Enabling an Intelligent Planet

Embedded IoT Solutions

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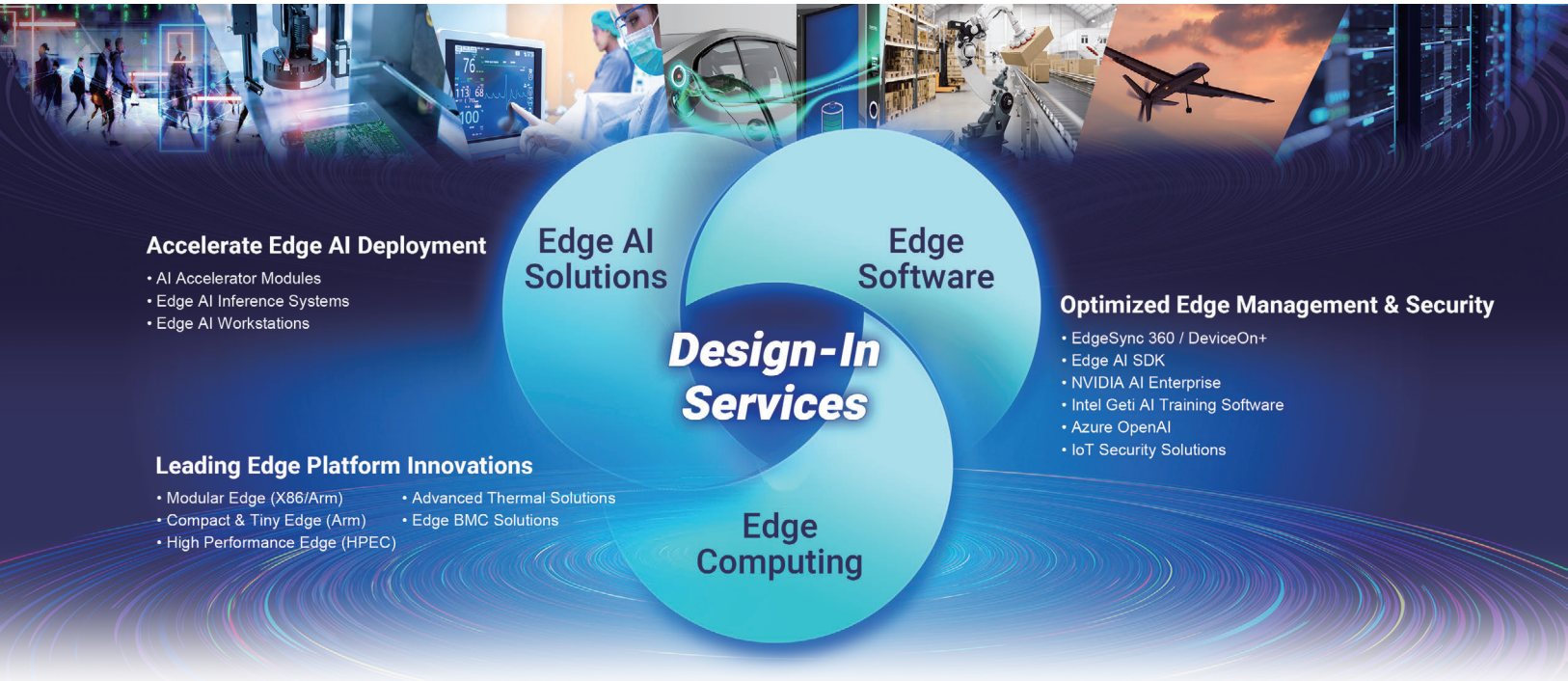 - Gaming Computing Platforms

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About Embedded IoT

Shaping the Future of Edge Computing and Emerging Business

From the very beginning, Advantech has been at the forefront of innovation in embedded technologies. Our commitment is to provide our customers with access to the most cutting-edge solutions available. As a leading brand in the embedded market, Advantech plays a central role in connecting the entire ecosystem. We collaborate with partners to deliver a range of edge computing platforms, edge AI and edge software, enhancing the efficiency of application deployments. Additionally, we offer extensive and seamlessly integrated solutions, with a focus on customer-centric embedded design-in services to facilitate the global implementation of diverse AIoT applications. We continually adjust our strategies to align with technological trends and the evolving demands for edge solutions.

Accelerate Edge AI Deployment
- AI Accelerator Modules
- Edge AI Inference Systems
- Edge AI Workstations

Edge AI Solutions

Edge Software

Design-In Services

Optimized Edge Management & Security
- EdgeSync 360 / DeviceOn+
- Edge AI SDK
- NVIDIA AI Enterprise
- Intel Geti AI Training Software
- Azure OpenAI
- IoT Security Solutions

Leading Edge Platform Innovations
- Modular Edge (X86/Arm)
- Compact & Tiny Edge (Arm)
- High Performance Edge (HPEC)
- Advanced Thermal Solutions
- Edge BMC Solutions

Edge Computing

intel · NVIDIA · AMD · NXP · MEDIATEK · arm · Qualcomm · HAILO · AXELERA · Microsoft · Trellix · CANONICAL · Acronis

Establishing a Value-Add Business Model

Advantech is committed to customizing its designs to meet the distinct requirements of various industries. This approach has bolstered Advantech's expertise in areas such as heat management, aesthetic design, and I/O integration. Through collaborations with leading global semiconductor manufacturers such as Intel, NVIDIA, Arm, NXP, AMD, Qualcomm, and MediaTek, Advantech has solidified its position in the field of edge computing. With integrated edge AI technology and deepening ties with Microsoft—a provider of global cloud platforms—and Azure Open AI, Advantech also offers Edge AI SDK, DeviceOn, and IoT Security for industry-specific needs, all of which contribute to the company's value-add business model.

Grabbing AIoT Emerging Business Opportunities

Drawing upon four decades of product innovation, Advantech is strategically positioning itself for the future. The company is aligning product innovation and marketing to address the specific needs of vertical industries, integrating 5G, AI, and cloud technologies into its new offerings. While maintaining a strong presence in established sectors such as medical and automation, Advantech is also expanding into emerging domains like green energy, EV infrastructure, robotics, and AMR. This initiative is aimed at accelerating the global deployment of AIoT applications.

Embedded Design-In Services

Bridging Technology for AIoT Opportunities

Advantech recognizes that customers face unique challenges in adopting emerging technologies into their solutions. We specialize in transforming a range of new technologies into diverse platforms and domain-focused solutions tailored to address the unique needs of our customers. Our comprehensive service model provides a one-stop solution for integrating embedded boards, systems, software, displays, and peripherals. This approach utilizes customer-centric design-in services to accelerate AI and IoT deployment. By collaborating with reliable and experienced embedded professionals, solution providers can anticipate a streamlined process, reducing the time and resources typically required for system integration.
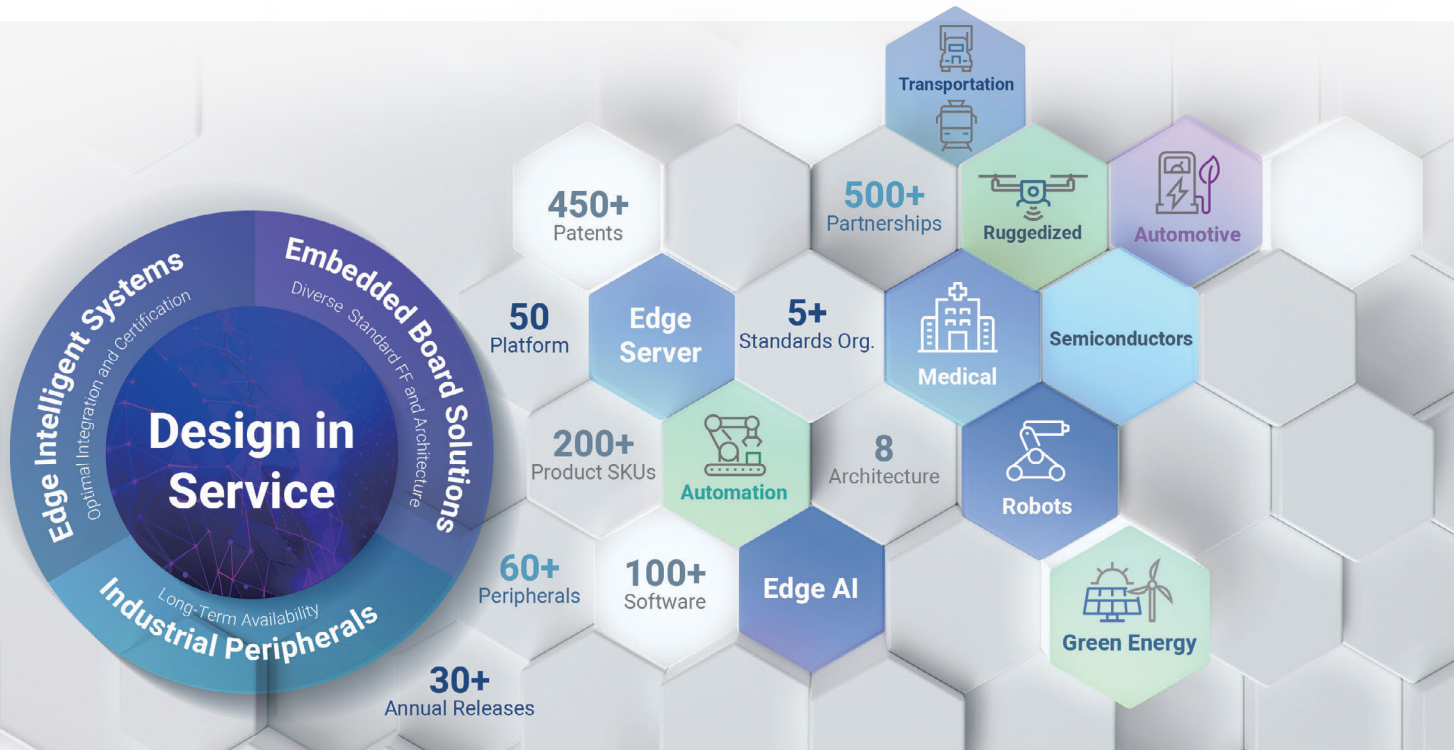
Leading Embedded Technologies

Advantech, as a pioneer and leader in the embedded market, has continuously innovated in the development of embedded technologies from day one, ensuring that our customers have access to the most advanced solutions on the market. We provides full scale x86 and Arm-based computing platforms covering various form-factors from MicroATX, mini-ITX, 3.5" SBC, Pico-ITX, to COM-HPC , COM Express, Qseven, SAMRC, OSM (Open Standard Module) modules. Advantech continuously engages in research and development with association and partners to provide innovative form factors, such as COM-HPC by PICMG for high performance computing at edge and solder-on module, OSM by SGET with miniature embedded technology, ensuring future adaptability.

Multiple Peripheral Module Integration Services

Advantech provides a full range of modules for design-in services, including I/O extension, AI acceleration modules, SSD, memory, and wireless module solutions. With multiple peripheral modules and integration services, customers can rapidly implement their solutions.

AIoT Software, Distribution & Services

Harnessing substantial expertise in embedded and edge computing, Advantech features a dedicated global software solutions team. This team not only provides a range of services, covering Embedded BIOS, OS, software APIs, and utilities but also furnishes comprehensive solutions for AIoT device management, Edge AI, IoT security software and cloud services. By leveraging these seamlessly integrated hardware and software services, embedded developers can streamline design efforts, reduce project complexity, and expedite product development.
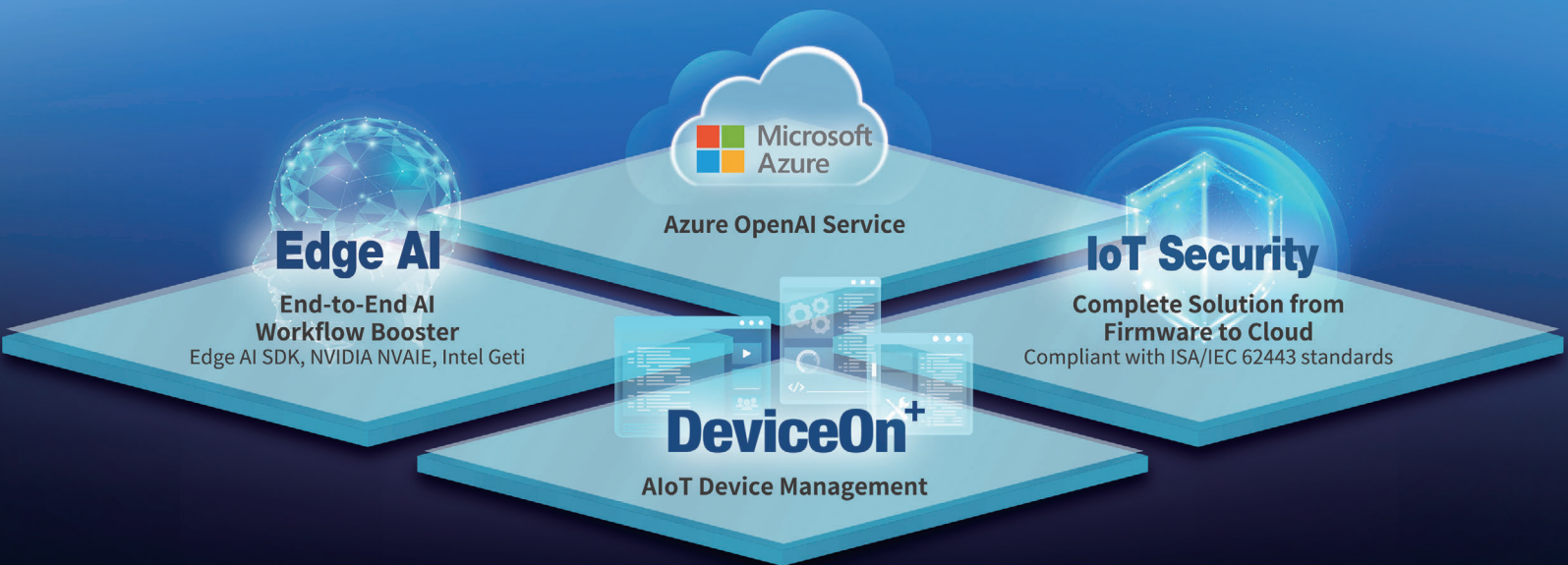
Edge Software Solutions

Empowering Edge Intelligence with AI and Security Solutions

Advantech excels in AI and IoT Security, providing efficient Edge AI platforms, along with end-to-end solutions for streamlined workflows. Within AIoT, our software provides dynamic support for the changing requirements of AI application development. For IoT Security, Advantech offers a one-stop solution with custom hardware modules, OS fixes, and AI-driven protection. DeviceOn ensures secure AIoT device connectivity and complete lifecycle management. Advantech's exclusive IEC62443 pre-assessment service, based on HW + SW and VoC certification, offers scalable security solutions for clients at various certification stages.

Efficient AI development accelerators powered by generative technology

Seamless edge orchestration automated edge efficiency

3-Layer execution for fortifying, remediation, and monitoring

Microsoft Azure

Azure OpenAI Service

Edge AI
End-to-End AI Workflow Booster
Edge AI SDK, NVIDIA NVAIE, Intel Geti

IoT Security
Complete Solution from Firmware to Cloud
Compliant with ISA/IEC 62443 standards

DeviceOn⁺
AIoT Device Management

Edge AI Software Solutions

To boost our customers' efficiency and stability in creating edge AI applications, Advantech offers not only inference toolkits but also various software platforms tailored for specific tasks that are all verified on select Advantech devices. This helps our customers conveniently carry out what may sometimes be daunting tasks within an edge AI workflow. These tasks include evaluating, training, developing, deploying, and maintaining various AI applications.

IoT Security Solutions

Advantech's IoT Security Solution offers a comprehensive suite, including customized hardware modules, OS enhancements, robust software protection, and DeviceOn integration, ensuring stable lifecycle management. Enhanced with enterprise-grade cloud and AI technology, it significantly bolsters security. The IEC62443 Pre-Assessment Service, tailored with Advantech's hardware and software, and supported by VoC certification, is adaptable to client-specific needs, offering flexibility and ease when upgrading to address evolving requirements.

DeviceOn AIoT Device Management

DeviceOn serves as the cornerstone of our AIoT experience, offering several core capabilities. It offers Edge Cloud Intelligence, Remote Access Services, Application Orchestrator, and Endpoint Protection. We have expanded its support to AI-related applications and IoT security. DeviceOn will continue to play a critical role in connecting and integrating more and more applications well into the future.

Azure Cloud and OpenAI Services

Experience Azure Cloud, the ultimate solution for transformative AIoT applications. Offering unparalleled scalability, top-notch security, and comprehensive management, it's the perfect choice for elevating business efficiency and innovation across various industries. Paired with generative AI capabilities, Azure services have come to serve as a copilot to reduce the barrier of entry to new users and offer useful insights.

Edge AI Solutions

Empowering AI at the Edge with Software and Services

The range of use cases for Edge AI is highly diverse, necessitating varied AI computing capabilities and industrial designs. Advantech collaborates with multiple partners to develop edge AI solutions that integrate hardware and software, facilitating the accelerated deployment of AI across industries such as manufacturing, transportation, retail, and smart cities. Our offerings harness CPU, VPU, or GPU technologies from eco-partners, delivering multifaceted AI solutions that efficiently scale AI applications while optimizing budget and resource utilization.

AI Acceleration Modules — Edge AI Inference Systems — Edge AI Workstations

Comprehensive AI Products

Advantech collaborates with multiple partners such as Intel, NVIDIA, Hailo to develope comprehensive edge AI offerings from AI acceleration modules, to AI inference systems to AI workstations. Our offerings harness CPU, VPU, or GPU technologies from eco-partners, delivering multifaceted AI solutions that efficiently scale AI applications while optimizing budget and resource utilization.

Edge AI Design-In Services

As embedded design expert, Advantech edge AI design-in services provide a one-stop offering in terms of hardware, OS, and software integration according to your project requests. This includes advanced thermal solutions, embedded software service, and peripheral integration.

Industrial-Grade Design for Critical Environments

All products include 5 to 7 years of longevity support with strict revision management to reduce the need for frequent re-designs and re-validation. The rugged designs such as wide-range operation temperature and anti-vibration ensure system stability in harsh environments.

Full Software Support

Advantech understands the bottlenecks faced by customers seeking to develop AI applications and offers full software support to accelerate their development. The support includes Edge AI SDK, DeviceOn, Robotics SDK, and Ubuntu. Among them, Advantech Edge AI SDK is an exceptional toolkit designed to seamlessly support leading AI platforms and their associated inference SDKs.

High-Performance Edge Computing

Redefining Next-Generation Applications

To enable high-speed, high-volume processing for real-time, action-led outcomes, computing processes are strategically placed near data sources, requiring upgraded performance from edge computers to efficiently handle data-intensive workloads. High-performance edge computing, powered by high-core-count processors, high-bandwidth connectivity, and real-time responsiveness, paves the way for the future of edge computing. Advantech stands as your dependable partner, providing high-performance computing solutions tailored for next-gen edge applications.

COM-HPC Server Size D/E

HPEC for LLM GPU Workstation

Server-Grade Micro-ATX

64 Cores   Open BMC

USB 4.0   QFCS 3.0   6-Channel DDR5   Multi-PCIe x16   100 GbE LAN

IPMI2.0   EDSFF

☑ Rugged & Reliable   ☑ High Throughput   ☑ Low Latency   ☑ High Density Core   ☑ Remote Management

AMD   Edge AI SDK   intel   NVIDIA   Ubuntu Server   Windows Server

High-Density Cores

High-density core computing allows parallel processing of multiple tasks simultaneously and effective workload distribution. Tasks can be allocated among the cores, optimizing the computational efficiency and preventing bottlenecks in performance. Advantech HPEC products are designed with high-density processors and high-speed expansions for applications such as medical research and diagnosis that involve complex calculations, simulations, or modeling.

High-Bandwidth Connectivity

High-end applications typically work with large datasets that need to be distributed across multiple nodes or processed simultaneously. High bandwidth ensures that these large datasets can be efficiently transmitted and shared among different components of the computing system, enabling effective cluster communication, as commonly observed in networking devices.

Real-Time Responsiveness

Real-time responsiveness enables high-performance computing by reducing transmission delays with high-speed bitrates, minimizing communication overhead and improving the efficiency of input/output operations. These advantages enhance the effectiveness and accuracy of data exchange in edge computing, particularly in the field of precision automation.

Thermal and Power Reliability

Thermal and power design is crucial in high-performance computing since it impacts the system's reliability, performance, and longevity. High-performance components, such as CPUs, RAM, storage, and GPUs, generate significant heat during operation. Proper management of heat and power delivery ensures that HPC systems can achieve the computational power required for demanding applications while maintaining stability and longevity.

Advantech OSM Solutions

Tiny Size, Limitless Performance

In the ever-evolving embedded market, fueled by the rise of AIoT, which encompasses edge AI and sensor nodes, the demand for compact, reliable, and rapidly scalable solutions has never been greater. Advantech, in partnership with the Standardization Group for Embedded Technologies (SGET), introduces a range of tiny solder-on modules adhering to the Open Standard Module (OSM) standard. These modules come with pre-defined hardware and software interfaces, complementing the existing Computer-On-Modules. Supported by Advantech's manufacturing and software expertise, our OSM solutions lead the way in miniature embedded technology, ensuring adaptability for the future.

☑ **Space Efficiency**
Tiny, ultra-thin design

☑ **Enhanced Reliability**
SMT assembly

☑ **Fast Development**
HDI PCB, memory, and PMIC

☑ **Reduced TCO**
Fully automatic production

Four Compact Sizes

The all-new Open Standard Module is available in 4 versatile sizes: Size Zero, Small, Medium, and Large, ranging from 15x30mm to 45x45mm. Each size corresponds to the number of LGA contacts on the module, offering flexibility for various application requirements.

Fully Automatic SMT Assembly

The OSM utilizes fully automatic SMT (surface mount technology) assembly, eliminating the need for additional connectors for board-to-board connection. This results in a thinner, more space-efficient profile, which is especially beneficial when dealing with space constraints in electronic device design. It also offers enhanced resilience to vibration, shock, and other mechanical stressors.

High Flexibility

The OSM, assembled with SMT, enables higher component density than other PCBs, allowing for more features and functionality in a smaller footprint. The pinout configuration includes video interfaces such as RGB, Camera Serial Interface (CSI), DisplayPort, and LVDS, as well as connection interfaces, with up to 2 x PCIe x4, 5 x GbE Ethernet, and 2 x USB 3.2.

Advantech OSM Design-In Service

Advantech provides full support throughout the design-in process with volume production and product lifecycle management. We provide not only comprehensive design references, hardware documentation, and manufacturing guidelines but also relevant embedded software resources and longevity support to ensure project success and minimize time-to-market.

Cutting-Edge EVSE-Focused Solutions

Pioneering the Future of EV Charging

When deploying rapid EV charging infrastructure, implementing a rapid EV charger poses four challenges: integrating numerous controllers, managing large-scale equipment remotely, ensuring scalability for future capacity needs, and addressing cybersecurity concerns to mitigate the risk of cyberattacks on networked devices. Advantech tackles these challenges in next-generation EVSE & SECC integration with a comprehensive solution.

Efficiency at Scale
Innovative Charging Stations Tackle Management Challenges

Scalability of Computing & AI Capacity

Integrated EVSE & SECC Controller

Manageability via Out-of-Band Capacity

Design-in Service For Security

AFE-E350

Integrated EVSE Controller & SECC Design

Advantech's EV charger platform simplifies system design by integrating essential components, offering multiple connections and expansion options for plug-and-charge functionality.

Enhanced Manageability via Out-of-Band Capacity

EdgeBMC offers robust out-of-band management for hardware and firmware, enhancing system recovery and preventing unauthorized changes, with industrial-grade control and energy efficiency features for improved reliability and ease of integration.

Future-Proofing Through Scalability in Computing and AI Capacity

Charging stations are evolving to include kiosk and retail options with AI and camera tech for targeted advertising and services, encouraging longer stays and increasing revenue. Smart route planning will optimize charging efficiency and station management. Advantech's new EVSE solutions support this with advanced displays, PoE, USB 3 interfaces, and scalable computing for innovative services.

Design-In Service for Security

Growing EV charging systems are vulnerable to attacks, risking grid stability. Advantech offers tools to secure these systems, aligning with ISA/IEC 62443 standards.

Robot & AMR Solutions

Empowering Future-Proof Autonomous Robot Solutions

Advantech's AFE-R Series is a groundbreaking innovation in industrial robotics, offering an open and scalable solution that elevates efficiency, precision, and safety. It supports growth with seamless expansion and workload consolidation, ensuring uninterrupted wireless connectivity for advanced robot interactions. Additionally, it integrates vision AI for real-time decision-making, combining remote manageability with strict adherence to safety standards, ensuring reliability and unlocking new possibilities for a variety of robotic applications.

Sensor Fusion
- Time Synchronous
- Low Latency
- No-loss imaging
- OpenCV& OpenVINO

Localization & Navigation
- Precision Positioning
- WiFi Fast Roaming
- V2V & V2I Communication
- SLAM & ROS2

Safety & Redundancy
- OOB Manageability
- Redundancy
- Dead Reckoning

Open & Scalable Architecture
- Hybrid Computing
- Scalable Architecture
- Workload Consolidation
- Performance vs. Low Power

Sensor Fusion

Advantech blends sensor fusion and seamless data processing, marking a shift toward faster decision-making with minimal delays. Integrating tech such as OpenCV and OpenVINO empowers robots with cutting-edge vision AI, expanding their operational capabilities significantly.

Localization & Navigation

With Wi-Fi fast roaming capabilities, wireless communication remains uninterrupted. AFE-R Series solutions set new standards for precision and navigation, keeping robots seamlessly connected. Furthermore, enabling V2V and V2I communication takes robot interaction to the next level.

Safety & Redundancy

The integration of Out-of-Band (OOB) manageability enables remote control and monitoring, allowing you to manage your robots from anywhere, at any time, under any conditions. Redundancy mechanisms minimize the risk of unexpected failures, enhancing system reliability.

Open & Scalable Architecture

AFE-R Series solutions offer open and scalable architecture to support seamless expansion and workload consolidation, providing developers with the flexibility needed to adapt to evolving demands. This leads to maximization of efficiency in industrial robotics.

Industrial Peripheral & Software Distribution

Expand Your Business Opportunities with Trusted, Competitive Services

To speed up the process and reduce the time-to-market for customer solutions, Advantech offers a wide range of industrial peripherals and services. These cover storage, wireless, displays, e-paper, and software solutions. With a proven track record evidenced by billions of industrial devices, our commitment to quality sets us apart in the industrial peripherals market. By working closely with partners and keeping your trust, we aim for mutual growth and excellence.

Industrial Flash & Memory Solutions

Wireless ePaper Solutions

Industrial Wireless Solutions

Edge Software, Distribution & Services

Industrial Display Solutions

Effortlessly Overcome Challenges with High-Quality Solutions

Advantech industrial peripheral solutions undergo a thorough verification process that includes rigorous testing for functionality, safety, compatibility, durability, and reliability. This ensures that our solutions can be confidently utilized in critical applications, providing long-term stability and significantly minimizing unexpected issues.

World-class Compatibility and Integration

Across the globe, tens of millions of devices currently utilize Advantech's industrial peripherals. These devices play a crucial role in sustaining uninterrupted operations across diverse industrial applications, contributing to efficiency, productivity, flexibility, and a seamless user experience.

Tailored for Specific Fields

With our extensive experience and expertise, we have the capability to tailor both software and hardware to match the specific needs and applications of our customers. This not only mitigates risks but also cultivates more stable and reliable business opportunities.

Empowering Intelligence in Devices

Advantech offers a variety of value-added services for customizing software, firmware, and hardware to align with the unique requirements of our customers. This enables the incorporation of management and monitoring functions, enhancing the overall value of customers' original applications.

Total Cost Management

Advantech provides local technical support and global logistics services to help with customers' Total Cost Management. Our dedicated PM and FAE teams focus on customer needs to help solve any problems that arise. This allows customers to focus on creating greater competitiveness in the market without having to worry about every small detail.

