kit	UNO-148 V2 2nd stack extension kit	UNO-148 V2 2nd stack extension kit
Part Number	UNO-127-RS1EA	UNO-137-ID1EC	UNO-148-IS2EA	UNO-148-P11EA	UNO-MXM-CB01
I/O & Expansion	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 x4	1 slot for PCIe x4
Dimension (W x H x D)	30 x 100 x 70 mm	35 x 150 x 105 mm	35 x 200 x 140 mm	45 x 200 x 140 mm	57 x 200 x 140 mm
Description	UNO-127 2nd stack extension kit for 4 x COM & 1 x LAN	UNO-137 V2 2nd stack extension kit for iDoor	UNO-148 2nd stack extension kit for iDoor & SSD/HDD	UNO-148 2nd stack extension kit for PCIe card	UNO Carrier Stack support MXM GPU module aim for image processing and AI inference

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

Application-Oriented Edge

NEW



Model	UNO-247	UNO-238	UNO-238 V2	UNO-220-P4N1AE	UNO-220-P4N2AE
CPU	Intel® Celeron® processor J3455	Intel® Core™ processors (8th Gen)	Intel® Core™ processors (12th Gen)	Industrial Raspberry Pi 4 IoT Gateway Kit	
Memory	1 x DDR3L SO-DIMM Slot	1 x DDR4 SO-DIMM Slot	2 x DDR5 SO-DIMM slot	-	
Storage	1 x mSATA, 1 x 2.5" SSD/HDD Bay	32 GB eMMC	1 x M.2 B-Key 2242 1 x M.2 M-Key 2280	1 x micro SD Slot (8 GB)	
I/O	2 x USB 3.0, 2 x USB 2.0, 4 x RS-232, 2 x RS-485	4 x USB 3.2, 2 x RS-232/422/485, 1 x GPIO, 1 x Line out	2 x CAN Bus, 4 x USB 3.2, 2 x Type-C, 1 x GPIO	1 x RS232/RS485, 4 x GPIO	1 x RS232/RS485, 8 x GPIO
Displays	1 x HDMI, 1 x VGA	1 x HDMI, 1 x DP	1 x HDMI, 1 x DP	-	
PCIe/PCI Expansion	1 x Full-size mPCIe Slot, 1 x M.2 E-Key 2230	1 x M.2 B-Key 3042, 1 x M.2 E-Key 2230	1 x M.2 B-Key 3042/3052, 1 x M.2 E-Key 2230	-	
SIM Card Slot	Micro SIM card	Nano SIM card	Nano SIM card	-	
OS Support	Windows 10 2019 LTSC, Linux	Windows 10 LTSC, Windows 11, Linux	Windows 10 LTSC, Windows 11, Linux	Linux (Raspbian)	
Hardware Security	△	TPM 2.0	TPM 2.0	△	TPM 2.0
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	
Power Input	12 V _{DC} (bundle 110-240V _{AC} adapter)	12 V _{DC} (bundle 110-240V _{AC} adapter)	12~24V _{DC}	5V _{DC} via USB-C connector @ 3.0A or IEEE 802.3at PoE-PD	
Power Consumption	17 W @ 12 V _{DC}	31W @ 12 V _{DC}	30-60W	15W	
Mechanical	Mounting	Stand, Wall (Optional DIN-rail)	Stand, Wall (Optional DIN-rail)	Stand, Wall (Optional DIN-rail)	
	Dimension (W x H x D)	200 x 50 x 140 mm	150 x 60 x 107 mm	150 x 60 x 107 mm	100 x 32 x 70 mm 100 x 40 x 70 mm
	Weight (Net)	1.0 kg (2.2 lb)	1.8 kg (3.96 lb)	1.8 kg (3.96 lb)	0.5 kg (1.1 lb)

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

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& Sensors

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Serial/USB Communications

Domain Specific Edge



Model		UNO-410	UNO-430	UNO-430 EXP
Certification		CID2, ATEX, CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CID2, ATEX, CE, FCC, UL, CCC, BSMI
Ingress Protection		IP40	IP69K, IP68	IP66
CPU		Intel Atom® E3940 processor	Intel Atom® E3950 processor	
Memory		1 x SO-DIMM with 8 GB DDR3L	1 x SO-DIMM with 8 GB DDR3L	
Storage		1 x 2.5" SSD/HDD Bay, 1 x M.2 B-Key	1 x M.2 B-Key	
I/O Interface	Displays	2 x DP	1 x DP	
	Expansion	1 x Full-size mPCIe Slot, 1 x M.2 B-Key, 1 x SIM Card Slot	1 x M.2 B-Key, 1 x M.2 E-Key	
	USB Ports	3 x USB 3.2, 1 x USB 2.0	2 x Internal USB	
	Serial Ports	2 x RS-232/422/485	2 x RS-232/422/485, 1 x RS-232 (Console)	
	General Digital I/O	8-ch DI, 8-ch DO	-	
SIM card slot		Nano SIM card	Standard SIM card	
OS Support		Windows 10 2019 LTSC, Linux	Windows 10 2019 LTSC, Linux	
Hardware Security		TPM 2.0	TPM 2.0	
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	
Power Consumption		21W	21W	
Power Input		10 ~ 36 V _{DC}	10 ~ 36 V _{DC}	
Mechanical	Mounting	DIN-rail	Wall	
	Dimension (W x H x D)	70 x 150 x 105 mm	200 x 200 x 68 mm	
	Weight (Net)	1 kg (2.2 lb)	3 kg (6.61 lb)	3.7 kg (8.16 lb)

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

iDoor Technology Modules

iDoor Multiple I/O & Peripherals



Model	PCM-2300MR	PCM-23U1DG	PCM-24U2U3	PCM-23C1CF
Description	MR4A16B, MRAM, 2 / 4 MB, mPCIe	USB slot with lock for USB dongle, half-size mPCIe	2 ports USB 3.0, mPCIe, USB Type-A	1 slot Cfast iDoor for CFast Gen3 card

iDoor Wire/ Wireless Communication



mPCIe Model	PCM-24S2WF	PCM-24S34G	PCM-24R1TP	PCM-24R2PE	PCM-24R2GL
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	1 port Gigabit Ethernet, Intel® I225, 2.5Gb/s, TSN, mPCIe, RJ-45	2 ports Gigabit Ethernet, IEEE 802.3af (PoE)-compliant, mPCIe, RJ-45	2 ports Gigabit Ethernet, Intel® I350, mPCIe, RJ-45
M.2 Model	-	-	PCM-34R1TP	PCM-34R2PE	PCM-34R2GL
Description	-	-	1 port Gigabit Ethernet, Intel® I225, 2.5Gb/s, TSN, B+M key (3042, PCIe1), RJ-45	2 ports Gigabit Ethernet, IEEE 802.3af (PoE)-compliant, B+M key (2242, PCIe1), RJ-45	2 ports Gigabit Ethernet, Intel® I350, B+M Key (2242, PCIe1), RJ-45

iDoor Smart I/O & Communication



mPCIe Model	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-27D24DI
Description	2 ports Isolated RS-422/485, mPCIe, DB9	2 ports Isolated RS-232, mPCIe, DB9	4 ports non-isolated RS-422/485, mPCIe, DB37 cable	4 ports non-isolated RS-232, mPCIe, DB37 cable	24 channels isolated digital I/O with counter, mPCIe, DB37
M.2 Model	PCM-34D2R4	PCM-34D2R2	PCM-34D4R4	PCM-34D4R2	PCM-37D24DI
Description	2 ports Isolated RS-422/485, B key (2242, USB), DB9	2 ports Isolated RS-232, B key (2242, USB), DB9	4 ports non-isolated RS-422/485, B key (2242, USB), DB37 cable	4 ports non-isolated RS-232, B key (2242, USB), DB37 cable	24 channels isolated digital I/O with counter, B+M key (3042, PCIe1), DB37

iDoor Industrial Fieldbus Communication

CANopen

PROFIBUS

PROFINET

EtherCAT

EtherNet/IP



Model	PCM-26D2CA	PCM-26D1DB	PCM-26R2PN	PCM-26R2EC	PCM-26R2EI
Description	2 ports isolated CANBus mPCIe, CANopen, DB9	1 port Hilscher netX100 Fieldbus mPCIe, Profibus, DB9	2 ports Hilscher netX100 Fieldbus mPCIe, Profinet, RJ-45	2 ports Hilscher netX100 Fieldbus mPCIe, EtherCAT, RJ-45	2 ports Hilscher netX100 Fieldbus mPCIe, EtherNet/IP, RJ-45

iDoor Accessories



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

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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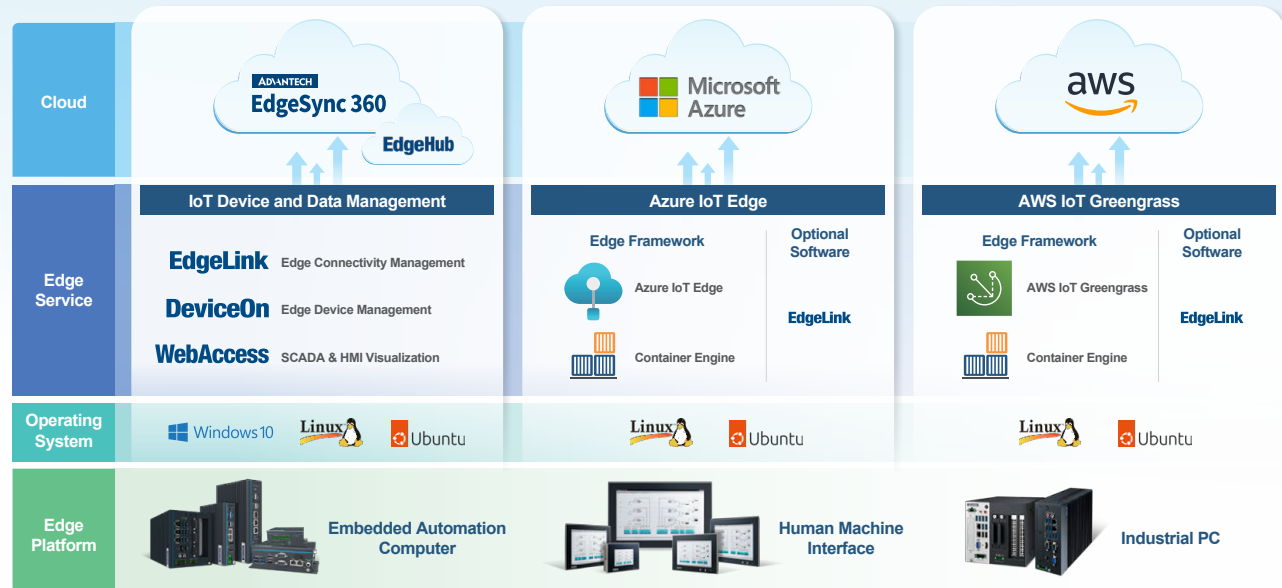
Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

Edge Service Packages

Scaling Digitalization with Edge 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. **Edge-as-a-Service** encompasses the integration of hardware, edge software, and corresponding cloud services for efficient edge orchestration. The synergy between edge and cloud is pivotal for successful digital transformation.

To align with edge computing trends, Advantech presents two edge service packages; Azure IoT Edge and AWS IoT Greengrass. The packages are designed to cater to Advantech hardware platforms and third-party software applications, offering enhanced flexibility and user experience. Featuring a wide selection of hardware that is Azure IoT Edge or AWS IoT Greengrass certified, Advantech ensures users can develop custom solutions by selecting preferred hardware and edge service packages according to their targeted cloud service or specifications, helping customers develop IoT-enabled applications in an optimized way.

Aside from public clouds, Advantech provides EdgeSync 360 to revolutionize device and data management across various industrial applications. This suite of software products, including EdgeLink, DeviceOn, WebAccess, and EdgeHub, is designed to enhance operational efficiency, security, and data-driven decision-making in industrial environments. Overall, Advantech provides diverse edge-as-a-service solutions to deliver device control, edge monitoring, and software management services, facilitating the seamless scaling of digitalization through accelerated deployment and integration.

Scaling Digitalization with
IoT-Enabling Applications
Cloud-Based Edge Service Packages



Learn More: https://www.advantech.com/en/products/edge-service-packages/sub_e38b7777-e3d7-45b6-a6d9-681289fcc6af





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Intelligent Systems

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- ☞ 4-14 Industrial Chassis
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Intelligent Systems

intel
partner Titanium
IoT
Solutions

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, and 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.

Compact IPCs

Advantech offers a ultra-compact industrial edge computer series that provides the same high computing power as standard IPCs but at smaller sizes. This benefits the customers that have limited spaces for IPCs especially for equipment makers and intelligent factories. Though the system size is significantly reduced, IPC-200 and IPC-300 still provide high expandability to support industrial applications such as machine vision and automation control, and GPU-related applications.



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 diverse range of industrial computer chassis (2U to 4U rackmount, wall-mount) supporting various motherboard/SBC form factors (ATX, MicroATX, PICMG 1.0/1.3, full-size/half-size SBC).

Chassis features include versatile power supplies (ATX 2.x and ATX 3.x), swappable accessories/storages, and cooling systems. High-end models are with the built-in intelligent self-diagnosis modules for smart fan control and remote management via EdgeSync 360 hardware/software solutions.



Industrial Motherboards

Advantech offers a full lineup of industrial motherboards in various form factors, including performance-rich ATX, best price/performance MicroATX and compact integrated Mini-ITX. These highly integrated motherboards feature advanced capabilities like multi-core processing and PCI Express technology, catering to demanding industrial applications with 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, 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.



Industrial GPU Cards

Advantech provides a full range of GPU cards with PCIe and mobile PCIe based on NVIDIA® RTX technology, NVIDIA® Quadro®, and Tesla®. These industrial-grade graphics cards feature extended lifecycle and high reliability specifically for intensive use in multiple displays, video surveillance, digital signage, video walls, 3D visualization in industrial, embedded, medical applications.

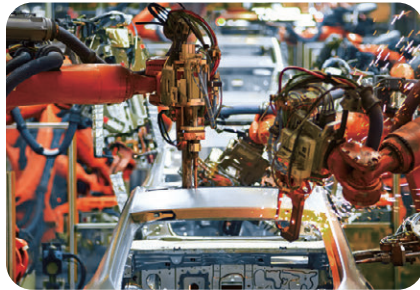




Applications



Automated Optical Inspection (AOI)



Factory Automation



Predictive Maintenance



Automatic Equipment



Imaging Processing



AI Inference

Start your Business with an IPC Expert



Toolless thumb screws



Lockable door, with-or-without key



Front-accessible fan without opening top cover



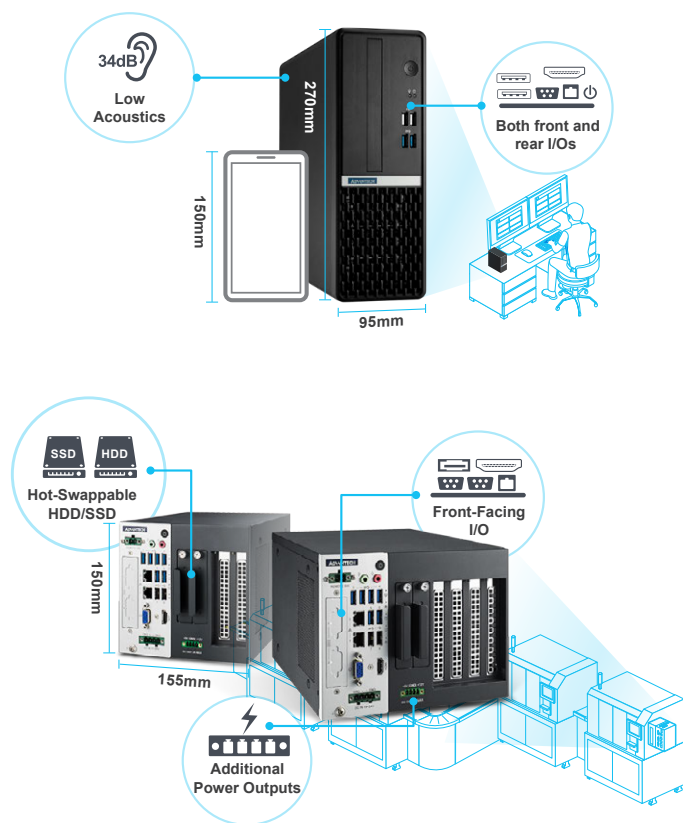
Small footprint chassis design for better work field layout arrangement

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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 Compact IPC series offers a compact yet powerful solution for industrial automation, featuring high expandability for machine vision and motion control applications. With a wide operating temperature range and wide input power tolerance, it's built to thrive in harsh environments. Front-facing I/O ensures easy deployment and maintenance, while our rapid and localized configuration services accelerate time-to-market, enabling seamless integration into Industry 4.0 initiatives.



IPC-320 : Quiet and Compact Tower IPC

IPC-320 is a 7.7-liter size tower IPC which is perfect for space limited in-cabinet edge applications. Its compact size doesn't compromise on performance, offering low-noise operation at just 34dB acoustics even under 100% workload. This versatility extends its application scope beyond the laboratory and healthcare industries. Backed by Advantech's industrial-grade design, longevity support, strict product certification service, and revision management, as well as worldwide localized support, the IPC-320 stands as the reliable choice for operations control.

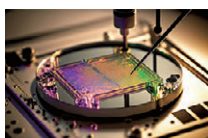
IPC-2 Series: Ultra-Compact System with Card Expansion

Designed to function as an intelligent edge device for manufacturing equipment, the latest IPC-220/240 is an ultra-compact modular system (155 x 231 x 150 mm/6.1" x 9.05" x 5.9" for IPC-220 and 195 x 231 x 150 mm/7.68" x 9.05" x 5.9" for IPC-240) equipped with 2/4 PCIe/PCI slots for integrating diverse add-ons, such as I/O cards, motion cards, vision cards, and GPU cards to support machine control and vision applications, or provide artificial intelligence for automated optical inspection (AOI) operations.

Target Applications



Fiber Optic Sensing



Legacy Semiconductor



Machine Vision System for Inspection



3D Vision-Guided Robots



High-Speed Adhesive Dispenser



Wafer Optical Inspection

ADVANTECH

Compact IPC IPC-200/300 Series





Easy Deployment
with Compact Design



High Performance
the Latest Intel CPU



Low Noise
IPC for Operator



Learn More: <https://www.advantech.com/en/intelligent-systems/industrial-computers/compact-ipc-2-series>

Ultra Compact IPCs

Ultra Compact Chassis



Model		IPC-220	IPC-240	IPC-242	IPC-320
Form Factor		Compact	Compact	Compact	Compact
Drive Bay	2.5"	2 x HDD/SSD (Max 15mm height)	2 x HDD/SSD (Max 15mm height)	2 x HDD/SSD (Max 15 mm height)	1 x 3.5" or 2 x 2.5" HDD/SSD (T:9.6 mm)
Cooling	No. of Fans	1	1	1	NA (Optional as 98R)
	CFM	82	82	46.62	-
	Air Filter	✓	✓	✓	NA (Optional as 98R)
Power Supply	AC	-	-	250 W Flex	250 W Flex
	DC	19 ~ 24 V _{DC} , 8 A ~ 6.5 A		-	-
	DC Output	5 V _{DC} and 12 V _{DC} , 2 A max		-	-
Backplane	System Power Consumption	150 W (without add-on card) ~ 230 W (with add-on card)		AC 250 W	AC 250 W
	PCIe x16	1	1	1	1
	PCIe x4	1	IPC-240-20B1: 3 IPC-240-21B2: 1	IPC-242-00A1: 3 IPC-242-01A1: 1	1
Mechanical	PCI	-	IPC-240-20B1: 0 IPC-240-21B2: 2	IPC-242-00A1: 0 IPC-242-01A1: 2	0
	Dimension (W x H x D) (6.1" x 5.9" x 9.05")	155 x 150 x 231 mm (6.1" x 5.9" x 9.05")	195 x 150 x 231 mm (7.68" x 5.9" x 9.05")	333 x 269.2 x 88 mm (13.11" x 10.55" x 3.46")	95 x 270 x 300 mm (3.74" x 10.63" x 11.81")
	Weight	3.1 kg	3.3 kg	4.2 kg	3.306 kg
Support MB		PCE-2032/PCE-2132/PCE-2033/PCE-2133			AIMB-308H-00A1

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/13th/14th 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 5600 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 x SATA 3.0	
	M.2	PCE-2033-00A1: 0 PCE-2133-00A1: 1 NVMe M.2 2280 PCIe Gen4 x4, M-Key	PCE-2032-00A1: 0 PCE-2132-00A1: 1 NVMe M.2 2280 PCIe Gen3 x4, M-Key
	mSATA	PCE-2033-00A1: 1 PCE-2133-00A1: 1 x SATA/mPCIe/USB	PCE-2032-00A1: 1 x SATA PCE-2132-00A1: 1 x SATA/mPCIe/USB
	RAID	0/1/5 (Q670E Only)	0/1/5 (Q470E Only)
	Ethernet Interface	2 x RJ-45	
Ethernet	Controller	Q670E: LAN1: Intel® I219LM, LAN2: Intel® I226V H610E: LAN1: Intel® I219V, LAN2: Intel® I226V	Q470E: LAN1: Intel® I219LM, LAN2: Intel® i210AT H420E: LAN1: Intel® I219V, LAN2: Intel® i210AT
	Display	VGA + HDMI	
Front I/O	LAN	2	
	USB	Q670E: 8 x USB 3.2, 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	1 x line-out and 1 x mic-in	
	Remote Power Switch	✓	
	Output	System reset	
Watchdog Timer	Interval	Programmable 1 ~ 255 sec/min	
	Support Chassis	IPC-220 / IPC-240 / IPC-242	

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

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Modular IPCs

Fanless Modular System Introduction

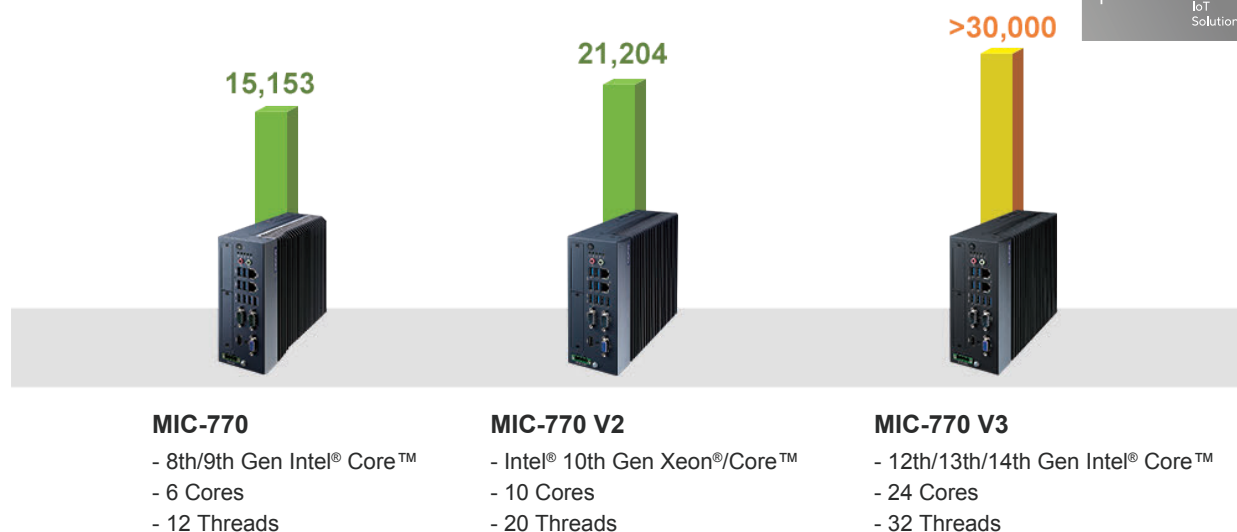
Be flexible, be invincible: fanless edge PCs for the industrial IoT era

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 gateway and industrial controller. 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

intel
partner Titanium
IoT
Solutions



Various expansion I/O for flexible communication



Innovative slot expansion for enhanced control



Flexible and Adaptable

Modular Fanless IPCs for
a New Era of Edge AI

[Learn More](#)



ADVANTECH



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
Form Factor		Compact	Compact	Compact
Processor System	Chipset	R680E/H610E	W480E/H420E	Q370/H310
	CPU	Intel® 12th/13th/14th Gen Core™ i LGA1700	Intel® 10th Gen Xeon®/Core™ i LGA1200	Intel® 8th/9th Gen Core™ i LGA1151
	Core	Max. 24	Max. 10	Max. 8
	Cache	Max. 30 MB	Max. 20 MB	Max. 12 MB
	Memory	Dual DDR5 4800 MHz SODIMM Max. 64GB	Dual DDR4 2933 MHz SODIMM Max. 64GB	Dual DDR4 2400/2666 MHz SODIMM Max. 64GB
Graphic	Graphics Controller	Intel® UHD 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
Expansion	PCIe x16	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)
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
	M.2	1 x NVMe M.2 2280 (PCIe Gen3 x4), M-Key	–	–
	mSATA	1	1	1
	CFast	–	–	–
	RAID	0/1/5/10 (R SKU only)	0/1/5/10 (W SKU only)	0/1/5/10 (Q SKU only)
Ethernet	Ethernet Interface	2 x RJ-45 10/100/1000 Mbps	2 x RJ-45 10/100/1000 Mbps	2 x RJ-45 10/100/1000 Mbps
	Controller	R680E: 2 x USB 3.2 (Gen2), 6 x USB 3.2 (Gen1), 1 x USB 2.0 (Internal) H610E: 4 x USB 3.2 (Gen1), 4 x USB 2.0	W480E: 2 x USB 3.2 (Gen2), 6 x USB 3.2 (Gen1) and 1 x internal USB 2.0 H420E: 4 x USB 3.2 (Gen1), 4 x USB 2.0	Q370: 2 x USB 3.1, 6 x USB 3.0 and 1 x internal USB 2.0 H310: 4 x USB 3.0 and 4 x USB 2.0
Front I/O	Display	VGA + HDMI	VGA + HDMI	VGA + HDMI
	LAN	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
	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)
	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	–	–	–
	Input Range	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}
	Remote Power Switch	△	△	△
Cooling	System Fan	–	–	–
	Air Filter	–	–	–
Mechanical	Dimension (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")
	Weight	2.9 kg	2.9 kg	2.9 kg

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

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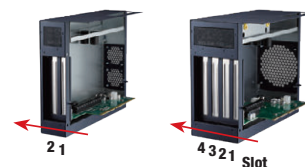
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Modular IPCs

i-Module Expansion Slot for MIC-7 Series



i-Module	 MIC-75M10	 MIC-75M11	 MIC-75M20	 MIC-75M20-01	 MIC-75M40-01	 MIC-75M40	 MIC-75M13
Slot 1	PCIe x16	PCIe x16	PCIe x4	PCIe x8	PCIe x4	PCIe x4	PCIe x16
Slot 2	–	PCI	PCIe x16	PCIe x8	PCIe x8	PCIe x8	PCI
Slot 3	–	–	–	–	PCIe x4	PCIe x4	PCI
Slot 4	–	–	–	–	–	PCIe x4	PCI
Slot 5	–	–	–	–	–	–	–
SATA Port	–	1					
SATA PWR	–	1					
2.5" HDD/SSD Bay	–	1*				2	
N.W. (kg)	0.64	0.87			1.16		
G.W. (kg)	1.71	2.02			2.47		
i-Module (W x H x D)	24 x 192 x 230 mm	50 x 192 x 230 mm			90 x 192 x 230 mm		
MIC-7000 + i-Module (W x H x D)	97 x 192 x 230 mm	123 x 192 x 230 mm			163 x 192 x 230 mm		
MIC-77X + i-Module (W x H x D)	101 x 192 x 230 mm	127 x 192 x 230 mm			167 x 192 x 230 mm		
System Fan	–	98R1752000E (Optional)**			98R1751300E (Optional)**		
12V _{DC} Conn	1						
12V _{DC} Conn. for GPU	–						
PCI/PCIe Card Max. Length (with system fan)	190.2 mm				184.75 mm		
PCI/PCIe Card Max. Length (without system fan)	210.4 mm						

* Need to order 98R1752010E (2.5" HDD/SSD kit for 2-slot i-Module)

** Suggested to add optional system fan if power consumption of add-on card is more than 45W for better thermal management.

Compatible Table

i-Modules	1-Slot	2-Slot				3-Slot	4-Slot	
MIC-7 System	MIC-75M10	MIC-75M11	MIC-75M20	MIC-75M20-01	MIC-75M40-01	MIC-75M40	MIC-75M13	
MIC-7700Q/ MIC-770V1Q MIC-770V2W	✓	✓	✓	✓	–	✓	✓	
MIC-7700H/ MIC-770V1H/ MIC-770V2H/ MIC-770V3H	✓	✓	✓	–	–	–	✓	
MIC-770V3W	✓	✓	✓	✓	✓	–	✓	

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

Modular IPCs

i-Module Expansion Slot for MIC-7 Series



i-Module	MIC-75S00	MIC-75S20	MIC-75G20	MIC-75G30	MIC-75GF10
Slot 1	–	PCIe x16	PCIe x16	–	–
Slot 2	–	PCIe x4	–	PCIe x16 (signal PCIe x8) for GPU card	PCIe x4
Slot 3	–	–	PCIe x4	–	PCIe x16 for MXM
Slot 4	–	–	–	PCIe x16 (signal PCIe x8) for GPU card	–
Slot 5	–	–	–	PCIe x4	–
SATA Port	–	1	1	1	1
SATA PWR	–	1	1	1	1
2.5" HDD/SSD Bay	2 x Swappable	2 x Swappable + 2 x Internal	2 x Swappable	2 x Swappable	2 x Swappable
N.W. (kg)	2	1.60	2.99	5	3
G.W. (kg)	3	2.98	4.79	7	5
i-Module (W x H x D)	27 x 192 x 230 mm	90 x 192 x 230 mm	130 x 192 x 385 mm	203 x 192 x 385 mm	113 x 192 x 230 mm
MIC-7000 + i-Module (W x H x D)	100 x 192 x 230 mm	163 x 192 x 230 mm	203 x 192 x 385 mm	276 x 192 x 385 mm	187 x 192 x 230 mm
MIC-77X + i-Module (W x H x D)	104 x 192 x 230 mm	167 x 192 x 230 mm	207 x 192 x 385 mm	280 x 192 x 385 mm	190 x 192 x 230 mm
System Fan	–	98R1751300E (Optional)**	Embedded	Embedded	–
12V _{DC} Conn	–	–	1	–	1
12V _{DC} Conn. for GPU	–	–	2	4	–
PCI/PCIe Card Max. Length (with system fan)	–	184.75 mm	310 mm	300 mm	–
PCI/PCIe Card Max. Length (without system fan)	–	210.4 mm	–	–	210.4 mm

* Need to order 98R1752010E (2.5" HDD/SSD kit for 2-slot i-Module)

** Suggested to add optional system fan if power consumption of add-on card is more than 45W for better thermal management.

Compatible Table

i-Modules	Featured				
MIC-7 System	MIC-75S00	MIC-75S20	MIC-75G20	MIC-75G30	MIC-75GF10
MIC-7700Q/ MIC-770V1Q MIC-770V2W	✓	✓	✓	✓	✓
MIC-7700H/ MIC-770V1H/ MIC-770V2H/ MIC-770V3H	✓	✓	✓	–	✓
MIC-770V3W	✓	✓	✓	✓	✓

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

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Modular IPCs

Flex I/O Expansion Kit for MIC-7 Series

Flex I/O series modules provide flexible expansion for the MIC-7 series so customers can enjoy display, control, and conduct 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 SwitchRegular Flex I/O
DVI

After Assembly

Advanced Flex I/O



Default MIC-770

Advanced Flex I/O
NVMe + 4 x LAN

After Assembly



Default MIC-770

Regular Flex I/O
DVIAdvanced Flex I/O
NVMe + 4 x LAN

After Assembly



Default MIC-770

Advanced Flex I/O
4 x PoE

After Assembly

Modular IPCs

Compatible Table

Flex I/O	Function	Part Number	MIC-7700		MIC-770 V1		MIC-770 V2		MIC-770 V3	
			MIC-7700Q	MIC-7700H	MIC-770Q	MIC-770H	MIC-770W	MIC-770H	MIC-770W	MIC-770H
Small FIO										
	Remote Switch	98R17500701	-	-	✓	✓	✓	✓	✓	✓
	GPIO Module (32-bit)	AIIS-DIO32-00A1E	✓	✓	✓	✓	✓	✓	✓	✓
Regular FIO										
	DVI	98R17500001	✓	✓	✓	✓	✓	✓	✓	✓
	HDMI & Remote Switch	98R17500101	✓	✓	✓	✓	✓	✓	✓	✓
	HDMI	98R17500301	✓	✓	✓	✓	✓	✓	✓	✓
	Remote Switch	98R17500401	✓	✓	✓	✓	✓	✓	✓	✓
	4 x COM RS-232	98R17500601	-	-	✓	✓	✓	✓	✓	✓
	Reset & Remote Switch (5VDC)	98R17500801	✓	✓	✓	✓	✓	✓	-	-
	Reset & Remote Switch (5VDC, SATA)	98R17500802	-	-	-	-	-	-	✓	✓
	16-bit GPIO	98R17500901	✓	✓	✓	✓	✓	✓	✓	✓
	DisplayPort	98R17501001	✓	✓	-	-	✓	✓	✓	✓
	Dual LAN	98R1790040E	✓	-	-	-	-	-	-	-
	TPM 2.0 Module (LPC)	PCA-TPM-00B1E	✓	✓	✓	✓	✓	✓	-	-
	TPM 2.0 Module (SPI)	PCA-TPMSPI-00A1	-	-	-	-	-	-	✓	✓
	2 x SSD Kit	98R1752020E	✓	-	✓	✓	✓	✓	✓	✓
Advanced FIO*										
	NVMe + 4 x LAN	98R10770301	-	-	✓	-	✓	-	✓	-
	NVMe	98R10770401	-	-	✓	-	✓	-	✓	-
	4 x PoE	98R10770501	-	-	✓	-	✓	-	✓	-

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

* H SKU does not support. Please refer to advanced flex I/O datasheet for more detail.

Note: For the additional display port (DVI/HDMI/DP), please refer to the MIC-7 series datasheet.

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Intelligent Inspection Systems



Model		AIIS-3411P	AIIS-3411U
Form Factor		Compact	Compact
Processor System	Chipset	H420E	H420E
	CPU	Intel® 10th Gen Core i CPU LGA1200	Intel® 10th Gen Core i CPU LGA1200
	Core	Max. 10	Max. 10
	Cache	Max. 20 MB	Max. 20 MB
	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 (8 cm / 57 CFM)	1 (8 cm / 57 CFM)
	Air Filter	–	–
Mechanical	Dimension (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	2.56 kg	2.56 kg

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

4-ch PWM Lighting Control Module



Model	AIIS-1882
Signal Interface	PCI Express
Connecting Type	Board to Board
Lighting Trigger	4 Channels
Trigger Input Voltage	Logic 0: 2V max.; Logic 1: 5V min. (24V max.)
Digital Input	12 Channels
Input Voltage	Logic 0: 3 V max.; Logic 1: 10 V min. (40 V max.)
Digital Output	16 Channels
Load Voltage	10~40 V _{DC}
Response Time	≈50μs
Output Type	Selectable Sink (NPN) or Source (PNP)
Isolation	2,500 V _{DC}
Compatible System	AIIS-3411

Intelligent Inspection Systems



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 Gen Core i CPU LGA1151	Intel® 6th/7th Gen Core i CPU LGA1151	Intel® 6th/7th Gen Core i CPU LGA1151	Intel® 6th/7th Gen 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	✓	✓	✓	✓
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 (6 cm / 27.7 CFM)	1 (6 cm / 27.7 CFM)	1 (8 cm / 57 CFM)	1 (8 cm / 57 CFM)
	Air Filter	–	–	–	–
Mechanical	Dimension (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

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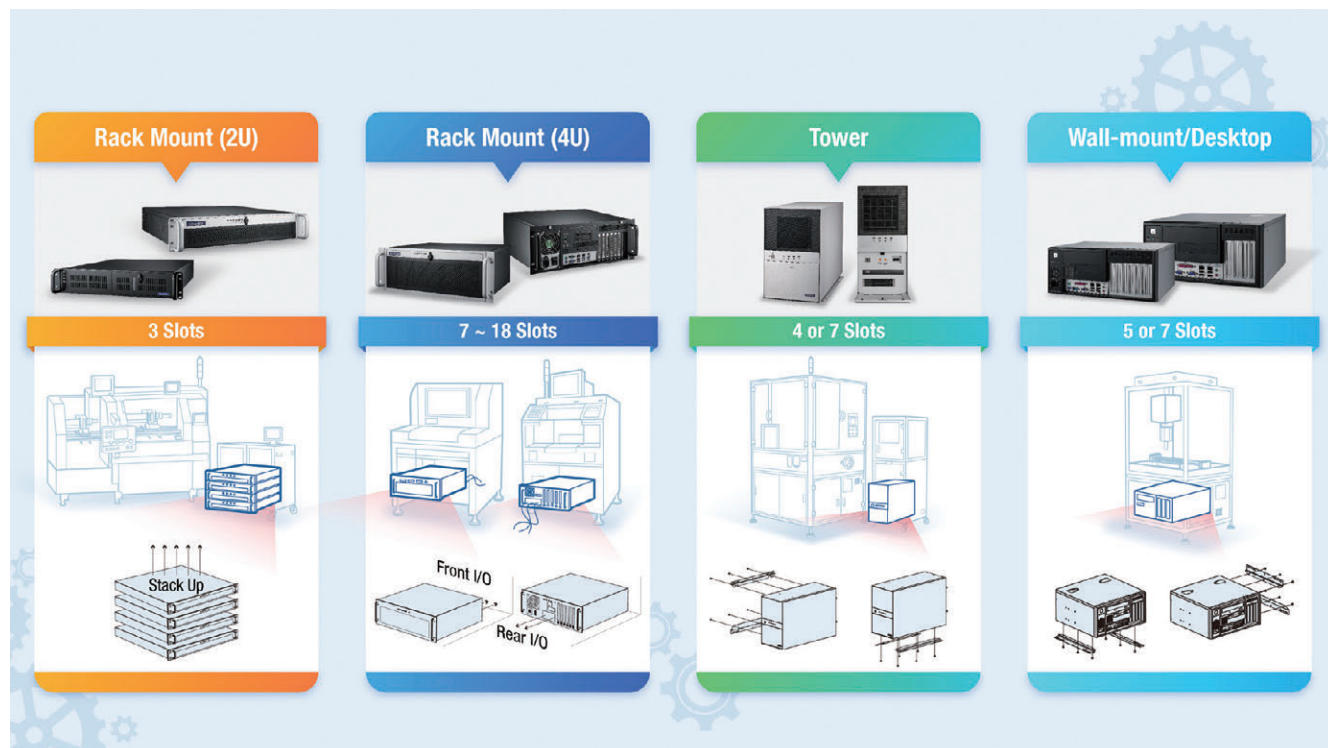
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Industrial Chassis

Comprehensive Portfolio with Diverse Form Factors for Flexible Deployment

Advantech offers a diverse range of industrial computer chassis, ranging from 2U to 4U rackmount and wall-mount options, supporting a variety of motherboard/SBC form factors such as ATX, MicroATX, PICMG 1.0/1.3, and full-size/half-size SBC. Our chassis are equipped with versatile power supplies, swappable accessories/storages, and advanced cooling systems. For top-tier performance, our high-end models feature built-in intelligent self-diagnosis modules for smart fan control and remote management via EdgeSync 360 hardware/software solutions.



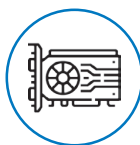
Versatile Functionality for Performance Demanding Applications



- Optimized power supply to withstand peak current of GPU card, enabling hybrid GPU/CPU computing.
- IPC-730 additional feature: Built-in industrial-grade ATX 3.0 850W/1200W PSU.



- Exceptional thermal solution to sustain performance & stability.
- IPC-730 additional feature: Dual rear system fans and dual optional auxiliary front system fans for extreme thermal dissipation efficiency



- Solid mechanism to fix GPU card for reliability.
- IPC-730 additional feature: supports powerful 450 W GPU Cards.

IPC-730



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	1	1	1	1	1
		Internal	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	250 W	250 W	350 W	300 W 500 W 700 W		300 W 500 W 700 W
	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



Model		IPC-5120 IPC-7120		IPC-6025	IPC-5122	IPC-7130 IPC-7130L		IPC-7220	IPC-730
Supported Form Factor		μATX	ATX/μATX	PICMG 1.0/1.3 FL SBC	μATX	ATX/μATX		ATX/μATX	ATX/μATX
Drive Bay	Slim ODD	–	–	–	1	–	–	–	–
	5.25"	1	–	–	–	1	1	2	–
	2.5"	–	–	–	–	–	–	–	2 + 2 Optional
	3.5"	Hot-Swap Tray	–	–	–	2	–	–	–
		External	1	1	1	–	2	1	–
		Internal	1	1	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 + 1	1	1	2
	CFM	82 + 11	51.5	82	82	82 + 27.72	82	82	79 x 2 + 23 x 2
Power Supply	AC Single	250W 350W	350 W	300 W 500 W 700 W	300 W 500 W 700 W	300 W 500 W 700 W	300 W 500 W 700 W	300 W 500 W 700 W	ATX 3.0 850 W ATX 3.0 1200 W
	AC Redundant	(Mechanical limit)	(Mechanical limit)	(Mechanical limit)	(Mechanical limit)	500 W	500 W	–	–
	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	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	200 x 320 x 480	365 x 206 x 450
	in	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	7.9 x 12.6 x 18.9	14.4 x 8.1 x 17.7
Weight	kg	6.5	7	4.7	6.5	12.8	14	14	9.2
	lb	14.4	15.5	10.3	14.3	28.2	30.8	30.8	20.3

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

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Serial/USB Communications

Industrial Chassis

Rackmount



Model		1U	2U					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	–	–
	5.25"	–	–	–	1	–	–	–	–	3
	2.5"	1 x 3.5" or 2 x 2.5"	–	–	–	–	2 x internal 2 x external (optional hot-swap module)	2 x external	2 x internal 2 x external (optional hot-swap module)	–
	3.5"	Hot-Swap Tray	–	–	–	2 (3.5" or 2.5")	–	–	–	–
		External	1	–	2	1	–	–	–	1
		Internal	1 x 3.5 or 2 x 2.5	1	–	2	–	–	–	–
Chassis I/O	USB 2.0	2	–	–	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	250 W 350 W	350 W	250 W 300 W 500 W	250 W 350 W	350 W	850 W	500 W 700 W	–	250 W 300 W 500 W 700 W
	AC Redundant	(Mechanical limit)	(Mechanical limit)	(Mechanical limit)	(Mechanical limit)	500 W	(Mechanical limit)	–	–	500 W
	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	
	in	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

Industrial Chassis

Rackmount



Model		4U															
		 IPC-610H		 IPC-610P		 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	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		3		2		2		–		–		2	
	2.5"	–		–		–		–		–		1 x internal		1 x internal		–	
	3.5"	Hot-Swap Tray	–		–		–		–		2		–		4		–
		External	1		1		1		1		1		2		–		1
		Internal	–		–		–		–		–		–		–		–
Chassis I/O	USB 2.0	2		2		2		4		2		–		–		–	
	USB 3.0	–		–		–		–		–		2		2		–	
	PS/2	1		–		1		–		–		–		–		–	
Cooling	No. of Fans	2		2		2		2		1 + 1		2		1 + 1		3	
	CFM	82/each		82/each		82/each		82/each		82 + 28		52 / each		82 + 52		150 / each	
Power Supply	AC Single	300 W 500 W 700 W		ATX 3.0 850 W ATX 3.0 1200 W		300 W 500 W 700 W		300 W 500 W 700 W		300 W 500 W 700 W		300 W 500 W 700 W	500 W	500 W 700 W	500 W	500 W 1200 W	
	AC Redundant	500 W		–		500 W		500 W		500 W		(Mechanical limit)		500 W	500 W	(Mechanical limit)	
	DC	–		–		–		–		–		(Mechanical limit)		–	–	(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 479		482 x 177 x 348		482 x 177 x 479		482 x 177 x 657	
	in	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 18.9		19 x 7 x 13.7		19 x 7 x 18.8		19 x 7 x 26	
Weight	kg	15		14.6		15.2		16.6		17.6		8.5		12.5		27.4	
	lb	33		32.2		33.5		36.5		38.7		18.7		27.5		60.41	

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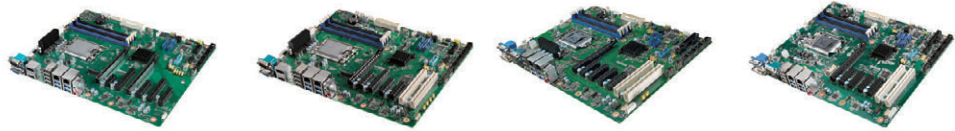
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Serial/USB Communications

Industrial Motherboards

ATX Motherboards

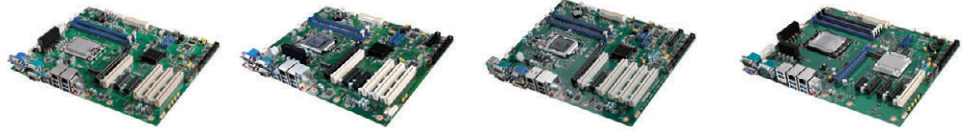


Model		AIMB-788E	AIMB-788	AIMB-787	AIMB-786
Processor System	CPU	Intel® 12th/13th/14th Gen Core™ i9/i7/i5/i3, Pentium®/Celeron®	12th Generation Intel® Core™ i9/i7/i5/i3, Pentium®/Celeron®	10th Generation Core™ i9/i7/i5/i3 & Pentium®/Celeron®	8th/9th Generation Core™ i7/i5/i3 & Pentium®/Celeron®
	Socket	LGA1700	LGA1700	LGA1200	LGA1151
	Max. Speed	3.9 GHz	3.6 GHz	3.8 GHz	3.7 GHz
	Cache	L3: up to 36 MB (depends on CPU)	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 Q670E	Intel Q470E	Intel Q370
	BIOS	AMI 256 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI
Expansion Slot	PCIe x16	2 (x8 link, Gen5, Gen4)	1 (Gen4)	1 (Gen3)	1 (Gen3)
	PCIe x8	2 (x4 link, Gen4, Gen3)	1 (x4 link, Gen3)	–	–
	PCIe x4	2 (Gen4, Gen3)	3 (Gen3)	4 (Gen3)	4 (Gen3)
	PCIe x1	1 (Gen4)	–	–	–
	PCI	–	2	2	2
Memory	Technology	Dual Channel DDR5 4400 MHz	Dual Channel DDR4 3200 MHz	Dual Channel DDR4 2400/2666/2933 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	192 GB	128 GB	128 GB	128 GB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel® UHD Graphics	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics
	VRAM	Shared system memory subject to OS	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	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 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	PCIe x4 M-Key 2280 type	–
SATA	Max. Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	4 (SW RAID)	4 (SW RAID)	4 (SW RAID)	5 (SW RAID)
I/O Interface	VGA	1	1	1	1
	DVI	–	–	1	1
	DP	1	1	1	1
	HDMI	1	1	–	–
	USB	13 (6 USB 3.2 and 7 USB 2.0)	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	6
	PS/2	–	–	Optional	Optional
	Ethernet (GbE)	2	2	2	2
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable, 1-255 Sec	Programmable, 1-255 Sec	Programmable, 1-255 Sec	Programmable, 1 ~ 255 sec

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

Industrial Motherboards

ATX Motherboards



Model		AIMB-708	AIMB-707	AIMB-706	AIMB-723
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®	AMD Ryzen™ Embedded 7000
	Socket	LGA1700	LGA1200	LGA1151	LGA1718
	Max. Speed	3.6 GHz	3.8 GHz	3.7 GHz	4.7 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)	L3: up to 64 MB (depends on CPU)
	Chipset	Intel H610E	Intel H420E	Intel H310	AMD B650
	BIOS	AMI 256 Mbit SPI	AMI 128 Mbit SPI	AMI 128 Mbit SPI	AMI 256 Mbit SPI
Expansion Slot	PCIe x16	1 (Gen4)	1 (Gen3)	1 (Gen3)	1 (Gen4)
	PCIe x8	–	–	–	–
	PCIe x4	2 (Gen3)	2 (x 1 link, Gen3)	1 (Gen2)	1 (x2 link, Gen4) 2 (Gen4)
	PCIe x1	–	–	–	1 (Gen3)
	PCI	4	4	5	1
Memory	Technology	Dual Channel DDR4 3200 MHz	Dual Channel DDR4 2400/2666/2933 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR5 5200 MHz
	Max. Capacity	64 GB	64 GB	64 GB	128 GB
	Socket	2 x 288-pin DIMM	2 x 288-pin DIMM	2 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	AMD Radeon™ Graphics
	VRAM	Shared system memory subject to OS	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	10/100/1000/2500 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)	GbE LAN1: Intel I226-V; GbE LAN2: Intel I226-V
M.2	Slot	PCIe x2 M-Key 2280 type (G2 only)	PCIe x2 M-Key 2280 type (G2 only)	–	PCIe x2 M-Key 2280 type
SATA	Max. Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	4	4	4	4
I/O Interface	VGA	1	1	1	1
	DVI	–	1 (G2 only)	1 (G2 only)	–
	DP	–	–	–	1
	HDMI	1 (G2 only)	–	–	1
	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)	11 (8 USB 3.2 and 3 USB 2.0)
	Serial	G2: 6 VG: 2	G2: 6 VG: 2	G2: 6 VG: 2	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	2
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable, 1-255 Sec	Programmable, 1-255 Sec	Programmable, 1 ~ 255 sec	Programmable, 1-255 Sec

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

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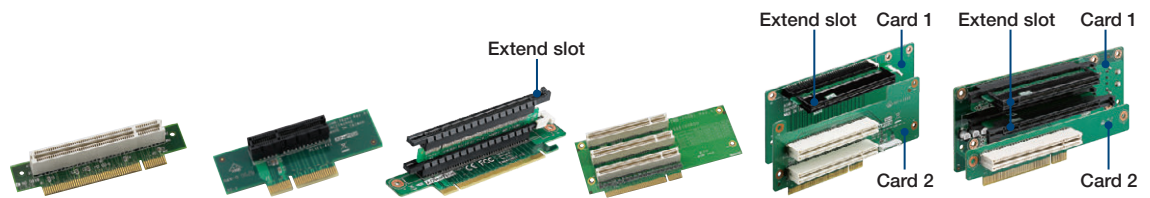
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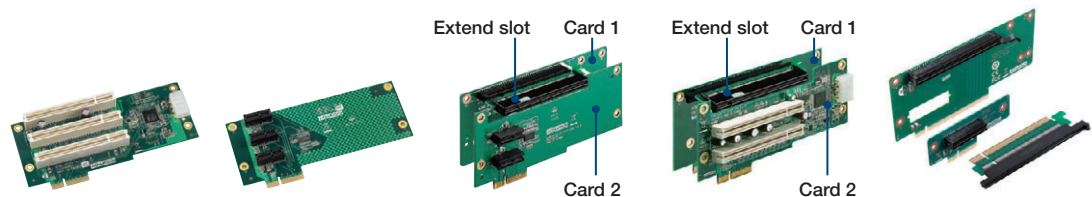
Serial/USB Communications

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 x16	PCI	PCIe x16/PCI	PCIe x16/PCI
Expansion Slots		1 x PCI	1 x PCIe x4	1 x PCIe x16	3 x PCI	1 x PCIe x16 + 2 x PCI	2 x PCIe x8 + 1 x PCI
Chassis	1U	✓	✓	✓	–	–	–
	2U	–	–	–	✓	✓	✓
ATX	AIMB-788	–	–	–	–	–	–
	AIMB-787	–	–	–	–	–	–
	AIMB-786	–	–	–	–	–	–
	AIMB-785	–	✓	✓	–	–	–
	AIMB-708	✓	–	✓	✓	✓	–
	AIMB-707	✓	–	✓	✓	✓	–
	AIMB-706	✓	–	✓	✓	✓	–
	AIMB-705	✓	–	✓	✓	✓	–



Model		AIMB-R430P-03A3E	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 x PCI	3 x PCIe x1	1 x PCIe x16 + 2 x PCIe x1	1 x PCIe x16 + 2 x 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 x16 and PCIe x1 (bottom slot) connectors work.
△: Only one PCIe x1 connector works (top slot).

Slot SBCs & Passive Backplanes

PICMG 1.3 Full-Size Single Board Computers



Model		LGA1700 PICMG 1.3 SHB PCE-5033	LGA1700 PICMG 1.3 SHB PCE-5133
Processor System	CPU	14th/13th/12th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® LGA1700 socket processor	14th/13th/12th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® LGA1700 socket processor
	Max. Speed	3.6 GHz	3.6 GHz
	Cache	Up to 36 MB (depends on CPU)	Up to 36 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 (32-bit/33/66 MHz)	4	4
Memory	Technology	Dual-channel (non-ECC) U-DIMM DDR5 5600 MHz	Dual-channel (non-ECC/ ECC) U-DIMM DDR5 5600 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® UHD Graphics	Chipset integrated with Intel® UHD 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/1000M/2500Mbps	10M/100M/1000M/2500Mbps
	LAN1/LAN2 Controller	LAN 1: Intel® I226-V LAN 2: Intel® I226-V	LAN 1: Intel® I226-LM LAN 2: Intel® I226-LM
	Connector	2 x RJ-45	2 x RJ-45
	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
	USB 2.0	1	1
	USB 3.2	2	2
	PS/2	0	0
	Serial	0	0
	Internal I/O	5 (USB Type-A * 1 + 4 on backplane)	5 (USB Type-A * 1 + 4 on backplane)
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
Watchdog Timer	OBS(Onboard Security Hardware Monitor)	✓	✓
	Output	System reset	System reset
	Interval	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min
Miscellaneous	Advantech Audio Module	PCA-AUDIO-HDB1E	PCA-AUDIO-HDB1E
	Advantech SAB-2000	–	✓
	AMT	–	✓

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

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PICMG 1.3 Full-Size Single Board Computers



Model		LGA1200 PICMG 1.3 SHB PCE-5032	LGA1200 PICMG 1.3 SHB PCE-5132	LGA1200 PICMG 1.3 SHB PCE-7132
Processor System	CPU	LGA1200 10th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® Processors	LGA1200 10th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® Processors	LGA1200 10th Gen Intel® Xeon® and 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
Backplane Bus	BIOS	AMI 128 Mbit SPI	AMI 256 Mbit SPI	AMI 256 Mbit SPI
	PCIe	1 x16, 1 x4	1 x16, 1 x4	1 x16 or 2 x8, 1 x4
	PCI (32-bit/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® I210-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT	LAN 1: Intel® I219-LM LAN 2: Intel® I210-AT
	Connector	2 x RJ-45	2 x RJ-45	2 x RJ-45
	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
	USB 2.0	1	1	1
	USB 3.2	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	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 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 & Passive Backplanes

PICMG 1.3 Full-Size Single Board Computers



Model		LGA1151 PICMG 1.3 SHB PCE-5031	LGA1151 PICMG 1.3 SHB PCE-5131	LGA1151 PICMG 1.3 SHB PCE-7131
Processor System	CPU	LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processors	LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processors	LGA1151 9th/8th Gen Intel® Xeon® and Core™ i7/i5/i3/Pentium® Processors
	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 (32-bit/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	2 x RJ-45	2 x RJ-45	2 x RJ-45
	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
	USB 2.0	0	0	0
	USB 3.2	1	1	1
	PS/2	1	1	1
	Serial	0	0	0
Internal I/O	USB 2.0	7 x USB 2.0 (2 x pin header, 1 x USB Type-A, 4 x on backplane)	7 x USB 2.0 (2 x pin header, 1 x USB Type-A, 4 x on backplane)	7 x USB 2.0 (2 x pin header, 1 x USB Type-A, 4 x 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	Programmable, 1~255 sec/min	Programmable, 1~255 sec/min	Programmable, 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

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Serial/USB Communications

Slot SBCs & 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	LGA1200 10th Gen Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® Processors	LGA1200 10th Gen Intel® Xeon® and Core™ i9/i7/i5/i3 Processors	LGA1151 7th/6th Gen Intel® Core™ i7/i5/i3/Pentium® Processors	LGA1151 7th/6th Gen Intel® Xeon® and Core™ i7/i5/i3 Processors
	Speed	Up to 3.8 GHz	Up to 3.5 GHz	Up to 3.7 GHz	Up to 3.8 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® I210-AT LAN 2: Intel® I210-AT	LAN 1: Intel® I210-AT LAN 2: Intel® I210-AT	LAN1: Intel® I219-V LAN2: Intel® I210-AT	LAN1: Intel® I219-LM LAN2: Intel® I210-AT
	Connector	2 x RJ-45	2 x RJ-45	2 x RJ-45	2 x RJ-45
	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 x USB 3.2, 6 x USB 2.0	6 x USB 3.2, 7 x USB 2.0	3 x USB 3.2, 7 x USB 2.0	3 x USB 3.2, 7 x USB 2.0
	mSATA	0	0	1	1
	Serial	2 x RS-232 Optional: 4 x RS-422/485 w/ auto-flow or 4 x RS-232 by COM module	2 x RS-232 Optional: 4 x RS-422/485 w/ auto-flow or 4 x RS-232 by COM module	2 x RS-232 Optional: 4 x RS-422/485 w/ auto-flow or 4 x RS-232 by COM module	2 x RS-232 Optional: 4 x 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

Slot SBCs & Passive Backplanes

PICMG 1.0 Single Board Computers



Model		PICMG 1.0 Full-Size SBC PCA-6029	PICMG 1.0 Half-Size SBC PCI-7032
Processor System	CPU	LGA1151 7th/6th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processors	Intel® Celeron® J1900/N2930 Processors
	Max. Speed	3.9 GHz	2.0 GHz
	Cache	Up to 8MB	Up to 2MB
	Chipset	Intel H110	–
	BIOS	AMI 128Mbit SPI Flash	AMI 64Mb SPI Flash
Bus	PCI	32-bit/33MHz PCI	32-bit/33MHz 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	LAN1: Intel® I210-AT LAN2: Intel® I210-AT (G2)
	Connector	2 x RJ-45	2 x RJ-45
	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	1 x DDR3 204-pin SO-DIMM VG, 2 x G2
SATA	Max. Data Transfer Rate	600 MB/s	300 MB/s (SATA2.0)
	Channel	4	2
	RAID	–	–
I/O Interface	USB	1 x USB 3.2, 7 x 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

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Serial/USB Communications

Slot SBCs & Passive Backplanes

PICMG1.3 Full-Size SBC Backplanes

Category	Part Number	Wallmount/Desktop Chassis					Rackmount Chassis								
		IPC-6025	IPC-6606	IPC-6806	IPC-6806W	IPC-6608	ACP-2000	IPC-510	IPC-610	IPC-611	ACP-4000	ACP-4010	ACP-4320	ACP-4340	IPC-623
		5-slot	6-slot	6-slot	6-slot	8-slot	3 slot/2U	14 slot / 4U							20 slot/4U
5 Slot BP	PCE-5B05-02A1E	✓	–	–	–	–	–	–	–	–	–	–	–	–	–
6 Slot BP	PCE-5B06-00A1E	–	✓	–	✓	–	–	–	–	–	–	–	–	–	–
	PCE-5B06-03A1E	–	✓	–	✓	–	–	–	–	–	–	–	–	–	–
	PCE-5B06-04A1E	–	✓	–	✓	–	–	–	–	–	–	–	–	–	–
	PCE-5B06V-00A1E	–	–	–	–	–	✓	–	–	–	–	–	–	–	–
	PCE-5B06V-04A1E	–	–	–	–	–	✓	–	–	–	–	–	–	–	–
8 Slot BP	PCE-5B07-04A1E	–	–	–	–	✓	–	–	–	–	–	–	–	–	–
	PCE-5B08-02A1E	–	–	–	–	✓	–	–	–	–	–	–	–	–	–
	PCE-7B08-04A1E	–	–	–	–	✓	–	–	–	–	–	–	–	–	–
14 Slot BP	PCE-5B12-07A1E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B12-07A2E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-7B13-07A1E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-7B13-07A2E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B10-04A1E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B12-0AA1	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-7B13-0AA1	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B13-03A1E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
	PCE-5B13-08A2E	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–
19 Slot BP	PCE-5B18-88B1E	–	–	–	–	–	–	–	–	–	–	–	–	–	✓
	PCE-7B19-88B1E	–	–	–	–	–	–	–	–	–	–	–	–	–	✓
	PCE-5B18-0EA1	–	–	–	–	–	–	–	–	–	–	–	–	–	✓
	PCE-7B19-0EA1	–	–	–	–	–	–	–	–	–	–	–	–	–	✓

Category	Part Number	PCIe				PCI-X			PCI
		x16	x8	x4	x1	64/66	64/100	64/133	32/33
5 Slot BP	PCE-5B05-02A1E	1	–	1	–	–	–	–	2
6 Slot BP	PCE-5B06-00A1E	1	–	–	4	–	–	–	–
	PCE-5B06-03A1E	1	–	1	–	–	–	–	3
	PCE-5B06-04A1E	1	–	–	–	–	–	–	4
	PCE-5B06V-00A1E	1	–	–	4	–	–	–	–
	PCE-5B06V-04A1E	1	–	–	–	–	–	–	4
8 Slot BP	PCE-5B07-04A1E	1	–	1	–	–	–	–	4
	PCE-5B08-02A1E	1	–	–	4	–	–	–	2
	PCE-7B08-04A1E	–	2	1	–	–	–	–	4
14 Slot BP	PCE-5B12-07A1E	1	–	3	–	–	–	–	7
	PCE-5B12-07A2E	1	–	3	–	–	–	–	7
	PCE-7B13-07A1E	–	2	3	–	–	–	–	7
	PCE-7B13-07A2E	–	2	3	–	–	–	–	7
	PCE-5B10-04A1E	1	–	–	4	–	–	–	4
	PCE-5B12-0AA1	1	–	–	–	–	–	–	10
	PCE-7B13-0AA1	–	2	–	–	–	–	–	10
	PCE-5B13-03A1E	1	–	8	–	–	–	–	3
	PCE-5B13-08A2E	1	–	–	3	–	–	–	8
19 Slot BP	PCE-5B18-88B1E	1	–	–	–	8	–	–	8
	PCE-7B19-88B1E	–	2	2	–	–	8	–	8
	PCE-5B18-0EA1	1	–	2	–	–	–	–	14
	PCE-7B19-0EA1	–	2	2	–	–	–	–	14

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

Slot SBCs & Passive Backplanes

PICMG1.0 Full-Size SBC Backplanes

Category	Part Number	Slot Per Segment			2U Chassis	4U Chassis			
		PCI	ISA	ISA/PCI	ACP-2000	ACP-4000	ACP-4010	ACP-4320	ACP-4340
					3 slot	14 slot	14 slot	14 slot	14 slot
6/8 Slot BP	PCA-6106P4-0A2E	4	1	–	–	–	✓	–	–
	PCA-6106P3-0D2E	2	2	1	–	–	–	–	–
	PCA-6108P6-0C1E	5	1	1	–	–	–	–	–
	PCA-6108P4-0C2E	3	3	1	–	–	–	–	–
14/15 Slot BP	PCA-6114P12-0B3E	11	1	1	–	✓	✓	✓	✓
	PCA-6114P10-0B2E	10	2	–	–	✓	✓	✓	✓
	PCA-6114P7-0E1E	7	6	–	–	✓	✓	✓	✓
	PCA-6114P4-0C2E	4	8	–	–	✓	✓	✓	✓
	PCA-6113P4R-0C2E	4	7	–	–	✓	✓	✓	✓
20 Slot BP	PCA-6120P18-0A2E	17	1	1	–	–	–	–	–
	PCA-6120P12-0A3E	11	7	1	–	–	–	–	–

Category	Part Number	4U Chassis				Wallmount/Desktop Chassis				Cage
		IPC-510	IPC-610	IPC-611	IPC-623	IPC-6608	IPC-6606	IPC-6806/ IPC-6806W	IPC-6025	IPC-6006
		14 slot	14 slot	14 slot	20 slot	8 slot	6 slot	6 slot	5 slot	6 slot
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	✓	✓	✓	–	–	–	–	–	–
20 Slot BP	PCA-6120P18-0A2E	–	–	–	✓	–	–	–	–	–
	PCA-6120P12-0A3E	–	–	–	✓	–	–	–	–	–

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

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Remote I/O, Wireless I/O & Sensors

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Slot SBCs & Passive Backplanes

Backplanes Compatible with Half-Size SBCs

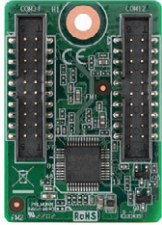
Interface	Category	Part Number	PCIe				PCI
			x16	x8	x4	x1	32/33
PICMG1.3 Half-Size BP	6 Slot	PCE-3B06-00A1E	1	–	–	4	–
	6 Slot	PCE-3B06-02A1E	1	–	–	2	2
	6 Slot	PCE-3B06-03A1E	1	–	–	1	3
	14 Slot	PCE-3B12-08A1E	1	–	–	2	8
	14 Slot	PCE-4B13-00A1E	–	1	11	–	–
PICMG1.0 Half-Size BP	4 Slot	PCA-6104P4-0B2E	–	–	–	–	4
	6 Slot	PCA-6105P5-0B2E	–	–	–	–	5

Interface	Category	Part Number	Rackmount Chassis	Wallmount/Desktop Chassis		
			ACP-4020	IPC-3012	IPC-6806S	IPC-6606S
			14 slot / 4U	3 slot	6 slot	6 slot
PICMG1.3 Half-Size BP	6 Slot	PCE-3B06-00A1E	–	–	✓	–
	6 Slot	PCE-3B06-02A1E	–	–	✓	–
	6 Slot	PCE-3B06-03A1E	–	–	✓	–
	14 Slot	PCE-3B12-08A1E	✓	–	–	–
	14 Slot	PCE-4B13-00A1E	✓	–	–	–
PICMG1.0 Half-Size BP	4 Slot	PCA-6104P4-0B2E	–	–	–	–
	6 Slot	PCA-6105P5-0B2E	–	–	✓	✓

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

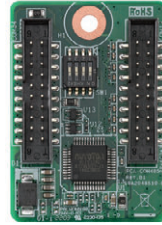
Slot SBCs & Passive Backplanes

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 in)
- Support Model: PCE-5033/5133



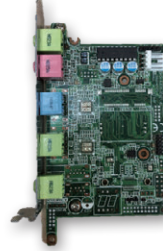
PCA-COM485-ESPA1

- 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 in)
- Support Model: PCE-5033/5133



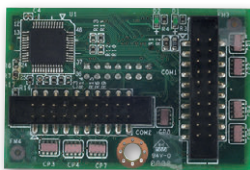
PCA-TPMSPI-00A1

- 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 in)
- Support Model: PCE-5033/5133, AIMB-788/723/708



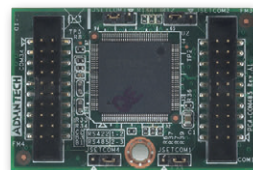
PCA-AUDIO-HDB1E

- 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 x 4.92 in)
- Support Model: PCE-5029/5031/5032/5033/5129/5131/5132/ 5133/7129/7131/7132/7133; PCE-3029/3032/4129/4132



PCA-COM232-00A2

- 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 in)
- Support Model: PCE-5029/5031/5032/5129/5131/5132/7129/7131/7132; PCE-3029/3032/4129/4132; AIMB-705/706/707, 785/786/787 (BIOS customization is required)



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 in)
- Support Model: PCE-5029/5031/5032/5129/5131/5132/7129/7131/7132; PCE-3029/3032/4129/4132; AIMB-707, 706/785/786/787 (BIOS customization is required)



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 in)
- Support Model: PCE-5029/5031/5032/5033/5129/5131/5132/5133/7129/7131/7132; PCE-3029/3032/4129/4132; PCA-6029



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 in)
- Support Model: PCE-5029/5031/5032/5033/5129/5131/5132/5133/7129/7131/7132; PCE-3029/3032/4129/4132; AIMB-705/706/707/785/786/787

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CPU Coolers



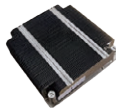
	1970005436T001	1970005349T000	1970005354T001	1970005380T001	1970005786N001	1960052651N021
Thermal Dispatch Performance	LGA1700 125W	LGA1700 65W	LGA1700 65W	LGA1700 65W	LGA1718 105W	Intel LGA1151/1200 95W
Fan	6 cm/38.8 CFM 6800±10% RPM	9.5 cm/57.7 CFM 4500±10% RPM	9.5 cm/57.7 CFM 4500±10% RPM	10 cm/33.5 CFM 4600±10% RPM	9.2 cm/109.3 CFM 5300±10% RPM	6 cm/28.78 CFM 5800±10% RPM
Heatsink Material	Aluminum & Copper	Aluminum & Copper	Aluminum	Aluminum	Aluminum	Aluminum
Heatsink Dimension	90 x 90 x 67.2 mm (3.5" x 3.5" x 2.6")	90 x 90 x 25 mm (3.5" x 3.5" x 1")	90 x 90 x 15 mm (3.5" x 3.5" x 0.6")	90 x 90 x 26 mm (3.5" x 3.5" x 1.0")	125 x 95 x 65.5 mm (4.9" x 3.7" x 2.6")	90 x 88 x 65 mm (3.5" x 3.5" x 2.6")
Dimension	90 x 90 x 69 mm (3.5" x 3.5" x 2.7")	90 x 90 x 55.4 mm (3.5" x 3.5" x 2.2")	90 x 90 x 45.4 mm (3.5" x 3.5" x 1.8")	101.6 x 99.2 x 61 mm (4" x 3.9" x 2.4")	125 x 95 x 118.5 mm (4.9" x 3.7" x 4.7")	90 x 90 x 68 mm (3.5" x 3.5" x 2.7")
Weight	445 g	368 g	235 g	391 g	634 g	417 g
Minimum Chassis Height	2U	2U	1.5U	2U	4U	2U
Recommended Chassis	Motherboard/ backplane version of chassis	Motherboard/ backplane version of chassis	IPC-220/240	IPC-320	Motherboard version of chassis	Motherboard/ backplane version of chassis
Supported Boards	AIMB-708/788; PCE-5033/5133 AIMB-308 ASMB-588/788	AIMB-708/788; PCE-5033/5133 ASMB-588/788	PCE-2033/2133	AIMB-308	AIMB-723	AIMB-705/706/707 AIMB-785/786/787 PCE-5029/5129/7129 PCE-5031/5131/7131 PCE-5032/5132/7132 ASMB-585/586/587 ASMB-785/786/787



	1960047669N001	1960050255N001	1960053207N001	1970004537N001	1960049408N001
Thermal Dispatch Performance	Intel LGA1151/1200 95W	Intel LGA1151/1200 95W	Intel® LGA1151/1200 65 W	Intel® LGA1151/1200 55W	Intel LGA1151/1200
Fan	9.5cm /57.7 CFM 4500±10% RPM	7 cm/39.45 CFM 5400±10% RPM	9 cm/45.09 CFM 4400±10% RPM	7.5 cm/11.83 CFM 5500±10% RPM	—
Heatsink Material	Aluminum & Copper	Copper	Aluminum & Copper	Copper	Copper
Heatsink Dimension	90 x 90 x 35 mm (3.5" x 3.5" x 1.4")	83 x 83 x 40 mm (3.3" x 3.3" x 1.6")	90 x 90 x 19.1 mm (3.5" x 3.5" x 0.8")	84 x 84 x 13 mm (3.3" x 3.3" x 0.5")	85 x 85 x 26 mm (3.3" x 3.3" x 1.0")
Dimension	120 x 120 x 69.4 mm (4.7" x 4.7" x 2.7")	83 x 83 x 56.5 mm (3.3" x 3.3" x 2.2")	120 x 120 x 46 mm (4.7" x 4.7" x 1.8")	84 x 84 x 28 mm (3.3" x 3.3" x 1.1")	87 x 90 x 27.8 mm (3.4" x 3.5" x 1.1")
Weight	500 g	619 g	250 g	375 g	611 g
Minimum Chassis Height	4U	2U	1.5U	1U	1U
Recommended Chassis	Motherboard version of chassis	Backplane version of chassis	IPC-220/240	—	ACP-1010 HPC-7140/7180
Supported Boards	AIMB-705/706/707 AIMB-785/786/787	PCE-5029/5129/7129 PCE-5031/5131/7131 PCE-5032/5132/7132 PCE-3029/4129 PCE-3032/4132	PCE-3029/3032 PCE-4129/4132 AIMB-786/706	PCE-3029/4129 PCE-3032/4132	AIMB-705/706/707 AIMB-785/786/787 ASMB-585/586/587 ASMB-785/786/787 ASMB-610/610V3

✓: supported, —: not supported, △: optional

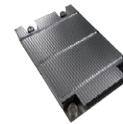
Industrial Computer Peripherals



PN	1970005531T001	1960067860N001	1970005933N001	1970005860N000
Thermal Dispatch Performance	LGA1700 65W	LGA1151/1200 125W	LGA4677/4710 385W	LGA4677/4710 270W
Fan	–	6 cm/50.4 CFM 9000 ± 10% RPM	8 cm/56.1 CFM 5500 ± 10% RPM	6 cm/50.6 CFM 10000 ± 10% RPM
Heatsink Material	Copper stack fin & VC base	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe
Dimensions	90 x 90 x 28 mm (3.54" x 3.54" x 1.1")	88.9 x 89.7 x 64.2 mm (3.5" x 3.49" x 2.53")	118 x 83.2 x 109 mm (4.65" x 3.28" x 4.29")	118 x 78 x 64 mm (4.65" x 3.07" x 2.52")
Weight	386g	393g	625g	452g
Minimum Chassis Height	1U	2U	3U	2U
Supported Boards	ASMB-588/610V3	ASMB-587/787	ASMB-817/927/977/ 807/622V3	ASMB-817/927/977/ 807/622V3



PN	1970005575T001	1970004902T000	1970004565N001	1960081603N101	1960088272T001
Thermal Dispatch Performance	LGA4677/4710 185W	LGA4189 205W	LGA4189 105W	LGA3647 205W	LGA3647 150W
Fan	–	6 cm/43.08 CFM 8400 ± 10% RPM	–	6 cm/63.3 CFM 12000 ± 10% RPM	6 cm/50.4 CFM 9000 ± 10% RPM
Heatsink Material	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin
Dimensions	118 x 78 x 24.7 mm (4.65" x 3.07" x 0.97")	183 x 132 x 86 mm (7.36" x 5.35" x 3.54")	130 x 100 x 47 mm (5.12" x 3.07" x 1.85")	138 x 115 x 85 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")
Weight	250g	470g	255g	464g	250g
Minimum Chassis Height	1U	2U	1U	2U	2U
Supported Boards	ASMB-817/927	ASMB-816/976/622	ASMB-816	ASMB-815/925/935/975	ASMB-815/825/925/935/ 975



PN	1970005676N001	1970004817N001	1970004815N001
Thermal Dispatch Performance	LGA6096 210W	LGA4094 225W	LGA4094 180W
Fan	6 cm/58.31 CFM 11000 ± 10% RPM	6 cm/50.4 CFM 9000 ± 10% RPM	–
Heatsink Material	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & copper block with heatpipe	Aluminum stack fin & CU block with heatpipe
Dimensions	118 x 92.4 x 65 mm (4.65" x 3.64" x 2.56")	120 x 80 x 64 mm (4.72" x 3.15" x 2.52")	120 80 24.5 mm (4.72" x 3.15" x 0.96")
Weight	510g	480g	254g
Minimum Chassis Height	2U	2U	1U
Supported Boards	ASMB-831 (AMD)	ASMB-830 (AMD)	ASMB-830 (AMD)

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

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Slide Rails



For 2U and higher rackmount chassis

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

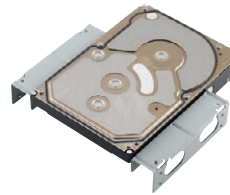
Industrial Disk Trays/Bays



IPC-DT-5121

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 (5.84" x 1.67" x 6.73")



989K008733

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

- Accepted Device: 3.5" HDD x 1



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 (4" x 1" x 5.47")



989K008734

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

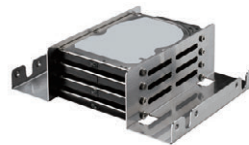
- Accepted Device: 2 x 2.5" SATA HDD/SSD (only for HDD thickness less than 9.6 mm)



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



98R1BT0S000

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

- Accepted Device : 24 x .5" SATA HDD/SSD (device thickness less than 9.6mm); or 2 x 2.5" SATA HDD/SSD (device thickness less than 15 mm)



IPC-DT-5230E

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

- Accepted Device: 1 x 3.5" device, 1 x slim ODD
- Cooling Fan: 1 x 8 cm
- Dimensions (W x H x D): 146.5 x 86 x 225 mm (5.76" x 3.38" x 8.85")



96RACK-5SS-CAGE-CR

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

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

Add-on Card Hold Down Kits



98RKBT0S09E

Add-on card hold down kit (short)

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



98RKBT0S10E

Add-on card hold down kit (long)

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

Industrial Computer Peripherals

USB Cables



Part Number	1700008461	1700002204	1700014398	1700028292-01
Description	USB 2.0 cable with 4 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")	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	1700008762
Description	COM cable with 2 ports	COM cable with 1 port	COM cable with 2 ports
Cable Length	28.5 cm (11.22")	40 cm (15.75")	22.5 cm (8.86")
Remark	For ATX/Micro-ATX MB, full-sized SBC		For half-sized SBC

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Video Cables



Part Number	PCE-DP20-00A1	PCE-DP10-00A1E	1700021831-01	1700034454-01
Description	DisplayPort cable with two ports	DisplayPort cable with one port	DP to DVI port cable	HDMI cable
Cable Length	25cm (9.84")	25 cm (9.84")	30 cm (11.81")	30 cm (11.81")
Remark	Video cable for converting on board DP connector to external DP port supporting DP 1.1a/1.2 signaling For full-sized SBC	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	Video cable for converting on board DP connector to external HDMI port For full/half-sized SBC

Remote On/Off Control Cables



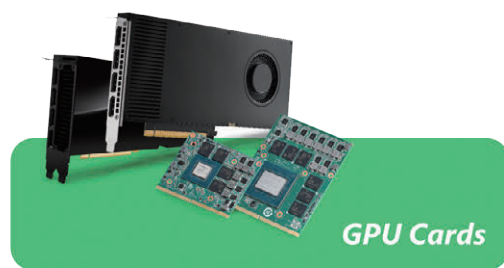
Part Number	98R1RTSWF00	98R1RTSWH00
Description	Remote switch connector with full-height bracket. (A 2-pin phenix connector for remote switch receiver)	Remote switch connector with half-height bracket. (A 2-pin phenix connector for remote switch receiver)
Cable Length	60 cm (23.62")	60 cm (23.62")

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-pin 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 GPU Solutions



+



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Delivers a wide range of Industrial GPU Solutions with early authorized access and exclusive technical support.



RTX GPU Cards in Industrial

Comprehensive offerings for image processing and Edge AI acceleration in manufacturing, transportation, and medical industries.



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NVIDIA-qualified and certified systems ensure hardware stability and software compatibility.

Edge AI Computing IPC



IPC-730



ACP-4340



MIC-770 V3+MIC-75G20



MIC-770 V3+MIC-75GF10



ITA-3650G

NVIDIA MXM GPU Cards

SKY-MXM-5000A
SKY-MXM-5000A-6SDASKY-MXM-3500A
SKY-MXM-3500A-2SDASKY-MXM-2000A
SKY-MXM-2000A-8SDASKY-MXM-A4500
SKY-MXM-A4500-6SDASKY-MXM-A2000
SKY-MXM-A2000-8SDASKY-MXM-A500
KY-MXM-A500-4SHASKY-MXM-A1000
SKY-MXM-A1000-4HDASKY-MXM-RTX3000
SKY-MXM-R3000-6HDASKY-MXM-T1000
SKY-MXM-T1000-4HDB

NVIDIA Quadro GPU Cards

NVIDIA RTX A800 40GB
SKY-QUAD-A800-40NVIDIA RTX 4500 Ada
SKY-QUAD-4500A-24NVIDIA RTX 2000A
SKY-QUAD-2000A-16NVIDIA RTX 6000 Ada
SKY-QUAD-6000A-48NVIDIA RTX 4000 Ada
SKY-QUAD-4000A-20NVIDIA RTX A1000
SKY-QUAD-A1000-8NVIDIA RTX 5000 Ada
SKY-QUAD-5000A-32NVIDIA RTX 4000 SFF Ada
SKY-QUAD-4000SA-20NVIDIA RTX A400
SKY-QUAD-A400-4

NVIDIA Tesla GPU Cards

NVIDIA H200 NVL
SKY-TESL-H200N-141NVIDIA H100 NVL
SKY-TESL-H100N-94PNVIDIA L40S
SKY-TESL-L40S-48PNVIDIA L4
SKY-TESL-L4-24PNVIDIA A100 80GB
SKY-TESL-A100-80PNVIDIA A40
SKY-TESL-A40-48PNVIDIA A30
SKY-TESL-A30-24PNVIDIA A10
SKY-TESL-A10-24PNVIDIA A2
SKY-TESL-A2-16PNVIDIA T4
SKY-TESL-T4-16P

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NVIDIA GPU Cards

NVIDIA MXM GPUs

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.



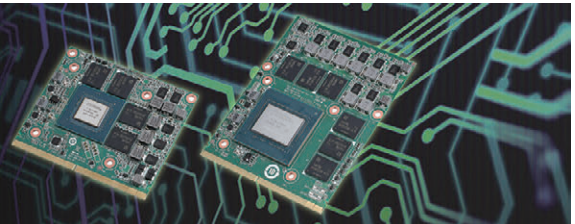
Model	SKY-MXM-5000A	SKY-MXM-3500A	SKY-MXM-2000A	SKY-MXM-A4500	SKY-MXM-A2000	SKY-MXM-A1000	SKY-MXM-A500	SKY-MXM-RTX3000	SKY-MXM-T1000
Part Number	SKY-MXM-5000A-6SDA	SKY-MXM-3500A-2SDA	SKY-MXM-2000A-8SDA	SKY-MXM-A4500-6SDA	SKY-MXM-A2000-8SDA	SKY-MXM-A1000-4SDA	SKY-MXM-A500-4SHA	SKY-MXM-R3000-6SDA	SKY-MXM-T1000-4HDB
GPU Architecture	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ampere	Ampere	Ampere	Ampere	Turing	Turing
GPU Memory	16GB GDDR6 with ECC	12GB GDDR6 with ECC	8GB GDDR6 with ECC	16GB GDDR6 with ECC	8GB GDDR6 with ECC	4GB GDDR6	4GB GDDR6	6GB GDDR6	4GB GDDR6
Memory Interface	256-bit	192-bit	128-bit	256-bit	128-bit	128-bit	64-bit	192-bit	128-bit
Max Clock	9000 MHz	9000 MHz	8000 MHz	8000 MHz	7000 MHz	7000 MHz	7000 MHz	7000 MHz	6000 MHz
Memory BW	576 GB/s	432 GB/s	256 GB/s	512 GB/s	224 GB/s	224 GB/s	112 GB/s	336 GB/s	192 GB/s
CUDA Cores	9728	5120	3072	5888	2560	2048	2048	1920	896
RT Cores	76	40	24	46	20	16	16	30	-
Tensor Cores	304	160	96	184	80	64	64	240	-
Tensor Tflops (FP16 Dense/Sparse)	165/329	92/184	52/104	70/140	34/66	26/52	25/50	44/NA	N / A
Max FP 32 Per f	41.15	23.04	12.8	17.66	8.64	6.66	6.54	5.3 TF	2.7 TF
GPU Clock	1425 MHz	1725 MHz	1635 MHz	930 MHz	1117 MHz	1192 MHz	652 MHz	945 MHz	1395 MHz
Boost Clock	2115 MHz	2250 MHz	2115 MHz	1500 MHz	1612 MHz	1624 MHz	1597 MHz	1380 MHz	1455 MHz
Form Factor	MXM Type B+	MXM Type B+	MXM Type A	MXM Type B+	MXM Type A	MXM Type A	MXM Type A	MXM Type B	MXM Type A
Dimension (L x H)	82 x 105 mm (3.23" x 4.13")	82 x 105 mm (3.23" x 4.13")	82 x 70 mm (3.23" x 2.76")	82 x 105 mm (3.23" x 4.13")	82 x 70 mm (3.23" x 2.76")	82 x 70 mm (3.23" x 2.76")	82 x 70 mm (3.23" x 2.76")	82 x 105 mm (3.23" x 4.13")	82 x 70 mm (3.23" x 2.76")
Interface	MXM 3.1, PCIe 4.0 x16	MXM 3.1, PCIe 4.0 x16	MXM 3.1, PCIe 4.0 x8	MXM 3.1, PCIe 3.0 x16	MXM 3.1, PCIe 3.0 x8	MXM 3.1, PCIe 3.0 x8	MXM 3.1, PCIe 3.0 x4	MXM 3.1, PCIe 3.0 x16	MXM 3.1, PCIe 3.0 x16x
TGP Power	115 W	115 W	60 W	115 W	60 W	60 W	35 W	80 W	50 W
Display Output	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz		3 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		Headless Design No Display Output	4 x DP 1.4a, HDMI 2.1 4K at 120Hz or 8K at 60Hz	
NVENC	2(8th Gen)	2(8th Gen)	1(8th Gen)	1(7th Gen)	1(7th Gen)	1(7th Gen)	1(7th Gen)	1(7th Gen)	1(6th Gen)
NVDEC	5(5th Gen)	1(5th Gen)	1(5th Gen)	2(5th Gen)	2(5th Gen)	2(5th Gen)	1(5th Gen)	3(4th Gen)	3(4th Gen)
Operating temperature	0 ~ 55°C (32 ~ 131°F) (dependent on CPU and cooler solution)								
Storage temperature	-40 ~ 85°C (-40 ~ 185°F)								
Vibration (Non-operating)	2G								
OS support	Windows 10/11, 64-bit Linux Drivers, 64-bit								

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



Advantech MXM GPU Cards

Accelerating Edge AI and Image Processing
with NVIDIA Elite Partner



NVIDIA GPU Cards

NVIDIA Quadro RTX™ GPUs

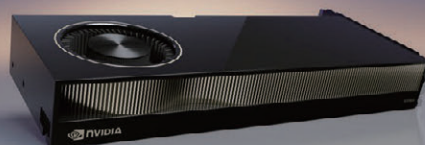
Designed and built to accelerate any professional workflow, NVIDIA RTX™ professional GPU cards feature large memory, advanced enterprise features, optimized drivers, and certification for industrial applications.



Model	NVIDIA RTX A800 40GB	NVIDIA RTX 6000 Ada	NVIDIA RTX 5000 Ada	NVIDIA RTX 4500 Ada	NVIDIA RTX 4000 Ada	NVIDIA RTX 4000 SFF Ada	NVIDIA RTX A6000	NVIDIA RTX A5500	NVIDIA RTX A5000	NVIDIA RTX A4500	NVIDIA RTX A4000
Part Number	SKY-QUAD-A800-40	SKY-QUAD-6000A-48	SKY-QUAD-5000A-32	SKY-QUAD-4500A-24	SKY-QUAD-4000A-20	SKY-QUAD-4000SA-20	SKY-QUAD-RTXA 6000B	SKY-QUAD-A5500-24B	SKY-QUAD-RTXA 5000B	SKY-QUAD-RTXA 4500B	SKY-QUAD-RTXA 4000B
GPU Architecture	Ampere	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ampere	Ampere	Ampere	Ampere	Ampere
Memory Size	40 GB HBM2 with ECC	48 GB GDDR6 with ECC	32 GB GDDR6 with ECC	24 GB GDDR6 with ECC	20 GB GDDR6 with ECC	20 GB GDDR6 with ECC	48 GB GDDR6 with ECC	24 GB GDDR6 with ECC	24 GB GDDR6 with ECC	20 GB GDDR6 with ECC	16 GB GDDR6 with ECC
Memory Interface	5,120-bit	384-bit	384-bit	320-bit	160-bit	160-bit	384-bit	384-bit	384-bit	320-bit	256-bit
Memory Bandwidth	1555 GB/s	960 GB/s	576 GB/s	432 GB/s	360 GB/s	280 GB/s	768 GB/s	768 GB/s	768 GB/s	640 GB/s	512 GB/s
Form Factor	Dual slot, full height	Dual slot, full height	Dual slot, full height	Dual slot, full height	Single slot, full height	Dual slot, low profile	Dual slot, full height	Dual slot, full height	Dual slot, full height	Dual slot, full height	Single slot, full height
Dimension (L x H)	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	241.3 x 111.8 mm (9.5" x 4.4")	167.6 x 68.6 mm (6.6" x 2.7")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	241.3 x 111.8 mm (9.5" x 4.4")
CUDA Cores	6912	18176	12800	7,680	6144	6144	10752	10249	8192	7168	6144
Tensor Cores	432	568	400	240	192	192	336	320	256	224	192
RT Cores	–	142	100	60	48	48	84	80	64	56	48
FP32	19.5	91.1	65.3	39.6	26.7	19.2	38.7	34.1	27.8	23.7	19.2
Media Acceleration	1 JPEG Decoder, 5 Video Decoder	3 NVENC, 3 NVDEC (+AV1 enc&dec)	2 NVENC, 2 NVDEC (+AV1 enc&dec)	2 NVENC, 2 NVDEC (+AV1 enc&dec)	2 NVENC, 2 NVDEC (+AV1 enc&dec)	2 NVENC, 2 NVDEC (+AV1 enc&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)	1 NVENC, 2 NVDEC, (+AV1 dec)
NVLink	✓	–	–	–	–	–	✓	✓	✓	✓	–
Virtualization Ready	✓	✓	✓	–	–	–	✓	✓	✓	–	–
Display Connectors	Headless Design	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	4 x DP 1.4	4 x DP 1.4	4 x DP 1.4	4 x DP 1.4	4 x DP 1.4
Operating Temperature	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 50°C (32 ~ 122°F)
Max Power	240 W	300 W	250 W	210 W	130 W	70 W	300 W	230 W	230 W	200 W	140 W
Power Connector	16-Pin PCIe	16-Pin PCIe	16-Pin PCIe	16-Pin PCIe	16-Pin PCIe	–	8-Pin CPU	8-Pin PCIe	8-Pin PCIe	8-Pin PCIe	6-Pin PCIe
Graphics Bus	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16

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

NVIDIA Ada Generation GPU Cards for Professionals



ADVANTECH

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Edge Software & Industry Solutions

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Intelligent HMI & Monitors

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Automation Computers

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Intelligent Systems

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Mission Critical CompactPCI Platforms

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Intelligent Transportation & Substation Certified Systems

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AI & Advanced Computer Vision

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Industrial Gateways

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EtherCAT Solutions & Automation Controllers

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Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

NVIDIA GPU Cards

NVIDIA Quadro® GPUs: Entry to Mid-range



Model	NVIDIA RTX 2000 Ada	NVIDIA RTX A2000 12GB	NVIDIA RTX A1000	NVIDIA RTX A400	NVIDIA T1000 8GB	NVIDIA T1000	NVIDIA T400 4GB
Part Number	SKY-QUAD-2000A-16	SKY-QUAD-A2000-12B	SKY-QUAD-A1000-8	SKY-QUAD-A400-4	SKY-QUAD-T1000-8-B	SKY-QUAD-T1000-AB	SKY-QUAD-T400-4-B
GPU Architecture	Ada Lovelace	Ampere	Ampere	Ampere	Turing	Turing	Turing
Memory Size	16 GB GDDR6 with ECC	12 GB GDDR6 with ECC	8 GB GDDR6	4 GB GDDR6	8 GB GDDR6	4 GB GDDR6	4 GB GDDR 6
Memory Interface	128-bit	192-bit	128-bit	64-bit	128-bit	128-bit	64-bit
Memory Bandwidth	224 GB/s	288 GB/s	192 GB/s	96 GB/s	160 GB/s	160 GB/s	80 GB/s
Form Factor	Dual slot, low profile	Dual slot, low profile	Single slot, low profile	Single slot, low profile	Single slot, low profile	Single slot, low profile	Single slot, low profile
Dimension (L x H)	167.6 x 68.6 mm (6.6" x 2.7")	167.6 x 68.6 mm (6.6" x 2.7")	162.5 x 68.6 mm (6.4" x 2.7")	162.5 x 68.6 mm (6.4" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")
CUDA Cores	2816	3328	2304	768	896	896	384
Tensor Cores	88	104	72	24	—	—	—
RT Cores	22	26	18	6	—	—	—
FP32	12	8	6.74 TFLOPS	2.7 TFLOPS	2.5	2.5	1
Media Acceleration	1 NVENC, (+AV1 enc) 1 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC, (+AV1 dec)	1 NVENC, 1 NVDEC, (+AV1 dec)	1 NVENC, 1 NVDEC, (+AV1 dec)	1 NVENC, 2 NVDEC,	1 NVENC, 2 NVDEC,	1 NVENC, 2 NVDEC,
NVLink	—	—	—	—	—	—	—
Virtualization Ready	—	—	—	—	—	—	—
Display Connectors	4 x mDP 1.4	4 x mDP 1.4	4 x mDP 1.4	4 x mDP 1.4	4 x mDP 1.4	4 x mDP 1.4	3 x mDP 1.4
Operating Temperature	0 ~ 45°C (32 ~ 113°F)	0 ~ 50°C (32 ~ 122°F)	0°C to 50 °C	0°C to 50 °C	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Max Power	70 W	70 W	50 W	50 W	50 W	50 W	30 W
Power Connector	—	—	—	—	—	—	—
Graphics Bus	PCIe 4.0 x8	PCIe 4.0 x16	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 3.0 x16	PCIe 3.0 x16	PCIe 3.0 x16

NVIDIA Quadro® Long-Life SKU Model



Model	NVIDIA RTX A4000E	NVIDIA RTX 6000E Ada	NVIDIA RTX 5000E Ada	NVIDIA RTX 4000E Ada	NVIDIA RTX 2000E Ada	NVIDIA T1000E	NVIDIA T600E	NVIDIA T400E
Part Number	SKY-QUAD-A4000E16B	SKY-QUAD-6000EA-48	SKY-QUAD-5000EA-32	SKY-QUAD-4000EA-20	SKY-QUAD-2000EA-16	SKY-QUAD-T1000E8B	SKY-QUAD-T600E-4	SKY-QUAD-T400E-4
GPU Architecture	Ampere	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Turing	Turing	Turing
Memory Size	16 GB GDDR6 with ECC	48 GB GDDR6 with ECC	32 GB GDDR6 with ECC	20 GB GDDR6 with ECC	16 GB GDDR6 with ECC	8 GB GDDR6	4 GB GDDR6	4 GB GDDR6
Memory Interface	256-bit	384-bit	384-bit	160-bit	128-bit	128-bit	128-bit	64-bit
Memory Bandwidth	512 GB/s	960 GB/s	576 GB/s	320 GB/s	224 GB/s	160 GB/s	160 GB/s	80 GB/s
Form Factor	Single slot, full height	Dual slot, full height	Dual slot, full height	Dual slot, full height	Single slot, low profile	Single slot, low profile	Single slot, low profile	Single slot, low profile
Dimension (L x H)	241.3 x 111.8 mm (9.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	241.3 x 111.8 mm (9.5" x 4.4")	169.6 x 68.9 mm (6.6" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")	154.9 x 68.6 mm (6.1" x 2.7")
CUDA Cores	6144	18176	12800	6144	2816	896	640	384
Tensor Cores	192	568	400	192	88	—	—	—
RT Cores	48	142	100	48	22	—	—	—
Max FP 32 Per f	19.2	91.1	65.3	26.7	12	2.5	1.7	1.09
Media Acceleration	1 NVENC, 2 NVDEC, (+AV1 enc&dec)	3 NVENC 3 NVDEC (+AV1 enc&dec)	2 NVENC 2 NVDEC (+AV1 enc&dec)	2 NVENC 2 NVDEC (+AV1 enc&dec)	1 NVENC 1 NVDEC (+AV1 enc&dec)	1 NVENC, 2 NVDEC,	1 NVENC 2 NVDEC	1 NVENC 2 NVDEC
NVLink	—	—	—	—	—	—	—	—
Virtualization Ready	—	✓	✓	—	—	—	—	—
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	4 x mDP 1.4	4 x mDP 1.4	4 x mDP 1.4
Operating Temperature	0 ~ 50 °C (32 ~ 122°F)	0 ~ 45 °C (32 ~ 113°F)	0 ~ 45 °C (32 ~ 113°F)	0 ~ 50 °C (32 ~ 122°F)	0 ~ 45 °C (32 ~ 113°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Max Power	140 W	300 W	250 W	130 W	50 W	50 W	40W	30 W
Power Connector	6-Pin PCIe	16-Pin PCIe	16-Pin PCIe	16-Pin PCIe	—	—	—	—
Graphics Bus	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x16	PCIe 4.0 x8	PCIe 4.0 x16	PCIe 3.0 x16	PCIe 3.0 x16

✓: supported, —: not supported, △: optional

NVIDIA GPU Cards

NVIDIA Tesla® GPUs

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



Model	Tesla H100 NVL	NVIDIA H100	NVIDIA A100 80G	NVIDIA A30	NVIDIA L40S	NVIDIA L40
Part Number	SKY-TESL-H100N-94P	SKY-TESL-H100-80P	SKY-TESL-A100-80P	SKY-TESL-A30-24P	SKY-TESL-L40S-48P	SKY-TESL-L40-48P
GPU Architecture	Hopper	Hopper	Ampere	Ampere	Ada Lovelace	Ada Lovelace
Form Factor	Dual slot, full height 3 NVLINK bridges	Dual slot, full height 3 NVLINK bridges	Dual slot, full height 3 NVLINK bridges	Dual slot, full height 1 NVLINK bridge	Dual slot, full height	Dual slot, full height
Dimension (L x H)	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")
GPU Memory	94GB HBM3	80GB HBM2e	80GB HBM2e	24GB HBM2	48GB DDR6 with ECC	48GB DDR6 with ECC
Memory Bandwidth	3.9TB/s	2TB/s	1,935 GB/s	933GB/s	864GB/s	864GB/s
CUDA Cores	14592	14592	6912	3584	18176	18176
Tensor Cores	456	456	432	224	568	568
RT Cores	–	–	–	–	142	142
FP32/FP64 TFLOPS	67 / 34	48 / 24	19.5 / 9.7	10.3 / 5.2	91.6 / –	88 / –
Multi-Instance GPU	Up to 7	Up to 7	Up to 7	Up to 4	–	–
Media Acceleration	7 JPEG Decoder, 7 Video Decoder	7 JPEG Decoder, 7 Video Decoder	1 JPEG Decoder, 5 Video Decoder	1 JPEG Decoder, 4 Video Decoder	3 NVENC, 3 NVDEC, (+AV1 enc/dec)	3 NVENC, 3 NVDEC, (+AV1 enc/dec)
Ray Tracing	–	–	–	–	✓	✓
Fast FP64	✓	✓	✓	✓	–	–
Design	Compute Optimise	Compute Optimise	Compute Optimise	Compute Optimise	Compute + Graphics	Compute + Graphics
DL & Compute	Ultimate	Ultimate	Ultimate	Fastest	Fastest	Fastest
Graphics	For in-situ visualization (no vPC/vQuadro)		For in-situ visualization (no vPC/vQuadro)	For in-situ visualization (no vPC/vQuadro)	Best	Best
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)
Max Power	400 W	350 W	300 W	165 W	350 W	300 W



Model	NVIDIA L4	NVIDIA A40	NVIDIA A10	NVIDIA A2
Part Number	SKY-TESL-L4-24P	SKY-TESL-A40-48P	SKY-TESL-A10-24P	SKY-TESL-A2-16P
GPU Architecture	Ada Lovelace	Ampere	Ampere	Ampere
Form Factor	Single slot, low profile	Dual slot, full height 1 NVLINK bridge	Single slot, full height	Single slot, low profile
Dimension (L x H)	167.6 x 68.6 mm (6.6" x 2.7")	266.7 x 111.8 mm (10.5" x 4.4")	266.7 x 111.8 mm (10.5" x 4.4")	167.6 x 68.6 mm (6.6" x 2.7")
GPU Memory	24GB DDR6 with ECC	48GB DDR6 with ECC	24GB GDDR6	16GB GDDR6
Memory Bandwidth	300GB/s	696GB/s	600GB/s	200GB/s
CUDA Cores	7680	10752	9216	1280
Tensor Cores	240	336	288	40
RT Cores	60	84	72	10
FP32/FP64 TFLOPS	31.3 / –	37.4 / –	31.2 / –	4.5 / –
Multi-Instance GPU	–	–	–	–
Media Acceleration	2 NVENC, 4 NVDEC, (+AV1 enc/dec)	1 Video Encoder, 2 Video Decoder (+AV1 decode)	1 Video Encoder, 2 Video Decoder (+AV1 decode)	1 Video Encoder, 2 Video Decoder (+AV1 decode)
Ray Tracing	✓	✓	✓	✓
Fast FP64	–	–	–	–
Design	Compute + Graphics	Compute + Graphics	Compute + Graphics	Compute + Graphics
DL & Compute	Fastest	Fastest	Fast	Fast
Graphics	Good	Best	Good	Good
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 50°C (32 ~ 122°F)
Max Power	72 W	300 W	150 W	40-60 W

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

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Edge Software & Industry
Solutions

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Intelligent HMI & Monitors

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Automation Computers

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Intelligent Systems

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Mission Critical CompactPCI
Platforms

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Intelligent Transportation &
Substation Certified Systems

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Industrial Server & Cloud
Solutions

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AI & Advanced Computer
Vision

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Video Infrastructure Solutions

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Network & Security Solutions

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Industrial Communication

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Industrial Gateways

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EtherCAT Solutions &
Automation Controllers

14

Intelligent Motion Control
Solutions

15

Data Acquisition (DAQ)
Solutions

16

Remote I/O, Wireless I/O
& Sensors

17

Serial/USB Communications

Industrial GPU Solutions

NVIDIA GPU Card Support List for Modular IPC



Model	MIC-770 series + MIC-75M20	MIC-770 series + MIC-75G20	MIC-770 series + MIC-75G30	MIC-770 series + MIC-75GF10
Supported GPU Model	Tesla A2 / T4 / L4 Quadro T400 4GB/T1000 8GB RTX A2000 12GB/4000 SFF ADA	Quadro A4000/4500/5000/5500/6000/ 4000 Ada/5000 Ada/6000 Ada	Quadro A4000/4500/5000/5500/6000/ 4000 Ada/5000 Ada/6000 Ada	MXM RTX-3000/A2000/T1000/A500
CUDA Cores	Up to 7,680	Up to 18,176	Up to 18,176 x2	Up to 2560
FP32	Up to 30.3 TFLOPS	Up to 91.1 TFLOPS	Up to 91.1 TFLOPS x2	Up to 8.25 TFLOPS
GPU Power Budget	Up to 80W	Up to 350W	Up to 700W (dual 350W)	Up to 80W
Operating Temperature	0~40°C with air flow	0~35°C with air flow	0~35°C with air flow	-10~50°C (T1000) -10~40°C (RTX-3000/A2000)
Function	1 x PCIe by 4 slot for I/O, Frame grabber Card	1 x PCIe by 4 slot for I/O, Frame grabber Card 2 x SSD/HDD Swappable	1 x PCIe by 4 slot for I/O, Frame grabber Card 2 x SSD/HDD Swappable	1 x PCIe by 4 slot for I/O , Frame grabber Card 2 x SSD/HDD Swappable
System Power	Up to 230W including GPU	Up to 448W including GPU	Up to 755W including GPU	Up to 230W including GPU
Recommended Power Supply	(230W) 96PSA-A230W24P4-3	(480W) 96PSD-A480W24-MS (Peak power 720W, 3 Sec.) (PSU Cable) 1700029474-01 PSU 1.5M (Power cord) 1700029720-01 USA AC Conn.	(1000W) XMIC-HRPG-1000-24 (PSU Cable) 1700031413-01 PSU 1M (Power cord) 1700029720-01 USA AC Conn.	(230W) 96PSA-A230W24P4-3
Compatible GPU Card Dimension	Max card length: 170 mm Max card height: 125 mm Max card thickness: 41 mm (2-slot)	Max card length: 310 mm Max card height: 130 mm Max card thickness: 59 mm (2.75-slot)	Max card length: 310 mm Max card height: 130 mm Max card thickness: 62 mm (3-slot)	MXM Type A/B
System Fan	Add 98R1752000E Add 98R1752002E for A2 & T4 (23,000RPM, 31.6 CFM, 62 dB)	Embedded (2200 RPM, 82 CFM, 36.5 dB)	Embedded (2200 RPM, 82 CFM, 36.5 dB)	Fanless
Dimension (W x H x D)	127 x 192 x 230 mm	207 x 192 x 385 mm	280 x 192 x 385 mm	190 x 192 x 230 mm

NVIDIA GPU Card Support List for Compact IPC and Industrial Chassis



Model	IPC-220	IPC-240	IPC-320	IPC-610 series ACP-4000 series ACP-4340 series	ACP-2020G-85Z	IPC-7130 series	IPC-730
Supported GPU model	Quadro T400 4GB/T1000 8GB RTX A2000 12GB/4000 SFF ADA		Quadro T400 4GB/ T1000 8GB RTX A2000 12GB/4000 SFF ADA	All Quadro	All Quadro	All Quadro	All Quadro
Recommended Power Supply	19~24 DC		(default with a 250W power supply)	(850W) 96PS-A850WPS2G (700W) PS8-700ATX-BB For RTX 4080 and 4090, please select 850W↑	(default with an 850W power supply)	(850W) 96PS-A850WPS2G (700W) PS8-700ATX-BB For RTX 4080 and 4090, please select 850W↑	ATX 3.0 850W ATX 3.0 1200W
Compatible GPU Card Dimension	Max. card length: 179 mm Max. card height: 111 mm		Max. card length: 170 mm Max. card height: 69 mm	Max. card length: FL (340 mm) Max. card height: 135 mm	Max. card length: FL (340 mm) Max. card height: FH (111.15 mm)	Max. card length: FL (340 mm) Max. card height: 135 mm	Max. card length: 357 mm Max. card height: 180 mm
Dimension (W x H x D)	155 x 150 x 230 mm	195 x 150 x 230 mm	95 x 270 x 300 mm	82 x 177 x 479 mm	482 x 88 x 445 mm	200 x 320 x 480 mm	365 x 206 x 450 mm

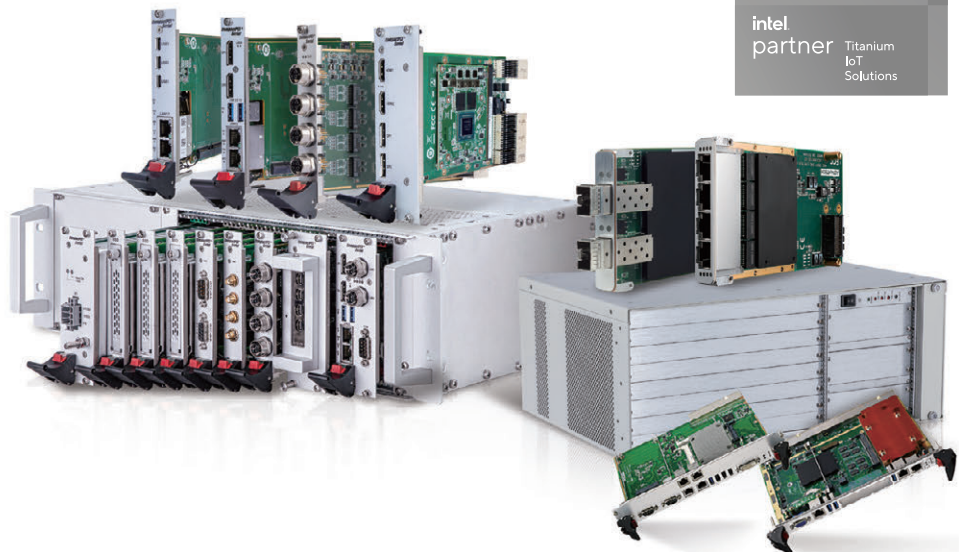




5

Mission Critical CompactPCI Platforms

- ☞ 5-3 3U CPCI Serial CPU
- ☞ 5-4 3U CPCI Serial IO Board/Chassis/Power
- ☞ 5-5 3U CPCI Legacy
- ☞ 5-6 6U CPCI



Intelligent CompactPCI & VPX Platforms

At the core of business and mission critical solutions

Advantech has been a key provider in the CompactPCI and VPX markets for mission critical applications in the iEM, railway, defense, medical, and aerospace 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 extensibility and cost effectiveness.

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

- PICMG 2.0 R3.0 CompactPCI specification
- PICMG 2.1 R2.0 CompactPCI specification PCI hot swap
- PICMG CPCI-S.0 R2.0
- VITA 46/48/65 compliant

intel
partner Titanium
IoT
Solutions

Product Offerings

Railways

Rugged Edge AI/Video solution on Transportation

MIC-3* 3U 19-inch CPCI Serial System

- 3U CPCI-S slim eur card, AC or DC PSU option
- Standard chassis (W x H x D): 482.6 x 250 x 132.55 mm
- Both Intel 9th /11th Gen. and Nvidia Orin AGX platforms option
- Single or multi-computing units in one chassis by internal Ethernet connection on backplane
- Flexible and rich PCIe x8/x4 /x1/SATA/Ethernet/USB resources for I/O extension or internal connection
- EMC/Safety: EN 50155 OT2/OT3/OT4, GB/T 24338.4, GB/T 25119
- PICMG CPCI-S.0 R2.0, PICMG 2.1 R2.0 compliant



MIC-330
Intel 9th CPU Board



MIC-330V2
Intel 11th CPU Board



MIC-3810
PCIe Carrier



MIC-3811
Dual Mini-PCIe Carrier



MIC-3812
MXM GPU Carrier



MIC-3820
2.5" SATA SSD Carrier



MIC-3821
Quad M.2 M-Key
NVMe Carrier



MIC-3860
Quad RJ-45/M12 Ethernet



MIC-3954D
Quad M.2 Carrier



MIC-3954E
Quad Mini-PCIe Carrier



MIC-3954F
Quad USB3.0 & E-Key Carrier



MIC-3890
110V/250W DC Power

Modularized AI/Machine Vision Solution on Test Measurement/Defense/IEM/ Surgical Robots

MIC-3* 4U CPCI Serial Compact Size System

- 4U CPCI-S slim eur card, AC or DC PSU option
- Standard chassis (W x H x D): 482.60 x 265 x 177/279.40 x 265 x 177 option
- Both Intel 9th / 11th Gen. platform with high-end PCIe/MXM graphics & video capture card
- Diverse and rich standard function I/O card options like USB/PoE GbE/10GbE/NvME/SATA/mini-PCIe/M.2/CAN/DIO, etc
- Operating Temp.: -25 ~ 70°C, -40 ~ 70°C
- PICMG CPCI-S.0 R2.0, PICMG 2.1 R2.0 compliant



Defense and Automation

6U CPCI Solution

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



MIC-360 (coming soon)
Intel 13th gen CPCI CPU Board



MIC-3399
Intel 6th gen CPCI & CPCI-E
Hybrid CPU Board



MIC-3399H
Intel 6th gen CPCI & CPCI-E
Hybrid CPU Board



MIC-3666
Dual Port 10GbE XMC Card



MIC-3667
Quad Port GbE XMC Card



3U CPCI Serial CPU



Model		MIC-330	MIC-330V2	MIC-332
Form Factor		3U CPCI-Serial Processor Board	3U CPCI-Serial Processor Board	3U CPCI-Serial AI Inference CPU Board
Processor System	CPU	9th gen Intel® Xeon®/Core™ i3/i5/i7 mobile processors configurable base frequency up to 2.7GHz Xeon® E-2276ML: 6C/12T, 2.0GHz, TDP 25W, ECC Core™ i7-9850HL: 6C/12T, 1.9GHz, TDP 25W, non ECC Core™ i3-9100HL: 4C/4T, 1.6GHz, TDP 25W, ECC	11th Intel Intel® Xeon/Core™ embedded processors, configurable base frequency up to 2.6GHz Xeon® W-11865MRE: 8C/16T 2.1GHz, TDP 45W/35W Xeon® W-11865MLE: 8C/16T 1.5GHz, TDP 25W Xeon® W-11555MRE: 6C/12T 2.1GHz, TDP 45W/35W Core™ i7-11850HE: 8C/16T 2.1GHz, TDP 45W/35W	NVIDIA® Jetson AGX Orin™ AGX Orin 32G : 8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 2MB L2 + 4MB L3 AGX Orin 64G: 12-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 3MB L2 + 6MB L3
	Chipset	CM246	RM590E	—
Memory	Memory	Dual channel DDR4 2666 MHz Max capacity: Up to 32GB, 16GB soldered & 16GB SO-DIMM extension	Dual channel DDR4 3200MHz Max capacity: Up to 64GB, 32GB soldered & 32GB SO-DIMM extension	32GB 256-bit LPDDR5 DRAM 64GB 256-bit LPDDR5 DRAM
Onboard Features		SKU1: 2 x 2280 SATAIII M.2 sockets SKU2: 1 x 2280 SATAIII M.2 socket, 1 x FeRAM on board, 1 x super cap (optional)	SKU1: 2 x 2280 SATAIII M.2 sockets Reserved SKU2 for customer request: 1 x 2280 SATAIII M.2, 1 x FeRAM, 1 x super cap, onboard reserved SKU3: 1 x NVMe M.2 socket	4 x onboard PCIe 3.0, 4 x M.2 socket Support external 4 x GMSL port extension
Front I/O	I/O Ports	SKU1: 2 x RJ-45 GbE, 2 x USB 3.0, 2 x DP SKU2: 2 x RJ-45 GbE, 2 x USB 3.0, 2 x DP, 2 x M12 X-code GbE, 1 x DB9 COM (RS232/422/485)	3 x USB Type-C, 2 x Front 2.5G BASE-T RJ-45 (2 x Intel 226-IT)	2 x GbE, 2 x USB 3.2 Gen 2 (10 Gbit/s), 1 x HDMI on 4HP 1 x DB9, 1 x Micro USB on 8HP
	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	1 x blue/orange for hot swap/ HDD, 1 x green for PWR, 1 x green for master/drone, 1 x Reset button	1 x blue/orange for hot swap/ HDD, 1 x green for PWR, 1 x green for master/slave, front LAN active (green blink)/speed (2.5G/green, GbE/yellow, others: off)
Backplane Resources	P1/P2/P3/P4/P5/P6	P1: 1 x PCIe x4; 1 x USB 3.0 (1 x USB 2.0) P2: 1 x PCIe x4, 1 x PCIe x8, 3 x USB 2.0 P3: 4 x SATA 3.0, 1 x USB 3.0, 4 x USB 2.0 P4: 2 x PCIe x4, 2 x PCIe x1 P5: Clock P6: Up to 3 x GbE (2 GbE to M-1, max 3 GbE to M-2)	P1: 1 x PCIe x4, 1 x USB3.2, 1 x USB 2.0 P2: 1 x PCIe x4, 1 x PCIe x8, 3 x USB 2.0, GPIO*5 P3: 2 x SATA3.0, 3 x USB 3.2, 4 x USB 2.0, Reserve 1* DP (max with front) to rear I/O, optional P4: 4 x PCIe x4 P5: 2 x PCIe x1, Clock P6: 2 x GbE	P1: 1 x PCIe 3.0 x4, 1 x I2C P2: 1 x PCIe 3.0 x8, 4 x GPIO, 1 x FAN (w/ TACH/PWM) P5: 2 x PCIe clock, 2 x PCIe Clock REQ P6: 1 x GbE, 1 x 10GbE (option w/ P1 PCIe x4)
	RTM	—	—	—
Operating System	Compatibility	Windows 10, Centos 7.6.1810, Ubuntu 18.04, Vxworks	Windows 10, Windows 11, Ubuntu 22.04, Yocto 5.10, Vxworks	Linux Kernel 5.10, Ubuntu 20.04, Jetpack 5.1.2
Power Consumption	System Full Loading	12V/ 40W for E-2276ML/ Core i7-9850HL/Core i3-9100HL CPU 12V / 60W for Core i7-9850HE CPU	12V/48W for Xeon® W-11865MLE CPU 12V/66W for Xeon® W-11555MRE/ Core™ i7-11850HE/Xeon® W-11865MRE CPU	—
Physical Characteristics	Dimension (L x H)	4HP or 8HP, 160.00 x 100.00 mm	4HP or 8HP, 160.00 x 100.00 mm	8HP, 160.00 x 100.00 mm
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-25 ~ 70°C (-13 ~ 158°F) under forced-air cooling
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
	Designed to Meet	EN50121-4 & EN50155	EN50121-4 & EN50155	EN50121-4 & EN50155
Compliance	Standards	PICMG® CompactPCI® Serial	PICMG® CompactPCI® Serial	PICMG® CompactPCI® Serial

✓: supported, —: not supported, △: optional

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Edge Software & Industry Solutions

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Intelligent HMI & Monitors

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Automation Computers

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Intelligent Systems

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Mission Critical CompactPCI Platforms

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Intelligent Transportation & Substation Certified Systems

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Industrial Communication

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Industrial Gateways

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EtherCAT Solutions & Automation Controllers

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

3U CPCI Serial I/O Board/Chassis/Power



Model		MIC-3810	MIC-3811	MIC-3812	MIC-3820	MIC-3821	MIC-3860	MIC-3954 D&E	MIC-3954F	MIC-3840
Form Factor		3U CPCI-Serial Peripheral Board								
Main Function		PCIe x16 carrier	Dual Mini-PCIe carriers	MXM carrier	2.5" SATA SSD carrier	NVMe carrier	4 ports RJ45 or M12 X-code GbE card Support PoE/PoE plus power sourcing function	Quad M.2 or Mini-PCIe carrier	USB multi I/O board	Serial communication card
Front I/O	I/O Ports	—	—	2 x DP 2 x HDMI	—	—	SKU1: 4 x RJ-45 ports SKU2: 4 x M12 ports	—	4 x USB 3.0 Type-A	8 ports for serial communication
	LED Indicators	Power	Power	Power	Power	Power/Storage LEDs	LAN LED: Link/Activity PoE LED:	Power	Power/M.2	Power
Backplane Upstream Interface from CPU Board	P1/P2/P3/P6	P1/P2: PCIe 3.0 x8, x4, x2, x1	P1: PCIe2.0/3.0 x1, USB2.0	P1: PCIe3.0 x4 P2: PCIe3.0 x4	P1: SATA 3.0	P1: PCIe3.0 x4 P2: PCIe3.0 x4	P1: PCIe3.0 x4	P1: PCIe3.0/2.0 x1	P1: PCIe3.0/2.0 x4, x2, x1	P1: PCIe3.0/2.0 x4, x2, x1
	P3/P4/P5 RTM	—	—	P3: reserve 1* DP (max with front) to rear I/O, on user request	—	—	—	—	P3: reserve 4 USB (max with front) to rear I/O, optional	—
Operating System	Compatibility	—	—	—	—	—	—	—	—	—
Power Consumption	System Full Loading	Without module: 3W, 12V/0.25A	Without module: 2.5W, 12V/0.16A	Without module: 3W, 12V/0.25A	Without module: 1.5W, 12V/0.125A	Without module: 8W, 12V/0.67A	10W, 12V/0.83A for LAN function only 75W, 12V/6.25A for PoE function	Without module: 3.5W, 12V/0.291A	Without external device: 5W, 12V/0.42A	6W, 12V/0.5A
Physical Characteristics	Dimension (L x H)	3U/8HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/8HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm	3U/4HP 160.00 x 100.00 mm
Environment	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	0 ~ 55°C (based on MXM carrier) (32 ~ 131°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)	-40 ~ 70°C (-40 ~ 158°F)
Compliance	Designed to Meet	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4
	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	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0	PICMG CPCI-S.0 R2.0



Model		MIC-300A 3U	MIC-300A 4U	MIC-3890	XMIC330-HAC300S
Form Factor		3U CPCI-Serial Chassis	4U CPCI-Serial Chassis	3U CPCI-Serial DC to DC power	3U CPCI-Serial AC to DC power
Key Features		3U 84HP Chassis with 8 slot BP fan	SKU1: 4U 84HP Chassis with 8 slot BP fan SKU2: 4U 44HP Chassis with 8 slot BP fan	SKU1: 3U/8HP CPCI-S 250W Wago DC-IN SKU2: 3U/8HP CPCI-S 250W M12 DC-IN	3U/8HP CPCI-S 312.5W AC to DC power
Chassis Features	Backplane	8 slot, 1 system slot, 7 peripheral slot			
	Cooling	Total 12pcs fans for power/system/fat pipe slots Single fan airflow 9.9 CFM rated speed: 8500 RPM at rated voltage 12V DC	SKU1: Built-in Pull-out fan tray: Default fan setting 2pcs, single fan airflow: 150 CFM, rated speed: 4500 RPM, noise: 54dB at rated voltage 12V DC SKU2: Built-in fixed fan tray: default fan setting 4pcs, single Fan airflow: 46.62 CFM, rated speed: 4000 RPM, Noise: 40dB at rated voltage 12V DC	over 50°C, forced air 2.42m³/min fanless Derating to 60% at 70°C	over 50°C, forced air 200LFM air fanless Derating to 60% at 70°C
Power Consumption	System Full Loading	12pcs fan total 14.04W 12V/1.17A	SKU1: 2pcs fan total 24W 12V/2A SKU2: 4pcs fan total 4pcs fan total 24.48W 12V/2.04A	Input Voltage: Range 66V-160V _{DC} Output Current: +12V 20A/5V STANDBY: 2.5A	Input Voltage: 90-264V _{AC} Output Current: +12V 25A/5V STANDBY: 2.5A
Physical Characteristics	Dimension (W x H x D)	482.6 x 132.55 x 250 mm	SKU1: 482.60 x 177 x 265 mm SKU2: 279.40 x 177 x 265 mm	40.32 x 128.40 x 172.06 mm	40.34 x 128.5 x 171.9 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)
Compliance	Designed to Meet	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4	EN50155 EN50121-4
	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

✓: supported, —: not supported, △: optional

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	—	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: SATAIII SKU1: 1 x 2.5" SATA & 1 x CFast socket SKU2: 1 x 2.5" SATA & 1 x CFast on RTM SKU3: 2 x M.2 SATA (mux with NAND flash, upon request)	Speed: SATAIII SKU1: 1 x 2.5" SATA & 1 x CFast socket & 1 x Micro-SD socket SKU2: 1 x 2.5" SATA & 1 x CFast socket SKU3: 2 x SATA M.2 (2280 Size)
	I/O Ports	SKU1: 2 x RJ-45 GbE, 1 x USB 3.0, 1 x USB 2.0, 1 x VGA, 1 x COM, 2 x M12 X-code GbE SKU2: 2 x RJ-45 GbE, 1 x USB3.0, 1 x USB2.0, 1 x VGA, 2 x COM, 1 x PS2, 1 x Audio SKU3: 2 x RJ-45 GbE, 1 x USB 3.0, 1x USB 2.0, 1 x VGA, 2 x M12 X-code, 2 x M12 D-code	SKU1: 2 x RJ-45 GbE, 2 x USB 3.0, 1 x VGA, 4 x RJ-45 X-Code GbE SKU2: 2 x RJ-45 GbE, 3 x USB 3.0, 1 x VGA, 1 x COM, 1 x HDMI, 2 x RJ-45 X-Code GbE SKU3: 2 x RJ-45 GbE, 2 x USB 3.0, 1 x VGA
Backplane Interface	LED Indicators	Hot swap/HDD/Power/Master/Drone mode/LAN LED, Reset button	Power/HDD/Hot swap/Master/Drone/LAN LED, Reset button
	J1	32-bit/33MHz PCI bus	32-bit/33MHz PCI bus
Operating System	J2	RTM (MIC-3329R1-D1E)	RTM (MIC-3332R1-S1E)
	Compatibility	Windows 7, Windows 10, Linux, CentOS 6.6, VxWorks 6.9 & 7.0	Windows 10, Windows 7, Ubuntu 18.04, Centos 7.5, Vxworks 7.0
Power Consumption	System Full Loading	up to 15W	up to 50W
Physical Characteristics	Dimension (L x H)	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-3023A
Form Factor		3U CPCI Legacy Peripheral Board		
Main Function		4/8 ports - RS232/422/485 serial communication card speed up to 921600bps(Conditional)	4 ports RJ-45/M12 X-code GbE card	3U/4U CPCI 44HP/84HP enclosure 44HP enclosure with 1 x BP, which contains 1 x system, 7 x peripheral 84HP enclosure with dual BP
Backplane Interface	I/O Ports	SKU1: 4 ports-1 x DB44(F) SKU2: 8 ports-1 x DB62(F)	SKU1: 4 x RJ-45 ports SKU2: 4 x M12 ports	—
	LED Indicators	Rx/Tx LED	LAN LED	—
	J1	32-bit/33MHz PCI bus	MIC-3958A: 32/64-bit, 33MHZ/66MHZ PCI bus MIC-3958B: 32-bit, 33HMZ/66MHZ PCI bus	32-bit/33 MHz PCI Bus
	J2	RTM (MIC-3527 series)	RTM (MIC-3958R1-S1E)	—
Chassis Features	Backplane	—	—	Single or dual 8-slot backplane 1 x system, 7 x peripheral CPCI
	Cooling	—	—	SKU1: 8 pcs fans Single fan airflow 9.9 CFM, rated speed: 8500 RPM at rated voltage 12V DC SKU2: Built-in fixed fan tray: default fan setting 4pcs, single Fan airflow: 46.62 CFM, rated speed: 4000 RPM, Noise: 40dB at rated voltage 12V DC
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	—
Power Consumption	System Full Loading	3.5W/ 5W	10W	SKU1: 8pcs fan total 9.36W 12V/0.78A SKU2: 4pcs fan total 4pcs fan total 24.48W 12V/2.04A
Physical Characteristics	Dimension (W x H x D)	3U/4HP 160.00 x 100.00 mm (6.3" x 3.95")	3U/4HP 160.00 x 100.00 mm (6.30" x 3.95")	SKU1: 482.6 x 250 x 132.55 mm SKU2: 279.40 x 265 x 177 mm
Environment	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Regulatory	Conformance	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS
	Standards	PICMG2.0 R3.0	PICMG2.0 R3.0	PICMG2.0, PICMG2.11
Compliance	Railway Standards	EN50121-4	EN50121-4	EN50121-4

✓: supported, —: not supported, △: optional

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

6U CPCI



Model		MIC-3399	MIC-3399H	MIC-360
Form Factor		6U CPCI Legacy Processor Board		
Processor System	CPU	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	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	Intel® Core™ i7-13800HRE 14C (6P+8E) 96EU 24M Intel® Core™ i5-13600HRE 12C (4P+8E) 80EU 18M
	Chipset	Intel® C230 Series Chipsets	Intel® C230 Series Chipsets	NA
Memory	Memory	DDR4 2133 MHz, dual channel and ECC support (optional) Up to 32GB (max. 16GB on-board, max. 16GB SODIMM)	DDR4 2133 MHz, dual channel and ECC support (optional) Up to 32GB (max. 16GB on-board, max. 16GB SODIMM)	DDR5 4800 MHz, dual channel Up to 64GB (max. 32GB on-board, max. 32GB SODIMM)
Onboard Features	Storage & Others	Speed: SATA III, 1 x M.2 SATA connector (supports 2242, 2280 type) 1 x 2.5" SATA connector (up to extend dual SATA ports)	Speed: SATA III, 1 x M.2 SATA connector (supports 2242/2280 type) 1 x 2.5" SATA connector (up to extend dual SATA ports)	Default storage: 2 x PCIe Gen3 x4 M.2 2242/2280 NVMe Option storage 1: the 1st port co-lay with SATA3.0 2242/2280 M.2 SSD by BOM option the group of SATA interface can also switch to the RIO SATA by BOM option Option storage 2: 1 x NAND Flash mux with RIO SATA by BOM option 1 x PCIe Gen3 x8 for XMC 1 x XTM board reserved for MXM or 10GbE LAN extension
Front I/O	I/O Ports	1 x VGA, 3 x USB 3.0, 2 x RJ-45 GbE, 1 x RJ-45 COM, 1 x XMC site	1 x VGA, 3 x USB 3.0, 2 x RJ-45 GbE, 1 x RJ-45 COM, 1 x XMC Site	1 x DP 1.4, 3 x 2.5 Gb LAN, 1 x USB 3.2 Gen1 1 x Type-A, 1 x USB Type-C (DP ALT mode), 1 x RJ-45 COM
	LED Indicators	1 x blue for Hot Swap, 1 x yellow for HDD, 1 x green for Master/ Drone mode, 1 x green BMC Heartbeat, 1 x green for Power	1 x blue for Hot Swap, 1 x yellow for HDD, 1 x green for Master/ Drone mode, 1 x green BMC Heartbeat, 1 x green for Power	1 x blue for Hot Swap, 1 x green for Master/ Drone mode, 1 x green for Power
Backplane Interface	J1/J2	+3.3V/5V/12V power, 32/64-bit PCI local bus	+3.3V/5V/12V power, 32/64-bit PCI local bus	+3.3/5/12V power, 32/64-bit PCI local bus
	J3/J4/J5	RTM: RIO-3316 J3: 2 x LAN, 1 x USB 3.0; 2 x SATA 2 x USB 3.0 J4: 1 x DVI; 2 x USB 2.0, 1 x Audio J5: 4 x USB 2.0, 1 x USB 3.0, 2 x LAN (1 interface connectively with front), 2 x COM, 1 x DVI	XJ1 & XJ2-J5: 6 x USB 2.0, 2 x USB 3.0, 4 x COM, 2 x LAN (1 connectivity with front), 2 x SATA, 1 x PCIe x8, 2 x DDI for DP, 1 x PS/2, LVDS, VGA, UART	J3: 2 x USB 2.0, 2 x SATA2.0 (switched with one set of onboard M.2 SATA and one set of SATA3.0 NAND Flash by BOM option), 2 x 1GbE LAN, 8 x GPIO J4: 2 x USB 2.0, 1 x Audio, 1 x UART, 2 x GPIO, 1 x TMD5 J5: 4 x USB2.0, 1 x UART, 1 x PS/2 KB/MS, 2 x COM, 1 x TMD5, 2 x 1GbE LAN
Operating System	Compatibility	Win 7 64-bit, Win 10 64-bit, Linux, VxWorks (upon request)	Win 7 64-bit, Win 10 64-bit, Linux, VxWorks (upon request)	Win10 64-bit, Linux
Power Consumption	System Full Loading	Maximum: up to 72W depending on CPU type	Maximum: up to 72W depending on CPU type	Maximum: up to 78.57W depending on CPU type
Physical Characteristics	Dimension (L x H)	233.35 x 160.0 mm (9.2" x 6.3")	233.35 x 160.0 mm (9.2" x 6.3")	233.35 x 160.0 mm (9.2" x 6.3")
Environment	Operating Temperature	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
Regulatory	Conformance	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS	FCC Class A, CE, RoHS
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R1.0, PICMG2.9 R1.0, PICMG2.16 R1.0	PICMG2.0 R3.0, PICMG2.1 R1.0, PICMG2.9 R1.0, PICMG2.16 R1.0	PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.0 R3.0



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	–	–	2 x SFP+ with support for presence detect, status and ID EEPROM	4 x RJ-45 ports
	LED Indicators	–	–	Network Link, Activity	4 x 2 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	–	1 x system, 7 x peripheral, 8 x rear transition	–	–
	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	Dimension (L x H)	233.35 x 160 mm (9.2" x 6.3")	440 x 177 x 320 mm (17.3" x 7" x 12.6") (W x H x D)	74 x 149 mm (2.9" x 5.78")	74 x 139 mm (2.9" x 5.39")
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





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Intelligent Transportation & Substation Certified Systems

Transportation Platform

- ☞ 6-3 AFC Controllers
- ☞ 6-4 Intelligent Wayside Controllers
- ☞ 6-5 Roadway Traffic Management
- ☞ 6-6 In-Vehicle & Rolling Stock Application-Oriented Controllers
- ☞ 6-7 In-Vehicle & Rolling Stock AI-Oriented Controllers
- ☞ 6-8 Rolling Stock Display Systems

Substation Platform

- ☞ 6-10 Substation Certified Platforms
- ☞ 6-12 HSR/PRP & Peripherals



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 decades 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.