Product Selection Guide

Edge AI Software

NVIDIA AI Enterprise (NVAIE)

NVIDIA AI Enterprise (NVAIE)			
Overview	**End-to-End Software Platform & Enterprise Support for Production AI** NVIDIA AI Enterprise (NVAIE) is an end-to-end, cloud native software platform that accelerates the data science pipeline and streamlines development and deployment of production-grade AI applications, including generative AI, computer vision, speech AI, and more. Enterprises that run their businesses on AI rely on the security, support, and stability provided by NVIDIA AI Enterprise to improve productivity of AI teams, reduce total cost of AI infrastructure, and ensure a smooth transition from pilot to production.		
Benefits	• Improves productivity and lowers costs with accelerated computing. • Frees teams to build innovative AI solutions with enterprise-grade security, reliability, and support. • Is cloud-native and certified to run anywhere and on current and prior GPU generations. • Speeds time to production with AI workflows and pretrained models.		
Features	• Data Preparation: Speed data processing time up to 5X while reducing operational costs by 4X. • Model Training: Create custom, accurate models in hours, instead of months. • Optimized for Inference: Accelerate up to 8X LLM inference performance and up to 40X inference performance over CPU-only platforms. • Deploy at Scale: Simplify and optimize the deployment of AI models at scale and in production. • Enterprise Support: Access to NVIDIA AI experts with service-level agreements (SLAs).		
System Requirements	• NVIDIA-Certified Systems including servers, workstations, and edge systems. (https://www.nvidia.com/en-us/data-center/data-center-gpus/qualified-system-catalog/) • Ubuntu 20.04 LTS or 22.04 LTS (Server/Desktop editions)		
License Type w/ Support Services	Subscription, 1-year term	Subscription, 3-year term	Subscription, 5-year term	Perpetual License + 5-year support services
Support Options	Business Standard (Included)		Business Critical (Optional Upgrade/Add-on)	
	SLA: 9 x 5 Business Days		SLA: 24 x 7	
	• Services: Issue resolution, bug fixes, software updates, maintenance • Support Channels: Phone, portal, email			

intel Geti™ On-premises Computer Vision AI Training Software

Intel® Geti™			
Overview	Intel's new software platform enables the building of computer vision models in a fraction of the time and with less data. The platform eases laborious data labeling, model training, and optimization tasks across the AI model development process, empowering teams to produce custom AI models at scale.		
Features	• Smart Annotations: Expedite data annotation and easily segment images with professional drawing features like a pencil, polygon tool, ora OpenCV GrabCut. • Interactive Model Training: Get started annotating data with as little as 20-30 images; then let active learning help you teach the model as it learns. • Multiple Computer Vision Tasks: Create models for AI tasks including classification, object detection, semantic segmentation, or anomaly detection. • Task Chaining: Train your model into a multistep, smart application by chaining two or more tasks, without the need to write additional code. • Production-Ready Models: Output deep learning models in TensorFlow or PyTorch formats or as an optimized model for the OpenVINO™ toolkit to run on Intel® architecture CPUs, GPUs and VPUs. • REST APIs and SDK: REST APIs and the software development kit (SDK) enable users to push data directly into the platform and pull trained models directly into their deployment pipelines.		
System Requirements	**On-Premise HW Installation:** • CPU for workstations: Intel® Core™ i7, Intel® Core™ i9, or Intel® Xeon® scalable processors capable of running 20 concurrent threads (K3s) or 48 concurrent threads (K8s). • GPU: Min. one NVIDIA GPU with min. 16GB of memory (e.g. RTX 4080, RTX 3090, RTX 6000, RTX 8000, Tesla A100, Tesla V100, Tesla P100, or Tesla T4). • Memory: Min. 64GB RAM (128GB recommended) per GPU • Disk Space: Min. 1TB (2TB recommended) available space on the root partition • OS: Ubuntu 20.04 LTS or Ubuntu 22.04 LTS **Cloud Deployment:** • The Intel® Geti™ platform needs a static IP address to work and cloud providers offer different means to ensure that. • VM Type: g5.8xlarge (AWS), Standard_NC24s_v3 (Azure) • CPU for cloud deployment: CPUs capable of running min. 24 concurrent threads for K3s or min. 48 concurrent threads for K8s • Disk Space: Min. 500GB (1TB recommended) available space on the root partition • OS: Ubuntu 20.04 LTS or Ubuntu 22.04 LTS		
License Types	**Starter, Annual License:** • 1 Name User • 1 Instance • Recommended for POC • Basic Support Recommended HW ssold separately by Advantech: • ARK-7060, 20 CPU threads for K3S, 64GB RAM: RAM / 1TB SSD • 1 x RTX 4000 GPU with 16GB RAM • Built-in DeviceOn • Built-in Edge AI SDK	**Professional, Annual License:** • Team collaboration • 3 Named users for small teams • 2 Concurrent model trainings • 1 Instance • Recommended for small teams • Basic Support Recommended HW sold separately by Advantech: • ARK-510, 20 CPU threads for K3S, 64GB RAM: RAM / 1TB SSD • 2 x RTX 4000 GPU with 16GB RAM • Built-in DeviceOn • Built-in Edge AI SDK	**Professional, Annual License:** • Team collaboration • 3 Named users • Up to 4 medium-sized model trainings • 1 Instance • Recommended for medium-sized teams • Basic support	**30-day Free Trial Term License:** • Proof of value • Incur no cost for using the software and generating models • Enables unlimited usage

DeviceOn, Device Management Software

DeviceOn

	DeviceOn
Introduction	IoT management platform that manages connected devices remotely and provides centralized management features.
Highlighted Features	• Micro-Service Design: Scalable cloud and on-premise deployment to support 10,000+ devices, cross-geo monitoring • Securely Automated Device Onboard: Enable secure, auto device registration at scale through zero-trust infrastructure • Device Monitoring and Control: Power On/Off, device remote control with scheduling rules, protection management, and Windows Lockdown utility • Container management: Integrate MLOps to deploy, monitor, and manage AI models and applications • Software OTA Updates: Remotely deliver and update software, firmware, drivers, and configuration at scale. • Edge-Integrated Security: Ransomware protection, application whitelisting, system backup, and bare-metal recovery
System Requirements	**DeviceOn for Azure:** Standard Edition: Minimum VM tier: D2sV4 (2 Cores, 8GB memory) Enterprise Edition: Azure IoT Hub (S2) Azure Stream Analytics (Std. 1 unit) Event Hub (Basic, 1 million events) Service Bus (Prem. 1 daily message unit) Azure Database for PostgreSQL (5GB storage) Azure Cosmos DB (Standard, 200GB transactional) Virtual Machines (1 E2s, 2 vCPU, 16GB memory) **Standalone Server:** Intel® Core™ i5 2.3 GHz CPU or above, 8GB RAM • 25GB root partition for the system • 100GB data storage partition (for documents and indexing) • OS: Windows Server 2012/2012 R2 64-bit, Windows Server 2016/2019 Standard 64-bit, Windows 10 Enterprise 2016 LTSB/LTSC 64-bit, Windows 10 Enterprise/Professional (1809) 64-bit, Windows 8/8.1 64-bit, Windows 7 SP1 64-bit, Ubuntu Desktop 18.04/20.04/22.04 **Device/Agent:** • Advantech HW with SUSI driver 3.02/4.0 support (or above), which is required for HWM (Hardware Monitoring Management) to work normally • OS: Windows 10 32-bit/64-bit, Windows 7 SP1 32-bit/64-bit, Ubuntu 16.04/18.04/20.04, CentOS 7/7.6/8.0, Android 6.0, Yocto
Ordering Information	**Perpetual License:** 32WSWPDO0001A1 (1 device) 32WSWPDO0010A1 (10 devices) 32WSWPDO0100A1 (100 devices) 32WSWPDO0500A1 (500 devices)

Learn more: https://campaign.advantech.online/en/DeviceOn/index.html

IoT Security Software

Acronis   Trellix

	Backup & Recovery			Security
Product	• Acronis True Image OEM version (Personal / HD / Data Protection / OEM for Windows Server)	• Acronis Cyber Backup	• Acronis Snap Deploy	• Trellix Application Control • Trellix Embedded Control • Trellix Integrity Control
Overview	Acronis OEM Solutions are available exclusively for OEM partners. Acronis True Image OEM editions are limited functionality subsets of Acronis True Image. They are designed for specific functionality and are priced to meet OEM needs and budgets without making the OEM partner pay for unneeded features.	Acronis provides the world's easiest and fastest data protection software for businesses of all sizes. It covers on-premise and remote data, as well as private and public clouds and mobile devices.	Acronis Snap Deploy lets you create an exact disk image of any standard configuration, including the operating system, configuration, files, and applications. You can simultaneously deploy that image to multiple machines in one easy step.	Trellix whitelisting technology is ideal for protecting systems with low overhead, which does not impact system performance and is equally effective in standalone mode without network access.
Benefits	• The only backup that actively fights ransomware. • Full disk image, dedicated function for full disk backup, file/folder backup and scheduling. • Lower support costs via easy and remote factory restore for all systems – including OS, applications, and settings.	• Stores backups to a variety of storage devices—including local disks, network storage, and the cloud. • Minimizes expensive downtime by restoring Windows and Linux systems to dissimilar hardware—including bare-metal physical, virtual, or cloud environments. • Reduces time-to-action and resolves issues quickly with customizable dashboards for quick insights into your infrastructure.	• Mass provisioning – rapid deployment of a single disk image to multiple machines. • Deployment to live machines – start deployment to live Windows machines without manually booting individual machines from the network or CDs. • Multicast deployment – thousands of machines can be deployed as quickly and easily as one.	• Block unauthorized applications and change attempts. • Change attempts from outside of policy are blocked. • Monitors file integrity and file changes.
Min. Hardware Requirements	• Processor : Pentium 1GHz • Memory: 1GB RAM • Disk Space: 3.5GB • CD-RW/DVD-RW drive or USB drive for bootable media creation (about 500MB of free space is required) • Display: 1024 x 768 • Mouse or other pointing device (recommended)	• Processor: Pentium 1GHz • CD-RW/DVD-RW driver USB flash drive for bootable media creation (about 1GB of free space is required) • Display: 1024 x 768	• Processor: Pentium 1GHz • CD-RW/DVD-RW driver • USB flash drive for bootable media creation (about 1.5GB of free space is required) • Display: 1024 x 768	• Processor: x86-64 / AMD64 architectures • Memory: 1GB RAM (64-bit, 2GB) • Disk Space: 100MB • TCP/IP protocol installed on the system

Microsoft Windows IoT & Azure Services

Windows IoT and Embedded OS

	Windows 11/10 IoT Enterprise	Windows Server IoT	Office LTSC Embedded
Product	• Windows 11 IoT Enterprise • Windows 10 IoT Enterprise LTSC • Windows 10 IoT Enterprise GAC/SAC	• Windows Server IoT 2022 • Windows Server IoT 2019	• Office LTSC 2021 Embedded
Overview	Windows 11/10 IoT is a series within the Windows version lineup, offering a complete enterprise edition of Windows with embedded capabilities. It allows dedicated devices to be locked down to a specific set of applications and peripheral devices, enabling the creation and management of trusted IoT solutions using powerful tools and technologies. The LTSC version provides 10 years of supply and security updates from the date of release, while GAC/SAC versions support 30 months of feature update services.	Windows Server IoT is a full version of Windows Server that provides enterprise management capabilities and security for IoT solutions. It can be used with the same familiar development and management tools as those used on general-purpose servers such as Endpoint Configuration Manager and Windows Admin Center.	Office LTSC Embedded is one of the products in the Office series and is a perpetual licensing version specifically designed for IoT/Embedded devices with specific functionalities. It does not require a subscription and does not need to be connected to the cloud.
Benefits	• Specifically designed for devices such as ATM machines, point-of-sale terminals, industrial automation systems, thin clients, medical devices, digital signage, kiosks, and other fixed-purpose devices. • Supports both Universal Windows Apps and traditional Windows applications. • Supports various processors, including x86, x64, ARM, and more. • Advanced security features such as Device Guard, BitLocker, and Secure Boot. • Supports USB 4.0 and Wi-Fi 6E (only supported in Windows 11 IoT). • Supports advanced device lockdown capabilities for embedded systems.	• Diverse storage options to achieve high performance, availability, and resource efficiency through processes such as virtualization and optimization. • Multi-layered security to provide comprehensive protection. • Built-in hybrid capabilities in Windows Server, making it easier to extend the data center to Azure for improved efficiency and flexibility.	• IoT/Embedded solutions that do not require feature updates. • IoT/Embedded devices that cannot connect to the Internet. • Manufacturing-related production process control equipment. • Other IoT/Embedded-related applications.

Min. Hardware Requirements	**Win 10 IoT**
	• Processor:
	  1 GHz or higher or System-on-Chip (SoC)
	• Memory:
	  1 GB (32-bit) or 2 GB (64-bit)
	• Disk Space:
	  16 GB (32-bit) or 32 GB (64-bit)
	• Graphics Card:
	  DirectX 9 with WDDM 1.0 driver
	• Display: 800 x 600 resolution
	
	Win 11 IoT
	• Processor:
	  64-bit processor or System-on-Chip (SoC) with 1 GHz or higher, and 2 or more cores
	• Memory: 4 GB
	• Disk Space: 64 GB or more
	• Graphics Card:
	  DirectX 12 with WDDM 2.0 driver
	• Display: High-definition (720p)
	• Other: TPM 2.0
		• Processor:
		  1.4 GHz 64-bit or higher
		• Memory:
		  512 MB
		• Disk Space:
		  32 GB
		• Network Interface Card:
		  Ethernet card with a minimum throughput of 1 GB per second
		• Display: 1024 x 768
			• Processor:
			  Windows 11 or Windows 10/latest macOS with a 1.6 GHz dual-core processor.
			• Memory:
			  1 GB (64-bit), 2 GB (32-bit) RAM for PC; 4 GB RAM for Mac.
			• Disk Space:
			  4 GB available disk space for PC; 10 GB for Mac.

Microsoft Windows IoT & Azure Services

Microsoft Azure Cloud

Microsoft Azure

	Azure Services
Product Positioning	Azure Cloud is the ultimate platform for digital transformation. It seamlessly integrates cutting-edge AI and advanced IoT solutions. Tailored for businesses aiming for agility, innovation, and global reach, Azure stands out with its robust security, diverse range of services, and scalable infrastructure, catering to enterprises of all sizes in their journey towards a smarter, more efficient future.
Information Security Turnkey Solution	Security Health Check: • Enterprise cybersecurity strengthening and practical implementation consultation service. • Provides vulnerability analysis. • Provides an all-in-one cybersecurity management dashboard. • Disaster recovery exercise architecture design. • Strengthens cybersecurity awareness through employee safety education and training. • Guidance on creating audit reports in compliance with the Financial Supervisory Commission (FSC) requirements for businesses. Microsoft Entra ID (AAD) and Hybrid Solution: • Synchronize identity data between Microsoft Entra ID (AAD)and local AD. • Hybrid cloud architecture for Microsoft Entra ID (AAD). • Integrate Single Sign-On (SSO) technology. • Real-time monitoring of on-premise device status (Azure Arc). • Enabling unified management across different environments.

Benefits of Working with Advantech	Advantech boasts a professional team dedicated to cloud and hybrid cloud technologies, with years of experience. The team has accumulated numerous successful cases in OT (Operational Technology) domains. The deployment process is divided into the following three stages, providing the company with rapid, low-risk, efficient, and professional support.
	
	• Pre-Implementation
	  • Assessment
	    – Cloud service analysis
	    – Fundamental introduction course
	    – Data compliance evaluation
	  • Design
	    – Cloud architecture
	    – Security framework design
	    – Azure OpenAI integration
	• Mid-Implementation
	  • Execution
	    – Cloud solution deployment
	    – Backup scheduling setup
	    – Azure OpenAI refinement
	• Post-Implementation
	  • Optimization
	    – Cost optimization analysis
	    – Billing management
	    – Performance fine-tuning
	  • Maintenance
	    – Support ticket system
	    – Security health check
	    – 5x8 service

Linux, Embedded BIOS, and APIs

Ubuntu

ubuntu Desktop   Core

Product	Ubuntu Desktop	Ubuntu Core
Overview	The Ubuntu Desktop is an essential enabler for thousands of development teams around the world, building upon years of evolution. One of the most reliable, secure, and versatile environments for desktop use, Ubuntu gives unparalleled freedom and control.	Ubuntu Core is a version of Ubuntu optimised for IoT-native embedded systems. While Ubuntu delivers the latest and greatest open source software for general purpose computing, Ubuntu Core carries only packages and binaries you choose for your single-purpose appliance.
Benefits	• Full-blown graphics UI OS • The depth and breadth SDK of Ubuntu Desktop makes it the preferred platform for AI, ML, and DL. • Consistent OS experience across platforms. Users can work with the exact same underlying OS on their desktops as they do on their servers, in the cloud, and on IoT devices. • Ubuntu Desktop LTS releases are supported by Canonical for five years with bug fixes, security updates, and hardware enablement.	• Light-weight command-line OS • Optimized for IoT sensor devices • Ubuntu Core is a container OS built on snaps. With snaps, embedded systems benefit from security, immutability, as well as modularity and composability • Software is updated over-the-air through deltas that can automatically roll-back in case of failure
Min. Hardware Requirements	• 2 GHz dual core processor or better • 4 GB system memory • 12 GB of free hard drive space • 32-bit / 64-bit, x86 / ARM	• 500 Mhz single core processor • 256 MB RAM • 512 MB Storage • 32-bit / 64-bit, x86 / ARM

Embedded BIOS, APIs

Our dedicated global embedded software team is committed to providing a range of services — ranging from embedded BIOS to software APIs.

Embedded BIOS service including, security, firmware BIOS and BIOS suite		
Security	**Firmware BIOS**	**BIOS Suite**
Secure Flash	Consulting Service	DMI Editor
Secure Boot	BIOS Specification Review	Change BIOS Settings
Boot Guard	Customer Logo/Settings	Change Logo
TPM/TCM	Custom BIOS	Flash Tools
Encrypted Storage	Boot Time Tuning	Diagnostics

Software API

Secure, Unified, and Smart Interface (SUSI) APIs are user-friendly, intelligent and integrated interfaces that expedite development and offer add-on value for Advantech platforms			
System Protection	**Device Monitoring**	**I/O Control**	**Application Extension**
Secure system data and ensure system performance	Monitor and detect device data for further management	Access and manage I/O for device control	Access to external modules or devices for application development
Data security	Smart fan	GPIO	PoE
Watchdog timer	Hardware monitoring	SMBus/I2C	G-sensor
Thermal protection	System information	Brightness and backlight on/off	Intelligent display
System throttling	AI information	CANbus	RAM Battery

Computer On Modules

COM HPC
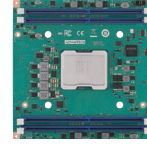
Model Name		SOM-A350	SOM-C350/R	SOM-D580	SOM-E780
Form Factor		COM-HPC Size A	COM-HPC Size C	COM-HPC Size D	COM-HPC Size E
Pin-out Type		COM-HPC Client	COM-HPC Client	COM-HPC Server	COM-HPC Server (Proprietary)
Processor System	CPU	14th Gen Intel® Core processors	12/13th Gen Intel® Core processors (socket)	Intel® Xeon® D-2700 Processor	AMD EPYC™ 7003 Series Processors (socket)
	Base Frequency	P Core: 1.7-1.2GHz E Core: 1.2-0.7GHz	P Core: 3.3-1.8GHz E Core: 1.7-1.3GHz	2.1-1.8GHz	3.0-2.0GHz
	Processor Core	14/12/10	24/16/14/12/6/4/2	20/16/12/8/4	64/32/24/16
	LLC	24/18/12M	36/30/25/20/18/12/6MB	30/25/20/15MB	256/128MB
	CPU TDP	15/28W (cTDP up to 45W)	65W	118/100/80/77/65W	225/200/155W
	Chipset	-	R680E	-	-
Memory	Technology	DDR5 5600	DDR5 3600	DDR4 3200	DDR4 3200
	ECC Supoort	IBECC	ECC and non-ECC	ECC and non-ECC	ECC and non-ECC
	Max. Capacity	96GB	128GB	512GB	512GB
	Socket	2 x 262P SODIMM	4 x 262P SODIMM	4 x 288P LRDIMM	4 x 288P LRDIMM
Graphics	Controller	Intel® Xe® LPG Graphics	Intel® UHD Graphics 770	-	-
	Max. Frequency	2.3GHz	1.65GHz	-	-
	eDP	1	1	-	-
	DDI (HDMI/DVU/DisplayPort)	3	3	-	-
	Multiple Displays	Quad-Display	Quad-Display	-	-
Expansion	PCIe x16	-	1 (Gen5)	2 (Gen4)	4 (Gen4)
	PCIe x8	1 (Gen5. H series only)	-	2 (Gen3)	-
	PCIe x4	2 (Gen4)	1 (Gen4)	-	-
	PCIe x1	12 (Gen4)	12 (Gen4) + 9 (Gen3)	-	14 (Gen4)
	PCIe_BMC	-	1	1	1
	eSPI	1	1	1	N/A; supports LPC
Serial Bus	SMBus	Yes	Yes	Yes	Yes
	I2C Bus	Yes	Yes	Yes	Yes
	IPMB	-	1	1	1
Ethernet	Controller	2 x Intel® I226	2 x Intel® I225	Intel® I225	Intel® I225
	GbE Speed	2.5G	2.5G	2.5G	2.5G
	25Gb Ethernet	-	-	4 x 25Gb/10Gb	-
I/O	SATA	2	2	2	2
	USB4	2 (Optional)	-	-	-
	USB 3.2 Gen 2x2 (20Gbps)	-	2 (Optional)	-	-
	USB 3.2 Gen 2x1 (10Gbps)	2	8	-	-
	USB 3.2 Gen 1x1 (5Gbps)	-	-	4	4
	USB 2.0	8	8	4	4
	Audio	Soundwire/HD Audio	Soundwire/HD Audio	-	-
	BOOT_SPI	1, supports dual BIOS	1	1	1
	GP_SPI	1	1	-	-
	GPIO	12	12	12	12
	Watchdog	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	-	-	-
	TPM	TPM2.0	TPM2.0	TPM2.0	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
	Supply Voltage	Vin: 8V-20V VSB: 4.75-5.25V	Vin: 11.4-12.6V VSB: 4.75-5.25V	Vin: 11.4-12.6V VSB: 4.75-5.25V	Vin: 11.4-12.6V VSB: 4.75-5.25V
	Power Consumption Max.	TBD	231.2W	178.11W@12V (D-2796TE with 512GB LRDDR4 3200)	261.34W@12V (AMD EPYC 7713P with 512GB RDIMM 3200)
	Power Consumption Idle	TBD	12.63W	71.06W@12V (D-2796TE with 512GB LRDDR4 3200)	39.39W@12V (AMD EPYC 7713P with 512GB RDIMM 3200)
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60° C (32 ~ 140° F)
	Extended Temp. (Optional)	-	-	-40 ~ 85 °C (-40 ~ 185 °F)	-
Mechanical	Dimensions	120 x 95 mm (4.72" x 3.74")	160 x 120 mm (6.30" x 4.72")	160 x 160 mm (6.30" x 6.30")	200 x 160 mm (7.87" x 6.30")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

COMe & SMARC

Model Name		SOM-5993	SOM-5962	SOM-5885	SOM-5883	SOM-5899/R
Form Factor		COMe Basic	COMe Basic	COMe Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R3.0 Type 7	COM R3.0 Type 7	COM R3.1 Type 6	COM R3.0 Type 6	COM R3.0 Type 6
Processor System	CPU	Intel® Xeon® D-1700 Processors	Intel® Atom™ C3000 Processors	14th Gen Intel® Core processors	11th Gen Intel® Core processors	9th/8th Gen Intel® Xeon/Core Processors
	Base Frequency	2.4-1.9GHz	2.2-1.6GHz	P Core: 1.7-1.2GHz E Core: 1.2-0.7GHz	2.6-1.5GHz	3.0-1.6GHz
	Processor Core	10/8/4	16/12/8/4	14/12/10	8/6/4/2	6/4/2
	LLC	15/10MB	16/12/8MB	24/18/12M	24/12/8MB	12/9/8/6/2MB
	CPU TDP	67/59/52/50/40W	31/25/17/16/11.5W	15/28W (cTDP up to 45W)	45/35/25W	45/35/25W
	Chipset	-	-	-	Intel® QM580E/RM590E	Intel® CM246/QM370
Memory	Technology	DDR4 2933	DDR4 2400/2133/1866	DDR5 5600	DDR4 3200	DDR4 2666/2400
	ECC Supoort	ECC and non-ECC	ECC and non-ECC	IBECC	ECC and non-ECC	ECC and non-ECC
	Max. Capacity	128GB	128GB	96GB	128GB	96GB
	Socket	4x 260P SO-DIMM	4 x 260P SODIMM	2 x 262P SODIMM	4 x 260P SODIMM	3 x 260P SODIMM
Graphics	Controller	-	-	Intel® Xe® LPG Graphics	Intel® Iris® Xe Graphics	Intel® UHD Graphics 610/630/P630
	Max. Frequency	-	-	2.3GHz	1.35-1.1GHz	1.2-1GHz
	VGA	-	-	-	1	1
	LCD (TTL/LVDS/eDP)	-	-	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)
	DDI (HDMI/DVU/DisplayPort)	-	-	3	3	2, up to 3 if remove VGA
	Multiple Displays	-	-	Quad-Display	Quad-Display	Triple-Display
Expansion	PCIe x16	1 (Gen4)	-	-	1 (Gen4)	1 (Gen3)
	PCIe x8	1 (Gen3)	1 (Gen3. Up to 2 by option)	1 (Gen4. H series only)	-	-
	PCIe x4	2 (Gen3)	1 (Gen3)	2 (Gen4)	-	-
	PCIe x1	-	-	8 (Gen4 & Gen3)	8 (Gen3)	8 (Gen3)
	LPC	1	1	1	1	1
Serial Bus	SMBus	Yes	Yes	Yes	Yes	Yes
	I2C Bus	Yes	Yes	Yes	Yes	Yes
	CAN Bus	Optional	-	Optional	Optional	Optional
Ethernet	Controller	Intel® I225	Intel® I210	Intel® I226	Intel® I225	Intel® I219
	GbE Speed	2.5G	10/100/1000Mbps	2.5G	2.5G	10/100/1000Mbps
	10Gb Ethernet	4	4 (10G/2.5G by SKU)	-	-	-
I/O	SATA	2	2	2	4	4
	USB4	-	-	2 (Optional)	2 (Optional)	-
	USB 3.2 Gen 2x2 (20Gbps)	-	-	-	-	-
	USB 3.2 Gen 2x1 (10Gbps)	-	-	4	4	4
	USB 3.2 Gen 1x1 (5Gbps)	4	4	-	-	-
	USB 2.0	4	4	8	8	8
	Audio	-	-	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1, supports Dual BIOS	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-	Optional
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	eMMC	-	NVMe SSD	-
	TPM	TPM2.0	TPM2.0	TPM2.0	TPM2.0	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
	Supply Voltage	Vin: 8.55-12.6V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V
	Power Consumption Max.	84.22W @12V (D-1746TER with 128GB DDR4 2666)	32.6W	TBD	68.38W @ 12V (i7-11850HE with 128GB DDR4 3200)	44.63W @ 12V (i7-8850H with 48GB DDR4 2400)
	Power Consumption Idle	34.50W @12V (D-1746TER with 128GB DDR4 2666)	11.8W	TBD	15.75W @ 12V (i7-11850HE with 128GB DDR4 3200)	6.89W @ 12V (i7-8850H with 48GB DDR4 2400)
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp. (Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	125 x 95 mm (4.92" x 3.74")	125 x 95 mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