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partner Titanium
IoT
Solutions

Product Offerings

AFC Controllers

ITA-1 Series

The AFC controller series features a 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 thanks to its compact and lightweight design.



Intelligent Wayside Controllers

ITA-2 Series

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



Roadway Traffic Management

ITA-3 Series

The ITA-3 series works as edge computing platform, providing flexible configuration for local in-time analysis of video images. This shortens the time needed to analyze in real-time for historical traffic data, enabling incident detection, law enforcement and traffic counting in traffic management applications.



In-Vehicle Controllers

ITA-4 Series

The ITA-4 series is an AI-based in-vehicle platform with visual recognition, and provides an intelligent in-vehicle solution for smart transportation.



AI/Application-Oriented Rolling Stock Controllers

ITA-5 Series

The ITA-5 series caters to various rolling stock applications, including train-to-ground connectivity, infotainment, vehicle management, security gateway, obstacle detection, AI safety, and more.



Onboard Display Systems

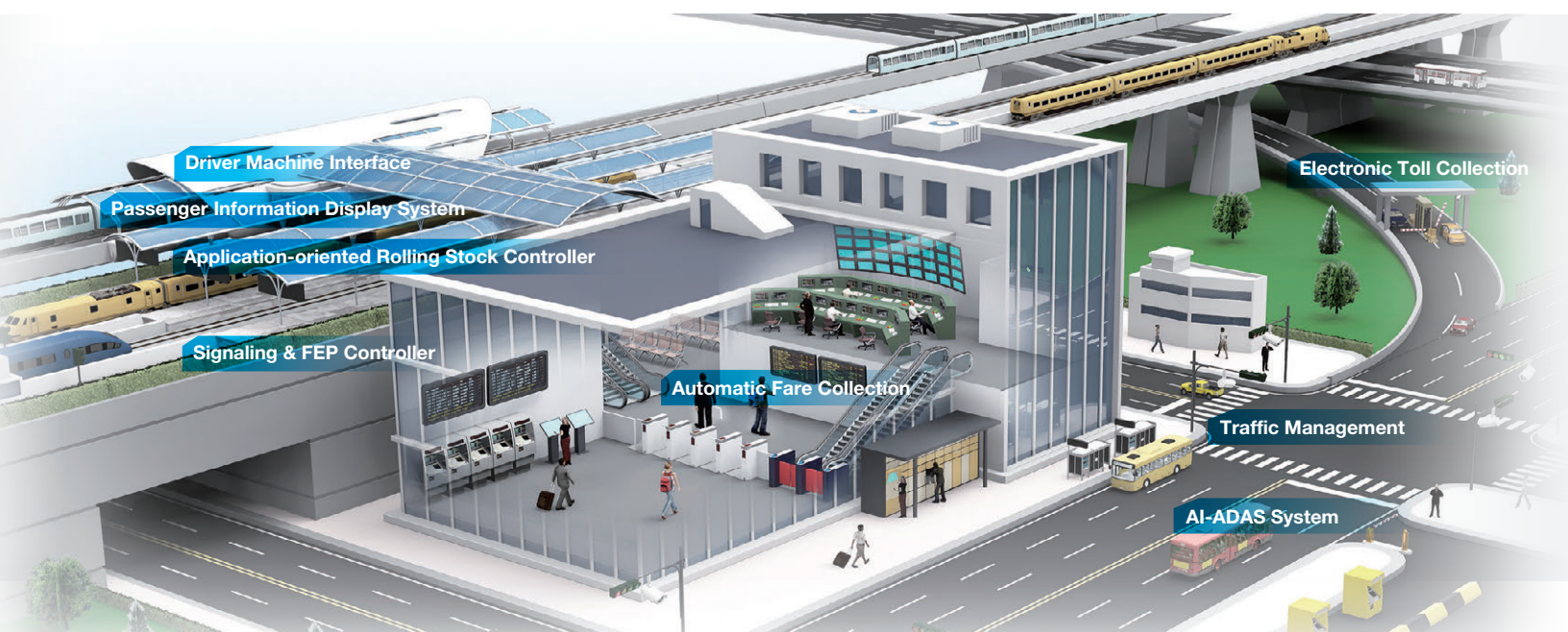
ITA-7 Series

The ITA-7 series is a passenger information system that provides accurate arrival times for trains at each stop through displays in vehicles and stations and improves data collection, display and content management, improving passenger experience with route information.



ITA-8 Series

The ITA-8 series is a driver machine interface (DMI) with a 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	ITA-168	ITA-178
Processor System	CPU	Intel® Celeron® processor J1900	Intel® Celeron® processor J1900	Intel® Celeron® processor J6412	Intel® Celeron® processor J6412
	Processor Base Frequency	2.0 GHz	2.0 GHz	2.0 GHz	2.0 GHz
	Cache	2 MB	2 MB	1.5 MB L2 Cache	1.5 MB L2 Cache
	Core Number	4	4	4	4
	TDP	10W	10W	10W	10W
Memory	Technology	Dual channel DDR3L 1333	Dual channel DDR3L 1333	Dual channel DDR4 3200	Dual channel DDR4 3200
	Capacity	4 GB onboard (Max. 8 GB with SO-DIMM)	8 GB onboard (max)	8 GB onboard with another SO-DIMM up to 32GB	8 GB onboard with another SO-DIMM up to 32GB
Graphics	Chipset	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® UHD Graphics for 10th Gen Intel® Processors
	Multiple Displays	Dual	Dual	Single	Triple
	Displays	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	HDMI up to: 3840 x 2160 @ 30Hz	2 x VGA + LVDS VGA up to: 1920 x 1200 @ 60Hz
	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	Interface	10/100/1000 Mbps	10/100/1000 Mbps	100/1000/2500 Mbps	100/1000/2500 Mbps
	Controller	2 x Intel® I211	4 x Intel® I210 (max)	4 x Intel® I226	4 x Intel® I226
	Connector	2 x RJ-45	4 x RJ-45 (max)	4 x RJ-45	4 x RJ-45
Storage	Internal	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA
	External	1 x 2.5" HDD/SSD	1 x 2.5" HDD/SSD 1 x Easy swap CFast module	1 x 2.5" SSD	1 x 2.5" SSD 1 x Easy swap CFast module
I/O Interface	Main Display	VGA	VGA	HDMI	VGA
	Second Display	LVDS/VGA/DVI	LVDS/VGA/DVI	–	LVDS
	Third Display	–	–	–	VGA
	SATA	2 x SATA	2 x SATA	2 x SATA	2 x SATA
	USB 2.0 Ports	5	5	6	6
	USB 3.0 Ports	1	1	2	2
	LAN Ports	2 x RJ-45	4 x RJ-45 (max)	4 x RJ-45	4 x RJ-45
	Serial Ports	6	14 (max)	6	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 amplifier, 1 x Mic-in	1 x Speaker-out, 1 x Mic-in
	Digital I/O	8 GPIO	24 programmable GPIO, max to 48	8 GPIO	24 programmable GPIO, max to 48
Expansion Slots	Mini PCIe	1	2 (max)	2	2
Power	Input Voltage	9~36 V _{DC}	9~36 V _{DC}	9~36 V _{DC}	9~36 V _{DC}
	Output	System reset	System reset	System reset	System reset
Watchdog Timer	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
	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	-25 ~ 60°C
Mechanical	Dimension (W x H x D)	200 x 70 x 190 mm	ITA-1711: 200 x 100 x 190 mm ITA-1711N: 220 x 100 x 190 mm	200 x 60 x 150 mm	200 x 100 x 150 mm
Certification	EMC	CE/FCC, CCC, BSMI	CE/FCC, CCC, BSMI	CE/FCC, CCC	CE/FCC, CCC
	Safety	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC	CB, UL, CCC

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

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Edge Software & Industry
Solutions

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Intelligent Motion Control
Solutions

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Data Acquisition (DAQ)
Solutions

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Remote I/O, Wireless I/O
& Sensors

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Serial/USB Communications

Intelligent Wayside Controllers



Model		ITA-260		ITA-2211		ITA-2231	
Processor System	CPU	11th Gen Intel® Core™ i7/i5/i3 processors		Intel Atom® processor E3845		Intel® Core™ i7-6822EQ processor	
	Processor Base Frequency	i7: 2.8 GHz/1.8 GHz /1.2GHz i5: 2.6 GHz/1.5 GHz /1.1GHz i3: 3.0 GHz/2.2 GHz /1.7GHz		1.91 GHz		2.0 GHz	
	Cache	12MB (max)		2 MB		8 MB	
	Core Number	4 (max)		4		4	
	TDP	28W /15W /12W		10W		25W	
	Chipset	-		-		QM170	
	BIOS	AMI® SPI 256 Mb		AMI® SPI 64 Mb		AMI® SPI 128 Mb	
Memory	Technology	Dual-channel DDR4		Dual channel DDR3 1333		Dual-channel DDR4 2133	
	Capacity	SO-DIMM (up to 64 GB with 2 SO-DIMM slots)		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	
Graphics	Chipset	Intel® Iris® Xe Graphics		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 512 MB SDRAM	
	Displays	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 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	10/100/1000/2500 Mbps		10/100/1000 Mbps		10/100/1000 Mbps	
	Controller	2 x Intel® I226LM & 2 x Intel® I210	2 x Intel® I226LM & 2 x Intel® I210 & 2 x Intel® I210-IS	2 x Intel® I210IT		1 x Intel® I219IT, 1 x Intel® I210IT	
	Connector	4 x RJ-45		2 x RJ-45		2 x RJ-45	
Storage	SSD	1 x SATA3.0 and 1 x mSATA		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	
I/O Interface	VGA	-		1		-	
	DVI-I	-		-		1	
	DVI-D	-		1		1	
	LAN Ports	4		2		2	
	USB Ports	2 x USB 2.0, 2 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 Ports	2 x DB9 (RS-232/422/485)		2 x DB9 (RS-232/422/485)		2 x DB9 (RS-232/422/485) with 2.5KV isolation	
	CAN	-		-		-	
	PS/2	-		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	
Expansion Slots	ITA-EM	-		3		3	
	PCI104	-		1		1	
	Mini PCIe / M.2	1 x Mini PCIe	2 x Mini PCIe & 2 x M.2 & 1 x SIM slot	1		1	
	iDoor	-		-		-	
Power	Input Voltage	9-48 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 3-pin 5.08 mm Terminal Block	2 x 3-pin 5.08 mm Terminal Block	1 x 3-pin 5.08 mm Terminal Block	2 x 3-pin 5.08 mm Terminal Block
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	
Environment	Operating Temperature	Operating (with SSD)	Non-Operating	Operating (with SSD)	Operating (with HDD)	Non-Operating	Operating (with SSD)
		-40 ~ 60°C	-40 ~ 85°C	-25 ~ 60°C	0 ~ 40°C	-40 ~ 85°C	-25 ~ 60°C
Mechanical	Dimension (W x H x D)	78 x 150 x 120 mm	108 x 150 x 120 mm	427 x 88 x 325 mm		427 x 88 x 325 mm	
	Install	Wall mount & DIN-rail bracket	Wall mount & DIN-rail bracket	with mounting kits		with mounting kits	
Certification	EMC	CE,FCC,CCC		CE,FCC,CCC		CE,FCC,CCC	
	Safety	CB,CCC		UL,CB,CCC		UL,CB,CCC	
	Compliance	EN 50121-4		EN 50121-4, Level 4 EMS		EN 50121-4, Level 4 EMS	

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

Roadway Traffic Management



Model		ITA-360	ITA-360E	ITA-3650N	ITA-3650E	ITA-3650G
Processor System	CPU	12th Gen Intel® Core™ i9/i7/i5/i3 processors		6th Gen Intel® Core™ i7/i5/i3 processors; Intel® Celeron® processors		
	Processor Base Frequency	Up to 3.20 GHz		Up to 3.70 GHz		
	Cache	Up to 30 MB		Up to 8 MB		
	Core Number	Up to 16		Up to 4		
	TDP	35W/60W/65W		35W/51W/65W		
	Chipset	H610E		H110		C236
Processor System	Operating Temperature	60/65W: -25 ~ 50°C (with industry SSD, 0.7m/s airflow) 35W: -25 ~ 60°C (with industry SSD, 0.7m/s airflow)		35W: -25 ~ 50°C (with Industry SSD) 54W/65W: -25 ~ 50°C (with Industry SSD)		-25 ~ 40°C (with MXM GPU support)
	CPU	Intel® 13th Gen. Core™ i9/i7/i5/i3		Intel® 7th Gen. Core™ i7/i5/i3/Celeron		
	Processor Base Frequency	Up to 3.30 GHz		Up to 3.90 GHz		
	L2 Cache	Up to 36 MB		Up to 8 MB		
	Core Number	Up to 24		Up to 4		
	TDP	35W/60W/65W		35W/51W/65W		
Memory	Chipset	H610E		H110		C236
	Operating Temperature	60/65W: -25 ~ 50°C (with industry SSD, 0.7m/s airflow) 35W: -25 ~ 60°C (with industry SSD, 0.7m/s airflow)		35W: -25 ~ 50°C (with Industry SSD) 54W/65W: -25 ~ 50°C (with Industry SSD)		-25 ~ 40°C (with MXM GPU support)
Memory	Technology	Dual-channel DDR4 2400/2666/3200 MHz SO-DIMM (without ECC)		Dual-channel DDR4 2133 MHz (without ECC)		
	Capacity	2 SO-DIMM Slots, Up to 64GB		8 GB on board 16 GB on board (Max. 32 GB with SO-DIMM) (Max. 32 GB with SO-DIMM)		
Graphics	Controller	Intel® UHD Graphics 770		Intel® HD Graphics 630/610/530/510		
	VGA	-		1 x DB15, max resolution up to 1920 x 1080 @ 60Hz		
	HDMI	2 x HDMI, support HDMI1.4 standard, max to 3840 x 2160 @ 30Hz		1 x HDMI, support HDMI1.4 standard, max to 3840 x 2160 @ 30Hz		
	DP	2 x Box Header on board		1 x Box Header on board		4 x DP
	Displays	3 x independent displays 2 x HDMI + 1 x DP pin header (third display output via optional cable)		HDMI+VGA		HDMI+VGA+4DP
Ethernet	Interface	100/1000/2500 Mbps		10/100/1000 Mbps		
	Controller	4 x Intel® I226	4 x Intel® I226 & 2 x Intel® I210IS	1 x Intel® I210; 1 x IWGi219LM; 4 x Intel® I211		1 x Intel® I210; 1 x IWGi219LM; 4 x Intel® I211
	Connector	4 x RJ-45		4/6 x RJ-45		6 x RJ-45
Storage	Internal	1 x mSATA socket		1 x mSATA		
	External	2 x 2.5" storage bay		2 x 2.5" storage bay		
I/O Interface	Main Display	HDMI1		HDMI		
	Second Display	HDMI2		VGA		
	SATA	2 x SATA		2 x SATA		
	USB Ports	4 x USB 3.2		4 x USB 3.0 & 2 x USB 2.0		6 x USB 3.0
	LAN Ports	4 x RJ-45	4 x RJ-45 & 2 x SFP	6 x RJ-45		6 x RJ-45
	Serial Ports	2 x DB9 (RS232/422/485 with automatic flow control) 2 x DB9 (only RS232)	8 x DB9 (RS232/422/485 with automatic flow control) 2 x DB9 (only RS232)	8 x DB9 (RS232/422/485 with automatic flow control)		2 x DB9 (RS232/422/485 with automatic flow control)
	Audio	1 x Speaker out, 1 x Mic-in		1 x Speaker out with 8W amplifier, 1 x Mic-in		
	Digital I/O	8-bit GPIO (pin header)		24-bit DIO & 8-bit GPIO (pin header)		-
Expansion Slots	Mini PCIe / M.2	1 x M.2 B-Key (SATA/ USB 3.0 signal) for 2280 SATA SSD or 3052 5G module 1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot		1 x Mini PCIe & SIM slot
	PCI/PCIe	-		1 x PCI & 1 x PCIe x 8 slot		-
	MXM Slot	-		-		1 x MXM slot
Power	Input Voltage	9~36 V _{DC}		9~36 V _{DC}		
Watchdog Timer	Output	System reset		System reset		
	Interval	Programmable 1~255 sec/min		Programmable 1~255 sec/min		
Environment	Operating Temperature	Industry SSD: max to -25 ~ 60°C (with 0.7m/s airflow)		Industry SSD: max to -25 ~ 60°C		-25 ~ 40°C (with Industry SSD) with 0.7m/s air flow
	Storage Temperature	-40 ~ 85°C		-40 ~ 85°C		
Mechanical	Dimension (W x H x D)	185 x 70 x 220 mm	185 x 120 x 220 mm	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")
	Install	Wall mount bracket		Wall mount bracket		
Certification	EMC	CE/FCC, CCC, BSMI		CE/FCC, CCC, BSMI		
	Safety	CCC, BSMI		UL, CCC, BSMI		

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

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EtherCAT Solutions & Automation Controllers

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

In-Vehicle & Rolling Stock Application-Oriented Controllers



Model		ITA-460	ITA-520	ITA-580	ITA-5231 ITA-5231S	ITA-5831
Processor System	CPU	9th/8th Gen Intel® Core™ i7/i5/i3; Celeron® processors	11th Gen Intel® Core™ i7/i5/ processors	Intel® Xeon®; 11th Gen Core™ i7/i5; Celeron® processors	6th Gen Intel® Core™ i7/i5; Celeron® processors	6th Gen Intel® Core™ i7/i5; Celeron® processors
	Frequency	1.8 GHz, up to 4.0 GHz	2.6 GHz, up to 4.7 GHz	2.6 GHz, up to 4.7 GHz	Up to 2.8 GHz	Up to 2.8 GHz
	TDP	35W/65W	35W	35W	25W	25W
	Chipset	Intel® H310	Intel® RM590E	Intel® RM590E	Intel® QM170	Intel® QM170
	Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics for 11th Gen Intel®	Intel® UHD Graphics for 11th Gen Intel®	Intel® HD Graphics 530	Intel® HD Graphics 530
Memory	Technology	Dual channel	Dual channel, DDR4 3200	Dual channel, DDR4 3200	Dual channel, DDR4 2400	Dual channel, DDR4 2400
	Capacity	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB
	Onboard Memory	8 GB DDR4 2666 (16GB optional)	8/16 GB	8/16 GB	8 GB (16GB optional)	8 GB (16GB optional)
	SO-DIMM Slot	1	1	1	1	1
Ethernet	Controller	2 x Intel® i210-IT	3 x Intel® i226-IT	3 x Intel® i226-IT	1 x Intel® i219LM + 2 x Intel® i210-IT	1 x Intel® i219LM + 2 x Intel® i210-IT
	Speed	10/100/1000 Mbps	10/100/1000/2500 Mbps	10/100/1000/2500 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	2 x M12 X-Coded	3 x M12 X-Coded	3 x M12 X-Coded	3 x M12 X-Coded	3 x M12 X-Coded
I/O Interface	USB Ports	2 x USB 3.0 /3.1(Type-A)	4 x USB 3.2 (Type-A) + 1 USB 2.0 (M12 A-Coded)	4 x USB 3.2 (Type-A) + 1 USB 2.0 (M12 A-Coded)	2 x USB 3.0 (Type-A) + 1 USB 2.0 (M12 A-Coded)	2 x USB 3.0 (Type-A) + 1 USB 2.0 (M12 A-Coded)
	Audio	1 x M12 A-Coded (1 x line out and 1 x Mic-in))	1 x Speaker-out, 1 x Mic-in	1 x Speaker-out, 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
	Serial Ports	1 x DB9 (2 x RS-232/422/485 software programmable)	2 (RS-232/422/485)	2 (RS-232/422/485)	2 (RS-232/422/485)	2 (RS-232/422/485)
	Digital I/O	–	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO
	Displays	1 x HDMI	2 x DP	2 x DP	1 x DVI-I	1 x DVI-I
	Mini PCIe	3	2	2	3	3
Expansion Slots	SIM Slots	1	4	4	2	2
	M.2	–	2 x M.2 (B/M-Key, 3042/3052) 1 x M.2 (A/E-Key, 2230)	2 x M.2 (B/M-Key, 3042/3052) 1 x M.2 (A/E-Key, 2230)	–	–
Storage	mSATA/M.2	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA	1 x mSATA
	2.5" SSD	2 x 2.5" SSD slot (9 mm)	2 x 2.5" 7 mm SSD, support RAID 0/1/5/10 (up to 4 x 2.5" 7mm SSD as optional)	Max. 4 x 2.5" SSD by FRU-ITASSD kit expansion, 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
Software	Operating System	Windows 10, Linux Ubuntu 20.04	Windows 10/11, Linux Ubuntu 20.04+	Windows 10/11, Linux Ubuntu 20.04+	Windows 10, Linux Ubuntu	Windows 10, Linux Ubuntu
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)	24~110 V _{DC} (M12 S-Coded)	24~110 V _{DC} (M12 K-Coded)	24/48/72/110 V _{DC} (selectable) (M12 S-Coded)	24/110 V _{DC} (selectable) (M12 S-Coded)
	Power Management	✓	✓	✓	–	–
Environment	Operating Temperature	-25 ~ 60°C with 0.7 m/s air flow	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)	EN 50155 OT4 -40 ~ 70°C (85°C 10 minutes)
	Vibration, Shock	MIL-STD-810; 75G 11 ms	EN 61373	EN 61373	EN 61373	EN 61373
	Ingress Protection	IP-65	IP-40 (with IO caps)	IP-40 (with IO caps)	IP-40 (with IO caps)	IP-40 (with IO caps)
Mechanical	Dimension (W x H x D)	190 x 70 x 220 mm	427 x 88 x 200 mm	260 x 88 x 198 mm	427 x 88 x 195.8 mm	220 x 88 x 200 mm
	Weight	4 kg	5.7 kg	4.5 kg	7.5 kg	4.5 kg
Certification	EMC	CE, FCC Class B	CE, FCC	CE, FCC	CE, FCC	CE, FCC
	Safety	CB/UL, CCC, Emark, ISO 7637-2, BSMI	UL, CB, CCC	UL, CB, CCC, BSMI	UL, CB, CCC	UL, CB, CCC, BSMI
	Type Approval	Emark, ISO 7637-2	EN 50155:2021 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2021 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

✓ : supported, – : not supported, Δ : optional

In-Vehicle & Rolling Stock AI-Oriented Controllers



Model		ITA-460G ITA-460E	ITA-510	ITA-560	ITA-520G	ITA-580G
Processor System	CPU	9th/8th Gen Intel® Core™ i7/i5/i3; Celeron® processors	NVIDIA® Jetson Orin™ NX / Orin™ Nano	NVIDIA® Jetson Orin™ NX / Orin™ Nano	11th Gen Intel® Core™ i7 processors	11th Gen Intel® Core™ i7 processors
	Frequency	AMI 256Mb SPI Flash (limited to TDP 35W in default)	2.0GHz	2.0GHz	2.6 GHz, up to 4.7 GHz	2.6 GHz, up to 4.7 GHz
	TDP	35W/65W	NX:25W / Nano:15W	NX:25W / Nano:15W	35W	35W
	Chipset	Dual channel DDR4 2666MHz	Arm® Cortex®-A78AE	Arm® Cortex®-A78AE	Intel® RM590E	Intel® RM590E
	Graphics	Intel® H310	NVIDIA® Ampere GPU 1024 NVIDIA CUDA cores and 32 Tensor cores	NVIDIA® Ampere GPU 1024 NVIDIA CUDA cores and 32 Tensor cores	Intel® UHD Graphics for 11th Gen Intel®	Intel® UHD Graphics for 11th Gen Intel®
Graphics Card Expansion	MXM Slot	1	–	–	1	1
	Type	MXM 3.1 Type A/ B (< 60W)	–	–	MXM 3.1, Type-A, 60W	MXM 3.1, Type-A, 60W
Memory	Technology	Dual channel	–	–	Dual channel	Dual channel
	Capacity	Up to 32 GB	NX:16GB / Nano:8GB	NX:16GB / Nano:8GB	Up to 32 GB	Up to 32 GB
	Onboard Memory	8 GB DDR4 2666 (16GB optional)	NX:16GB / Nano:8GB	NX:16GB / Nano:8GB	16 GB DDR4 3200	16 GB DDR4 3200
	SO-DIMM Slot	1	–	–	1	1
Ethernet	Controller	2 x Intel® i210-IT	3 x Intel® i210-IT + 1 x Realtek PHY	3 x Intel® i210-IT + 1 x Realtek PHY	7 x Intel® i226-IT	3 x Intel® i226-IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000/2500 Mbps	10/100/1000/2500 Mbps
	Connector	2 x M12 X-Coded	4 x M12 X-Coded	4 x M12 X-Coded	7 x M12 X-Coded	3 x M12 X-Coded
I/O Interface	USB Ports	2 x USB 3.0 /3.1 (Type-A)	2 (Type-A)	2 (Type-A)	4 x USB 3.2 (Type-A) + 1 USB 2.0 (M12 A-Coded)	4 x USB 3.2 (Type-A) + 1 USB 2.0 (M12 A-Coded)
	Audio	1 x M12 A-Coded (1 x line out, 1 x Mic-in)	–	–	1 x Speaker-out, 1 x Mic-in	1 x Speaker-out, 1 x Mic-in
	Serial Ports	1 x DB9 (2 x RS-232/422/485 software programmable)	1x DB9 (RS-232/422/485)	1 x DB9 (RS-232/422/485)	2 (RS-232/422/485)	2 (RS-232/422/485)
	Digital I/O	–	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO	4 x DI & 4 x DO
	Displays	1 x HDMI	1 x HDMI	1 x HDMI	2 x DP	2 x DP
	Mini PCIe	3	1	1	2	2
Expansion Slots	SIM Slots	1	1	1	4	4
	M.2	–	1 x M.2 (B-Key) 3052 for 5G/LTE 1 x M.2 (E-Key) 2230 for Wi-Fi/Bluetooth 1 x M.2 (M-Key) 2280 for storage	1 x M.2 (B-Key) 3052 for 5G/LTE 1 x M.2 (E-Key) 2230 for Wi-Fi/Bluetooth 1 x M.2 (M-Key) 2280 for storage	2 x M.2 (B+M, 3042/3052) 1 x M.2 (A+E, 2230)	2 x M.2 (B+M, 3042/3052) 1 x M.2 (A+E, 2230)
Storage	mSATA/M.2	1 x mSATA	1 x M.2 2280 128GB (default)	1 x M.2 2280 (M-Key) 128GB (default)	1 x mSATA	1 x mSATA
	2.5" SSD	2 x 2.5" SSD slot (9 mm)	–	–	2 x 2.5" 7 mm SSD, support RAID 0/1/5/10 (up to 4 x 2.5" 7mm SSD as optional)	Max. 4 x 2.5" SSD by FRU-ITASSD kit expansion, supports RAID 0/1/5/10
Software	Operating System	Windows 10, Linux Ubuntu 20.04	Linux Ubuntu 20.04	Linux Ubuntu 20.04	Windows 10/11, Linux Ubuntu 20.04+	Windows 10/11, Linux Ubuntu 20.04+
Power	Input Voltage	12V/24V (8~32V _{oc} *wide power input); 9.6V ~28.8V full loading (*: Power input constraint at low power 8~9.6V) (6-Pin M16)	24/110 V _{oc} (M12 S-Coded)	24/110 V _{oc} (M12 S-Coded)	24~110 V _{oc} (M12 S-Coded)	24~110 V _{oc} (M12 K-Coded)
	Ignition On/Off	✓	–	–	✓	✓
Environment	Operating Temperature	-25 ~ 60°C with 0.7 m/s air flow	EN 50155 OT1 -25 ~ 55°C	EN 50155 OT1 -25 ~ 55°C	EN 50155 OT4 -40 ~ 70°C; OT1 -25 ~ 55°C with MXM module	
	Vibration, Shock	MIL-STD-810; 75G 11 ms	EN 61373	EN 61373	EN 61373	EN 61373
	Ingress Protection	IP-65	IP-40 (with IO caps)	IP-40 (with IO caps)	IP-40 (with IO caps)	IP-40 (with IO caps)
Mechanical	Dimension (W x H x D)	195.8 x 124.2 x 226.9 mm	482.6 x 44 x 218.3 mm	160 x 60 x 190 mm	482.6 x 88 x 224.3 mm	260 x 140 x 197.2 mm
	Weight	6.5 kg	4.5 kg	2.4 kg	7.5kg	7.5 kg
Certification	EMC	CE/FCC Class A	CE, FCC	CE, FCC	CE, FCC	CE, FCC
	Safety	CB/UL, CCC, BSMI	UL, CB, CCC	UL, CB, CCC	UL, CB, CCC	UL, CB, CCC, BSMI
	Type Approval	Emark, ISO 7637-2	EN 50155:2017 EN 50121-3-2	EN 50155:2017 EN 50121-3-2	EN 50155:2021 EN 50121-3-2 EN 50121-4 EN 45545-2	EN 50155:2021 EN 50121-3-2 EN 50121-4 EN 45545-2

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

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Rolling Stock Display Systems



Model		ITA-8100/8100B	ITA-8120	ITA-7220/7220F
Processor System	CPU	Intel Atom® x7-E3950 processor	Intel Atom® x7-E3950 processor	Intel® Celeron® processor J1900
	Frequency	Up to 2.00 GHz	Up to 2.00 GHz	2.00 GHz
	Core	4	4	4
Memory	Technology	Single channel, DDR3L	Single channel, DDR3L	Single channel, DDR3L
	Capacity	Default 4GB, up to 8GB	Default 4GB, up to 8GB	Default 4GB, up to 8GB
	SO-DIMM	1	1	1
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)
Graphics	Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	Displays	–	–	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)	22" TFT LCD panel (Max. resolution 1920 x 1080, 16:9)
	Brightness	500 nits (ITA-8100) 1300 nits (ITA-8100B)	600 nits	400 nits
	Contrast Ratio	1000:1 (ITA-8100) 700:1 (ITA-8100B)	1000:1	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	Ethernet	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) (ITA-7220F)
	Serial Ports	2 x RS-422/485 (M12 A-Coded)	2 x RS-422/485 (M12 A-Coded)	–
	USB Ports	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)
	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 18.04+	Windows 10, Linux 18.04+	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)	24/110 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
	Shock and Vibration	EN 61373	EN 61373	EN 61373
	Ingress Protection	IP65-rated front panel	IP65-rated front panel	IP40-rated
Physical Characteristics	Dimension (W x H x D)	310 x 214 x 70 mm	350 x 260 x 71.5 mm	575 x 299 x 56 mm
	Weight	4.5 kg	5 kg	7 kg (ITA-7200F) 6.5 kg (ITA-7220)
Certification	Type Approval	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
	EMC and Safety	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368	CE/FCC Class A, UL 62368

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

Substation Certified Platforms

Introduction

There is an increasing global consensus on combating climate change and growing demand for energy, which has accelerated the adoption of renewable energy sources. However, issues such as the instability of major renewable energy sources like wind and solar power have posed challenges to existing power grid infrastructure in managing renewable energy. In order to provide a reliable power supply, we are introducing the concepts of digitization and virtualization to transform the grid into a data-driven system, assisting in the optimal adaptation of renewable energy supply and demand.

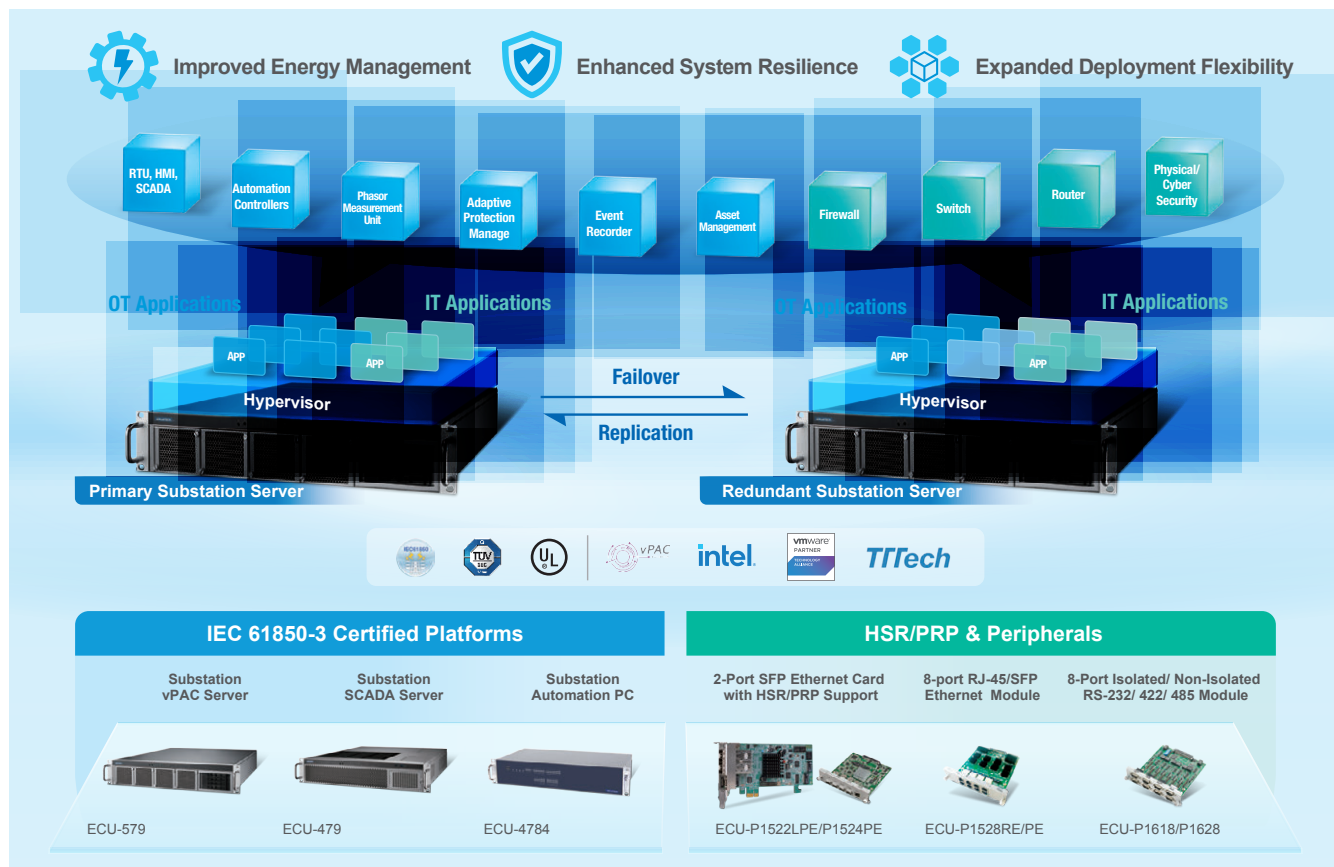
By embracing digitalization, we can significantly enhance the reliability of power system protection, monitoring, control, and asset management. Virtualization plays a key role in making the grid more sustainable and resilient. Digital substations leverage standard networking concepts and virtualization, enabling the consolidation of multiple OT and IT systems onto a single platform. This not only reduces the number and variety of devices in substations, but also saves costs, and resources, and simplifies maintenance. The design of redundant systems in digital substations will make the power grid more secure, resilient, and reliable.

Substation Platforms

Advantech offers purpose-built server families designed specifically for this market - the ECU series substation platforms. These platforms are based on Intel multi-core processors and are certified for substation use according to IEC 61850-3 standards. They support zero data loss networking protocols (e.g., HSR/PRP) over standard high-speed Ethernet networks. With their open architecture hardware, these platforms provide a robust computing environment for virtualized software workloads. Additionally, Advantech actively supports partnerships and ecosystem acceleration efforts such as the vPAC Alliance, aiming to deliver solutions for the intelligent grid.

HSR/PRP & Peripherals

Advantech's ECU-P module addresses the energy sector's demand for networks that are both effective and reliable. Tailored for the ECU platform, it ensures seamless integration and versatility, compatible with ECU Platforms and industrial PCs alike. Featuring the ECU-P1522LPE card, it embraces HSR and PRP protocols, vital for integrating digital substations and adhering to strict protocol requirements. Furthermore, it meets the IEC-61850-3 standard, ensuring resilience in critical infrastructures.



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Communication Central Platforms

x86-Based Industrial Automation Computers



Model		ECU-4784-E3/E4	ECU-4784-E5	ECU-4784-G5
Processor System	CPU	Intel® Core™ i5-6300U / i7-6600U processor	Intel® Xeon® processor E3-1505L v5	Intel® Xeon® E-2276ML processor
	Processor Base Frequency	2.4 GHz / 2.6 GHz	2.0 GHz	2.0 GHz
	Cache	3 MB / 4 MB	8 MB	12 MB
	Core Number	2	4	6
	TDP	15 W	25 W	25 W
Memory	Technology	Dual-channel DDR3L	Dual-channel DDR4	Dual-channel DDR4
	Capacity	8 GB / 16 GB	16 GB / 32 GB	32 GB / 64 GB
	DIMM Slot	2 x SO-DIMM	2 x SO-DIMM	2 x SO-DIMM
Ethernet	Controller	1 x Intel® I219 + 7 x Intel® I210	1 x Intel® I219 + 7 x Intel® I210	1 x Intel® I219 + 7 x Intel® I210
	Speed	8 x 10/100/1000 Base-T	8 x 10/100/1000 Base-T	8 x 10/100/1000 Base-T
	Connector	8 x RJ-45	8 x RJ-45	8 x RJ-45
I/O Interface	External USB	1 x internal USB 2.0	1 x internal USB 2.0	1 x internal USB 2.0
	Internal USB	5 x USB 2.0	5 x USB 2.0	5 x USB 2.0
	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)	2 x Isolated RS-232 (Standard) 8 x RS-232/422/485 (Terminal Block)
	Display	1 x DVI-D, 1 x DVI-I	1 x VGA, 1 x DVI-D	1 x DVI-D, 1 x DVI-I
Expansion Slots	PCIe	–	–	–
	Proprietary PCI/PCIe	2	2	2
Storage	2.5" SSD	3 x SATA	2 x SATA	3 x SATA
	M.2 / Cfast SSD	1 x M.2 2242/2280 PCIe NVMe	1 x Cfast	1 x M.2 2242/2280 PCIe NVMe or SATA
Software	Operating System	WES7, Windows7, Windows 10, Windows Server 2008R2, 2012R2, 2016, 2019, Linux	Windows7, Windows 10, Windows Server 2008R2, 2012R2, 2016, 2019, Linux	Windows 10, Windows Server 2012, 2016, 2019, Linux
Power	Input Voltage	Supports Redundant Power Input Power 1: 100 ~ 240 V _{AC/DC} or optional 48 V _{DC} Power 2 (Optional): 100 ~ 240 V _{AC/DC} or 48 V _{DC}	Supports Redundant Power Input Power 1: 100 ~ 240 V _{AC/DC} or optional 48 V _{DC} Power 2 (Optional): 100 ~ 240 V _{AC/DC} or 48 V _{DC}	Supports Redundant Power Input Power 1: 100 ~ 240 V _{AC/DC} or optional 48 V _{DC} Power 2 (Optional): 100 ~ 240 V _{AC/DC} or 48 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
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)	-25 ~ 60°C (-13 ~ 140°F)	-25 ~ 60°C (-13 ~ 140°F)
	Vibration, Shock	2 G, 30 G w/SSD	2 G, 30 G w/SSD	2 G, 30 G w/SSD
	Ingress Protection	IP-20	IP-20	IP-20
Mechanical	Dimension (W x H x D)	With handles: 482.6 x 88 x 323.9 mm Without handles: 440 x 88 x 280 mm	With handles: 482.6 x 88 x 323.9 mm Without handles: 440 x 88 x 280 mm	With handles: 482.6 x 88 x 323.9 mm Without handles: 440 x 88 x 280 mm
	Mounting	2U Rackmount	2U Rackmount	2U Rackmount
	Weight	6.0 kg	6.0 kg	6.0 kg
Certification	EMC	CE, FCC, IEEE 1613, CCC	CE, FCC, IEEE 1613, CCC	CE, FCC, IEEE 1613, CCC
	Safety	CB, UL, CCC	CB, UL, CCC	CB, UL, CCC
	Type Approval	IEC 61850-3, China Electricity Certificate IV level	IEC 61850-3, China Electricity Certificate IV level	IEC 61850-3, China Electricity Certificate IV level

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

Communication Central Platforms

x86-Based Industrial Automation Computers



Model		ECU-479	ECU-579
Processor System	CPU	13th Gen Intel® Core™ i7/i5/i3 processors	2nd Gen Intel® Xeon® Scalable processors
	Processor Frequency	1.1GHz, up to 4.8GHz	1.9 GHz, up to 3.7 GHz
	Cache	up to 30 MB Intel® Smart Cache	up to 30.25 MB
	Core Number	up to 8 P-cores & 8 E-cores	up to 22 cores
Memory	Technology	Dual-channel DDR4	Hexa-channel DDR4
	Capacity	Up to 64 GB	Up to 768 GB
	DIMM Slot	2 x SO-DIMM	12 x R-DIMM
Ethernet	Controller	1 x Intel® I226 + 3 x Intel® I210	4 x Intel® I210
	Speed	4 x Isolated 10/100/1000 Base-T	4 x 10/100/1000 Base-T
	Connector	4 x RJ-45	4 x RJ-45
I/O Interface	External USB	5 x USB 3.0	3 x USB 3.0
	Internal USB	1 x internal USB 2.0	1 x internal USB 2.0, 1 x USB 2.0 Pin Header, 1 x USB 3.0 Pin Header
	Serial Ports	2 x Isolated RS-232/422/485 (DB9 connectors)	–
	Display	4 x DP++ 1.2	1 x VGA, 2 x DVI-D
Expansion Slots	PCIe	4	4
	Proprietary PCI/PCIe	1	1
Storage	2.5" SSD	4 x SATA	4 x SATA
	M.2 SSD	1 x M.2 2280 SATA / PCIe NVMe	1 x M.2 2280 SATA / PCIe NVMe
Software	Operating System	Windows 10, Windows 11, Windows Server 2022, Linux	Windows 10, Windows Server 2012, 2016, 2019, 2022, Linux
Power	Input Voltage	Supports Redundant Power Input Power 1: 100 ~ 240 V _{AC} or 100 ~ 240 V _{DC} Power 2 (Optional): 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}
Watchdog Timer	Output	System reset	System reset
	Interval	Programmable 1~255 sec/min	Programmable 1~255 sec/min
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F) with 100% CPU/ I/O loading (Depends on CPU model and configuration)	-20 ~ 60°C (-4 ~ 140°F) (Depends on CPU model and configuration)
	Vibration, Shock	2 G, 30 G w/SSD	2 G, 30 G w/SSD
	Ingress Protection	IP-20	IP-20
Mechanical	Dimension (W x H x D)	With handles: 482.6 x 88 x 477.4 mm Without handles: 440 x 88 x 431.2 mm	With handles: 482.6 x 88 x 515.9 mm Without handles: 440 x 88 x 459 mm
	Mounting	2U Rackmount	2U Rackmount
	Weight	13.0 kg	10.0 kg
Certification	EMC	CE, FCC, IEEE 1613, BSMI	CE, FCC, IEEE 1613, CCC
	Safety	CB, UL, BSMI	CB, UL, CCC
	Type Approval	IEC 61850-3	IEC 61850-3

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

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HSR/PRP & Peripherals



Model	ECU-P1522LPE	ECU-P1524PE	ECU-P1528RE	ECU-P1528PE	ECU-P1618	ECU-P1628
Form Factor	PCIe Low Profile	ECU-P 120-pin Connector	ECU-P 120-pin Connector		ECU-P 120-pin Connector	
LAN Port	2 x SFP (100/ 1000 Mbps HSR/ PRP, selection via jumper)	2 x 1000 Base-X 2 x SFP (100/ 1000 Mbps HSR/PRP)	8 x 1000 Base-T	8 x 1000 Base-T	-	
LAN Chip	Intel® I210IT	Intel® I210IS/Intel® I210IT	Intel® I210IT	Intel® I210IS	-	-
Serial Ports	-	-	-	-	8 x RS-232/422/485(DB-9)	
Baud-Rate	-	-	-	-	RS-232: 50-115.2kbps RS-422/485 50-921.6bps	
Isolation	-	-	-	-	-	2500V _{DC}
Support	Generic IPC	ECU-4784 ECU-479 ECU-579	ECU-4784 ECU-479 ECU-579		ECU-4784 ECU-479 ECU-579	
Operating Temperature	-25 ~ 70°C (-4 ~ 158°F)		-25 ~ 60°C (-4 ~ 158°F)		-20 ~ 70°C (-4 ~ 158°F)	

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



Model	ECU-P1761	ECU-P1624D	UNOP-1000K
Form Factor	ECU-P 120-pin Connector	ECU-P 120-pin Connector	ECU-P 120-pin Connector
IRIG-B Type	BNC	BNC/Fiber/RS-485	-
Serial Ports	-	4 x RS-232/422/485(DB-9)	-
Baud-Rate	-	RS-232: 50-115.2kbps RS-422/485 50-921.6bps	-
Isolation	-	2500V _{DC}	2500V _{DC}
Digital Input	4 x Wet Contact	-	-
Digital Output	4 x Relay Form C	-	-
PCIe Slot	-	-	PCIe x1
Support	ECU-4784 ECU-479 ECU-579	ECU-4784 ECU-479 ECU-579	ECU-4784 ECU-479 ECU-579
Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)

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





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Industrial Server & Cloud Solutions

- ☞ 7-3 SKY Servers
- ☞ 7-11 Edge Accelerator Servers
- ☞ 7-13 Industrial Server Motherboards
- ☞ 7-17 Industrial Server Chassis
- ☞ 7-21 PCI Express Adapters

intel
partner Titanium
IoT
Solutions



Industrial Server & Cloud Solution

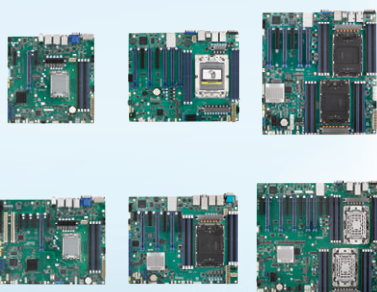
Extending the Cloud to the IoT Edge

Advantech offers an extensive array of server solutions, including server boards, chassis building blocks, and comprehensive barebone systems, tailored to suit the varied demands of the industry. Additionally, we provide customization services, ensuring that our solutions align precisely with your unique requirements. Engineered for exceptional performance and unwavering reliability, our servers are adept at handling a multitude of applications across key sectors including telecommunications, industrial automation, artificial intelligence, network edge computing, and hybrid cloud infrastructures. Our commitment to industrial-grade design, coupled with a promise of up to 10 years of product longevity, positions Advantech as the premier choice for sophisticated and durable server solutions.

■ Up to 10 years Longevity

Building Blocks

Computing Capacity, Expansion Slots, Core Count



Micro-ATX
Server Boards

ATX Server
Boards

EATX/Proprietary
Server Boards

■ Industrial-Grade Design

Barebone System

Edge Servers

Expandable
Accelerator Cards



GPU Servers

GPU Cards
Intensive



HCI Servers

Integrate Computing
& Storage



Telecom Servers

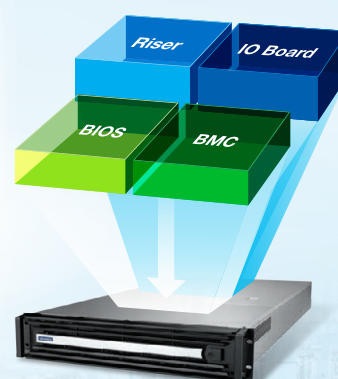
Optimized with 5G
vRAN Hardware
Accelerator



■ Complete Portfolio

Customization

The in-house solution enables quick, flexible
customization and responsive service



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Advantech Server Solutions



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Server Brochure

SKY Servers



Model		SKY-602E3	SKY-6100	SKY-620V3
Form Factor		Tower	1U - Rackmount	2U - Rackmount
Processor System	Processor	AMD® EPYC™ Embedded 8004 series server processors	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 140W	Dual 5th/4th Gen Intel® Xeon® Scalable processors
	Chipset	–	Intel® C622	Intel® C741
Memory	Memory Type	6 x DDR5 4800 MHz ECC RDIMM Up to 576GB	8 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 1TB	16 x DDR5 5600 MHz RDIMM Up to 2TB
	Controller	Intel® X710-AT2 (dual 10GbE port)	Intel® X557 10G Base-T + 1 x Intel® I210 Gigabit Ethernet	Intel® X710 10G Base-T + 2 x Intel® I226 2.5Gigabit Ethernet + 1 x Realtek 8211F (dedicated IPMI)
Networking	Port	2 x 10GbE RJ-45 1 x Management port	2 x 10GbE RJ-45 1 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 2.5GbE RJ-45 1 x RJ-45 for dedicated IPMI
Expansion	Expansion Slots	4 x PCIe 5.0 x16 (FH/10.5" dual slots) 2 x PCIe 5.0 x16 (FH/10.5" dual slots) + 4 x PCIe 5.0 x8 (FH/10.5" single slot)	5 x PCIe 3.0 x16 (FHHL) 1 x PCIe 3.0 x16 (FH, 10.5", dual slots) + 1 x PCIe 3.0 x16 (FHHL)	4 x PCIe 5.0 x16 (FH, 10.5", dual slots) 2 x PCIe 5.0 x16 (FH, 10.5", dual slots) or 4 x PCIe 5.0 x8 (FH, 10.5") 2 x PCIe 5.0 x8 (FHHL)
Storage	2.5" HDD/SSD	2 x 2.5" internal SATA drive bays	2 x 2.5" hot-swappable drives, 2 x SAS/SATA drive bays	8 x hot-swappable 2.5" SAS/SATA/NVMe drive bays
	3.5" HDD	–	–	–
	M.2 SSD	2 x M.2 2280 slot (PCIe/SATA)	1 x M.2 2242 slot (SATA)	2 x M.2 2280/22110 slots (PCIe/SATA)
I/O Connectivity	Front	–	2 x USB 2.0	2 x USB 2.0
	Rear	2 x USB 3.2 Gen 1 1 x VGA	2 x USB 3.2 Gen 1 1 x VGA	2 x USB 3.2 Gen 1 1 x Serial port 1 x VGA
	LED Indicator	Power, LAN, SYS_LED	Power, LAN, SYS_LED	Power, LAN, SYS_LED
	Button	Power, Reset	Power, Reset	Power, Reset
Power Supply		800W 1+0 single power supply or 800W 1+1 redundant power supply	1200W 1+1 platinum level redundant power supply	2700W 1+1 platinum level redundant power supply
Environment	Operating	0 ~ 40°C (32 ~ 104°F)	0 ~ 35°C (32 ~ 95°F)	0 ~ 35°C (32 ~ 95°F)
	Non-Operating	-40 ~ 60°C (-40 ~ 140°F)	-40 ~ 60°C (-40 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Cooling		1 x 12025 fan or 4 x 8038 fan	6 x 4056 fan + 1 x 4028 fan + 1 x 4028 external fan (optional)	2 x 8038 fan + 4 x 6038 fan
Physical Characteristics	Dimension (W x H x D)	380 x 340 x 570 mm (14.96" x 13.4" x 22.4")	438 x 44 x 650 mm (17.2" x 1.7" x 25.6")	438 x 88 x 760 mm (17.24" x 3.46" x 29.92")
	Weight (N.W.)	16 kg	16 kg	24 kg
OS Support		Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC	- ASPEED AST2600 BMC - IPMI 2.0, KVM with dedicated NIC
Security		TPM 2.0	TPM 2.0, chassis intrusion, bezel Lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel lock

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

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Serial/USB Communications

SKY Servers



Model		SKY-6200	SKY-6400	SKY-640V2
Form Factor		2U - Rackmount	4U - Rackmount	4U - Rackmount
Processor System	Processor	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 140W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 205W
	Chipset	Intel® C622	Intel® C621	Intel® C621A
Memory	Memory Type	24 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 3TB	12 x DDR4 2933 MHz ECC/RDIMM/LRDIMM Up to 1.5TB	16 x DDR4 3200 MHz ECC/RDIMM/LRDIMM up to 2TB
Networking	Controller	Intel® X557 10G Base-T + 2 x Intel® I210 Gigabit Ethernet	2 x Intel® I210 Gigabit Ethernet	Intel® X550 10G Base-T + 2 x Intel® I210 Gigabit Ethernet + 1 x Realtek 8201F (dedicated IPMI)
	Port	2 x 10GbE RJ-45 2 x 1GbE RJ-45	2 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 1GbE RJ-45 1 x RJ-45 for dedicated IPMI
Expansion	Expansion Slots	4 x PCIe 3.0 x16 (FH, 10.5", dual slots) or 8 x PCIe 3.0 x8 (FH, 10.5") 1 x PCIe 3.0 x8 (FHHL)	4 x PCIe 3.0 x16 (FH, 10.5", dual slots) 1 x PCIe 3.0 x8 (FHHL) 1 x PCIe 3.0 x4 (FH, 10.5")	4 x PCIe 4.0 x16 (FH, 10.5", dual slots) 3 x PCIe 4.0 x8 (FHHL)
Storage	2.5" HDD/SSD	8 x hot-swappable 2.5" SAS/SATA drive bays	2 x 2.5" drives (internal)	2 x 2.5" drives (internal)
	3.5" HDD	–	8 x 2.5/3.5" hot-swappable SAS/ SATA drive bays	8 x 2.5/3.5" hot-swappable SAS/SATA drive bays
	M.2 SSD	1 x M.2 2280 slot (PCIe/SATA)	2 x M.2 2242 slots (SATA)	2 x M.2 2280 (PCIe/SATA) on board
I/O Connectivity	Front	Optional ODD 2 x USB 2.0	2 x USB 3.2 Gen1	Optional ODD 2 x USB 3.2 Gen1
	Rear	4 x USB 3.2 Gen 1 1 x VGA	4 x USB 3.2 Gen 1 1 x Serial port 1 x VGA	2 x USB 3.2 Gen1 1 x Serial port 1 x VGA
	LED Indicator	Power, LAN, SYS_LED	Power, LAN, HDD, SYS_LED	Power, LAN, HDD, SYS_LED
	Button	Power, Reset	Power, Reset	Power, Reset, Alarm Reset
Power Supply		2000W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply	2000W 1+1 platinum level redundant power supply
Environment	Operating	0 ~ 35°C (32 ~ 95°F)	0 ~ 35°C (32 ~ 85°F) 0 ~ 30°C (32 ~ 85.9°F) with NVIDIA Tesla P100/V100)	0 ~ 35°C (32 ~ 85°F) with NVIDIA A100/A30
	Non-Operating	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Cooling		6 x 8038 fan	1 x 3000 fan + 1 x 4028 fan +	2 x CPU fans + 3 x 12038 fans + 2 x 8038 external fans (optional)
Physical Characteristics	Dimension (W x H x D)	438 x 88 x 760 mm (17.24" x 3.46" x 29.92")	435 x 177 x 673 mm (17.12" x 6.96" x 26.49")	435 x 176 x 660 mm (17.12" x 6.9" x 25.9")
	Weight (N.W.)	24 kg	38 kg	34 kg
OS Support		Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)	Windows Server, Linux (CentOS, RedHat, Canonical® Ubuntu)
Platform Management		- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC	- ASPEED AST2500 BMC - PMI 2.0, KVM with shared NIC LAN - SUSI API, WISE-PaaS/RMM	- ASPEED AST2500 BMC - IPMI 2.0, KVM with dedicated LAN - SUSI API, WISE-PaaS/RMM
Security		TPM 2.0, chassis intrusion, bezel lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel lock, HDD tray lock	TPM 2.0, chassis intrusion, bezel Lock, HDD tray lock

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

SKY Servers



Model		SKY-7120S	SKY-721E3	SKY-7221	SKY-7232DV2
Form Factor		1U - Rackmount	2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Intel® Xeon® D-2100 processors, TDP up to 110W	Dual AMD® EPYC™ Embedded 9004 series server processors, TDP up to 400W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 250W
	Chipset	—	—	Intel® C621/C622/C624	Intel® C621A
Memory	Memory Type	4 x DDR4 2666MHz ECC RDIMM/LRDIMM, Up to 512GB (4 x 128GB)	24 x DDR5 4800MHz, ECC/ RDIMM/ LRDIMM, Up to 3TB (24 x 128GB)	24 x DDR4 2933MHz ECC RDIMM/LRDIMM Up to 3TB (24 x 128GB)	32 x DDR4 3200MHz ECC RDIMM/LRDIMM Up to 4TB (32 x 128GB)
	Controller	Intel® XL722 (integrated into D-2100 CPU) 10GbE SFP+ 1 x Intel® i350 Gigabit Ethernet	Intel® XL710 10G Base-T + 2 x Intel® i210 Gigabit Ethernet	Intel® C622/C624 10GbE SFP+ (optional) + 3 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet
Networking	Port	4 x 10GbE SFP+ 4 x 1GbE RJ-45	2 x 10GbE RJ-45 2 x 1GbE RJ-45	2 x 10GbE SFP+ (optional) 2 x 1GbE RJ-45	2 x 1GbE RJ-45
Expansion	Expansion Slots	2 x PCIe 3.0 x16 (FHFL, 10.5")	2 x PCIe 5.0 x16 (FHFL) 2 x PCIe 5.0 x8 (FHFL) 2 x PCIe 5.0 x8 (FHHL) 2 x PCIe 5.0 x8 (LP) 2 x PCIe 4.0 x8 (LP optional) 1 x PCIe 5.0 x16 OCP 3.0	1 x PCIe 3.0 x16 (FHFL) 4 x PCIe 3.0 x8 (LP) or 2 x PCIe 3.0 x16 (FHFL), 2 x PCIe 3.0 x8 (LP) 1 x PCIe 3.0 x16 - OCP 2.0 NIC	2 x PCIe 4.0 x16 (FHFL) 2 x PCIe 4.0 x8 (FHFL) 2 x PCIe 4.0 x8 (FHHL) 2 x PCIe 4.0 x8 (LP) 2 x PCIe 4.0 x8 (LP optional) 1 x PCIe 4.0 x16 OCP 3.0
Storage	2.5" HDD/SSD	—	—	24 x 2.5" hot-swappable SAS/SATA drive bays	[SKY-7232D2] 24 x 2.5" hot-swappable SAS/SATA drive bays 2 x 2.5" SAS/SATA drive bays (optional)
	3.5" HDD	—	[SKY-721E3-S12] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 2 x 2.5" NVMe drive bays (optional)	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays	[SKY-7232D3] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 2 x 2.5" NVMe drive bays (optional)
	M.2 SSD	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (PCIe)	2 x M.2 2280 slots (SATA)	2 x M.2 2280 slots (SATA)
I/O Connectivity	Front	USB 3.2 Gen1, 1 x VGA, 1 x GbE management port, 1 x console port	1 x USB 3.2 Gen1 (upper), 1 x USB 2.0 (lower), 1 x VGA,	2 x USB 2.0	1 x USB 3.2 Gen1 (upper) 1 x USB 2.0 (lower), 1 x VGA
	Rear	—	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port	2 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port
	LED Indicator	Power, Status, UID	Power, ID, Status, HDD activity, Network activity	Power, ID, Info, HDD, 2 x LAN	Power, ID, Status, HDD activity, Network activity
	Button	Power, ID	Power, ID	Power, ID, Reset	Power, ID
Power Supply		AC 550w 1+1 redundant PSU/ DC 800w 1+1 redundant PSU	1200W/2000W 1+1 platinum redundant power supply with PMBus	850W/1200W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus
Environment	Operating	-5 ~ 55°C (23 ~ 131°F) 95% @ 60°C (non-condensing)	0 ~ 40°C (32 ~ 104°F) 50% @25°C to 95%@40°C (non-condensing)	0 ~ 40°C (32 ~ 104°F) 50% @25°C to 95%@40°C (non-condensing)	0 ~ 40°C (32 ~ 104°F) 50% @25°C to 95%@40°C (non-condensing)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)
Cooling		4 x 4056 fan	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control
Physical Characteristics	Dimension (W x H x D)	438 x 44 x 420 mm (17.2" x 1.73" x 16.5")	438 x 87 x 770 mm (17.2" x 3.46" x 30.3")	448 x 88.4 x 760 mm (17.6" x 3.48" x 30")	438 x 87 x 770 mm (17.2" x 3.46" x 30.3")
	Weight (N.W.)	13 kg	25 kg	25 kg	25 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu), Windows Server
Platform Management		ASPEED AST2500 BMC/ IPMI 2.0, KVM with shared NIC LAN	ASPEED AST2600 BMC IPMI 2.0, KVM with shared NIC LAN Redfish	ASPEED AST2500 BMC IPMI 2.0, KVM with shared NIC LAN	ASPEED AST2500 BMC IPMI 2.0, KVM with shared NIC LAN Redfish
Security		TPM2.0, Chassis intrusion	TPM 2.0, Chassis intrusion	TPM 2.0	TPM 2.0

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

SKY Servers



Model		SKY-7232D3E	SKY-7223D	SKY-7632D
Form Factor		2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 205W
	Chipset	Intel® C621A	Intel® C622 / C626	Intel® C621A
Memory	Memory Type	16 x DDR4 3200Mhz ECC RDIMM/ LRDIMM Up to 2TB (16 x 128GB)	16 x DDR4 2933Mhz, ECC RDIMM/ LRDIMM, Up to 2TB (16 x 128GB)	16 x DDR4 2933Mhz ECC RDIMM/ LRDIMM Up to 2TB (16 x 128GB)
	Controller	2 x Intel® i210 Gigabit Ethernet	Intel® C622 / XL710 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet
Networking	Port	2 x 1GbE RJ-45	6 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 1GbE RJ-45
Expansion	Expansion Slots	3 x PCIe 4.0 x16 (LP) 2 x PCIe 4.0 x8 (LP)	[SKU1] 4 x PCIe 3.0 x16 (FHFL) [SKU2] 2 x PCIe 3.0 x16 (FHFL) + 4 x PCIe 3.0 x8 (FHHL) [SKU3] 2 x PCIe 3.0 x16 (FH, 10.5", dual slots) + 2 x PCIe 3.0 x8 (FHHL)	[SKU1] 3 x PCIe 4.0 x16 (LP) 2 x PCIe 4.0 x8 (LP) [SKU2] 2 x PCIe 4.0 x16 (FHFL, dual slots)
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/ SATA/NVMe drive bays (rear, optional)	6 x 2.5" hot-swappable SAS/ SATA drive bays	6 x 2.5" hot-swappable SAS/ SATA drive bays
	3.5" HDD	12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays	–	–
	M.2 SSD	2 x M.2 2280 slots (NVMe)	2 x M.2 2280 slots (SATA/NVMe)	2 x M.2 2280 slots (NVMe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	5 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port
	Rear	4 x USB 3.2 Gen1 1 x VGA, 1 x console 1 x GbE management port	–	–
	LED Indicator	Power, ID, Status, HDD activity, LAN1/LAN2 activity	Power, ID, Status	Power, ID, Status, HDD activity, LAN1/LAN2 activity
	Button	Power, ID, Reset	Power, ID	Power, ID, Reset
Power Supply		800W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus	800W/1200W 1+1 platinum redundant power supply with PMBus
Environment	Operating	0 ~ 40°C (32 ~ 104°F) 50% @25°C to 95% @40°C (non-condensing)	-5 ~ 45°C (23 ~ 113°F) 50% @25°C to 95% @40°C (non-condensing)	-5 ~ 45°C (23 ~ 113°F) 50% @25°C to 95% @40°C (non-condensing)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)
Cooling		3 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control
Physical Characteristics	Dimension (W x H x D)	438 x 87 x 658 mm (17.2" x 3.46" x 25.9")	438 x 88 x 440 mm (17.26" x 3.46" x 17.3")	438 x 87 x 450 mm (17.2" x 3.42" x 17.7")
	Weight (N.W.)	25 kg	15 kg	15 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish
Security		TPM 2.0, Chassis intrusion	TPM 2.0	TPM 2.0, chassis intrusion

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

SKY Servers



Model		SKY-820V3	SKY-8201L	SKY-8201
Form Factor		2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Dual 5th/4th Gen Intel® Xeon® Scalable processors, TDP up to 250W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W	Dual 2nd Gen Intel® Xeon® Scalable processors, TDP up to 205W
	Chipset	Intel® C741	Intel® C621/C622	Intel® C621/C622
Memory	Memory Type	16 x DDR5 5600 Mhz ECC/RDIMM/LRDIMM Up to 2TB	16 x DDR4 2933 Mhz ECC/RDIMM/LRDIMM Up to 2TB	16 x DDR4 2933 Mhz ECC/RDIMM/LRDIMM Up to 2TB
	Controller	Intel® X710 10G SFP+ 2 x Intel® I210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet	Intel® C622 10G SFP+ 2 x Intel® i210 Gigabit Ethernet
Networking	Port	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45	2 x 10GbE SFP+ 2 x 1GbE RJ-45
Expansion	Expansion Slots	2 x PCIe 5.0 x16 (FHFL) 2 x PCIe 5.0 x8 (FHHL)	[SKU1] 4 x PCIe 3.0 x8 (FHFL) 2 x PCIe 3.0 x8 (LP) [SKU2] 2 x PCIe 3.0 x16 (FHFL) 2 x PCIe 3.0 x8 (FHHL) 2 x PCIe 3.0 x8 (LP)	[SKU1] 4 x PCIe 3.0 x8 (FHFL) 2 x PCIe 3.0 x8 (FHHL) 2 x PCIe 3.0 x8 (LP) [SKU2] 2 x PCIe 3.0 x16 (FHFL) 2 x PCIe 3.0 x8 (LP)
Storage	2.5" HDD/SSD	6 x 2.5" hot-swappable SAS/SATA drive bays 4 x NVMe (optional)	[SKY-8201L2] 24 x 2.5" hot-swappable SAS/SATA drive bays 4 x 2.5" hot-swappable NVMe SSD trays (optional)	4 x 2.5" SAS/SATA drive bays
	3.5" HDD	–	[SKY-8201L1] 12 x 2.5"/3.5" hot-swappable SAS/SATA drive bays 4 x 2.5" hot-swappable NVMe SSD trays (optional)	–
	M.2 SSD	2 x M.2 2280 slots (SATA/NVMe)	1 x M.2 2280 slot (SATA/PCIe)	1 x M.2 2280 slot (SATA/PCIe)
I/O Connectivity	Front	3 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 2.0	2 x USB 2.0
	Rear	–	1 x DisplayPort, 1 x VGA, 2 x USB 3.2 Gen1, 1 x GbE management port	1 x VGA, 1 x DisplayPort, 2 x USB 3.2 Gen1
	LED Indicator	Power, ID, Status, HDD activity, LAN1/LAN2 activity	Power, Status	Power, ID, Status
	Button	Power, ID, Reset	Power	Power, ID
Power Supply		800W/1200W 1+1 platinum redundant power supply with PMBus	AC 1200W 1+1 platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 redundant power supply with PMBus
Environment	Operating	-5 ~ 45°C (23 ~ 113°F) 50% @25°C to 95% @40°C (non-condensing)	0 ~ 40°C (32 ~ 104°F) 0% @25°C to 95% @40°C (non-condensing)	-5 ~ 55°C (23 ~ 131°F) 50% @25°C to 95% @40°C (non-condensing)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)
Cooling		4 x 8038 fan with smart fan control	4 x 8038 fan with smart fan control	6 x 8038 fan with smart fan control
Physical Characteristics	Dimension (W x H x D)	438 x 87 x 450 mm (17.2" x 3.42" x 17.7")	438.4 x 88.1 x 699.8 mm (17.26" x 3.46" x 27.5")	430 x 88.6 x 508 mm (16.9" x 3.48" x 20")
	Weight (N.W.)	15 kg	25 kg	18 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server	Linux (CentOS, Red Hat, Ubuntu), Windows Server
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0, chassis intrusion	TPM 1.2/2.0	TPM 1.2 / 2.0

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

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Serial/USB Communications

SKY Servers



Model		SKY-821E3	SKY-8232DV2	SKY-8260SV2
Form Factor		2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Dual AMD® EPYC™ Embedded 9004 series server processors, TDP up to 400W	Dual 3rd Gen Intel® Xeon® Scalable processors, TDP up to 250W	AMD® EPYC™ Embedded 7003/7002 series server processors, TDP up to 180W
	Chipset	–	Intel® C621A	–
Memory	Memory Type	24 x DDR5 4800MHz RDIMM/3DS RDIMM	32 x DDR4 3200Mhz ECC/RDIMM/LRDIMM Up to 4TB	16 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 2TB
Networking	Controller	–	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet
	Port	2 x 10GbE RJ-45 (1GbE RJ-45 Mgmt Share NIC)	2 x 1GbE RJ-45	2 x 1GbE RJ-45
Expansion	Expansion Slots	4 x PCIe 5.0 x16 (FHFL) 2 x PCIe 5.0 x8 2 x PCIe 5.0 x8 2 x PCIe 5.0 x8 (LP)	4 x PCIe 4.0 x16 (FHFL) 2 x PCIe 4.0 x8 (LP) 1 x OCP 3.0 PCIe 4.0 x16	4 x PCIe 4.0 x16 (FHFL) 2 x PCIe 4.0 x8 (LP) 1 x OCP 3.0 PCIe 4.0 x16
Storage	2.5" HDD/SSD	2 x 2.5" SAS/SATA drive bays	2 x 2.5" SAS/SATA drive bays	2 x 2.5" SATA SSD (Internal)
	3.5" HDD	–	–	–
	M.2 SSD	2 x M.2 2280 slots (NVMe)	2 x M.2 2280 slots (SATA/SSD)	2 x 2280 M.2 slots (SATA3/PCIe)
I/O Connectivity	Front	1 x USB 3.0 (upper port) 1 x USB 2.0 (lower port)	1 x USB 3.2 Gen1 (upper), 1 x USB 2.0 (lower), 1 x VGA	1 x USB 3.2 Gen1 (upper), 1 x USB 2.0 (lower), 1 x VGA
	Rear	2 x USB 3.0	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port	2 x USB 3.2 Gen1, 1 x VGA, 1 x console, 1 x GbE management port
	LED Indicator	Power, ID, Status, HDD activity, Network activity	Power, ID, Status, HDD activity, Network activity	Power, ID, Status, HDD activity, Network activity
	Button	Power, ID	Power, ID	Power, ID
Power Supply		AC 1200W platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 platinum redundant power supply with PMBus	AC 1200W / DC 800W 1+1 platinum redundant power supply with PMBus
Environment	Operating	0 ~ 35°C (32 ~ 104°F) 0% @25°C to 95% @40°C 95% @ 40°C (non condensing)	-5 ~ 55°C (23 ~ 131°F) 0% @25°C to 95% @40°C (non-condensing)	-5 ~ 40°C (23 ~ 104°F) 50% @ 25°C to 95% @ 40°C (non condensing)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)
Cooling		4 x system FAN with smart FAN control	6 x high speed fans (N+1 redundant)	6 x high speed fans (N+1 redundant)
Physical Characteristics	Dimension (W x H x D)	438 x 88 x 597 mm (17.2" x 3.46" x 23.5")	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")
	Weight (N.W.)	18 kg	18 kg	18 kg
OS Support		Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN - Redfish
Security		TPM 2.0	TPM 2.0	TPM 2.0

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

SKY Servers



Model		SKY-8132S	SKY-8132S-11	SKY-8134S-11	SKY-8134DU
Form Factor		1U - Rackmount	1U - Rackmount	1U - Rackmount	1U - Rackmount
Processor System	Processor	3rd Gen Intel® Xeon® Scalable processors	3rd Gen Intel® Xeon® Scalable processors, TDP up to 225W	5th/4th Gen Intel® Xeon® Scalable processors, TDP up to 225W	Dual 5th/4th Gen Intel® Xeon® Scalable processors, TDP up to 185W
	Chipset	Intel® C62xA series	Intel® C62xA series	Intel® C741	Intel® C741
Memory	Memory Type	8 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 512G	8 x DDR4 3200MHz ECC/RDIMM/LRDIMM Up to 512G	8 x DDR5 5600MHz RDIMM Up to 512G	32 x DDR5 5200MHz RDIMM Up to 2TB
	Controller	1 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet	2 x Intel® i210 Gigabit Ethernet
Networking	Port	1 x GbE LAN RJ-45	2 x 1GbE SFP	Up to 16 x SFP28 ports w/ timing sync support	2 x 1GbE RJ-45
	Expansion Slots	2 x PCIe 4.0 x16 (FHFL) and 2 x PCIe 4.0 x16 slots (FHHL)	2 x PCIe 4.0 x16 (FHHL) 1 x PCIe 4.0 x16 (LP)	1 x PCIe 5.0 x16 (FHHL)	2 x PCIe 5.0 x16 (FH, 10.5"L) 1 x OCP3.0
Storage	2.5" HDD/SSD	4 x 2.5" SATA3/NVMe U.2 (Optional)	1 x 2.5" SATA3/NVMe U.2 SSD (depends on SKU)	–	12 x 2.5" hot-swappable SATA/NVMe drive bays
	3.5" HDD	–	–	–	–
	M.2 SSD	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (SATA/PCIe)	2 x M.2 2280 slots (SATA/NVMe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1, 1 x console	2 x USB 3.2 Gen1, 1 x console	1 x USB 3.2 Gen1
	Rear	1 x USB 3.2 Gen1	–	–	2 x USB 3.2 Gen1
	LED Indicator	Power, ID, Critical, Major, Minor, status LEDs	Power, Status, Alarm	Power, Status, Alarm	Power, ID
	Button	Power, ID	–	–	Power, ID
Power Supply		700W AC/DC	800W D/D power brick	800W D/D power brick	1200W 1+1 platinum redundant power supply with PMBus
Environment	Operating	-5 ~ 55°C (23 ~ 131°F)	-40 ~ 65°C (-40 ~ 149°F) Depends on CPU model and configuration 50% @ 25°C to 95% @ 40°C (non-condensing)	-40 ~ 65°C (-40 ~ 149°F) Depends on CPU model and configuration 50% @ 25°C to 95% @ 40°C (non-condensing)	0 ~ 40°C (32 ~ 104°F) 50% @ 25°C to 95% @ 40°C (non-condensing)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)	-40 ~ 70°C (-40 ~ 158°F) 95% @ 60°C (non-condensing)
Cooling		5 x high speed fans with smart fan control	9 x high speed fans with smart fan control (N+1 redundant)	9 x high speed fans with smart fan control (N+1 redundant)	8 x 4056 fan with Smart FAN control
Physical Characteristics	Dimension (W x H x D)	438 x 517.2 x 43.5 mm (17.2" x 20.4" x 1.74")	445 x 43.8 x 292 mm (17.5" x 1.73" x 11.5")	443 x 44 x 290 mm (17.4" x 1.73" x 11.4")	438 x 44 x 788 mm (17.26" x 1.74" x 31.02")
	Weight (N.W.)	15 kg	8 kg	8 kg	20 kg
OS Support		Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server	Linux (CentOS, Red Hat), Windows Server
Platform Management		ASPEED AST2500 BMCIPMI 2.0, KVM with shared NIC LAN	ASPEED AST2500 BMC IPMI 2.0, KVM with shared NIC LAN	ASPEED AST2600 BMC IPMI 2.0, KVM with shared NIC LAN	ASPEED AST2600 BMC IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0, chassis intrusion, bezel Lock

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

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Serial/USB Communications

SKY Servers



Model		SKY-8234D	SKY-9232D3	SKY-9234S3
Form Factor		2U - Rackmount	2U - Rackmount	2U - Rackmount
Processor System	Processor	Dual 5th/4th Gen Intel® Xeon® Scalable processors, TDP up to 225W	Single/Dual 3rd Gen Intel® Xeon® Scalable processors (per node)	5th/4th Gen Intel® Xeon® Scalable processors (per node), TDP up to 250W
	Chipset	Intel® C741	Intel® C621A	Intel® C741
Memory	Memory Type	32 x DDR5 ECC/RDIMM/Intel® Optane	8 x DDR4 DIMM per CPU	8 x DDR5 5600MHz ECC/RDIMM/LRDIMM up to 2TB
Networking	Controller	2 x Intel® i210- Gigabit Ethernet	–	–
	Port	2 x 1GbE management ports, 1 x RJ-45 console	1 x GbE management port per node	1 x GbE management port per node
Expansion	Expansion Slots	4 x PCIe x16 5.0 (FHFL) and 2 x PCIe 5.0 x8 (LP) Or 2 x PCIe 5.0 x16 (FHHL) and 2 x PCIe 5.0 x8 (FHFL) and 2 x PCIe 5.0 x8 (FHHL) and 2 x PCIe 5.0 x8 (LP)	1 x PCIe 4.0 x16 (HHHL) (per node) 1 x PCIe 3.0 OCP 2.0 x8 (per node)	1 x PCIe 5.0 x16 (HHHL) (per node) 1 x PCIe 5.0 x16 OCP 3.0 (per node)
Storage	2.5" HDD/SSD	4 x 2.5" SATA3	1 x 2.5" NVMe SSD (per node)	1 x 2.5" NVMe SSD (per node)
	3.5" HDD	–	12 x Hot-Swappable 3.5" HDD trays (3 x HDD trays per Node)	12 x Hot-Swappable 3.5" SATA/HDD trays (3 x HDD trays per Node)
	M.2 SSD	2 x M.2 2280 (NVMe/SATA)	2 x M.2 2280 (NVMe/SATA)	2 x M.2 2280 (NVMe/SATA)
I/O Connectivity	Front	2 x USB 3.2 Gen1 1 x VGA	–	–
	Rear	2 x USB 3.2 Gen1 Rear 1 x OCP3.0	1 x USB 3.2 Gen1 Type-A + 1 x VGA + 1 x Console (per node)	1 x USB 3.2 Gen1 Type-A + 1 x MiniDP + 1 x Console (per node)
	LED Indicator	Power, ID, Critical, Major, Minor, status LEDs	Power status LED (integrated in Power button) HDD activity/status LED Network activity LEDs UID LED (integrated in UID button) Information LED	Power status LED (integrated in Power button) HDD activity/status LED Network activity LEDs UID LED (integrated in UID button) Information LED
	Button	Power, ID	Power, UID	Power, UID
Power Supply		1200W AC / 800W DC PSU	Redundant AC 2000W (Redundant power limitation for 100-127V _{AC} is up to 1000W)	Redundant AC 2000W (Redundant power limitation for 100-127V _{AC} is up to 1000W)
Environment	Operating	-5 ~ 55°C (23 ~ 131°F)	5 ~ 35°C (41 ~ 95°F) / 5% to 95% @ 35°C	5 ~ 35°C (41 ~ 95°F) / 5% to 95% @ 35°C
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 60°C / 5% to 95% @ 60°C	-40 ~ 60°C / 5% to 95% @ 60°C
Cooling		6 x 6056 N+1 redundant fan with smart fan control	4 x 8 cm (8076) hot-swappable dual-rotor PWM fans with fan speed control	4 x 8 cm (8076) hot-swappable dual-rotor PWM fans with fan speed control
Physical Characteristics	Dimension (W x H x D)	436.6 x 87 x 533 mm (17.19" x 3.48" x 20.9")	438 x 87.5 x 810 mm (172.4" x 34.4" x 318.9")	438 x 87.5 x 810 mm (172.4" x 34.4" x 318.9")
	Weight (N.W.)	18 kg	50 kg	30 kg (w/o peripherals)
OS Support		Linux (CentOS, Red Hat), Windows Server	–	–
Platform Management		▪ ASPEED AST2600 BMCIPMI 2.0, KVM with shared NIC LAN	▪ Aspeed AST2500 Carrier Grade BMC (IPMI v2.0 compliant) with fail-safe updates, web Interface, KVM, Redfish (Advantech IPMI Core)	▪ Aspeed AST2600 Carrier Grade BMC (IPMI v2.0 compliant) with fail-safe updates, web Interface, KVM, Redfish (Advantech IPMI Core)
Security		TPM 2.0	TPM 2.0	TPM 2.0 on board

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

Edge Accelerator Servers



Model		HPC-6120+ ASMB-610V3	HPC-6240+ ASMB-622V3	HPC-7420+ ASMB-977
Form Factor		1U - Rackmount	2U - Rackmount	4U - Rackmount
Processor System	Processor	Intel® Core™ processors (14th/13th/12th Gen)	5th/4th Gen Intel® Xeon® Scalable processors	Dual 5th/4th Gen Intel® Xeon® Scalable processors
	Chipset	Intel® W680	Intel® C741	Intel® C741
Memory	Memory Type	4 x DDR5 up to 4400 MHz ECC/non-ECC UDIMM, up to 128GB	16 x DDR5 up to 5600 MHz RDIMM, up to 1TB, Intel® Optane DCPMM	16 x DDR5 up to 5600 MHz RDIMM, up to 2TB, Intel® Optane DCPMM
Networking	Controller	1 x Intel® I350AM4	1 x Intel® I350AM4	2 x Intel® I210AT 1 x Intel® X710
	Port	4 x GbE RJ-45	4 x GbE RJ-45	4 x 10GbE RJ-45
Expansion	Expansion Slots	1 x PCIe 5.0 x16 or 2 x PCIe 5.0 x8 (FH, 10.5" L) 2 x PCIe 4.0 x4 (LP)	4 x PCIe 5.0 x8 or 2 x PCIe 5.0 x16 (FH, 10.5" L) 4 x PCIe 5.0 x8 (FHHL)	5 x PCIe 5.0 x16 (FHFL) 5 x PCIe 4.0 x8 (FHFL)
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/SATA/SSD drive bays	4 x 2.5" hot-swappable SAS/SATA/SSD drive bays	2 x 2.5" SAS/SATA/SSD hot-swappable drive bays (optional)
	3.5" HDD	–	–	2 x 3.5" SATA drive
	M.2 SSD	1 x M.2 2280/22110 slot (SATA/NVMe)	2 x M.2 2280/22110 slots (SATA/NVMe)	1 x M.2 2280 slot (SATA/NVMe) 1 x M.2 2280 slot (NVMe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1	4 x 10GbE RJ-45 2 x USB 3.2 Gen1 1 x RS-232
	Rear	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	–
	LED Indicator	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power LAN1, LAN2, System temperature System fan. HDD Power HDD Activity LED
	Button	Power	Power	–
Power Supply		500W Single PSU 650W 1+0 non-redundant PSU	1200W 1+1 redundant or 1200W 1+0 non-redundant PSU	850W single PSU or 1200W 1+0 non-redundant PSU
Environment	Operating	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 50°C (32 ~ 122°F)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Cooling		3 x 4056 and 2 x 4028 Fan with Smart Fan Control	3 x 8038 and 1 x 6038 Fan with Smart Fan Control	3 x 12038 or 3 x 8025 Fan with Smart Fan Control
Physical Characteristics	Dimension (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 450 mm (17.24" x 6.97" x 17.7")
	Weight (N.W.)	8.5 kg	12.4 kg	16 kg
OS Support		10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN	- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0	TPM 2.0	TPM 2.0

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

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Edge Accelerator Servers



Model		☞ HPC-6120+ ASMB-610	☞ HPC-6240+ ASMB-622	☞ HPC-7420+ ASMB-976
Form Factor		1U - Rackmount	2U - Rackmount	4U - Rackmount
Processor System	Processor	Intel® Xeon® W processors	Dual 3rd Gen Intel® Xeon® Scalable processors	Dual 3rd Gen Intel® Xeon® Scalable processors
	Chipset	Intel® W480E	Intel® C621	Intel® C621
Memory	Memory Type	4 x DDR4 up to 2933 MHz ECC/non-ECC UDIMM, up to 128GB	16 x DDR4 up to 3200 MHz RDIMM, up to 1TB, Intel® Optane DCPMM	16 x DDR4 up to 3200 MHz RDIMM, up to 2TB, Intel® Optane DCPMM
	Controller	1 x Intel® I350AM4	1 x Intel® I350AM4	2 x Intel® I210AT 1 x Intel® X550-AT2
Networking	Port	4 x GbE RJ-45	4 x GbE RJ-45	4 x 10GbE RJ-45
	Expansion Slots	1 x PCIe 3.0 x16 or 2 x PCIe 3.0 x8 (FH, 10.5" L) 2 x PCIe 3.0 x4 (LP)	4 x PCIe 4.0 x16 (FH, 10.5" L) 4 x PCIe 4.0 x8 (FHH)	4 x PCIe 4.0 x16 (FHFL) 7 x PCIe 4.0 x8 (FHFL)
Storage	2.5" HDD/SSD	2 x 2.5" hot-swappable SAS/SATA/SSD drive bays	4 x 2.5" hot-swappable SAS/SATA/SSD drive bays	2 x 2.5" SAS/SATA/SSD hot-swappable drive bays (optional)
	3.5" HDD	–	–	2 x 3.5" SATA drive
	M.2 SSD	1 x M.2 2280 slot (SATA/NVMe)	1 x M.2 2280 slot (SATA/NVMe)	1 x M.2 2280 slot (SATA/NVMe) 1 x M.2 2280 slot (NVMe)
I/O Connectivity	Front	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1	4 x 10GbE RJ-45 2 x USB 3.2 Gen1 1 x RS-232
	Rear	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	4 x GbE RJ-45 2 x USB 3.2 Gen2 1 x RS-232 1 x VGA 1 x IPMI RJ-45	–
	LED Indicator	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power System Information LAN1~LAN4 HDD power HDD activity LED	System Power LAN1, LAN2, System temperature System fan. HDD Power HDD Activity LED
	Button	Power	Power	–
Power Supply		500W Single PSU 650W 1+0 non-redundant PSU	1200W 1+1 redundant or 1200W 1+0 non-redundant PSU	850W single PSU or 1200W 1+0 non-redundant PSU
Environment	Operating	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 50°C (32 ~ 122°F)
	Non-Operating	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
Cooling		3 x 4056 and 2 x 4028 Fan with Smart Fan Control	3 x 8038 and 1 x 6038 Fan with Smart Fan Control	3 x 12038 or 3 x 8025 Fan with Smart Fan Control
Physical Characteristics	Dimension (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 450 mm (17.24" x 6.97" x 17.7")
	Weight (N.W.)	8.5 kg	12.4 kg	16 kg
OS Support		10 ~ 95%, non-condensing	10 ~ 95%, non-condensing	10 ~ 95%, non-condensing
Platform Management		- ASPEED AST2600 BMC - IPMI 2.0, KVM with shared NIC LAN	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN	- ASPEED AST2500 BMC - IPMI 2.0, KVM with shared NIC LAN
Security		TPM 2.0	TPM 2.0	TPM 2.0

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

Industrial Server Motherboards



Model		ASMB-561	ASMB-586	ASMB-786	ASMB-587
Form Factor		MicroATX	MicroATX	ATX	MicroATX
Processor System	CPU	AMD® EPYC™ Embedded 8004 series server processors	Intel® Xeon® E processor & Intel® Core™ processors (9th/8th Gen)	Intel® Xeon® E processor & Intel® Core™ processors (9th/8th Gen)	Intel® Xeon® W processor & Intel® Core™ processors (10th Gen)
	Socket	1 x LGA 4844	1 x LGA 1151	1 x LGA 1151	1 x LGA 1200
	Max. Speed	3.1GHz	3.7 GHz	3.7 GHz	3.7 GHz
	UPI	–	–	–	–
	Chipset	–	Intel® C246	Intel® C246	Intel® W480E
	BIOS	AMI 512Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit
Expansion Slots	PCI	–	–	–	–
	PCIe x16	4 (Gen5)	1	1 Switchable to two x8	1 (Gen4)
	PCIe x8	–	–	2 Switchable to one x16	–
	PCIe x4	–	2	2	2 (Gen4)
	PCIe x1	–	1	3	–
Memory	Technology	DDR5 RDIMM up to 4800 MHz	DDR4 ECC/non-ECC UDIMM up to 2666 MHz	DDR4 ECC/non-ECC UDIMM up to 2666 MHz	DDR4 ECC/non-ECC UDIMM up to 2933 MHz
	Max. Capacity	1.5TB	64 GB	64 GB	128 GB
	Socket	6 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	AST2600	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics
Ethernet	Controller	2 x Intel® I226LM 1 x Intel® X710 (T2 SKU) 1 x Realtek 8211F	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)
TPM 2.0		Onboard	Optional	Optional	Optional
Storage	SATA 3	16	8	8	5
	M.2	2 2280 (PCIe)	–	–	1 2280/22110 (PCIe/SATA)
Rear I/O	VGA/DVI/HDMI/ DP	1 / – / – / –	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / 1 / 1 / –
	Ethernet	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)
	USB	5 x USB 3.2 Gen1	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2
	Audio	–	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	Serial	1 (RS-232)	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232 via cable)

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

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Industrial Server Motherboards



Model		ASMB-588	ASMB-788	ASMB-815	ASMB-825	ASMB-816
Form Factor		MicroATX	ATX	ATX	ATX	ATX
Processor System	CPU	Intel® Core™ processors (14th/13th/12th Gen)	Intel® Core™ processors (14th/13th/12th Gen)	2nd Gen Intel® Xeon® Scalable processors	2nd Gen Intel® Xeon® Scalable processors	3rd Gen Intel® Xeon® Scalable processors
	Socket	1 x LGA 1700	1 x LGA 1700	1 x LGA 3647-P0	2 x LGA 3647-P0	1 x LGA 4189-P+
	Max. Speed	3.9 GHz	3.9 GHz	3.6 GHz	3.6 GHz	3.6 GHz
	UPI	–	–	–	–	–
	Chipset	Intel® W680	Intel® W680	Intel® C620	Intel® C620	Intel® C621A
	BIOS	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit
Expansion Slots	PCI	–	2	–	–	–
	PCIe x16	1 (Gen5)	1 (Gen5)	2 Switchable to four x8	4	3 (Gen4)
	PCIe x8	–	–	1	2	1
	PCIe x4	2 (Gen4)	4 (3 x Gen4, 1 x Gen3)	1	–	2
	PCIe x1	–	–	1	–	1
Memory	Technology	DDR5 ECC/non-ECC UDIMM up to 4400 MHz	DDR5 ECC/non-ECC UDIMM up to 4400 MHz	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz, Intel® Optane DCPMM
	Max. Capacity	128 GB	128 GB	768 GB	768 GB	1 TB
	Socket	4 x 288-pin DIMM	4 x 288-pin DIMM	6 x 288-pin DIMM	6 x 288-pin DIMM	8 x 288-pin DIMM
Graphics	Controller	Intel® GT2-HD Graphics	Intel® GT2-HD Graphics	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500
Ethernet	Controller	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	1 x Intel® I219LM 3 x Intel® I210AT (G4 SKU)	2 x Intel® I210AT 1 x Intel® X557- AT2 1 x Realtek 8201EL	2 x Intel® I210AT 1 x Intel® X557- AT2	2 x Intel® I210AT 1 x Intel® X550- AT2 1 x Realtek 8201F
TPM 2.0		Optional by SPI	Optional by SPI	Optional	Optional	Optional
Storage	SATA 3	5	4	9	9	8
	M.2	1 2280 (PCIe)	1 2280 (PCIe)	1 2280 (PCIe/SATA)	1 2280 (PCIe/SATA)	1 2280/22110 (PCIe/ SATA)
Rear I/O	VGA/DVI/ HDMI/ DP	1 / 1 / 1 / –	1 / 1 / 1 / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	4 x GbE RJ-45 (G4 SKU)	4 x GbE RJ-45 (G4 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)
	USB	4 x USB 3.2 Gen2	4 x USB 3.2 Gen2	4 x USB 3.2 Gen1 2 x USB 2.0	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1 2 x USB 2.0
	Audio	Mic-in, Line-out	Mic-in, Line-out	–	–	–
	Serial	1 (RS-232 via cable)	1 (RS-232 via cable)	1 (RS-232)	1 (RS-232)	1 (RS-232)

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

Industrial Server Motherboards



Model		ASMB-807	ASMB-817	ASMB-830	ASMB-831
Form Factor		ATX	ATX	ATX	ATX
Processor System	CPU	Intel® Xeon® W processors	5th/4th Gen Intel® Xeon® Scalable processors	AMD® EPYC™ Embedded 7003/7002 series server processors	AMD® EPYC™ Embedded 9004 series server processors
	Socket	1 x LGA 4677	1 x LGA 4677	1 x LGA 4094	1 x LGA 6096
	Max. Speed	4.8 GHz	3.7 GHz	3.7 GHz	3.0 GHz
	UPI	–	–	–	–
	Chipset	Intel® W790	Intel® C741	–	–
	BIOS	AMI 512Mbit	AMI 512Mbit	AMI 256Mbit	AMI 512Mbit
Expansion Slots	PCI	–	–	–	–
	PCIe x16	3 (Gen5)	3 (Gen5)	5 (Gen4)	5 (Gen5)
	PCIe x8	1 (Gen5)	2 (Gen5)	2 (Gen4)	2 (Gen5)
	PCIe x4	2 (Gen4)	1 (Gen5)	–	–
	PCIe x1	–	1	–	–
Memory	Technology	DDR5 RDIMM up to 4800 MHz, Intel® Optane DCPMM	DDR5 RDIMM up to 4800 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz	DDR5 RDIMM up to 4800 MHz
	Max. Capacity	2 TB	2 TB	1 TB	1.5TB
	Socket	8 x 288-pin DIMM	8 x 288-pin DIMM	8 x 288-pin DIMM	6 x 288-pin DIMM
Graphics	Controller	AST2510/AST2500	AST2600	AST2500	AST2600
Ethernet	Controller	2 x Intel® I226LM 1 x Intel® X710 (T2 SKU) 1 x Realtek 8211F	2 x Intel® I210AT 1 x Intel® X710 (T2 SKU) 1 x Realtek 8211F	2 x Intel® I210AT 1 x Intel® X550-AT2 (T2 SKU) 1 x Realtek 8201F	1 x Intel® X710- AT2 1 x Realtek 8211F
TPM 2.0		Optional by SPI	Optional by SPI	Optional	Onboard
Storage	SATA 3	8	8	9	9
	M.2	2 2280/22110 (PCIe)	1 2280/22110 (PCIe/ SATA)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)
Rear I/O	VGA/DVI/ HDMI/ DP	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x 10GbE RJ-45
	USB	6 x USB 3.2 Gen2	2 x USB 3.2 Gen1 4 x USB 2.0	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1
	Audio	–	–	–	–
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)

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Industrial Server Motherboards



Model		ASMB-925	ASMB-927	ASMB-935	ASMB-975	ASMB-976	ASMB-977
Form Factor		EATX	EATX	EATX	Proprietary	Proprietary	Proprietary
Processor System	CPU	2nd Gen Intel® Xeon® Scalable processors	Dual 5th/4th Gen Intel® Xeon® Scalable processors	2nd Gen Intel® Xeon® Scalable processors	2nd Gen Intel® Xeon® Scalable processors	3rd Gen Intel® Xeon® Scalable processors	Dual 5th/4th Gen Intel® Xeon® Scalable processors
	Socket	2 x LGA 3647-P0	2 x LGA 4677	2 x LGA 3647-P0	2 x LGA 3647-P0	2 x LGA 4189-P+	2 x LGA 4677
	Max. Speed	3.6 GHz	3.7 GHz	3.6 GHz	3.6 GHz	3.7 GHz	3.7 GHz
	UPI	UPI 10.4 GT/s	UPI 16 GT/s	UPI 10.4 GT/s	UPI 10.4 GT/s	UPI 11.2 GT/s	UPI 16 GT/s
	Chipset	Intel® C620	Intel® C741	Intel® C620	Intel® C620	Intel® C621A	Intel® C741
	BIOS	AMI 256Mbit	AMI 512Mbit	AMI 256Mbit	AMI 256Mbit	AMI 256Mbit	AMI 512Mbit
Expansion Slots	PCI	1	–	–	–	–	–
	PCIe x16	5	4 (Gen5)	5	4	4 (Gen4)	5 (Gen5)
	PCIe x8	1	2 (Gen5)	1	1	7 (Gen4)	5 (Gen5)
	PCIe x4	–	–	–	4	–	–
	PCIe x1	–	–	–	–	–	–
Memory	Technology	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 4800 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 2933 MHz, Intel® Optane DCPMM	DDR4 RDIMM up to 3200 MHz, Intel® Optane DCPMM	DDR5 RDIMM up to 4800 MHz, Intel® Optane DCPMM
	Max. Capacity	1.5 TB	4 TB	3 TB	1.5 TB	2 TB	4 TB
	Socket	12 x 288-pin DIMM	16 x 288-pin DIMM	24 x 288-pin DIMM	12 x 288-pin DIMM	16 x 288-pin DIMM	16 x 288-pin DIMM
Graphics	Controller	AST2510/AST2500	AST2600	AST2510/AST2500	AST2510/AST2500	AST2510/AST2500	AST2600
Ethernet	Controller	2 x Intel® I210AT 1 x Intel® X557-AT2	1 x Intel® X710	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	2 x Intel® I210AT 1 x Intel® X710
TPM 2.0		Optional	Onboard	Optional	Optional	Optional	Onboard
Storage	SATA 3	8	9	10	14	10	9
	M.2	–	1 2280 (PCIe/SATA)	1 2280 (PCIe/SATA)	2 2242 (SATA)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)	2 2280/22110 1 x (PCIe/SATA) 1 x (PCIe only)
Rear I/O	VGA/DVI/ HDMI/ DP	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –	1 / – / – / –
	Ethernet	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x 10GbE RJ-45	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)	2 x GbE RJ-45 2 x 10GbE RJ-45 (T2 SKU)
	USB	4 x USB 3.2 Gen1	2 x USB 3.2 Gen1	4 x USB 3.2 Gen1	4 x USB 3.2 Gen1	2 x USB 3.2 Gen1	2 x USB 3.2 Gen1
	Audio	–	–	–	–	–	–
	Serial	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)	1 (RS-232)

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

Industrial Server Chassis



Height (1U = 1.75")		Tower			1U	
Model		HPC-5000	HPC-7000	HPC-5422	HPC-6120	HPC-7120S
Form Factor Support		Micro ATX	Micro ATX, ATX, EATX	Micro ATX, ATX	Proprietary	Micro ATX, ATX
No. of Slots / No. of Full-Height Cards		4/4	7/7	5/5	4/2 (10.5" L)	1/1
Drive Bay	Slim ODD Bay	1	1	0	–	–
	3.5" (hot-swappable)	–	–	0	–	–
	3.5" (internal)	2 x 3.5" or 1 x 3.5" + 1 x 2.5"	3	0	–	–
	2.5" (hot-swappable)	–	–	2 (Optional)	2	2 (HPC-7120S-35ZXE only)
	2.5" (internal)	–	–	–	–	2
	NVMe Support	–	–	–	–	–
Cooling	Chassis Fan	1 (12 cm / 82 CFM)	2 (12 cm / 150 CFM)	2 (12 cm / 150 CFM)	3 (4 cm / 56 CFM) 2 (4 cm / 28 CFM)	3 (4 cm / 23.1 CFM)
	Air Filter	✓	–	–	–	–
Front I/O	USB 3.2 Gen1	2	2	–	2	2
	USB 2.0	2	–	–	–	–
Power Supply	Single Power Supply	300W/500W	500W/1200W	850W/1300W	500W/650W	350W/850W
	Redundant Power Supply	–	–	–	650W (Optional)	–
LED Indicators	System	Power	Power	Power, Information LAN1, LAN2	Power, Information LAN1~LAN4	Power, Information LAN1, LAN2
	HDD	–	–	Power Activity LED	Power Activity LED	Power Activity LED
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°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
Physical Characteristics	Dimension (W x H x D)	192 x 376.7 x 338.5 mm (7.56" x 14.83" x 13.33")	267 x 458 x 500 mm (10.52" x 18.03" x 19.69")	340 x 195 x 400 mm (13.4" x 7.7" x 15.8")	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")

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

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Industrial Server Chassis



Height (1U = 1.75")		2U		3U/Tower	4U
Model		HPC-6240	HPC-7242	HPC-7320	HPC-7420
Form Factor Support		Proprietary	Micro ATX, ATX	Micro ATX, ATX, EATX	ATX, EATX, EE-ATX
No. of Slots / No. of Full-Height Cards		8/8	3/3, 7/0	7/7	11/11
Drive Bay	Slim ODD Bay	1 (Ultra Slim)	1	1	1
	3.5" (hot-swappable)	–	4 (3.5" / 2.5")	2 (3.5" / 2.5")	–
	3.5" (internal)	–	–	2	2
	2.5" (hot-swappable)	4	–	–	2 (Optional)
	2.5" (internal)	–	2	–	2 (Optional)
	NVMe Support	2 (Optional)	–	–	–
Cooling	Chassis Fan	3 (8 cm / 132 CFM) 1 (6 cm / 75 CFM)	1 (8 cm / 75.2 CFM) 2 (6 cm / 28 CFM)	2 (8 cm / 57 CFM) 1 (6 cm / 27.72 CFM)	3 (12 cm / 238 CFM) for HPC-7420-12ZX 3 (8 cm / 57 CFM) for HPC-7420-85ZX
	Air Filter	–	✓	✓	✓
Front I/O	USB 3.2 Gen1	2	2	2	–
	USB 2.0	–	–	–	–
Power Supply	Single Power Supply	1200W	350W/500W	500W/850W	850W/1200W
	Redundant Power Supply	1200W (Optional)	550W	550W/800W	1200W (Optional)
LED Indicators	System	Power, Information LAN1~LAN4	Power, Information LAN1, LAN2	Power LAN1, LAN2	Power, Information LAN1, LAN2
	HDD	Power Activity LED	Power Activity LED	Power Activity LED	Power Activity LED
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 50°C (32 ~ 122°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
Physical Characteristics	Dimension (W x H x D)	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")	426 x 132.2 x 480 mm (16.79" x 5.2" x 18.9")	438 x 177 x 450 mm (17.24" x 6.97" x 17.7")

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

Industrial Server Chassis



Height (1U = 1.75")		4U			1U	
Model		HPC-7442	HPC-7484	HPC-7485	HPC-8104	HPC-8108
Form Factor Support		Micro ATX, ATX, EATX	Micro ATX, ATX, EATX	ATX, EATX, EE-ATX	Micro ATX, ATX	ATX, EATX
No. of Slots / No. of Full-Height Cards		7/7	7/7	11/11	1/1	1/1
Drive Bay	Slim ODD Bay	1	1	1	1 (Ultra Slim)	1
	3.5" (hot-swappable)	4, upgradable to 8 (3.5" / 2.5")	8 (3.5" / 2.5")	8 (3.5" / 2.5")	4 (3.5" / 2.5")	–
	3.5" (internal)	2	–	–	–	–
	2.5" (hot-swappable)	–	–	–	–	8 x SAS3 or SATA
	2.5" (internal)	–	1	2	2 or 3 (optional)	–
	NVMe Support				–	–
Cooling	Chassis Fan	1 (12 cm / 114 CFM) 1 (8 cm / 55 CFM)	2 (12 cm / 150.33 CFM)	3 (12 cm / 238 CFM) for HPC-7485-20RX 3 (12 cm / 232 CFM) for HPC-7485-12RX	4 (4 cm / 34 CFM)	4 (4 cm / 34 CFM)
	Air Filter	✓	✓	–	–	–
Front I/O	USB 3.2 Gen1	–	2	2	2	–
	USB 2.0	2	–	–	–	1
Power Supply	Single Power Supply	500W/700W	700W/1200W	–	500W	800W
	Redundant Power Supply	500W	–	1200W/2000W	650W	650W
LED Indicators	System	Power LAN1, LAN2	Power LAN1, LAN2	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2	Power, Information LAN1, LAN2
	HDD	Power Activity LED	Power Activity LED	Power Activity LED openings	–	–
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 35°C (32 ~ 95°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% @ 35°C non-condensing
Physical Characteristics	Dimension (W x H x D)	426 x 177 x 600 mm (16.7" x 7.0" x 23.6")	426 x 177 x 630 mm (16.7" x 7.0" x 24.8")	435 x 176 x 660 mm (17.1" x 6.9" x 25.9")	438 x 43.9 x 530 mm (17.24" x 1.73" x 20.9")	438 x 43.9 x 597 mm (17.24" x 1.73" x 23.5")

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

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Industrial Server Chassis



Height (1U = 1.75")		2U		3U	4U
Model		HPC-8208	HPC-8212	HPC-8316	HPC-8424
Form Factor Support		ATX, EATX	ATX, ATX, EATX	Micro ATX, ATX	ATX, EATX
No. of Slots / No. of Full-Height Cards		7/0, 3/3	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	–	–	–
	3.5" (hot-swappable)	8 (3.5" / 2.5")	12 (3.5" / 2.5")	16 (3.5" / 2.5")	24 (3.5" / 2.5")
	3.5" (internal)	–	–	–	–
	2.5" (hot-swappable)	–	2 (Rear) only HPC-8212SE-65RB1	2 (Rear)	2 (Rear)
	2.5" (internal)	2	–	–	–
	NVMe Support	–	4 in 12 Hot-Swappable Drive Bays	–	4 in 24 Hot-Swappable Drive Bays
Cooling	Chassis Fan	3 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)	4 (8 cm / 75.2 CFM)
	Air Filter	–	–	–	–
Front I/O	USB 3.2 Gen1	2	–	2	–
	USB 2.0	–	2	–	2
Power Supply	Single Power Supply	850W	–	–	–
	Redundant Power Supply	550W, 800W	550W, 650W, 800W	550W	800W
LED Indicators	System	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
	HDD	–	–	–	–
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 35°C (32 ~ 95°F)	0 ~ 35°C (32 ~ 95°F)	0 ~ 35°C (32 ~ 95°F)
	Operating Humidity	10 ~ 95% @ 40°C non-condensing	10 ~ 95% @ 35°C non-condensing	10 ~ 95% @ 35°C non-condensing	10 ~ 95% @ 35°C non-condensing
Physical Characteristics	Dimension (W x H x D)	438 x 88 x 620 mm (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")	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

PCI Express Adapters



Model		PCIE- 1130PS	PCIE-1131PS	PCIE-1220PS	PCIE-1221PS	PCIE-2131BP
Description		Quad Port Copper GbE w/ Intel® I350	Quad Port Fiber GbE w/ Intel® I350	Dual Port Fiber 10GbE w/ Intel® X710-BM2	Dual Port Copper 10GbE w/ Intel® X550-AT2	Quad Port Copper LAN Bypass GbE w/ Intel® I350
Chipset		Intel® I350	Intel® I350	Intel® X710-BM2	Intel® X550-AT2	Intel® I350
Network Interfaces	Ports	4 x RJ-45	4 x SFP	2 x SFP+	2 x RJ-45	4 x RJ-45
	Media	GbE Copper	GbE Fiber	10GbE Fiber	10GbE Base-T Copper	GbE Copper
Form Type		Advantech form factor	Advantech form factor	Advantech form factor	Advantech form factor	Standard low profile
PCIe		PCIe Gen2 x4	PCIe Gen2 x4	PCIe Gen3 x8	PCIe Gen3 x4	PCIe Gen2 x4
Heatsink		Passive	Passive	Passive	Passive	Passive
LAN Bypass		-	-	-	-	-
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	5 W	5 W	8.5 W	12.5 W	5 W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimension	110 x 68.9 mm	110 x 68.9 mm	110 x 68.9 mm	110 x 68.9 mm	167 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available

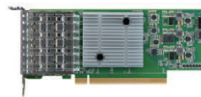
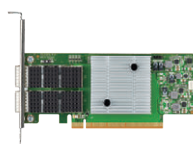


Model		PCIE-2221BP	PCIE-2230NP	PCIE-2231NP	PCIE-2232BP	PCIE-2320NP
Description		Dual Port LAN Bypass 10GbE w/ Intel® X710-BM2	Quad Port Fiber 10GbE w/ Intel® XL710-BM1	Quad Port Copper 10GbE Base-T w/ Intel® XL710-BM1 & X557-AT4	Quad Port Copper 10GbE Base-T LAN Bypass w/ Intel® XL710-BM1 & X557-AT4	Dual Port Fiber 40GbE w/ Intel® XL710-BM2
Chipset		Intel® X710-BM2	Intel® XL710-BM1	Intel® XL710-BM1 + X557-AT4	Intel® XL710-BM1 + X557-AT4	Intel® XL710-BM2
Network Interfaces	Ports	Fiber bypass module	4 x SFP+	4 x RJ-45	4 x RJ-45	2 x QSFP+
	Media	10GbE Fiber	10GbE Fiber	10GbE Base-T Copper	10GbE Base-T Copper	40GbE Fiber
Form Type		Standard low profile	Standard low profile	Standard low profile	Standard full height	Standard low profile
PCIe		PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x8
Heatsink		Passive	Passive	Passive	Passive	Passive
LAN Bypass		✓	-	-	✓	-
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	10 W	9 W	12.5 W	18 W	9 W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimension	167 x 68.9 mm	167 x 68.9 mm	167 x 68.9 mm	167.6 x 98.4 mm	167 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Standard full height	Full height and half height options available

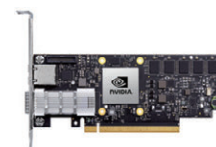
✓: supported, -: not supported, △: optional

- 1 Edge Software & Industry Solutions
- 2 Intelligent HMI & Monitors
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- 5 Mission Critical CompactPCI Platforms
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PCI Express Adapters



Model		PCIE-2420NP	PCIE-2531NP	PCIE-2421NP	PCIE-2521NP
Description		Dual Port Fiber 100GbE w/ NVIDIA® ConnectX-5	Quad Port Fiber 25GbE w/ Intel® E810-CAM1	Dual Port Fiber 100GbE w/ NVIDIA® ConnectX-6	Dual Port Fiber 25GbE w/ NVIDIA® ConnectX-6
Chipset		NVIDIA® ConnectX-5	Intel® E810-CAM1	NVIDIA® ConnectX-6	NVIDIA® ConnectX-6
Network Interfaces	Ports	2 x QSFP28	2 x SFP28	2 x QSFP56	2 x SFP28
	Media	100GbE Fiber	25GbE Fiber	100GbE Fiber	25GbE Fiber
Form Type		Standard low profile	Standard low profile	Standard low profile	Standard low profile
PCIe		PCIe Gen3 x16	PCIe Gen4 x16	PCIe Gen4 x16	PCIe Gen4 x8
Heatsink		Passive	Passive	Passive	Passive
LAN Bypass		-	-	-	-
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	15 W	15 W	20W	12W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 45°C (32 ~ 113°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)	0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 65°C (-40 ~ 149°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimension	167 x 68.9 mm	167 x 68.9 mm	142 x 68.9 mm	96.3 x 68.9 mm
	Bracket	Full height and half height options available	Full height and half height options available	Full height and half height options available	Full height and half height options available



Model		PCIE-2711NP	PCIE-5421NP	PCIE-5521NP	PCIE-5711NP
Description		Single Port Fiber 200GbE w/ NVIDIA® ConnectX-6	Dual Port Fiber 100GbE w/ NVIDIA® BlueField-2	Dual Port Fiber 25GbE w/ NVIDIA® BlueField-2	Single Port Fiber 200GbE w/ NVIDIA® BlueField-2
Chipset		NVIDIA® ConnectX-6	NVIDIA® BlueField-2	NVIDIA® BlueField-2	NVIDIA® BlueField-2
Network Interfaces	Ports	1 x QSFP56	2 x QSFP56	2 x SFP56	1 x QSFP56
	Media	200GbE Fiber	100GbE Fiber	25GbE Fiber	200GbE Fiber
Form Type		Standard low profile	Standard full height	Standard full height	Standard low profile
PCIe		PCIe Gen4 x16	PCIe Gen4 x16	PCIe Gen4 x8	PCIe Gen4 x16
Heatsink		Passive	Passive	Passive	Passive
LAN Bypass		-	-	-	-
Power	Voltage	12 V ± 15%	12 V ± 15%	12 V ± 15%	12 V ± 15%
	Consumption	17W	150W (75W PCIe golden fingers + 75W 6-pin ATX connector)	150W (75W PCIe golden fingers + 75W 6-pin ATX connector)	75W
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 55°C (32 ~ 131°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)	0 ~ 45°C (32 ~ 113°F)
	Storage 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)
	Storage Humidity	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing	0 ~ 90%, non-condensing
Mechanical	Dimension	142 x 68.9 mm	167.65 x 68.9 mm	167.65 x 68.9 mm	167.65 x 68.9 mm
	Bracket	Full height and half height options available	Standard full height	Standard full height	Full height and half height options available

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AI & Advanced Computer Vision

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AI & Advanced Computer Vision

Accelerate Mobility AI & Industrial AI with Video And Vision Integration

AI and computer vision are driving a new wave of interactivity in the IoT world. Advantech offers a diverse range of industrial edge AI platforms and solutions powered by NVIDIA technology, catering to applications across various industries. Beyond AI hardware, video, and vision peripherals, Advantech provides all-in-one solutions such as AI vision sensors and AI systems integrating NVIDIA Metropolis and Isaac ROS SDK. With comprehensive AI solutions and services, Advantech assists customers with limited developer resources in seamless AI implementation.



Why Advantech AI & Advanced Computer Vision



Embedded
with NVIDIA AI
Technology



Domain expertise
in verticals



Global R&D resources
for designed-in
service



Eco-system
partner to speed
up deployment



Easy integration
with video inputs



Remote management
for large-scale
deployment

Key Products

AI Inference Systems

The Advantech MIC-Jetson series is comprised of highly integrated systems built on the NVIDIA Jetson platform. With formidable computing power, a sleek compact design, industrial I/O support, and remote management capabilities, the MIC-Jetson series enables AI application developers to swiftly develop unique solutions in transportation, safety and security, retail, and robotics.



AI Developer Kits & AI Solution Kits

In order to accelerate AI deployment, Advantech provides AI Developer Kits and AI Solution Kits. AI Developer Kits are open-frame systems with sufficient I/O capabilities, enabling AI developers to test AI models on the NVIDIA Jetson system. AI Solution Kits are also open-frame systems designed for testing deployment environments; they offer even more I/O options and are validated with various peripherals. This allows developers to quickly fulfill AI deployment requirements on-site.



AI Rugged Systems

Advantech rugged edge AI systems are designed for applications in harsh environments. Based on the NVIDIA Jetson system-on-module, this solution features an IP67 rating for water and dust, lockable connectors for vibration tolerance, a machine ignition protection system, built-in PoE, and GMSL2 video interface support.



AI NVRs

AI Network Video Recorder (NVR) system based on NVIDIA Jetson system-on-modules and integrated with NVIDIA Metropolis Microservices for Jetson. The AI NVR systems are equipped with multiple video inputs, video storage, Metropolis Microservices integration, iService cloud solution, and Over-the-Air (OTA) service. Developers can easily adopt AI through simple API calls.



IGX Systems

Advantech IGX systems are server-grade edge AI platforms based on NVIDIA IGX Orin™. Aiming at industrial and medical environments that require higher levels of performance, durability and security. IGX Orin systems deliver functional safety, manageability, and security without compromising any of its ultra-fast processing performance.



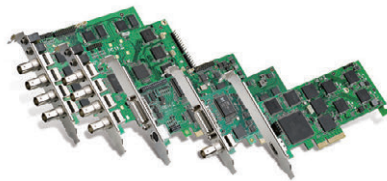
AI Cameras

An AI camera, equipped with an NVIDIA Jetson System on Module (SoM), a lens, and LED illumination, is designed for OCR (Optical Character Recognition) and AI-powered AOI (Automated Optical Inspection) applications at the network edge. AI Industrial cameras fully integrate a compact vision system for industrial automation.



Video Capture Cards

Due to growing AI video demands, Advantech provides an extensive range of video products, including video capture cards (PCIe, mini PCIe, and M.2, GMSL) to meet various market needs. From 24-hour surveillance, traffic monitoring, robotics, in-vehicle application, and even medical imaging, Advantech's video captures are capable of supporting diverse video-related applications.



Frame Grabbers & Machine Vision Cameras

Advantech together with Advantech BitFlow delivers hi-end frame grabbers and industrial cameras that designed for vision application in factory automation and medical imaging. Advantech frame grabbers are digital Camera Link and CoaXPress frame grabbers model for almost every camera manufactured. Advantech frame grabbers and industrial cameras are industrial-grade, high-bandwidth, and offer high flexibility with multiple I/O expansions.



AI Vision Sensor with Anomaly Detection or OCR

The Advantech AI vision sensor ICAM-200 series are an all-in-one solution for production lines. They combine AI computing (embedded with NVIDIA Jetson), cameras and lens, LED lights, and easy to use AI models including AI OCR or AI anomaly detection. The ICAM-200 series supports re-training, web UI, and apps. Developers can easily fine-tune AI models with these plug-and-play solutions.



AI AOI Solutions

Advantech's AI AOI solution is a one-stop solution with deep-learning image analysis software for applications in automated optical inspection (AOI). The trained software development kit allows fast deployment of AI models with a user-friendly interface, and is flexible and scalable in both x86 systems and Arm-based platforms.