COMe & SMARC

Model Name		SOM-6884 A1/A2	SOM-6883	SOM-6872 A1/A2	SOM-6833	SOM-6832
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact
Pin-out Type		COM R3.1 Type 6	COM R3.0 Type 6	COM R3.0 Type 6	COM R3.1 Type 6	COM R3.0 Type 6
Processor System	CPU	13th Gen Intel® Core Processors	11th Gen Intel® Core Processors	AMD Ryzen™ V2000 Processors	Intel® Core™ i3-N305, N-series, and Atom® x7000E Series Processor	Intel® Pentium/Celeron and Atom x6000 Series Processors
	Base Frequency	P Core: 2.5-1.7GHz E Core: 1.8-1.2GHz	2.2-1.5GHz	3.0-1.7GHz	2.0-1.0 GHz	2.0-1.5GHz
	Processor Core	14/12/10/8/6	4/2	8/6	8/4/2	4
	LLC	24/12MB	12/8/6/4MB	8MB	6MB	4MB
	CPU TDP	45/28/15W	28/15/12W	35-54/10-25W	15/12/10/9/6W	12/10/9W
	Chipset	-	-	-	-	-
Memory	Technology	A1: DDR5 4800 A2: LPDDR5 6000	DDR4 3200 (1CH on board)	DDR4 3200	DDR5 4800	DDR4 3200
	ECC Supoort	non-ECC	IBECC supoort by Specific CPU SKUs	ECC and non-ECC	IBECC supoort by Specific CPU SKUs	IBECC supoort by Specific CPU SKUs
	Max. Capacity	64GB	48GB	64GB	16GB	16GB
	Socket	A1: 2 x 262P SODIMM A2: Memory down	1 x 260P SODIMM & Memory down	2 x 260P SODIMM	1 x 262P SODIMM	2 x 260P SODIMM
Graphics	Controller	Intel® Iris® Xe Graphics/UHD Graphics Architecture	Intel® Iris® Xe Graphics/Intel® UHD Graphics	AMD Radeon Graphics Vega GPU	Intel® UHD Graphics	Intel® UHD Graphics
	Max. Frequency	1.3-1.4 GHz	1.35-1.25GHz	1.6GHz	1.25GHz - 750MHz	800-750MHz
	VGA	-	1	A1: 1 A2: N/A	-	-
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	A1: LVDS 2-CH 18/24-bit A2: N/A	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
		eDP (optional)	eDP (optional)	A1: eDP (optional) A2: eDP (default)	eDP (optional)	eDP (optional)
	DDI (HDMI/DVU/DisplayPort)	3	2, up to 3 if remove VGA	A1: 2, up to 3 if remove VGA A2: 3	2	2
	Multiple Displays	Quad-Display	Quad-Display	Quad-Display	Triple-Display	Triple-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	1 (Gen4. H series only)	-	1 (Gen3)	-	-
	PCIe x4	A1: 1 (Gen4) A2: 2(Gen4)	1 (Gen4 if remove NVMe)	-	-	-
	PCIe x1	8 (Gen3)	5 (max. 6 if remove GbE)	8 (Gen3)	7 (Gen3)	6 (Gen3)
	LPC	1	1	1	1	1
Serial Bus	SMBus	Yes	Yes	Yes	Yes	Yes
	I2C Bus	Yes	Yes	Yes	Yes	Yes
	CAN Bus	Optional	Optional	Optional	Optional	Optional
Ethernet	Controller	Intel® I226	Intel® I225	Intel® I210	Intel® I226	Maxlinear GPY215
	GbE Speed	2.5G	2.5G	10/100/1000Mbps	2.5G	2.5G
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2	2	2
	USB4	2 (Option)	2 (Option)	-	-	-
	USB 3.2 Gen 2x2 (20Gbps)	-	-	-	-	-
	USB 3.2 Gen 2x1 (10Gbps)	4	4	A1: 2 A2: 4	2; up to 4 by USB Hub	2; up to 4 if remove PCIe
	USB 3.2 Gen 1x1 (5Gbps)	-	-	-	-	-
	USB 2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	NVMe SSD	NVMe SSD	-	eMMC	eMMC
	TPM	TPM2.0	TPM2.0	TPM2.0	TPM2.0	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
	Supply Voltage	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V
	Power Consumption Max.	152.18W	30.89W	73.25W	TBD	21.25W
	Power Consumption Idle	9.69W	8.64W	4.798W	TBD	9.75W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp. (Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-	-	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

COMe & SMARC

Model Name		SOM-7583	SOM-7533	SOM-7532	SOM-2533	SOM-2532
Form Factor		COM Express Mini	COM Express Mini	COM Express Mini	SMARC	SMARC
Pin-out Type		COM R3.0 Type 10	COM R3.1 Type 10	COM R3.0 Type 10	SMARC 2.1.1	SMARC 2.1.1
Processor System	CPU	11th Gen Intel® Core processors	Intel® Core™ i3-N305, N-series, and Atom® x7000E Series Processor	Intel® Pentium/Celeron and Atom x6000 Series Processors	Intel® Core™ i3-N305, N-series, and Atom® x7000E Series Processor	Intel® Pentium/Celeron and Atom x6000 Series Processors
	Base Frequency	3.0-1.8GHz	2.0-1.0 GHz	2.0-1.2GHz	2.0-1.0GHz	2.0-1.6GHz
	Processor Core	4/2	8/4/2	4/2	8/4/2	4/2
	LLC	12/8/6/4MB	6MB	4MB	6MB	4MB
	CPU TDP	28/15/12W	15/12/9/6W	12/9/6.5/6W	15/12/10/9/6W	12/6W
	Chipset	-	-	-	-	-
Memory	Technology	LPDDR4X up to 4267MT/s	LPDDR5 4800	LPDDR4 3200	LPDDR5 4800	LPDDR4 3200
	ECC Supoort	IBECC supoort by Specific CPU SKUs	IBECC supoort by Specific CPU SKUs	IBECC supoort by Specific CPU SKUs	IBECC supoort by Specific CPU SKUs	IBECC supoort by Specific CPU SKUs
	Max. Capacity	16GB	16GB	16GB	16GB	16GB
	Socket	-	-	-	-	-
Graphics	Controller	Intel® Iris® Xe Graphics	Intel® UHD Graphics	Intel® UHD Graphics	Intel® UHD Graphics	Intel® UHD Graphics
	Max. Frequency	1.35-1.25GHz	1.25GHz - 750MHz	800-750MHz	1.25GHz - 750MHz	800-750MHz
	VGA	-	-	-	-	-
	LCD (TTL/LVDS/eDP)	-	LVDS 1-CH 18/24-bit	LVDS 1-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
		eDP	eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)
	DDI (HDMI/DVU/DisplayPort)	1	1	1	2 (1 x DDI/1 x HDMI)	2 (1 x DDI/1 x HDMI)
	Multiple Displays	Dual-Display	Dual-Display	Dual-Display	Triple-Display	Triple-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x4	-	-	-	-	-
	PCIe x1	4 (Gen3)	4 (Gen3)	4 (Gen3)	4 (Gen3)	4 (Gen3)
	LPC	1	1	1	N/A, supported eSPI	N/A, supported eSPI
Serial Bus	SMBus	Yes	Yes	Yes	Yes	-
	I2C Bus	Yes	Yes	Yes	Yes	Yes
	CAN Bus	Optional	Optional	Optional	Optional	Yes
Ethernet	Controller	Intel® I225	Intel® I226	Intel® I225	2 x Intel® I226	2 x Marvell 88E1512
	GbE Speed	2.5G	2.5G	2.5G	2.5G	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2	1	1
	USB4	2 (Option)	-	-	-	-
	USB 3.2 Gen 2x2 (20Gbps)	-	-	-	-	-
	USB 3.2 Gen 2x1 (10Gbps)	2	2	2	2	2
	USB 3.2 Gen 1x1 (5Gbps)	-	-	-	-	-
	USB 2.0	8	8	8	6	6
	Audio	HD Audio	HD Audio	HD Audio	1 x HD Audio/ up to 2 x I2S	1 x HD Audio/ up to 2 x I2S
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	14	14
	SDIO (GPIO pin shared)	Optional	-	Optional	-	Optional
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	4 (1 x 4-wire / 3 x 2-wire)	4 (2 x 4-wire / 2 x 2-wire)
	Onboard Storage	NVMe SSD	eMMC	eMMC	eMMC	eMMC
	TPM	Intel fTPM	TPM2.0	TPM2.0	Intel fTPM	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX/AT: Vin	ATX/AT: Vin
	Supply Voltage	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-5.25V	Vin: 4.75-5.25V
	Power Consumption Max.	28.71W	23.63W	23.14W	44.74W	24.107W
	Power Consumption Idle	9.28W	4.49W	4.29W	3.97W	15.723W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp. (Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-	-40 ~ 85 °C (-40 ~ 185 °F)	-	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimension	84 x 55 mm (3.3" x 2.17")	84 x 55 mm (3.3" x 2.17")	84 x 55 mm (3.3" x 2.17")	82 x 50 mm (3.23" x 1.97")	82 x 50 mm (3.23" x 1.97")

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" MI/O-Compact and 4" EPIC

NEW   *NEW*   *NEW*

Model Name		MIO-4370	MIO-5377	MIO-5376	MIO-5375
Form Factor		4" MIO SBC	3.5" MIO SBC	3.5" MIO SBC	3.5" SBC w/MIO Extension
Processor System	CPU	i9-14900T/i9-13900TE/i9-12900TE/i7-14700T/ i7-13700TE/i7-12700TE/i5-14500T/i5-13500TE/ i5-12500TE/i3-14100T/i3-13100TE/i3-12100TE	i7-1370PE/i7-1370PRE/i7-1365UE/i7-1365URE/ i7-1270PE/i7-1265UE/i5-1345UE/i5-1245UE/ i3-1315UE/i3-1215UE/U300E	AMD Ryzen R2314/ *2514	i7-1185GRE/ i7-1185G7E/ i5-1145G7E/ i3-1115G4E
	# of Cores	4 ~ 24	1P+4E ~ 6P+8E	4	4 ~ 8
	# of Threads	8 ~ 32	6 ~ 20	4 ~ 8	4 ~ 8
	Max. Turbo Frequency	4.0GHz ~ 5.5GHz	4.3GHz ~ 4.8GHz	3.5GHz ~ 3.7GHz	3.90GHz ~ 4.40GHz
	Base Frequency	1.0GHz ~ 2.1GHz	1.0GHz ~ 1.9GHz	2.1GHz	1.50GHz ~ 3.0GHz
	Last Level Cache (LLC)	12MB ~ 36MB	8MB ~ 24MB	4MB	4MB ~ 12MB
	CPU TDP (Watts)	35W	15W/ 28W	15W	15W/ 28W
	BIOS	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI EFI 256Mb
Memory	Technology	DDR5-4800 MHz	DDR5-4800 MHz	DDR4-2667MHz	DDR4-3200MHz
	Max. Capacity	32GB	64GB	32GB	64GB
	# of Channels	1	2	2	2
	# of Sockets	1	2	2	2
	ECC Support	Support by PCH SKU	Support by CPU SKU	-	Support by CPU SKU
Graphics	Chipset	Integrated GFx	Integrated GFx	Integrated GFx	Integrated GFx
	Controller	Intel® UHD Graphics 770/730	Intel Iris Xe Graphics/Intel® UHD Graphics for 13th Gen Intel®Processors	AMD Radeon RX Vega 8	Intel® UHD Graphics 630
	3D Accelerator	DX12, OGL4.5, OCL3.0	DX12.1, OGL4.6, OCL3.0	DX12, OGL	DX12.1, OGL4.6, OCL2.0
	VGA	-	-	-	-
	LFP — LVDS		48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	LFP — eDP	eDP1.4b 5120 x 3200@60Hz, 24bpp	-	-	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp
	HDMI1	HDMI1.2, 1920 x 1200@60Hz, 24bpp	HDMI 2.0b, up to 4096 x 2160 @60Hz, 24bpp	HDMI 2.0, 4096 x 2160@60Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp
	HDMI2	HDMI1.2, 1920 x 1200@60Hz, 24bpp	-	-	
	DisplayPort 1	-	DP1.4a, up to 4096 x 2160@60Hz, 36bpp	DP1.4/ DP++, 4096 x 2160 x 36bpp@60Hz, 36bpp	HDMI2.0, 4096 x 2304@60Hz, 24bpp
	# of Display Pipelines (Multi-Display)	3	4	3	4
I/O	Ethernet — LAN1	i225	i219	i226	i219
	Ethernet — LAN2	i225	i226	i226	i210
	Ethernet — LAN3	-	-	i226	-
	SATA — # of Ports	-	1	1	1, option to M.2 M-Key
	SATA — Speed	-	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)
	USB — Type-C	-	1x USB 4 (20 ~ 40 Gbps, USB 3.2, Display & PCIe) + 1x USB 3.2 (10 Gbps w/DP Alt. Mode)	-	1x USB 3.2 (10 Gbps w/DP Alt. Mode)
	USB — USB 3.1	4 (10 Gbps)	4 (10 Gbps)	2 (10 Gbps)	4 (10 Gbps)
	USB — USB 3.0	-	-	2 (Internal)	-
	USB — USB 2.0	2 (Internal)	2 (Internal)	2 (Internal)	2 (Internal)
	UART — RS-232/422/485	2	2	2	2
	UART — RS-232	-	2	2 (4-wire)	2 (4-wire)
	Serial Bus — I2C Bus	1	3	1	1
	Serial Bus — SMBus	(I2C Opt. to Smbus)	(1x I2C Opt. to Smbus)	(I2C Opt. to Smbus)	(I2C Opt. to Smbus)
	Serial Bus — CANBus	1	2	1	1
	Audio — CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	GPIO (DIO)	8-bit	8-bit	8-bit	8-bit
Storage	mSATA	-	-	-	-
	eMMC	-	-	-	-
Expansion	M.2 E-Key 2230	1 (PCIe x1, USB 2.0)	1 (PCIe x1, USB 2.0)	1 (PCIe x1, USB 2.0)	1 (PCIe x1, USB 2.0)
	M.2 B-Key 2242	-			
	M.2 B-Key 3042	Optional (PCIex1, USB 2.0) w/bracket	1 (PCIe x1, USB 2.0, SATA)	Optional (USB 3.2, USB 2.0, PCIe x1)	1 (USB 2.0)
	M.2 B-Key 3052	Optional (PCIex1, USB 2.0) w/bracket	Optional (PCIe x1, USB 2.0, SATA)	1 (USB3.2, USB 2.0, PCIe x1)	-
	M.2 M-Key 2242	-	-	-	-
	M.2 B-Key 2280	-	-	-	-
	M.2 M-Key 2280	2 (PCIe Gen.4 x4), 1x Opt. to B-Key	1 (PCIe Gen.4 x4)	1 (PCIe Gen.3 x4, SATA)	1 (PCIe Gen.4 x4, optional w/SATA)
	Mini-PCIe	-	-	-	-
Others	TPM	TPM 2.0 / fTPM by SKU	TPM 2.0	TPM 2.0	TPM 2.0
	Fan	1 x SMART Fan, 4-wire	1 x SMART Fan, 4-wire	1 x SMART Fan, 4-wire	1 x SMART Fan, 4-wire
	Watchdog Timer	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage	12V	12~24V	12V~24V	12V~24V
	Connector	ATX 2x2p 180D, Optional 90D	ATX 2x2p 90D, Optional 180D, DC-Jack	1x2p Pheonix connector	ATX 2x2p 90D, Optional 180D, DC-Jack
	Power Management	ACPI	ACPI	ACPI	ACPI
Thermal	Fan or Fanless	Active (Fan Base)	Active (Fan Base)/ Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C	0 ~ 60°C; Extend: -40 ~ 85°C	0 ~ 60°C	0 ~ 60°C; Extend: -40 ~ 85°C
	Storage Temperature	-40~85°C	-40~85°C	-40~85°C	-40~85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Mechanical	Dimensions (W x H x D)	165 x 114 mm	146 x 102 mm	146 x 102 mm	146 x 102 mm
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" MI/O-Compact

Model Name		MIO-5373	MIO-5272	MIO-5393	MIO-5391
Form Factor		3.5" SBC w/MIO Extension	3.5" SBC w/MIO Extension	3.5" SBC w/MIO Extension	3.5" SBC w/MIO Extension
Processor System	CPU	i7-8665UE/ i5-8365UE/ i3-8145UE/ *Celeron™ 4305U	i7-7600U/ i7-6600U/ i5-6300U/ i3-6100U/ *Celeron™ 3955U	E-2276ME/ i7-9850HE/ i7-9850HL/ i5-8400H	E3-1505MV6/ i7-7820EQ/ i5-7442EQ/ i3-7102E
	# of Cores	2 ~ 4	2	4 ~ 6	2 ~ 4
	# of Threads	2 ~ 8	2 ~ 4	8 ~ 12	4 ~ 8
	Max. Turbo Frequency	3.90GHz ~ 4.40GHz	3.0GHz ~ 3.90GHz	4.1GHz ~ 4.5GHz	2.90GHz ~ 4.00GHz
	Base Frequency	1.60GHz ~ 2.20GHz	2.00GHz ~ 2.80GHz	1.9GHz ~ 2.8GHz	2.10GHz ~ 3.00GHz
	Last Level Cache (LLC)	2MB ~ 8MB	3MB ~ 4MB	8MB ~ 12MB	3MB ~ 8MB
	CPU TDP (Watts))	15W	15W	25W/45W	25W/45W
	BIOS	AMI UEFI 256Mb	AMI UEFI 128Mb	AMI UEFI 256Mb	AMI UEFI 128Mb
Memory	Technology	DDR4-2400MHz	DDR3L-1600MHz	DDR4-2400MHz	DDR4-2400MHz
	Max. Capacity	32GB (64GB*)	16GB	32GB (64GB*)	32GB (64GB*)
	# of Channels	2	2	2	2
	# of Sockets	2	2	2	2
	ECC Support	-	-	Supported by CPU SKU	Supported by CPU SKU
Graphics	Chipset	Integrated GFx	Integrated GFx	Integrated GFx	Integrated GFx
	Controller	Intel® UHD Graphics 620/610	Intel® UHD Graphics 620/520/510	Intel® UHD Graphics P630/630	Intel® HD Graphics P630/630
	3D Accelerator	Direct3D 2015, OGL4.5, OCL2.1	DX12, DX11.3, OGL4.4, OCL2.1	DX3D 2015/11.2, OGL4.5, OCL2.1	DX3D 2015/11.2, OGL5.0, OCL2.1
	VGA	-	1920 x 1200 @ 60Hz	-	1920 x 1200 @ 60Hz
	LFP — LVDS	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	LFP — eDP	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-
	HDMI1	HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp
	HDMI2	-	-	-	HDMI1.4, 4096 x 2304@30Hz, 24bpp
	DisplayPort 1	DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-
	# of Display Pipelines (Multi-Display)	3	3	3	3
I/O	Ethernet — LAN1	i219	i219	i219	i219
	Ethernet — LAN2	i210	i210	i210	i210
	Ethernet — LAN3	-	-	-	-
	SATA — # of Ports	1, option 2nd SATA from M.2 B-Key	2	2	2
	SATA — Speed	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)
	USB — Type-C	-	-	-	-
	USB — USB 3.1	4 (10 Gbps)	-	4 (10 Gbps)	-
	USB — USB 3.0	-	2 (5.0 Gbps)	-	4 (5.0 Gbps)
	USB — USB 2.0	2 (Internal)	4 (2x Internal)	2 (Internal)	2 (Internal)
	UART — RS-232/422/485	2	2	2	2
	UART — RS-232	Optional	-	-	Optional
	Serial Bus — I2C Bus	1	Shared w/ SMBus	1	(SMBus Opt. to I2C)
	Serial Bus — SMBus	1	1	1	1
	Serial Bus — CANBus	1	-	1	-
	Audio — CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	GPIO (DIO)	2 x 8-bit, Opt. to 2 x RS-232	8-bit	2 x 8-bit	2 x 8-bit, Opt. to 2 x RS-232
Storage	mSATA	-	1x F/S mSATA (SATA, USB2.0) , Opt. to 2x mSATA	-	Optional from mini-PCIe
	eMMC	On-board 32GB	-	-	-
Expansion	M.2 E-Key 2230	1 (PCIe x1, USB 2.0)	-	1 (PCIex1, USB 2.0)	1 (PCIe x2, USB 2.0)
	M.2 B-Key 2242	-	-	-	-
	M.2 B-Key 3042	-	-	-	-
	M.2 B-Key 3052	-	-	-	-
	M.2 M-Key 2242	-	-	-	-
	M.2 B-Key 2280	1 (SATA/ PCIe x2, USB 2.0), Opt. to M-Key	-	1 (SATA/ PCIe x2, USB 2.0), Opt. to M-Key	-
	M.2 M-Key 2280	Optional (PCIe x4)	-	Optional (SATA/ PCIe x4)	-
	Mini-PCIe	-	1x F/S (PCIe x1, USB 2.0; Option to 2nd mSATA)	-	1x F/S (PCIe x1, USB 2.0 ; Option to mSATA)
Others	TPM	TPM 2.0	Optional	TPM 2.0	TPM 2.0
	Fan	1 x SMART Fan, 4-wire	1 x System Fan, 3-wire	1 x SMART Fan, 4-wire	1 x SMART Fan, 4-wire
	Watchdog Timer	65536 Levels, Minutes or Seconds	1 ~ 255 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage	12~24V	12V	12V	12V
	Connector	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack
	Power Management	ACPI	ACPI	ACPI	ACPI
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C; Extended: -40 ~ 85°C	0 ~ 60°C; Extended: -40 ~ 85°C	0 ~ 60°C; Extended: -40 ~ 85°C	0 ~ 60°C; Extended: -40 ~ 85°C
	Storage Temperature	-40~85°C	-40~85°C	-40~85°C	-40~85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Mechanical	Dimensions (W x H x D)	146 x 102 mm	146 x 102 mm	146 x 102 mm	146 x 102 mm
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" MI/O-Compact

NEW

Model Name		MIO-5154	MIO-5152	MIO-5350	MIO-5251	MIO-5850
Form Factor		3.5" MIO SBC	3.5" MIO SBC	3.5" SBC w/MIO Extension	3.5" SBC w/MIO Extension	3.5" MIO SBC
Processor System	CPU	i3-N305/ N97/ N50	N6210/ J6412/ x6425E	N4200/ N3350/ E3930/ E3940/ E3950	J1900/ E3845/ E3825	J1900/ E3845/ E3825
	# of Cores	2 ~ 8	2 ~ 4	2 ~ 4	2 ~ 4	2 ~ 4
	# of Threads	2 ~ 8	2 ~ 4	2 ~ 4	2 ~ 4	2 ~ 4
	Max. Turbo Frequency	3.4GHz ~ 3.8GHz	2.6GHz ~ 3.0GHz	1.8GHz ~ 2.5GHz	2.42GHz	2.42GHz
	Base Frequency	1.0GHz ~ 2.0GHz	1.2GHz ~ 2.0GHz	1.1GHz ~ 1.6GHz	1.33GHz ~ 2.00GHz	1.33GHz ~ 2.00GHz
	Last Level Cache (LLC)	6MB	4MB	2MB	1MB ~ 2MB	1MB ~ 2MB
	CPU TDP (Watt)	6W ~ 15W	6.5W ~ 12W	6W ~ 12W	6W ~ 10W	6W ~ 10W
	BIOS	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 64 Mb	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology	DDR5-4800MHz	DDR4-3200MHz	DDR3L 1867MHz	DDR3L-1333/ 1066MHz	DDR3L-1333/ 1066MHz
	Max. Capacity	16GB	32GB	16GB	8GB	On-board 2GB/4GB
	# of Channels	1	1	1	1	1
	# of Sockets	1	1	1	1	1
	ECC Support	-	-	-	-	-
Graphics	Chipset	Integrated GFx	Integrated GFx	Integrated GFx	Integrated GFx	Integrated GFx
	Controller	Intel® UHD Graphics	Intel® UHD Graphics	Intel® HD Graphics 505/500	Intel® HD Graphics for Z3700 Series	Intel® HD Graphics for Z3700 Series
	3D Accelerator	DX12.1, OGL4.6, OCL3.0	DX12.1, OGL4.5, OCL1.2	DX12, OGL4.3, OCL2.0	DX11, OGL3.2, OCL1.2	DX11, OGL3.2, OCL1.2
	VGA	-	-	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz	Up to 2560 x 1600 @ 60Hz
	LFP — LVDS	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	LFP — eDP	-	-	Opt. eDP1.4, 4096 x 2160@30Hz	Opt. 2560 x 1600 @ 60Hz	Opt. 2560 x 1600 @ 60Hz
	HDMI1	HDMI 2.0, 4096 x 2160@48-60Hz, 24bpp	HDMI 2.0, 4096 x 2160@60Hz, 24bpp	HDMI1.4b 3840x2160@30Hz	HDMI1.4a 1920 x 1080 @ 60Hz	HDMI1.4a, 1920x1200x24bpp @60Hz
	HDMI2	-	-	-	-	-
	DisplayPort 1	DP1.4a, 4096 x 2304 @ 36bpp@60Hz, 36bpp	DP1.4a, 4096 x 2160 @ 36bpp@60Hz, 36bpp	Opt. DP1.2a 4096x2260@60Hz	Opt. to HDMI, up to 2560 x 1600 @ 60Hz	-
	# of Display Pipelines (Multi-Display)	3	3	3	2	2
I/O	Ethernet — LAN1	RTL8111K	RTL8111H	i210	i210	i210
	Ethernet — LAN2	RTL8111K	RTL8111H	i210	i210	i210
	Ethernet — LAN3	-	-	-	-	i210
	SATA — # of Ports	1	1	1, option 2nd SATA by request	1	1
	SATA — Speed	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)	Gen3 (6.0Gb/s)	Gen2 (3.0 Gb/s)	Gen2 (3.0 Gb/s)
	USB — Type-C	-	-	-	-	-
	USB — USB 3.1	2 (10 Gbps)	4 (10 Gbps)	-	-	-
	USB — USB 3.0	2 (Internal)	-	2 (5.0 Gbps)	1 (5.0 Gbps)	1 (5.0 Gbps)
	USB — USB 2.0	2	2 (Internal)	4 (2 x Internal)	4 (1 x Internal)	5 (4 x Internal)
	UART — RS-232/422/485	2	2	2	2	2
	UART — RS-232	4	4	2	2	2
	Serial Bus — I2C Bus	1	1	Shared w/ SMBus	Shared w/ SMBus	Shared w/ SMBus
	Serial Bus — SMBus	(I2C Opt. to Smbus)	(I2C Opt. to Smbus)	1	1	1
	Serial Bus — CANBus	-	-	-	-	1
	Audio — CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	GPIO (DIO)	8-bit	8-bit	8-bit	8-bit	2 x 8-bit
Storage	mSATA	-	-	1x F/S mSATA (SATA, USB 2.0)	1x F/S mSATA (SATA, USB 2.0)	1x F/S mSATA (SATA, USB 2.0)
	eMMC	-	-	-	-	On-board 32GB Opt. up to 64GB
Expansion	M.2 E-Key 2230	1 (PCIe x1, USB 2.0)	1 (PCIe x1, USB 2.0), Opt. to B-Key	1 (PCIe x1, USB 2.0)	-	Optional (PCIe x1, USB 2.0)
	M.2 B-Key 2242					
	M.2 B-Key 3042	-	Optional (PCIe x1, USB 2.0)	-	-	-
	M.2 B-Key 3052	1 (USB 3.2, USB 2.0 or opt. to PCIe x1)				
	M.2 M-Key 2242		1x (SATA)	-	-	-
	M.2 B-Key 2280	1 (SATA / PCIe x1)				
	M.2 M-Key 2280	-	-	-	-	-
	Mini-PCIe	-	-	-	1 x F/S (PCIex1, USB 2.0)	1 x F/S (PCIex1, USB 2.0), Opt. to E-Key
Others	TPM	TPM 2.0	TPM 2.0	Optional	-	-
	Fan	1 x SMART Fan, 4-wire	1 x SMART Fan, 4-wire	1 x System Fan, 3-wire	1 x System Fan, 3-wire	1 x System Fan, 3-wire
	Watchdog Timer	1 ~ 255 Levels, Minutes or Seconds	1 ~ 255 Levels, Minutes or Seconds	1 ~ 255 Levels, Minutes or Seconds	1 ~ 255 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage	12V	12V	12V	12V	12~24V
	Connector	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack	ATX 2x2p 90D, Optional 180D, DC-Jack	1x2p Pheonix connector
	Power Management	ACPI	ACPI	ACPI	ACPI	ACPI
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C (32 ~ 140°F)	0 ~ 60°C (32 ~ 140°F)	0 ~ 60°C; Extend: -40 ~ 85°C	0 ~ 60°C; Extend: -40 ~ 85°C	0 ~ 60°C; Extend: -40 ~ 85°C
	Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Mechanical	Dimensions (W x H x D)	146 x 102 mm	146 x 102 mm	146 x 102 mm	146 x 102 mm	146 x 102 mm
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