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Serial/USB Communications

Edge AI Systems

AI Inference Systems



Model		MIC-733-AO	MIC-713-OX MIC-713-ON	MIC-711-OX MIC-711-ON	MIC-730AI	MIC-710AIX MIC-710AIT	MIC-710AILX MIC-710AILT
Processor	NVIDIA Platform	NVIDIA® Jetson AGX Orin™	NVIDIA® Jetson Orin™ NX/ Nano	NVIDIA® Jetson Orin™ NX/ Nano	NVIDIA® Jetson AGX Xavier™	NVIDIA® Jetson Xavier™ NX/ NVIDIA® Jetson™ TX2 NX/ NVIDIA® Jetson Nano™	NVIDIA® Jetson Xavier™ NX/ NVIDIA® Jetson™ TX2 NX/ NVIDIA® Jetson Nano™
	AI Performance	Up to 275 TOPS	Up to 100 TOPS / Up to 40 TOPS	Up to 100 TOPS / Up to 40 TOPS	Up to 32 TOPS	21 TOPs/ 1.33 TFLOPs/ 472 GFLOPs	21 TOPs/ 1.33 TFLOPs/ 472 GFLOPs
I/O	Ethernet	4 x 10/100/1000 Mbps (Optional PoE support, IEEE 802.3af/at)	2 x 10/100/1000 Mbps (Optional PoE support, IEEE 802.3af/at)	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
	Display	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)
	USB	Internal: 1 x USB 2.0 External: 2 x USB 2.0, 4 x USB 3.2 Gen 2	External: 6 x USB 3.2 Gen 2	External: 2 x USB 3.2 Gen 2, 1 x USB 2.0 Internal: 1 x USB 2.0 (By pin header)	Internal: 1 x USB 2.0 External: 2 x USB 2.0, 2 x USB 3.0	Internal: 1 x USB 2.0 External: 1 x USB 2.0, 1 x USB 3.0	Internal: 1 x USB 2.0 External: 1 x USB 2.0, 1 x USB 3.0
	Digital I/O	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO	–	8-ch DI, 8-ch DO	4-ch DI, 4-ch DO	–
	Power Switch	1 x Power ON/OFF Button	–	–	1 x Power ON/OFF Button	–	–
	Serial Port	2 x RS-232/422/485 (On-board pin header)	2 x RS-232/422/485 (On-board pin header)	–	2 x RS-232/422/485	Internal: 1 x RS-232 External: 1 x RS-232/ RS-422/RS-485	1 x RS-232
	CANBus	–	1	–	–	–	–
	OTG USB	1 x Micro USB	1 x Micro USB	1 x Micro USB	1 x Micro USB	1 x Micro USB	1 x Micro USB
	iModule (Optional)	1 x PCIe x8 (MIC-75M10-00A2)	–	–	1 x PCIe x8 (MIC-75M10-00A1) 1 x PCIe x8 + 1 x PCIe x4 (MIC-75M20-00C1)	–	–
Expansion	PCIe	–	–	–	–	–	–
	Mini PCIe	2 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)
	SIM	2 x Nano SIM slots	2 x Nano SIM slot	2 x Nano SIM slots	1 x Nano SIM slots	1 x Nano SIM slots	1 x Nano SIM slots
	M.2	1 x M.2 3052 (B-Key, Signal: USB)	1 x M.2 3052 (B-Key, Signal: USB)	1 x M.2 3052 (B-Key, Signal: USB)	1 x M.2 2280 (M-Key, Signal: PCIe x2)	–	–
	TPM (Optional)	1 x TPM 2.0	1 x TPM 2.0	1 x TPM 2.0	–	–	–
	GMSL (Optional)	2-ch GMSL2.0 with FAKRA connectors	2-ch GMSL2.0 with FAKRA connectors	–	–	–	–
	iDoor (Optional)	1 x iDoor bracket reserve	1 x iDoor bracket reserve	–	1 x iDoor space reserved	1 x iDoor space reserved	–
Storage	Storage	1 x Micro SD slot 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)	1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4), 1 x Micro SD	1 x Micro SD slot 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)	1 x MicroSD 1 x 2.5" HDD/SSD 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x2)	1 x MicroSD 1 x M.2 2280 (M-Key, signal: SATA3) 1 x SATA3 connector	1 x MicroSD 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)
Power	Mode	AT/ATX (Default AT)	AT	AT	AT/ATX	AT	AT
	Input Voltage	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}	9 ~ 36 V _{DC}	19 ~ 24 V _{DC}	12 ~ 24 V _{DC}
Mechanic	Dimension (W x H x D)	192 x 230 x 87 mm	194.8 x 174.3 x 65.85 mm	130 x 130 x 46 mm	192 x 230 x 87 mm	147 x 118 x 52 mm	85 x 118 x 45 mm

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

Edge AI Systems

AI Developer Kits and AI Solution Kits



Model		MIC-713S-OX MIC-713S-ON	MIC-711D-OX MIC-711D-ON	MIC-710AILX-DVA MIC-710AIL-DVA
Processor	NVIDIA Platform	NVIDIA® Jetson Orin™ NX/ Nano		NVIDIA® Jetson Xavier™ NX/ NVIDIA® Jetson Nano™
	AI Performance	Up to 100 TOPS / Up to 40 TOPS		21 TOPS/ 472 GFLOPs
I/O	Ethernet	5 x 10/100/1000 Mbps (Optional PoE support, IEEE 802.3af/at)	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
	Display	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)
	USB	External: 6 x USB 3.2 Gen 1	External: 2 x USB 3.2 Gen 2, 1 x USB 2.0 Internal: 1 x USB 2.0 (By pin header)	Internal: 1 x USB 2.0 External: 1 x USB 2.0, 1 x USB 3.0
	Digital I/O	4-ch DI, 4-ch DO	–	–
	Power Switch	–	–	–
	Serial Port	2 x RS-232/422/485 (On-board pin header)	–	1 x RS-232
	CANBus	1	–	–
	OTG USB	1 x Micro USB	1 x Micro USB	1 x Micro USB
	iModule (Optional)	–	–	–
Expansion	PCIe	1 x PCIe x4 slot (PCIe x4 link, Gen 4)	–	–
	Mini PCIe	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)	1 x mPCIe (Signal: PCIe + USB)
	SIM	2 x Nano SIM slots	2 x Nano SIM slots	1 x Nano SIM slots
	M.2	1 x M.2 3052 (B-Key, Signal: USB)	1 x M.2 3052 (B-Key, Signal: USB)	–
	TPM (Optional)	1 x TPM 2.0	1 x TPM 2.0	–
	GMSL (Optional)	2-ch GMSL2.0 with FAKRA connectors	2-ch GMSL2.0 with FAKRA connectors	–
	iDoor (Optional)	–	–	–
Storage	Storage	1 x Micro SD 1 x M.2 2280 (Signal: PCIe x1, Gen 4)	1 x Micro SD 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)	1 x Micro SD 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)
Power	Mode	AT	AT	AT
	Input Voltage	9 ~ 36 V _{DC}	12 V _{DC}	12 ~ 24 V _{DC}
Mechanic	Dimension (W x H x D)	180 x 171 x 68.12 mm	125 x 125 x 51 mm	116 x 85 x 54.7 mm/116 x 82 x 30 mm

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

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Edge Software & Industry
Solutions

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Intelligent Motion Control
Solutions

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Data Acquisition (DAQ)
Solutions

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Remote I/O, Wireless I/O
& Sensors

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Serial/USB Communications

Edge AI Systems

Rugged AI Systems & AI NVRs



Model		MIC-715-OX	MIC-715	MIC-717-OX MIC-717-ON	MIC-730IVA	MIC-710IVX MIC-710IVA
Processor	NVIDIA Platform	NVIDIA® Jetson Orin™ NX	NVIDIA® Jetson Xavier™ NX	NVIDIA® Jetson Orin™ NX/ Nano	NVIDIA® Jetson AGX Xavier™	NVIDIA® Jetson Xavier™ NX/ NVIDIA® Jetson Nano™
	AI Performance	Up to 100 TOPS	Up to 21 TOPS	Up to 100 TOPS / Up to 40 TOPS	Up to 32 TOPS	21 TOPs/ 472 GFLOPs
I/O	Ethernet	6 x 10/100/1000 Mbps (4 x PoE support, IEEE 802.3af) in M12 X-coded, 8-pin female connector	6 x 10/100/1000 Mbps (4 x PoE support, IEEE 802.3af) in M12 X-coded, 8-pin female connector	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
	Display	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)	HDMI (Max. resolution 3840 x 2160 @ 60Hz)
	USB	External: 2 x USB 3.0	External: 2 x USB 3.0 (waterproof connector)	1 x USB 3.0 (Internally used for recovery mode) 2 x USB 2.0	External: 2 x USB 3.0 (Type-A) Internal: 1 x USB 2.0 (pin header) 1 x USB 2.0 (Type-A)	External: 1 x USB 3.0, 1 x USB 2.0 Type-A
	Digital I/O	–	–	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO	4-ch DI, 4-ch DO
	Power Switch	–	–		1 x Power ON/OFF Switch	1 x Power ON/OFF Switch
	Serial Port	–	–	8 x RJ-45 (10/100 Mbps + PoE / total power: 123.2 W)	8 x PoE (IEEE 802.3af); RS-232/422/485	8 x PoE (IEEE 802.3af); 1 x RS-485
	CANBus	2 (Interface: M12 A-coded, 5-pin male)	2 (Interface: M12 A-coded, 5-pin male)	–	–	–
	OTG USB	1 x Micro USB	1 x Micro USB	–	1 x Micro USB	1 x Micro USB
Expansion	iModule (Optional)	–	–	–	–	–
	PCIe	–	–	–	–	–
	Mini PCIe	2 x mPCIe (signal: PCIe + USB)	2 x mPCIe (Signal: PCIe + USB)	–	1 x mPCIe (Signal: PCIe + USB)	–
	SIM	2 x Nano SIM slots	2 x Nano SIM slots	1 x Nano SIM slot	1 x Nano SIM slot	–
	M.2	1 x M.2 3052 (B-Key, signal: PCIe + USB)	1 x M.2 3052 (B-Key, signal: USB)	1 x M.2 3042 (B-Key, signal: USB)	–	–
	TPM (Optional)	–	–	1 x TPM 2.0	–	–
	GMSL (Optional)	–	–	–	–	–
	iDoor (Optional)	–	–	–	–	–
Storage	Storage	1 x M.2 2280 M-Key (NVMe, PCIe x1)	1 x Micro SD 1 x M.2 2280 (M-Key, NVMe, Signal: PCIe x4)	1 x M.2 2280 (M-Key, NVMe, signal: PCIe x4); 1 x 3.5" HDD or 1 x 2.5" SSD	2 x 3.5 or 2 x 2.5 SATAIII (6Gb/s) drives	2 x 3.5" / 2 x 2.5" SATAIII (6Gb/s) drives
Power	Mode	AT/ATX (M16 ,6 pin male, Default AT)	AT/ATX (M16 ,6 pin male, Default AT)	C13, AT/ATX (Default AT)	C13, AT/ATX (Default AT)	C13, 250W ATX Power supply, AT/ATX (Default AT)
	Input Voltage	12/24 V _{DC} (12-6A) with ignition	12/24 V _{DC} , 16-4A	54 V _{DC} , 4.26A	100 ~ 240 V _{AC} , 3.5A	100 ~ 240 V _{AC} , 3.5A
Mechanic	Dimension (W x H x D)	275 x 220 x 80 mm	275 x 220 x 80 mm	254.5 x 195.0 x 44.45 mm	40 x 40 x 20 mm	40 x 40 x 20 mm

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

Edge AI Systems

IGX Systems



Model		MIC-735M-IO	MIC-735E-IO	MIC-735I-IO
Processor	NVIDIA Platform	NVIDIA® IGX Orin™		
	AI Performance	Up to 248 TOPS		
Controller	Safety MCU (sMCU)	Infineon Aurix TC397		
	BMC (Baseboard Management Controller) Module	Aspeed AST2600 Microchip ERoT		
I/O	PCIe	2 x PCIe Gen5 (from ConnectX-7 PCIe switch) 1 x PCIe x8 within 16x physical connector 1 x PCIe x16 within 16x physical connector		
	USB	1 x USB 3.2 Gen2 Type-C 8 x USB 3.2 Gen2 Type-A	1 x USB 3.2 Gen2 Type-C 4 x USB 3.2 Gen2 Type-A (Additional 4 x 3.2 Gen2 Type-A)	1 x USB 3.2 Gen2 Type-C 4 x USB 3.2 Gen2 Type-A (Additional 4 x 3.2 Gen2 Type-A)
	Ethernet	2 x QSFP ports (up to 100GB per port/up to 25 Gb/s per channel) supported by ConnectX-7 chipset		
	Display	1 x DisplayPort 1.4a output		
	Audio (AU)	Two 3.5 mm AU jack (Mic-In, Line-out)		
Wireless	Wi-Fi	802.11 a/b/g/n/ac BT 5.0		
Expansion	PCIe	1 x PCIe Gen5 x16 for optional NVIDIA RTX A6000 discrete GPU card 1 x PCIe Gen5 x8		
Storage	Storage	1 x M.2 (M-Key 2280, NVMe, Signal: PCIe Gen4 x4)		
Power	Mode	700W PS2 Single power supply (medical grade)	Single Flex ATX 850W power supply	500W / 1200W Single power supply (Select 1200W if RTX A6000 combined)
Mechanic	Dimension (W x H x D)	192 x 376.7 x 338.5 mm	438 x 177 x 450 mm	267.1 x 458 x 500 mm

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

AI Cameras



Model		 ICAM-520-10W	 ICAM-540-3CN	 ICAM-540-30W
Processor	NVIDIA Platform	NVIDIA® Jetson Xavier™ NX	NVIDIA® Jetson Orin™ NX	
	AI Performance	21 TOPs	70 TOPS	
Image Sensor	Sensor	SONY MX296, 1.6MP @ 60fps	SONY IMX334, 8MP @ 45fps	
	Size, Shutter	1/2.9", global shutter, color	1/1.8", rolling shutter, color	
Optical	Lens	12 mm, 16 mm variable focal lengths	Compatible with c-mount lens	6 mm, 12 mm, 16 mm, 25 mm variable focal length
	LED Illumination	8 x PWM white LEDs, Programmable	–	8 x PWM white LEDs, Programmable
Synchronization		Hardware trigger / Software trigger / Free-run		
HW ISP		Color debayering, sharpness, white balance, CCM correction, dark noise correction, and brightness		
I/O	Peripheral	1 x USB 3.0 Type-C, 1 x RS485	1 x USB 3.0 Type-C, 1 x USB 3.0 Type-A	
	Digital I/O	1x Trigger in, 2 x Inputs, 2 x Outputs	1x Trigger in, 2 x Inputs, 1 x Outputs	
	Display	1 x HDMI 2.0		
LAN		1 x 10/100/1000 Base-T		
Power Requirements		19~24VDC Max: 18W, Typical 15W		
Dimension (W x H x D)		82 x 121 x 63 mm	78 x 121 x 49 mm	82 x 121 x 63 mm
Software Support	OS	Above Ubuntu 18.04, Jetpack 4.6.2	Above Ubuntu 20.04, JetPack 5.1.1	
	SDK/Utility	CAMNavi SDK, Web based camera utility, IP configure tool, NVIDIA DeepStream SDK & example		

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

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Frame Grabbers & Machine Vision Cameras

Hi-End Frame Grabbers



Model		 Axion-1xE	 Axion-2xE	 Axion-4xB	 Claxon-CXP1	 Claxon-CXP2	 Claxon-CXP4
Camera Interface	Compatibility	Camera Link 2.0			CXP-12		
	Configuration	Base/Med/Full/79-bit		Base	–		
	Camera Number	1	2	4	1	2	4
	Speed	–			3/6/12 Gbps		
	Connector	SDR Camera Link connectors			Micro BNC		
	Bus Interface	PCIe x4 Gen2 (also works in x8 and x16 slots)			PCIe x4 Gen2	PCIe x8 Gen3	
Processor and Software	Processor Architecture	x86, Arm64					
Support Package	Operating System	Windows 7, 8, 10 (x86 only), Linux SDK C, C++, C#, Python			Windows 7, 8, 10 (x86 only), Linux SDK C, C++, C#, Python		
Power Requirements	Input Voltage	12 VDC direct from PCIe slot, or AT/ATX system power input					
	Overload Current Protection	Present					
	Connection	AT/ATX Power Jack					
	Power Output	Supports both PoCL and non-PoCL cameras with SafePower			up to 13W, 24 V _{DC} each CXP link (total max. 52W with AT/ATX system power input)		
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)					
	Storage Temperature	-20 ~ 80°C (-4 ~ 176°F)					
	Operating Humidity	5 ~ 95% RH					
Mechanic	Dimension (W x D)	174 x 106 mm	174 x 106 mm	174 x 106 mm	140 x 77 mm	174 x 106 mm	174 x 106 mm
Certification	Compliance	FCC CE Class A					

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

Frame Grabbers & Machine Vision Cameras

Frame Grabbers



Model		🔌 PCIe-1154-BE	🔌 PCIe-1158	🔌 PCIe-1672E	🔌 PCIe-1674E	🔌 PCIe-1182	
Power Requirements	Input Voltage	12 V _{DC} direct from PCIe slot with optional 12 V _{DC} AT/ATX					
	Overload Current Protection	Device auto recovers after fuse tripped when rated currents > 2A					
	Connection	AT/ATX Power Jack					
	Power Output	5 V _{DC} power output, max. 4.5W per port		48 V _{DC} PoE Power output, Max. 25.4W (1 port) (total Max. 60W (2 ports) with AT/ATX System power			
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					
Mechanic	Dimension (W x D)	153 x 106 mm (6.02" x 4.17")		165 x 110 mm (6.49" x 4.33")		167 x 68.9 mm (6.57" x 2.71") PCIe low profile	
Communication	Communciation	USB 3.0		GigE		10 GigE	
	Interface/Compatibility	USB 3 Vision		IEEE 802.3, IEEE 802.3u, IEEE802.3ab,IEEE802.3x, IEEE802.3af, IEEE802.3at			
	Speed	5Gbps		10/100/1000 Mbps		10,000/5,000/1,000 Mbps	
	No. of Ports	4	8	2	4	2	
	Port Connector	USB 3.0 Type-A		8-pin RJ-45 copper			
	Bus Interface	PCIe Gen2 x4 (up to 2.0 GB/s)				PCIe Gen3 x4	
	Jumbo Frame	-		9KB		-	
	Controller	Renesas μ PD720202		Intel® Ethernet Controller I350		Intel® Ethernet Controller X550	
Safety	ESD	8KV (air), 4KV (contact)					
	EFT	2 KV					
	Surge Protection	1 KV					
	Isolation Protectoin	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	

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

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Industrial Cameras (GigE)



Model	QCAM-GM0640-121CE	QCAM-GM0720-290CE	QCAM-GM1440-073CE	QCAM-GM2500-014DE	QCAM-GM2440-020CE	QCAM-GM5400-005CE
Resolution	659 x 494	720 x 540	1440 x 1080	2590 x 1942	2448 x 2048	5472 x 3648
Frame Rate	134	291	73	14	23	5
Pixel Size (μm)	5.6 x 5.6	6.9 x 6.9	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
Sensor	Company	SONY	SONY	e2v	Onsemi	Onsemi
	Model	ICX618 replacement	IMX287	EV76C570	MT9P031	MT9J003
	Shutter	Global	Global	Global	Rolling	Rolling
	Size	1/4"	1/2.9"	1/2.9"	1/2.5"	2/3"
Type						
CMOS						
Input	1					
Output	1					
Power Requirements	PoE or 12 V _{DC}					
Power Consumption	2.7 W	2.9 W	2.1 W	2.2 W	3.3 W	2.6 W
Lens Mount	C					
Dimension (W x H x D)	42.0 x 29.0 x 29.0 mm					
Weight	90 g					
Operating Temperature	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	QCAM-UC2590-060CE QCAM-UM2590-060CE
Resolution	640 x 480	720 x 540	1280 x 1024	1440 x 1080	2488 x 2048	2592 x 1944
Frame Rate	751	525	203	227	35	60
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	2 x 2
Mono/Color	Color/Mono	Color/Mono	Color/Mono	Color/Mono	Color/Mono	Color/Mono
Sensor	Company	Onsemi	SONY	Onsemi	SONY	SONY
	Model	PYTHON 300	IMX287	PYTHON 1300	IMX273	IMX264
	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 USB 3.0 interface					
Power Consumption	2.8 W	3 W	3 W	3.3 W	2.7 W	2.6 W
Lens Mount	C					
Dimension (W x H x D)	29.3 x 29.0 x 29.0 mm					42.8 x 29 x 29 mm
Weight	80 g					90 g
Operating Temperature	0 ~ 50°C					0 ~ 60°C

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

Video Capture Cards



Model		DVP-7011HE-1	DVP-7011HEL	DVP-7011MUHE	DVP-7012HEL	DVP-7012UHEL	DVP-7024UHEL	DVP-7025UHE
Video	Compression	SW	SW	SW	SW	SW	SW	SW
	Channels	1	1	1	1	1	2	2
	Host Interface	PCIe x1 (Gen2)	PCIe x1 (Gen2)	M.2 (PCIe x4)	PCIe x1 (Gen2)	PCIe x4 (Gen2)	PCIe x4 (Gen2)	PCIe x4 (Gen2)
	Input Interface	1 x HDMI, 1 x DVI-I, 1 x YPbPr, 1 x SDI, 1 x CVBS, 1 x S Video	1 x DVI-I, 1 x SDI	1 x HDMI 2.0	1 x HDMI, 1 x S-Video, 1 x CVBS	1 x 12G-SDI, 1 x HDMI 2.0	2 x HDMI 2.0	2 x 12G-SDI, 2 x 6G-SDI, 4 x 3G-SDI
	Max. Resolution	1920 x 1080 @60/50fps	1920 x 1080 @60/50fps	4096 x 2160 @60/50/30/25/24fps	1920 x 1080 @60/50fps	4096 x 2160 @60/50fps	4096 x 2160 @60/50/30/25/24fps	4096 x 2160 @60/50fps
Watchdog		—	✓	—	✓	—	—	—
Physical Characteristic	Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
	Dimension (W x H x D)	94.43 x 101.01 mm	96 x 68.9 mm PCIe Low Profile	22 x 80 mm M.2 Type-M	100 x 68.87 mm PCIe Low Profile	126.96 x 68.9 mm PCIe Low Profile	139.71 x 68.9 mm PCIe Low Profile	153.95 x 101.01 mm
	Safety	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Operating System		Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson, TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson, TX2, NANO, AGX Xavier, Xavier NX



Model		DVP-7031HE-1	DVP-7031MHE	DVP-7031UHE	DVP-7033UHE	DVP-7035HE	DVP-7036HE	DVP-7037HEL	DVP-7111UHE
Video	Compression	SW	SW	SW	SW	SW	SW	SW	SW
	Channels	4	4	4	4	4	4	4	1
	Host Interface	PCIe x4 (Gen2)	M.2 (PCIe x4)	PCIe x8 (Gen2)	PCIe x8 (Gen2)	PCIe x4 (Gen2)	Mini PCIe x1 (Gen2)	PCIe x1 (Gen2)	PCIe x4 (Gen2)
	Input Interface	4 x HDMI 2.0	4 x HDMI 2.0	4 x HDMI 2.0	4 x 12G SDI	4 x TVI	4 x TVI	4 x TVI	1 x HDMI 2.0
	Max. Resolution	1920 x 1080 @60/50fps	1920 x 1080 @60/50fps	3840 x 2160 @60/50/30/25/24fps	3840 x 2160 @60/50fps	1920 x 1080 @30/25fps	1920 x 1080 @30/25fps	1920 x 1080 @30/25fps	4096 x 2160 @60/50fps
Watchdog		✓	—	—	—	✓	—	✓	✓
Physical Characteristic	Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)	-20 ~ 70°C (-4 ~ 158°F)
	Dimension (W x H)	111.74 x 101.01 mm	22 x 80 mm M.2 Type-M	130.49 x 101.01 mm	140.97 x 101.01 mm	128 x 101.01 mm	30 x 50.95 mm	96.49 x 68.9 mm PCIe Low Profile	120 x 68.9 mm PCIe Low Profile
	Safety	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Operating System		Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 2.6.14 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson, TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 2.6.14 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 2.6.14 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX	Windows 7/Windows 8/Windows 8.1/Windows 10 Linux 4.8 or Higher (32-bit and 64-bit) Linux ARM NVIDIA Jetson TX2, NANO, AGX Xavier, Xavier NX

✓: supported, —: not supported, △: optional

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AI Vision Sensor & Software Solutions



ICAM-220 AI Vision Sensor with OCR Model

Model		ICAM-220 (with AI OCR)
Processor System		6-core NVIDIA Camel Arm® v8.2 64-bit CPU 6MB L2 + 4MB I3 (Max. operating frequency: 1.9GHz GPU: 384-core NVIDIA Volta GPU with 48 Tensor Cores)
Sensor Features		1408 x 1080; pixel size (3.45 x 3.45 μm)
Storage		128GB micro SD
Acquisition & Processing		FPS=10~15
Synchronization		Hardware trigger / software trigger / free-run
Specifications	Pre-Trained Languages	Traditional Chinese / Simplified Chinese / English / Japanese / Vietnamese
	Alphabet	A ~ Z; a ~ z
	Numbers	0 ~ 9
	Symbols	/, #, \$, %
	Color	Color
	Contrast	10
	Character Number	Horizontal: 60 characters
Main Functions	Character Minimum Size	10 x 10 pixels
	Character Spacing	2 pixels
	Logical Threshold Settings	"Included" type (IN): The prediction text must contain all included filters; otherwise, the result will be "NG." "Excluded" type (EX): If any of the predictions contain excluded filters, the result will be "NG."
	Communication	DIO=H/W trigger DO0, 1
	Fonts Supported	bitmap, printing, handwriting
	Surface Compensation	Sphere, arc, 60-degree surface
	Minimum Amount of Training Data	Printed characters: 30
Power Requirements		19~24V _{DC} Max: 18W, typical 15W
Dimension (W x H x D)		82 x 121 x 63 mm
Operating Environment		0 ~ 45°C, 5 Grms
Certification		CE/FCC, IP54



ICAM-240 AI Vision Sensor with Anomaly Detection Model

Model		ICAM-240 (with AD model)
Processor System		6-core NVIDIA Camel Arm® v8.2 64-bit CPU 6MB L2 + 4MB I3 (Max. operating frequency: 1.9GHz GPU: 384-core NVIDIA Volta GPU with 48 Tensor Cores)
Sensor Features		1408 x 1080; pixel size (3.45 x 3.45 μm)
Storage		128GB micro SD
Acquisition & Processing		FPS=20~30
Synchronization		Hardware trigger / software trigger / free-run
Image Specifications	Image Format	.jpg / .png / .bmp
	Image Size	above 64 x 64 pixel
	Model Input Size	above 128 x 128 pixels
	Model Backbone	ResNet -18 -34 -50
	Inference Image Size (ROI)	1, rectangle or circle, size: 320 x 240 / 640 x 480 / 1024 x 768 / 1280 x 960 / 1408 x 1080, ROI minimum above 64 x 64 pixels
	Detection Type	OK / NG
	Anomaly Type	Go vs no go detection, color difference, position difference
Main Functions	Maximum Amount of Training Data	20
	ROI Circling	Manual / auto-alignment
	Image Acquisition & Saving	Save training images with 1 ROI
	Threshold Setting	Automatic threshold generation, validation set manual adjustment, inference fine-tune
	Heatmap	Heatmap in ROI, adjust hot zone contrast manually
	Status Output	Status/OK or NG result/AD score/inference FPS: /latency(ms)
	Minimum Training pcs	OK: 15 pcs, NG: unlimited
DIO Trigger Output		Hardware output, RESTful API, log file (timestamp, OK/NG, one .csv file per day)



AI AOI Solution

AI AOI Pre-Trained Models and Software

This is an AI model training software powered by Spingence. It is designed for use in automated optical inspection (AOI) applications and automated manufacturing. Its software provides an easy graphical user interface that enables the quick application of AI in AOI applications. This software chooses the most suitable AI algorithm base for testing times and items. The Advantech AI AOI Solution is comprised of the following pre-trained AI models:

- Classification
- Object Detection
- Segmentation

An Industrial vision inspection software can fulfill all of your inspection needs with the following features:

- Data storage and index management system
- Data label and image pre-processing
- Model detection training and testing *Detection engine deployment and update





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About Advantech

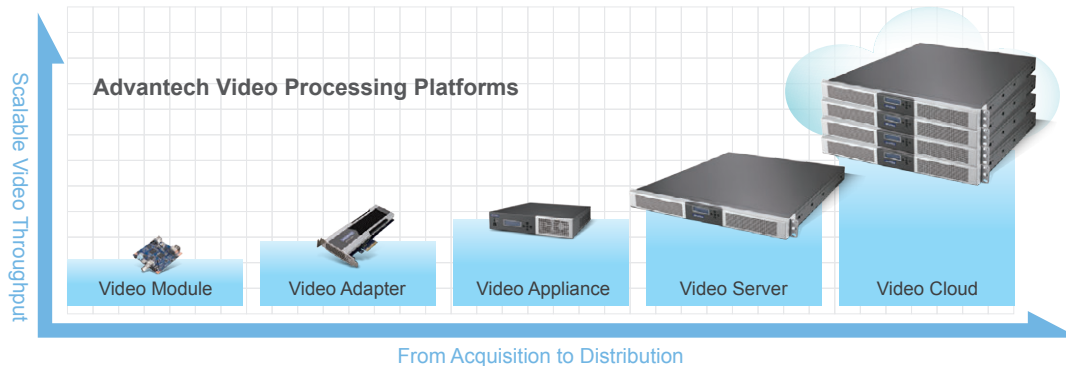
Video Solutions

Advantech's Video Solutions Division has been developing broadcast-quality video solutions for some of the top OEMs in the industry. Customers can leverage our strong video expertise and leading-edge computing and networking design skills to accelerate the deployment of their next-generation media solutions:

	Contribution & Live Production	Media Processing & Distribution
Video Acceleration	Support for a variety of mezzanine compression implementations for 4K video transport over 10GbE.	Efficient HD/UHD H.264/H.265 encoder, decoder and transcoder PCIe acceleration for higher density, lower TCO deployments
Networking	IP media transport supporting different industry standards such as SMPTE 2022 and SMPTE 2110	- Low latency media-over-IP interfacing & switching - Software-defined networking & ToR switching
Computing	- Ethernet, SDI, HDMI, USB, and analog interface flexibility - Embedded computing solutions for field applications	- Application-ready x86 platforms optimized to run compute-intensive video processing applications - FPGA expertise for innovative IP integration

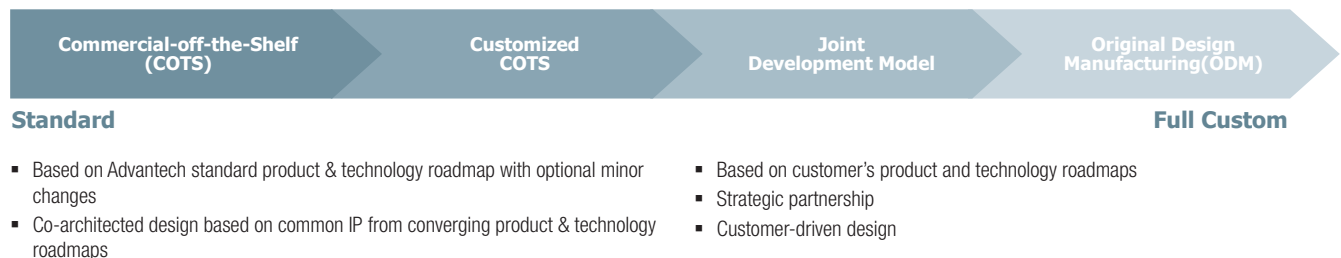
We apply our solid media technology knowledge to engineer innovative solutions for our customers. From design through quality assurance and production to global logistics, our teams integrate with our customers' teams to create a highly collaborative environment that minimizes the risk of developing complex solutions. Advantech scalable video platforms are designed with modularity in mind to meet a wide range of application scenarios.

From ultra-light modules that can be embedded into live streaming devices to high-density architectures for live cloud media services, our video processing platforms provide a user space software framework supported by our software engineering team that simplifies their integration into your new IP workflow solutions.



Simplifying the Customization Process

Advantech has invested heavily in dedicated resources to develop the essential building blocks that enable the deployment of innovative and integrative video infrastructure solutions, including video acquisition, video transport, video processing and video distribution. With Advantech, you are not limited to a standard products offering alone. Our flexible design approach allows OEMs to easily partner with Advantech on customized versions of commercial-off-the-shelf products, a framework we call Customized COTS. The advantage of Customized COTS is its "best of both worlds" approach enabling OEMs to differentiate with unique premium solutions that leverage the cost benefits of full custom ODM designs and offer a significantly faster time to market. In addition, we are open to engage on full custom designs supported by our world-class team of video architects and engineers.



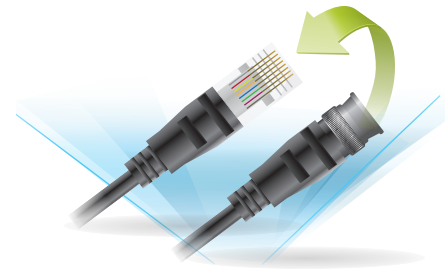
Leading Innovation for

The New IP Video Infrastructure

Advantech VEGA Video Platforms and PCI Express Accelerators are designed to boost video infrastructure performance from acquisition to distribution at the lowest power budget while fully complying with media industry needs. By providing access to the latest 4K/8K video processing and IP media technologies on commercial-off-the-shelf IT platforms, we accelerate the deployment of the more open and efficient next-gen solutions across a wide range of media applications, from broadcast encoding and OTT transcoding to cloud, mobile and 360° video. Advantech's proven expertise in networking and computing enables us to lead innovation in the IP transition of the industry and get our customers ahead of the curve. Here are the principal issues confronting the industry and how we can help.

The Move to IP

One of the major disruptors in the industry is the migration to IP that improves flexibility, reduces costs, and allows more use of commercial computing and networking gear. Advantech accelerates this transition by working together with key industry partners through industry alliances such as AIMS on standard and interoperable solutions that unlock the full potential of the new IP media infrastructure.



UltraHD and HEVC

The advent of 4K/8K and H.265 mark a significant change for the industry, together significantly outstripping the processing capabilities of many infrastructure elements. Advantech provides a wide range of easy-to-integrate, ultra-low-power video acceleration cards and application-ready platforms that efficiently scale throughput of high-density video infrastructure solutions to enable next-generation UHD services.

SDVoE

The SDVoE Alliance is a dedicated group of pro AV manufacturers, system designers, integrators, and technology managers working together to accelerate the replacement of point-to-point connectivity and the matrix switch with Ethernet-based AV distribution. Through interoperability and standardization, the SDVoE platform enables great AV user experiences.



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AV Over IP Solution



Model			VEGA-1000L	VEGA-1000	VEGA-1100	VEGA-1101
Product Lifespan			5 years	5 years	5 years	5 years
Platform			BlueRiver AVP2000	BlueRiver AVP2000	BlueRiver AVP2000T	BlueRiver AVP2000T
Video Inputs and Outputs	Channels (Max.)		1	1	1	1
	Formats	Resolution	480i/480p/720p/1080i/1080p/4K2K	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	up to 4K60
	Chroma Sampling Format		4:4:4	4:4:4	4:4:4	4:4:4
	Bit Depth		8/10/12-bit	8/10/12-bit	8/10/12-bit	8/10/12-bit
	Input Interface		HDMI 2.0 (Transmitter)	HDMI 2.0	HDMI 2.0	HDMI 2.0
	Output Interface		HDMI 2.0 (Receiver)	HDMI 2.0	HDMI 2.0	HDMI 2.0
Video Coding	Video Encoding	Standard	SDVoE	SDVoE	SDVoE	SDVoE
		Bit Depth	8/10/12-bit	8/10/12-bit	8/10/12-bit	8/10/12-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	4:4:4/4:2:2/4:2:0
VoIP	Connectivity		1 x 10 GbE (SFP+ cages)	1 x 10 GbE (SFP+ cages), 1 x 10 GbE copper, 1 GbE copper	1 x 10 GbE (SFP+ cages), 1 x 10 GbE copper, 1 GbE copper	1 x 10 GbE (SFP+ cages), 1 x 10 GbE copper (POE), 1 GbE copper
	Standard Supported		SDVoE	SDVoE	SDVoE	SDVoE
Audio	Channels (Max.)		8	8	8	8
	Formats		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)	Stereo Multi-channel linear PCM up to 8 channels (7:1)
	Audio Connectors		–	1 x input, 1 x output	1 x input, 1 x output	1 x input, 1 x output
Functionality	Streaming Protocol		SDVoE	SDVoE	SDVoE	SDVoE
	Management & Control Interface		Remote control GUI interface	Remote control GUI interface	Remote control GUI interface	Remote control GUI interface
	Development Kits		Semtech BlueRiver	Semtech BlueRiver	Semtech BlueRiver	Semtech BlueRiver
	Local Video Output		HDMI 2.0	HDMI 2.0	HDMI 2.0	HDMI 2.0
	Network Interface		10 GbE SFP+ fiber	10 GbE SFP+ fiber, 10 GbE copper, 1 GbE copper	10 GbE SFP+ fiber, 10 GbE copper, 1 GbE copper	10 GbE SFP+ fiber, 10 GbE copper, 1 GbE copper
	USB		–	3 x USB 1.0 Type-A HID	3 x USB 1.0 Type-A HID	3 x USB 1.0 Type-A HID
Power	Power Input		12 V /24DC	12 V DC	12 V DC	12 V DC
	Power Consumption		5W	12.5 W	12.5 W	12.5 W
Mechanical	Dimension (W x H x D)		90 x 89 x 25 mm	172 x 162 x 30 mm/ 6.77 x 6.37 x 1.18 in	172 x 162 x 30 mm/ 6.77 x 6.37 x 1.18 in	172 x 162 x 30 mm/ 6.77 x 6.37 x 1.18 in

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

AV Over IP Solution



Model			VEGA-1200	VEGA-1010	SDVoE SDM L	SDVoE SDM S
Product Lifespan			5 years	5 years	5 years	5 years
Platform			BlueRiver AVP2000T	i-Chips IP00C331	BlueRiver AVP2000T	BlueRiver AVP1000
Video Inputs and Outputs	Channels (Max.)		1	4	1	1
	Formats	Resolution	480i/480p/720p/1080i/1080p/4K2K	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	up to 4K60
	Chroma Sampling Format		4:4:4	4:4:4	4:4:4	4:4:4
	Bit Depth		8/10/12-bit	8-bit	8/10/12-bit	8/10/12-bit
	Input Interface		HDMI 2.0, DP, 12G-SDI, S-Video, VGA	4 x HDMI 2.0	–	–
	Output Interface		HDMI 2.0	2 x HDMI 2.0	–	–
Video Coding	Video Encoding	Standard	SDVoE, HEVC, AVC	–	SDVoE	SDVoE
		Bit Depth	8/10/12-bit	8/10/12-bit	8/10/12-bit	8/10/12-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	4:4:4/4:2:2/4:2:0
VoIP	Connectivity		1 x 10 GbE (SFP+ cages), 1 x 1 GbE copper	–	1 x 10 GbE (SFP+ cages)	1 x 10 GbE (SFP+ cages)
	Standard Supported		SDVoE, NDI, SRT	–	SDVoE	SDVoE
Audio	Channels (Max.)		8	–	8	8
	Formats		Stereo Multi-channel linear PCM up to 8 channels (7:1)	Bypass	Multi-channel linear PCM up to 8 channels (7:1)	Multi-channel linear PCM up to 8 channels (7:1)
	Audio Connectors		1 x input, 1 x output	–	–	–
Functionality	Operating System		Embedded	Embedded	–	–
	Streaming Protocol		SDVoE, NDI, SRT	–	SDVoE	SDVoE
	Management & Control Interface		Local or remote control GUI interface	Remote control GUI interface	Remote control GUI interface	Remote control GUI interface
	Development Kits		Semtech BlueRiver	–	Semtech BlueRiver	Semtech BlueRiver
	Local Video Output		HDMI 2.0	2 x HDMI 2.0	HDMI 2.0	HDMI 2.0
	Network Interface		10 GbE SFP+ fiber, 1 GbE copper	1 GbE copper	10 GbE SFP+ fiber	10 GbE SFP+ fiber
	USB		1 x USB 2.0 Type-A 1 x USB 1.0 Type-A HID	–	2 x USB 1.0 Type-A HID	–
Power	Power Input		12 V DC	12 V DC	SDM slot	SDM slot
	Power Consumption		23W	22W	10W	4.5W
Mechanical	Dimension (W x H x D)		266 x 210 x 47.5 mm	390 x 163 x 30mm	195 x 112 x 25 mm	123 x 80 x 25 mm

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Serial/USB Communications

4K Live Video Streaming Over WAN



Model			VEGA-2002-12GR	VEGA-2002-3GR	VEGA-2002-4x3GR
Product Lifespan			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
	Formats	Resolution	HDMI 2.0 3840 x 2160: 60p, 59.94p, 50p, 30p, 29.97p, 25p 1920 x 1080: 60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 60i, 59.94i, 50i 1280 x 720: 60p, 59.94p, 50p, 30p, 29.97p, 25p BNC (12G-SDI) 3840 x 2160: 60P, 59.94p, 50p, 30p, 29.97p 1920 x 1080: 60p, 59.94p, 50p, 30p, 29.97p, 25p, 60i, 59.94i, 50i 1280 x 720: 60p, 59.94p, 50p, 30p, 29.97p, 25p	HDMI 2.0 3840 x 2160: 60p, 59.94p, 50p, 30p, 29.97p, 25p 1920 x 1080: 60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 60i, 59.94i, 50i 1280 x 720: 60p, 59.94p, 50p, 30p, 29.97p, 25p BNC (3GS-SDI) 3840 x 2160: 60P, 59.94p, 50p, 30p, 29.97p, 25p, 60i, 59.94i, 50i 1920 x 1080: 60p, 59.94p, 50p, 30p, 29.97p, 25p, 60i, 59.94i, 50i 1280 x 720: 60p, 59.94p, 50p, 30p, 29.97p, 25p	BNC (3GS-SDI) 3840 x 2160: 60P, 59.94p, 50p, 30p, 29.97p 1920 x 1080: 60p, 59.94p, 50p, 30p, 29.97p, 25p, 60i, 59.94i, 50i 1280 x 720: 60p, 59.94p, 50p, 30p, 29.97p, 25p (Note: 3840 x 2160 support via quad link 3G-SDI)
		Frame Rate	Up to 4K60	Up to 4K60	Up to 4K60
	Chroma Sampling Format		4:2:2	4:2:2	4:2:2
	Bit Depth		8/10-bit	8/10-bit	8/10-bit
	Input Interface		1 x 12G-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 Decoding	Video Encoding	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
Audio	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 (supports only the SDI next to Line-In)
	Sampling Frequency		HDMI, SDI: 44.1, 48 KHz Line-In: 32, 44.1, 48 KHz	HDMI, SDI: 44.1, 48 KHz Line-In: 32, 44.1, 48 KHz	HDMI, SDI: 44.1, 48 KHz Line-In: 32, 44.1, 48 KHz
	Sampling Bit Depth		16-bit	16-bit	16-bit
	Audio Connectors		1 x Input	1 x Input	1 x Input
Functionality	Operating System		Linux	Linux	Linux
	Streaming Protocol		RTSP, RTP, RTMP, HLS, TS over IP, SRT, NDI HX2 (optional)	RTSP, RTP, RTMP, HLS, TS over IP, SRT, NDI HX2 (optional)	RTSP, RTP, RTMP, HLS, TS over IP, SRT, NDI HX2 (optional)
	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		1 x RJ-45	1 x RJ-45	1 x RJ-45
	USB		2 x USB 1.0 Type-A	2 x USB 1.0 Type-A	2 x USB 1.0 Type-A
Power	Power Input		12 V DC	12 V DC	12 V DC
	Power Consumption		17.8 W	17.8 W	17.8 W
Mechanical	Dimension (W x H x D)		130 x 48 x 93 mm/ 5.11 x 1.88 x 3.66 in	130 x 48 x 93 mm/ 5.11 x 1.88 x 3.66 in	122 x 43 x 92 mm/ 4.8 x 1.69 x 3.62 in

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Real-time Video Appliances



Model			VEGA-6301	VEGA-6321	VEGA-6321
Product Lifespan			2 years	5 years	5 years
Video Inputs and Outputs	Channels (Max.)		1 (up to 4Kp60)/4 (up to 1080p60)	Input: 1 (up to 4Kp60)/4 (up to 1080p60) Output: 1 (up to 8Kp60)	Output: 1 (up to 8Kp60)
	Formats	Resolution	3840 x 2160, 1920 x 1080, 1280 x 720	Input: 3840 x 2160, 1920 x 1080, 1280 x 720 Output: 7680 x 4320, 3840 x 2160, 1920 x 1080, 1280 x 720	Output: 7680 x 4320, 3840 x 2160, 1920 x 1080, 1280 x 720
		Frame Rate	60p, 59.94p, 50p, 30p, 29.97p, 25p	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
	Chroma Sampling Format		4:2:2, 4:2:0	HDMI 2.0 input: RGB 4:4:4 & YCbCr 4:4:4/4:2:2 SDI-12G input: YCbCr 4:2:2 HDMI 2.1 output: YCbCr 4:2:0 SDI-12G output: YCbCr 4:2:2	HDMI 2.1 output: YCbCr 4:2:0
	Bit Depth		8/10-bit	HDMI 2.0 & SDI-12G input: 8-bit HDMI 2.1 output: 8-bit, 10-bit SDI-12G output: 10-bit	HDMI 2.1 output: 8-bit, 10-bit
	Input Interface		1 x SDI-12G/1 x HDMI 2.0/4 x SDI-3G	1 x SDI-12G/1 x HDMI 2.0	–
Video Coding	Output Interface		–	1 x SDI-12G/1 x HDMI 2.1	1 x HDMI 2.1
	Hardware Video Compression	Codec	H.265 (HEVC)	AVC (H.264), HEVC (H.265), VP9	AVC (H.264), HEVC (H.265), VP9
		Bit Depth	8/10-bit	HDMI 2.0 & SDI-12G input: 8-bit	8-bit
		Chroma Sampling Format	4:2:2, 4:2:0	HDMI 2.0 input: RGB 4:4:4 & YCbCr 4:4:4/4:2:2 SDI-12G input: YCbCr 4:2:2	RGB 4:4:4 & YCbCr 4:4:4 / 4:2:2
	Hardware Video De-Compression	Codec	–	AVC (H.264), HEVC (H.265), VP9, AV1	AVC (H.264), HEVC (H.265), VP9, AV1
		Bit Depth	–	HDMI 2.1 output: 8-bit, 10-bit SDI-12G output: 10-bit	HDMI 2.1 output: 8-bit, 10-bit
		Chroma Sampling Format	–	HDMI 2.1 output: YCbCr 4:2:0 SDI-12G output: YCbCr 4:2:2	HDMI 2.1 output: YCbCr 4:2:0
VoIP	Connectivity		2 x 10 GbE (SFP+ cages)	3 x 10/100/1000/2500 Mbps RJ-45	3 x 10/100/1000/2500 Mbps RJ-45
	Standard Supported		ST 2022-5/6/7, ST 2059	–	–
Audio	Channels (Max.)		16	2	2
	Formats		PCM	PCM	PCM
	Sampling Frequency		48/96 KHz	48 KHz	48 KHz
	Sampling Bit Depth		16-bit	16-bit	16-bit
	Audio Connectors		Embedded via HDMI/SDI	Embedded via HDMI/SDI	Embedded via HDMI
Functionality	Operating System		Linux	Windows 10 (64-bit), Windows 11 (64-bit), Linux (64-bit)	Windows 10 (64-bit), Windows 11 (64-bit), Linux (64-bit)
	Streaming Protocol		RTP, MPEG, JDP, IP	TS over UDP, TS over RTP, RTSP, RTMP, SRT,NDI, File based	TS over UDP, TS over RTP, RTSP, RTMP, SRT,NDI, File based
	Management & Control Interface		Local or remote control GUI interface	Local or remote control GUI interface	Local or remote control GUI interface
	Development Kits		FFmpeg, Microsoft DirectShow	–	–
System Characteristics	Processor		Intel® Core™ i7-6820EQ/i5-6440EQ/i3-6100E	Intel 13th RPL-P: Intel® Core™i7-13800HE/i5-13600HE/i3-13300HE Intel 12th ADL-P: Intel® Core™i7-12800HE/i5-12600HE/i3-12300HE	Intel 13th RPL-P: Intel® Core™i7-13800HE/i5-13600HE/i3-13300HE Intel 12th ADL-P: Intel® Core™i7-12800HE/i5-12600HE/i3-12300HE
	Memory		8 GB default (up to 16 GB upon request)	Up to 64 GB upon, Non-ECC SODIMM For Intel 12th ADL-P: DDR5 4800 MT/s For Intel 13th RPL-P: DDR5 5200 MT/s	Up to 64 GB upon, Non-ECC SODIMM For Intel 12th ADL-P: DDR5 4800 MT/s For Intel 13th RPL-P: DDR5 5200 MT/s
	Expansion for Video Accelerating Card		–	1 x PCIe x8 Gen4 FH/HL	1 x PCIe x8 Gen4 LP/HL
	Storage		32 GB mSATA	Up to 4TB, 2 x M.2 2280 M-Key	Up to 4TB, 2 x M.2 2280 M-Key
	Local Video Output		1 x HDMI 2.0	1 x HDMI 2.1 1 x SDI-12G	1 x HDMI 2.1
	Network Interface		2 x GbE port	3 x GbE port	3 x GbE port
	USB		2 x USB 3.0	2 x USB 3.2 Gen2	2 x USB 3.2 Gen2
Power	Power Input		12 V DC	AC 100-240 V, 6-3 A, 60-50 Hz	AC 100-240V _{ac} , 50/60Hz, 2.0A
	Power Consumption		75W based on Intel® Core™ i3 SOM	Max power 176 W; typically 46 W on Intel® Core™ i7	Max power 176 W; typically 46 W on Intel® Core™ i7
Mechanical	Dimension (W x H x D)		214 x 289.7 x 42.8 mm/8.42 x 11.4 x 1.68 in	370 x 370 x 88 mm/14.57 x 14.57 x 3.47 in	330 x 160 x 44 mm/12.99 x 6.3 x 1.73 in

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Serial/USB Communications

Contribution Media Servers



Model		VEGA-7020	VEGA-7030	VEGA-7110
Product Lifespan		5 years	5 years	5 years
Platform		Intel® Xeon® W-1270E	Intel® Xeon® W-1270E	Intel® Core™ i7-1185G7E
Input Interface		Gen3 x 4/8/16	Gen3 x 4/8/16	Gen3 x 4/8/16
Output Interface		Gen3 x 4/8/16	Gen3 x 4/8/16	Gen3 x 4/8/16
System Characteristics	System Memory	Up to 64 GB (2 channels)	Up to 64 GB (2 channels)	Up to 64 GB (2 channels)
	Storage	2 x NVME M.2 SSD 2 x 2.5" SSD	2 x NVME M.2 SSD 2 x 2.5" SSD	2 x NVME M.2 SSD 2 x 2.5" SSD
	Local Video Output	1 x HDMI 2.0 or 1 x VGA	1 x HDMI 2.0 or 1 x VGA	2 x HDMI 2.0
	Network Interface	4 x GbE port	4 x GbE port	2 x GbE port
	USB	4 x USB 3.0	4 x USB 3.0	2 x USB 3.0, 2 x USB 2.0
Power	Power Input	100 ~ 240 V AC	100 ~ 240 V AC	100 ~ 240 V AC
	Power Consumption	80W (with Intel® Xeon® W-1270E CPU)	80W (with Intel® Xeon® W-1270E CPU)	50W (with Intel® Core™ i7-1185G7E CPU)
Mechanical	Dimension (W x H x D)	44.4 x 438 x 560 mm/ 1.74 x 17.24 x 22 in	44.4 x 438 x 560 mm/ 1.74 x 17.24 x 22 in	44.4 x 438 x 560 mm/ 1.74 x 17.24 x 22 in

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Broadcast IP Video Accelerator Cards



Model			VEGA-3310	VEGA-3314	VEGA-3311	VEGA-3321
Product Lifespan			5 years	5 years	5 years	5 years
Platform			Socionext M30	Socionext M30	Xilinx UltraScale Socionext M30	Xilinx Virtex UltraScale+ Socionext M30
Video Inputs and Outputs	Channels (Max.)		2 (Up to 4Kp60) / 8 (Up to 1080p60)	4 (Up to 4Kp60) / 16 (Up to 1080p60)	1 (up to 4Kp60) / 4 (up to 1080p60)	1 (up to 4Kp60) / 4 (up to 1080p60)
	Formats	Resolution	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480
		Frame Rate	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i
	Chroma Sampling Format		4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0
	Bit Depth		8/10-bit	8/10-bit	8/10-bit	8/10-bit
	Input Interface		PCIe Gen3 x8	PCIe Gen3 x16	4 x SDI-3G/1 x SDI-12G, 2 x 10 GigE (VEGA-3311-I)	4 x SDI-3G/1 x SDI-12G, 2 x 25 GigE (VEGA-3321-I)
	Output Interface		PCIe Gen3 x8	PCIe Gen3 x16	PCIe Gen3 x8	PCIe Gen3 x8
Video Coding	Video Encoding		H.265 (HEVC)/H.264 (AVC)/MPEG2	H.265 (HEVC)/H.264 (AVC)/MPEG2	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)
	Bit Depth		8/10-bit	8/10-bit	8/10-bit	8/10-bit
	Chroma Subsampling		4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0
	Video Decoding	Standard	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)
		Bit Depth	8/10-bit	8/10-bit	8/10-bit	8/10-bit
		Chroma Subsampling	4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0
VoIP	Connectivity		–	–	2 x 10GbE (SFP+ cages)	2 x 25GbE (SFP+ cages)
	Standard Supported		–	–	SMPTE 2110 w/ AES67 audio & SMPTE 2059 sync	SMPTE 2110 w/ AES67 audio & SMPTE 2059 sync
Audio	Channels (Max.)		–	–	8/16 channels	8/16 channels
	Sampling Frequency		–	–	48 KHz/96 KHz	48 KHz/96 KHz
	Sampling Bit Depth		–	–	16-bit	16-bit
Functionality	Operating System		Windows, Linux	Windows, Linux	Windows, Linux	Windows, Linux
	Development Kits		FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow	FFmpeg, Microsoft DirectShow
Power	Power Consumption		< 35 W	< 35 W	< 35 W	< 50 W
Mechanical	Form Factor		PCIe (HL/FH)	PCIe, 3/4 length, full height	PCIe (HL/FH)	PCIe (HL/FH)
	Dimension (W x H x D)		167.65 x 111.15 mm / 6.6 x 4.37 in	234 x 111.15 x 41.19 mm / 9.21 x 4.37 x 1.62 in	167.65 x 111.15 mm / 6.6 x 4.37 in	254 x 126 x 21.5 mm

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

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Data Acquisition (DAQ) Solutions

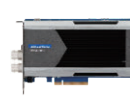
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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

Video Capture Cards



Model			VEGA-3312	 VEGA-3003	VEGA-3006	 VEGA-3500
Product Lifespan			5 years	5 years	5 years	5 years
Platform			Socionext M30	Xilinx UltraScale+	Xilinx MPSoC 7EV	Intel Xe Graphic
Video Inputs and Outputs	Channels (Max.)		2 (Up to 4Kp60) / 8 (Up to 1080p60)	2 (up to 4Kp60)	4 (Up to 4Kp60)	4 (Up to 4Kp60) / 16 (Up to 1080p60)
	Formats	Resolution	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480	3840 x 2160, 1920 x 1080, 1280x1024, 1280 x 720, 720 x 480	4096x2160, 2048x1080, 1920 x 1080,1280 x 720, 720 x 480	3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480
	Frame Rate		60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 59.94i, 50i
	Chroma Sampling Format		4:2:2, 4:2:0	4:4:4, 4:2:2, 4:2:0	4:2:2, 4:2:0	4:2:2, 4:2:0
	Bit Depth		8/10-bit	8/10-bit	8/10-bit	8/10-bit
	Input Interface		PCIe Gen3 x8	1 x HDMI 2.0, 1 x SDVoE	2 x HDMI 2.0/ 2 x 12G SDI/PCIe Gen3 x4	PCIe Gen3 x16
	Output Interface		PCIe Gen3 x8	HDMI loop-Out PCIe Gen3 x8	1x HDMI 2.0/ PCIe Gen3 x8	PCIe Gen3 x16
Video Coding	Video Encoding	Standard	H.265 (HEVC)/H.264 (AVC)	–	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)/VP9
		Bit Depth	8/10-bit	–	8/10-bit	8/10-bit
		Chroma Subsampling	4:2:2, 4:2:0	–	4:2:2, 4:2:0	4:4:4, 4:2:2, 4:2:0
	Video Decoding	Standard	H.265 (HEVC)/H.264 (AVC)	–	H.265 (HEVC)/H.264 (AVC)	H.265 (HEVC)/H.264 (AVC)/VP9/AV1
		Bit Depth	8/10-bit	–	8/10-bit	8/10-bit
	Chroma Subsampling		4:2:2, 4:2:0	–	4:2:2, 4:2:0	4:2:2, 4:2:0
Functionality	Operating System		Windows, Linux	Windows, Linux	Windows, Linux	Linux
	Development Kits		FFmpeg, Microsoft DirectShow	Microsoft DirectShow, V4L2	FFmpeg, Microsoft DirectShow	FFmpge
Power	Power Consumption		< 35 W	< 15 W	< 35 W	< 75 W
Mechanical	Form Factor		PCIe (HL/FH)	PCIe (HL/FH)	PCIe (HL/FH)	PCIe (3/4L/FH), double stack
	Dimension (W x H x D)		167.65 x 111.15 mm/ 6.6 x 4.37 in	167.65 x 111.15 mm/ 6.6 x 4.37 in	167.65 x 111.15 mm/ 6.6 x 4.37 in	266.7 x 111.15 mm/ 10.5 x 4.37 in
I/O or PCIe Interface			PCIe Gen3 x8	PCIe Gen3 x8	PCIe Gen3 x4	PCIe Gen4 x16





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Network & Security Solutions

- ☞ 10-2 SD-WAN & uCPE Platform
- ☞ 10-4 Network Appliances
- ☞ 10-8 Network Modules
- ☞ 10-10 Certifications



Universal Edge Platforms for the Cloud Native Enterprise

As operational, information, and communications technologies converge, accelerated by the virtualization of applications, the software defined, an AI-driven network infrastructure that promises to be extremely agile and reconfigurable is in the making. Advantech Network Appliances provide a solid and open foundation for service providers and enterprises to deploy agile and secure network services that break away from monolithic architectures. These scalable edge-to-cloud white boxes integrate the latest computing and networking technologies into optimized platforms that are widely deployed running popular SD-WAN, SASE, security and uCPE software from industry leading ecosystem partners. This flexible approach allows for disaggregated strategies that minimize supply chain risks and protect network investment, building an open and cloud-native infrastructure ready to enable microservices that scale from small branch offices and small-to-medium-sized businesses to enterprise and service provider networks.



From SD-WAN to SASE - Anywhere Security for the AIoT Era

One of the main benefits of SD-WAN is the contextual awareness that it provides to software about the state of the WAN and connection quality. By providing this additional intelligence, software is able to re-route traffic on the fly in cases where connections between the on-premise equipment and cloud are down or degraded. In addition, centralized management provides a single-pane-of-glass view of the state of all devices on the WAN. But SD-WAN is just one piece of the broader WAN networking and security puzzle. In addition to SD-WAN, SASE provides features such as NGFW, IPS, CASB, DLP and SWG. With the entire network and security infrastructure delivered as a single cloud-native platform, enterprises benefit from increased visibility, fewer silos, and enhanced security. Cost-savings, versatility, and cloud-friendliness are key benefits of SD-WAN. SASE delivers those benefits as well as additional networking and security functionality to prepare the cloud-native enterprise for the AIoT era.

Foster Innovation with Advantech Enterprise Edge Devices

The Pioneer in White-box SD-WAN & uCPE

For over 30 years, the world's leading brands have chosen to embed Advantech computing platforms and IoT intelligent systems into their products, empowering Industry 4.0, building smart city and transforming the network infrastructure. As early-movers in new technologies such as AI, IoT, and SDN, Advantech helps co-create new business ecosystems that enable an intelligent planet.

Advantech's network appliances provide a range of innovative platforms needed by service providers to transform the network using new, disaggregated, AI-driven models. Advantech white boxes extend the cloud to the enterprise edge where technologies such as SD-WAN, AI, and FWA enable a converged edge architecture securely connecting people and things. Over 150 dedicated engineers design our networking products to address new market needs following strict quality design rules and test criteria. Certification and regional homologation services ensure products can be safely deployed globally. All of this is backed by a solid financial base and an extensive network of more than 8,500 employees globally. That is why we are the most trusted SD-WAN, SASE, and network edge hardware partner for service providers across the world.

Edge to Cloud Scalability

Advantech's white box network appliance range, built on standard x86 processors in feature-flexible appliances, cover multiple configurations and price points scaling from 2 to 100+ cores providing maximum physically achievable throughputs up to 800+ Gbps. Optional networking modules offer a highly flexible WAN connectivity choice of hybrid 5G, 4G LTE, Wi-Fi 5 & 6, xDSL, & SFP+ configurations.

Encryption acceleration is supported using Intel® QuickAssist on Intel Atom® and Intel® Xeon® based platforms with DPDK providing the technology needed to accelerate packet handling by up to 10 times. As a result, secure branch connectivity, including end-to-end encryption, can be provided without compromising VNF performance or increasing costs. The 1U high-end platforms have been designed for high-availability networks with integrated fail-safe redundancy, advanced remote security, and management features that minimize system down time.

SD-WAN & SASE Appliances			
 FWA-T011 • Budget-friendly • Versatile Mounting Approach • Fanless & Extremely Compact Slim CPE for cloud-based deployments	 FWA-1000/2000 Series • Optimized C/P Ratio • RF Certified • Fanless & Compact Small Offices and Outlets (Less Than 1gbps)	 FWA-3000 Series • Efficient Performance • Rich Connectivity • Built-in QAT Medium Enterprise Branch (Less than 20Gbps)	 FWA-5000/6000 Series • Superior Performance • High Scalability • Redundant Design Headquarters and Data Centers (Above 20Gbps)



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Serial/USB Communications

Network Appliances



Model		FWA-T011	FWA-1010VC	FWA-AAL1010VC
Form Factor		Small box	Tabletop	Tabletop
Processor System	Processor	Intel® Celeron® N3350/J3455	Intel Atom® C2558/C2758	Intel Atom® C2558/C2758
	Core Count	2/4 cores	4/8 cores	4/8 cores
	Frequency	1.1/1.5GHz	2.4GHz	2.4GHz
	L2 Cache	2MB	2/4MB	2/4MB
	Chipset	–	–	–
BIOS		AMI UEFI	AMI UEFI	AMI UEFI
Virtualization		VT-x, VT-d	VT-x	VT-x
Memory	Technology	DDR3L 1600/1866MHz	DDR3/DDR3L 1600MHz	DDR3/DDR3L 1600MHz
	Max. Capacity	8GB	32GB	32GB
	Socket	1 x 204-pin SO-DIMM	2 x 240-pin DIMM	2 x 240-pin DIMM
	ECC Support	–	✓	✓
Networking	Controller	4 x Intel i210	3 x Marvell 88E1112, 1 x Marvell 88E6141	4 x Marvell 88E1112, 1 x Marvell 88E6141
	1/2.5GbE	4 x 1GbE RJ-45	2 x 1GbE RJ-45 or SFP via Marvell 88E1112; 1 x 1GbE RJ45 via Marvell 88E1112; 4 x 1GbE RJ45 via Marvell 88E6141	2 x 1GbE RJ-45 or SFP via Marvell 88E1112; 2 x 1GbE RJ-45 via Marvell 88E1112; 2 x 1GbE RJ-45 via Intel i350
	10GbE	–	–	–
	LAN Bypass	Advanced	–	–
		Legacy	–	–
Expansion Slots	PCIe Slot	–	–	–
	NMC	–	–	–
	M.2 (Except SSD)	1 x 2230 Wi-Fi/BT module 1 x 3042 3G/4G LTE module	1 x 2230 Wi-Fi module	1 x 3042 3G/4G LTE module
	Mini PCIe	–	1 x full-size 3G/4G LTE module	1 x full-size Wi-Fi module
	SIM Socket	1	1	1
Storage	2.5" Bay	–	1 x 2.5" SSD (9.5 mm (H), C2758)	1 x 2.5" SSD (9.5 mm (H), C2758)
	3.5" Bay	–	–	–
	M.2	1 x 2280 SATA SSD	1 x 2280 SATA SSD 2 x 2242 SATA SSD (Optional)	1 x 2280 SATA SSD 2 x 2242 SATA SSD (Optional)
	Console	1	1	1
I/O	USB 3.0	–	–	–
	USB 2.0	2	1	1
	LED Indicator	Power, HDD, 4G LTE, Wi-Fi, Software-defined	Power, HDD, 4G LTE, Wi-Fi, Software-defined	Power, HDD, 4G LTE, Wi-Fi, Software-defined
	Display Interface	HDMI	–	–
	Button	1 x Power switch, 1 x Software-defined	1 x Power switch, 1 x Software-defined	1 x Power switch, 1 x Software-defined
Power Supply	TPM	TPM1.2 or TPM2.0 (Optional)	TPM1.2 (Optional)	TPM1.2 (Optional)
	Power Type	DC	DC	DC
	Watts	36 W	60 W	60 W
	Input	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V
	Power Adapter	12V 3A, 36W external adapter	12V 5A, 60W external adapter	12V 5A, 60W external adapter
Environment	Operating Temperature	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)
	Vibration Resistance	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis
	Shock Protection	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms
Cooling		Fanless	1 x system fan with smart fan	1 x system fan with smart fan
Mechanical	Construction	Steel	Steel	Steel
	Mounting	Desktop/Rackmount optional	Desktop/Rackmount optional	Desktop/Rackmount optional
	Dimension (W x H x D)	152 x 21 x 125 mm (6.0" x 0.83" x 4.92")	250 x 44 x 190.4 mm (9.84" x 1.73" x 7.5")	250 x 44 x 190.4 mm (9.84" x 1.73" x 7.5")
	Weight	0.7 kg (1.54 lb)	2.3 kg (5.1 lb)	2.3 kg (5.1 lb)
OS Support		Linux, Windows 10	Linux, Windows 10	Linux, Windows 10
Advantech S/W Packages		- QuickStart Linux Image (CentOS based reference BSP): afwu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afwu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afwu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)
IPMI		–	–	–

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

Network Appliances



Model		FWA-1012VC	FWA-1112VC	FWA-1212VC	FWA-1013
Form Factor		Tabletop	Tabletop	Tabletop	Tabletop
Processor System	Processor	Intel Atom® C3338/C3558/C3758	Intel Atom® C3558/C3758	Intel Atom® C3336/C3558/C3436L	Intel Atom® C5315/C5325/P5332/P5352
	Core Count	2/4/8 cores	4/8 cores	2/4 cores	4/8C (C5300); 12/20C (P5300)
	Frequency	1.5/2.2GHz	1.6/1.3/2.2GHz	2.2GHz	2.4GHz (C5300); 2.2GHz (P5300)
	L2 Cache	2MB/Core	2MB	4/8MB	2MB
	Chipset	-	-	-	-
BIOS		AMI UEFI	AMI UEFI	AMI UEFI	AMI UEFI
Virtualization		VT-x, VT-d	VT-x, VT-d	VT-x, VT-d	VT-x, VT-d
Memory	Technology	DDR4 2400MHz	DDR4 1866/2133/2400MHz	DDR4 1866/2133/2400MHz	DDR4 2400/2667/2933MHz
	Max. Capacity	64GB	32GB	32GB	128GB
	Socket	1 x 288-pin DIMM for 2 core 2 x 288-pin DIMM for 4/8 core	1 x 260-pin SO-DIMM	1 x 260-pin SO-DIMM	2 x 288-pin RDIMM
	ECC Support	✓	✓	✓	✓
Networking	Controller	1 x Intel i350, 1 x Marvell phy 88E1543	2 x Intel i211; 1 x Marvell phy 88E1543	2 x Marvell 88E1543 4 x Intel i211	1 x Intel i350-AM4; 2 x Intel i226
	1GbE/2.5GbE	2 x 1GbE RJ-45 and 2 x SFP via Intel i350 4 x 1GbE RJ-45 via Marvell 88E1543 (2 POE+)	2 x 1GbE RJ-45 via Intel i211 4 x 1GbE RJ-45 via Marvell 88E1543 or 2 x 1GbE RJ-45 via Marvell 88E1543 plus 2 x SFP+ via SoC	2 x Combo ports via Marvell 88E1543, 4 x 1GbE RJ-45 via Intel i211	4 x 1GbE RJ-45 via SoC; 4 x 1GbE RJ-45 via i350; 2 x 2.5GbE RJ-45 via i226
	10GbE	-	2 x 10G/1G SFP+ via SoC	-	4 x 10G SFP+ via SoC
	LAN bypass	Advanced	-	-	2 pairs of LAN bypass (Optional)
		Legacy	-	-	-
	PCle Slot	-	-	-	-
Expansion Slots	NMC	-	-	-	1
	M.2 (Except SSD)	1 x 3042 LTE module (Optional: 1 x 2242 SATA)	1 x 2242 LTE/5G module; 1 x 2230 Wi-Fi module	1 x M.2 3052 B-Key 5G or 1 x M.2 3042 B-Key 4G LTE 1 x M.2 2230 E-Key Wi-Fi 6	1 x 2230 Wi-Fi module
	Mini PCIe	1 x half-size and 1 x full-size Wi-Fi module	1 x full-size Wi-Fi module (BOM option)	1 x Mini-PCIe for 4G LTE or Wi-Fi 5	-
	SIM Socket	2	2	-	-
Storage	2.5" Bay	1 x 2.5" SSD (9.5 mm (H), C3758)	-	-	-
	3.5" Bay	-	-	-	-
	M.2	1 x 2242/2280 SATA/PCle Gen3 x1 SSD (Optional: 1 x 3042 LTE)	1 x 2280 SATA SSD	1 x 2280 SATA SSD	2 x 2280 SATA SSD
I/O	Console	1	1	1	1
	USB 3.0	2	2	-	-
	USB 2.0	-	-	2	2
	LED Indicator	Power, HDD, 4G LTE, Wi-Fi, Software-defined	Power, HDD, 4G/LTE, LTE/Wi-Fi, Software-defined	Rear: power, system, cloud Front: HDD, power, system, cloud, Wi-Fi, 3 x RF signal	Power, Alert, Locate, Software-defined
	Display Interface	-	-	-	VGA
	Button	1 x Power switch, 1 x Software-defined	1 x Power	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined
TPM		TPM1.2 or TPM2.0 (Optional)	TPM2.0 or None TPM	TPM1.2 or TPM2.0 (Optional)	TPM2.0 or None TPM
Power Supply	Power Type	DC	DC	DC	DC (Single/Redundant)
	Watts	36 W for 2 core 60 W for 4/8 core	36 W	36 W	150 W
	Input	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V
	Power Adapter	12V 5A, 60W external adapter	12V 3A, 36W external adapter	12V 3A, 36W external adapter	12V 12.5A, 150W external adapter
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 70°C (32 ~ 158°F) 4 Core 0 ~ 60°C (32 ~ 140°F) 8 Core	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)
	Vibration Resistance	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis
	Shock Protection	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms
Cooling		2 x system smart fan (8core SKU) or 2 x system smart fan (2/4core SKUs)	Fanless	Fanless	2 x system smart fan
Mechanical	Construction	Steel	Steel	Steel	Steel
	Mounting	Desktop/Rackmount optional	Desktop/Rackmount optional	Desktop/Rackmount optional	Desktop/Rackmount optional
	Dimension (W x H x D)	250 x 44 x 190 mm (9.84" x 1.73" x 7.48")	220 x 44 x 160 mm (8.66" x 1.73" x 6.3")	270 x 44 x 168 mm (8.1" x 1.32" x 5.04")	339 x 44 x 241 mm (13.35" x 1.73" x 9.49")
	Weight	2.3 kg (5.1 lb)	2.3 kg (5.1 lb)	3.0 kg (6.6 lb)	3.0 kg (6.6 lb)
OS Support		Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)
Advantech S/W Packages		- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)
IPMI		-	-	-	IPMI v2.0 compliant BMC with web interface