2.5″ Pico-ITX

NEW

Model Name	MIO-2375	MIO-2364	MIO-2363	MIO-2361
Form Factor	2.5" Pico-ITX	2.5" Pico-ITX	2.5" Pico-ITX	2.5" Pico-ITX
Processor System — CPU	i7-1185G7E/ i7-1185GRE/ i5-1145G7E/ i3-1115G4E	i3-N305/ N97/ x7211E	x6425E/ x6413E/ x6211E	E3950/ E3940/ E3930/ N4200/ N3350
# of Cores	4 / 4 / 4 / 2	8 / 4 / 2	4 / 4 / 2	4 / 4 / 2 / 4 / 2
# of Threads	8 / 8 / 8 / 4	8 / 4 / 2	4 / 4 / 2	4 / 4 / 2 / 4 / 2
Max. Turbo Frequency	4.40GHz / 4.40GHz / 4.10GHz / 3.90GHz	3.8GHz / 3.6GHz / 3.2GHz	3.0GHz / 3.0GHz / 3.0GHz	2.00GHz / 1.8GHz / 1.8GHz / 2.50GHz / 2.4GHz
Base Frequency	1.80GHz / 1.80GHz / 1.50GHz / 2.20GHz	1.8GHz / 2.0GHz / 1.0GHz	2.0GHz / 1.5GHz / 1.3GHz	1.6GHz / 1.6GHz / 1.3GHz / 1.1GHz / 1.1GHz
Last Level Cache (LLC)	12MB / 12MB / 8MB / 6MB	6MB / 6MB / 6MB	1.5MB / 1.5MB / 1.5MB	2MB / 2MB / 2MB / 2MB / 2MB
CPU TDP (Watts)	15W / 15W / 15W / 15W	15W / 12W / 6W	12W / 9W / 6W	12W / 9W / 6W / 6W / 6W
BIOS	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 64bit
Memory — Technology	LPDDR4x-4267	DDR5-4800	LPDDR4x-3733/ 3200 /3200	LPDDR4-2400
Max. Capacity	On-board 16GB	Up to 16GB	up to 8GB	On-board 4GB
# of Channels	2	1	2	2
# of Sockets	-	1	-	-
ECC Support	-	-	Supported	-
Graphics — Chipset	Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC
Controller	Intel® Iris® Xe Graphics	Intel® UHD Graphics	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® HD Graphics 505/500
3D Accelerator	DX12, OGL4.0, OCL2.0	DX12, OGL4.0, OCL1.2	DX12, OGL4.5, OCL1.2, Vulkan 1.1	DX12, OGL4.3, OCL2.0
VGA	-			
LFP — LVDS	-	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
LFP — eDP	eDP1.4 HBR3, up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-	-
HDMI1	-	HDMI1.4b 3840x2160@30Hz	3840 x 2160 @ 30Hz	HDMI 1.4b, 3840x2160x24bpp @30Hz
HDMI2	-	-	-	-
DisplayPort 1	x DP1.4 (DP++), up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-	-
# of Display Pipelines (Multi-Display)	2	2	2	2
I/O — Ethernet LAN1	i219	i226	i210	i210
Ethernet LAN2	i210	-	i210	i210
SATA — # of Ports	1	1	-	1
SATA — Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	-	Gen3 (6.0GT/s)
USB — USB 3.1	2	2	2	
USB — USB 3.0	-	-	-	2
USB — USB 2.0	2	2	2	2
UART — RS-232/422/485	1	2	2	2
UART — RS-232	1	-	-	-
Serial Bus — I2C Bus	1	Shared w/ SMBus	1	Optional from SMbus
Serial Bus — SMBus	Optional	1	-	1
Serial Bus — CANBus	-	-	-	-
Audio — CODEC	ALC888S	ALC888S	ALC888S	ALC888S
GPIO (DIO)	4-bit	8-bit	8-bit	8-bit
Storage — mSATA	-	-	-	Option to Mini-PCIe
Storage — eMMC	-	-	128GB / 64GB / 64GB	32GB
Expansion — M.2 E-Key 2230	PCIe x2, USB 2.0	PCIe x1, USB 2.0	PCIe x1, USB 2.0	PCIe x1, USB 2.0
M.2 B-Key 3042	SATA, USB 2.0	USB 2.0	SATA, USB 2.0, opt to PCIe x1	-
M.2 B-Key 3052	-	USB 3.0	-	-
M.2 M-Key 2242	PCIe x2	-	-	-
M.2 B-Key 2242	-	SATA, PCIe x1	-	-
Mini-PCIe	-	-	-	F/S (PCIex1, USB 2.0)
Others — TPM	TPM 2.0	fTPM support by Intel® Platform Trust Technology Discrete TPM 2.0 (*optional)	TPM 2.0	TPM 2.0
Fan	Smart Fan, 1A@12V	Smart Fan 0.3A@12V		Fan (12V)
Watchdog Timer	65536 Levels, 0~65535 sec	65536 Levels, 0~65535 sec	65536 Levels, 0~65535 sec	65536 Levels, 0~65535 sec
Power — Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX
Power Supply Voltage	12V	12V	12~24V	12/24V Selectable
Connector	Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm
Power Management	ACPI	ACPI	ACPI	ACPI
Thermal — Fan or Fanless	Active (Fan Base)	Active (Fan Base)/ Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)
Environment — Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C; Extend: -40 ~ 85°C	0 ~ 60°C	Extend: -40 ~ 85°C	0 ~ 60°C; Extend: -40 ~ 85°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Mechanical — Dimensions (W x H x D)	100 x 72 mm	100 x 72 mm	100 x 72 mm	100 x 72 mm
Certification — EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

2.5" Pico-ITX

| Model Name		MIO-2360	MIO-2263	MIO-3360	MIO-3260
Form Factor		2.5" Pico-ITX w/MIO Extension	2.5" Pico-ITX w/MIO Extension	2.5" Pico-ITX w/MIO Extension	2.5" Pico-ITX w/MIO Extension
Processor System	CPU	E3940/ E3930/ N4200/ N3350	J1900/ E3825	N4200/ N3350	E3825/ N2930
	# of Cores	4/ 2/ 4/ 2	4/ 2	4/ 2	4/ 2
	# of Threads	4/ 2/ 4/ 2	4 /2	4 /2	4 /2
	Max. Turbo Frequency	1.8GHz / 1.8GHz / 2.50GHz / 2.4GHz	2.42GHz	2.50GHz / 2.40GHz	2.42GHz
	Base Frequency	1.6GHz / 1.3GHz / 1.1GHz / 1.1GHz	2.0GHz / 1.33GHz	1.10GHz / 1.10GHz	2.0GHz /1.33GHz
	Last Level Cache (LLC)	2MB / 2MB / 2MB / 2MB	2MB / 1MB	2MB/ 2MB	2MB / 1MB
	CPU TDP (Watts)	9W / 6W / 6W / 6W	10W / 6W	6W / 6W	7.5W / 6W
	BIOS	AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology	DDR3L-1867	DDR3L-1333 / DDR3L-1066	DDR3L-1867	DDR3L-1333/1066MHz
	Max. Capacity	Up to 8GB	Up to 8GB	Up to 8GB	Up to 8GB
	# of Channels	1	1	1	1
	# of Sockets	1	1	1	1
	ECC Support	-	-	-	-
Graphics	Chipset	Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC
	Controller	Intel® HD Graphics 505/500	Intel® HD Graphics Z3700 Series	Intel® HD Graphics 505/500	Intel® HD Graphics Z3700 Series
	3D Accelerator	DX12, OGL4.3, OCL2.0	DX11, OGL3.0, OCL1.2, OGLES2.0	DX12, OGL4.3, OCL2.0	DX11, OGL3.0, OCL1.1, OGLES2.0
	VGA	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz
	LFP — LVDS	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	LFP — eDP	-	-	Opt. eDP1.3, 3840 x 2160@60Hz	-
	HDMI1	HDMI1.4b 3840x2160@30Hz	Opt. to VGA	HDMI 1.4b, 3840x2160x24bpp @30Hz	-
	HDMI2	-	-	-	-
	DisplayPort 1	-	-	Option HDMI	Option HDMI
	# of Display Pipelines (Multi-Display)	3 (LVDS + VGA/HDMI + MIOe)	3 (LVDS + VGA/HDMI + MIOe)	2	2
I/O	Ethernet — LAN1	i210	i210	i210	i210
	Ethernet — LAN2	-	-	-	-
	SATA — # of Ports	1	1	-	1
	SATA — Speed	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)
	USB — USB 3.1	-	-	-	-
	USB — USB 3.0	2 (5.0 Gb/s)	1	1	1 (from MIOe)
	USB — USB 2.0	2	3	4	4 (internal)
	UART — RS-232/422/485	2	1	2	2
	UART — RS-232	-	1	-	-
	Serial Bus — I2C Bus	Option to SMBus (Intel LPSS)	-	1	1
	Serial Bus — SMBus	1	Support	1	1
	Serial Bus — CANBus	-	-	-	-
	Audio — CODEC	ALC888S	ALC888S	ALC888S	ALC888S
	GPIO (DIO)	8-bit	8-bit	8-bit	8-bit
Storage	mSATA	H/S (SATA, USB 2.0)	H/S (SATA, SMBus, no USB 2.0)	H/S (SATA, USB 2.0)	F/S (SATA, USB 2.0)
	eMMC	-	-	-	-
Expansion	M.2 E-Key 2230	-	-	-	-
	M.2 B-Key 3042	-	-	-	-
	M.2 B-Key 3052	-	-	-	-
	M.2 M-Key 2242	-	-	-	-
	M.2 B-Key 2242	-	-	-	-
	Mini-PCIe	F/S (PCIex1, USB 2.0)	H/S (PCIex1, USB 2.0, SMBus)	Opt. to mSATA (PCIex1, USB 2.0)	Opt. to mSATA (PCIex1, USB 2.0)
Others	TPM	-	-	-	-
	Fan	-	-	-	-
	Watchdog Timer	1~255 sec	1~255 sec	1~255 sec	1~255 sec
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage	12V	12V	12V	12V
	Connector	Wafer 2P 3.96mm	Wafer 2P 3.96mm	From 64pin connector A	From 64pin connector A
	Power Management	ACPI	ACPI	ACPI	ACPI
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C; Extended: -40 ~ 85°C	0 ~ 60°C; Extended: -40 ~ 85°C	0 ~ 60°C	0 ~ 60°C; Extended: -40 ~ 85°C
	Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Mechanical	Dimensions (W x H x D)	100 x 72 mm	100 x 72 mm	100 x 72 mm	100 x 72 mm
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" SBCs

PC104 CPU Boards
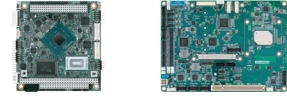
Model Name		PCM-9366	PCM-9310	PCM-9365
Form Factor		3.5" Single Board Computers	3.5" Single Board Computers	3.5" Single Board Computers
Processor System	CPU	N4200/ E3950/ N3350	N3160/ N3060 / X5-E8000	N2930/ E3825
	# of Cores	4 / 4 / 2	4 / 2 / 4	4 / 2
	# of Threads	4 / 4 / 2	4 / 2 / 4	4 / 2
	Max. Turbo Frequency	2.5GHz / 2.0GHz / 2.4GHz	2.24GHz / 2.48GHz / 2.00GHz	2.16GHz
	Base Frequency	1.1GHz / 1.6GHz / 1.1GHz	1.6GHz / 1.6GHz / 1.04GHz	1.83GHz / 1.33GHz
	Last Level Cache (LLC)	2MB / 2MB / 2MB	2MB / 2MB / 2MB	2MB / 1MB
	CPU TDP (Watts)	6W / 12W / 6W	6W / 6W / 5W	7.5W / 6W
	BIOS	AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology	DDR3L-1867MHz	DDR3L-1600	DDR3L-1333 / DDR3L-1066
	Max. Capacity	Up to 8GB	Up to 8GB	On-board Up to 4GB
	# of Channels	1	1	1
	# of Sockets	1	1	-
	ECC Support	-	-	-
Graphics	Chipset	Integrated SoC	Integrated SoC	Integrated SoC
	Controller	Intel® HD Graphics 505/500	Intel® HD Graphics 400	Intel® HD Graphics Z3700 Series
	3D Accelerator	DX12, OGL4.3, OCL2.0	DX11.1, OGL4.2, OCL1.2	DX11, OGL3.0, OCL1.2, OGLES2.0
	VGA	Up to 2560 x 1600 @ 60Hz	1920 x 1200	2560 x 1600 @ 60Hz
	LFP — LVDS	48-bit, 1920 x 1200	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200
	LFP — eDP	Opt. eDP1.3, 3840 x 2160@60Hz	Opt. eDP1.3, 2560x1440x24bpp@60Hz	Opt. eDP1.3, 2560x1440x24bpp@60Hz
	HDMI1	HDMI1.4a, 1920x1200x24bpp @60Hz	HDMI 1.4b, 3840x2160x24bpp@30Hz or 2560x1600x24bpp @30Hz	HDMI 1.4b, 3840x2160x24bpp@30Hz or 2560x1600x24bpp @30Hz
	HDMI2	-	-	-
	DisplayPort 1	-	-	-
	# of Display Pipelines (Multi-Display)	2	2	2
I/O	Ethernet — LAN1	i210	RTL8111	RTL8111E
	Ethernet — LAN2	i210	RTL8111	RTL8111E
	SATA — # of Ports	1	1, opt. 2 to mSATA	1
	SATA — Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s), opt. port with Gen2	Gen2 (3.0 Gb/s)
	USB — USB 3.1	-	-	-
	USB — USB 3.0	2	2 (5 Gb/s)	1 (5 Gb/s)
	USB — USB 2.0	4	4	5
	UART — RS-232/422/485	2	2	1
	UART — RS-232	2	2	3
	Serial Bus — I2C Bus	Option from SMbus	Option from SMbus (simulated)	Option from SMbus (simulated)
	Serial Bus — SMBus	1 (optional with I2C)	1	1 (IT8528)
	Serial Bus — CANBus	2	-	-
	Audio — CODEC	ALC888	ALC892	ALC898
	Audio — Amplifier	-	-	-
	GPIO (DIO)	16-bit	8-bit	8-bit
Storage	mSATA	F/S (SATA, USB 2.0, SMBus)	F/S (SATA, USB 2.0)	F/S (SATA, USB 2.0)
	eMMC	-	-	-
	SATA SSD	-	-	-
Expansion	M.2 E-Key 2230	PCIe x1, USB 2.0	-	-
	M.2 B-Key 3042	-	-	-
	M.2 B/M-Key 2280	-	-	-
	M.2 M-Key 2242	-	-	-
	M.2 M-Key 2280	-	-	-
	Mini-PCIe	Opt. to mSATA (PCIe x1, USB 2.0)	F/S (PCIe x1, USB 2.0), opt. 2nd to mSATA	F/S (PCIe x1, USB 2.0)
	PC/104	-	-	-
	PCI104	-	-	1
	PC/104-Plus	-	-	-
	PCI Slot	-	-	-
Others	TPM	TPM 2.0	Optional	-
	Fan	-	Fan (12V)	-
	Watchdog Timer	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds	65536 Levels, Minutes or Seconds
Power	Power Type	AT, ATX	AT/ATX	AT/ATX
	Power Supply Voltage	9-36V	12V	12V
	Connector	Phoenix 1x2	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 180D, Optional 90D
	Power Management	ACPI	ACPI	ACPI
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C	0 ~ 60°C	0 ~ 60°C; Extend: -40 ~ 85°C
	Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH N on-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Model Name		PCM-3365	PCM-9563
Form Factor		PC/104	5.25"
Processor System	CPU	E3845/ E3825/ N2930	N4200/ N3350
	# of Cores	4 / 4 / 2	4 / 2
	# of Threads	4 / 4 / 2	4 / 2
	Max. Turbo Frequency	2.16GHz	2.50GHz / 2.40GHz
	Base Frequency	1.91GHz / 1.33 GHz / 1.83GHz	1.10GHz / 1.10GHz
	Last Level Cache (LLC)	2MB / 1MB / 2MB	2MB / 2MB
	CPU TDP (Watts)	10W / 6W / 7.5W	6W / 6W
	BIOS	AMI UEFI 64Mbit	AMI EFI 16Mbit
Memory	Technology	DDR3L 1333/1066 MHz	DDR3L 1867MHz
	Max. Capacity	Up to 8GB	Up to 8GB
	# of Channels	1	1
	# of Sockets	1	1
	ECC Support	-	-
Graphics	Chipset	Integrated SoC	Integrated SoC
	Controller	Intel® HD Graphics Z3700 Series	Intel® HD Graphics 505/500
	3D Accelerator	DX11, OGL3.0, OCL1.2, OGLES2.0	DX12, OGL4.3, OCL2.0
	VGA	Up to 2560 x 1600 @ 60Hz	1920 x 1200
	LFP — LVDS	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	LFP — eDP	-	v1.4 (1920x1200@ 60Hz)
	HDMI1	HDMI1.4a, 1920x1200x24bpp @60Hz	HDMI1.4a, 1920x1200x24bpp @30Hz
	HDMI2	-	-
	DisplayPort 1	-	DP 1.2a (1920 x 1200 @60Hz)/ HDMI1.4a, (1920x1200x24bpp @30Hz)
	# of Display Pipelines (Multi-Display)	2	2
I/O	Ethernet — LAN1	i210	i210
	Ethernet — LAN2	-	i210, (3rd LAN support by request)
	SATA — # of Ports	1	2 (2nd supported by request)
	SATA — Speed	Gen2 (3.0 Gb/s)	Gen3 (6.0 Gb/s)
	USB — USB 3.1	-	-
	USB — USB 3.0	-	2
	USB — USB 2.0	6	6
	UART — RS-232/422/485	1	2
	UART — RS-232	2	4
	Serial Bus — I2C Bus	Option to SMBus	Option to SMBus
	Serial Bus — SMBus	Support	Support
	Serial Bus — CANBus	-	-
	Audio — CODEC	Intel High Definition audio interface (requires an audio extension module P/N: PCE-SA01-00A1E	Realtek ALC888S
	Audio — Amplifier	-	-
	GPIO (DIO)	8-bit	8-bit
Storage	mSATA	F/S (SATA signal shared with Onboard flash)	F/S (SATA, USB 2.0)
	eMMC	-	-
	SATA SSD	-	-
Expansion	M.2 E-Key 2230	-	1
	M.2 B-Key 3042	-	-
	M.2 B/M-Key 2280	-	-
	M.2 M-Key 2242	-	-
	M.2 M-Key 2280	-	-
	Mini-PCIe	Opt. to mSATA (PCIex1, USB 2.0)	Opt. to mSATA (PCIex1, USB 2.0)
	PC/104	-	-
	PCI104	-	1
	PC/104-Plus	1	-
	PCI Slot	-	1
Others	TPM	-	-
	Fan	-	-
	Watchdog Timer	1-255 sec/min, output to Reset	255 levels timer interval, programmable by software
Power	Power Type	AT, ATX (Support PC104-Plus Power module)	AT, ATX
	Power Supply Voltage	12V, 5V, 5VSB	12V
	Connector	Wafer 8P 2.00mm	2X2 ATX Connector
	Power Management	ACPI	ACPI
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C; Extend: -40 ~ 85°C	0 ~ 60°C; Extend: -40 ~ 85°C
	Storage Temperature	-40 ~ 85°C	-40 ~ 85°C
	Relative Humidity (Operating)	40°C @ 95% RH Non-Condensing	40°C @ 95% RH Non-Condensing
	Relative Humidity (Storage)	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing	-40 ~ 85°C and 60°C @ 95% RH Non-Condensing
Certification	EMC	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

Embedded PCs EPC-S & EPC-C Series

Model Name		EPC-C301	EPC-S202	EPC-S201	EPC-S101
Barebone System	Description	Performance MIO-Plus System	2.5" Pico-Base Compact System	2.5" Pico-Base Compact System	3.5"-Base Slim System
Processor System	Compatible Motherboard	MIO-5373	MIO-2361	MIO-2360	PCM-9310
	Thermal Solution	Fanless	Fanless	Fanless	Fanless
	CPU	Intel® Core™ i7-8665UE/i5-8365UE	Intel® Atom® x7-E3950/x5-E3930	Intel® Celeron® N3350	Intel® Celeron® N3160/N3060, Atom® x5-E8000
	BIOS	AMI UEFI 256Mb SPI	AMI UEFI 64Mb SPI	AMI UEFI 64Mb SPI	AMI UEFI 64Mb SPI
Memory	Socket	2 x 260-pin SODIMM	N/A (On board LPDDR4)	1 x 204-pin SODIMM	1 x 204-pin SODIMM
	Technology	DDR4-2400	LPDDR4-2400	DDR3L-1866	DDR3L-1600
	Max. Capacity	Default 8GB/16GB, up to 32GB	Default 4GB, up to 8GB	Up to 8GB (Default BOM without memory inside)	Default 2GB, up to 8GB
Graphics	Chipset Integrated	Intel® UHD Graphics 620	Intel® HD Graphics 505/500	Intel® HD Graphics 500	Intel® HD Graphics
Storage	2.5" HDD Bay	-	-	-	Room for 1 x 2.5" SSD, max. 9.5mm height
	M.2 Slot	Default 128GB SATA SSD on 1 x M-Key 2280 (PCIe Gen.3 x4, SATAIII)	-	-	-
	mSATA Slot	-	1 x Full size	1 x Half size	1 x Full size (opt. mPCIe)
	eMMC	-	Default 32GB, up to 64GB	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel I219; LAN2: Intel I210 LAN3: Intel I210; LAN4: Intel I210	LAN1: Intel I219; LAN2: Intel I210	Intel I210	LAN1: Realtek RTL8111E LAN2: Realtek RTL8111E
	Connector	RJ-45 x 4	RJ-45 x 2	RJ45 x 1	RJ-45 x 2
Audio	Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Internal Expansion Slot	Mini-PCIe	1 x Full size	-	1 x Full size	1 x Full size
	M.2	1 x E-Key 2230 (PCIe x1, USB 2.0) 1 x B-Key 3042 (USB 2.0)	1 x E-Key 2230 (PCIe x1, USB 2.0)	-	-
	SIM slot	-	-	-	1
Front Panel	DP/HDMI	1 x HDMI (up to 4096 x 2160 @ 30Hz) 1 x DP (up to 4096 x 2304 @ 60Hz) (Note: DP not support Hot-plug & Audio)	1 x HDMI (up to 3840x2160 @ 30Hz)	-	1 x HDMI (up to 2560 x 1600 @ 60Hz)
	VGA	-	-	1	1
	COM	2 (RS-232/422/485)	1 (RS-232/422/485)	1 (RS-232/422/485)	-
	LAN	4	2	1	2
	USB	8 (USB 3.0 x4, USB 2.0 x4)	2 x USB 3.0	2 x USB 3.0	4 (USB 2.0 x 2, USB 3.0 x 2)
	Audio Jack	Mic-in/Line-out	Line-in/Line-out	Line-in/Line-out	-
	SIM slot	1 x Nano SIM	-	-	-
	Antenna (optional)	-	up to 2	up to 2	up to 1
Side Panel	COM	2 (1 x RS-232/422/485, 1 x RS-232)	1 (RS-232/422/485)	1 (RS-232/422/485)	4 (2 x RS-232/422/485, 2 x RS-232)
	USB	-	-	-	2 (USB 2.0)
	Audio Jack	-	-	-	Line-in, Line-out, Mic-in
	GPIO	8-bit	2 x 8-bit	8-bit	8-bit
	CAN Bus	2 (2.5KV isolation)	-	-	-
	Antenna (optional)	up to 4	-	-	up to 1
Miscellaneous	LED Indicators	2 (Power LED, HDD LED)	1 (Power LED)	1 (Power LED)	2 (Power LED, HDD LED)
	Switch	1 (Power Switch)	1 (Power Switch)	1 (Power Switch)	1 (Power Switch)
	Circular Cutouts	-	-	-	1
Mounting		Desk mount, Wall mount, DIN rail	Desk mount, Wall mount, DIN rail	Desk mount, Wall mount, DIN rail	Desk mount, VESA mount, DIN rail
Power Requirements	Power Voltage	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Power Input Type (Inlet)	DC Jack with lock	Phoenix DC plug-in	Phoenix DC plug-in	Phoenix DC plug-in
Environment	Operating Temperature	-20 ~ 60°C	-20 ~ 60°C	0 ~ 50°C	0 ~ 50°C
	Non-operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
	Humidity	Operating: 40°C @ 95% RH, non-condensing Storage: 60°C @ 95% RH, non-condensing	Operating: 40°C @ 95% RH, non-condensing Storage: 60°C @ 95% RH, non-condensing	Operating: 40°C @ 95% RH, non-condensing Storage: 60°C @ 95% RH, non-condensing	Operating: 40°C @ 95% RH, non-condensing Storage: 60°C @ 95% RH, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 3.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 3.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 3.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 3.0Grms IEC60068-2-6 sinusoidal 2.0G
	Shock	IEC60068-2-27 half-sine 30G/11ms	IEC60068-2-27 half-sine 30G/11ms	IEC60068-2-27 half-sine 30G/11ms	IEC60068-2-27 half-sine 30G/11ms
Certification		CE/FCC(Class B) CB/UL/CCC/KCC	CE/FCC(Class B) CB/UL/CCC	CE/FCC(Class B) CB/UL/BSMI/VCCI	CE/FCC(Class B) CB/UL/CCC/BSMI/KCC
Physical Characteristics	Dimensions	170 x 118 x 70 mm	139 x 100 x 44 mm	139 x 100 x 44 mm	188 x 150 x 39 mm
	Weight	1.5 kg	0.6 kg	0.6 kg	0.95 kg

Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel® Core™ i Platform

NEW   NEW   NEW   NEW

Model Name		AIMB-288E	AIMB-279	AIMB-278	AIMB-289
Form Factor		THIN motherboard (170 x 190 mm)	Mini-ITX	Mini-ITX	THIN Mini-ITX
Processor System	CPU	14th/13th/12th Gen Intel® Core™/i9/ i7/i5/i3/Pentium®/ Celeron®	14th/13th/12th Gen Intel® Core™/i9/i7/i5/i3/Pentium®/ Celeron®	14th/13th/12th Gen Intel® Core™/i9/ i7/i5/i3/Pentium®/ Celeron®	14th/13th/12th Gen Intel® Core™/i9/i7/i5/i3/Pentium®/ Celeron®
	Socket	LGA1700	LGA1700	LGA1700	LGA1700
	Max. Speed	P-core up to 5.8 GHz E-core up to 4.3 GHz	P-core up to 5.8 GHz E-core up to 4.3 GHz	P-core up to 5.8 GHz E-core up to 4.3 GHz	P-core up to 5.8 GHz E-core up to 4.3 GHz
	TDP	65W/60W/46W/35W	65W/60W/46W/35W	65W/60W/46W/35W	65W/60W/46W/35W
	L2 Cache	-	-	-	-
	L3 Cache	Up to 36MB	Up to 36MB	Up to 36MB	Up to 36MB
	Chipset	Intel® H610E	Intel® Q670E/H610E	Intel® Q670E/H610E	Intel® H610E
	BIOS	AMI EFI 256Mbit SPI	AMI EFI 256Mbit SPI	AMI EFI 256Mbit SPI	AMI EFI 256Mbit SPI
Expansion Slot	M.2	1 M-Key & 1 B-Key	1 M-Key & 1 E-Key	1 M-Key & 1 E-Key	1 B-Key & 1 E-Key
	Mini PCIe	0	0	0	0
	PCIe	0	1 x PCIe4 x16	1 x PCIe5 x16	1 x PCIe3 x4
Memory	Technology	2-CH DDR5 5600 MHz SDRAM	2-CH DDR4 3200 MHz SDRAM	2-CH DDR5 5600 MHz SDRAM	2-CH DDR5 5600 MHz SDRAM
	Max. Capacity	96GB / up to 48GB per DIMM	64GB/ up to 32GB per DIMM	96GB / up to 48GB per DIMM	96GB / up to 48GB per DIMM
	Socket	2 x 262-pin SODIMM	2 x 260-pin SODIMM	2 x 262-pin SODIMM	2 x 262-pin SODIMM
Graphics	Controller	Graphics Computing by Nvidia A2000/T1000 or Intel Arc A370M Display by Intel® UHD Graphics	Intel® UHD Graphics	Intel® UHD Graphics	Intel® UHD Graphics
	VGA/DVI-D/HDMI/DP++	-/-/-/2	-/-/1/2	-/-/-/2	-/-/1/2 (1*USB type C DP Alt. mode)
	Dual Channel 24-bit LVDS/eDP	0/1	1/1 (eDP is optional)	1/1 (LVDS is optional)	1/1 (eDP is optional)
	Type-C Alt.	-	-	-	1 (by SKU)
	Multiple Display	Triple displays: DP+DP+eDP	Quad displays: DP+DP+HDMI+LVDS (or eDP)	Quad displays: DP+DP+HDMI+eDP (or LVDS)	Triple displays: DP+HDMI+LVDS (or eDP)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000/2500 Mbps	10/100/1000/2500 Mbps	10/100/1000/2500 Mbps
	Controller	LAN1: Intel® I219LM LAN2: Intel® I226 (1GbE)	LAN1: Intel® I219LM LAN2: Intel® I226 (2.5GbE)	LAN1: Intel® I219LM LAN2: Intel® I226 (2.5GbE)	LAN1: Intel® I226 (2.5GbE) LAN2: Intel® I226 (2.5GbE) LAN3: Intel® I226 (2.5GbE)
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 3
TPM		TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	1	2	3	2
	eSATA/mSATA	-/-	-/-	-/-	-/-
Rear I/O	VGA/DVI/HDMI/DP	-/-/-/2	-/-/1/2	-/-/1/2	-/-/1/1
	Type-C Alt.	-	-	-	1
	Ethernet	2	2	2	3
	USB	4 x USB3.2 Gen1	2 x USB3.2 Gen2	6 x USB3.2 Gen2	2 x USB3.2 Gen2 type A 1 x USB3.2 Gen2 type C 1 x USB3.2 Gen1 type A
	Audio	Line out	Mic-in, Line-out, Line-in(option)	Mic-in, Line-out, Line-in	Line out, Mic in
	Serial	-	-	-	-
	PS/2	-	-	-	-
	DC Jack	1 (4-pin Phoenix connector)	1 (4-pin Phoenix connector)	-	1 (DC-IN)
Internal Connector	LVDS/eDP	-/1	1/1 (eDP optional)	1/1 (LVDS by default)	1/1 (LVDS by default)
	VGA	-	-	-	-
	USB	2 x USB3.2 Gen1	2 x USB3.2 Gen1 2 x USB2.0	2 x USB2.0	4 x USB2.0
	Serial	2 RS-232/422/485 (by BOM option)	2 (RS232 + RS232/422/485)	2 (RS232/422/485 + RS232)	4 (2x RS232 + 2x RS232/422/485)
	Parallel	-	-	-	-
	SATA	1	2	3	2
	eMMC/UFS	-/-	-	-/-	-
	GPIO	0	8-bit GPIO	6-bit GPIO	8-bit GPIO
Power Input		19~24V DC-in Rear: Phoenix	12~24V DC-in Rear: Phoenix	12V ATX Internal: ATX 20-pin+8-pin	12~24V DC-in Rear: DC Jack Internal: ATX 4pin+3pin 5VSB header
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel® Core™ i Platform

NEW

Model Name		AIMB-208	AIMB-287	AIMB-277	AIMB-286	AIMB-286EF
Form Factor		Mini-ITX	THIN Mini-ITX	Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	14th/13th/12th Gen Intel® Core™/i9/i7/i5/i3/Pentium®/Celeron®	10th Gen Intel® Core™ i9/i7/i5/i3/Celeron®	10th Gen Intel® Core™ i9/i7/i5/i3/Celeron®	8th/9th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron®	8th/9th Gen Intel® Core™ i7/i5/i3/Pentium®/Celeron®
	Socket	LGA1700	LGA1200	LGA1200	LGA1151	LGA1151
	Max. Speed	P-core up to 5.8 GHz E-core up to 4.3 GHz	2.8/2.9/3.1/3.2/3.8/3.2 GHz	2.8/2.9/3.1/3.2/3.8/3.2 GHz	3.7/3.6/3.2/3.1/3.0/2.9/2.4/2.1GHz	3.7/3.6/3.2/3.1/3.0/2.9/2.4/2.1GHz
	TDP	65W/60W/46W/35W	65W/58W/35W	65W/58W/35W	65W/54W/35W	65W/54W/35W
	L2 Cache	-	-	-	-	-
	L3 Cache	Up to 36MB	20MB/16MB/12MB/ 6MB/2MB	20MB/16MB/12MB/ 6MB/2MB	12MB/9 MB/6 MB/4 MB/2 MB	12MB/9MB/6MB/4MB/2MB
	Chipset	Intel® H610E	Intel® H420E	Intel® Q470E	Intel® H310	Intel® H310
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 256Mbit SPI	AMI EFI 256Mbit SPI	AMI EFI 128Mbit, SPI	AMI EFI 128Mbit, SPI
Expansion Slot	M.2	1 M-Key & 1 E-Key	1 M-Key & 1 E-Key	1 M-Key & 1 E-Key	1 B-Key & 1 E-Key	1 B-Key & 1 E Key
	Mini PCle	-	0	0	0	0
	PCle	1 x PCle4 x16	0	1 x PCle3 x16	1 x PCle3 x4	1 x PCle3 x16
Memory	Technology	2-CH DDR4 3200MHz SDRAM	2-CH DDR4 2933 MHz SDRAM	2-CH DDR4 2933 MHz SDRAM	2-CH DDR4 2666 MHz SDRAM	Single-CH DDR4 2666 MHz SDRAM
	Max. Capacity	64GB/ up to 32GB per DIMM	64GB / up to 32GB per DIMM	64GB / up to 32GB per DIMM	64GB / up to 32GB per DIMM	32GB / up to 32GB per DIMM
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	1 x 260-pin SODIMM
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	VGA/DVI-D/HDMI/DP++	-/-/1/2	-/-/2/-	1/-/1/1	-/-/1/1	-/-/1/1
	Dual Channel 24-bit LVDS/eDP	1/1 (LVDS by default)	0/1	1/1	1/1 (LVDS by default)	1/1 (LVDS by default)
	Type-C Alt.	-	-	-	-	-
	Multiple Display	Triple displays: DP+HDMI+LVDS (or eDP)	Dual display: HDMI + HDMI, HDMI+eDP	Triple displays: DP+DP+HDMI, DP+HDMI+LVDS (or eDP), LVDS(or eDP)+DP+DP	Dual display: DP+HDMI, DP+LVDS(or eDP), HDMI+LVDS(or eDP)	Dual display: DP+HDMI, DP+LVDS(or eDP), HDMI+LVDS(or eDP)
Ethernet	Interface	10/100/1000/2500 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel® I219V LAN2: Intel® I226V (GbE, 2.5GbE by option)	LAN1: Intel® I219LM LAN2: Intel® I210AT	LAN1: Intel® I219LM LAN2: Intel® I210AT	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H (only for FL/F/G2 SKU) LAN3: Intel® I211AT (only for FL/F SKU)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H LAN3: Intel® I210AT
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 3 (by SKU)	RJ-45 x 3
TPM		Optional	TPM 2.0	Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	2	2	3	3	3
	eSATA/mSATA	-/-	-/-	-/-	-/-	-/-
Rear I/O	VGA/DVI/HDMI/DP	-/-/1/2	-/-/2/-	-/-/1/1	-/-/1/1	-/-/1/1
	Type-C Alt.		-	-	-	-
	Ethernet	2	2	2	FL/F SKU: 3 G2 SKU: 2 L SKU: 1	3
	USB	4 x USB3.2 Gen1x1 & 4 x USB2.0	4 x USB3.2 Gen1	4 x USB3.2 Gen2	4 x USB3.2 Gen1	4 x USB3.2 Gen1
	Audio	Mic-in, Line-out, Line-in	Line out	Mic-in, Line-out, Line-in	Mic-in, Line-out	Mic-in, Line-out
	Serial	-	-	-	-	-
	PS/2	-	-	-	-	-
	DC Jack	-	1	-	1	1
Internal Connector	LVDS/eDP	1/1 (LVDS by default)	-/1	1/1 (LVDS by default)	1/1 (LVDS by default)	1/1 (LVDS by default)
	VGA		-	1 (pin header)	-	-
	USB	2 x USB2.0	2 x USB3.2 Gen1 & 2 x USB 2.0	4 x USB3.2 Gen1	4 x USB2.0 (by SKU)	4 x USB2.0
	Serial	6 (5 x RS-232, 1 x RS-232/422/485)	4 (2 x RS-232, 2 x RS-232/422/485; RS-422/485 by BOM optional)	2 (RS232/422/485)	FL/F SKU: 6 (4 x RS-232, 2 x RS-232/422/485, RS-422/485 by BOM optional) G2/L SKU: 2 (1 x RS-232, 1 x RS-232/422/485, RS-422/485 by BOM optional)	2 (1 x RS-232, 1 x RS-232/422/485; RS-422/485 by BOM optional)
	Parallel	-	-	-	-	-
	SATA	2	2	3	3 (Maximum)	3
	eMMC/UFS		-/-	-/-	-/-	-/-
	GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	16-bit GPIO	16-bit GPIO
Power Input		12V ATX Internal: ATX 20-pin + 8-pin	12~24V DC-in Rear: DC Jack Internal: ATX 4-pin	12V ATX Internal: ATX 24-pin + 8-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

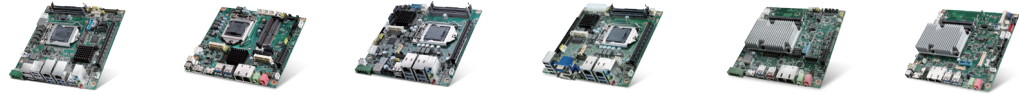# Industrial Motherboards

Mini-ITX

Intel® Core™ i Platform

Model Name		AIMB-276	AIMB-285	AIMB-275	AIMB-205	AIMB-233	AIMB-232
Form Factor		Mini-ITX	THIN Mini-ITX	Mini-ITX	Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	8th/9th Gen Intel® Core™ i7/i5/i3/ Pentium®/ Celeron®	6th/7th Gen Intel® Core™ i7/i5/i3/ Pentium®/ Celeron®	6th/7th Gen Intel® Core™ i7/i5/i3/ Pentium®/ Celeron®	6th/7th Gen Intel® Core™ i7/i5/i3/ Pentium®/ Celeron®	8th Gen Intel® Core™ ULT i7/i5/i3/ Celeron®	6th Gen Intel® Core™ i7/i5/i3/ Celeron®
	Socket	LGA1151	LGA1151	LGA1151	LGA1151	BGA1528	BGA1356
	Max Speed	3.7/3.6/3.2/3.1/3.0/2.9/2.4/2.1 GHz	3.6/3.3/2.4/3.4/3.2/2.8/2.6 GHz	3.6/3.3/2.4/3.4/3.2/2.8/2.6 GHz	3.6/3.3/2.4/3.4/3.2/2.8/2.6 GHz	2.2/1.7/1.6/2.0 GHz	2.6/2.4/2.3/2 GHz
	TDP	65W/58W/54W/35W	65W/54W/51W/35W	65W/54W/51W/35W	65W/51W/54W/35W	15W	15W
	L2 Cache	-	-	-	-	-	-
	L3 Cache	12MB/9MB/6MB/4MB/2MB	8MB/6MB/4MB/3MB/2MB	8MB/6MB/4MB/3MB/2MB	8MB/6MB/4MB/3MB/2MB	8MB/6MB/4MB/2MB	4MB/3MB/3MB/2MB
	Chipset	Intel® Q370	Intel® H110	Intel® Q170	Intel® H110	-	-
	BIOS	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 256 Mbits, SPI	AMI uEFI 16 Mbits, SPI
Expansion Slot	M.2	1 B-Key & 1 E-Key	-	1 B-Key	1 B-Key	1 M-Key & 1 E-Key	-
	Mini PCIe	0	2	1	1	1 (F/S), optional	2
	PCIe	1 x PCIe3 x16	1 x PCIe3 x4	1 x PCIe3 x16	1 x PCIe3 x16	1 x PCIe3 x1	-
Memory	Technology	2-CH DDR4 2666 MHz SDRAM	2-CH DDR4 2400 MHz SDRAM	2-CH DDR4 2400 MHz SDRAM	2-CH DDR4 2400 MHz SDRAM	2-CH DDR4 2400MHz SDRAM	2-CH DDR4 2400MHz SDRAM
	Max Capacity	64GB / up to 32GB per DIMM	32GB / up to 16GB per DIMM	32GB / up to 16GB per DIMM	32GB / up to 16GB per DIMM	32GB / up to 16GB per DIMM	32GB / up to 16GB per DIMM
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	9th Gen Intel® Graphics	Intel® HD Graphics 520
	VGA/DVI-D/HDMI/DP++	-/-/1/2	1/-/1/1 (VGA by pin header)	-/-/1/1	1/1/-/1	-/-/1/-	-/-/1/1
	Dual Channel 24-bit LVDS/eDP	1/1 (LVDS by default)	1/- (LVDS by option)	1/1 (LVDS by default)	1/1 (LVDS by default)	1/1 (LVDS by default)	1/1 (LVDS by default)
	Type-C Alt.	-	-	-	-	1	-
	Multiple Display	Triple displays: DP+DP+HDMI, DP+DP+LVDS(or eDP), DP+HDMI+LVDS(or eDP)	Dual displays: DP+HDMI, DP+VGA, HDMI+VGA, DP+LVDS, HDMI+LVDS, VGA+LVDS	Triple displays: DP+HDMI+LVDS DP+HDMI+eDP	Dual displays: DP+VGA, DP+LVDS(or eDP), DP+DVI-D, DVI-D+VGA, DVI-D+LVDS(or eDP), VGA+LVDS(or eDP)	Triple displays: Type C Alt. + HDMI+LVDS(or eDP)	Triple displays: DP+HDMI+ LVDS(or eDP)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel® I219LM LAN2: Intel® I225-AT	LAN1: Realtek RTL8119I LAN2:Realtek RTL8119I	LAN1: Intel® I219LM LAN2: Intel® I210-AT	LAN1: Realtek RTL8119I LAN2:Realtek RTL8119I	LAN1: Intel® I219LM LAN2: Intel® I210-AT	LAN1: Intel® I219LM LAN2: Intel® I210-AT
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM		Optional	Optional	Optional	Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	3	3	3	2	2	2
	eSATA/mSATA	-/-	-/1	-/1	-/1	-/-	-/1
Rear I/O	VGA/DVI/HDMI/DP	-/-/1/2	-/-/1/1	-/-/1/1	1/1/-/1	-/-/1/1	-/-/1/1
	Type-C Alt.	-	-	-	-	1 (optional)	-
	Ethernet	2	2	2	2	2	2
	USB	6 x USB3.2 Gen2 Type-A 1 x USB3.2 Gen1 Type-A 1 x USB3.2 Gen1 Type-C	4 x USB3.2 Gen1	4 x USB3.2 Gen1	4 x USB3.2 Gen1 & 4 x USB2.0	3 USB3.2 Gen2 Type-A 1 USB3.2 Gen2 Type-C (by option)	4 x USB3.2 Gen1
	Audio	Mic-in, Line-out, Line-in	Mic-in, Line-out	Mic-in, Line-out, Line-in	Mic-in, Line-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	Serial	-	-	-	-	-	Mic-in, Line-out
	PS/2	-	-	-	-	-	-
	DC Jack	1 (4-pin Phoenix connector)	1	1 (4-pin Phoenix connector)	-	1 (4-pin Phoenix connector)	1
Internal Connector	LVDS/eDP	1/1 (LVDS by default)	1/- (by SKU)	1/1 (LVDS by default)	1/1 (optional) eDP co-lay with DP	1/1 (LVDS by default)	1/1 (LVDS by default)
	VGA	-	1	-	-	-	-
	USB	2 x USB3.2 Gen1	4 x USB 2.0	2 x USB3.2 Gen1 4 x USB2.0	6 x USB2.0 (4 is optional)	2 x USB3.2 Gen1 2 x USB2.0	2 x USB3.2 Gen1 2 x USB2.0
	Serial	2 (1 x RS-232; 1 x RS-232/422/485)	2 (1 x RS-232; 1 x RS-232/422/485)	2 (1 x RS-232; 1 x RS-232/422/485)	8 (7 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232, 1 x RS-232/422/485)	2 (RS-232)
	Parallel	-	-	-	-	-	-
	SATA	3	3	3	2	2	2
	eMMC/UFS	-/-	-/-	-/-	-/-	-/-	-/-
	GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO
Power Input		12~24V DC-in, Rear: Phoenix connector Internal: ATX 4-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12~24V DC-in Rear: Phoenix connector Internal: ATX 4-pin	12V ATX Internal: ATX 20 pin 4-pin	12~24V DC-in Rear: Phoenix connector	12V DC-in Rear: DC Jack Internal: ATX 4-pin
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel Atom® Platform ———————————— AMD Platform ————

NEW

Model Name		AIMB-219	AIMB-218	AIMB-217	AIMB-215	AIMB-229	AIMB-228
Form Factor		THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	Intel® Core™i3-N305/ Intel® Processor N97/ Intel® Processor N200/ Intel® Processor N50	Intel® Pentium® J6426/ Celeron® J6413/Celeron® N6211/Atom® x6413E	Intel® Pentium® N4200/ Celeron® N3350/Atom® x7-E3950	Intel® Celeron® J1900/ N2930/N2807	AMD Embedded Ryzen V2000	AMD Embedded Ryzen V2000/R1000/R2000
	Socket	FCBGA	FCBGA	FCBGA	FCBGA	BGA	BGA
	Max Speed	3.8GHz/ 3.6GHz/ 3.7GHz/ 3.4GHz	QC 2.0 / QC 1.8 / DC 1.2 / QC 1.5 GHz	QC 1.1 / DC 1.1 / QC 1.6 GHz	QC 2.0 / 1.83 GHz DC 1.58 GHz	8C 4.15Ghz / 6C 3.95GHz	QC 3.8 GHz / DC 3.5GHz
	TDP	Up to 15W	Up to 10W	Up to 12W	Up to 10W	Up to 54W	Up to 54W (V1000) Up to 25W (R2000/R1000)
	L2 Cache	2 MB	1.5MB	2MB	2MB/2MB/1MB	4MB	2M
	L3 Cache	-	-	-	-	8MB	2MB
	Chipset	-	-	-	-	-	-
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 256Mbit, SPI	AMI EFI 128Mbit, SPI	AMI EFI 16Mbit, SPI	AMI EFI 128Mbit, SPI	AMI EFI 128Mbit, SPI
Expansion Slot	M.2	1 B-Key & 1 E-Key	1 B-Key & 1 E-Key	1 E-Key	-	1 M-Key & 1 E-Key	1 B-Key & 1 E-Key
	Mini PCIe	-	-	1	2	-	-
	PCIe	1 x PCIe3 x1	1 x PCIe3 x1	1 x PCIe2 x1	1 x PCIe2 x1	1 x PCIe3 x8	1 x PCIe3 x8 (max. x8, by SKU)
Memory	Technology	1-CH DDR4 3200MHz SDRAM	2-CH DDR4 3200MHz SDRAM	2-CH DDR3L 1600MHz SDRAM	2-CH/2-CH/1-CH DDR3L 1333MHz SDRAM	2-CH DDR4 3200MHz SDRAM (ECC/non-ECC)	2-CH DDR4 3200MHz SDRAM (ECC/non-ECC)
	Max Capacity	16GB	32GB / up to 16GB per DIMM	16GB/ up to 8GB per DIMM	8GB / up to 4GB per DIMM	64GB / 32GB per DIMM	32GB / up to 16GB per DIMM
	Socket	1 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 204-pin SODIMM	2 / 2 / 1 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel® UHD Graphics	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	AMD Radeon	AMD Radeon
	VGA/DVI-D/HDMI/DP++	-/-/1/1	-/-/1/1	1/-/1/1	1/-/-/1	-/-/2/2	-/-/-/4 (V1000/R2544/R2514/R2314) -/-/-/3 (R1000/R2312)
	Dual Channel 24-bit LVDS/eDP	1/1 (eDP is optional)	1/1 differ by SKU	1/1 (LVDS by default)	1/1 (LVDS by default)	1/1 (eDP is optional)	1/- (LVDS by option)
	Type C Alt.	1	-	-	-	2	-
	Multiple Display	Triple displays: DP+HDMI+LVDS(or eDP)	Triple displays: DP+HDMI+LVDS(or eDP)	Triple displays: VGA(or EDP)+ DP(or LVDS)+HDMI	Dual displays: VGA+DP(or eDP), VGA+LVDS, LVDS+DP(or eDP)	Quad displays: HDMI+HDMI+DP+DP, eDP+HDMI+DP+DP	Quad displays: DP+DP+DP+DP LVDS+DP+DP+DP
Ethernet	Interface	10/100/1000/2500 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1 and LAN2: RTL8111K (1GbE) or RTL8125BG (2.5GbE), refer to SKU	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111K LAN2: Realtek RTL8111K
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM		TPM 2.0 (by SKU)	TPM 2.0 (by SKU)	Optional	Optional	TPM 2.0	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	300 MB/s	600 MB/s	600MB/s
	Channel	1	1	2	2	2	2
	eSATA/mSATA	-/-	-/-	-/1	-/1	-/-	-/-
Rear I/O	VGA/DVI-D/HDMI/DP	-/-/1/1	-/-/1/1	1/-/1/1	1/-/-/1	-/-/2/2	-/-/-/V1000: 4 -/-/-/R1000: 3
	Type-C Alt.	1	-	-	-	2	-
	Ethernet	2	2	2	2	2	2
	USB	2 x USB3.2 Gen2x1 + 1 x USB3.2 Gen2x1 Type-C	4 (3 x USB 3.2 Gen2 / 1 x USB 2.0)	4 (USB 3.2 Gen1)	4 (1 x USB 3.2 Gen1 / 3 x USB 2.0)	2 x USB 3.2 Gen2 / 2 x USB 3.2 Gen1	4 (2 USB 3.2 Gen2 / 2 USB 2.0)
	Audio	Line-Out, Mic-In	Line-out	Line-out	Line-out	Line-out + Mic/Line-in	Line-out + Mic/Line-in
	Serial	-	-	-	-	-	-
	PS/2	-	-	-	-	-	-
	DC Jack	1	1	1	1	1	1
Internal Connector	LVDS/eDP	1/1 (optional) eDP co-lay with LVDS	1/1 (optional) eDP co-lay with LVDS	1/1 (optional) LVDS co-lay with DP, eDP co-lay with VGA	1/1 (optional) eDP co-lay with DP	1 (optional)	1 (optional) / LVDS co-lay with DP
	USB	5 x USB2.0 1 x USB3.2 Gen2 (Type-A)	4 (USB 2.0)	8 (USB 2.0), USB 9/10/11/12 is optional	4 (USB 2.0)	2 (USB 2.0)	2 (USB 2.0)
	Serial	6 (5 x RS-232, 1 x RS-232/422/485)	6 (5 x RS-232, 1 x RS-232/422/485) COM3~6 (optional)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485) COM3~6 (optional)	6 (4 x RS-232; 2 x RS-232/422/485)	6 (4 x RS-232, 2 x RS-232/422/485, 1 supports CCTalk, 1 supports TTL)
	Parallel	-	-	-	-	-	-
	SATA	1	1	2	2	2	2
	eMMC/UFS	-/-	-/-	-/-	-/-	-/-	-/-
	GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	16-bit GPIO	16-bit GPIO
Power Input		12V DC-in Rear: DC Jack Internal: ATX 4-pin + 3-pin 5VSB	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12V DC-in Rear: DC Jack Internal: ATX 4-pin	12~24V DC-in Rear: DC Jack Internal: ATX 4-pin
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Micro-ATX

Intel® Core™ i Platform

NEW   NEW   NEW

Model Name		AIMB-592	AIMB-588	AIMB-587	AIMB-508	AIMB-506
Form Factor		Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX
Processor System	CPU	AMD EPYC™ 7003 series	14th/13th/12th Gen Intel® Core™/i9/i7/i5/i3/Pentium®/Celeron®	10th Gen Intel® Xeon®/Core™/i9/i7/i5/i3/Pentium®/Celeron®	14th/13th/12th Gen Intel® Core™/i9/i7/i5/i3/Pentium®/Celeron®	8th/9th Gen Intel® Core™ i7/i5/i3/Pentium®/ Celeron®
	Socket	SP3	LGA1700	LGA1200	LGA1700	LGA1151
	Max speed	3.7GHz/3.7GHz/3.675GHz	P-core up to 5.8 GHz E-core up to 4.3 GHz	3.8/ 3.5/3.4/3.2/3.1/3.0/2.9 /2.8/2.4/ 2.3/2.0/1.8 Ghz	P-core up to 5.8 GHz E-core up to 4.3 GHz	3.7/3.6/3.2/3.0/2.9 GHz
	TDP	155W/225W/225W	65W/60W/46W/35W	95W/ 80W/ 65W/ 58W/ 35W	65W/60W/46W/35W	65W/ 58W/ 35W
	L2 cache	-	-	-	-	-
	L3 cache	128MB/256MB/256MB	Up to 36MB	20MB/ 16MB/ 12MB/ 6MB/ 4MB/ 2MB	Up to 36MB	12MB/ 9MB/ 6MB/ 2MB
	Chipset	-	Intel® R680E/Q670E/H610E	Q470E/ W480E/ H420	Intel® H610E	Intel® H310
	BIOS	AMI BIOS 256 Mbit SPI	AMI EFI 256Mbit SPI	AMI EFI 256Mbit, SPI	AMI EFI 256Mbit SPI	AMI EFI 128Mbit, SPI
Expansion Slot	PCI	-	-	-	2	2 (L SKU: 0)
	PCIe x16	4	1	1	1	1
	PCIe x 8	-	1 (R optional)	1 (F/WG2/QG2 option)	-	-
	PCIe x4	-	2	1	1	-
	PCIe x1	-	-	1 (F/WG2/QG2 option)	-	1
	mini-PCIe/ M.2	1 x M-key	1 x M-key	- / 1 (M-Key for QG2/F/ WG2)	1 x M-key	-/ 1 (B-Key, L SKU:0)
Memory	Technology	six Channel DDR4 up to 3200 MHz SDRAM	Dual Channel DDR5 5600 MHz SDRAM	Dual Channel DDR4 2400/2666/2933 MHz SDRAM	Dual Channel DDR4 3200 MHz SDRAM	Dual Channel DDR4 2400/2666 MHz SDRAM
	Max. Capacity	768GB / up to 128GB per DIMM	192GB/ up to 48GB per DIMM	128GB / up to 32GB per DIMM	64GB/ up to 32GB per DIMM	64GB / up to 32GB per DIMM
	Socket	6 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM (QG2/F/ WG2), 2 x 288-pin DIMM (L)	2 x 288-pin DIMM	2 x 288-pin DIMM
Graphics	Controller	BMC LAN	Intel® UHD Graphics	Intel® HD Graphics	Intel® UHD Graphics	Intel® HD Graphics
	VRAM	-	-	Shared system memory up to 1GB	1/-/1/1	Shared system memory up to 1GB
	VGA	1	-	1 (WG2/QG2/L option)	1	1
	LCD	-	-	-	-	Dual Channel 48-bit LVDS (optional)
	DVI-D	-	-	-	-	1
	HDMI	-	1	-	1	1
	DP/eDP	-	2/1	2/1 (WG2/L option)	1/1	1/1 (G2/ L SKU without eDP)
	Dual Display	-	DP + HDMI, DP + DP, DP + eDP, HDMI + eDP	DP++ + VGA, DP++ + DP++ DP++ + eDP, VGA + eDP	DP +VGA, DP+eDP, DP +HDMI, HDMI + eDP, HDMI + VGA, eDP+VGA	DP+ DVI-D, DP+VGA, DVI-D+VGA, DP+eDP(LVDS), DVI-D+eDP(LVDS), VGA+eDP(LVDS)
	Triple Display	-	DP + DP + HDMI, DP + DP + eDP, DP + HDMI + eDP	DP++ + DP++ + VGA, DP++ + DP++ + eDP, DP++ + VGA + eDP	eDP+HDMI+DP, eDP+VGA+DP, HDMI+DP+VGA, HDMI+eDP+VGA	-
	Quad Display	-	DP + DP + HDMI + eDP (R/Q sku)	-	-	-
Ethernet	Interface	10/100/1000/10GbE Mbps	10/100/1000/2500 Mbps	10/100/1000/10GbE Mbps	10/100/1000/2500 Mbps	10/100/1000 Mbps
	Controller	LAN1: 2.5GbE Intel i226-LM LAN2: 2.5GbE Intel i226-LM LAN3: 10GbE Intel X550 LAN4: 10GbE Intel X550 LAN5: BMC LAN	LAN1: Intel® I219LM LAN2: Intel® I226LM LAN3: Intel® I226LM LAN4: Intel® I226LM	LAN1: Intel® I219LM (QG2/ WG2/L) LAN2: Intel® I211AT (QG2) I210AT (F/WG2) LAN3/4: X550-AT2 (F default; QG2/WG2 optional)	LAN1: Intel® I219V LAN2: Intel® I226V	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H
	Connector	RJ-45 x 5	RJ-45 x 4	RJ-45 x 4 (2 optional)	RJ-45 x 2	RJ-45 x2
TPM		TPM2.0	TPM2.0	Optional	Optional	Optional
SATA	Max Data Transfer	600 MB/s	600 MB/s	600 MB/S	600 MB/s	600 MB/s
	Channel	8	8	6 -QG2 SKU; 8 - WG2/F SKU (SW RAID)	4	3
	mSATA/M.2	-/-	- / 1 (M-key)	- / 1 (M-Key)	- / 1 (M-key)	- /1 (B-Key, F, G2 SKU)
I/O Interface	VGA	1	-	1 (QG2/WG2/L)	1	1
	USB	4 x USB3.2 Gen1	5 x USB3.2 Gen2 3 x USB3.2 Gen1 1 x USB3.2 Gen2 type C 4 x USB2.0	6 x USB2.0 6 x USB3.2 Gen1 4 x USB3.2 Gen2	8 x USB3.2 Gen1 4 x USB2.0	F SKU: 20 (8 USB 3.0 + 12 USB 2.0) G2 SKU: 12 (4 USB 3.0 + 8 USB 2.0) L SKU: 8 (4 USB 3.0 + 4 USB 2.0)
	Serial	1 x RS-232	6	F/QG2 SKU: 6 (5 x RS-232, 1 x RS-232/422/485) WG2/L SKU: 2 (1 x RS-232, 1 x RS-232/422/485)	10	F SKU: 14 (12 x RS-232; 2 x RS-232/422/485) G2 SKU: 10 (8 x RS-232; 2 x RS-232/422/485) L SKU: 2 (2 x RS-232)
	Parellel	-	-	-	-	-
	SIM Card Holder	-	-	-	-	1 (L SKU:0)
	PS/2	-	-	1 (on board)	-	1 (on board)
	Ethernet (GbE)	-	Up to 4 (1 x 1GbE, 3 x 2.5GbE)	Up to 4 (2 x 1GbE, 2 x 10GbE)	2 (1 x 1GbE, 1 x 2.5GbE)	2
	IEEE 1394	-	-	-	-	-
	Audio	-	Mic-in/ Line-out	Mic-in, Line-out	Mic-in, Line-out, Line-in	Mic-in, Line-out
	GPIO	8-bit GPIO	8-bit GPIO	16-bit	8-bit GPIO	16-bit
Power Input		ATX input	ATX input	ATX Internal: ATX 24-pin + 8-pin (12V)	ATX input	ATX Internal: ATX 24-pin + 4-pin (12V)
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Micro-ATX