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

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Network Appliances



Model		FWA-2012	FWA-2013	FWA-3034	FWA-3050	FWA-3051
Form Factor		1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount
Processor System	Processor	Intel Atom® C3558/C3758/C3958	Intel Atom® P5342/P5362	12th/13th Generation Intel® Core™	Intel® Xeon D-2100	Intel® Xeon® D-2700/D-2800
	Core Count	4/8/16 cores	16/24 cores	Up to 16/24 cores	8/14/16 cores	8/16/20 cores (Optional: 14/22 cores)
	Frequency	2.2/2.2/2.0GHz	2.2GHz	Up to 3.4/3.2GHz	1.9/1.9/2.0GHz	1.8 ~ 2.5GHz
	L2 Cache	4/8: 2MB/core 16: 2MB/core pair	2MB	5 ~ 32MB	11/19/22MB	15 ~ 30MB
	Chipset	–	–	Intel R680E/H610E	–	–
	BIOS	AMI UEFI	AMI UEFI	AMI UEFI	AMI UEFI	AMI UEFI
Virtualization		VT-x, VT-d	VT-x, VT-d	Intel® VT-x, VT-d, SR-IOV	VT-x, VT-d	VT-x, VT-d
Memory	Technology	DDR4 2400MHz	DDR4 2400/2667/2933MHz	DDR5 4800/5600MHz	DDR4 2667MHz	DDR4 2667/2993/3200MHz
	Max. Capacity	64GB	128GB	64GB	256GB	256GB
	Socket	2 x 288-pin DIMM	2 x 288-pin RDIMM	2 x 288-pin UDIMM	4 x 288-pin RDIMM	4 x 288-pin DIMM
	ECC Support	✓	✓	✓	✓	✓
Networking	Controller	1 x Marvell 88E1543; 2 x Intel i210-AT	1 x Intel i350-AM4; 2 x Intel i226-LM	2 x Intel i210-IS; 8 x Intel i226-LM; 1 x Intel X710-BM2	2 x Intel i350-AM4; 2 x Intel i210-AT	1 x Intel i350-AM4; 2 x Intel i210-AT
	1/2.5GbE	4 x 1GbE RJ-45 via Marvell 1543 (2 pairs LAN bypass) 2 x GbE RJ-45 via Intel i210	4 x 1GbE RJ-45 via SoC; 4 x 1GbE RJ-45 via i350; 2 x 2.5GbE RJ-45 via i226	2 x 1GbE SFP via Intel i210; 8 x 2.5GbE RJ-45 via Intel i226	8 x 1GbE RJ-45 via Intel i350; 2 x 1GbE RJ-45 via Intel i210	4 x 1GbE RJ-45 via SoC 4 x 1GbE RJ-45 via i350 2 x 1GbE RJ-45 via i210
	10GbE	–	4 x 10GbE SFP+ via SoC	2 x 10GbE SFP+ via Intel X710	4 x 10GbE SFP+ via SoC	4 x 10GbE SFP+ via SoC
	LAN bypass	2 pairs of LAN bypass (Optional)	2 pairs of LAN bypass (Optional)	2 pairs of LAN bypass (Optional)	2 pairs of LAN bypass (Optional)	2 pairs of LAN bypass (Optional)
Expansion Slots	PCIe Slot	–	–	1 x FH/HL Gen4 x8	1 x HH/HL Gen3 x8	1 x FH/HL Gen4 x16 (Customized)
	NMC	1	1	1	1	2
	M.2 (Except SSD)	–	1 x 2230 Wi-Fi module	1 x 3052/3042 4G module (5G by project base) or 2230 Wi-Fi module	–	–
	Mini PCIe	–	–	–	–	–
	SIM Socket	–	–	–	–	–
	2.5" Bay	1 x 2.5" HDD/SSD (Optional)	1	2 x 2.5" SATA HDD/SSD	2 x 2.5" SATA HDD/SSD	2 x 2.5" SATA HDD/SSD
Storage	3.5" Bay	1	Optional	–	–	–
	M.2	1 x 2280 SATA SSD	2 x 2280 SATA SSD	1 x 2280 SATA/PCIe Gen4 x4 SSD	2 x 2280 SATA/PCIe Gen3 x1/x2 SSD	2 x 2280 SATA/PCIe Gen3 x4 SSD
	Console	1	1	1	1	1
I/O	USB 3.0	2	–	2	2	2
	USB 2.0	2 (by pin header)	2	–	–	–
	LED Indicator	Power, Alert, Locate	Power, Alert, Locate, Software-defined	Power; Alert, Locate, Software-defined	Power, Alert, Locate, Software-defined	Power, Alert, Locate, Software-defined
	Display Interface	–	VGA	VGA	VGA	VGA
	Button	1 x Power	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined
TPM		TPM 1.2 or 2.0 (Optional)	TPM 2.0 or none	TPM 2.0	Module option	TPM 2.0 (Optional)
Power Supply	Power Type	AC Single	AC Redundant / Single	AC Redundant / Single	AC Redundant	AC Redundant
	Watts	150 W	320 W Redundant / 250 W Single	300 W Redundant / 250 W Single	300 W	300 W
	Input	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V	100 ~ 240 V
	Power Adapter	–	–	–	–	–
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	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)
	Vibration Resistance	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis
	Shock Protection	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms
Cooling		2 x system smart fan	2 x system smart fan	3 x system smart fan	Max. 4 x system smart fan (Hot-swappable optional)	4 x system smart fan
Mechanical	Construction	Steel	Steel	SECC	Steel	Steel
	Mounting	1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount	1U Rackmount
	Dimension (W x H x D)	430 x 44 x 320.7 mm (16.93" x 1.73" x 12.63")	438 x 44 x 390.5 mm (17.24" x 1.73" x 15.37")	438 x 44 x 420 mm (17.24" x 1.73" x 16.54")	438 x 44 x 420 mm (17.24" x 1.73" x 16.54")	438 x 44 x 420 mm (17.24" x 1.73" x 16.54")
	Weight	6.6 kg (14.6 lb)	–	8.2 kg (18.1 lb)	15 kg (33.1 lb)	15 kg (33.1 lb)
OS Support		Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Fedora, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)
Advantech S/W Packages		- QuickStart Linux Image (CentOS based reference BSP): afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP): afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)
IPMI		Option with Advantech LOM Module	IPMI v2.0 compliant BMC with web interface	IPMI v2.0 compliant BMC with web interface	IPMI v2.0 compliant BMC with web interface	IPMI v2.0 compliant BMC with web interface

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

Network Appliances



Model			🌀 FWA-4134	🌀 FWA-5070	🌀 FWA-5072	🌀 FWA-6072	🌀 FWA-6172
Form Factor			2U Rackmount	1U Rackmount	1U Rackmount	2U Rackmount	2U Rackmount
Processor System	Processor		12th/13th Generation Intel® Core™	2nd Gen Intel® Xeon® Scalable	4th Generation Intel® Xeon® Scalable	4th Generation Intel® Xeon® Scalable	4th Generation Intel® Xeon® Scalable (Dual)
	Core Count		Up to 16/24 cores	8 ~ 28 cores	8 ~ 32 cores	8 ~ 52 cores	8 ~ 52 cores /socket
	Frequency		Up to 3.5GHz	2.0 ~ 3.6GHz	Up to 3.7GHz	Up to 3.7GHz	Up to 3.7GHz
	L2 Cache		5 ~ 32MB	4 ~ 28MB	2MB/core	2MB/core	2MB/core
	Chipset		Intel R680E	Intel C626 or C621	Intel C741	Intel C741	Intel C741
BIOS			AMI UEFI	AMI UEFI	AMI UEFI	AMI UEFI	AMI UEFI
Virtualization			Intel® VT-x, VT-d, SR-IOV	VT-x, VT-d	Intel® VT-Redirect Protection, Intel® S-IOV	Intel® VT-Redirect Protection, Intel® S-IOV	Intel® VT-Redirect Protection, Intel® S-IOV
Memory	Technology		DDR4 3200MHz	DDR4 2400/2666MHz	DDR5 4800/4400MHz	DDR5 4800/4400MHz	DDR5 4800MHz
	Max. Capacity		128GB	768GB	1024GB	1024GB	1024GB
	Socket		4 x 288-pin DIMM	12 x 288-pin DIMM	16 x 288-pin DIMM	16 x 288-pin DIMM	16 x 288-pin DIMM
	ECC Support		✓	✓	✓	✓	✓
Networking	Controller		2 x Intel i210-AT	2 x Intel i210-AT	2 x Intel i210-AT	2 x Intel i210-AT	2 x Intel i210-AT
	1/2.5 GbE		2 x 1GbE RJ-45 via Intel i210	2 x 1GbE RJ-45 via Intel i210	2 x 1GbE RJ-45 via Intel i210	2 x 1GbE RJ-45 via Intel i210	2 x 1GbE RJ-45 via Intel i210
	10GbE		2 x 10GbE SFP+ via Intel X710	2 x 10G SFP+ via Intel C626 (by SKU)	—	—	—
	LAN Bypass	Advanced	2 pairs of LAN bypass (Optional)	Supported by NMC	Supported by NMC	Supported by NMC	Supported by NMC
		Legacy	—	Supported by NMC	Supported by NMC	Supported by NMC	Supported by NMC
Expansion Slots	PCIe Slot		1 x FH/HL Gen3 x4 (Optional)	1 x HH/HL Gen4 x8/x16	1 x HH/HL Gen4 x16	1 x FH/HL Gen4 x16	2 x FH/HL Gen5 x16 or 1 x Double-deck 10.5" Gen5 x16
	NMC		4/8	4	4	8	8
	M.2 (Except SSD)		—	—	—	—	—
	Mini PCIe		—	—	—	—	—
Storage	SIM Socket		—	—	—	—	—
	2.5" Bay		Optional	Max. 3 x 2.5" HDD/SSD	2 x 2.5" SATA HDD/SSD	2 x 2.5" SATA HDD/SSD	2 x 2.5" SATA or NVMe HDD/SSD
	3.5" Bay		4 x 3.5" SATA HDD	—	—	—	—
	M.2		—	1 x 2280 SATA SSD (PCIe Gen3 option)	2 x 2280 SATA/ 1 x PCIe Gen3 x1 + 1 x PCIe Gen3 x4 SSD	2 x 2280 SATA/ 1 x 2280 SATA + 1 x PCIe Gen3 x4 SSD	2 x 2280 SATA/PCIe Gen3 x4 SSD
I/O	Console		1	1	1	1	1
	USB 3.0		2	2	2	2	2
	USB 2.0		—	—	—	—	—
	LED Indicator		Power, HDD	Power, Alert, Software-defined	Power; Alert, Locate, Software-defined	Power; Alert, Locate, Software-defined	Power; Alert, Locate, Software-defined
	Display Interface		VGA	VGA box header	VGA	VGA	VGA
Button			1 x Power, 1 x Software-defined	1 x Power	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined	1 x Power, 1 x Software-defined
TPM			—	TPM 1.2 or TPM 2.0 (Optional)	TPM 2.0	TPM 2.0	TPM 2.0
Power Supply	Power Type		AC Redundant / DC Redundant (Optional)	(AC) Redundant / (DC) Redundant (Option)	(AC) Redundant / (DC) Redundant (Option)	(AC) Redundant / (DC) Redundant (Option)	(AC) Redundant / (DC) Redundant (Option)
	Watts		350 W / 300 W	(AC) 650 W / (DC) 800 W	(AC) 550 W / (DC) 800 W	(AC) 800 W / (DC) 800 W	(AC) 1200 W / (DC) 800 W
	Input		100 ~ 240 V	(AC) 100 ~ 240 V, (DC) -72 ~ -40 V	(AC) 100 ~ 240 V, (DC) -72 ~ -40 V	(AC) 100 ~ 240 V, (DC) -72 ~ -40 V	(AC) 100 ~ 240 V, (DC) -72 ~ -40 V
Environment	Power Adapter		—	—	—	—	—
	Operating Temperature		0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	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)
	Vibration Resistance		5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis	5-500 Hz, 0.3 Grms, 3 axes, 1 hr/per axis
Shock Protection			10 G, 11 ms	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms	10 G, 11 ms
Cooling			3 x system smart fan	3 x system smart fan	5 x system smart fan	3 x system smart fan	4 x system smart fan
Mechanical	Construction		Steel	Steel	Steel	Steel	Steel
	Mounting		2U Rackmount	1U Rackmount	1U Rackmount	2U Rackmount	2U Rackmount
	Dimension (W x H x D)		438 x 88 x 520 mm (17.24" x 3.4" x 20.4")	438 x 44 x 550 mm (17.24" x 1.73" x 21.65")	438 x 43.7 x 600 mm (17.2" x 1.7" x 23.6")	438 x 88 x 600 mm (17.2" x 3.4" x 23.6")	438 x 88 x 600 mm (17.2" x 3.4" x 23.6")
	Weight		20 kg (44.1 lb)	20 kg (44.1 lb)	11 kg (24.25 lb)	15 kg (33.06 lb)	21.5 kg (47.4 lb)
OS Support			Linux (Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu)	Linux (CentOS, Red Hat, Ubuntu, Fedora)	Linux (CentOS, Red Hat, Ubuntu, Fedora)	Linux (CentOS, Red Hat, Ubuntu, Fedora)
Advantech S/W Packages			- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)	- QuickStart Linux Image (CentOS based reference BSP); afu; ipmitool; LCD4Linux; Advanced LBP Utility; Intel DPDK; Intel QAT; DUI (Offline Diagnostics) - Individual Packages: Advanced LBP Library; DUI (Offline Diagnostics)
IPMI			—	IPMI v2.0 compliant, with web interface and iKVM	IPMI v2.0 compliant, with web interface and iKVM	IPMI v2.0 compliant, with web interface and iKVM	IPMI v2.0 compliant, with web interface and iKVM

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

1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

7

Industrial Server & Cloud Solutions

8

AI & Advanced Computer Vision

9

Video Infrastructure Solutions

10

Network & Security Solutions

11

Industrial Communication

12

Industrial Gateways

13

EtherCAT Solutions & Automation Controllers

14

Intelligent Motion Control Solutions

15

Data Acquisition (DAQ) Solutions

16

Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Network Modules



Model Name		 NMC-0108	 NMC-0120		 NMC-0121		 NMC-0804	 NMC-0806		
Ordering Part Number		NMC-0108-04FSA1	NMC-0120-04FBSSA2	NMC-0120-04FBLSA2	NMC-0121-04CSA1	NMC-0121-04CBSA1	NMC-0804-08FSA1	NMC-0806-08CSA1	NMC-0806-08CBSA1	
Chipset		Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	Intel I350-AM4	
Speed		1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	1 Gb/s	
Connector Type		4 x SFP fiber	4 x SR fiber LC	4 x LR Fiber LC	4 x RJ-45 copper	4 x RJ-45 copper	8 x SFP fiber	8 x RJ-45 copper	8 x RJ-45 copper	
Interfaces		1 x PCIe x4 Gen2	1 x PCIe x4 Gen2	1 x PCIe x4 Gen2	1 x PCIe x4 Gen2	1 x PCIe x4 Gen2	2 x PCIe x4 Gen2	2 x PCIe x4 Gen2	2 x PCIe x4 Gen2	
LAN Bypass (Legacy/Advanced)		–	Fiber bypass (OBM Module)	Fiber bypass (OBM Module)	–	Advanced LBP	–	–	Advanced LBP	
Present Pin Detection		✓	✓	✓	✓	✓	✓	✓	✓	
LED Definition		Speed LED 10 Mb/s: – 100 Mb/s: – 1000 Mb/s: – Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: – Disconnect: –	Link / Act LED (Right/Left) Link: Green on Active: Green Blinking Bypass LED (Middle) LAN Bypass: Amber on Disconnect: Amber blinking Connect: –	Link / Act LED (Right/Left) Link: Green on Active: Green Blinking Bypass LED (Middle) LAN Bypass: Amber on Disconnect: Amber blinking Connect: –	Speed LED (Left) 10 Mb/s: – 100 Mb/s: Amber on (Downgrade speed) 1000 Mb/s: Green on (Maximum speed) Link/Act/ Bypass LED (Right) Link: Green on Active: Green Blinking LAN Bypass: – Disconnect: –	Speed LED (Left) 10 Mb/s: – 100 Mb/s: Amber on (Downgrade speed) 1000 Mb/s: Green on (Maximum speed) Link/Act/ Bypass LED (Right) Link: Green on Active: Green Blinking LAN Bypass: Amber on Disconnect: Amber blinking	Speed LED 10 Mb/s: – 100 Mb/s: – 1000 Mb/s: – Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: – Disconnect: –	Speed LED (Left) 10 Mb/s: – 100 Mb/s: Amber on (Downgrade speed) 1000 Mb/s: Green on (Maximum speed) Link/Act/ Bypass LED (Right) Link: Green on Active: Green Blinking LAN Bypass: – Disconnect: –	Speed LED (Left) 10 Mb/s: – 100 Mb/s: Amber on (Downgrade speed) 1000 Mb/s: Green on (Maximum speed) Link/Act/ Bypass LED (Right) Link: Green on Active: Green Blinking LAN Bypass: Amber on Disconnect: Amber blinking	
Power	Voltage	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	
	Consumption	10 W	10 W	10 W	10 W	10 W	15 W	15 W	15 W	
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	
	Storage 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)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	
	Storage Humidity	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
	Shock Protection	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
Mechanical	Dimension W x H x D	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	
	Weight	0.3 kg	0.7 kg	0.7 kg	0.4 kg	0.4 kg	0.5 kg	0.7 kg	0.7 kg	

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

Network Modules



Model Name		NMC-1001	NMC-4007		NMC-1012
Ordering Part Number		NMC-1001-04FSA1	NMC-4007-04FBSSA2	NMC-4007-04FBLSA2	NMC-1012FN-08A1
Chipset		Intel XL710-BM1	Intel XL710-BM2	Intel XL710-BM2	Intel E810-CAM2
Speed		10 Gb/s	10 Gb/s	10 Gb/s	10 Gb/s
Connector Type		4 x SFP+ fiber	4 x SR fiber LC	4 x LR fiber LC	8 x SFP+ fiber
Interfaces		1 x PCIe x8 Gen3	1 x PCIe x8 Gen3	1 x PCIe x8 Gen3	1 x PCIe x8 Gen4
LAN Bypass (Legacy/Advanced)		-	Fiber bypass (OBM Module)	Fiber bypass (OBM Module)	-
Present Pin Detection		✓	✓	✓	✓
LED Definition		Speed LED 1 Gb/s: - 10 Gb/s: - Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: - Disconnect: -	Link / Act LED (Right/Left) Link: Green on Active: Green Blinking Bypass LED (Middle) LAN Bypass: Amber on Disconnect: Amber blinking Connect: -	Link / Act LED (Right/Left) Link: Green on Active: Green Blinking Bypass LED (Middle) LAN Bypass: Amber on Disconnect: Amber blinking Connect: -	Speed LED <10 Gb/s: Amber 10 Gb/s: Green Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: - Disconnect: -
Power	Voltage	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%
	Consumption	15 W	17 W	17 W	10 W
Environment	Operating Temperature	-5 ~ 45°C (23 ~ 113°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)
	Storage Temperature	-20 ~ 65°C (-4 ~ 149°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)	-40 ~ 70°C (-40 ~ 158°F)
	Storage Humidity	5 ~ 85% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
	Shock Protection	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
	Shock Protection	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
Mechanical	Dimension W x H x D	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm
	Weight	0.5 kg	0.7 kg	0.7 kg	0.5 kg



Model Name		 NMC-2501	 NMC-2503	 NMC-4006	 NMC-6003L		NMC-6004
Ordering Part Number		NMC-2501-02FSA1	NMC-2503FN-04A1	NMC-4006-02FSA1	NMC-6003L-01FSA1	NMC-6003L-02FSA1	NMC-6004FBD
Chipset		Intel XXV710-DA2	Intel E810-CAM1	Intel X710-BM2	Intel E810-CAM1	Intel E810-CAM2	Mellanox ConnectX-6
Speed		25 Gb/s	25 Gb/s	40 Gb/s	100 Gb/s	100 Gb/s	200 Gb/s
Connector Type		2 x SFP28 fiber	4 x SFP28 fiber	2 x QSFP+ fiber	1 x QSFP28 fiber	2 x QSFP28 fiber	2 x SR4 fiber
Interfaces		1 x PCIe x8 Gen3	1 x PCIe x8 Gen4	1 x PCIe x8 Gen3	1 x PCIe x8 Gen4	1 x PCIe x8 Gen4	1 x PCIe x 16 Gen4
LAN Bypass (Legacy/Advanced)		-	-	-	-	-	-
Present Pin Detection		✓	✓	✓	✓	✓	✓
LED Definition		Speed LED <25 Gb/s: Amber on (Downgrade speed) 25 Gb/s: Green on (Maximum speed) Link/Act LED/Bypass LED Link: Green on Activity: Green Blinking LAN Bypass: - Disconnect: -	Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: - Disconnect: -	Speed LED <40 Gb/s: - 40 Gb/s: - Link/Act LED/Bypass LED Link: Green on Activity: Green Blinking LAN Bypass: - Disconnect: -	Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: - Disconnect: -	Link/Act/Bypass LED Link: Green on Active: Green Blinking LAN Bypass: - Disconnect: -	Link / Act LED (Right/ Left) Link: Green on Active: Green Blinking Bypass LED (Middle) LAN Bypass: Amber on Disconnect: Amber blinking Connect: -
Power	Voltage	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%	+12 V ± 10%
	Consumption	16 W	10 W	15 W	10 W	10 W	30 W
Environment	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)
	Storage 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)
	Storage Humidity	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)	95% @ 60°C (140°F)
	Vibration Resistance	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis	1. Test PSD: 0.026 G/Hz, 2.16 Grms 2. System condition: Packaged mode 3. Test Frequency: 5-500Hz 4. Test Axis: X, Y and Z axis
		Shock Protection	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)	half sine 10G with package (x y z axis)
	Mechanical	Dimension W x H x D	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm	74.6 x 42.4 x 174.7 mm
Weight		0.7 kg	0.5 kg	0.6 kg	0.5 kg	0.5 kg	0.5 kg

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

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Certifications

Type	Standard	FWA-T011	FWA-1010VC	FWA-AAL1010VC	FWA-1012VC	FWA-1112VC	FWA-1212VC	FWA-1013
Safety	CB: IEC 60950-1	✓	✓	✓	–	✓	✓	✓
	UL: UL 60950-1	✓	✓	✓	–	–	–	–
	CB: IEC 62368-1 2nd Edition	✓	✓	✓	✓	✓	✓	✓
	UL: UL 62368-1 2nd Edition	✓	✓	✓	✓	✓	✓	✓
	LVD: EN 62368-1	✓	✓	✓	✓	–	–	–
EMC	FCC	✓	✓	✓	✓	✓	✓	✓
	CE	✓	✓	✓	✓	✓	✓	✓
	BSMI	–	✓	–	–	–	–	–
	CCC	✓	✓	✓	✓	✓	✓	✓
	VCCI	✓	✓	✓	–	✓	✓	–
	RCM	✓	✓	–	–	✓	–	–
	KCC	–	✓	–	–	–	–	–
RF	WLAN: FCC	–	–	–	–	O	–	–
	WLAN: RED	–	–	–	–	O	–	–
	WWAN: FCC (5G/4G/LTE)	–	✓	✓	✓	O	–	–
	WWAN: RED (5G/4G/LTE)	–	✓	✓	✓	O	–	–

Type	Standard	FWA-2012	FWA-2013	FWA-3050	FWA-3051	FWA-3034	FWA-5070	FWA-5072
Safety	CB: IEC 60950-1	✓	O	✓	O	–	✓	–
	UL: UL 60950-1	✓	–	✓	O	–	✓	–
	CB: IEC 62368-1 2nd Edition	✓	O	✓	O	✓	✓	✓
	UL: UL 62368-1 2nd Edition	✓	O	✓	O	✓	✓	✓
	LVD: EN 62368-1	–	–	–	–	–	–	–
EMC	FCC	✓	O	✓	O	✓	✓	✓
	CE	✓	O	✓	O	✓	✓	✓
	BSMI	–	–	✓	–	–	–	–
	CCC	✓	O	✓	O	✓	✓	✓
	VCCI	–	–	✓	–	–	✓	–
	RCM	–	–	✓	–	–	✓	–
	KCC	✓	–	–	–	–	–	–
RF	WLAN: FCC	–	–	–	–	–	–	–
	WLAN: RED	–	–	–	–	–	–	–
	WWAN: FCC (5G/4G/LTE)	–	–	–	–	–	–	–
	WWAN: RED (5G/4G/LTE)	–	–	–	–	–	–	–

✓ : Certified, O : Coming Soon, – : Uncertified

Remark: Please contact your Advantech representative for further details





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Industrial Communication

- ☞ 11-4 Industrial Ethernet Switches
- ☞ 11-14 Industrial Cellular Routers & Gateways
- ☞ 11-17 Industrial Wireless Solutions
- ☞ 11-20 Industrial Media Converters



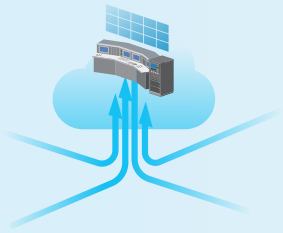
Industrial Communication in the IoT Era

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. One of Advantech's core missions 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.

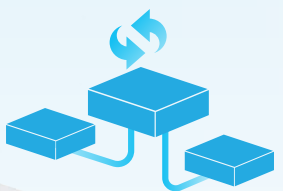
- Support for inter-operation with global 5G/LTE/3G coverage
- Cyber security protection by firewall, NAT, and VPN
- Intelligent gateway support for LoRaWAN, or Mesh networks for Industrial IoT
- Intelligent ODB cellular gateway supports G5 CatM1



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.

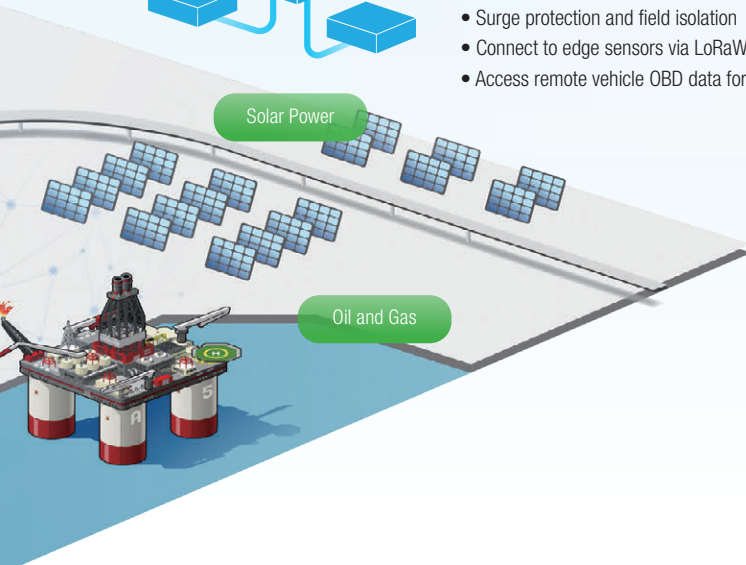
- Supports various industrial Ethernet protocols, such as TCP/IP, Ethernet/IP, PROFINET, CC-link, OPC UA, etc.
- Compliant with CID2, ATEX, IECEx certifications for hazardous environments
- Cyber security protection within the network
- Layer 3 Routing Protocols: RIP, OSPF, and VRRP
- Advantech's patented 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



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Industrial Ethernet Solutions

Unmanaged Ethernet Switches



Model Name		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
Power	12~48 V _{DC}	✓	✓	✓	✓	✓	✓
	Relay Output	–	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall 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
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	✓	✓	–
	Class I, Division 2	–	–	–	–	–	✓
	UL 508	–	–	–	–	–	✓

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

Industrial Ethernet Solutions

Unmanaged Ethernet Switches



Model Name		EKI-5524SSI/ MMI Series	EKI-5525SI/MMI Series	EKI-5528I EKI-5525I	EKI-5626CI	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	5/8-port Gigabit Ethernet Switch	16-port Gigabit Ethernet Switch
Interface	Number of Ports	6	4	8/5	18	5/8	16
	10/100Base-T (X)	4	4	8/5	16	–	–
	100BaseFX	2	1	–	–	–	–
	10/100/1000Base-T (X)	–	–	–	2 (combo)	5/8	16
	1000Base-SX/LX/LHX/XD/ZX/EZX	–	–	–	2 (combo)	–	–
Network Management	Configuration	–	–	–	–	–	✓
	SNMP	–	–	–	–	✓	✓
Power	12~48 V _{DC}	✓	✓	✓	✓	✓	✓
	Relay Output	✓	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓
	IP Level	IP30	IP30	IP30	IP30	IP30	IP30
Protection	ESD (Ethernet)	✓	✓	✓	✓	✓	✓
	Surge (EFT for power)	✓	✓	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓	✓	✓
Operating Temperature	–40 ~ 75°C (–40 ~ 167°F)	✓	✓	✓	✓	✓	✓
Certifications	CE	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓
	Class I, Division 2	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓

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

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Unmanaged Ethernet Switches



Model Name		EKI-5726FI	EKI-5729FI	EKI-2428G-4CA EKI-2428G-4CAI	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)	–	–
	Console	✓	✓	–	–	–
Network Management	Redundancy	–	–	–	–	–
	Configuration	✓	✓	–	–	–
	SNMP	✓	✓	–	–	–
Power	12~48 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)	–	–	EKI-2428G-4CA: 0 ~ 60°C (32 ~ 140°F)	✓	✓
	-40 ~ 75°C (-40 ~ 167°F)	✓	✓	EKI-2428G-4CAI: -20 ~ 75°C (-4 ~ 167°F)	–	–
Certifications	CE	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓
	UL/cUL 60950-1	–	–	–	✓	✓
	Class I, Division 2	✓	✓	–	–	–
	UL 508	✓	✓	–	–	–
	Others	–	–	LVD 62368-1	–	–

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

Industrial Ethernet Solutions

Entry-level Managed Switches



Model Name		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 I, Division 2	✓	✓	✓	✓	✓	✓	✓
	UL 508	✓	✓	✓	✓	✓	✓	✓
	Others	–	–	–	–	–	–	–

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

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Industrial Ethernet Solutions

Managed Switches



Model Name		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
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
Interface	Number of Ports	28	12	28	6	6	8	8
	10/100Base-T (X)	–	–	–	4	–	4	–
	100BaseFX	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	24	–	24 + 4 (combo)	–	4	–	4
	1000Base-SX/LX/ LHX/XD/ZX/EZX	4 x SFP+ (10G)	4 x SFP+ (10G)	4 (combo)	2	2	4	4
	PoE (10/100 Mbps)	–	–	–	–	–	–	–
	PoE (10/100/1000 Mbps)	–	8	–	–	–	–	–
	HSR/PRP	–	–	–	–	–	–	–
Network Management	Console	✓	✓	✓	✓	✓	✓	✓
	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)	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 I, 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

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

Industrial Ethernet Solutions

Managed Switches



Model Name		EKI-7710E-2C EKI-7710E-2CI	EKI-7710G-2C EKI-7710G-2CI	EKI-7712E-4F EKI-7712E-4FI	EKI-7712G-4F EKI-7712G-4FI	EKI-7716G-4F4CI	EKI-7720E-4F EKI-7720E-4FI	EKI-7720G-4F EKI-7720G-4FI	EKI-8510G-2FI
Description		8FE+2G Gigabit Managed Redundant Industrial Switch	8GbE+2G Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8FE+4SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8GbE+4G SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8GbE+4SFP + 4G Combo Managed Redundant Industrial Switch	16FE+4G SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	16GbE+4G SFP Gigabit Managed Redundant Industrial Switch/ with Wide Temperature	8G + 2G SFP Gigabit Managed Industrial Ethernet TSN Switch
Interface	Number of Ports	10	10	12	12	16	20	20	10
	10/100Base-T (X)	8	–	8	–	–	16	–	–
	100BaseFX	–	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	2 (combo)	8 + 2 (combo)	–	8	8 + 4 (combo)	–	16	8
	1000Base-SX/LX/ LHX/XD/ZX/EZX	2 (combo)	2 (combo)	4	4	4 + 4 (combo)	4	4	2
	PoE (10/100 Mbps)	–	–	–	–	–	–	–	–
	PoE (10/100/1000 Mbps)	–	–	–	–	–	–	–	–
	DI/DO	–	–	–	–	–	–	–	–
	Console	✓	✓	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓	✓	✓
	TSN	–	–	–	–	–	–	–	✓
Power	IEEE 1588 V2	–	–	–	–	–	–	–	✓
	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	IP40	IP40	IP30	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-7712E-4F	EKI-7712G-4F	–	EKI-7720E-4F	EKI-7720G-4F	–
	-40 ~ 75°C (-40 ~ 167°F)	EKI-7710E-2CI	EKI-7710G-2CI	EKI-7712E-4FI	EKI-7712G-4FI	EKI-7716G-4FI	EKI-7720E-4FI	EKI-7720G-4FI	EKI-8510G-2FI -40 ~ 65°C
	-40 ~ 85°C (-40 ~ 185°F)	–	–	–	–	–	–	–	–
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	–	–	–	–	–	–	–	–
	Class I, Division 2	–	–	–	–	–	–	–	–
	UL 508	✓	✓	✓	✓	✓	✓	✓	✓
Others	NEMA TS2 EN50121-4 LVD 62368-1	–	–	–	–	–	–	–	–
	NEMA TS2 EN50121-4 UL 61010 LVD 62368-1	–	–	–	–	–	–	–	–

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

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Serial/USB Communications

Industrial Ethernet Solutions

Managed PoE Switches



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

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

Industrial Ethernet Solutions

Unmanaged PoE Switches



Model Name		EKI-2705E-1GPI	EKI-2705G-1GPI	EKI-2706E-1GFPI	EKI-2706G-1GPI	EKI-2706G-2GPI	EKI-2706G-2FPI	EKI-2708G-PI	EKI-2710G-2FPI	EKI-5729PI
Description		4FE PoE + 1GbE Unmanaged Industrial Switch	4GE PoE + 1GbE Unmanaged Industrial Switch	4FE PoE + 1GbE + 1G SFP Unmanaged Industrial Switch	4GE PoE + 1GbE + 1G SFP Unmanaged Industrial Switch	6GbE Unmanaged Industrial Switch	4GbE + 2G SFP Unmanaged Industrial Switch	8GbE Unmanaged Industrial Switch	8GbE+2G SFP Unmanaged Industrial Switch	8GbE PoE+2G Unmanaged Ethernet Switch, IEEE802.3af/at, E-Mark, 12V~24V _{DC}
Interface	Number of Ports	5	5	6	6	6	6	8	10	8
	10/100Base-T (X)	5	–	5	–	–	–	–	–	–
	100BaseFX	–	–	–	–	–	–	–	–	–
	10/100/1000Base-T (X)	–	5	–	5	6	4	8	8	–
	1000Base-SX/LX/LHX/XD/ZX/EZX	–	–	1	1	–	2 x SFP	–	2 x SFP	–
	PoE (10/100 Mbps)	4	–	4	–	4	4	8	8	–
	PoE (10/100/1000 Mbps)	–	4	–	4	–	–	–	–	8
	DI/DO	–	–	–	–	–	–	–	–	–
	Console	–	–	–	–	–	–	–	–	–
Network Management	Redundancy	–	–	–	–	–	–	–	–	–
	Diagnostics	–	–	–	–	–	–	–	–	–
	VLAN	–	–	–	–	–	–	–	–	–
	Configuration	–	–	–	–	–	–	–	–	–
	SNMP	–	–	–	–	–	–	–	–	–
	Security	–	–	–	–	–	–	–	–	–
	Traffic Control	–	–	–	–	–	–	–	–	–
Power	12~48 V _{DC}	–	–	–	–	✓	✓	✓	✓	–
	24~48 V _{DC}	✓	✓	✓	✓	–	–	–	–	–
	Relay Output	–	–	–	–	✓	✓	✓	✓	✓
Mechanism	DIN-rail Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Wall Mount	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Rack Mount	–	–	–	–	–	–	–	–	–
	IP Level	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)	–	–	–	–	–	–	–	–	✓
	-40 ~ 75 °C (-40 ~ 167 °F)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	-40 ~ 85 °C (-40 ~ 185 °F)	–	–	–	–	–	–	–	–	–
	Others	–	–	–	–	EN 62368/ E-Mark	EN 62368/ E-Mark	EN 62368/ E-Mark compliance	EN 62368/ E-Mark compliance	UL 61010/ E-Mark
Certifications	CE	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FCC	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL/cUL 60950-1	✓	✓	✓	✓	–	–	–	–	✓
	Class I, Division 2	–	–	–	–	–	–	–	–	–
	UL 508	–	–	–	–	–	–	–	–	–

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

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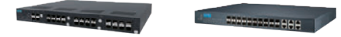
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Serial/USB Communications

Industrial Ethernet Solutions

L3 Managed Switches

IEC 61850-3 Managed Industrial Ethernet Switches



Model Name		EKI-8528-4XF	EKI-9728G-4X8CI	EKI-9628G-4CI	EKI-9612G-4FI
Description		L3 modular Managed Switch	L3 28-port Managed Switch	L3 28-port Managed Switch	L3 12-port Managed Switch
Interface	Number of Ports	Up to 28	28	28	12
	10/100Base-T (X)	–	–	–	–
	100BaseFX	–	–	–	–
	10/100/1000Base-T (X)	3 x 8 port module slots + 4 x SFP+(10G)	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	△	–	–	–
Network Management	Console	✓	✓	✓	✓
	Redundancy	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓
	Security	✓	✓	✓	✓
	TSN	✓	–	–	–
Power	IEEE 1518 V2	✓	–	–	–
	Traffic Control	✓	✓	✓	✓
	12~48 V _{DC}	△ 24~48 V _{DC}	–	✓	✓
	24~110 V _{DC}	△ 88~370 V _{DC}	–	–	–
Mechanism	100~240 V _{AC}	△ 100~264 V _{AC}	90~264 V _{AC}	–	–
	Relay Output	✓	–	✓	✓
	DIN-rail Mount	–	–	–	✓
	Wall Mount	–	–	–	✓
Protection	Rack Mount	✓	✓	✓	–
	IP Level	IP30	IP30	IP30	IP30
	ESD (Ethernet)	✓	✓	✓	✓
Operating Temperature	Surge (EFT for power)	✓	✓	✓	✓
	Power Reverse	✓	✓	✓	✓
	-10 ~ 60°C (14 ~ 140°F)	–	–	–	–
Certifications	-40 ~ 75 °C (-40 ~ 167 °F)	✓	–	✓	✓
	-40 ~ 85 °C (-40 ~ 185 °F)	–	✓	–	–
	CE	✓	✓	✓	✓
	FCC	✓	✓	✓	✓
Others	UL/cUL 60950-1	–	–	–	–
	Class I, Division 2	–	–	–	–
	UL 61010	–	–	✓	✓
	EN 50121-4 IEC 61850-3	–	–	LVD 62368-1	NEMA TS2 EN 50121-4 LVD 62368-1

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

Model Name		EKI-7528-4XF	EKI-9226G-20FOI EKI-9226G-20FMI
Description		28-port Full Giga Managed Switch	26-port Full Giga Managed Switch
Interface	Number of Ports	Up to 28	26
	10/100Base-T (X)	–	–
	100BaseFX	–	–
	10/100/1000Base-T (X)	3 x 8 port module slots + 4 x SFP+ (10G)	6
	1000Base-SX/LX/LHX/XD/ZX/EZX		20 x SFP
	PoE (10/100 Mbps)		–
	PoE (10/100/1000 Mbps)	–	–
	HSR/PRP	△	–
Network Management	Console	✓	✓
	Redundancy	✓	✓
	Diagnostics	✓	✓
	VLAN	✓	✓
	Configuration	✓	✓
	SNMP	✓	✓
	Security	✓	✓
	Traffic Control	✓	✓
Power	12~48 V _{DC}	–	EKI-9226G-20FMI (48 V _{DC})
	24~110 V _{DC}	–	–
	100~240 V _{AC}	✓	EKI-9226G-20FOI (90~264 V _{AC})
	Relay Output	✓	✓
Mechanism	DIN-rail Mount	–	–
	Wall Mount	–	–
	Rack Mount	✓	✓
	IP Level	IP30	IP30
Protection	ESD (Ethernet)	✓	✓
	Surge (EFT for power)	✓	✓
	Power Reverse	✓	✓
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	–	–
	-40 ~ 75 °C (-40 ~ 167 °F)	✓	–
	-40 ~ 85 °C (-40 ~ 185 °F)	–	✓
Certifications	CE	✓	✓
	FCC	✓	✓
	UL/cUL 60950-1	–	✓
	Class I, Division 2	–	–
Others	UL 508	–	–
	EN 50121-4 IEC 61850-3	–	IEC 61850-3

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

Industrial Ethernet Solutions

EN50155 Switches



Model Name		EKI-9512E-ETB EKI-9512G-ETB	EKI-9528 series	EKI-9516 series	EKI-9512 series	EKI-9510 series	EKI-9508 series
Description		EN50155 12-Port Ethernet Train Backbone Router	EN50155 28-Port L2 Managed (PoE) Switch	EN50155 16-Port L2 Managed (PoE) Switch	EN50155 12-Port L2 Managed PoE Switch	EN50155 10-Port L2 Managed (PoE) Switch	EN50155 8-Port L2 Managed (PoE) Switch
Interface	Number of Ports	12	28	16	12	10	8
	10/100Base-TX	Up to 8	Up to 20	Up to 12	Up to 8	Up to 8	Up to 8
	100BaseFX	–	–	–	–	–	–
	10/100/1000Base-TX	Up to 12	Up to 28	Up to 16	Up to 12	Up to 8	Up to 8
	10/100/1000Base-TX with Bypass Function	4	Up to 4	Up to 4	Up to 4	2	–
	PoE(10/100Mbps)	–	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
	PoE(10/100/1000Mbps)	–	Up to 24	Up to 12	Up to 8	Up to 8	Up to 8
	DI/DO	–	–	–	–	–	–
	Console	✓	✓	✓	✓	✓	✓
Network Management	Redundancy	✓	✓	✓	✓	✓	✓
	Diagnostics	✓	✓	✓	✓	✓	✓
	VLAN	✓	✓	✓	✓	✓	✓
	Configuration	✓	✓	✓	✓	✓	✓
	SNMP	✓	✓	✓	✓	✓	✓
	Security	✓	✓	✓	✓	✓	✓
	Traffic Control	✓	✓	✓	✓	✓	✓
Power	24~110 V _{DC}	✓	✓	✓	✓	✓	✓
	IP Rating	IP30	IP54	IP67	IP67	IP67	IP67
Rolling Stock Application	Ethernet Train Backbone (IEC61375-2-3 & -2-5)	✓	–	–	–	–	–
	EN50155	✓	✓	✓	✓	✓	✓
	EN50121-3-2	✓	✓	✓	✓	✓	✓
	EN61373	✓	✓	✓	✓	✓	✓
	EN45545-2	✓	✓	✓	✓	✓	✓

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

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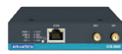
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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

Industrial Cellular Routers



Model Series		ICR-2000	ICR-2400	ICR-2500	ICR-2600	ICR-2700 LAN	ICR-2700	ICR-2800
Region	GLOBAL	–	–	–	–	✓	–	–
	EMEA	✓	✓	✓	✓	✓	✓	✓
	NAM	✓	–	–	–	–	–	–
	LATAM	✓	✓	–	–	–	–	–
	BRAZIL	✓	✓	–	–	–	–	–
	AUS/NZ	–	–	–	–	–	–	–
	JAPAN	–	–	–	–	–	–	–
Mobile Wireless Network Technology	KOREA	–	–	–	–	–	–	–
	5G	–	–	–	–	–	–	–
	LTE Cat.12	–	–	–	–	–	–	–
	LTE Cat.6	–	–	–	–	–	–	–
	LTE Cat.4	✓	✓	✓	✓	–	✓	✓
	LTE-M/NB-IOT	–	✓	–	–	–	–	–
	LTE 450	–	✓	–	–	–	–	–
Communications Interfaces and Expansions	Without Cellular	–	–	–	–	✓	–	–
	3G/HSPA+	✓	✓	✓	✓	–	✓	✓
	GPRS/EDGE	✓	✓	✓	✓	–	✓	✓
	Wi-Fi Type	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz
	Bluetooth	–	–	–	–	–	–	–
	GNSS Receiver	–	Optional	–	–	–	–	△
	PoE PSE+ / PoE PD	–	–	–	–	–	–	–
	ETH	1	2	4	4	2	2	2
	USB	–	–	–	–	✓	✓	✓
	RS232	–	1	–	1	–	–	1-2
	RS485	–	1	–	1	–	–	1-2
	RS485/422	–	–	–	–	–	–	–
Hardware	SFP Cage	–	–	–	–	–	–	–
	CAN	–	–	–	–	–	–	–
	I/O	1x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO	–	–	4x DI + 2x DO
	MicroSD	–	–	–	–	–	–	–
	CPU Power (MHz)	600	600	600	600	600	600	600
	Memory - RAM (MB)	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB
	NOR Flash, Flash, eMMC	64 MB	64 MB	64 MB	64 MB	4 GB	4 GB	4 GB
	Customer Data	2 MB	2 MB	2 MB	2 MB	512 MB	512 MB	512 MB
	Router Apps (MB)	12 MB	12 MB	12 MB	12 MB	838 MB	838 MB	838 MB
Design	Number of SIM Slots	1	2	2	2	–	2	2
	Power Supply	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Metal	Metal	Metal	Metal	Plastic / Metal	Plastic / Metal	Plastic / Metal
Additional Software Support	Metal Casing (mm)	25 x 95 x 103	25 x 95 x 103	25 x 95 x 130	25 x 95 x 130	42 x 80.3 x 113.2	42 x 80.3 x 113.2	42 x 80.3 x 113.2
	Plastic Casing (mm)	–	–	–	–	51.4 x 83.8 x 115.5	51.4 x 83.8 x 115.5	51.4 x 83.8 x 115.5
	DIN Holder TS35/TS32	DIN, wall	DIN, wall	DIN, wall	DIN, wall	DIN	DIN	DIN
Additional Software Support	Router Apps	✓	✓	✓	✓	✓	✓	✓
	WebAccess/DMP Preactivated	✓	✓	✓	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓	✓	✓	✓
	*Docker, Node-RED	–	–	–	–	–	–	–

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

*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.

Industrial Cellular Routers



	Model Series	SmartStart	SmartFlex LAN	SmartFlex	ICR-3200 LAN	ICR-3200
Region	GLOBAL	–	✓	✓	✓	✓
	EMEA	✓	–	✓	–	✓
	NAM	–	–	✓	–	✓
	LATAM	–	–	✓	–	✓
	BRAZIL	–	–	–	–	✓
	AUS/NZ	–	–	–	–	✓
	JAPAN	–	–	✓	–	–
	KOREA	–	–	✓	–	–
Mobile Wireless Network Technology	5G	–	–	–	–	–
	LTE Cat.12	–	–	–	–	–
	LTE Cat.6	–	–	–	–	–
	LTE Cat.4	✓	–	✓	–	✓
	LTE-M/NB-IOT	–	–	–	–	✓
	LTE 450	–	–	–	–	–
	Without Cellular	–	✓	–	✓	–
	3G/HSPA+	✓	–	✓	–	✓
Communications Interfaces and Expansions	GPRS/EDGE	✓	–	✓	–	✓
	Wi-Fi Type	–	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz	△ 2.4/5 GHz
	Bluetooth	–	–	–	△ 5.1, Low Energy	△ 5.1, Low Energy
	GNSS Receiver	–	–	✓	–	△
	PoE PSE+ / PoE PD	–	△	△	–	–
	ETH	1	5	up to 5	2	2
	USB	–	✓	✓	–	–
	RS232	1	–	△	1	1
	RS485	–	–	△ 1/2	1	1
	RS485/422	–	–	△	–	–
	SFP Cage	–	–	–	–	–
	CAN	–	–	–	–	–
Hardware	I/O	1x DI + 1x DO	2x DI + 1x DO	2x DI + 1x DO	1x DI + 1x DO	1x DI + 1x DO
	MicroSD	–	✓	✓	–	–
	CPU Power (MHz)	1000	1000	1000	1000	1000
	Memory - RAM (MB)	512 MB	512 MB	512 MB	512 MB	512 MB
	NOR Flash, Flash, eMMC	4 GB	256 MB	256 MB	4 GB	4 GB
	Customer Data	512 MB	128 kB	128 kB	512 MB	512 MB
	Router Apps (MB)	838 MB	128 MB	128 MB	838 MB	838 MB
	Number of SIM Slots	2	–	2	–	2
	Power Supply	9~36 V _{DC}	10~60 V _{DC}	10~60 V _{DC}	9~36 V _{DC}	9~36 V _{DC}
	Operating Temperature	-25 ~ 55°C (-13 ~ 131°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
Design	Type of Housing	Plastic	Plastic / Metal	Plastic	Metal	Metal
	Metal Casing (mm)	30 x 87 x 150	55 x 97 x 125	55 x 97 x 125	31 x 94 x 129	31 x 94 x 129
	Plastic Casing (mm)	–	55 x 97 x 125	55 x 97 x 125	–	–
Additional Software Support	DIN Holder TS35/TS32	DIN, wall	DIN	DIN	DIN, wall	DIN, wall
	Router Apps	✓	✓	✓	✓	✓
	WebAccess/DMP Preactivated	✓	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓	✓
	*Docker, Node-RED	✓	✓	✓	✓	✓

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

*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.

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Serial/USB Communications

Industrial Cellular Routers



Model Series		ICR-4400 LAN	ICR-4400	ICR-4100	ICR-4200	ICR-1642
Region	GLOBAL	✓	✓	△	△	–
	EMEA	–	✓	✓	✓	✓
	NAM	–	✓	–	–	–
	LATAM	–	–	–	–	–
	BRAZIL	–	–	–	–	–
	AUS/NZ	–	–	–	–	–
	JAPAN	–	–	–	–	–
	KOREA	–	–	–	–	–
Mobile Wireless Network Technology	CHINA	–	–	–	–	✓
	5G	–	✓	✓	✓	–
	LTE Cat.12	–	✓	–	–	–
	LTE Cat.6	–	–	✓	✓	–
	LTE Cat.4	–	–	–	–	✓
	LTE-M/NB-IOT	–	–	–	–	–
	LTE 450	–	–	–	–	–
	Without Cellular	–	–	–	–	–
Communications Interfaces and Expansions	3G/HSPA+	–	✓	–	–	–
	GPRS/EDGE	–	–	–	–	–
	Wi-Fi Type	△ 2.4/5 GHz	△ 2.4/5 GHz	△ WIFI6 2.4/5/6 GHz	△ WIFI6 2.4/5/6 GHz	–
	Bluetooth	–	–	–	–	–
	GNSS Receiver	–	△	✓	✓	–
	PoE PSE+ / PoE PD	△ PoE PSE+	△ PoE PSE+	–	–	–
	ETH	5	5	2	2	2
	USB	✓	✓	✓	✓	–
	RS232	1	1	–	1-2	1
	RS485	1	1	–	1-2	1
	RS485/422	–	–	–	–	–
	SFP Cage	1	1	–	–	–
Hardware	CAN	1	1	–	–	–
	I/O	2x DI + 2x DO	2x DI + 2x DO	–	4x DI + 2x DO	1x DI + 1x DO
	MicroSD	✓	✓	✓	✓	–
	CPU Power (MHz)	1200	1200	1600	1600	1200
	Memory - RAM (MB)	1 GB	1 GB	1 GB	1 GB	256 MB
	NOR Flash, Flash, eMMC	4 GB	4 GB	8 GB	8 GB	512 MB
	Customer Data	512 MB	512 MB	3.35 GB	3.35 GB	33 MB
	Router Apps (MB)	838 MB	838 MB	–	–	80 MB
	Number of SIM Slots	–	2	2	2	2
	Power Supply	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}	9~48 V _{DC}
Design	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Type of Housing	Metal	Metal	Metal	Metal	Metal
	Metal Casing (mm)	47 x 109 x 195	47 x 109 x 195	43 x 130 x 90	43 x 130 x 90	94 x 90 x 39
	Plastic Casing (mm)	–	–	–	–	–
Additional Software Support	DIN Holder TS35/TS32	DIN, wall	DIN, wall	DIN, wall	DIN, wall	DIN, wall
	Router Apps	✓	✓	✓	✓	△
	WebAccess/DMP Preactivated	✓	✓	✓	✓	✓
	Python, C++	✓	✓	✓	✓	–
	*Docker, Node-RED	✓	✓	✓	✓	–

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

*Functionality is available with the installed Router App. Please check the size of the free memory reserved for Router Apps before installation.

Industrial Wireless Access Points/Clients

Wireless Access Points/Clients



Model Name		EKI-6333AC-2G	EKI-6333AC-4GP
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
Connectivity	10/100/1000Based-T, Fixed	2	–
	10/100Base-TX, Fixed	–	4
	RS-232 Only	–	–
	RS-232/422/485	–	1x RS-232/RS-485
	Serial Connector Type	–	Terminal Block Male
Enclosure & Mount Kit	Enclosure	IP55	–
	DIN-rail	–	✓
	Wall	✓	–
	VESA Mount	–	–
	Pole Mount	✓	–
Power	Power Input (V _{DC})	–	24~56 V _{DC}
	Power Input (PoE)	Passive 24V	PoE 802.3at PSE
	Power Connector	RJ-45	Terminal block
Environment	Operating Temperature	-20 ~ 70°C (-4 ~ 158°F)	-30 ~ 70°C (-22 ~ 158°F)
	Operating Humidity	10~95%	10~95%
Software	Configuration Options	Web-base	Web-base
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	Access Point, Client, Repeater mode	Access Point/Bridge mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac
	Radio Number	2	2
	Security	WEP, WPA/WPA2-Perso-I, WPA/WPA2-Enterprise	–
RF	Frequency	2.4G/5GHz	2.4G/5GHz
	MIMO	2T2R	2T2R
	UL60950-1	–	–

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

* Note: Transmit Output Power & Receive Sensitivity are specified on data sheet.

Model Name		EKI-1361 EKI-1362 EKI-6233BN	EKI-6333AC-2GD
Description		0/1/2-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	10/100/1000Based-T, Fixed	–	✓
	10/100Base-TX, Fixed	✓	–
	RS-232 Only	–	–
	RS-232/422/485	✓	–
	Serial Connector Type	DB9 Male	–
Enclosure & Mount Kit	Enclosure	IP30	IP30
	DIN-rail	✓	✓
	Wall	✓	✓
	VESA Mount	–	–
	Pole Mount	–	–
Power	Power Input (V _{DC})	12~48 V _{DC}	12~48 V _{DC}
	Power Input (PoE)	–	–
	Power Connector	Terminal block	Terminal block
Environment	Power Consumption (12/24/48 V _{DC}) Watts	8W (EKI-1361) 9W (EKI-1362)	8W
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
	Operating Humidity	10~95%	10~95%
Software	Input Reverse Protection	✓	✓
	Configuration Options	Web-base, windows utility	Web-base
	Authentication	Username/Password	Username/Password
WLAN	Standard Operation Mode	VCOM, USDG mode (TCP/UDP server, TCP/UDP client), Station Mode	Access Point
	IEEE Standard	a/b/g/n	a/b/g/n/ac
	Radio Number	1	1
RF	Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise	WEP, WAP/WAP2-Persona, WAP/WAP2-Enterprise
	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

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Serial/USB Communications

Industrial Wireless Access Points/Clients



Model Name		ABDNA-ER-IN5010	ABDNA-ER-DP551(U)	BB-WLNN-ER-DP551 BB-WLNN-AN-DP551 BB-WLNN-SE-DP551 BB-WLNN-Q551 BB-WLNN-EK-DP551	ABDNA-ER-DP553
Category		Industrial (Metal)	Enterprise (Compact, Saddle holster)	OEM & Modules Open Board	OEM & Modules Carrier Board
Types		Bridge & Router	Bridge & Router	Interfaces(UART), Ethernet Adapter, RS232/422/485 Driver Control	Serial Server, Access Point/ Client
Connectivity	10/100Base-T	✓	✓	✓	✓
	RS-232/422/485	–	–	UART w/ Serial Driver Control (WLNN-SE-DP551/BB-WLNN-EK-DP551)	–
Enclosure & Mount Kit	Dimension (W x H x D)	12.1 x 12.0 x 2.9 cm	6.1 x 9.9 x 3.2 cm	3.0 x 1.4 x 4.1 cm	9.0 x 4.6 x 2.2 cm
	Enclosure	Metal	Plastics	Module	Module
	DIN-rail	△	–	–	–
	Wall	–	✓	–	–
	Panel	✓	–	–	–
	Desktop	–	✓	–	–
Power	Power Input (V _{DC})	5~36 V _{DC}	5V _{DC}	3.3V _{DC}	5V _{DC}
	Power Connector	2-position terminal block, 2.1mm barrel jack	USB (2 open USB ports required; dual USB port power cable included)	36-pin high density SMT connector (Hirose DF12-36)	3A, 15W power supply with US power cord
Environment	Operating Temperature	-30 ~ 85°C (-22 ~ 185°F)	-20 ~ 85°C (-4 ~ 185°F)	-30 ~ 85°C (-22 ~ 185°F)	-20 ~ 85°C (-4 ~ 185°F)
	Operating Humidity	10~95% (non-condense)	10~95% (non-condense)	10~95% (non-condense)	10~95% (non-condense)
Software	Configuration Options	Web-based	Web-based	Web-based	Web-based
	Authentication	Username/Password	Username/Password	Username/Password	Username/Password
	Fast Roaming	✓	✓	✓	✓
	Command Line Interface (ASCII)	✓	✓	✓	✓
	Protocols	TCP/IP, ARP, ICMP, DHCP, DHS, UDAP, TFTP, UDP, PING, HTTP, FTP	TCP/IP, ARP, ICMP, DHCP, DHS, UDAP, TFTP, UDP, PING	TCP/IP, ARP, ICMP, DHCP, DHS, UDAP, TFTP, UDP, PING	TCP/IP, ARP, ICMP, DHCP, DHS, UDAP, TFTP, UDP, PING
WLAN	IEEE Standard	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n
	Frequency Range	2.4/5 GHz (Dual Band)	2.4/5 GHz (Dual Band)	2.4/5 GHz (Dual Band)	2.4/5 GHz (Dual Band)
	Security	801.11i, WPA2, EAP, LEAP, WEP, SSH, SSL, TLS1.2, others	801.11i, WPA2, EAP, LEAP, WEP, SSH, SSL, TLS1.2, others	801.11i, WPA2, EAP, LEAP, WEP, SSH, SSL, TLS1.2, others	801.11i, WPA2, EAP, LEAP, WEP, SSH, SSL, TLS1.2, others
RF	Maximum Transmit Output Power	16dBm(11b/g/n)	15dBm(11b/g/n)	17dBm(11b)	15dBm(11b/g/n)
	Receive Sensitivity	-88dBm(11b)	-88dBm(11b)	-88dBm(11b)	-88dBm(11b)
	Antenna Connector	RP-SMA	RP-SMA	RP-SMA	RP-SMA
Part Number Details		ABDNA-ER-IN5010	ABDNA-ER-DP551 (AC Power Supply included with NATAM cable) ABDNA-ER-DP551U (Dual USB port power cable included)	BB-WLNN-ER-DP551 (Ethernet adapter) BB-WLNN-AN-DP551 (UART interface) BB-WLNN-SE-DP551 (232/422/485 driver control) BB-WLNN-Q551 (Access Point) BB-WLNN-EK-DP551 (Design/Development Kit)	ABDNA-ER-DP553 (No enclosure type ABDNA-ER-DP551)

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

Industrial Wireless Access Points/Clients

EN50155 Wireless Devices



Model Name		EKI-6333AC-M12	EKI-1652WT
Description		EN50155 IEEE 802.11 a/b/g/n/ac Wi-Fi AP/Client	Wi-Fi/Cellular Router
Connectivity	10/100/1000Base-T, Fixed	△2 (M12 Connector)	△2 (M12 Connector)
	10/100Base-TX, Fixed		
	RS-232 Only	–	–
	RS-232/422/485	–	–
	Serial Connector Type	–	–
Enclosure & Mount Kit	Enclosure	Metal shell with solid mounting kits	Metal shell with solid mounting kits
	DIN-rail	–	–
	Wall	✓	✓
	VESA Mount	–	–
	Pole Mount	–	–
Power	Power Input (V _{DC})	24~48 V _{DC} (LV model), 72/96/110V _{DC} (HV model)	24~48 V _{DC} (LV model), 72/96/110V _{DC} (HV model)
	Power Input (PoE)	–	–
	Power Connector	M12 A-Code male (5-pin)	M12 A-Code male (5-pin)
Environment	Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
	Operating Humidity	10~95%	10~95%
Software	Configuration Options	Web-based	Web-based
	Authentication	Username/Password	Username/Password
	Standard Operation Mode	Access Point/Bridge/Client mode	Access Point/Bridge/Client mode
WLAN	IEEE Standard	a/b/g/n/ac	a/b/g/n/ac
	Radio Number	2	2
	Security	Open System, Shared Key, Legacy 802.1X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)	Open System, Shared Key, Legacy 802.1X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK(AES)
RF	Frequency	2.4/5GHz	2.4/5GHz
	MIMO	2T2R	2T2R
	UL60950-1	–	–

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



Model Name		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
Enclosure & Mount Kit	Enclosure	Metal shell with solid mounting kits
	DIN-rail	–
	Wall	✓
	VESA Mount	–
Power	Pole Mount	–
	Power Input (V _{DC})	24-110 V _{DC}
	Power Input (PoE)	–
Environment	Power Connector	M12 A-coded with (4-pin)
	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)
Software	Operating Humidity	10~95%
	Network 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, SNMP
	Configuration Options	Web-based
	Authentication	Authentication (X.509 certificate, Pre-shared key, PW)
	Standard Operation Mode	Access Point/Client mode
	IEEE Standard	802.11 a/b/g/n/ac
WLAN	Radio Number	up to 2 (module type design)
	Security	Open System, Shared Key, Legacy 802.1X
RF	Frequency	2.4/5GHz
	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

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Industrial Media Converters

IMC-300

Miniature Media Converters



Featuring an ultra-compact design, these miniature media converters fit almost every corner of your application.

- Dimension (W x H x D) 4.57 x 2.11 x 8.51 cm (1.80 x 0.83 x 3.35 in)
Measuring only 3.5 x 2 inches
- Supports Link Fault Pass Through (LFPT)
- The centralized powered chassis allows for multiple Advantech miniature media converters sharing a central power source in one chassis

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

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temperature	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
IMC-350I-M8	Multi-mode	OM1/OM2	2 km	SC duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-24	850	830~860	770 ~ 860	-10~-4	-3~-24	14	1
IMC-350I-M8ST	Multi-mode	OM1/OM2	2 km	ST duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-24	850	830~860	780 ~ 860	-10~-4	-3~-24	14	1
IMC-350I-MM	Multi-mode	OM1/OM2	4 km	SC duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-32	1300	1270~1380	1270~1380	-23.5~-14	-8~-32	8.5	3
IMC-350I-MMST	Multi-mode	OM1/OM2	4 km	ST duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-32	1300	1270~1380	1270~1380	-23.5~-14	-8~-32	8.5	3
IMC-350I-SE	Single-mode	G.652	40 km	SC duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-34	1310	1261~1360	1261~1360	-15~-8	-5~-34	19	1
IMC-350I-SL	Single-mode	G.652	80 km	SC duplex	-25 ~ 85°C (-13 ~ 185°F)	PD	-34	1550	1520~1580	1260~1600	-6~0	-3~-36	30	1
IMC-350I-SST	Bi-Directional	G.652	20 km	Single SC	-25 ~ 85°C (-13 ~ 185°F)	PD	-32	1310Tx / 1550Rx	1260~1360	1480~1580	-14~-8	-3~-32	18	1
IMC-350I-SSR	Bi-Directional	G.652	20 km	Single SC	-25 ~ 85°C (-13 ~ 185°F)	PD	-32	1550Tx / 1310Rx	1480~1580	1260~1360	-14~-8	-3~-32	18	1
IMC-350I-SFP	—	—	—	—	-25 ~ 85°C (-13 ~ 185°F)	PD	—	—	—	—	—	—	—	—

Industrial Grade 10/100/1000Mbps Miniature Media Converters

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temperature	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
IMC-370I-MM	Multi-mode	OM1/OM2	550 m	SC duplex	-25 ~ 75°C (-13 ~ 167°F)	—	-17	850	830~860	770~860	-9.5~-4	-3~-17	7.5	—
IMC-370I-SM	Single-mode	G.652	10 km	SC duplex	-25 ~ 75°C (-13 ~ 167°F)	—	-20	1310	1260~1360	1260~1360	-9.5~-3	-3~-20	10.5	—
IMC-370I-SE	Single-mode	G.652	40 km	SC duplex	-25 ~ 75°C (-13 ~ 167°F)	—	-21	1310	1280~1340	1100~1600	-2~-3	-3~-23	21	3
IMC-370I-SST	Bi-Directional	G.652	10 km	Single SC	-25 ~ 75°C (-13 ~ 167°F)	—	-21	1310Tx / 1550 Rx	1270~1355	1480~1580	-9~-3	-2~-21	12	—
IMC-370I-SSR	Bi-Directional	G.652	10 km	Single SC	-25 ~ 75°C (-13 ~ 167°F)	—	-21	1550Tx / 131 Rx	1530~1570	1260~1360	-9~-3	-2~-21	12	—
IMC-370I-SFP	—	—	—	—	-25 ~ 75°C (-13 ~ 167°F)	—	—	—	—	—	—	—	—	—

PoE+ / PoE Media Converters

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

Model Name	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Operating Temperature	PoE	Sensitivity (dB)	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
IMC-390-MM	Multi-mode	OM1/OM2	550 m	SC duplex	0 ~ 70°C (32 ~ 158°F)	PSE	-17	850	830~860	770~860	-9.5~-4	-3~ 17	7.5	—
IMC-390-SM	Single-mode	G.652	10 km	SC duplex	0 ~ 70°C (32 ~ 158°F)	PSE	-20	1310	1260~1360	1260~1360	-9.5~-3	-3~-20	1 0.5	—
IMC-390-SFP	—	—	—	—	0 ~ 70°C (32 ~ 158°F)	PSE	—	—	—	—	—	—	—	—

✓ : supported, — : not supported, △ : optional

Industrial Media Converters

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	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temperature	DDM	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
SFP-GMM-550	Multi-mode	OM1/OM2	550 m	Duplex LC	-17	-40 ~ 85°C (-40 ~ 185°F)	✓	850	830 ~ 860	770 ~ 860	-9.5~-4	-3~-17	7.5	-
SFP-GMM-2K	Multi-mode	Multi-Mode	2 km	Duplex LC	-21			1310	1260 ~ 1355	1260 ~ 1620	-10~-1	-3~-21	11	3
SFP-GSM-20K	Single-mode	G.652	20 km	Duplex LC	-23			1310	1285 ~ 1343	1260 ~ 1620	-8~-2	-3~-23	15	-
SFP-GSM3-40K	Single-mode	G.652	40 km	Duplex LC	-24			1310	1290 ~ 1355	1260 ~ 1620	-2~-3	-3~-24	22	3
SFP-GSS-40KTX-LC	Bi-Directional	G.652	40 km	Simplex LC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1470 ~ 1600	-3~-2	-3~-23	20	3
SFP-GSS-40KRX-LC	Bi-Directional	G.652	40 km	Simplex LC	-23			1550 Tx / 1310 Rx	1530 ~ 1570	1260 ~ 1360	-5~-0	-3~-23	18	3
SFP-GSS-20KTX	Bi-Directional	G.652	20 km	Simplex SC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1480 ~ 1600	-8~-2	-3~-23	15	3
SFP-GSS-20KRX	Bi-Directional	G.652	20 km	Simplex SC	-23			1550 Tx / 1310 Rx	1510 ~ 1570	1250 ~ 1380	-8~-2	-3~-23	15	3
SFP-GSS-40KTX	Bi-Directional	G.652	40 km	Simplex SC	-23			1310 Tx / 1550 Rx	1270 ~ 1355	1480 ~ 1600	-3~-2	-3~-23	20	3
SFP-GSS-40KRX	Bi-Directional	G.652	40 km	Simplex SC	-23			1550 Tx / 1310 Rx	1510 ~ 1570	1250 ~ 1380	-3~-2	-3~-23	20	3

Industrial Grade 100-155 Mbps SFP Modules w/ DDM

Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temperature	DDM	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
SFP-FSM-20K	Single-mode	G.652	20 km	Duplex LC	-35	-40 ~ 85°C (-40 ~ 185°F)	✓	1310	1280 ~ 1340	1260 ~ 1620	-15~-8	-3~-35	20	3
SFP-FSM-40K	Single-mode	G.652	40 km	Duplex LC	-36			1310	1280 ~ 1340	1260 ~ 1620	-5~-0	-3~-36	31	3
SFP-FSS-20KTX	Bi-Directional	G.652	20 km	Simplex SC	-32			1310 Tx / 1550 Rx	1261 ~ 1360	1480 ~ 1600	-14~-8	0~-32	18	-
SFP-FSS-20KRX	Bi-Directional	G.652	20 km	Simplex SC	-32			1550 Tx / 1310 Rx	1480 ~ 1576	1260 ~ 1360	-14~-8	0~-32	18	-
SFP-FSS-40KTX	Bi-Directional	G.652	40 km	Simplex SC	-34			1310 Tx / 1550 Rx	1280 ~ 1340	1480 ~ 1600	-5~-0	-3~-34	29	3
SFP-FSS-40KRX	Bi-Directional	G.652	40 km	Simplex SC	-34			1550 Tx / 1310 Rx	1480 ~ 1580	1250 ~ 1360	-5~-0	-3~-34	29	3

10 Gbps SFP+ & XFP Modules w/ DDM

Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temperature	DDM	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
SFP-XSS-10KTX-LC	Bi-Directional	G.652	10 km	Simplex LC	-14.4	0 ~ 70°C (32 ~ 158°F)	✓	1270 Tx / 1330 Rx	1260 ~ 1280	1320 ~ 1340	-6~-1	0.5~-14.4	8.4	3.2
SFP-XSS-10KRX-LC	Bi-Directional	G.652	10 km	Simplex LC	-14.4			1330 Tx / 1270 Rx	1320 ~ 1340	1260 ~ 1280	-6~-1	0.5~-14.4	8.4	3.2
SFP-XSS-40KTX-LC	Bi-Directional	G.652	40 km	Simplex LC	-15.5			1270 Tx / 1330 Rx	1260 ~ 1280	1320 ~ 1340	0.5~5	0.5~-15.5	16	3.2
SFP-XSS-40KRX-LC	Bi-Directional	G.652	40 km	Simplex LC	-15.5			1330 Tx / 1270 Rx	1320 ~ 1340	1260 ~ 1280	0.5~5	0.5~-15.5	16	3.2

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

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- 4 Intelligent Systems
- 5 Mission Critical CompactPCI Platforms
- 6 Intelligent Transportation & Substation Certified Systems
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- 8 AI & Advanced Computer Vision
- 9 Video Infrastructure Solutions
- 10 Network & Security Solutions
- 11 Industrial Communication
- 12 Industrial Gateways
- 13 EtherCAT Solutions & Automation Controllers
- 14 Intelligent Motion Control Solutions
- 15 Data Acquisition (DAQ) Solutions
- 16 Remote I/O, Wireless I/O & Sensors
- 17 Serial/USB Communications

Industrial Media Converters

SFP Modules

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

Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temperature	DDM	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
 SFP-XMM-LCI-400	Multi-mode	OM3	400 m	Duplex LC	-11.1	-40 ~ 85°C (-40 ~ 185°F)	✓	850	840 ~ 860	840 ~ 860	-7.3~-1	-0.1~-9.9	2.6	-
 SFP-XSM-LCI-10K	Single-mode	G.652	10 km	Duplex LC	-12.6			1310	1260 ~ 1355	1260 ~ 1355	-8.2~-0.5	0.5~-14.4	6.2	-
 SFP-XSM-LCI-20K	Single-mode	G.652	20 km	Duplex LC	-12.6			1310	1260 ~ 1355	1260 ~ 1355	-5~-0.5	0.5~-14.4	9.4	-
 SFP-XSM5-LCI-40K	Single-mode	G.652	40 km	Duplex LC	-16			1550	1530 ~ 1565	1260 ~ 1620	-4.7~-4	0.5~-16	11.3	3
 SFP-XSM-LCI-80K	Single-mode	G.652	80 km	Single LC	-23			1550	1530 ~ 1565	1260 ~ 1620	0~4	-7~-23	23	3

Copper SFP Modules

Part Number	Optical Mode	Fiber Cable Type	Typical Distance	Optical Connector	Sensitivity (dB)	Operating Temperature	DDM	Typical (nm)	TX Range (nm)	RX Range (nm)	TX Range (dBm)	RX Range (dBm)	Link Budget (dBm)	Dispersion Penalty (dB)
 SFP-10GTX	-	-	100 m	RJ-45	-	0 ~ 70°C (32 ~ 158°F)	-	-	-	-	-	-	-	-

Media Converters with PoE



Description		 EKI-2741FPI	 EKI-2742FPI	 IMC-595MPI
Connectivity	10/100/1000Base-T PoE, Fixed	1	2	2
	Open SFP Slot (GbE)	1	1	2
	Auto MDI/MDI-X	✓	✓	✓
	Auto Negotiation	✓	✓	✓
	Store-and-Forward Switching	✓	✓	✓
	Link Fault Pass-Through (LFP)	✓	-	✓
	MTBF	743,594 hours	717,339 hours	244,570 hours
Traffic Control	Jumbo Frame Size	10 KB	10 KB	9216 KB
	IEEE 802.3x Flow Control	✓	✓	✓
Physical	Dimension (W x H x D)	36.7 x 108.4 x 103.5 mm	36.7 x 108.4 x 103.5 mm	92.5 x 98 x 21 mm
	Mounting Type	DIN-rail/Wall mount	DIN-rail/Wall mount	DIN-rail
	IP Rating	IP31	IP31	IP30
Power	Power Input Voltage	24~48 V _{DC}	24~48 V _{DC}	55~57 V _{DC}
	Power Consumption	34W	63.5W	182W
	Reverse Protection	✓	✓	-
Certification	UL508	✓	✓	-
	UL-CID2	✓	✓	-
	FCC	✓	✓	✓
	CE	✓	✓	✓

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

Industrial Media Converters

Long Reach Solutions



Model Name	IMC-150LI	IMC-150LPI
Standard	IEEE802.3 IEEE802.3u IEEE802.3x	IEEE802.3 IEEE802.3u IEEE802.3x IEEE802.3at/af
RJ-45 Port Interface	2	2
RJ-45 Transmission Distance	–	–
RJ-45 w/ PoE Quantity	1	1
MAC Table Size	–	–
Packet Buffer Size	–	–
Switch Fabric Speed	up to 100Mbps	up to 100Mbps
Jumbo Frame	–	–
Dimension (W x H x D)	92.58 x 21.08 x 98.04 mm (3.65 x 0.83 x 3.86 in)	92.58 x 21.08 x 98.04 mm (3.65 x 0.83 x 3.86 in)
IP Grade	IP30	IP30
Enclosure	–	–
Weight	400 g	400 g
Mounting Type	Din-rail, Wall	Din-rail, Wall
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)	-40 ~ 85°C (-40 ~ 185°F)
Relative Humidity (Non-condensing)	–	–
Time	–	–
Method	–	–
Operating Voltage	–	–
Power Consumption	2.401W	33W
Connectors	3	2
Safety	LVD EN62368	LVD EN62368
EMC	✓	✓
EMI	✓	✓
EMS	✓	✓
Shock	✓	✓
Freefall	✓	✓
Vibration	✓	✓
Warranty Period	5	5

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Industrial Media Converters

PoE Injectors



Description		EKI-2701HPI	EKI-2701HP-AC	EKI-2701MPI-5G
Connectivity	10/100/1000Based-Tx, Fixed	1	-	-
	10/100/1000Base-T PoE, Fixed	1	1	1 (multi data rate 10M / 100M / 1G / 2.5G / 5G)
	Auto Negotiation	-	✓	✓
	Store-and-Forward Switching	-	✓	✓
	MTBF	1,419,817 hours	1,999,263 hours	-
Physical	Housing Dimension (W x H x D)	37 x 140 x 95 mm	65 x 36 x 140 mm	84 x 80 x 25 mm
	Mounting Type	DIN-rail/Wall mount	Desktop	DIN-rail/Wall mount
	IP Rating	IP30	N/A	IP30
Power	Power Input Voltage	24~48 V _{DC}	100~240 V _{DC}	54~57 V _{DC}
	Power Consumption	33.36W	<36W	Max 92W
	Reverse Protection	✓	-	✓
Certification	UL60950-1	-	UL62368	UL62368
	FCC	✓	✓	✓
	CE	✓	✓	✓

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

PoE Splitters



Description		EKI-2701PSI	EKI-2711PSI
Connectivity	10/100/1000Based-Tx, Fixed	1	1
	10/100/1000Base-T PoE, Fixed	1	1
	Auto Negotiation	-	-
	Store-and-Forward Switching	-	-
	MTBF	-	-
Physical	Housing Dimension (W x H x D)	37 x 140 x 95 mm	30 x 140 x 95 mm
	Mounting Type	DIN-rail/Wall mount	DIN-rail/Wall mount
	IP Rating	IP30	IP30
Power	Power Input Voltage	44~57 V _{DC}	48 V _{DC}
	Power Consumption	12.95 W @24 V _{DC}	25W @24 V _{DC}
	Reverse Protection	Power isolation & short circuit protection	✓
Certification	UL60950-1	✓	-
	UL508	-	-
	FCC	✓	-
	CE	✓	✓

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





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Industrial Gateways

- ☞ 12-4 Intelligent Communication Gateways
- ☞ 12-7 Fieldbus & Modbus Gateways
- ☞ 12-8 Intelligent IoT I/O Gateways
- ☞ 12-9 Intelligent Remote Terminal Units



Industrial Gateways

Introduction

Advantech offers a diverse selection of industrial gateways and cutting-edge data monitoring software tailored to your data management needs in different settings. Our gateways, equipped with advanced protocol conversion capabilities, act as versatile bridges connecting various networks. They effortlessly link legacy devices to the cloud, making them an ideal solution for a myriad of industrial applications.

The gateways bundled with EdgeLink software, Node-RED, and Python edge data acquisition solutions are designed to enable smooth data flow across diverse protocols and simplify remote monitoring. These solutions play a pivotal role in infrastructure facility monitoring and management of renewable energy systems, offering enhanced efficiency and reliability.

Edge-to-Cloud Connectivity

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

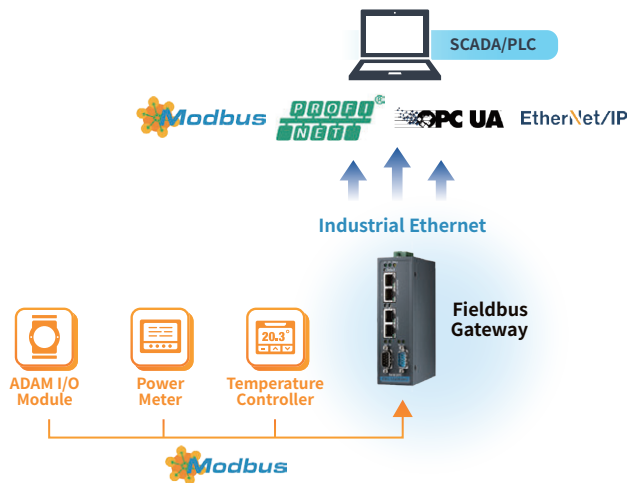


Industrial Gateways

ECU-1000 Series

Intelligent Communication Gateways

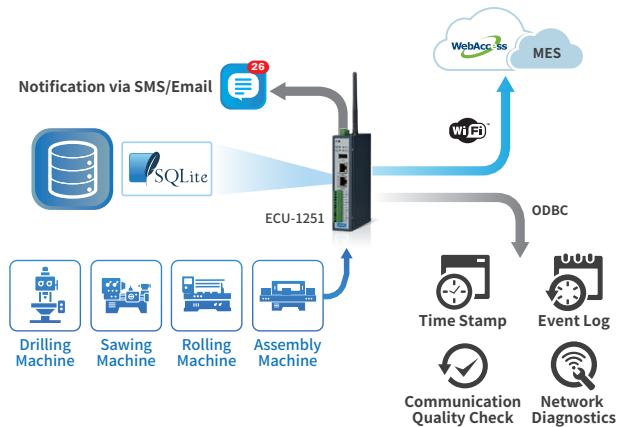
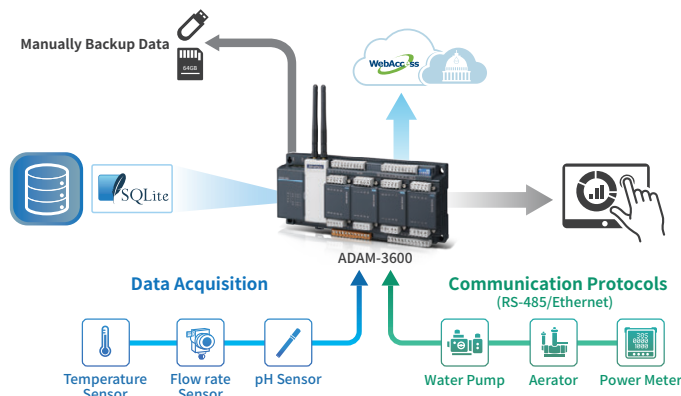
The ECU-1000 series is a RISC-based gateway with robust platform design, wireless and Ethernet communication, multiple protocol support, and EdgeLink integration. It is especially designed for energy management and equipment monitoring applications related to building, smart manufacturing, and smart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



ADAM-6700

I/O Device Gateways

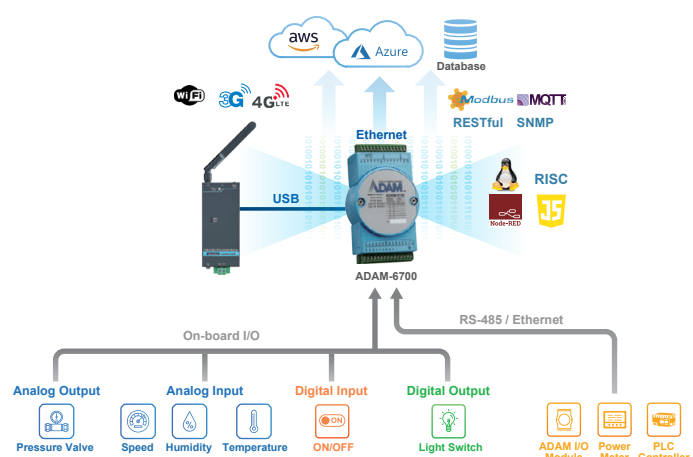
The ADAM-6700 is an all-in-one intelligent IoT I/O gateway that provides an integrated solution in the form of a Linux-based gateway capable of performing multiple tasks at the edge. The ADAM-6700 is equipped with a wide range of I/O for comprehensive data acquisition functionalities.



EKI-1200 Series

Fieldbus and Modbus Gateways

EKI-1200 Fieldbus/ Modbus gateways are serial-to-Ethernet solutions that convert between various protocols. They provide a simple and cost-effective way to bring remote management and data accessibility to thousands of devices that cannot otherwise connect to a network.



ADAM-3600

Intelligent Remote Terminal Units (RTUs)

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

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Intelligent Communication Gateways



Protocol Conversion and Edge to Cloud Solution

- EdgeLink bundle with protocol support for data from field devices.
- No coding support for Azure AWS/ Cumulocity Sparkplug MQTT.
- OPCUA/ODBC/JDBC IT software and SQL database for data support.



Open Platform and Versatile I/Os

- Linux environment offers open and standard platform.
- Develop your own applications with C, Python, or 3rd party libraries.
- Multiple communication interfaces.
- Provides Ethernet & serial ports, versatile of I/O such as digital inputs, relay outputs, and CANbus.



Industrial Grade Design and High Reliability

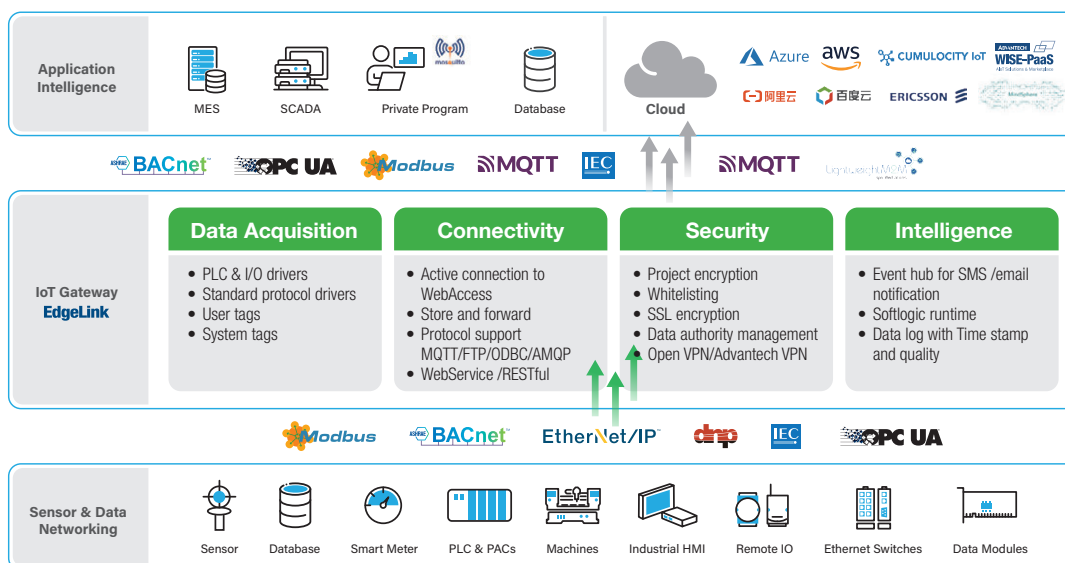
- Designed with industrial grade IC with long MTBF.
- IEC standard fulfills all mission critical applications.
- Wide operating temperature range (40 ~ 70°C).
- Battery powered RTC, independent WDT, and TPM support.



Azure and AWS Certified Device

- Built in EdgeLink allows users to set up cloud solutions and manage the entire lifecycle of equipment, monitor factory energy consumption, and analyze renewable energy efficiency through AWS or Azure services.

EdgeLink IoT Gateway Software Architecture



Intelligent Communication Gateways



Model		ECU-1152	ECU-1051	ECU-1251	ECU-1251D	ECU-1251 V2
System	CPU	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 800MHz	Arm® Cortex™ A8 600MHz	Arm® Cortex™ A8 600MHz
Memory		512MB DDR3L	256MB DDR3L	256MB DDR3L	256MB DDR3L	2GB DDR3L
System Storage		4GB micro SD card	512MB NAND flash	4GB micro SD card	512G NAND flash	16GB eMMC
Serial	Number of Ports	6	2	4	2	4
Port	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-232/485
CAN Port	Number of Ports	–	–	–	–	–
AI/O	Number of Ports	–	–	–	–	–
DI/O	Number of Ports	–	–	–	4DI/4DO	–
Network Port	Number of Channels	2	2	2	2	2
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
USB		1	1 (ECU-1051TL-R10AB)	1	–	1
TPM2.0		–	–	–	–	TPM2.0
Wireless Expansion	SIM Card Slots	1	2	1	2	1
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe
Storage Expansion		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
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104, DNP3, IEC-61850				
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more				
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more				
	VPN Client	OpenVPN				
	Data Logger	Realtime data logger				
Operating System		RT-Linux	RT-Linux	RT-Linux	RT-Linux	RT-Linux
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)
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Dimension (W x H x D)		190 x 110 x 36.4 mm	30 x 93 x 93.4 mm	30 x 140 x 95 mm	30 x 140 x 95 mm	30 x 140 x 95 mm
Power Requirement		10-30Vdc				
Power Consumption		2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc	2.4W @24Vdc

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

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Serial/USB Communications

Intelligent Communication Gateways



Model		 ECU-1252	 ECU-1260	 ECU-1170	 ECU-150	 ECU-1370
System	CPU	Arm® Cortex™ A9 600MHz	Arm® Cortex™ A35 Quad-core, 1G	Arm® Cortex™ A55 Quad-core, 1.8G	Arm® Cortex™ A53 i.MX8M Quad-Core, 1.3G	Arm® Cortex™ A53 i.MX8M Quad-Core, 1.3G
Memory		2GB DDR3L	2GB DDR3L	4GB LPDDR4	2GB/4GB LPDDR4	4GB LPDDR4
System Storage		16G eMMC	16GB eMMC	32GB eMMC	16GB/32GB eMMC	32GB eMMC
Serial	Number of Ports	2	3	8	2	1
Port	Type	RS-232/485	RS-232/485	RS-232/485	RS-232/485	RS-485
CAN Port	Number of Ports	2	1	2	–	1
AI/O	Number of Ports	–	–	2AI	–	–
DI/O	Number of Ports	–	–	20DI/6DO/8Relay	–	24DI/6Relay
Network Port	Number of Channels	2	2	4	2	3
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
USB		–	–	2	1	2
TPM2.0		–	–	–	TPM2.0	–
Wireless Expansion	SIM Card Slot	1	1	2	1	–
	Expansion Slots	1 x mini-PCIe	1 x mini-PCIe	1 x mini-PCIe 1 x M.2 B key	1 x mini-PCIe	–
Storage Expansion		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
LED Indicators		PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN
EdgeLink	Communication Protocols	OPC-UA Client & Server, BACNet/IP Client & Server, Modbus RTU/TCP, IEC-60870-5-101, IEC-60870-5-103, IEC-60870-5-104, DNP3, IEC-61850				–
	Cloud Communication	MQTT, EdgeHub, AWS, Azure, LwM2M, Google Cloud IoT Core and more				
	PLC Support	Siemens/ Allen-Bradley/ Schneider/ Mitsubishi/ Omron/ Honeywell/ Yokogawa/ Delta/ Panasonic and more				
	VPN Client	OpenVPN				
	Data Logger	Realtime data logger				
Operating System		RT-Linux	Yocto	Yocto	Yocto/Ubuntu	Ubuntu
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 ~ 80°C (-40 ~ 176°F)
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC/UL	CE/FCC/UL
Dimension (W x H x D)		30 x 140 x 95 mm	30 x 140 x 96.5 mm	183 x 108 x 44 mm	30 x 100 x 93 mm	65.7 x 140 x 93 mm
Power Requirement		10-30V _{DC}				
Power Consumption		2.4W @24V _{DC}	2.4W @24V _{DC}	6.8W @24V _{DC}	8W @24V _{DC}	6.8W @24V _{DC}

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

Fieldbus & Modbus Gateways

Fieldbus Gateways



Model	EKI-1242IEIMS	
Description	Industrial Fieldbus Gateway	
Connectivity	10/100Base-TX, Fixed	4
	RS-232/422/485	2
	Serial Connector Type	DB9 male
Enclosure & Mount Kit	Enclosure	IP30
	DIN-rail	✓
	Wall	✓
Power	Power Input (V _{DC})	12~48V
	Power Connector	Terminal block
	Power Consumption (12/24/48V _{DC}) Watts	5.2W
Environment	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
	Operating Humidity	10~95% RH
Software	Network Protocol	Modbus RTU/TCP EtherNet/IP PROFINET OPC UA
	Configuration Options	Web-based
	Authentication	Username/Password
	Standard Operation Mode	Modbus RTU/TCP Client Ethernet/IP Adapter PROFINET IO-Device OPC UA Server
Certification	UL 62328-1	✓
	CE	✓
	FCC	✓

Modbus Gateways



Model	EKI-1211	EKI-1221 I/C	EKI-1222 I/C	EKI-1224 I/C
Description	1-Port Modbus Gateway	1-Port Modbus Gateway	2-Port Modbus Gateway	4-Port Modbus Gateway
Connectivity	10/100Base-TX, Fixed	1	2	2
	RS-232/422/485	1	2	4 (CI version: RS-422/485)
	Serial Connector Type	DB9 Male	DB9 Male	DB9 Male
Enclosure & Mount Kit	Enclosure	IP30	IP30	IP30
	DIN-rail	✓	✓	✓
	Wall	✓	✓	✓
Power	Power Input (V _{DC})	9~36V	2* (12~48V)	2* (12~48V)
	Power Connector	Terminal block	Terminal block	Terminal block
	Power Consumption (12/24/48V _{DC}) Watts	1W	3.2W	4.1W
Environment	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C (14 ~ 140°F) 'CI & I' models: -40 ~ 80°C (-40 ~ 176°F)	-10 ~ 60°C (14 ~ 140°F) 'CI & I' models: -40 ~ 80°C (-40 ~ 176°F)
	Operating Humidity	10~95% RH	10~95% RH	10~95% RH
Software	Network Protocol	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
	Standard Operating Mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode
	Standard Operating Mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode	Modbus RTU Client / Server mode Modbus ASCII Client / Server mode
Certification	UL 62328-1	✓	✓	✓
	CE	✓	✓	✓
	FCC	✓	✓	✓
	Hazardous Location (Class I, Division 2)	—	✓	✓

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Serial/USB Communications

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), EdgeLink, Linux C		
Operating Temperature		-40 ~ 70°C (-40 ~ 158°F)		
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
Dimension (W x H x D)		70 x 122 x 38 mm		



Model		ADAM-6700E			
Description	USB to Mini-PCle adapter 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 USB Type-B		USB molding cable	96PD-YH3874	USB molding cable, 90 degrees
Mini-PCle Slot	Wi-Fi/3G/4G		Wi-Fi 2.4G	96PD-RYUW131	2.4GHz Wi-Fi full/half size Mini-PCle card
Power Input	10 ~ 30 V _{DC}		LTE-Cat4/3G	96PD-EC25EFA	Quectel 4G(Cat.4), mini-PCle, Europe, EMEA, South Korea, Thailand, India (Manufacturer P/N: EC25EFA-MINIPCE)
Operating Temperature	-20°C ~ 70°C			96PD-EC20CEFAG	Quectel 4G(Cat.4) R2.1, mini-PCle, China (Manufacturer P/N: EC20CEFAG-MINIPCE)

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

Intelligent Remote Terminal Units (RTUs)



Expansion Modules



Model		ADAM-3600
Description		Intelligent RTU
System	CPU	Arm® Cortex™ A8 AM3352
	Operating System	Linux RT 3.12
	Programming Interface	C (Linux), IEC-61131-3
	Communication Protocols	Modbus/RTU, Modbus/TCP, DNP3, IEC-60970-104, OPCUA
	Number of Ports	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	USB 2.0	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 (-40 ~ 158°F)
Certification		CE/FCC
Part Number		ADAM-3600-C2GL1A1E

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

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Intelligent Remote Terminal Units (RTUs)



Model		ADAM-5630	ADAM-5630E
CPU		Arm® Cortex™ A8 AM3352 600MHz	Arm® Cortex™ A8 AM3352 600MHz
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	
Isolation	Communication	2500 V _{DC} (COM1–COM3)	
	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	
	Speed	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%	
Dimension (W x H x D)		231 x 110 x 75 mm	355 x 110 x 75 mm

*Refer to Modular I/O Systems: ADAM-5000 for more I/O information (CH16-6)

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





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EtherCAT Solutions & Automation Controllers

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EtherCAT Solution & 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 I/O and EtherCAT 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 of equipment manufacturers. 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 I/O 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.

AMAX-5400 PCIe Expansion Module

- Supports 4 slots max and PCIe x4 for first slot
- Auto board ID configuration for software identification
- Full-bandwidth USB3.0 for vision application
- Multiple interfaces: USB3.0, PoE / GigE, RS-232/422/485, CAN, wireless
- AMAX-5400E with PCI-mini +SIM card slot for cellular networking

CANopen



AMAX-5000 EtherCAT Slice I/O Module

- Standard EtherCAT I/O Module
- 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

EtherCAT

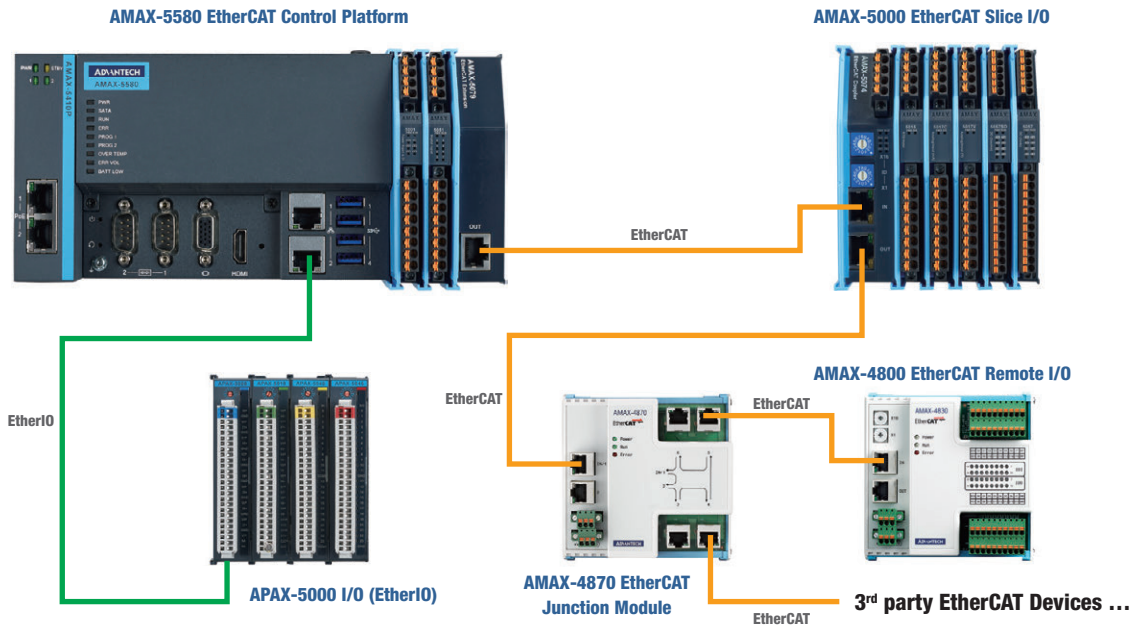


AMAX-5500 Control Platform

- Intel® Core™ (6th Gen) / Intel® Celeron® / Intel Atom® X series processors
- 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 Control Platform

- **AMAX-5580** Intel® Core™ (6th Gen) / Intel® Celeron® Control Platform (Selectable CODESYS ready solution)



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

AMAX-5000 Series:



EtherCAT Slice I/O

- **AMAX-5001** EtherCAT power module
- **AMAX-501X** EtherCAT AI module
- **AMAX-502X** EtherCAT AO module
- **AMAX-505X** EtherCAT DIO module
- **AMAX-5060** EtherCAT relay module
- **AMAX-508X** EtherCAT counter /encoder module
- **AMAX-5090** EtherCAT serial communication module



- **AMAX-5074** EtherCAT coupler module
- **AMAX-5070** Modbus TCP coupler module
- **AMAX-5072** EtherNet/IP 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 Module

AMAX-4800 Series:



EtherCAT Remote 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** EtherCAT DIO module
- **AMAX-485X**

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 I/O 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)

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Control Platforms

NEW



Model		AMAX-5570	AMAX-5580
Description		Intel Atom® X Series Cabinet Control Platform with EtherCAT Slice I/O Expansion	Intel® Core™ (6th Gen) / Intel® Celeron® Modular Control Platform with EtherCAT Slice I/O Expansion
Hardware	BIOS	AMI EFI 128Mbit Flash BIOS	
	Watchdog Timer	Programmable 255 levels timer interval, from 1 to 255 sec	
	CPU	Intel Atom® x6413E processor	Intel® Core™ (6th Gen) processors Intel® Celeron® processor
	Memory	DDR4 2666 MHz, 4 GB	DDR4 2666 MHz, 4 GB for Intel® Celeron® processor / 8 GB for Intel® Core™ processors (two socket support up to 16 G)
	Graphics Engine	Intel® 10th Gen UHD Graphics	Intel® 9th Gen LP GT2
	Ethernet	Realtek 8119i GbE	Intel® i210-IT GbE
	LED Indicators	LEDs for Power, Run (Programmable), LAN (LINK, ACT)	LEDs for Power, Storage, Run (Program) and Abnormal status, LAN (LINK, ACT)
	Storage	64 GB eMMC on board	1 x M.2 2280 M-Key slot for SATA storage
	Expansion	1 x Full-size mPCIe (PCIe / USB 2.0 / SATA signal) 1 x M.2 2242 B-Key (USB 3.0 / SATA signal)	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
I/O Interface	Serial Ports	1 x RS-232/422/485 (terminal), 50~115.2kbps 1 x 485 (terminal), 50~115.2kbps, 2 x CAN Bus (terminal)	2 x RS-232/422/485 (DB9), 50~115.2kbps
	LAN Ports	2 x RJ-45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ-45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T
	USB Ports	2 x USB ports (USB 3.2 compliant)	4 x USB ports (USB 3.0 compliant), 1 x internal USB
	Display	1 x HDMI, supports up to 1920 x 1080 @ 60 Hz	1 x VGA, supports up to 1920 x 1200 @ 60 Hz 1 x HDMI, supports up to 4096 x 2160 @ 24Hz
	Isolation	CAN & Serial Port isolation (2500 V _{DC})	—
	Grounding Protection	Chassis grounding	
	Power Connector	1 x 2-pin	1 x 7-pin, dual power input with alarm output
General	Power Requirement	24 V _{DC} ± 20%	
	Power Consumption	9 W (Typical), 48 W (local I/O), 85 W (Slice I/O local supply)	15 W (Typical), 42 W (local I/O), 122 W (Max. with PoE expansion)
	OS Support	Supports Microsoft® Windows 10 64-bit	Supports Microsoft® Windows 10 64-bit, WES 7 32/64-bit
	Enclosure	Aluminum housing	Aluminum alloy and zinc alloy housing
	Mounting	DIN-rail	
	Weight (Net)	Approx. 0.6 kg	Approx. 1.3 kg
	Dimension (W x H x D)	48.5 x 100 x 70 mm	139 x 100 x 80 mm
	Certification	CE, FCC, UL 61010-2-201, BSMI	CE, FCC, UL, BSMI
Environment	Operating Temperature	-20 ~ 60°C (-4 ~ 140°F) @ 5~85% RH with 0.7 m/s airflow	-10 ~ 60°C (14 ~ 140°F) @ 5~85% RH with 0.7m/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, 50G, half sine, 11 ms	Operating, IEC 60068-2-27, 10G, half sine, 11 ms
	Vibration Protection	Operating, IEC 60068-2-64, 2 Grms, random, 5~500 Hz, 1hr/axis (eMMC)	Operating, IEC 60068-2-64, 1 Grms, random, 5~500 Hz, 1hr/axis (M.2)

✓: supported, —: not supported, △: optional

CODESYS Ready Edge Controller Overview

Integrated PC-based SoftPLC & SoftMotion Control Solutions

Based on Flexible Expansion I/O Modules offer Focus Solution Package



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 (M2) 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 μ s 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

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.

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.

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.

CODESYS Ready Edge Controllers

AMAX-600 Series Real-Time SoftLogic Controllers

NEW



Model		AMAX-637	AMAX-657	AMAX-658
Description		Intel Atom® X Series E3940® Cabinet Controller with 1 x iDoor Expansion	Intel Atom® X Series x6413E® Cabinet Controller with Slice I/O Expansion	Intel® Core™ (6th Gen) / Intel® Celeron® Modular 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, PROFINET, EtherNet/IP Scanner (IEC/CIFX) Modbus/TCP Server and Client		
	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	32-axis with 1ms cycle time	64-axis with 1ms cycle time	Intel® Core™ i7: 256-axis with 1ms cycle time Intel® Core™ i5: 128-axis with 1ms cycle time Intel® Celeron®: 64-axis with 1ms cycle time
Hardware	BIOS	AMI EFI 128Mbit Flash BIOS		
	CPU	Intel Atom® x5-E3940 processor	Intel Atom® x6413E processor	Intel® Core™ (6th Gen) processors Intel® Celeron® processor
	Memory	8 GB	4 GB	DDR4 2666 MHz, 4 GB for Intel® Celeron® processor / 8 GB for Intel® Core™ processors
	Ethernet	Intel® i210-IT GbE, 802.1Qav, IEEE1588/802.1AS, 802.3az		
	LED Indicators	LEDs for Power, RTC Battery, LAN, RUN (CODESYS program run)	LEDs for Power, LAN, RUN (CODESYS program run)	LEDs for Power, Storage, LAN, RUN (CODESYS program run), and Abnormal status
	Storage	128 GB SSD	64 GB eMMC	128 GB SSD
	Expansion	1 x Full-size mPCIe (PCIe / USB 2.0 signal) 1 x 2.5" SSD/HDD slot	1 x M.2 B-Key (USB 3.0 / SATA signal)	AMAX-5400 PCIe modules, optional for left side (max.4) AMAX-5000 Slice I/O modules, optional for right side
I/O Interface	Local Digital I/O	8 Digital Input (Wet/Dry), 8 Digital Output (Sink)	–	–
	Serial Ports	2 x RS-232/422/485 (terminal)	1 x RS-232/422/485 (terminal), 1 x 485 & 2 x CAN Bus (terminal)	2 x RS-232/422/485 (DB9)
	LAN Ports	2 x RJ-45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ-45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T	2 x RJ-45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T
	USB Ports	3 x USB 3.2 ports 1 x USB 2.0 ports	2 x USB 3.2 ports	4 x USB 3.0 ports 1 x internal USB
	Display	2 x DP 1.2, supports up to 4096 x 2306 @60 Hz	1 x HDMI, supports up to 1920 x 1080 @60 Hz	1 x VGA, supports up to 1920 x 1200 @60 Hz 1 x HDMI, supports up to 4096 x 2160 @24 Hz
	Isolation	DI & DO & Serial Ports (2500 V _{DC})	CAN & Serial Port isolation (2500 V _{DC})	–
	Grounding Protection	Chassis grounding		
General	Power Connector	1 x 2-pin	1 x 2-pin	1 x 7-pin, dual power input with alarm output
	Power Requirement	10~36 V _{DC}	24 V _{DC} ± 20%	24 V _{DC} ± 20%
	Power Consumption	21 W (Typical), 47 W (Max)	9 W (Typical), 48 W (local I/O), 85 W (Slice I/O local supply)	15 W (Typical), 42W (local I/O), 122 W (Max. with PoE expansion)
	OS Support	Microsoft® Windows 10 IoT Enterprise LTSC 64 bits		
	Enclosure	Aluminum alloy housing	Aluminum alloy housing	Aluminum and zinc alloy housing
	Mounting	DIN-rail		
	Weight (Net)	Approx. 1.1 kg	Approx. 0.6 kg	Approx. 1.3 kg
Environment	Dimension (W x H x D)	75 x 150 x 105 mm	48.5 x 100 x 70 mm	139 x 100 x 80 mm
	Certification	CE, FCC, UL61010, CCC, BSMI	CE, FCC, UL61010-2-201, BSMI	CE, FCC, UL62368, BSMI
	Operating Temperature	-40 ~ 60°C (-40 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-10 ~ 60°C (14 ~ 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, 50G, half sine, 11 ms	Operating, IEC 60068-2-27, 50G, half sine, 11 ms	Operating, IEC 60068-2-27, 10G, half sine, 11 ms
	Vibration Protection	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)	Operating, IEC 60068-2-64, 1 Grms, random, 5~500 Hz, 1hr/axis (M.2)

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

PCIe Expansion Modules

PCIe Modules



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
Communications	PCI mini card Interface: Full size mini PCIe 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, 15.4 W per port, total Max. 20 W
LED Indicator	PWR, Standby		
Enclosure	Aluminum housing		
Interface	PCIe x1		
Power Consumption	0.5 W @ 24 V _{DC}	2.5 W @ 24 V _{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		



Model	AMAX-5490	AMAX-5495	AMAX-5493M
Description	2-port Isolated RS-232/422/485 communication module	2-port CAN module	1-port PROFIBUS DP Master Module
Communications	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, STBY, TX1, RX1, TX2, RX2		PWR, STBY
Enclosure	Aluminum housing		
Interface	PCIe x1		
Power Consumption	2 W @ 24 V _{DC}	3 W @ 24 V _{DC}	3 W @ 24 V _{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		

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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		Rated Voltage 10~30 V _{DC}		Rated Voltage 10~30 V _{DC}	
		Wet Contact Rated voltage: 24 V _{DC} Logic level 1: 10~30 V _{DC} and -10~-30 V _{DC} Logic level 0: -3~-3 V _{DC}		Rated Current Output Logic level 1: 0.3 A per channel Logic level 0: 25 μA per channel (leakage current)		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: 4 ms From logic level 1 to 0: 4 ms		From logic level 0 to 1: 10 us From logic level 1 to 0: 100 us		From logic level 0 to 1: 150 us From logic level 1 to 0: 2 ms
	Digital Filter	3ms		–		–	
LED Indicator		Pwr, Run, Error, DIO status					
Interface		100 Mbps EtherCAT					
Power Consumption		2 W @ 24 V _{DC}			2.5 W @ 24 V _{DC}	2 W @ 24 V _{DC}	2.5 W @ 24 V _{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 with 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)	
	Input / Output Delay	< 0.5 µs	< 10 µs
	Resolution Timestamp	1 ns	1 ns
	DI Latch / DO Sync	First Edge & Last Edge DI Latch	DO Sync.
LED Indicator		Pwr, Run, Error, DI status	
Interface		100 Mbps EtherCAT	
Power Consumption		2 W @ 24 V _{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

NEW



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		100 Mbps EtherCAT
Power Consumption		2 W @ 24 V _{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

EtherCAT Slice I/O Modules

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, 0~20 mA	0~5 V, 0~10 V, ±5 V, ±10 V, 4~20 mA, 0~20 mA
	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. 1 KΩ
LED Indicator		Pwr, Run, Error			
Interface		100 Mbps EtherCAT			
Power Consumption		2 W @ 24 V _{DC}		2.5 W @ 24 V _{DC}	3.5 W @ 24 V _{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 Modules



Model		AMAX-5015	AMAX-5018
Description		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	—	>2 MΩ
	Voltage Range	—	±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V
	Temperature Range	Pt 100 RTD: Pt -50 ~ 150°C Pt 0 ~ 100°C Pt 0 ~ 200°C Pt 0 ~ 400°C Pt -200 ~ 200°C IEC RTD 100 ohms (a = 0.00385) JIS RTD 100 ohms (a = 0.00392) Pt 1000 RTD -40 ~ 160°C Balco 500 RTD -30 ~ 120°C Ni 518 RTD -80 ~ 100°C 0 ~ 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	✓	—
	LED Indicator	Pwr, Run, Error	
	Interface	100 Mbps EtherCAT	
Power Consumption		2 W @ 24 V _{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	

PWM and Serial Communication Modules

NEW



NEW



Model		AMAX-5086	AMAX-5090
Description		2-ch PWM with 2-ch Digital Input EtherCAT Slice I/O Module	1-port Isolated RS-232/422/485 Communication EtherCAT Slice I/O Module
Input/Output Channels		2-ch PWM Output, 2-ch DI Input	1-ch Serial Port
Function		PWM Maximum Output Current 0.5 A Duty Cycle 0~100% Load Type Ohmic, Inductive, Lamp Load Resolution: Up to 300 Hz: 15-bit Up to 600 Hz: 14-bit Up to 1.2 kHz: 13-bit Up to 2.4 kHz: 12-bit Up to 4.8 kHz: 11-bit Up to 9.6 kHz: 10-bit Up to 19.2 kHz: 9-bit	Interfaces RS-232/422/485, Modbus RTU Data Transfer Channels Tx/D, Rx/D Full/Half Duplex Data Buffer 1,000 bytes receive/transmit buffer Termination Resistor Typ. 120 Ω, default turn off
Signal Input		—	RS-232/422/485, Modbus RTU
Input/Output Frequency		Output 1~125 KHz	1,200~115,200 bps
LED Indicator		PWR, RUN/ERROR PWM1, PWM2, DI1, DI2	PWR, RUN/ERROR Tx/D, Rx/D
Interface		100 Mbps EtherCAT	
Power Consumption		3W @ 24V _{DC}	2W @ 24V _{DC}
Isolation Voltage		2,000 V _{DC}	
Operating Temperature		-25 ~ 55°C (-14 ~ 131°F)	-25 ~ 60°C (-14 ~ 140°F)
Storage Temperature		-40 ~ 85°C (-40 ~ 185°F)	
Relative Humidity		95% RH @ 40°C, non-condensing	
Certification		CE, FCC class A, cTUVus	

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Serial/USB Communications

EtherCAT Slice I/O Modules

Encoder / Counter Modules

NEW



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 / Counter Input	Channels	2-ch.	1-ch.
	Counting Range	32-bit	32-bit
	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
	Signal Input	Logic level 0: 0~5V _{DC} Logic level 1: 11~30V	Single-ended 5V RS-422 differential
	Sample Rate	1 MHz * 4	10 MHz * 4
LED Indicator	Pwr, Run, Error, A+, A-, B+, B-, Z+, Z-, L+, L-		PWR, R/E, CLK, Data, DO0, DO1, L
Interface	100 Mbps EtherCAT		
Power Consumption	2 W @ 24 V _{DC}		3 W @ 24 V _{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-5070	AMAX-5072	AMAX-5079
Description	2-ch Power Input with 4-ch Digital Input EtherCAT Slice I/O Module	EtherCAT Coupler with ID Switch Slice I/O Module	Modbus TCP Coupler with ID Switch Slice I/O Module	EtherNet/IP Coupler with ID Switch Slice I/O Module	EtherCAT Extension Slice I/O Module
Power Requirement	24 V _{DC} ± 20%	24 V _{DC} ± 20%	24 V _{DC} ± 20%	24 V _{DC} ± 20%	–
Dual Power Input	Supported	Supported	Supported	Supported	–
Max Current on Bus	2A (provides power for approx. 10pcs AI/O modules or 20pcs DI/O modules)				–
Diagnosis Function	Over/Under voltage for input 1&2 Over current output on bus				–
Input Channels	4-ch. (Digital Input)	–	–	–	–
Rating	Wet Contact Rated voltage: 24 V _{DC} Logic level 1: 10~30 V _{DC} and Logic level 1: -30~-10 V _{DC} Logic level 0: -3~3 V _{DC}	–	–	–	–
Input/Output Delay	From logic level 0 to 1: 4 ms From logic level 1 to 0: 4 ms	–	–	–	–
Digital Filter	3 ms	–	–	–	–
Function	–	Coupling EtherCAT I/O modules to 100 BASETX EtherCAT network	Coupling EtherCAT I/O modules to Modbus TCP network	Coupling EtherCAT I/O modules to EtherNet/IP network	–
Cable	–	Ethernet/EtherCAT cable (min. Cat. 5), shielded			
Distance Between Stations	–	Max. 100 m (100BASETX)			
Bus Interface	–	2 x RJ-45 (1 x Input, 1 x Output)	2 x RJ-45 (1 x Input, 1 x Output)	2 x RJ-45 (1 x Input, 1 x Output)	1 x RJ-45
LED Indicator	PWR, RUN / ERROR, Power Diagnosis LED				–
Interface	100 Mbps EtherCAT		Modbus TCP	EtherNet/IP	100 Mbps EtherCAT
Power Consumption	2 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}	3 W @ 24 V _{DC}	3 W @ 24 V _{DC}	No power from bus
Isolation Voltage	2,000 V _{DC}	LAN Port 1,500 V _{DC}			
Operating/Storage Temp.	-25 ~ 60°C (-14 ~ 140°F)/-40 ~ 85°C (-40 ~ 185°F)				
Relative Humidity	95% RH @ 40°C, non-condensing				
Certification	CE, FCC class A, cTUVus				

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

EtherCAT Remote I/O Modules

Digital I/O



Model		AMAX-4830	AMAX-4830SO	AMAX-4833	AMAX-4834	AMAX-4856
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: 3 V _{DC} max. Logic 1: 10~30 V _{DC}		Input Voltage: Logic 0: 3 V _{DC} max. Logic 1: 10~30 V _{DC}	–	Input Voltage: Logic 0: 3 V _{DC} max. Logic 1: 10~30 V _{DC}
	Digital Output	Load voltage: 5~40 V _{DC} Load current: 350 mA/ch (sink) @ 25°C 250 mA/ch (sink) @ 60°C Opto-isolator Response Time: 100 us	Load voltage: 5~40 V _{DC} Load current: 250 mA/ch (sink) @ 25°C 200 mA/ch (sink) @ 60°C Opto-isolator Response Time: 100 us	–	Load voltage: 5~40 V _{DC} Load current: 350 mA/ch (sink) @ 25°C 250 mA/ch (sink) @ 60°C Opto-isolator Response Time: 100 us	Load voltage: 5~40 V _{DC} Load current: 350 mA/ch (sink) @ 25°C 250 mA/ch (sink) @ 60°C Opto-isolator Response Time: 100 us
LED Indicator		Pwr, Run, Error				
Interface		100 Mbps EtherCAT				
Power Consumption		Typical 85 mA @ 24 V Max. 110 mA @ 24 V				Typical 85 mA @ 24 V Max. 130 mA @ 24 V
Isolation Voltage		2,500 V _{DC} (I/O)				
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	AMAX-4820
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	120 Ω	–
	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		100 Mbps EtherCAT	
Power Consumption		Typical 160 mA @ 24 V; Max. 190 mA @ 24 V	
Isolation Voltage		2,500 V _{DC} (I/O)	
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 Remote I/O Modules

Digital Input + Relay Output



Model		AMAX-4862
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: 3 V _{DC} max. Logic 1: 10~30 V _{DC}
	Relay Output	Relay type: Form A Contact Rating (resistive): 2 A @ 250 V _{AC} , 2 A @ 30 V _{DC} Max. Switching Power: 500 VA, 60 W Max. Switching Voltage: 270 V _{AC} , 125 V _{DC} Resistance: 30 mΩ max. Operating Time: Max. 10 ms Releasing Time: Max. 5 ms Life Expectancy: Mechanical 2 x 10 ⁷ ops. at no load. Electrical 3 x 10 ⁴ ops. @ 2 A/250 V _{AC}
LED Indicator		Pwr, Run, Error
Interface		100Mbps EtherCAT
Power Consumption		Typical 85 mA @ 24 V Max. 130 mA @ 24 V
Isolation Voltage		1,500 V _{DC} (PhotoMOS Relay) / 2,500 V _{DC} (I/O)
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

Junction



Model		AMAX-4870
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		100 Mbps 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

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





14

Intelligent Motion Control Solutions

- ☞ 14-4 MotionNavi Designer Software
- ☞ 14-6 Motion Controllers & Motion Control Cards
- ☞ 14-8 Terminal Boards & Cables



Motion Control Overview

Motion Control Solutions

The Advantech intelligent motion control product division provides solutions to OEM machine makers and system integrators. The core technologies are based on state-of-the-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

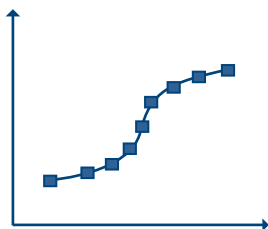
There are three basic types of motion control systems: point-to-point, contouring, and synchronization.

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.

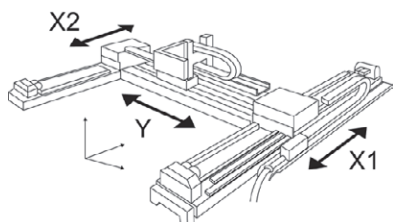
Contouring (Continuous Trajectory)

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 MDevice/SubDevice principle. Where the MDevice can freely move with any motion profile under control of any speed curve and one or several SubDevices exactly follow the MDevice 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 MDevice drive. It is possible to preset every speed or gear ratio by means of adjustable impulse scaling factors.

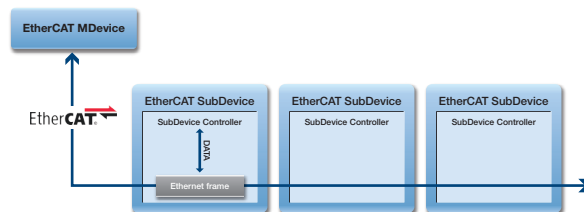


EtherCAT

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 MDevice sends Ethernet frames through all of the SubDevice nodes. The Standard Ethernet packet or frame is no longer received, interpreted, and copied as process data at every node. Instead, SubDevices 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.



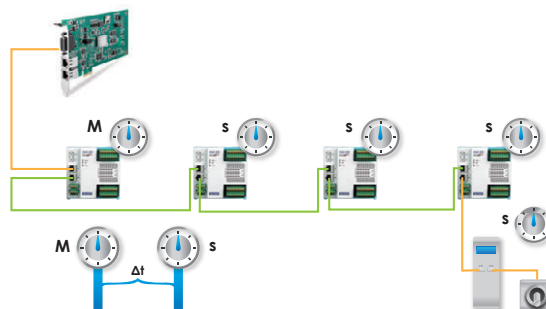
Data exchanges are cyclically updated between EtherCAT MDevices and SubDevices.

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 SubDevices 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 SubDevices are provided with an internal clock (system time/local time). One EtherCAT SubDevice is used as a reference clock, distributes its clock cyclically and synchronize between SubDevices in DC mode by internal clocks in hardware. Therefore, EtherCAT can guarantee the time jitter is less than 1us.



Arm-Based Motion Controllers

The AMAX-354/324 which is a Arm-based motion controller supports Advantech MotionNavi Designer software environment. AMAX-354/324 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, the AMAX-354/324 controller has a powerful built-in SoftMotion kernel dedicated to motion control and allows customers to focus on their own machine development.

Open platform multi-axis controller

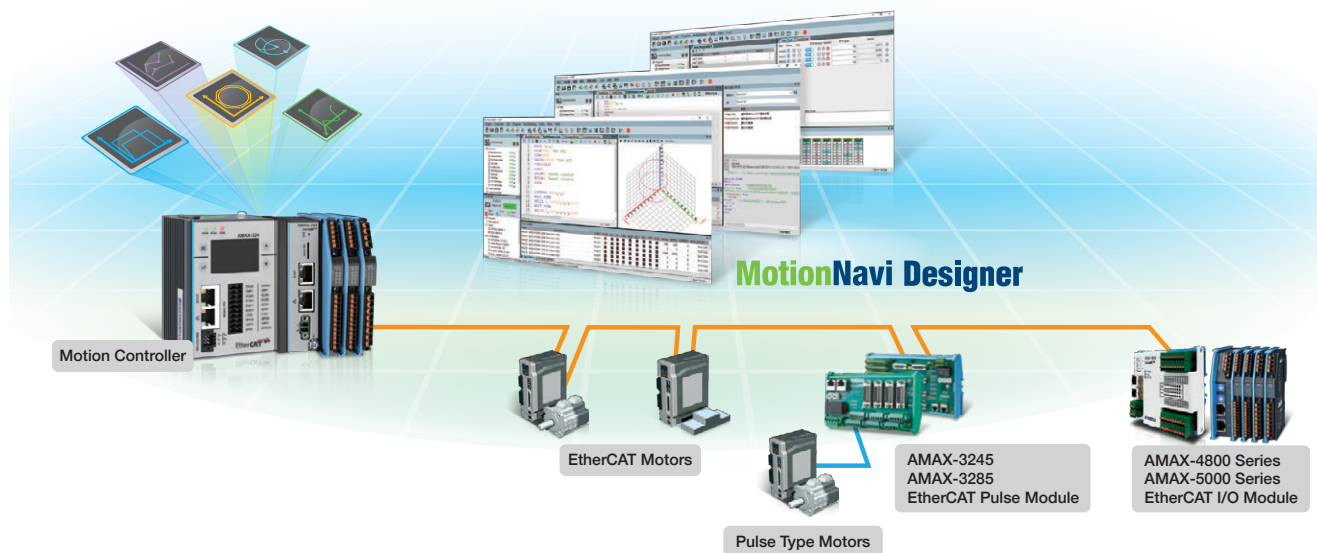
- Seamlessly integrated motion control, machine vision, I/O
- Open standard interface for communication

One programming tool - MotionNavi

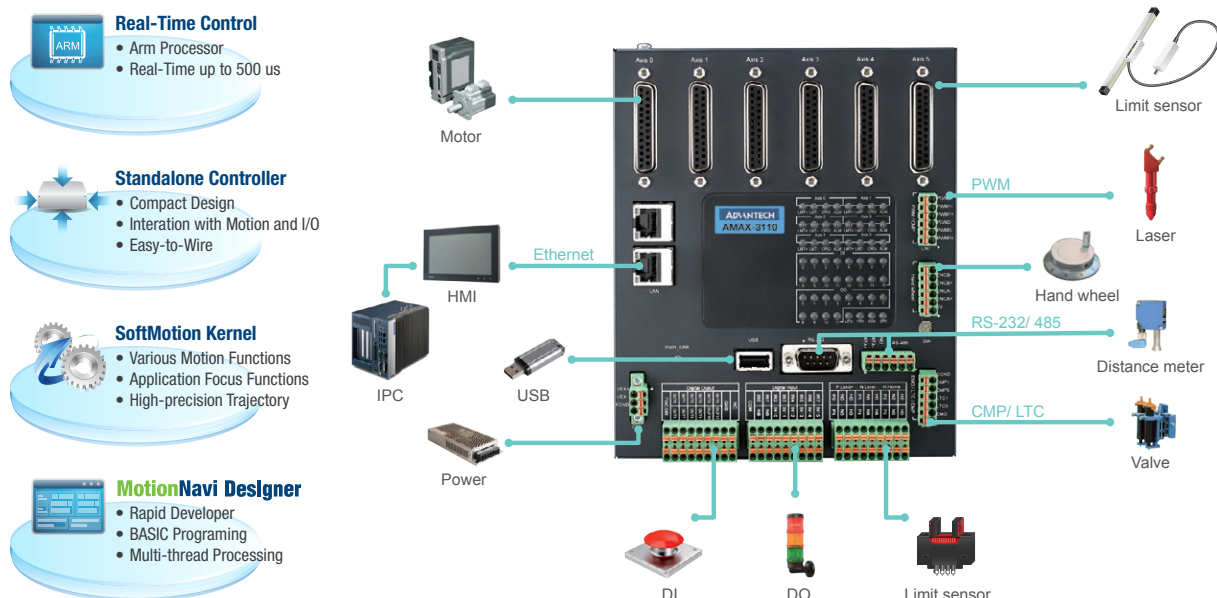
- Easy to program with BASIC language to shorten learning curve
- Extensive debugging tools for machine control applications
- Faster to learn, program, and service

Real-time SoftMotion kernel

- Max. 32 axes interpolation, trajectory planning and tracking
- Varied motion functionalities for XYZ tables, path table control

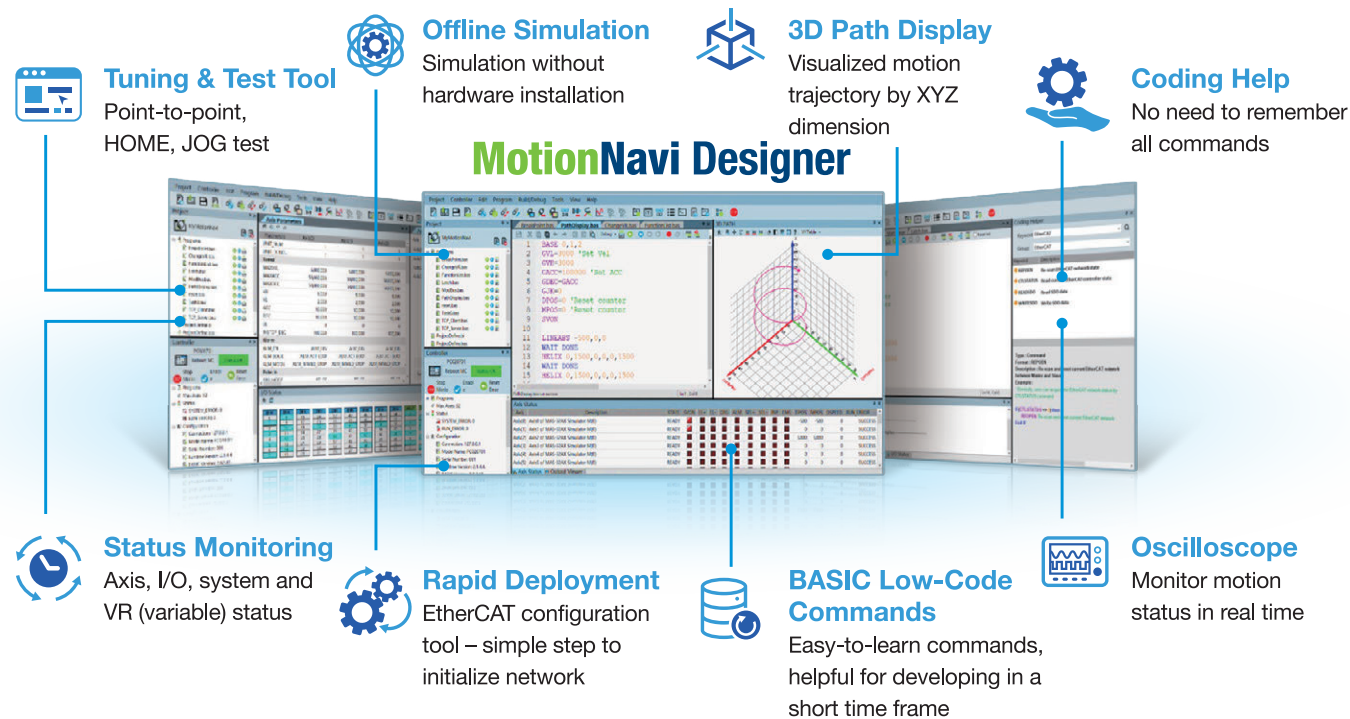


The AMAX-3110 is a 6-axis pulse train standalone motion controller with compact design to save panel space. It is based on the Arm processor, ideal for real time motion and I/O control, and a built-in SoftMotion kernel to provide 2-6 linear interpolation, 3D circular interpolation, and various application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



MotionNavi Designer

Motion Control Software



Easy Development, Effortless Control Configuration

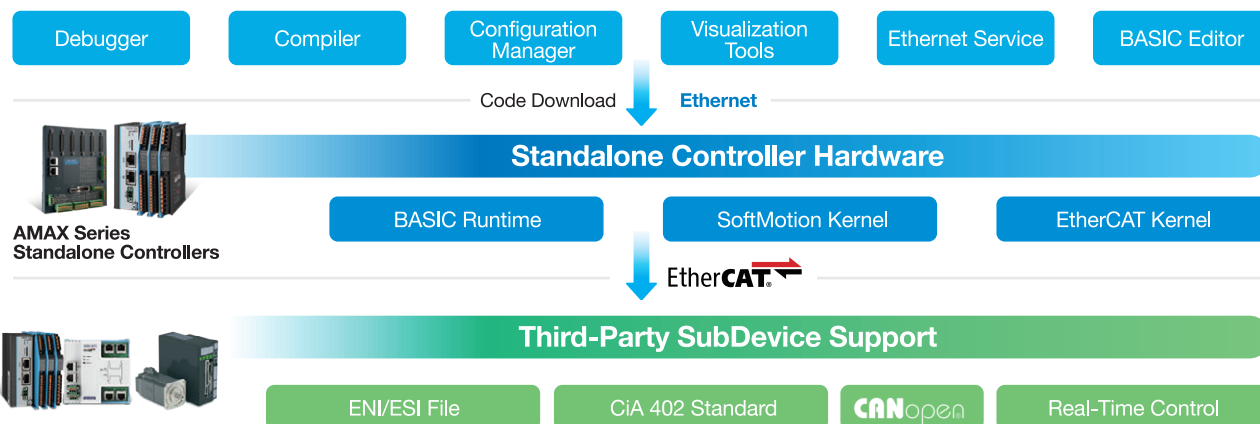
MotionNavi Designer is a low-code integrated development environment (IDE) with a visual interface for Advantech's standalone motion controllers. It's compatible with Windows OS and enables tasks like EtherCAT SubDevice configuration, network communication diagnostics, motion control testing and debugging, and trajectory analysis. It streamlines application-specific code development. After coding and debugging, the compiled code can be downloaded and executed on standalone motion controllers.