Intel® Core™ i Platform ———————————————————— AMD Platform

Model Name		AIMB-586	AIMB-505	AIMB-585	AIMB-522
Form Factor		Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX
Processor System	CPU	8th/9th Gen Intel® Xeon®/Core™ i7/i5/ i3/ Pentium®/ Celeron®	6th/7th Gen Intel® Core™ i7/i5/i3/ Pentium®/ Celeron®	6th/7th Gen Intel® Xeon®/Core™ i7/i5/ i3/ Pentium®/ Celeron®	AMD Ryzen 5000 series
	Socket	LGA1151	LGA1151	LGA1151	AM4
	Max Speed	3.7/3.6/3.4/3.2/3.1/ 3.0/2.9/2.4/ 2.1 GHz	3.4/3.2/2.8/2.7/2.6/ 2.4/2.3 GHz	3.6/3.3/2.4/ 3.4/3.2/2.8/ 2.6 GHz	Up to 4.9 GHz
	TDP	80W/ 71W/ 65W/ 35W	65W/ 51W/ 35W	80W/ 65W/ 51W/ 35W	105W/ 65W
	L2 Cache	-	-	-	-
	L3 Cache	16MB/12MB/ 9MB/ 8MB/ 6MB/ 4MB/ 2MB	8MB/ 6MB/ 4MB/ 3MB/ 2MB	8MB/ 6MB/ 4MB/ 3MB/ 2MB	Up to 64MB
	Chipset	Intel® Q370/ C246/H310	Intel® H110	Intel® Q170/ C236/H110	X570
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 128Mbit, SPI	AMI EFI 128Mbit, SPI	AMI EFI 256Mbit, SPI
Expansion Slot	PCI	-	1	-	-
	PCIe x16	1 (QG2/L: x16 link, WG2: x8 link)	1	1	1
	PCIe x8	1 (WG2 only)	-	1(L SKU: 0)	-
	PCIe x4	1	-	1(L SKU: 0)	2
	PCIe x1	1 (QG2/WG2 only)	2	1(L SKU: 2)	-
	mini-PCIe/ M.2	-/ 2 (M-Key & E-Key, QG2/WG2 only)	1/-	1/-	- / 2 (M-Key & E-Key)
Memory	Technology	Dual Channel DDR4 2400/2666 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 3200MHz SDRAM
	Max. Capacity	128GB / up to 32GB per DIMM	32GB/ up to 16 GB per DIMM	64GB/ up to 16GB per DIMM	128GB / up to 32GB per DIMM
	Socket	4 x 288-pin DIMM	2 x 288-pin DIMM	4 x 288-pin DIMM	4 x 288-pin DIMM
Graphics	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Radeon Graphics (APU only)
	VRAM	Shared system memory up to 1GB	Shared system memory up to 1GB	Shared system memory up to 1GB	Shared system memory
	VGA	-	1	1 (optional)	1
	LCD	Dual Channel 48-bit LVDS (optional)	Dual Channel 48-bit LVDS (optional)	-	-
	DVI-D	-	1	1	-
	HDMI	1 (QG2/WG2 for optional HDMI 2.0a)	-	1 (QG2/WG2 for optional HDMI 2.0a)	1
	DP/eDP	2 / 1 (L: eDP is option)	1/1	1 / 1	1 / -
	Dual Display	DP++ + HDMI, DP++ + DP++, DP++ + eDP/LVDS, HDMI + eDP/LVDS	VGA + DVI, VGA + DP, VGA + eDP, DVI + DP, DVI + eDP, DP + eDP	DP++ + HDMI, DP++ + DVI-D, DP++ + eDP/ VGA, HDMI + DVI-D, HDMI + eDP/ VGA, eDP, VGA + DVI-D	VGA+DP, VGA+HDMI, HDMI+DP
	Triple Display	DP++ + DP++ + HDMI, DP++ + DP++ + eDP/LVDS, DP++ + HDMI + eDP/LVDS	-	eDP/ VGA + DP++ + HDMI, eDP/ VGA + HDMI + DVI-D, DP++ + eDP/ VGA + DVI-D, DVI-D + DP++ + HDMI	VGA+DP+HDMI (with CPU 5600G/5700G only)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000/2500 Mbps
	Controller	LAN1: Intel® I219LM (QG2/WG2/L) LAN2: Intel® I211AT (QG2) I210AT (WG2) LAN3/4: Realtek RTL8111H (QG2/WG2 optional)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel® I219LM LAN2: Intel® I210AT	LAN 1/2: Intel® I225LM LAN 3/4: RTL8119i
	Connector	RJ-45 x 4 (2 for QG2/WG2 optional)	RJ-45 x2	RJ-45 x2	RJ-45 x 4
TPM		Optional	Optional	Optional	TPM 2.0
SATA	Max Data Transfer	600 MB/s	600 MB/s	600 MB/s	600 MB/S
	Channel	8 (WG2 SKU) 6 (QG2 SKU) 4 (L SKU)	3	4 (SW RAID, QG2/WG2 only)	4
	mSATA/M.2	- / 1 (M-Key)	1 / -	1 / -	- / 1 (M-Key)
I/O Interface	VGA	-	1	1 (on board, option)	1
	USB	4 x USB3.1, 2 x USB3.0 (QG2/WG2 SKU) 4 x USB3.0 (L SKU) 6 x USB2.0 (all SKU has option with added 2 x USB2.0)	8 x USB 3.0 6 x USB 2.0	10 x USB3.0 (QG2/WG2 optional with added 2 x USB3.0) 2 x USB2.0 (L default has 4 x USB2.0)	8 x USB 3.2 Gen 2 3 x USB 2.0
	Serial	6 (QG2/WG2: 5 x RS-232, 1 x RS-232/422/485) 2 (L: 1x RS-232, 1 x RS-232/422/485)	10 (8 x RS-232; 2 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (4 x RS-232; 2 x RS-232/422/485)
	Parallel	-	1	-	-
	SIM Card Holder	-	-	-	-
	PS/2	1 (on board)	1 (on board)	1 (on board)	-
	Ethernet (GbE)	4 (2 optional)	2	2	4
	IEEE 1394	-	-	-	-
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	GPIO	16-bit	8-bit	16-bit	8-bit
Power Input		ATX or 12V DC-in Internal: ATX 24-pin+4-pin(12V) or 8-pin(12V)	ATX Internal:ATX 24-pin+4-pin(12V)	ATX Internal: ATX 24-pin + 4-pin (12V)	ATX Internal: ATX 24-pin + 8-pin (12V)
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Open Standard Module (OSM)

Model Name		ROM-2620	ROM-2820	ROM-2821	ROM-2860
Form Factor		OSM S	OSM L	OSM L	OSM L
NPU		-	Arm® Ethos™ U-65 microNPU, 0.5 TOPS	-	Hexagon™ Tensor Processor, 12 TOPs
Compatible Carrier Board		ROM-ED91	ROM-ED93	ROM-ED93	ROM-ED92
Processor System	CPU	NXP i.MX 8ULP Cortex-A35 Dual core (up to 1.0GHz)	NXP i.MX 93 Cortex-A55 Dual-core (up to 1.7GHz)	NXP i.MX 93 Cortex-A55 (up to 1.4GHz)	QCS6490 Gold plus 2.7GHz + Gold 3 cores 2.4GHz QCS6490 4 lower-power cores 1.9 GHz
Memory	Technology	LPDDR4 2000MT/s	LPDDR4X 3733MT/s	LPDDR4X 3733MT/s	LPDDR5 8533MT/s
	Capacity	On-board 1GB	On-board 2GB	On-board 2GB	On-board 8GB
	Flash	16 GB eMMC NAND Flash for OS	16 GB eMMC NAND Flash for OS	16 GB eMMC NAND Flash for OS	-
Graphics	LVDS	-	1 x single channel LVDS	1 x single channel LVDS	-
	MIPI-DSI	1 x 4 lane MIPI-DSI	1 x 4 lane MIPI-DSI	1 x 4 lane MIPI-DSI	1 x 4 LAN MIPI-DSI: 1920x1080@60Hz (Share eDP port)
	eDP	-	-	-	1 x eDP1.4: 1920x1080@60Hz (Share MIPI-DSI port)
	HDMI	-	-	-	-
	Parallel RGB	-	-	-	-
	VGA	-	-	-	-
	DP	-	-	-	1 x DP 2 lane: 1920x1080@60Hz
	Graphics Engine	GC7000 nanoULTRA/GC328 with 2D/3D Graphic Acceleration	NXP integrated 2D Graphic Acceleration	-	Andreo VPU 633 4K30 encode/Decode Andreo GPU 643, OpenGL ES3.2/ OpenCL 2.0
	H/W Video Codec	-	-	-	Up to 4K30 codec for H.264/H.265
Ethernet	Chipset	1 x NXP i.MX 8ULP integrated RMII	2 x NXP i.MX 93 integrated RGMII	2 x NXP i.MX 93 integrated RGMII	2 x RGMII
	Speed	10/100 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
RTC		i.MX 8ULP internal RTC	External RTC	External RTC	1
WatchDog Timer		-	Supported	Supported	1
TPM		-	-	-	-
I/O	PCIe	-	-	-	2 x PCIe 3.0 x1
	SATA	-	-	-	-
	USB	1 x USB 2.0 1 x USB 2.0 OTG by serial download mode	2 x USB 2.0	2 x USB 2.0	1 x USB 3.2 Gen1 1 x USB2.0
	Audio	1 x I2S	1 x I2S	1 x I2S	2 x I2S
	SPDIF	-	-	-	-
	SDIO	1	1	1	1 x 4-bit for SDIO, 1 x 8-bit for eMMC
	Serial Port	2 x 4-wire UART, 2 x 2-wire UART (1 share with debug port) and 1 console	2 x 4-wire UART; 2 x 2-wire UART; 1 x 2-wire UART for debug console	2 x 4-wire UART; 2 x 2-wire UART; 1 x 2-wire UART for debug console	2 x 4-wire UART, 1 x 2-wire and 1 console
	SPI	1	1	1	1
	CAN	1	2 x CAN-FD	2 x CAN-FD	-
	GPIO	24	16	16	16
	I2C	2	2 + 2 (LVDS/MIPI-CSI)	2 + 2 (LVDS/MIPI-CSI)	2
	Camera Input	1 x 2-lane MIPI CSI	1 x 2-lane MIPI-CSI	1 x 2-lane MIPI-CSI	1 x 4-lane MIPI-CSI (OSM) and 1 x 4-Lane MIPI-CSI (vender reserved pins)
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
Power	Power Supply Voltage	5V	5V	5V	5V
	Power Consumption	1.62W	2.14W	TBD	TBD
Environment	Operational Temperature	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	-20 ~ 70 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing	5 ~ 95% relative humidity, non-condensing	5 ~ 95% relative humidity, non-condensing	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	30 x 30 mm	45 x 45 mm	45 x 45 mm	45 x 45 mm
Operating System		Yocto Linux	Yocto Linux	Yocto Linux	Windows 11 and Ubuntu
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Computer-on-Modules

Model Name		ROM-5420 B1	ROM-5620	ROM-5720	ROM-5721	ROM-5722
Form Factor		SMARC V1.1	SMARC V2.1	SMARC V2.1	SMARC V2.1	SMARC V2.1
NPU		-	-	-	-	2.3 TOPS Neural Network Performance
Compatible Carrier Board		ROM-DB5900-SWA2E	ROM-DB5901-SWA1	ROM-DB5901-SWA1	ROM-DB5901-SWA1	ROM-DB5901-SWA1 SOM-DB2510-00A1
Processor System	CPU	NXP Arm i.MX6 Cortex-A9 1 GHz	NXP Arm i.MX 8X Cortex-A35 1.2 GHz	NXP Arm i.MX 8M Cortex-A53 1.5 GHz	NXP Arm i.MX 8M Mini Cortex-A53 1.8 GHz	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz
Memory	Technology	DDR3 1066 MT/s	LPDDR4 2400 MT/s	LPDDR4 3200 MT/s	LPDDR4 3000 MT/s	LPDDR4 4000 MT/s
	Capacity	On-board DDR3 1 GB	On-board LPDDR4 2 GB	On-board LPDDR4 2 GB	On-board LPDDR4 2 GB	On-board LPDDR4 6 GB
	Flash	16 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR FLASH for board information	16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR FLASH for board information	16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR FLASH for board information	16 GB eMMC Flash for O.S. and 8 MB QSPI NOR Flash for board information
Graphics	LVDS	1 x 24-bit LVDS, 1366 x 768 at 60Hz	2 x 24-bit single channel LVDS*	-	1 x Dual Channel LVDS**	2 x 24 bit single channel LVDS or 1 x dual channel LVDS
	MIPI-DSI	-	2 x 4-Lane MIPI-DSI*	1 x 4-Lane MIPI-DSI	1 x 4-Lane MIPI-DSI**	1 x 4-Lane MIPI-DSI (shared with LVDS1)
	eDP	-	-	-	-	-
	HDMI	1920 x 1080 at 60Hz	-	1 x HDMI 2.0, up to 4096 x 2160 at 60 Hz	-	1 x HDMI 2.0, up to 3840 x 2160 at 30 Hz
	Parallel RGB	1 x 24-bit TTL, 1920 x 1200 at 60Hz	-	-	-	-
	VGA	-	-	-	-	-
	DP	-	-	-	1 x DP, up to 1080p (By BOM Option)	-
	Graphics Engine	2 x IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	Vivante GC7000 Lite, supports OpenGL 3.0, 2.1; OpenGL ES 3.1, 3.0, 2.0, 1.1; OpenCL 1.2,1.1; OpenVG 1.1; and Vulkan	GC7000L/GC7000LVX, support OpenGL ES 3.1, 3.0, 2.0, 1.1; Open CL 1.2, and Vulkan	Vivante GC320, GC NanoUltra 3D GPU Support OpenGL ES 2.0, VG 1.1	GC7000UL with 2D/3D Graphic Acceleration supporting 1G Pixel/s, OpenVG 1.1, Open GL ES3.1, Vulkan, and Open CL 1.2 FP
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Decoder: H.265/H.264(4K@30), WMV9/VC-1 imple, MPEG-1, MPEG-2, AVS, MPEG4.2 ASP, H.263 Encoder: H.264(1080@30)	Decoder: HEVC/ H.265(4K@60fps), VP9(4K@60fps), H.264(4K@30fps), MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263	Decoder: H.264, H.265, VP8/9 1080p Encoder: H.264, VP8 1080p	Decoder: HEVC/H.265 (1080@60fps) Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/Main/High Encoder: AVC/H.264 (1080@60fps), HEVC/H.265
Ethernet	Chipset	1 x NXP i.MX6 integrated RGMII	2 x NXP i.MX8X Integrated RGMII	1 x NXP i.MX8M Integrated RGMII 1 x RTL8119I PCIE GbE controller	1 x NXP i.MX8M Mini Integrated RGMII	2 x NXP i.MX8M Plus Integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
RTC		Yes	Yes	Yes	Yes	Yes
WatchDog Timer		256-level timer interval, from 0 ~ 128 sec	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s
TPM		-	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)
I/O	PCIe	1 x PCIe x1	1 x PCIe 3.0 x1	1 x PCIe 2.0 x1	1 x PCIe 2.0 x1	1 x PCIe 3.0 x1
	SATA	1 x SATA II	-	-	-	-
	USB	1 x USB 2.0, 1 x USB 2.0 OTG	1 x USB 3.2 Gen1 by 1, 1 x USB 2.0 Host, 1 x USB 2.0 OTG	2 x USB 3.2 Gen1 by 1, 4 x USB 2.0, 1 x USB 2.0 OTG	4 x USB 2.0, 1 x USB 2.0 OTG	2 x USB 3.2 Gen1 by 1, 4 x USB 2.0 Host, 1 x USB 2.0 OTG
	Audio	I2S	2 x I2S	2 x I2S	2 x I2S	2 x I2S
	SPDIF	1	-	-	-	-
	SDIO	1	1	1	1	1
	Serial Port	4 UART (2 x 2-wire, 2 x 4-wire w/ 3.3V)	3 UART (1 x 4-wire, 2 x 2-wire)	4 UART (1 x 4-wire, 3 x 2-wire)	4 UART (2 x 2-wire, 2 x 4-wire)	4 UART (3 x 2-wire, 1 x 4-wire)
	SPI	4	2	1	2	2
	CAN	2 x CAN bus 2.0 A/B	2 x CAN bus 2.0 A/B	-	-	2 x CAN-FD for WQ & WD SKU, 2 x CAN bus 2.0 A/B for CQ & CD SKU
	GPIO	12	12	12	12	14
	I2C	5	4	4	4	5
	Camera Input	1 x 4-Lane MIPI CSI-2	1 x 4-Lane MIPI CSI-2	1 x 4-Lane MIPI CSI-2 1 x 2-Lane MIPI CSI-2	1 x 4-Lane MIPI CSI-2	1 x 4-Lane MIPI CSI-2 1 x 2-Lane MIPI CSI-2
	System Bus	-	-	-	-	-
	Touch	-	-	-	-	-
	Keypad	-	-	-	-	-
	PWM	-	-	-	-	-
Power	Power Supply Voltage	3 ~ 5.25 V	4.75 ~ 5.25V	4.75 ~ 5.25V	4.75 ~ 5.25V	4.75 ~ 5.25V
	Power Consumption	3.4W (Max)	3.83W (Max)	5.3W (Max)	2.173W (Max)	3.7W (Max)
Environment	Operational Temperature	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C / -40~85 °C	0 ~ 60 °C / -40~85 °C	0 ~ 60 °C/ -40 ~ 85 °C
	Operating Humidity	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm	82 x 50 mm	82 x 50 mm	82 x 50 mm	82 x 50 mm
Operating System		Linux Android	Linux Android	Linux, Android	Linux, Android	Linux, Android
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

*LVDS & MIPI-DSI are shared interface

Arm-Based Computing Platforms

Computer-on-Modules

Model Name		ROM-5780	ROM-5820	ROM-5880	ROM-6881
Form Factor		SMARC V2.1	SMARC 2.1	SMARC 2.1	SMARC2.1
NPU		-	Neural Network accelerator	Integrated NPU 1 Tops	Up to 6.0 Tops
Compatible Careeier Board		ROM-DB5901-SWA2 SOM-DB2510-R0A1	SOM-DB2510-R0A1	SOM-DB2510-R0A1	SOM-DB2510-R0A1
Processor System	CPU	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	NXP i.MX95 Cortex-A55 Six core (up to 2.0GHz)	RK3568 4 x Arm Cortex A55, Up to 2.0 GHz	Rockchip RK3588 Cortex-A76, A55 Octa-Core,up to 2.4 GHz
Memory	Technology	LPDDR4 3732 MT/s	LPDDR5 6400MT/s	LPDDR4 4266MT/s	LPDDR4 3733 MT/s
	Capacity	On-board LPDDR4 2 GB/4 GB	On-board 8GB LPDDR5	On-board LPDDR4 2/4 GB	On-board LPDDR4 4 GB
	Flash	16 GB/32 GB eMMC NAND Flash for O.S. and 8 MB SPI NOR Flash for board information	16GB eMMC NAND Flash	16/32 GB eMMC NAND Flash for O.S	32GB eMMC NAND Flash for OS and boot loader
Graphics	LVDS	1 x Single Channel 24-bits LVDS(Default) or 1 x Dual Channel 24-bits LVDS (Shared with eDP, by BOM Option)	1 x Dual channel LVDS	1 x LVDS (default)	1 x single channel LVDS (default) or 1 x dual channel LVDS, up to 1920 x 1200 (BOM option)
	MIPI-DSI	1 x 4-lane MIPI DSI, up to 1920 x 1080 at 60Hz (Shared with 4-lane MIPI-CSI, by S/W Configuration)	1 x 4 lane MIPI-DSI (Optional)	1 x 4 lane MIPI-DSI (Share LVDS port)	1 x MIPI-DSI (BOM option, shared with LVDS0)
	eDP	1 x eDP 1.3	-	1 x eDP1.3 up to 2560x1600@60Hz (Share with LVDS, by bom option)	1 x eDP
	HDMI	3840 x 2160@60Hz	-	1 x HDMI2.0, up to 3840 x 2160@60Hz	1 x HDMI2.1
	Parallel RGB	-	-	-	-
	VGA	-	-	-	-
	DP	-	-	-	1 x DP1.4
	Graphics Engine	Mali-T860MP4 GPU, supports OpenGL ES1.1/2.0/3.0, OpenCL1.2, DirectX 11.1	2D/3D Graphic Acceleration supporting2D/3D Graphic Acceleration supporting	3D Graphics Engine Mali-G52	Arm Mali-G610 MP4 GPU, h igh-performance OpenGL ES 1.1, 2.0 and 3.2, OpenCL 2.2, Vulkan 1.2, etc.
	H/W Video Codec	Decoder: H.265 (up to 4Kx2K@60fps), H.264, H.263, VC-1, VP9, VP8, MVC, MPEG-1/2/4 Encoder: H.264 up to HP@ level4.1, MVC and VP8	Decoder: H.264/ H.265, 4K@30fps Encoder: H.264/ H.265, 4K@30fps	Decoder: H.264 /H.265 /VP9 (4K@60fps) Encoder: H.264 /H.265 (2K@60fps)	Decoder: Decoder: H.265/ VP9 (8K@60fps), H.264 (8K@30fps), H.263/VC-1, VP8, MVC, AV1, MPEG-4/2/1 Encoder: H.264/ H.265 8K@30fps, parallel encoder for multichannel, lower resolution
Ethernet	Chipset	1 x Rockchip RK3399 Integrated RGMII	1 x NXP i.MX95 integrated USXGMII, 2 x NXP i.MX95 integrated RGMII	2 x YT8531	2 x Rockchip RK3588 Integrated RGMII
	Speed	10/100/1000 Mbps	1 x 10 GbE, 2 x 10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
RTC		Yes	Yes	Yes	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s	Yes	HW watchdog by MCU	HW watchdog by MCU. 1~6527s, default 60s, power on/off 1s
TPM		TPM2.0 (ST33HTPH2E32AHC2) (BOM Option)	TPM 2.0	-	-
I/O	PCIe	1 x PCIe 2.0 x1	2 x PCIe 3.0	2 x PCIe 3.0 x1, 1 x PCIe 2.0 x1 (shared with SATA, by BOM option)	4 x PCIe 3.0, 1 lane
	SATA	1 x SATA II	-	1 x SATA3.0(default) (shared with PCIE2.0, by BOM option)	1 x SATA 3.0
	USB	2 x USB3.2 Gen1 by 1, 3 x USB 2.0 Host, 1 x USB 2.0 OTG	1 x USB3.2 Gen1 by 1, 4 x USB 2.0, 1 x USB 2.0 OTG	1 x USB 3.0, 2 x USB 2.0, 1 x USB 3.0 OTG	2 x USB 3.0 signal, 3 x USB 2.0, 1 x USB 2.0 OTG
	Audio	2 x I2S	2 x I2S	1 x I2S	1 x I2S
	SPDIF	-	-	-	-
	SDIO	1	1	1	1
	Serial Port	3 UART (2 x 2-wire, one share with debug console by jumper selection, 1 x 4-wire with H/W flow control)	2 x 4-wire UART 2 x 2-wire UART	2 x 4-wire UART 2 x 2-wire UART	1 x 2-wire UART for debugging 1 x 2-wire UART 2 x 4-wire UART
	SPI	1	2	1	2
	CAN	-	2 x CAN2.0	2 x CAN2.0	2 x CAN2.0
	GPIO	12	14	14	12
	I2C	5	5	5	5
	Camera Input	1 x 4-lane MIPI CSI-2 1 x 2-lane MIPI CSI-2	1 x 4-lane MIPI CSI	1 x 4-lane MIPI CSI	2 x MIPI CSI (1 x 2 lane, 1 x 4 lane) 2 x MIPI CSI by FCC CONN on board (4 lane)
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
Power	Power Supply Voltage	4.75~5.25V	Fixed 5V DC source	4.75~5.25V	4.75 V ~ 5.25 V DC source
	Power Consumption	8.52W (Max)	TBD	4.57W	8.32W @ 5V (Max), 1.34W @ 5V (Idle)
Environment	Operational Temperature	0 ~ 60 °C/ -20 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C	0°C ~ 60°C / -40°C ~ 85°C
	Operating Humidity	5% ~ 95% Relative Humidity, non-condensing	5 ~ 95% relative humidity, non-condensing	5 ~ 95% relative humidity, non-condensing	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm	82 x 50 mm	82 x 50 mm	82 x 80 mm
Operating System		Debian Linux, Android	Yocto Linux	Linux Debian 10, Android 12	Linux, Debian 11, Android 13
Certifications		CE/FCC Class B	CE/FCC Class B	CE/UKCA/FCC Class B	CE/UKCA/FCC Class B

Note: "-" : means Not Applicable (N/A)
*LVDS & MIPI-DSI are shared interface
** Quad Core SKU support LVDS by default
** Dual/Core SKU support MIPI-DSI by default

Arm-Based Computing Platforms

Computer-on-Modules

Model Name		ROM-3310	ROM-3420	ROM-3620
Form Factor		RTX V2.0	RTX V2.0	RTX V2.1
NPU		-	-	-
Compatible Carrier Board		ROM-DB3900-SWA1E	ROM-DB3900-SWA1E	ROM-DB3900-SWA2E
Processor System	CPU	TI Arm AM3352 Cortex-A8 1 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz	NXP Arm i.MX 8X Cortex-A35 1.2 GHz
Memory	Technology	DDR3 800 MT/s	DDR3 1066 MT/s	LPDDR4 2400 MT/s
	Capacity	On-board DDR3 512 MB	On-board DDR3 1 GB / 2 GB	On-board LPDDR4 2 GB
	Flash	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	16 GB eMMC Flash for O.S. and 8 MB QSPI NOR Flash for board information
Graphics	LVDS	-	1 x 24-bit LVDS, 1366 x 768@60Hz	2 x 24-bit single channel LVDS*
	MIPI-DSI	-	-	2 x 4-Lane MIPI DSI*
	eDP	-	-	-
	HDMI	-	1920 x 1080@60Hz	-
	Parallel RGB	1 x 24-bit TTL, 1366 x 768@60Hz	1 x 24-bit TTL, 1920 x 1200@60Hz	-
	VGA	-	-	-
	DP	-	-	-
	Graphics Engine	Direct3D Mobile, OGL-ES 1.1 and 2.0,OpenVG 1.0, and OpenMax	2 x IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	Vivante GC7000 Lite, supports OpenGL 3.0, 2.1; OpenGL ES 3.1, 3.0, 2.0, 1.1; OpenCL 1.2,1.1; OpenVG 1.1; and Vulkan
	H/W Video Codec	-	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Decoder: H.265/H.264(4K@30), WMV9/VC-1 imple, MPEG-1, MPEG-2, AVS, MPEG4.2 ASP, H.263 Encoder: H.264(1080@30)
Ethernet	Chipset	1 x TI AM3352 Integrated RGMII	1 x NXP i.MX6 Integrated RGMII	2 x NXP i.MX8X integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
RTC		Yes	Yes	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s	256-level timer interval, from 0 ~ 128 sec	1~6553s, default 60s, power on/off 1s
TPM		-	-	TPM2.0 (ST33HTPH2E32AHC2)
I/O	PCIe	-	1 x PCIe x1	1 x PCIe 3.0 x1
	SATA	-	1 x SATA II	-
	USB	1 x USB 2.0, 1 x USB 2.0 OTG	1 x USB 2.0, 1 x USB 2.0 OTG	1 x USB 3.2 Gen1 by 1, 1 x USB 2.0, 1 x USB 2.0 OTG
	Audio	I2S	I2S	I2S
	SPDIF	-	-	-
	SDIO	1	1	1
	Serial Port	4 UART (1 x 4-wire, 3 x 2-wire w/ 3.3V)	3 UART (3 x 4-wire)	3 UART (1 x 4-wire, 2 x 2-wire)
	SPI	1	2	2
	CAN	2 x CAN bus 2.0 A/B	2 x CAN bus 2.0 A/B	2 x CAN bus 2.0 A/B
	GPIO	10	10	10
	I2C	1	4	5
	Camera Input	-	1 x 4-Lane MIPI CSI-2	1 x 4-Lane MIPI CSI-2
	System Bus	-	Address: 26-bits Data: 16-bits	-
	Touch	-	-	-
	Keypad	-	-	-
	PWM	-	-	-
Power	Power Supply Voltage	5 ~ 24 V	5 ~ 24 V	5 ~ 24 V
	Power Consumption	2.11W (Max)	3.3W (Max)	5.372W (Max)
Environment	Operational Temperature	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C/ -40 ~ 85 °C
	Operating Humidity	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	68 x 68 mm	68 x 68 mm	68 x 68 mm
Operating System		Linux	Linux, Android	Linux, Android
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