Quick Start, Flexible, and Feature-Rich Applications

MotionNavi Designer simplifies low-code development with a BASIC-like syntax, ideal for developers with basic PC experience. It supports multi-tasking with up to 20 processes on AMAX-354. Users can share data via the main program, subprograms, and variables for flexible control. The software includes tools for analyzing EtherCAT network quality, motion control, parameter tuning, and VR variables.

MotionNavi Designer

Software Development Environment



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-1285	PCIE-1245	PCI-1203 (6/10/16/32axis)	PCIE-1203IO-00AE (0axis)	PCIE-1203L-64AE (10/16/32/64axis)	PCIE-1203-64AE (10/16/32/64axis)
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 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-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)/ 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
		Add Arc Trajectory (2/3-axis)	–	–	✓	✓	✓	–	–	✓
		Add Dwell	–	✓	✓	✓	✓	–	–	✓
		Start/Sop/Repeat	–	✓	✓	✓	✓	–	–	✓
		Auto Blending	–	–	–	✓	✓	–	–	✓
Application Function	Gantry	MDevice & SubDevice Synchronized Motion	–	–	–	✓	–	✓	–	✓
		Speed Forward	–	–	–	✓	–	–	–	✓
	Tangential Following	E-Gear	–	–	–	✓	–	–	–	✓
		E-CAM	–	–	–	✓	–	–	–	✓
		Error Check	–	–	–	✓	–	–	–	✓
	Position Window Trigger	Error Status, Watchdog	✓	✓	✓	✓	✓	–	✓	✓
	Position Latch	Position Window Output	–	–	–	✓	–	–	–	✓
	Multi-axis Simultaneous Start / Stop	Position Latch Information	–	–	✓	✓	–	–	–	✓
	PT/PVT	Simultaneously Start/Stop	✓	–	–	✓	–	–	✓	✓
	Torque Limit	Position/Velocity/Time Planning	–	–	–	–	✓	–	–	✓
	Interrupt	Axis Stop	–	–	–	–	✓	–	–	✓
		Axis Compare	–	–	–	–	✓	–	–	✓
		Axis Error	–	–	–	–	✓	–	–	✓
		Axis Latch	–	–	–	–	✓	–	–	✓
		Axis VH Start	–	–	–	–	✓	–	–	✓
		Axis VH Stop	–	–	–	–	✓	–	–	✓
		Group Stop	–	–	–	–	✓	–	–	✓
		Group VH Start	–	–	–	–	✓	–	–	✓
Trigger Function	Single Compare	Up to 8 Channels	–	–	4 / 8 Channel	4 / 8 Channel	2 Channel	–	–	2 Channel
		Table Compare	–	–	✓	✓	–	–	–	✓
	Linear Compare	Up to 2 Channels	–	–	✓	✓	–	–	–	✓
		(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, 4DO	–	–	4DI, 2DO
		AI/O	–	–	–	–	–	–	–	–

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

1

Edge Software & Industry Solutions

2

Intelligent HMI & Monitors

3

Automation Computers

4

Intelligent Systems

5

Mission Critical CompactPCI Platforms

6

Intelligent Transportation & Substation Certified Systems

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Industrial Server & Cloud Solutions

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AI & Advanced Computer Vision

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Video Infrastructure Solutions

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Network & Security Solutions

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Industrial Communication

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Industrial Gateways

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EtherCAT Solutions & Automation Controllers

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Intelligent Motion Control Solutions

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Data Acquisition (DAQ) Solutions

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Remote I/O, Wireless I/O & Sensors

17

Serial/USB Communications

Motion Controllers

Embedded Machine Automation Solution

NEW



NEW



NEW



Model		AMAX-324	AMAX-354	AMAX-357
Hardware	CPU	Dual-Core Arm processor		
	Memory	1 GB	1 GB	4 GB DDR4 2666 MHz onboard
	Storage	8 GB emmc / 64 kb FRAM	8 GB emmc / 64 kb FRAM	64 GB eMMC onboard
Communications	Ethernet	1	1	2
	EtherCAT	1	1	1
	Serial	2 COM (RS232/RS485)	–	–
	USB	–	–	2 x USB 3.2
Pulse Control & Special I/O Function	Axes		32	
	Hand Wheel	1	–	–
	PWM		–	–
	Compare Trigger (CMP)	2	–	–
	Position Latch (LTC)	2	–	–
	TTL Differential CMP	1	–	–
I/O	Encoder In	2	–	–
	EtherCAT I/O	1024-CH DI and 1024-CH DO 128-CH AI and 128-CH AO		
Input Voltage		24 V _{DC} ± 20%		
Library		MotionNavi BASIC		MotionNavi API
Dimension (W x H x D)		70 x 70 x 100 mm	34.4 x 70 x 100 mm	65.3 x 70 x 100 mm

– : not supported

PCI/PCIE EtherCAT Motion Cards

NEW



Model		PCI-1203	PCIE-1203IO	PCIE-1203L	PCIE-1203
Axis		6/10/16/32	0	10/16/32/64	10/16/32/64
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
Dimension (L x H)		175 x 100 mm			
Connectors		2 x RJ-45, D-sub 15	2 x RJ-45	2 x RJ-45	2 x RJ-45, D-sub 26

PCI/PCIE Pulse-Train Motion Cards



NEW

Category		Motion Control				
Bus Interface		PCI				PCIE
Model		PCI-1245L	PCI-1245E PCI-1285E	PCI-1245V PCI-1285V	PCI-1245 PCI-1285	PCIE-1245
Axis	Number of Axis	4	4/8	4/8	4/8	4
	Linear Interpolation	✓	✓	✓	✓	✓
	2/3-axis Circle Interpolation	–	–	✓	✓	✓
Advanced Functions	Encoder Channels	4	4/8	4/8	4/8	4
	Limit Switch Input Channels	8	8/16	8/16	8/16	8
	Home Input Channels	4	4/8	4/8	4/8	4
	Emergency Stop Input Channels	1	1	1	1	1
	General Purpose DI Channels	16	16/32	16/32	16/32	8
	Servo On Output Channels	4	4/8	4/8	4/8	4
	General Purpose DO Channels	16	16/32	16/32	16/32	8
	Analog Input Channels	–	–	–	–	–
	BoardID Switch	✓	✓	✓	✓	✓
	Position Compare	–	–	✓	✓	✓
	Position Latch	–	–	✓	✓	–
Dimension (L x H)		175 x 100 mm	175 x 100 mm	175 x 100 mm	175 x 100 mm	175 x 100 mm



Category		Latch & Trigger		Encoder	
Bus Interface		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	–	–
Dimension (L x H)		175 x 100 mm	175 x 100 mm	185 x 100 mm	185 x 100 mm

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

1
Edge Software & Industry
Solutions2
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& Sensors17
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Terminal Boards & Cables

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-1245/45V/45E
PCI-1245L
PCI-1274
PCI-1240U



PCL-10251-1E/3E

ADAM-3952 x 2



ADAM-3955 x 2



ADAM-3956



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

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-3245



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)

AMAX-4800 Series



AMAX-5000 Series





15

Data Acquisition (DAQ) Solutions

- 15-4 Modular DAQ Systems
- 15-7 Embedded DAQ Systems
- 15-8 Multifunction I/O Cards
- 15-11 Digital I/O Cards
- 15-17 USB DAQ Modules
- 15-20 Signal Conditioners & Terminal Boards



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 DAQNav/SDK software development package. 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



intel
partner Titanium
IoT
Solutions

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

Digital
Data

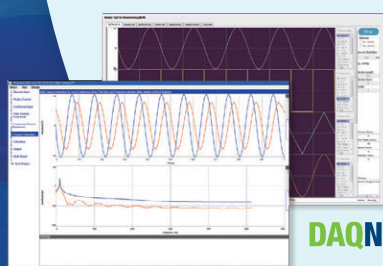
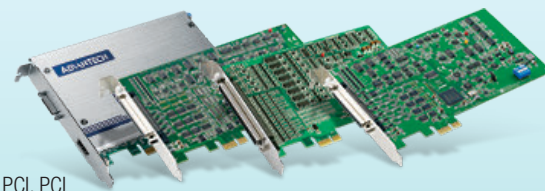


Data Acquisition Software

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



DAQNav

Software Development Package

DAQNav/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 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 vibration sensor can help to diagnose healthiness with vibration sensing.

* 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 chassis 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, maintenance and suitable for mixed-measurement type application



Signal Sensing



Physical Properties



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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		10~30V _{DC}	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
		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
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		–	–	–	–	–
Dimension (W x H x D)			178 x 100 x 71 mm (7.01" x 3.93" x 2.80")	139.5 x 100 x 84.2 mm (5.49" x 3.94" x 3.31")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")
Connector			–	–	4 x BNC connectors	2 x 20-pin terminal blocks	2 x 10-pin terminal blocks
DAQNavi Driver	Windows****		✓	✓	✓	✓	✓
	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

**** Support latest Windows version

Modular DAQ Systems



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	–	–	–	–
		Configurable Per Channel	✓	–	–	–	–
	Trigger Modes	Pacer/ Software/ External Pulse	✓***	–	–	–	–
		Analog Slope	✓	–	–	–	–
Advanced Trigger		Start/Stop/Delayed Start/Delayed Stop	–	–	–	–	
Analog Output	Resolution		–	16-bit	–	–	–
	Channels		–	4	–	–	–
	Updating Rate		–	10 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 Vrms	60 V _{DC}	600 Vrms
		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		–	–	✓	✓	✓
	Dry/Wet Contact		–	–	✓	✓	–
Dimension (W x H x D)			25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")
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
DAQNav Driver	Windows****		✓	✓	✓	✓	✓
	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

**** Support latest Windows version

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Serial/USB Communications

Modular DAQ Systems



Model		iDAQ-938	iDAQ-974	iDAQ-784	iDAQ-818	iDAQ-871	iDAQ-873	
Chassis	IDAQ Slot	8	4	—	—	—	—	
	Interface	USB 3.0	Ethernet (10/100/1000)	—	—	—	—	
	PFP	2	2	—	—	—	—	
	Power Input	10~30V _{DC}	10~30V _{DC}	BUS Powered	BUS Powered	BUS Powered	BUS Powered	
Analog Input	Resolution	—	—	—	24-bit	24-bit	24-bit	
	Channels	—	—	—	16	4	8	
	Onboard FIFO	—	—	—	512 Samples	1024 Samples	1024 Samples	
	Sampling Rate	—	—	—	75 S/s	25.6 kS/s/ch	25.6 kS/s/ch	
	Input Ranges	Unipolar Inputs	—	—	—	—	—	—
		Bipolar Inputs	—	—	—	—	±1 V/V, ±500 mV/V, ±250 mV/V, ±125 mV/V, ±62.5 mV/V, ±31.25 mV/V, ±15.63 mV/V, or ±7.81 mV/V	±1 V/V, ±500 mV/V, ±250 mV/V, ±125 mV/V, ±62.5 mV/V, ±31.25 mV/V, ±15.63 mV/V, or ±7.81 mV/V
		Configurable Per Channel	—	—	—	✓	✓	✓
	Thermocouple Type		—	—	—	J, K, T, E, N, R, S, B		
	Bridge Type		—	—	—	Full, Half, Quarter		Quarter
	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
Analog Output	Resolution	—	—	—	—	—	—	
	Channels	—	—	—	—	—	—	
	Update 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	—	—	—	—	—	—
		—	—	—	—	—	—	—
Counter	Channels	—	—	4	—	—	—	
	Resolution	—	—	32-bit	—	—	—	
	Max. Input Frequency	—	—	10MHz	—	—	—	
	Functions	—	—	Encoder Input, PWM I/O, Frequency Measurement, Timer/Pulse, Delayed Pulse Generation Event Counting, Continue Compare	—	—	—	
Advanced Functions	Output Status Read Back	—	—	—	—	—	—	
	Dry/Wet Contact*	—	—	—	—	—	—	
Dimension (W x H x D)		—	—	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	25 x 100 x 80 mm (0.98" x 3.94" x 3.15")	
Connectors		—	—	D-sub 37-pin Female	2 x 20-pin terminal blocks	D-sub 37-pin Female	D-sub 37-pin Female	
DAQNav Driver	Windows****	✓	✓	✓	✓	✓	✓	
	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

**** Support latest Windows version

Embedded DAQ Systems



Category		Multifunction Platform			
CPU		Intel Core i5 6300U	Intel Celeron 3955U	Intel Celeron 3955U	Intel Core™ i3-6100U
Memory		DDR3 4GB	DDR3 4GB	DDR3 4GB	
Model		MIC-1842-U4A1E	MIC-1842L-U0A1E	MIC-1816-U0A1E	MIC-1816-U3A1E
Analog Input	Resolution	12-bit	12-bit	16-bit	16-bit
	Channels	8	4	16 SE/8 diff.	16 SE/8 diff.
	Onboard FIFO	16k samples	16k samples	4,096 samples	4,096 samples
	Sampling Rate	20 MS/s/ch	20 MS/s/ch	1 MS/s	1 MS/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
		Bipolar Inputs	±5, ±2.5, ±1, ±0.5	±5, ±2.5, ±1, ±0.5	±10, ±5, ±2.5, ±1.25, ±0.625 V
		Configurable Per Channel	✓	✓	✓
	Trigger Modes	Pacer/Software/External Pulse	✓	✓	✓
		Analog Slope	✓	✓	✓
		Advanced Trigger	start/stop/delayed start/delayed stop	start/stop/delayed start/delayed stop	start/stop/delayed start/delayed stop
Data Transfer Modes	Software	✓	✓	✓	✓
	DMA	BUS Mastering	BUS Mastering	Bus mastering	Bus mastering
Analog Output	Resolution	–	–	16-bit	16-bit
	Channels	–	–	2 (waveform output)	2 (waveform output)
	Onboard FIFO	–	–	4,096 samples	4,096 samples
	Output Range	–	–	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V
	Output Rate	–	–	3 MHz	3 MHz
	DMA Transfer	–	–	Bus mastering	Bus mastering
Digital I/O	Input Channels	32	32	8 (Isolated)	8 (Isolated)
	Output Channels	–	–	8 (Isolated)	8 (Isolated)
Timer/Counter	Channels	–	–	2	2
	Resolution	–	–	32-bit	32-bit
	Max. Input Frequency	–	–	10 MHz	10 MHz
Isolation Voltage		–	–	2500 V _{DC}	2500 V _{DC}
Auto Calibration		✓	✓	✓	✓
Dimension (W x H x D)		200 x 58 x 156 mm (7.87" x 6.14" x 2.28")	200 x 58 x 156 mm (7.87" x 6.14" x 2.28")	200 x 58 x 156 mm (7.87" x 6.14" x 2.28")	200 x 58 x 156 mm (7.87" x 6.14" x 2.28")
DAQ/NAVI Driver	Windows****	✓	✓	✓	✓
	Linux	✓	✓	–	–
LabVIEW Driver		✓	✓	✓	✓

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

**** Support latest Windows version

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Multifunction I/O Cards



Category		Multifunction & Analog Input						
Sampling / Updating		Multiplexer						
Model		PCI-1710U/ 1710UL	PCI-1710HGU	PCI-1711U/ 1711UL	PCI-1712	PCI-1713U	PCI-1715U	PCI-1716/ 1716L/1716H
Analog Input	Resolution	12-bit	12-bit	12-bit	12-bit	12-bit	12-bit	16-bit
	Channels	16 SE/8 diff.	16 SE/8 diff.	16 SE	16 SE/8 diff.	32 SE/16 diff.	32 SE/16 diff.	16 SE/8 diff.
	Onboard FIFO	4,096 samples	4,096 samples	1,024 samples	1,024 samples	4,096 samples	1,024 samples	1,024 samples
	Sampling Rate	100 kS/s	100 kS/s	100 kS/s	1 MS/s	100 kS/s	500 kS/s	500 kS/s 500 kS/s 1 MS/s
	Input Ranges	Unipolar Inputs		–	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V
		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
		Configurable Per Channel		✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/ External Pulse		✓	✓	✓	✓	✓
		Analog Slope		–	–	–	–	–
		Advanced Trigger		–	–	–	–	–
Analog Output	Data Transfer Modes	Software		✓	✓	✓	✓	✓
		DMA		–	–	–	–	–
	Resolution		12-bit	12-bit	12-bit	12-bit	–	16-bit
	Channels		2 (PCI-1710U only)	2	2 (PCI-1711U only)	2	–	2 (PCI-1716 only)
	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, ±5, ±10 V
Digital I/O	Output Rate		Static update	Static update	Static update	1 MHz	–	Static update
	DMA Transfer		–	–	–	✓	–	–
	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		✓	✓	✓	–	–	✓	✓
Dimension (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	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

Multifunction I/O Cards



Category		Multifunction & Analog Output			
Sampling / Updating		Static Update			Dynamic Update
Model		PCI-1720U	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	16-bit	16-bit
	Channels	4	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, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ± 5 , ± 10 , 0 ~ 20, 4 ~ 20 mA
	Output Rate	Static update	Static update	Static update	10 MHz
	DMA Transfer	–	–	–	Bus mastering
Digital I/O	Input Channels	–	–	16 (shared)	16 (shared)
	Output Channels	–	–		16 (shared)
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		✓	✓	✓	✓
Dimension (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")
Connector		DB37	DB62	68-pin SCSI	68-pin SCSI
DAQ/NI Driver	Windows 7/8/10	✓	✓	✓	✓
	Linux	✓	✓	–	✓
	LabVIEW Driver	✓	✓	✓	✓

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

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Multifunction I/O Cards



Category		Multifunction & Analog Input						
Sampling / Updating		Multiplexer			Simultaneous Sampling			
Model		PCIE-1805	PCIE-1810	PCIE-1816/H	PCIE-1812	PCIE-1802L/1802L	PCIE-1803	PCIE-1840/1840L
Analog Input	Resolution	16-bit	12-bit	16-bit	16-bit	24-bit	24-bit	16-bit
	Channels	32 SE/ 16 diff.	16 SE/8 diff.	16 SE/8 diff.	8 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	4096 samples	1 G samples
	Sampling Rate	128 kS/s	500 kS/s	500 KSPS/1MSPS	250 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	–	–	–
	Trigger Modes	Pacer/ Software/ External Pulse	✓	✓	✓	✓	✓	✓
	Data Transfer Modes	Software	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
Analog Output	Resolution	–	12-bit	16-bit	16-bit	–	–	–
	Channels	–	2 (waveform output)	2 (waveform output)	2 (waveform output)	–	–	–
	Onboard FIFO	–	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	–	–	–
	Output Rate	–	500 kS/s	3 MHz	3 MHz	–	–	–
	DMA Transfer	–	Bus mastering	Bus mastering	Bus mastering	–	–	–
Digital I/O	Input Channels	–	24 (shared)	24 (shared)	32 (shared)	1	1	–
	Output Channels	–	–	–	–	2	2	–
Timer/Counter	Channels	–	2	2	4 (encoder included)	–	–	–
	Resolution	–	32-bit	32-bit	32-bit	–	–	–
	Max. Input Frequency	–	10 MHz	10 MHz	10 MHz	–	–	–
Isolation Voltage		–	–	–	–	–	–	–
Auto Calibration		✓	✓	✓	✓	✓	✓	✓
Board ID Switch		✓	✓	✓	✓	✓	✓	✓
Dimension (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")	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)	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)
DAQ/NAVI 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*		–	✓	✓	✓	✓	✓
Dimension (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
DAQNav Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		–	✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

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

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Data Acquisition (DAQ) Solutions

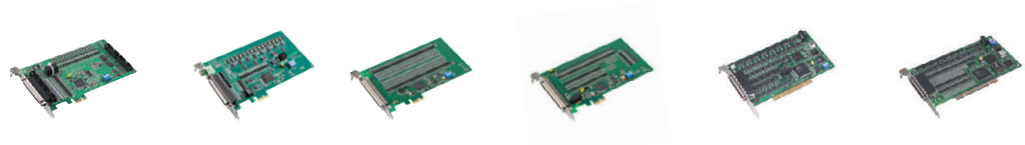
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Remote I/O, Wireless I/O & Sensors

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Serial/USB Communications

Digital I/O Cards

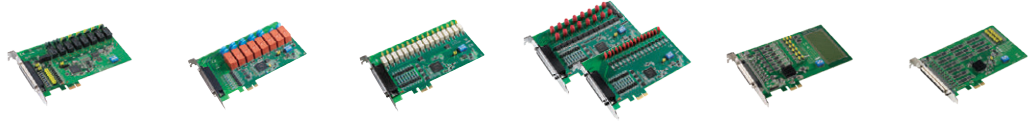


Category			Isolated Digital I/O					
Bus			PCI Express					
Model			 PCIE-1730/1730H	 PCIE-1750U	 PCIE-1754	 PCIE-1756/1756H	 PCIE-1758DO	 PCIE-1758DIO
TTL D/I/O	Input Channels		16	–	–	–	–	–
	Output Channels		16	–	–	–	–	–
	Output Channel	Sink Current	24 mA @ 0.5 V	–	–	–	–	–
		Source Current	15 mA @ 2.4 V	–	–	–	–	–
Isolated Digital I/O	Input	Channels	16	16	64	32	–	64
		Isolation Voltage	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}
	Output	Channels	16 (sink)	16 (Sink or Source)	–	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}
		Output Range	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	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*		✓	✓	–	–	–	–
Dimension (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")
Connector			1 x DB37 4 x 20-pin	DB 37	100-pin SCSI	100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI
DAQ/Analog 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			Relay Output				Non-Isolated Digital I/O	
Bus			PCI Express					
Model			 PCIE-1760	 PCIE-1761H	 PCIE-1762H	 PCIE-1763DH	 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	–	–
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	1,500 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}	–	–
		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	–	–
	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*		–	–	–	✓	✓	✓
Dimension (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	168 x 100 mm (6.6" x 3.9")	168 x 100 mm (6.6" x 3.9")	168 x 100 mm (6.6" x 3.9")
Connector			1 x DB37	1 x DB37	1 x DB62	DB 62	68-pin SCSI	68-pin SCSI
DAQ/Analog 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

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Digital I/O Cards



Category		Isolated Digital I/O					
Bus		PCI					
Model		PCI-1730U	PCI-1733	PCI-1734	PCI-1750/ 1750SO	PCI-1752U	PCI-1754
TTL D/I/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}	–
		Max. Current	300 mA	–	200 mA	200 mA	200 mA
		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*		✓	✓	–	✓	–
Dimension (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
DAQ/Navii 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				
Model			 PCI-1756	 PCI-1758UDO	 PCI-1758UDIO	 PCI-1761	 PCI-1762
TTL DI/O	Input Channels		–	–	–	–	–
	Output Channels		–	–	–	–	–
	Output Channel	Sink Current	–	–	–	–	–
		Source Current	–	–	–	–	–
Isolated Digital I/O	Input	Channels	32	–	64	8	16**
		Isolation Voltage	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 ~ 50 V _{DC}	10 ~ 50 V _{DC}
	Output	Channels	32 (Sink)	128	64	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}
		Output Range	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	5 ~ 40 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		–	–	–	–	–
	Resolution		–	–	–	–	–
	Max. Input Frequency		–	–	–	–	–
Advanced Function	Pattern Match		–	–	–	–	–
	Change of State		–	–	–	–	–
	Board ID Switch		✓	✓	✓	✓	✓
	Channel-Freeze Function		✓	–	–	–	✓
	Output Status Read Back		✓	✓	✓	✓	✓
	Dry/Wet Contact*		–	–	–	–	–
	Dimension (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		100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	1 x DB37	1 x DB62	
DAQ/Analog 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

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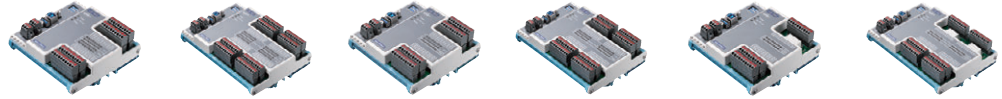
Category			Counter	Encoder	
Bus			PCI	PCI	PCIE
Model			 PCI-1780U	 PCI-1784U	 PCIE-1884
TTL DI/O	Input Channels		8	–	–
	Output Channels		8	–	–
	Output Channel	Sink Current	24 mA @ 0.5 V	–	–
		Source Current	15 mA @ 2.4 V	–	–
Isolated Digital I/O	Input	Channels	–	4	4
		Isolation Voltage	–	2,500 V _{DC}	2,500 V _{DC}
		Input Range	–	10 ~ 30 V _{DC}	5 ~ 50 V _{DC}
	Output	Channels	–	4	4
		Isolation Voltage	–	2,500 V _{DC}	2,500 V _{DC}
		Output Range	–	TTL level	TTL level
		Max. Sink Current	–	50mA	24mA
	Timer/Counter	Channels		8 x CTR	4
Resolution		32-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*		–	–	–
Dimension (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")
Connector			68-pin SCSI	1 x DB37	1 x DB37
DAQNavis 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 DAQ Modules



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}	–	–	–	–
Relay Output	PhotoMOS SPST (Form A)	Opto-Isolator Response Time	100 µs	100 µs	–	–	–	–
		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}	–	–
	Relay Output Form A	Response Time	–	–	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	–	–
		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.)
		Dimension (W x H x D)	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

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USB DAQ Modules



Category		USB 3.0 Analog Input Modules		
Model		<u>USB-5801</u>	<u>USB-5817</u>	<u>USB-5820</u>
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	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}	–	–
Dimension (W x H x D)		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

USB DAQ Modules



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		-	-
		Bipolar Inputs		±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		✓	✓	✓	✓
Dimension (W x H x D)		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

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Signal Conditioners & 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 & Terminal Boards

Recommended cables, I/O wiring terminal boards, and isolated digital I/O terminals for connecting to PCI, PCIe, and USB DAQ products

Product	Cable	I/O Wiring Terminal Board
PCI-1710U/1710UL/1710HGU PCI-1711U/1711UL PCI-1716/1716L PCI-1706U/ PCIE-1805 PCIE-1810/ PCIE-1816/ PCIE-1816H PCI-1712/PCI-1712L	PCL-10168 PCL-10168H	PCLD-8710/ 8810/ 8810E ADAM-3968
PCI-1730U PCIE-1730	PCL-10137 PCL-10120	ADAM-3937 ADAM-3920
PCI-1751/ PCIE-1751 PCI-1721 PCI-1723/PCI-1780U	PCL-10168	ADAM-3968
PCI-1753/ PCIE-1753	PCL-10268	
PCI-1720U, PCI-1733, PCI-1734 PCI-1750, PCIE-1760, PCI-1761, USB-4702, PCI-1713U/PCI-1715U PCIE-1750U, PCIE-1763AH, PCIE-1763DH	PCL-10137	ADAM-3937
PCI-1784U	PCI-10137H	
PCI-1752U, PCI-1754, PCI-1756 PCIE-1752, PCIE-1754, PCIE-1756	PCL-10250 PCL-101100M	ADAM-3951 ADAM-39100
PCIE-1812, PCIE-1813	PCL-101100R	
PCI-1758UDI/1758UDO/1758UDIO	PCL-101100S	
PCI-1724U, PCI-1762, PCIE-1805	PCL-10162	ADAM-3962
PCI-1737U PCI-1739U USB-4751/L	PCL-10150	ADAM-3950
PCI-1757UP	PCL-10125	ADAM-3925
PCI-1735U	PCL-10120	ADAM-3920

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Signal Conditioners & Terminal Boards

Functional Wiring Board Accessories

Part Number	Description
PCLD-8710-AE	DIN-rail wiring terminal board with CJC circuit
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-8840-AE	20-pin DIN-rail HDMI cable wiring board
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





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Remote I/O, Wireless I/O & Sensors

- ☞ 16-3 Ethernet I/O Modules
- ☞ 16-5 OPC UA Ethernet I/O Modules
- ☞ 16-6 Modular I/O Systems
- ☞ 16-9 RS-485 I/O Modules
- ☞ 16-13 IP67 Machine Mount I/O Modules
- ☞ 16-14 Wireless I/O & Sensors



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

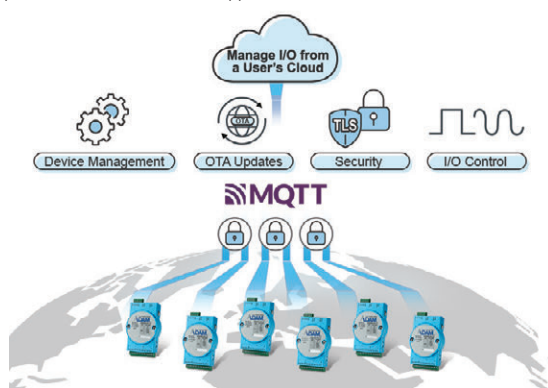
Introduction

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

Secured Cloud I/O

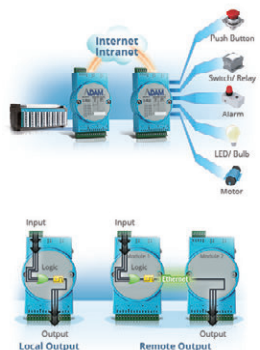
Innovative ADAM-6000/6200 Secured Cloud I/O offers device management, OTA updates, security and device monitoring functions in IoT era and help user easily manage widespread assets across diverse applications



- **Device Management:** UUID, networking setting, I/O channel configuration
- **OTA Updates:** firmware, certificate and configuration mass deployment
- **Security:** TLS, X.509 certificate, cipher suites, IP whitelisting, protocol disabled
- **I/O Control:** digital I/O on/off, analog I/O read/write, I/O value periodically updated, alarm notification

Simple and Intuitive Logic Control

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.

Easy Deployment and Robust Communication

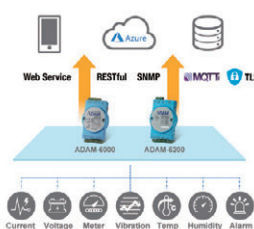


Flexible deployment with daisy chain networking and auto-bypass protection

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.

Rich 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

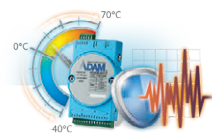
MQTT

- 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.

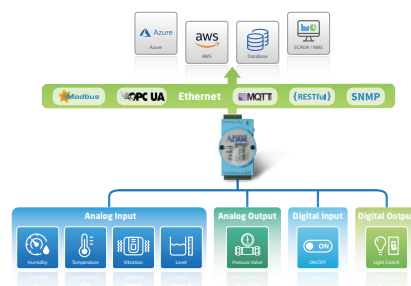
Industrial Grade with Isolation & Wide-operating Temperature



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.

Application Structure



ADAM-6000/6200/6300 Series Comparison

Series Name	ADAM-6000 Series	ADAM-6200 Series	ADAM-6300 Series
Daisy-chain Connectivity	–	✓	✓
Protocol	MQTT	✓	–
	SNMP	✓	–
	Modbus	✓	✓
	RESTful	✓	–
	OPC UA	–	✓
	Cloud I/O	✓	(By request)

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 mA, 4~20 mA, ±20 mA	–	0~20 mA, 4~20 mA	0~20 mA, 4~20 mA
	Direct Sensor Input	Pt, Balco, and Ni RTD	–	J, K, T, E, R, S, B thermocouple	–	–
	Burn-out 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}	2,000 V _{DC}
Remark		–	–	–	Built-in dual loop PID control algorithm	–
Protocol		D version: Modbus TCP, RESTful, MQTT, SNMP, ASCII			Modbus TCP	D version: Modbus TCP, RESTful, MQTT, SNMP, ASCII
Certification		CID2, UL, CE, FCC	CID2, UL, CE, FCC	UL, CE, FCC	CE, FCC	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}				
Protocol		D version: Modbus TCP, RESTful, MQTT, SNMP, ASCII				
Certification		CID2, UL, CE, FCC	UL, CE, FCC	CID2, UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

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

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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	–	–	–	–	–	–
	Current Input	0~20 mA, 4~20 mA ±20 mA	–	–	–	–	–	–
	Sampling Rate	10 Hz	–	–	–	–	–	–
	Burn-out 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 V, 0~10 V, ±5 V, ±10 V	–	–	–	–	–
	Current Output	–	0~20 mA, 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	–	–	–	–	–	1 x Form A, 5 x Form C	4 x 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 Indicators	–	–	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		UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC	UL, CE, FCC

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-6315	ADAM-6317	ADAM-6318	ADAM-6324	ADAM-6350	ADAM-6360D	ADAM-6366
Description		IoT OPC UA Ethernet I/O - RTD Input Module	IoT OPC UA Ethernet I/O - Analog Input Module	IoT OPC UA Ethernet I/O - T/C Input Module	IoT OPC UA Ethernet I/O - Analog Output 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
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	✓						
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	✓						
Modbus TCP Connections		4						
Environment	Operating Temperature	-25° ~ 70°C (-13 ~ 158°F)						
LED Indicator		Status, Error, Link, Active						
Analog Input	Channels	8	8	7	—	—	—	—
	Voltage Input	RTD: Pt 100, Pt 1000, Balco 500, Ni 518	0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V	Thermocouple: J, K, T, E, R, S, B	—	—	—	—
	Current Input	—	0 ~ 20 mA, 4 ~ 20 mA, ± 20 mA	—	—	—	—	—
	Sampling Rate	10 Hz (total)	10/100 Hz (total)	10 Hz (total)	—	—	—	—
	Burn-out Detection	✓	✓ (4~20 mA)	✓	—	—	—	—
	Resolution	16-bit	16-bit	16-bit	—	—	—	—
Digital Input	Digital Input Channels	10	11	10	11	18	14	18
	Counter Input	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)
	Frequency Input	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)
Digital Output	Digital Output Channels	10	10	13	12	18	6	6
	Relay Output Channels	—	—	—	—	—	8 x Form A (SSR)	6 x Form A
	Contact Rating	—	—	—	—	—	1 A @25°C @ 30 V _{DC} 0.7A @70°C @30 V _{DC}	250 V _{AC} @ 0.25 A, 30 V _{DC} @ 2 A
	Pulse Output	3 kHz (DO4~DO9)	3 kHz (DO4~DO9)	3 kHz (DO7~DO12)	3 kHz (DO6~DO11)	3 kHz (DO12~DO17)	3 kHz (DO0~DO5)	3 kHz (DO0~DO5)
Analog Output	Channels	—	—	—	4	—	—	—
	Type	—	—	—	0~5 V, 0~10 V, ± 5 V, ± 10 V, 0~20 mA, 4~20 mA	—	—	—
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, —: not supported, △: optional

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Modular I/O Systems: ADAM-5000



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		✓			
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)		Ethernet	
	Speed (bps)	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)		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		Depend on IP address	
	Protocol	ADAM-5000/485 & ADAM-5000E: ASCII, Modbus RTU		Modbus TCP, Modbus RTU	
	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)			
Operating Humidity		5~95% RH (non-condensing)			
Dimension (W x H x D)		231 x 110 x 75 mm	355 x 110 x 75 mm	231 x 110 x 75 mm	355 x 110 x 75 mm

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

Modular I/O Systems: ADAM-5000

Analog Input/Output Modules



Model		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017H 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*)	ADAM-5017H: 100 (total)** ADAM-5017UH: 200K (total)**	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
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
	Digital Output Channels	–	–		–	–
Isolation		3,000 V _{DC}	3,000 V _{DC}	–	2,500 V _{DC} (5051S)	5,000 V _{rms}

*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

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Modular I/O Systems: ADAM-5000

Digital Input/Output Modules



Model		ADAM-5055S	ADAM-5056D	ADAM-5056S ADAM-5056SO
Digital Input and Digital Output	Digital Input Channels	8 with LED	–	–
	Digital Output Channels	8 with LED	16 with LED	16 with LED
Isolation		2,500 V _{DC}	–	2,500 V _{DC}



Model		ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5091
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
	Type	–	–	–	RS-232/422/485
Isolation		–	1,000 V _{rms}	2,500 V _{DC}	–

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

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

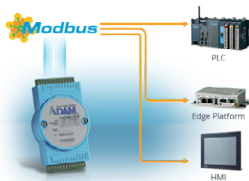
Introduction

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

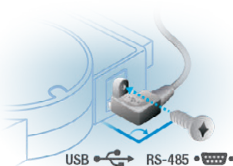
- Once a problem is detected, the Watchdog Timer automatically recovers the system

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



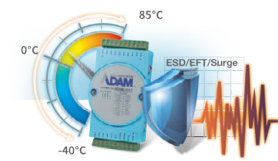
Friendly L-shaped cable design*

- 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



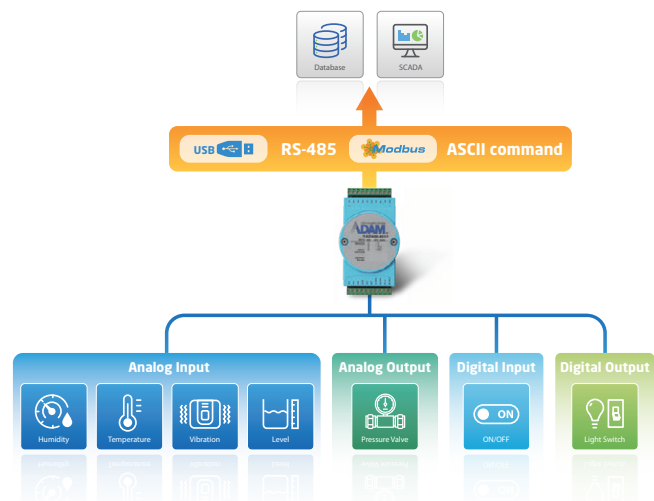
ADAM-4100 Series

- Level-4 ESD/EFT/ surge & isolation protection
- Wide operating temperature support, up to -40 ~ 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



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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 mA, ±20 mA	0~20 mA, 4~20 mA, ±20 mA	4~20 mA, ±20 mA	0~20 mA, 4~20 mA, ±20 mA
	Direct Sensor Input	RTD	–	–	J, K, T, E, R, S, B thermocouple	J, K, T, E, R, S, B thermocouple
	Burn-out Detection	✓	–	–	✓	✓ (4 ~ 20 mA and all T/C)
	Channel Independent Configuration	✓	–	✓	✓	✓
Isolation Voltage		3,000 V _{DC}				
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 V _{DC}	3,000 V _{DC}
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
Analog Output	Channels	–	–	–
	Voltage Output	–	–	–
	Current Output	–	–	–
Digital I/O	Input Channels	7	16	8
	Output Channels	8	–	–
	Alarm Settings	–	–	–
Isolation Voltage		–	2,500 V _{DC}	5,000 V _{rms}
Digital LED Indicator		–	✓	–
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	–	–	–	–	–	–	–
	Burn-out 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	–	–	–	–	–	–	✓
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 after 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

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



Model		ADAM-4115	ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Resolution		16-bit	16-bit		–	–
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	–	–
	Burn-out 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		✓	–	–	✓	✓
Protocol		ASCII, Modbus RTU				
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 (non-condensing)				
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

IP67 Machine Mount I/O Modules: ADAM-200

Feature Highlights



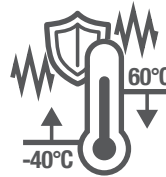
IP67-rated zinc housing is very rugged and resistant to vibration, dust, oil, and water



M12 plug-and-play connectors reduce installation time and wiring efforts

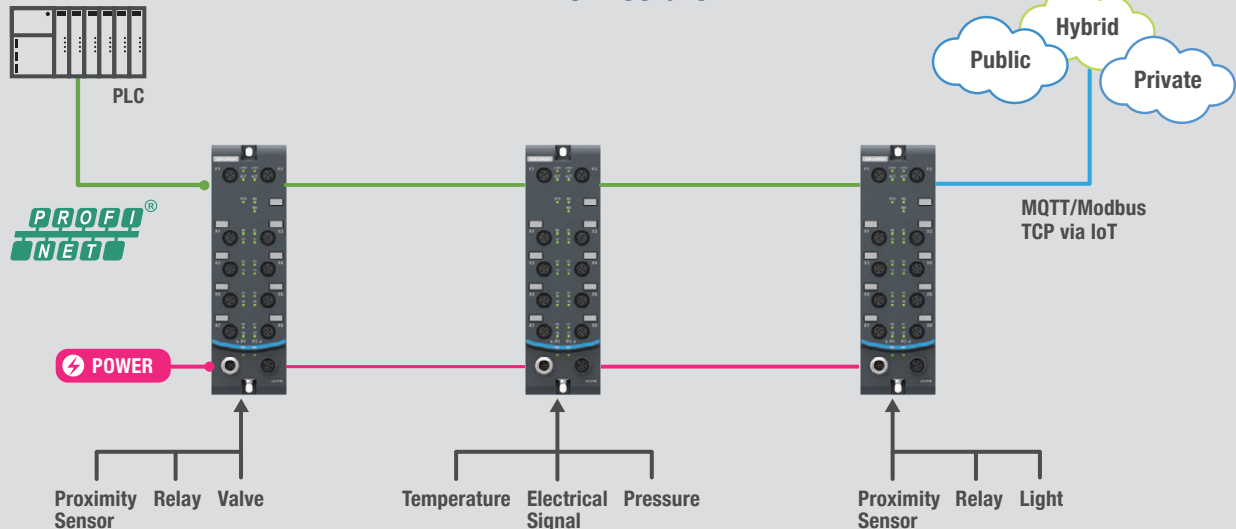


UL CID2 certification for harsh industrial environments



Wide operating temperature range:
-40 ~ 60°C EMC protection: ESD±8kV;
EFT±2kV; Surge±1kV

Architecture



ADAM-200PN Series Selection Guide

	ADAM-217PN	ADAM-219PN	ADAM-250PN
Digital Input / Output	–	–	16DIO
Analog Input / Output	6AI+2AIO	–	–
RTD/Thermocouple (TC)	–	8x AI/RTD/TC	–
Protocol	PROFINET, MQTT, Modbus TCP, SNMP		
PROFINET Functions	RT mode, I&M data, MRP, Shared device, Fast Start Up (FSU)		
Connectors	8 x M12 A-coded, 2 x D-coded, 2 x L-coded		
General	Diagnostic functions for I/O and power Wide operating temperature -40 °C ~ 60 °C; EMC protection: ESD ±8 kV; EFT ±2 kV; Surge ±1 kV		

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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, LoRaWAN, NB-IoT/LTE-M, 4G/LTE, and IP65-rated features, making them highly suitable for many kinds of industrial application. EVA-2000 and WISE-2000 LoRaWAN smart 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

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 focused applications, EVA-2000 and WISE-2000 series offer a wireless and sensing all-in-one solution to simplify and accelerate the implementation of IoT applications.



Industrial Wireless I/O & Sensors

LoRaWAN I/O Modules



Category	Industrial LoRa/LoRaWAN Wireless Module				Industrial LoRa/LoRaWAN Wireless Module			Industrial LoRa/LoRaWAN Wireless Module	Industrial LoRaWAN Node
Model	WISE-4610P				WISE-4610			WISE-2200-M	BB-WSW
Frequency Range	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)								EU 863-870 (MHz) US 902-928 (MHz) AS 919-924 (MHz)
Function	Wireless board				Wireless board			Wireless I/O Module	Wireless I/O Module
Positioning	GPS/Galileo/BeiDou/GLONASS				-			-	-
Power Input	4100 mAh Lithium rechargeable battery				-			-	9~36 V _{DC} / 2*3.6V AA Batteries
	10~50 V _{DC} external power				10~50 V _{DC} external power			5~50 V _{DC}	
	17~21 V _{DC} solar panel				17~21 V _{DC} solar panel			-	
Configuration Interface	Micro-B USB				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	-	-
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 (terminal block)	6DI, 1 RS-485 & 1 RS-485/232	1 RS-485	2AI, 2DI, 1DO
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							-	

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

Wi-Fi I/O Modules



Category	Dual-band Wi-Fi 2.4/5G Wireless Module			
Model	WISE-4250			
Standard	802.11 a/b/g/n/ac			
Frequency	2.4/5GHz			
Function	Wireless board			
Power Input	10~50 V _{DC} external power			
Configuration Interface	-			
Antenna Gain	(Peak) 2.4G 3.64 dBi / 5G 5.65 dBi			
I/O Module				
Model	WISE-S214-A	WISE-S250-A	WISE-S251-A	WISE-S100-A
Spec	4AI&4DI	6DI, 2DO&1RS-485	6DI & 1RS-485	Stack Light Monitoring Sensor

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

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Industrial Wireless I/O & Sensors

NB-IoT/LTE-M I/O Modules



Category	Advanced Industrial Cat.NB1/Cat.M1 Wireless Module								
Model	WISE-4671								
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 10~50 V _{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								

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



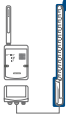
Category	Industrial Cat.NB1/Cat.M1 Wireless Module				
Model	WISE-4471				
Standard	3GPP release 13				
Band	B2,3,4,5,8,12,13,20,28				
SIM Type	Micro SIM/3FF				
Function	Wireless board				
Power Input	10~50 V _{DC} external power				
Configuration Interface	Micro-B USB				
I/O Module					
Model	WISE-S214-A	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

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

Industrial Wireless I/O & Sensors

Proprietary LPWAN I/O Modules



Category	Proprietary LPWAN(SUB-G) Wireless Module			Proprietary LPWAN(SUB-G) Built-in Temperature & Humidity Sensor*	Proprietary LPWAN (SUB-G) Wireless CT Node	Proprietary LPWAN (SUB-G) Wireless Analog Input Modules
Function	AP		Node/Wireless Board		Self-Powered Node	
Model	🔌 WISE-4210AP		🔌 WISE-4210		🔌 WISE-4210-S231	
Frequency	868/923MHz		868/923MHz		868/923MHz	
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	    					*Modularization doesn't effect WISE-4210-S231 and WISE-221x series
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

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

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Serial/USB Communications

Industrial Wireless I/O & Sensors

Wi-Fi All-In-One I/O



Model Name		WISE-4012E	WISE-4012	WISE-4050	WISE-4060	WISE-4051
Description		6-ch Input/Output IoT Wireless I/O Module for IoT Developer	4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Relay Output IoT Wireless I/O Module	8-ch Digital Input IoT Wireless I/O Module with 1-port RS-485
Wireless Network	IEEE Standard	IEEE 802.11b/g/n				
	Frequency Band	2.4GHz				
	Outdoor Range	110m (L.O.S.)				
Analog Input	Channel	2-ch (Differential)	4-ch	–	–	–
	Input Type	V	V, A, Dry contact DI	–	–	–
	Voltage Range	0~10V	±5V, ±V, 0~5V, 0~10V	–	–	–
	Current Range	–	±0~20mA, 4~20mA	–	–	–
	Resolution	12-bit	16-bit	–	–	–
	Sampling Rate	10 Hz (Total)	10 Hz (Total)	–	–	–
	Accuracy	±0.1 V _{DC}	Voltage: ±0.1% of FSR Current: ±0.2% of FSR	–	–	–
	Burn-out Detection	–	Yes (4~20 mA only)	–	–	–
Digital Input	Isolation	–	3,000 Vrms	–	–	–
	Channel	2-ch Dry Contact	Shared with AI	4-ch	4-ch	8-ch
	Counter Input	3kHz	2Hz	3kHz	3kHz	3kHz
	Frequency Input	0.1~3 kHz	0.1~2 kHz	0.1~3 kHz	0.1~3 kHz	0.1~3 kHz
Digital Output	Isolation	–	3,000 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms
	Channel	2-ch Relay	2-ch (Sink Type)	4-ch (Sink Type)	4-ch Power Relay	–
	Output Rating (Resistive Load)	120 V _{AC} @ 0.5 A 30V _{DC} @ 1 A	Open collector to 30 V _{DC} , 400mA max.		250 V _{AC} @ 5 A 30 V _{DC} @ 3 A	–
	Pulse Output	60 operations/minute	5 kHz	5 kHz	60 operations/minute	–
Serial Port	Isolation	1,500 Vrms	3,000 Vrms	3,000 Vrms	3,000 Vrms	–
	Port Number	–				
General	Real-time Clock	✓	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup	Yes, with battery backup
	Dimension (W x H x D)	80 x 148 x 25 mm				
Environment	Operating Temperature	-25 ~ 70°C (-13 ~ 158°F)				
	Operating Humidity	20~95% RH (non-condensing)				
Power	Input Range	Micro USB 5 V _{DC}	10~30 V _{DC}	10~30 V _{DC}	10~30 V _{DC}	10~30 V _{DC}
	Protection	–	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection	Power Reversal Protection
	Power Consumption	1.5 W @ 5 V _{DC}	2.5 W @ 24 V _{DC}	2.2 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}	2.2 W @ 24 V _{DC}

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

Industrial Wireless I/O & Sensors

RS-485 Smart Vibration Sensors



Model		WISE-2460P	WISE-2460
Communication	Interface	RS-485	
	protocol	Modbus/RTU	
Vibration Sensor	Axis	Z	
	Frequency Range	5-8,000Hz	1-10,000Hz
	Amplitude Range	±50 g	
	Output Data Rate	16384Hz	32000Hz
	Accuracy	1-4000Hz (5%); 4001-8000Hz (35%)	1-4000Hz (5%); 4001-10000Hz (35%)
	Noise	25 µg/√Hz in ±50 g range	
Mechanical	Enclosure	IP68	
	Mounting	Mounting stud; curved surface magnet base; metal base with epoxy	
	Dimension (W x H x D)	58.4 x 36.7 x 40 mm	
General	Power input	10~30 V _{DC}	
	Configuration Interface	RS-485	
	Operating Temperature	-20 ~ 105°C (-4 ~ 221°F)	
	Storage Temperature	-25 ~ 120°C (-13 ~ 248°F)	
	Operating Humidity	10~95% RH	
	Storage Humidity	5~95% RH	

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

LoRaWAN Smart Vibration Sensors



Category		LoRaWAN Smart Vibration Sensor	Explosion Proof LoRaWAN Smart Vibration Sensor
Model		WISE-2410	WISE-2410X
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	±2/4/8/16 g	
	Output Data Rate	6600Hz	
	Noise (MAX. TA = 25°C. 0g)	±40 mg	
Temperature Sensor	Operating Range	-20 ~ 85°C (-4 ~ 185°F) (USB powered); -20 ~ 70°C (-4 ~ 158°F) (Battery powered)	0 ~ 70°C (32 ~ 158°F) (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/ WISE-2410X-C12NA: 3.6V AA battery *2pcs (not included)
	Configuration Interface	Micro-B USB	
	Operating Temperature	-20 ~ 85°C (-4 ~ 185°F) (USB powered); -20 ~ 70°C (-4 ~ 158°F) (Battery powered)	0 ~ 70°C (32 ~ 158°F) (Battery powered)
	Storage Temperature	-25 ~ 90°C (-13 ~ 194°F)	
	Operating Humidity	10~95% RH	
	Storage Humidity	5~95% RH	

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

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Industrial Wireless I/O & Sensors

LoRaWAN Smart Sensors



Model		EVA-2210	EVA-2310	EVA-2311	EVA-2510
Description		3-Phase Current Meter with 3 x 75A Clamp-On CT	LoRaWAN Temperature and Humidity Sensor	LoRaWAN Temperature PT1000 Round Head Probe Sensor	LoRaWAN Wireless Water Leakage Sensor
Wireless Communication	Topology	Star (LoRaWAN)			
	Frequency Band	EU 863-870 (MHz) / US 902-928 (MHz) / AU 915-928 (MHz) / AS 919-924 (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			
Sensor	Type	Current Transformer	Temperature & humidity	PT1000	Leakage detector
	Quantity	3			
	Spec	100mA to 75A (<±1%@300mA to 75A)			
Mechanical	Mounting	Magnetic; Wall; Pole mount			
	Dimension (L x W x H)	112 x 51 x 71.5 mm			
General	Power Input	2 x 3.6V AA batteries (not included)			
	Configuration Interface	Via downlink commands			
	Operating Temperature	-20 ~ 55°C (-4 ~ 131°F)			
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)			
	Operating Humidity	0~90% RH			
	Storage Humidity	0~90% RH			

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

Wireless LoRaWAN Gateway



Model Name		WISE-6610-B
Description		LoRaWAN Gateway support up to 500 nodes with 868/915/923MHz
Specifications	Mobile Wireless	LoRaWAN
	Communication Interface	LoRaWAN
	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)
	Power Input	10~30 V _{DC}
	Dimension (W x H x D)	150 x 37.5 x 83 mm
	Weight	500 g

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





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Serial / USB Communications

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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, & Repeaters



Model		ULI-211C	ULI-211CI	ULI-212CI	ULI-213CI
P/N to Order		BB-FOSTCDR	BB-FOSTCDRi	BB-FOSTCDRI-ST	BB-FOSTCDRI-SC
I/O Interface 1	Serial Type	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
	Ports	1	1	1	1
I/O Interface 2	Optical Mode	Multi-mode	Multi-mode	Single-mode	Single-mode
	Connector	ST	ST	ST	SC
	Ports	1	1	1	1
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)
Isolation/ESD Protection		2,000 V _{DC}	2,000 V _{DC}	2,000 V _{DC}	2,000 V _{DC}
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
Certification		CE, FCC, KCC UL Recognized (backward R)	CE, FCC, UL CID2	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
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-422	RS-422	RS-422/485 (2&4W)	RS-422/485 (2&4W)
	Connector	DB9-F	Terminal block	DB9-F	Terminal block
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD 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 (Optional external 12 V _{DC} power supply)	Port-powered from RS-232 (Optional external 12 V _{DC} power supply)
Mounting		Inline	Inline	Inline	Inline
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

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

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Serial/USB Communications

Serial Converters, Isolators, & Repeaters



Model		ULI-224TC	ULI-224TCI	ULI-224TCL	ULI-226D
P/N to Order		BB-485LDRC9	BB-485DRCI	BB-4WSD9OTB	BB-485SD9R
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F & Terminal block	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-422/485	RS-422/485	RS-422/485	RS-485
	Connector	Terminal block	Terminal block	Terminal block	DB9-F
	Ports	1	1	1	1
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		2,000 V _{DC}	2,000 V _{DC}	2,000 V _{DC}	—
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	Inline
Certification		CE, FCC, cULus, UL508	CE, FCC, KCC, UL CID2, 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
I/O Interface 1	Serial Type	RS-232	RS-232	RS-232	RS-232
	Connector	DB9-F	DB9-F	DB9-F	DB9-F
	Ports	1	1	1	1
I/O Interface 2	Serial Type	RS-485	RS-485	3.3 V _{DC} TTL	5 V _{DC} TTL
	Connector	RJ-11 female	Terminal block	DB9-M	DB9-M
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD 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	Inline	Inline	Inline
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓ : supported, — : not supported, △ : optional

Serial Isolators & 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-F, DB9-M	Terminal block	Terminal block	Terminal block
Operating Temperature	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)
Isolation/ESD Protection	Isolation: 2,000 V _{DC} on input/output/ power ESD: 8kV	2,000 V _{DC}	Isolation: 2,000 V _{DC} , Surge: 6.5 bi-directional avalanche breakdown device 500W peak power dissipation	Isolation: 2,000 V _{DC} 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
Certification	CE, FCC, KCC, UL CID2, UL508	CE, FCC, cULus Listed, UL508	CE, FCC, KCC, cULus Listed, UL508, UL Recognized	CE, FCC, KCC, UL CID2

Serial Surge Suppressor & 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
Surge Suppression	5-position terminal blocks
	Grounding
	Dedicated chassis ground lug
	Connections
	Protected signal ground connection Rugged terminal block connections
	Power Input
	No power required
	Clamping Voltage
	72 V _{DC} , minimum
	Stage 1: Gas Discharge Tube
	108 V _{DC} , maximum
	Stage 2: Series Resistance
	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 x 10 ⁻⁹ seconds
	Operating Temperature
	-40 ~ 80°C
	Mounting
	DIN-rail
	Certification
	CE

Model	ULI-252D	ULI-262D
P/N to Order	BB-9PCDT	BB-9PMDS
Serial Type	RS-232	RS-232
Connector	DB9-M	DB9-M
Operating Temperature	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Type	RS-232 Data Tap	RS-232 Data Splitter
Power Input	No power required	No power required
Enclosure	plastic	plastic
Mounting	Inline	Inline
Certification	CE, FCC	CE, FCC

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USB Converters & Isolators



Model		ULI-321D	ULI-321DC	ULI-341TC	ULI-341TCK
P/N to Order		BB-232USB9M	BB-USO9ML2-A	BB-USOPTL4	BB-USOPTL4-LS
I/O Interface 1	USB Type	USB 2.0	USB 2.0	USB 2.0	USB 2.0
	Connector	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)
	Ports	1	1	1	1
	High Retention	–	✓	✓	✓
I/O Interface 2	Serial Type	RS-232	RS-232	RS-422/485	RS-422/485
	Connector	DB9-M	DB9-M	Terminal block	Terminal block
	Ports	1	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		–	Isolation: 2000 V _{DC} ESD: 4 kV (Contact); 8 kV (Air)	2,000 V _{DC}	2,000 V _{DC}
Locked Serial Number		–	–	–	✓
Power Input		Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})
Mounting		Inline installation	Inline installation	Inline installation	Inline installation
Certification		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
I/O Interface 1	USB Ports	USB	USB	USB	USB
	Connector	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)	Type-B (Type-B to Type-A)
	Ports	1	1	1	1
	High Retention	✓	✓	✓	✓
I/O Interface 2	Serial Type	RS-422/485	RS-485	RS-485	RS-485
	Connector	Terminal block	DB9-F	Terminal block	Terminal block
	Ports	2	1	1	1
Operating Temperature		0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		3,000 V _{DC}	–	–	–
Locked Serial Number		–	–	–	✓
Power Input		Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})	Port-Powered from USB host (5 V _{DC})
Mounting		DIN-rail	Inline installation	Inline installation	Inline installation
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

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

USB Isolators & Hubs



Model		ULI-414CI	ULI-414LI	ULI-414H	ULI-417H
P/N to Order		BB-UHR304	BB-UH104	BB-USH204-B	BB-USH207-B
USB Type		USB 2.0	USB 2.0	USB 3.2	USB 3.2
Downstream	Ports	4	4	4	7
	Type	Type A Female	Type A Female	Type A Female	Type A Female
	High Retention	✓	✓	–	–
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	-40 ~ 80°C (-40 ~ 176°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)
Isolation/ESD Protection		Isolation: 4000 V _{DC} ESD: 8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)	8 kV (Contact); 15 kV (Air)
Power Input		10~30 V _{DC}	Port-Powered from USB host (5 V _{DC})	9~30 V _{DC}	9~30 V _{DC}
Enclosure		Metal	Plastic	Metal	Metal
Mounting		DIN-rail, Desk	Inline	DIN-rail	DIN-rail
Certification		CE, FCC, KCC, UL CID2	CE, FCC	CE, FCC	CE, FCC, KCC



Model		ULI-421CL	ULI-421C	ULI-422C	ULI-414HCL
P/N to Order		BB-UH401	BB-UHR401	BB-UHR402	USB-4630-BE
Product Series		USB Isolator	USB Isolator	USB Isolator	USB Hub
USB Type		USB 2.0	USB 2.0	USB 2.0	USB 3.2
Downstream	Number of Ports	1	1	2	4
	Type	Type A Female	Type A Female	Type A Female	Type A Female
	High Retention	✓	✓	✓	–
Operating Temperature		-40 ~ 80°C (-40 ~ 176°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 50°C (32 ~ 122°F)	0 ~ 70°C (32 ~ 158°F)
Isolation/ESD Protection		Isolation: 4000 V _{DC} ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 4000 V _{DC} ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 4000 V _{DC} ESD: 8 kV (Contact); 15 kV (Air)	Isolation: 2500 V _{DC} ESD: 8 kV (Contact); 15 kV (Air)
Power Input		Port-Powered from USB host (5 V _{DC})	10~30 V _{DC}	10~30 V _{DC}	10~30 V _{DC}
Enclosure		Plastic	Plastic	Plastic	Metal
Mounting		Inline	Wall	Wall	DIN-rail
Certification		CE, FCC	CE, FCC	CE, FCC	CE, FCC

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

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Serial/USB Communications

Serial Device Servers & Console Servers



Model		EKI-1511	EKI-1521/CI/I EKI-1522/CI/I EKI-1524/CI/I
Description		1 Port RS-232/422/485 Serial Device Server	1/2/4 Port RS-232/422/485 Serial Device Server
Connectivity	10/100Base-TX, Fixed	1	2
	RS-232/422/485	1	1/2/4 (EKI-1524CI: RS-422/485)
	Serial Connector Type	DB9 male	DB9 male
Mechanical	Enclosure	IP30	IP30
Mounting	DIN-rail	✓	✓
	Wall	✓	✓
Power	Power Input	9 ~ 36 V _{DC}	2* (12 ~ 48 V _{DC})
	Power Connector	Terminal Block	Terminal Block
	Power Consumption	1W	3.2W (EKI-1521/EKI-1522) 4.1W (EKI-1524)
Environment	Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-10 ~ 60°C (14 ~ 140°F) (CI & I models: -40 ~ 80°C (-40 ~ 176°F))
	Operating Humidity	10~95% RH (non-condensing)	10~95% RH (non-condensing)
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, HTTPS, DNS, SMTP
	Configuration Options	Windows Utility, Telnet Console, Web Browser	Windows Utility, Telnet Console, Web Browser
	Standard Operating Mode	COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair Connection	COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair Connection
Certification	UL 62368-1	✓	✓
	CE	✓	✓
	FCC	✓	✓
	Hazardous Location (Class I, Division 2)	—	✓



Model		EKI-1528I-DR EKI-1528CI-DR	EKI-1528I/TI EKI-1528I/TI/N	EKI-1526NL-CS
Description		8 Port RS-232/422/485 Serial Device Server	8/16 Port RS-232/422/485 Serial Device Server	16 Port RS-232/422/485 Console Server
Connectivity	10/100Base-TX, Fixed	2	—	—
	10/100/1000Base-T, Fixed	—	2	2
	RS-232/422/485	8 (CI model: RS-422/485)	8/16	16 (RS-232)
	Serial Connector Type	DB9 male	DB9 male (N model: RJ-45)	RJ-45 (Cisco compliant)
Mechanical	Enclosure	IP30	SECC chassis	SECC chassis
Mounting	Rackmount	—	✓	✓
	DIN-rail	✓	—	—
	Wall	✓	—	—
Power	Power Input	2* (12~48 V _{DC})	100~240 V _{AC} (T models: 12~48 V _{DC})	100~240 V _{AC}
	Power Connector	Terminal Block	AC Input Socket (T models: Terminal Block)	AC Input Socket
	Power Consumption	5W (EKI-1528I) 6W (EKI-1528CI)	5.6 W	5.6 W
Environment	Operating Temperature	-40 ~ 70°C (-40 ~ 158°F)	-10 ~ 60°C (14 ~ 140°F) (I models: -40 ~ 70°C (-40 ~ 158°F))	-10 ~ 60°C (14 ~ 140°F)
	Operating Humidity	10~95% RH (non-condensing)	10~95% RH (non-condensing)	10~95% RH (non-condensing)
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
	Configuration Options	Windows Utility, Telnet Console, Web Browser	Windows Utility, Telnet Console, Web Browser	Windows utility, Telnet console, Web Browser, Serial console
	Authentication	User/Password	User/Password	LDAP RADIUS Local User Management
	Standard Operating Mode	COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair Connection	COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair Connection	COM port redirection mode (Virtual COM), TCP/UDP server (polling) mode, TCP/UDP client (event handling) mode, Pair Connection
Certification	UL	—	✓	✓
	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 10/11 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}	–	3,000 V _{DC}	8 kV (air), 4 kV (contact) 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 10/11 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}

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Serial/USB Communications

Serial Communication Cards

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
	Quantity	1	1	1	1	1	1
	Connector Type	DB25 Male	DB9 Male	DB25 Male	DB9 Male	DB9 Male	10-pin Screw Terminal
	Quantity	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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