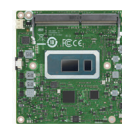Note: "-" : means Not Applicable (N/A)
*LVDS & MIPI-DSI are shared interface
** Quad Core SKU support LVDS by default
** Dual/Core SKU support MIPI-DSI by default

Arm-Based Computing Platforms

Computer-on-Modules

Model Name		ROM-7421	ROM-7510	ROM-7720	ROM-8720
Form Factor		Qseven V2.0	Qseven V2.0	Qseven V2.1	COM Express Compact Type 7
Compatible Carrier Board		ROM-DB7501-SCA1E	ROM-DB7502-SCA1E	ROM-DB7503-SCA1E	SOM-DB5920-00A1
Processor System	CPU	NXP Arm i.MX6 Plus Cortex-A9 1 GHz	TI Arm AM5728 Cortex-A15 1.5 GHz	NXP Arm i.MX 8 Cortex-A72 1.6 GHz	NXP Arm LS1046A Cortex-A72 1.8 GHz
Memory	Technology	DDR3 1066 MT/s	DDR3L 1066 MT/s	LPDDR4 3200 MT/s	LPDDR4 2133 MT/s
	Capacity	On-board DDR3 1 GB/ 2 GB	On-board DDR3L 2 GB	On-board LPDDR4 4 GB	1 SO-DIMM supports ECC and Non-ECC, up to 32GB
	Flash	16 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	16 GB eMMC NAND Flash for O.S. and 32 MB QSPI NOR FLASH for board information	16 GB eMMC/Micro SD socket for O.S. and 32 MB QSPI NOR Flash for board information
Graphics	LVDS	2 x 24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz	1 x 24-bit dual channel LVDS, 1920 x 1200	2 x 24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz	-
	MIPI-DSI	-	-	-	-
	eDP	-	-	-	-
	HDMI	1920 x 1080@60Hz	1920 x 1080@60Hz	4096 x 2160@60Hz	-
	Parallel RGB	-	-	-	-
	VGA	-	-	-	-
	DP	-	-	-	-
	Graphics Engine	2 x IPUs. OpenGL ES 3.0 for 3D, BitBlt for 2D and OpenVG 1.1	2D-Graphics Accelerator (BB2D) Subsystem and Dual-Core PowerVR® SGX544™ 3D GPU	Vivante GC7000XS/VX, supports OpenGL 3.0, 2.1; OpenGL ES 3.2, 3.1, 3.0, 2.0, 1.1; OpenCL 1.2, 1.1; OpenVG 1.1; and Vulkan	-
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Video Processing Engine (VPE)	Decoder: HEVC/H.265(4K@60fps), VP9(4K@60fps), H.264(4K@30fps), MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263	-
Ethernet	Chipset	1 x NXP i.MX6 Plus integrated RGMII	1 x TI Sitara Integrated RGMII	1 x NXP i.MX8 Integrated RGMII	NXP LS1046A integrated XFI, RGMII, SGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	4 x 10/100/1000 Mbps 2 x 10GBASE-KR
RTC		Yes	Yes	Yes	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s
TPM		-	-	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)
I/O	PCIe	1 x PCIe x1	2 x PCIe x1	2 x PCIe x1	3 x PCIe 3.0, 2 x PCIe 2.0
	SATA	1 x SATA II	1 x SATA II	1 x SATA III	1 x SATA III (only supported on ROM-8720WQ-RA1E)
	USB	4 x USB 2.0, 1 x USB 2.0 OTG	1 x USB 3.2 Gen1 by 1, 1 x USB 2.0 OTG, 4 x USB 2.0 Host	3 x USB 3.2 Gen1 by 1, 1 x USB 2.0 OTG	3 x USB 3.2 Gen1 by 1, 3 x USB 2.0
	Audio	1 x I2S	1 x I2S	1 x I2S	-
	SPDIF	-	-	-	-
	SDIO	1	1	1	-
	Serial Port	2 x UART (2 x 4-wire w/ 3.3V)	2 x UART (2 x 4-wire)	2 x UART (2 x 4-wire)	2 x UART (4-wire)
	SPI	1	1	1	1
	CAN	1 x CAN bus 2.0 A/B	1 x CAN bus 2.0 A/B	1 x CAN bus 2.0 A/B	-
	GPIO	8	8	8	8
	I2C	2	2	2	1
	Camera Input	1 x 4-Lane MIPI CSI for CE & CU SKU	-	1 x 4-Lane MIPI CSI-2 1 x 2-Lane MIPI CSI-2	-
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	PWM	-	2	-	-
Power	Power Supply Voltage	5V	5V	5V	12V
	Power Consumption	4W (Max)	10W (Max)	10.96W (Max)	TBD
Environment	Operating Temperature	0~60 °C / -40~85 °C	0~60 °C / -40~85 °C	0~60 °C / -40~85 °C	-20 ~ 70 °C
	Operating Humidity	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	70 x 70 mm	70 x 70 mm	70 x 70 mm	95 x 95 mm
Operating System		Linux Android	Linux	Linux Android	Ubuntu
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Single Board Computers

UIO40-Express *UIO40-Express* *UIO40-Express*

Model Name		RSB-3410	RSB-3430	RSB-3710	RSB-3720
Form Factor		2.5" SBC	2.5" UIO40-Express SBC	2.5" UIO40-Express SBC	2.5" UIO40-Express SBC
Processor System	CPU	NXP Arm i.MX6 Dual Lite Cortex-A9 1 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz
AI Performance		-	-	-	2.3 TOPS NPU
Memory	Technology	DDR3 800 MT/s	DDR3 1066 MT/s	LPDDR4 1333 MT/s	LPDDR4 4000 MT/s
	Capacity	On-board DDR3 1 GB	On-board DDR3 1 GB	On-board LPDDR4 2 GB	On-board LPDDR4 4 GB / 6 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	16 GB eMMC NAND Flash for O.S. and Advantech boot loader	16 GB eMMC Flash for O.S. and 8 MB QSPI NOR Flash for board information
Graphics	LVDS	1 x 18/24-bit LVDS, up to 1366 x 768@60Hz	2 x 18/24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz	1 x 18/24-bit LVDS with 1920 x 1200 for dual channels @60Hz	2 x 24-bit Single Channel or 1 x Dual Channel LVDS
	MIPI-DSI	-	-	-	1 x 4-Lane MIPI-DSI (Shared with LVDS1)
	HDMI	1920 x 1080@60Hz	1920 x 1080@60Hz	1 x HDMI 2.0, 1920 x 1080@60Hz	1 x HDMI 2.0, up to 3840 x 2160@30Hz
	VGA	-	-	-	-
	eDP	-	-	1 x Max 2.7Gbps (shared with LVDS)	-
	Graphics Engine	1 IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	OpenGL ES 1.1/2.0/3.1, OpenCL 1.1, DirectX 11	GC7000UL with 2D/3D Graphic Acceleration supporting 1G Pixel/s, OpenVG 1.1, Open GL ES3.1, Vulkan, and Open CL 1.2 FP.
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263,MJPEG BP	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	Decoder: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC, HEVC/H.265 decoder, 4K@60fps Encoder: H.264 (BP@level4.0, MP, HP@level4.0), MVC and VP8	Decoder: HEVC/H.265 Main 1080@60fps, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/ Main/High Encoder: AVC/H.264 1080@60fps, HEVC/H.265
Ethernet	Chipset	1 x NXP i.MX6 integrated RGMII	1 x NXP i.MX6 integrated RGMII	2 x Rockchip RK3399 Integrated RGMII	2 x NXP i.MX8M Plus integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
WatchDog Timer		1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s
TPM		-	-	-	TPM2.0 (ST33HTPH2E32AHC2)
I/O	SATA	-	-	-	-
	SATA Power	-	-	-	-
	USB	1 x USB 2.0 Type A, 1 x USB OTG	2 x USB 2.0 Type A, 4 x USB 2.0 in UIO 40	1 x USB 3.2 Gen1 by 1 Type A, 1 x USB 2.0 Type A, 3 x USB 2.0 in UIO 40, 1 x USB OTG	1 x USB 3.2 Gen1 by 1 Type A, 1 x USB 2.0 Type A, 1 x USB3.2 Gen1 by 1, 2 x USB 2.0 in UIO 40
	Audio	-	1 x Line-out, 1 x Line-in by pin header	1 x Line out, 1x Mic in by pin header (By BOM option)	1 x Line-out, 1 x Line-in by pin header
	SPDIF	-	-	-	-
	SDIO	1 x SD slot	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot
	Serial Port	1 x 4-wire RS-232	1 x 4-wire RS-232/422/485 by DB9, 3 x 2-wire RS-232 in UIO 40	1 x RS-232/Debug by pin header, 2 x 2-wires RS-232 in UIO 40	1 x 4-wire RS-232/422/485 by pin header (default used as debug console), 2 x 2-wire RS-232 in UIO 40
	SPI	-	-	-	-
	CAN	-	1 x CAN bus 2.0 in UIO 40 (share w/ 1 UART)	-	1 x CAN-FD/CAN bus* by pin header, 1 x CAN 2.0B in UIO 40
	GPIO	-	12 x GPIO in UIO 40, 3.3V level	8	10 x GPIO in UIO 40, 3.3V level
	I2C	-	1 in UIO 40	1 in UIO 40	1 in UIO 40
	Camera Input			-	2 x 4-Lane MIPI CSI-2
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	Button	-	-	1 x Reset button	1 x Reset button
Indicator	LED	1 x Power LED 1 x Programmable LED	1 x Power LED 1 x Programmable LED	1 x Power LED	1 x Green Power LED 1 x Blue Programmable LED
Expansion	Mini PCIe	2 mini PCIe slot (1 x half size, 1 x full size w/ USB signal only)	1 x mini PCIe slot (USB signal only)	1 x mini PCIe slot (w/ USB & PCIe signals)	1 x mini PCIe slot (USB signal only)
	M.2	-	1 x M.2 2230 Key E slot	-	1 x M.2 2230 Key E slot (USB/PCIe/SDIO/UART/I2S)
	SD Socket	1 x SD slot	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot
	SIM	1 x SIM slot	1 x Nano SIM slot	1 x Nano SIM slot	1 x Nano SIM slot
Power	Power Supply Voltage	12 V	12 V	12 V	12 V
	Power Type	DC-in	DC-in	Lockable DC-in (2pin type connector by BOM option)	Lockable DC-in (2pin type connector by BOM option)
	Power Consumption	4.4W (Max)	4.05W (Max)	11.5W (Max)	7.13W (Max)
Environment	Operating Temperature	0 ~ 60 °C	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C / -20 ~ 85 °C	0 ~ 60 °C / -40 ~ 85 °C
	Operating Humidity	5%~95% Relative Humidity, noncondensing	5%~95% Relative Humidity, non-condensing	5%~95% Relative humidity, non-condensing	5%~95% Relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	100 x 72 x 19 mm	100 x 72 x 20 mm	100 x 72 x 19 mm	100 x 72 x 19 mm
Operating System		Linux Android	Linux Android	Android Debian Linux	Linux Android
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

*CAN-FD with WQ & WD SKU, CAN bus with CQ & CD SKU.

Arm-Based Computing Platforms

Single Board Computers

NEW   **NEW**

Model Name		RSB-3730	RSB-3810	RSB-4220	RSB-4411
Form Factor		2.5" SBC with UIO40-Express for I/O Expansions	2.5" SBC with UIO40-Express for I/O Expansions	3.5" SBC	3.5" SBC
Processor System	CPU	NXP i.MX8M Mini Cortex-A53 Quad core up to 1.8GHz	MediaTek Genio 1200	TI Arm AM3352 Cortex-A8 1 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz
AI Performance		-	4.8 TOPS Neural Network performance	-	-
Memory	Technology	LPDDR4 1333MHz	LPDDR4 4000MT/s	DDR3 800 MT/s	DDR3 1066 MT/s
	Capacity	On-board 2/4 GB	On-board 8GB	On-board DDR3 512 MB	On-board DDR3 1 GB
	Flash	16GB/32GB/64GB of eMMC NAND Flash for OS and Advantech's boot loader	32GB eMMC Flash for O.S. and 8 MB SPI NOR Flash for board information	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 x Dual Channel 18/24 Bit LVDS 1920x1080@60Hz (shared with HDMI, by bom option)	1 x dual channel LVDS	1 x 18-bit LVDS, 1366 x 768	1 x 18/24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz
	MIPI-DSI	1 x MIPI-DSI 1920x1200@60Hz (shared with HDMI, by bom option)	-	-	-
	HDMI	1 x HDMI 1.4 1920x1080@60Hz (By BOM option)	1 x HDMI 2.0, 4K@60fps	-	1 x 1920 x 1080@60Hz
	VGA	-	-	-	1 x 1920 x 1080@60Hz
	eDP	-	-	-	-
	Graphics Engine	Vivante GC320, GC NanoUltra 3D GPU Support OpenGL ES 2.0, VG 1.1	Arm Mali-G57 GPU	Direct3D Mobile, OGL-ES 1.1 and 2.0,OpenVG 1.0, and OpenMax	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: 1080@60 H265, VP9; 1080@60 H264, VP8 Encoder: 1080@60 H.264, VP8	Decoder: AV1/HEVC 4K@90fps Encoder: HEVC 4K@60fps	-	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	1 x RTL8211FS	2 x RTL8153	2 x TI AM3352 integrated RGMII	1 x NXP i.MX6 Integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
WatchDog Timer		Yes	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s
TPM		(option)	TPM 2.0 (ST33HTPH2E32AHB8)	-	-
I/O	SATA	-	-	-	1
	SATA Power	-	-	-	1
	USB	2 x USB2.0 by typeA, 1 x USB OTG 3 x USB2.0 by UIO-40	1 x USB3.0 Host, 1 x USB2.0 Host	1 x USB 2.0 Host/OTG (Jumper selection)	1 x USB 2.0 OTG, 2 x USB 2.0 Type A, 3 x USB 2.0 pin header
	Audio	1 x Mic. in / Line out by pin header (option)	Mic-in, Line-Out Connectors	-	1 x Line-out, 1 x Mic-in via pin header
	SPDIF	-	-	-	-
	SDIO	-	-	1 x SD slot	1 x SD slot
	Serial Port	1 x RS232 by pin header for debug 1 x RS232/485 by DB9 2 x RS232 by UIO-40	1 x 4 wires RS-232/422/485 by pin header + COM debug console	1 x 4-wire RS-232/422/485 and 4 x 2-wire RS-232	2 x 2-wire RS-232 by pin header 1 x 4-wire RS-232/422/485
	SPI	-	-	-	1
	CAN	-	-	1	2
	GPIO	12 x GPIO via UTO TypeB	-	4 x GPI/ 4 x GPO w/ isolation	20 x GPIO w/o Isolation via pin header
	I2C	-	-	1	2
	Camera Input	-	3 x 4-Lane MIPI-CSI2	-	1 x 4-Lane MIPI CSI2
	System Bus	-	-	-	-
	HDMI	-	1 x FPC HDMI RX	-	-
	Keypad	-	-	-	-
	Button	-	1 x Reset button 1 x Download key	1 x Reset button	-
Indicator	LED	1 x Power LED	1 x Power LED 1 x Programmable LED	1 x Power LED 1 x Programmable LED	1 x Power LED
Expansion	Mini PCIe	1 x Full Size Mini PCIe Slot (with USB only)	-	1 x mini PCIe slot (USB signal only)	1 x mini PCIe slot
	M.2	1 x E-Key 2230, w/ SDIO&PCIE&USB& UART (option)	1 x M.2 2230 Key E Slot / 1 x M.2 3052 Key B Slot	-	1 x M.2 2230 Key E slot
	SD Socket	1 x Micro SD Slot	1 x Micro SD Socket	1 x SD slot	1 x SD slot
	SIM	1 x Nano SIM Slot	1 x Nano SIM Slot	-	1 x SIM slot
Power	Power Supply Voltage	12V	12V	12 ~ 24 V	12 ~ 24 V
	Power Type	Lockable DC-Jack (2pin type connector by BOM option)	12V DC-IN by lockable DC Jack (default) or 2pin type connector	2-pole lockable DC-in	DC-in
	Power Consumption	9.96W @burning	10.68W	4W (Max)	5.6W (Max)
Environment	Operating Temperature	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °C / -40 ~ 80 °C	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60 °C / -40 ~ 85 °C
	Operating Humidity	5%~95% Relative humidity, non-condensing	5%~95% Relative humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D x H)	100 x 72 x 19 mm	100 x 72 x 19 mm	146 x 102 x 16 mm	146 x 102 x 20 mm
Operating System		Yocto	Android/Ubuntu	Linux	Linux Android
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Single Board Computers

Model Name		RSB-4680	RSB-4710	RSB-4760	RSB-4810
Form Factor		3.5" SBC	3.5" SBC	3.5" SBC	3.5'' SBC
Processor System	CPU	Rockchip Arm RK3288 Cortex-A17 1.6 GHz	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	Qualcomm Arm APQ8016 Cortex-A53 1.2 GHz	Rockchip Arm RK3568 Cortex-A55 2 GHz
AI Performance		-	-	-	1.0 TOPS NPU
Memory	Technology	DDR3L 1333 MT/s	LPDDR4 1333 MT/s	LPDDR3 1066 MT/s	LPDDR4 3200 MT/s
	Capacity	On-board DDR3L 2 GB	On-board LPDDR4 2 GB	On-board LPDDR3 1 GB/2 GB	On-board LPDDR4 2 GB/4 GB
	Flash	8 GB eMMC NAND Flash for O.S. and Advantech boot loader	16 GB eMMC NAND Flash for O.S.	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	16 GB/32 GB eMMC NAND Flash for O.S. and Advantech boot loader
Graphics	LVDS	1 x 18/24/30-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz	1 x 18/24-bit LVDS with 1920 x 1200 for dual channel at 60Hz	-	1 x single channel LVDS
	MIPI-DSI	-	-	-	1 x 4-Lane MIPI-DSI (shared with LVDS connector by BOM option)
	HDMI	1 x 3840 x 2160@60Hz	1 x 3840 x 2160@60Hz 1 x 1920 x 1080@60Hz	1 x 1920 x 1080@60Hz	1 x 4096 x 2160@60Hz
	VGA	1 x 1920 x 1200@60Hz	-	-	-
	eDP	-	1, Max 2.7Gbps	-	1
	Graphics Engine	OpenGL,ES1.1/2.0/3.0, OpenCL1.1,DirectX11	OpenGL ES 1.1/2.0/3.1, OpenCL 1.1, DirectX 11	Adreno™ A306 3D graphics core	3D Graphics Engine: Mali-G52 Support OpenGL ES 1.1/2.0/3.2, Vulkan 1.0/1.1, OpenCL 2.0
	H/W Video Codec	Decoder: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC, HEVC/H.265 decoder, 4K@60fps Encoder: H.264 (BP@level4.0, MP, HP@ level4.0), MVC and VP8	Decoder: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC, HEVC/H.265 decoder, 4K@60fps Encoder: H.264 (BP@level4.0, MP, HP@ level4.0), MVC and VP8	Decoder: 1080@30fps (MPEG-4/H.264/H.263/DivX/MPEG2/VC1/ Soreson/VP8) Encoder: 720@30fps (H.264 Baseline/ MPEG-4); 1080@30fps (MPEG-4/H.264/ VP8/H.263)	Decoder:H.265/H.264/PV9 up to 4Kx2K@60fps, VP8/VC1/ MPEG-4/2/1,up to 1920x1080@60fps Encoder: H.265/H.264 up to 1920x1080@100fps. Support YUV/RGB video source with rotation and mirror
Ethernet	Chipset	1 x Rockchip RK3288 Integrated RGMII	2 x Rockchip RK3399 Integrated RGMII	1 x Microchip LAN7500	2 x Rockchip RK3568 Integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
WatchDog Timer		0~22s, default 22s	0~21s, default 21s	1~6553s, default 60s, power on/off 1s	0~21s, default 21s
TPM		-	-	-	-
I/O	SATA	-	-	-	1 x SATA III
	SATA Power	-	-	-	1
	USB	1 x USB 2.0 OTG, 2 x USB 2.0 Type A, 3 x USB 2.0 pin header	1 x USB 3.2 Gen1 by 1, 1 x USB 2.0 Type A, 3 x USB 2.0 pin header 1 x USB 2.0 OTG	2 x USB 2.0 Host 1 x USB 2.0 OTG	1 x USB 3.2 Gen1 by 1 Type A, 1 x USB 3.2 Gen1 by 1 Type A/OTG* 2 x USB2.0 Pin header
	Audio	1 x Line-out, 1 x Mic-in by pin header	1 x Line-out/Mic-in/Line-in/Speaker by pin header	1 x Line-out, 1 x Mic-in by pin header	1 x HP, 1 x Mic, 1 x speaker by pin header
	SPDIF	-	-	-	-
	SDIO	1 x Micro SD slot	1 x Micro SD slot	1 x SD slot	1 x Micro SD slot
	Serial Port	1 x 4-wire RS-232/485, DB9 1 x 2-wire RS-232/Debug port, pin header selected by jumper 4 x 4-wire RS-232, pin header	1 x 2-wire RS-232/Debug 3 x 2-wire RS-232 2 x 4-wire RS-232/485	1 x 4-wire RS-232/422/485	1 x 2-wire RS-232 by DB9 1 x 2-wire RS-232 by pin header 2 x 4-wire RS-232, 2 x RS-232/485 by pin header 1 x Debug by pin header
	SPI	1	1	1	1
	CAN	-	-	-	2 CAN-FD by pin header
	GPIO	8 x GPIO via pin header (3.3V TTL level)	5 x GPIO	8 x GPIO via D-SUB 9, 8 x GPIO via pin header (3.3V TTL level)	6 x GPIO via pin header (3.3V TTL level)
	I2C	1	1	1	1
	Camera Input	-	1x MIPI CSI	-	-
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	Button	1 x Reset button 1 x Power button by pin header	1 x Reset button 1 x Power button by pin header	-	1 x Reset button 1 x Power button by pin header
Indicator	LED	1 x Power LED	1 x Power LED	1 x Power LED, 1 x RF status LED	1 x Power LED, 1 x SATA LED
Expansion	Mini PCIe	1 x mini PCIe slot	1 x mini PCIe slot (USB signal only)	1 x mini PCIe slot	1 x mini PCIe slot (USB2.0/PCIE3.0)
	M.2	1 x M.2 2230 Key E slot (SDIO 3.0 & UART signal only)	1 x M.2 2230 Key E slot (USB2.0/PCIe/SDIO/UART)	1 x M.2 2230 Key E slot	1 x M.2 2230 Key E slot (USB2.0/PCIe3.0/SDIO/UART)
	SD Socket	1 x Micro SD slot	1 x Micro SD slot	1 x SD slot	1 x Micro SD slot
	SIM	1 x SIM slot	1 x Nano SIM slot	1 x SIM slot	1 x Nano SIM slot
Power	Power Supply Voltage	12V	12 V	9~36V	12 V
	Power Type	DC-in	DC-in	DC-in	Lockable DC-in (2pin type connector by BOM option)
	Power Consumption	11.6W (Max)	15W (Max)	6W (Max)	13W (Max)
Environment	Operational Temperature	0 ~ 60°C / -20 ~ 85°C	0 ~ 60°C / -20 ~ 85°C	0 ~ 60 °C	0 ~ 60 °C / -40 ~ 85 °C
	Operating Humidity	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	146 x 102 x 20 mm	146 x 102 x 20 mm	146 x 102 x 20 mm	146 x 102 x 20 mm
Operating System		Android Debian	Android Debian	Yocto Linux Android Debian Linux	Android Debian
Certifications		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: "-" : means Not Applicable (N/A)
*Shared with one of the USB 3.2 Gen 1 by 1 Type A, DM, DP signal, ID pin by jumper selection

Arm-Based Computing Platforms

UIO40-Express I/O Expansion Boards

UIO-4030

1 x RS-485
1 x RS-232
4 x DI & 4 x DO

UIO-4032

1 x GbE
2 x USB2.0
2 x RS-232
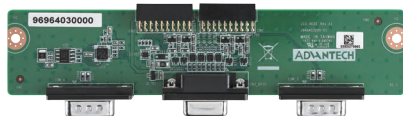
Specifications

General

USB	–
RS-232	1 x 2-wire RS-232
RS-485	1 x RS-485
GPIO	4 x DI, 4 x DO(2.5~24V)
CAN Bus	–
GbE	–
Dimension	146 x 31 x 22 mm

Environment

Weight	180g
Operating Humidity	5% ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4030	UIO-4030, 1 x RS232, 4 x DI, 4 x DO, 1 x RS-485

Specifications

General

USB	2 x USB 2.0
RS-232	2 x 2-wire RS-232
RS-485	–
GPIO	–
CAN Bus	–
GbE	1 x GbE
Dimension	146 x 31 x 22 mm

Environment

Weight	200g
Operating Humidity	5% ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4032	UIO-4032, 1 x GbE, 2 x USB, 2 x RS-232

UIO-4031

NEW

4 x RS-485
2 x RS-232
4 x DI & 4 x DO
2 x CAN FD

UIO-4034
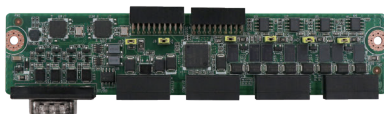
1 x CAN bus
2 x RS-232

Specifications

General

USB	–
RS-232	2 x 2-wire non-isolated RS232
RS-485	4 x 2-wire non-isolated RS485
GPIO	4 x non-isolated DI and 4 x non-isolated DO
CAN Bus	2 x non-isolated CAN FD
GbE	---
Dimension	146 x 31 x 22 mm

Environment

Weight	TBD
Operating Humidity	5% ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C

Ordering Information

P/N	Description
UIO-4031	UIO-4031, 2 x RS232, 4 x RS-485, 2 x CAN FD, 4 x DI, 4 x DO

Specifications

General

USB	–
RS-232	2 x 2-wire RS-232
RS-485	–
GPIO	–
CAN Bus	1 x CAN bus 2.0B, 1 Mbps
GbE	–
Dimension	146 x 31 x 22 mm

Environment

Weight	180g
Operating Humidity	5% ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4034	UIO-4034, 1 x CAN, 2 x RS-232

Compatible Main Boards

Part No.	Description
RSB-3430XD-PXA1E*	RSB-3430 NXP i.MX6 Series 2.5" UIO Main Board
RSB-3720XX-XCA1E*	RSB-3720 NXP i.MX8M Plus Series 2.5" UIO Main Board
RSB-3710XX-XXA1E*	RSB-3710 Rockchip RK3399 Series 2.5" UIO Main Board

*X indicates different configurations, please refer to each main board's datasheet for complete P/N to order.

Arm-Based Computing Platforms

UIO40-Express I/O Expansion Boards

UIO-4036

4 x GbE

Specifications

General

USB	–
RS-232	–
RS-485	–
GPIO	–
CAN Bus	–
GbE	4 x GbE hub
Dimension	146 x 31 x 20 mm

Environment

Weight	200g
Operating Humidity	5% ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4036	UIO-4036, 4 x GbE

UIO-4038

4 x GbE (3 x LAN; 1 x WAN)

Specifications

General

USB	-
RS-232	-
RS-485	-
GPIO	-
CAN Bus	-
GbE	4 x GbE (3 x LAN; 1 x WAN)
Dimension	146 x 100 x 20mm

Environment

Weight	300g
Operating Humidity	5 ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4038	UIO-4038, 3 x LAN, 1 x WAN

UIO-4040

NVMe SSD

Specifications

General

USB	-
RS-232	-
RS-485	-
GPIO	-
CAN Bus	-
GbE	-
NVMe SSD	SQF-C8Bxx-xG-EDx
Dimension	146 x 31 x 20mm

Environment

Weight	200g
Operating Humidity	5 ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

Ordering Information

P/N	Description
UIO-4040-128G	UIO-4040, NVMe SSD Storage 128G
UIO-4040-256G	UIO-4040, NVMe SSD Storage 256G
UIO-4040-512G	UIO-4040, NVMe SSD Storage 512G
UIO-4040-1TB	UIO-4040, NVMe SSD Storage 1TB
UIO-4040-2TB	UIO-4040, NVMe SSD Storage 2TB

Find out more about UIO40-Express I/O Expansion Boards

Arm-Based Computing Platforms

Embedded PCs

EPC-R Series - Edge AI Box

Model Name		EPC-R3720	EPC-R3810	EPC-R5710	EPC-R7000
Description		Arm-based Fanless UIO40-Express System	Edge AI RISC-based Box Computer	Arm-based Fanless System	Arm-based Fanless System
Processor System	Compatible Single Board Computer	RSB-3720	RSB-3810	-	-
	Thermal Solution	Fanless	Fanless	Fanless	Fanless
	CPU	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz	MediaTek Genio 1200	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz	NVIDIA Arm Jetson TX2 2 GHz
	BIOS	Advantech boot loader		Advantech boot loader	
AI Performance		2.3 TOPS NPU	4.8 TOPS Neural Network performance	2.3 TOPS NPU	1.33 TFLOPs
Memory	Socket	On-board		On-board	On-board
	Technology	LPDDR4 4000 MT/s	LPDDR4 4000MT/s	LPDDR4 4000 MT/s	LPDDR4 3200 MT/s
	Max. Capacity	6 GB	On-board 8GB	6 GB	8 GB
Graphics	Chipset Integrated	Decoder: 1080@60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/Main/High Encoder: 1080@60 AVC/H.264, HEVC/H.265	Arm Mali-G57 GPU	Decoder: 1080@60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/Main/High Encoder: 1080@60 AVC/H.264, HEVC/H.265	NVIDIA Pascal™ GPU Architecture with 256 NVIDIA CUDA Cores
Storage	On-board Storage	16 GB eMMC Flash for O.S. and 8 MB QSPI NOR Flash for board information	32GB eMMC Flash for O.S. and 8 MB SPI NOR Flash for board information	16 GB eMMC Flash for O.S. and 8 MB QSPI NOR Flash for board information	32 GB eMMC NAND Flash for O.S.
	mSATA Slot	-	-	2.5" SSD , Optional	2.5" HDD/SSD 1TB, Optional
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	5 x 10/100/1000 Mbps, 1 x 1000Mbps Fiber	10/100/1000 Mbps
	Controller	NXP i.MX8M Plus integrated RGMII	RTL8153	NXP i.MX8M Plus integrated RGMII	NVIDIA Jetson integrated RGMII
	Connector	2 x RJ45	2 x RJ45 for GbE	5 x RJ45,1 x FSP Fiber	1 x RJ45
Audio	Codec	SGTL5000	Up to 4K60 codec	SGTL5000	TI Audio Codec
Internal Expansion Slot	Mini-PCIe	1 x Full-size (USB signal only)		1 x Full-size (USB signal only)	-
	M.2	1 x M.2 2230 Key E slot (USB/PCIe/SDIO/UART/I2S)	1 x M.2 2230 Key E Slot 1 x M.2 3052 Key B Slot	1 x M.2 2230 Key E slot (USB 2.0/PCIe/UART/I2C) 1 x M.2 3052 Key B slot (USB 3.2 Gen 1 by 1/ I2C)	-
	SIM Slot	1 x Nano SIM slot	1 x Nano SIM Slot	1 x Nano SIM slot	-
	SD Slot	1 x Micro SD slot	1 x 1 Micro SD Socket	1 x Micro SD slot	-
Front Panel	DP++	-	-	-	-
	DP/HDMI	1 x HDMI 2.0, up to 3840 x 2160@30Hz	1 x HDMI 2.0, 4K@60fps	1 x HDMI up to 1920 x 1080	-
	VGA	-	-	-	-
	DVI	-	-	-	-
	COM	-	-	-	1 x 4-wire RS-232
	GPIO	-	-	-	12 x GPIO (6 x DI, 6 x DO)
	LAN	2	2 x RJ45 for GbE	4 x 10/100/1000 Mbps, 1 x 1000Mbps Fiber	-
	USB	1 x USB 3.2 Gen1 by 1 Type A, 1 x USB 2.0 Type A	1 x USB Type A 1 x USB2.0 Type A	2 x USB 3.2 Gen1 by 1 Type A, 2 x USB 2.0 Type A	-
	Audio Jack	-	-	-	-
	Antenna (optional)	-	-	2 x 4G/5G 2 x WiFi5/6	-
Rear Panel/ Side Panel	DP++	-	-	-	-
	DP/HDMI	-	-	-	1x HDMI up to 3840 x 2160
	VGA	-	-	-	-
	DVI	-	-	-	-
	COM	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1 x 2-wire RS-232 w/ UIO-4030	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1 x 2-wire RS-232 w/ UIO-4030	2 x 4-wire RS-232/422/485 1 x 2-wire RS-232/Debug port	-
	LAN	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036	1 x 10/100/1000Mbps, WAN, TSN	2 x 802.3af (PSE Power Max 15.4W Out)
	USB	2 x USB 2.0 w/ UIO-4032	2 x USB 2.0 w/ UIO-4032	-	4 x USB3.0 Host 1 x USB2.0 OTG
	CAN bus	1 x CAN bus 2.0 A/B w/ UIO-4034	1 x CAN bus 2.0 A/B w/ UIO-4034	-	1 x Line out
	Audio Jack	-	-	1 x Mic , 1 x Line out, 2 x I2S/1 x I2C, support 8 channels MIC array	-
	GPIO	4 x DI, 4 x DO w/ UIO-4030	4 x DI, 4 x DO w/ UIO-4030	6	-
	Antenna (optional)	4 x Antenna holes	4 x Antenna holes	2 x 4G/5G 2 x GPS/BT	2 x Antenna holes
Miscellaneous	LED Indicators	1 x Green LED for system power 1 x Blue Programmable LED	1 x Green LED for system power 1 x Green Programmable LED	6 x Green/Orange LED for power, system, storage, 5G,4G,Wi-Fi and fiber status	1 x Green LED for system power
	Switch	1 x Reset button	1 x Reset button	1 x Reset button 1 x Recovery button	1 x Reset button 1 x Recovery button
	Circular Cutouts				
Mounting		Wall mount/Din Rail (optional)	Wall mount, Optional DIN-Rail	Wall mount	Wall mount
Power Requirements	Power Voltage	12V	12V	12V	19V
	Power Input Type (Inlet)	DC-in	12V DC-IN by lockable DC Jack	DC-in	DC-in
	Consumption	9.2W	10.68W	13.9W	15W
Environment	Operating Temperature	-40 ~ 70 °C	-40 ~ 60°C	0 ~ 50° C/-40 ~ 70 °C	-20 ~ 60 °C
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
	Humidity	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% relative humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	0.028G²/ Hz, 3.5 Grms	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G
	Shock	IEC60068-2-27 half-sine 10G/11ms	-	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms
Certification		CE/FCC Class B CCC/BSMI		CCC/CE/FCC Class B	CE/FCC Class B
Physical Characteristics	Dimensions (W x H x D)	152 x 108 x 38 mm	174 x 108 x 25 mm	180 x 120 x 60 mm 180 x 120 x 85 mm(AI Card)	204 x 138 x 67 mm
	Weight	0.75KG	0.75KG	1.3KG/1.5KG	1.52KG

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Embedded PCs

EPC-R Series - Edge AI Box

NEW   **NEW**

Model Name		EPC-R7200	EPC-R7300	KEDGE-350
Description		Arm-based Fanless UIO40-Express Barebone System	Industrial-Grade NVIDIA Jetson Orin™ Nano and NX Barebone Box PC	Commercial and Industrial Storage System
Processor System	Compatible Single Board Computer	Compatable with NVIDIA Jetson Series Module Nano/ TX2 NX / Xavier NX	NVIDIA Jetson Orin™ Nano and NX Module	-
	Thermal Solution	Fanless	Fanless	Fanless
	CPU	Compatable with NVIDIA Jetson Series Module Nano/ TX2 NX / Xavier NX	NVIDIA Jetson Orin™ Nano and NX	Rockchip RK3568J,Quad-core-A55, up to 2.0 GHz , 0.8 tops NPU
	BIOS	-	-	Advantech boot loader
AI Performance		472 GFLOPS for Nano 1.33 FLOPS for TX2 NX 21 TOPS for Xavier NX	Up to 100 TOPs	
Memory	Socket	On-board	-	On-board
	Technology	LPDDR4 3200 MT/s	LPDDR5	LPDDR4 2133MHz
	Max. Capacity	Nano (4 GB) / TX2 NX (4 GB) / Xavier NX (8 GB)	Up 16GB (Depend on Orin module)	8GB
Graphics	Chipset Integrated	Nano (128-core NVIDIA Maxwell™ GPU) TX2 NX (256-core NVIDIA Pascal™ GPU) Xavier NX (384-core NVIDIA Volta™ GPU with 48 Tensor Cores)	NVIDIA Ampere GPU on Jeston Modules	Mali-G52, Embedded 2D/3D GPU
Storage	On-board Storage	16 GB eMMC Flash for O.S.	-	16 GB /32GB eMMC or NVME SSD
	mSATA Slot	-	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	NVIDIA Jetson integrated RGMII and Intel 1GbE Controller	NVIDIA Jetson integrated RGMII and Intel 1GbE Controller	RTL8211FSI-CG
	Connector	2 x RJ45	2 x RJ45	2 x RJ45
Audio	Codec	-	Up to 4K60 codec	-
Internal Expansion Slot	Mini-PCIe	-	-	1 x Full-size (USB signal only)
	M.2	1 x M.2 2230 Key E Slot (USB 2.0/PCIe/UART/I2S) 1 x M.2 3042 Key B Slot (USB 3.2 Gen 1 by 1 / I2C)	1 x M.2 3042/52 Key B Slot (PCIe/USB3.2 Gen2/I2C) 1 x M.2 2230 Key E Slot (USB2.0/PCIe/UART/I2C) 1 x M.2 2280 Key M Slot (x4 PCIe for NVMe)	1 x M.2 E Key slot
	SIM Slot	1 x Nano SIM slot	1 x Nano SIM Slot	1 x Nano SIM slot
	SD Slot	1 x Micro SD slot	-	1 x Micro SD slot
Front Panel	DP++	-	-	-
	DP/HDMI	1 x HDMI up to 3840 x 2160	1 x HDMI 2.0, Max. 4K@60fps	1 x HDMI2.0, 4K@60fps
	VGA	-	-	-
	DVI	-	-	-
	COM	-	-	1 x 2-wire Debug port
	GPIO	-	-	6 non-isolated
	LAN	2	2 x RJ45 for GbE	2
	USB	2 x USB 3.2 Gen 1by2 Type A	2 x USB3.2 Gen 2 Type A	2 x USB 3.0 Type A
	Audio Jack	-	-	-
	Antenna (optional)	2 x Antenna holes	-	-
Rear Panel/ Side Panel	DP++	-	-	-
	DP/HDMI	-	-	-
	VGA	-	-	-
	DVI	-	-	-
	COM	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1 x 2-wire RS-232 w/ UIO-4030	-	2 x 2-wire non-isolated RS-232/485 4 x 2-wire non-isolated RS485 w/UIO-4031 2 x 2-wire non-isolated RS232 w/UIO-4031 or 2 x 2-wire non-isolated RS-232/485 4 x 2-wire isolated RS485 2 x 2-wire isolated RS485 w/UIO-4033
	LAN	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036	Up to 4 x 10/100/1000 Mbps w/ UIO-4038 (3 x LAN and 1 x WAN)	-
	USB	2 x USB 2.0 w/ UIO-4032	-	-
	CAN bus	1 x CAN bus 2.0 A/B w/ UIO-4034	-	1 x non-isolated CAN FD 2 x non-isolated CAN FD w/UIO-4031 or 1 x non-isolated CAN FD 2 x isolated CAN2.0 w/UIO-4033
	Audio Jack	-	-	-
	GPIO	4 x DI, 4 x DO w/ UIO-4030	-	4 x non-isolated DI and 4 x non-isolated DO or 4 x isolated DI and 4 x isolated DO
	Antenna (optional)	2 x Antenna holes	4 x Antenna holes	2 x 4G/WiFi, 1 x GPS
Miscellaneous	LED Indicators	1 x Green LED for system power 1 x Green LED for programmable	1 x Power LED; 1 x Programmable LED	3 x Green LED for power, 4G, user status
	Switch	1 x Reset button	-	1 x Reset button
	Circular Cutouts	-	1	-
Mounting		Wall mount/Din Rail (optional)	Wall mount, Optional DIN-Rail	Wall mount/Din Rail (optional)
Power Requirements	Power Voltage	9-24V	9-36V	9-30V
	Power Input Type (Inlet)	2-poles lockable DC-in	2-poles lockable DC-in	DC-in
	Consumption	8.7 Watts (Depends on Module Selection)	40 Watts (Depends on Module Selection)	10-15W
Environment	Operating Temperature	-20 ~ 60 °C	-20 ~ 60 °C	-40 ~ 70 °C
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
	Humidity	5% ~ 95% relative humidity, non-condensing	5% ~ 95% relative humidity, non-condensing	5% ~ 95% relative humidity, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	0.028G²/ Hz, 3.5 Grms	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G
	Shock	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms
Certification		CCC/CE/FCC Class B	CCC/CE/FCC Class B	CCC/CE/FCC Class B
Physical Characteristics	Dimensions (W x H x D)	152 x 137 x 42 mm	152 x 173 x 50 mm	154 x 108 x 48.7 mm
	Weight	0.925KG	1.25KG	TBD

Note: "-" : means Not Applicable (N/A)

Arm-Based Computing Platforms

Embedded PCs

EPC-R Series - Edge Gateway

Model Name		EPC-R3220	EPC-R3430	EPC-R3710
Description		Arm-based Fanless System	Arm-based Fanless UIO40-Express System	Arm-based Fanless UIO40-Express System
Processor System	Compatible Single Board Computer	-	RSB-3430	RSB-3710
	Thermal Solution	Fanless	Fanless	Fanless
	CPU	TI Arm AM3352 Cortex-A8 800 MHz	NXP Arm i.MX6 Cortex-A9 1 GHz	Rockchip Arm RK3399 Cortex-A72 1.8 GHz
	BIOS	Advantech boot loader	Advantech boot loader	Advantech boot loader
AI Performance		-	-	-
Memory	Socket	On-board	On-board	On-board
	Technology	DDR3 800 MT/s	DDR3L 1066 MT/s	LPDDR4 1333 MT/s
	Max. Capacity	1 GB	1 GB	2 GB
Graphics	Chipset Integrated	-	2 IPUs. OpenCL ES 2.0 for 3D, Bitblt for 2D and OpenVG 1.1	Decoder: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC, HEVC/H.265 decoder, 4K@60fps Encoder: H.264 (BP@level4.0, MP, HP@level4.0), MVC and VP8
Storage	On-board Storage	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for ADV.	16 GB eMMC NAND Flash for O.S. and 4MB SPI NOR Flash for ADV.	16 GB of eMMC NAND Flash for O.S. and Advantech boot loader
	mSATA Slot	-	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	TI AM3352 Integrated RGMII	NXP i.MX6 Integrated RGMII	Rockchip RK3399 Integrated RGMII
	Connector	2 x RJ45	1 x RJ45	2 x RJ45
Audio	Codec	-	SGTL5000	-
Internal Expansion Slot	Mini-PCIe	1 x Full-size	1 x Full-size	1 x Full-size (USB & PCIe signal)
	M.2	-	1 x M.2 Key E slot	-
	SIM Slot	1 x Nano SIM slot	1 x Nano SIM slot	1 x Nano SIM slot
	SD Slot	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot
Front Panel	DP++	-	-	-
	DP/HDMI	-	1x HDMI up to 1920 x 1080	1
	VGA	-	-	-
	DVI	-	-	-
	COM	2 x 4-wire RS-232/485	1 x 4-wire RS-232/422/485	-
	GPIO	6	-	-
	LAN	2	1	2
	USB	-	2 x USB 2.0	1 x USB 3.2 Gen1 by 1 Type A, 1 x USB 2.0 Type A
	Audio Jack	-	-	-
	Antenna (optional)	2 x Antenna holes	-	-
Rear Panel/ Side Panel	DP++	-	-	-
	DP/HDMI	-	-	-
	VGA	-	-	-
	DVI	-	-	-
	COM	-	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1x RS-232 w/ UIO-4030	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1 x 2 wires RS-232 w/ UIO-4030
	LAN	-	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036
	USB	1 x USB 2.0 OTG	2 x USB 2.0 w/ UIO-4032	2 x USB 2.0 w/ UIO-4032
	CAN bus	-	1 x CAN bus 2.0 A/B w/ UIO-4034	-
	Audio Jack	-	-	-
	GPIO	-	4 x DI, 4 x DO w/ UIO-4030	4 x DI, 4 x DO w/ UIO-4030
	Antenna (optional)	1 x Antenna holes	2 x Antenna holes	3 x Antenna holes
Miscellaneous	LED Indicators	1 x Green LED for system power 3 x Red Programmable LED	-	1 x Green LED for system power 1 x Green Programmable LED
	Switch	1 x Reset button	-	1 x Reset button
	Circular Cutouts	-	-	-
Mounting		Wall mount/DIN rail mount (optional)	Wall mount	Wall mount/Din Rail (optional)
Power Requirements	Power Voltage	12~24V	12V	12V
	Power Input Type (Inlet)	2-pole lockable DC-in	DC-in	DC-in
	Consumption	4.7W	4.05W	15W
Environment	Operating Temperature	-20 ~ 70 °C	-20~60 °C	0 ~ 50 °C/-20 ~ 70 °C
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
	Humidity	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing	5% ~ 95% Relative Humidity, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G
	Shock	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms
Certification		CE/FCC/BSMI/CCC/VCCI/SRRC	CE/FCC Class B CCC	CE/FCC Class B CCC/BSMI
Physical Characteristics	Dimensions (W x H x D)	139 x 85 x 30 mm	174 x 108 x 25 mm	152 x 108 x 38 mm
	Weight	0.6KG	0.48KG	0.75KG

Note: "-" : means Not Applicable (N/A)

* -20 ~ 70 °C supports by specific Power Mode of Jetson Modules

Arm-Based Computing Platforms

Embedded PCs

EPC-R Series - Edge Gateway

Model Name		EPC-R4680	EPC-R4710	EPC-R4760
Description		Arm-based Fanless System	Arm-based Fanless System	Arm-based Fanless System
Processor System	Compatible Single Board Computer	RSB-4680	RSB-4710	RSB-4760
	Thermal Solution	Fanless	Fanless	Fanless
	CPU	Rockchip Arm RK3288 Cortex-A17 1.6 GHz	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	Qualcomm Arm APQ8016 Cortex-A53 1.2 GHz
	BIOS	Advantech boot loader	Advantech boot loader	Advantech boot loader
AI Performance		-	-	-
Memory	Socket	On-board	On-board	On-board
	Technology	DDR3L 1333 MT/s	LPDDR4 1333 MT/s	LPDDR3 1066 MT/s
	Max. Capacity	2 GB	2 GB	1 GB
Graphics	Chipset Integrated	Mali-T764 GPU processor with OpenGL ES3.0, OpenCL1.1 and DirectX11	Decoder: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC, HEVC/H.265 decoder, 4K@60fps Encoder: H.264 (BP@level4.0, MP, HP@level4.0), MVC and VP8	Adreno 306 GPU
Storage	On-board Storage	8 GB eMMC NAND Flash for O.S. and Advantech boot loader	16 GB of eMMC NAND Flash for O.S. and Advantech boot loader	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
	mSATA Slot	-	-	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	Rockchip RK3288 Integrated RGMII	Rockchip RK3399 Integrated RGMII	Microchip LAN7500
	Connector	1 x RJ45	2 x RJ45	1 x RJ45
Audio	Codec	Realtek ALC5660	Realtek ALC5660	PM8916
Internal Expansion Slot	Mini-PCIe	1 x Full-size	1 x Full-size (USB signal only)	1 x Full-size
	M.2	1 x M.2 Key E slot (SDIO 3.0 & UART signal only)	1 x M.2 2230 Key E slot (USB/PCIe/SDIO/UART)	1 x M.2 Key E slot
	SIM Slot	1	1 x SIM slot	1
	SD Slot	1 x Micro SD slot	1 x Micro SD slot	1 x SD slot
Front Panel	DP++	-	-	-
	DP/HDMI	-	-	1 x HDMI up to 1920 x 1080
	VGA	-	-	-
	DVI	-	-	-
	COM	4 x 4-wire RS-232	2 x RS232/485, 2 x RS232	1 x 4-wire, RS-232/422/485
	GPIO	-	-	-
	LAN	-	-	1
	USB	USB 2.0	3	2 x USB 2.0
	Audio Jack	-	-	-
	Antenna (optional)	3 x antenna holes	3	2 x antenna holes
Rear Panel/ Side Panel	DP++	-	-	-
	DP/HDMI	1x HDMI up to 3840 x 2160	2	-
	VGA	1	-	-
	DVI	-	-	-
	COM	1 x 4-wire RS-232/485 1 x 2-wire RS-232/Debug port	1 x RS-232/Debug 1 x RS232	-
	LAN	1	2	-
	USB	2 x USB 2.0 Host 1 x USB 2.0 OTG	1 x USB 3.2 Gen1 1 x USB 2.0	2 x USB 2.0 Host
	CAN bus	-	-	-
	Audio Jack	1 x Line out 1 x Mic in	1 x Line out 1 x Mic in	-
	GPIO	8 x GPIO by DB9	5	-
	Antenna (optional)	2 x Antenna holes	2 x Antenna holes	3 x Antenna holes
Miscellaneous	LED Indicators	1 x Green LED for system power 1 x Orange LED for WLAN	1 x Green LED for system power 1 x Yellow LED for WLAN	1 x Green LED for system power 1 x Yellow LED for WLAN
	Switch	1 x Reset button 1 x Power button	1 x Reset button 1 x Power button	-
	Circular Cutouts	-	-	-
Mounting		Wall mount	Wall mount	Wall mount
Power Requirements	Power Voltage	12V	12V	9~36V
	Power Input Type (Inlet)	DC-in	DC-in	DC-in
	Consumption	11.6W	15W	7.6W
Environment	Operating Temperature	0 ~ 55 °C/-20 ~ 70 °C	0 ~ 50 °C/-20 ~ 70 °C	0 ~ 40 °C
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C
	Humidity	5% ~ 95% relative humidity, non-condensing	5% ~ 95% relative humidity, non-condensing	5% ~ 95% relative humidity, non-condensing
	Vibration (5 ~ 500Hz)	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G	IEC60068-2-64 random 2.0Grms IEC60068-2-6 sinusoidal 2.0G
	Shock	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms	IEC60068-2-27 half-sine 10G/11ms
Certification		CE/FCC Class B CCC/BSMI	CE/FCC Class B CCC/BSMI	CE/FCC Class B CB/UL/CCC/BSMI
Physical Characteristics	Dimensions (W x H x D)	190 x 150 x 43 mm	190 x 150 x 43 mm	188 x 150 x 39 mm
	Weight	0.95KG	0.95KG	1.2KG

Note: "-" : means Not Applicable (N/A)

* -20 ~ 70 °C supports by specific Power Mode of Jetson Modules

Arm-Based Computing Platforms

Embedded PCs

EPC-R Series - Edge Gateway

Model Name		UBC-220	UBC-330
Processor System	CPU	NXP Arm i.MX6 Dual Lite Cortex-A9 1 GHz	TI Arm AM3352 Cortex-A8 1 GHz
Memory	Technology	DDR3 800 MT/s	DDR3 800 MT/s
	Capacity	On-board DDR3 1 GB	On-board DDR3 512 MB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 x 24-bit LVDS, 1366 x 768@60Hz	-
	HDMI	1920 x 1080@60Hz	-
	VGA	-	-
	Graphics Engine	1 x IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	-
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP	-
Ethernet	Chipset	1 x NXP i.MX6 integrated RGMII	2 x TI AM3352 Integrated RGMII
	Speed	10/100/1000 Mbps	10/100/1000 Mbps
Cellular	LTE	-	-
WLAN	WIFI/BT	-	-
WatchDog Timer		1~6553s, default 60s, power on/off 1s	1~6553s, default 60s, power on/off 1s
I/O	USB	1 x USB 2.0 Host, 1 x USB 2.0 OTG	1 x USB 2.0 Host
	Audio	-	-
	SDIO	1 x SD slot	1 x SD slot
	Serial Port	1 x 4-wire RS-232	1 x 4-wire RS-232/422/485 4 x 2-wire RS-232
	GPIO	-	4 x DI, 4 x DO with isolation
	CANBus	-	1
	I2C	-	1
	Button	-	1 x Reset button
Indicator	LED	1 x Power LED 1 x Programmable LED	1 x Power LED 1 x RF status LED
Expansion	Mini PCIe	2 x mini PCIe slots (1 x half-size, 1 x full-size USB signal only)	1 x mini PCIe slot (USB signal only)
	SD Socket	1 x SD slot	1 x SD slot
	SIM	1 x SIM slot	-
	Antenna Hole	1 x Antenna hole	1 x Antenna hole
	Others	-	-
Power	Power Supply Voltage	12V	12~24V
	Power Type	DC-in	DC-in
	Power Consumption	4.4W (Max)	4W (Max)
Environment	Operational Temperature	0 ~ 60 °C	0 ~ 60 °C
	Operating Humidity	5%~95% relative humidity, non-condensing	5%~95% relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	120 x 89 x 30 mm	191 x 129 x 30 mm with metal plate 166 x 117 x 30 mm without metal plate
	Mounting	Wall mount, DIN rail, VESA 75/100 by option	Wall mount, VESA 75/100, Flexible mount with two screw holes on the metal plate
	Weight	215g	265g
Operating System		Linux Android	Linux
Certifications		KC/CCC/CE/FCC/VCCI Class B	CCC/CE/FCC/BSMI Class B

Note: "-" : means Not Applicable (N/A)

Edge AI Solutions

AI Acceleration Modules & GPU Cards

Model	968DD00320	968DD00322	968DD00323
AI Accelerator	Hailo-8™ AI Processor	Hailo-8™ AI Processor	Hailo-8™ AI Processor
Signal Interface	PCI Express 3.0 x4	PCI Express 3.0 x2	PCI Express 3.0 x2
Form Factor	M.2 Key M	M.2 Key A+E	M.2 Key B+M
Dimensions	22 x 42 mm 22 x 60 mm 22 x 80 mm	22 x 30 mm	22 x 42 mm 22 x 60 mm 22 x 80 mm
Power Consumption	Typical 2.5W	Typical 2.5W	Typical 2.5W
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Power Range	3.3V ± 5% power input	3.3V ± 5% power input	3.3V ± 5% power input
Peak Performance (INT8)	26 TOPS	26 TOPS	26 TOPS
Supported AI Framework	TensorFLow, TensorFlow Lite, ONNX, Keras, Pytorch		
Operating system	Windows 10 64-bit, Ubuntu 22.04		
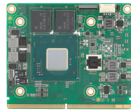
Model	EAI-2100	EAI-3100	EAI-3101
GPU	Intel® Arc™ A370M	Intel® Arc™ A370M	Intel® Arc™ A380E
Xe-cores	8	8	8
Intel® XMX Engines	128	128	128
Graphics Clock	1550 MHz	1550 MHz	2000 MHz
FP32 Performance	4.198 TFLOPS	4.198 TFLOPS	5.018 TFLOPS
Memory Capacity	GDDR6 4GB	GDDR6 4GB	GDDR6 6GB
Memory Speed	14 Gbps	14 Gbps	15.5 Gbps
Signal Interface	MXM 3.1 PCI Express 4.0 x8 with 3.0 Backwards Compatibility	PCI Express 4.0 x16, PCIe x8 signal	PCI Express 4.0 x16, PCIe x8 signal
Dimensions (L x H x W)	82 x 70 mm	168 x 110 x 34.8 mm, Dual slot	152 x 110 x 34.8 mm, Dual slot
Form Factor	MXM Type A 3.1	PCI Express 4.0 x16	PCI Express 4.0 x16
Power Consumption	Up to 40W	Up to 60W	Up to 75W
Thermal Solution	Fansink (optional), Heat spreader (optional)	Single active fan	Single active fan
Operating Temperature	0~60°C (depends on thermal solution)	0~60°C (depends on thermal solution)	0~50°C (depends on thermal solution)
Power Connector	Reserved 4-pin power connector for fansink	8-pin power input (optional)	8-pin power input (optional)
Power Range	9-20V input (Fan control: 12V only)	DC 12V input	DC 12V input
Display I/O	Reserved 4 x DP 1.4a	2 x DP 1.4a 2 x HDMI 2.0b	4 x DP 1.4a
DP Max. Resolution	7680 x 4320@60Hz	7680 x 4320@60Hz	7680 x 4320@60Hz
HDMI Max. Resolution	-	4096 x 2160@60Hz	-
Supported Graphics Engine	DirectX12, OpenGL 4.6, OpenCL 3.0 HW Encoding: H.264/H.265(HEVC)/AV1 HW Decoding: H.264/H.265(HEVC)/AV1/VP9		
Operating system	Windows 11, 10 64-bit Ubuntu 22.04 LTS		

Edge AI Solutions

Edge AI Inference Systems

Model	AIR-030	AIR-150	AIR-310
CPU/Platform	NVIDIA Jetson AGX Orin 32G/64G	13th Gen Intel® Core™ i3/i5 processor	14th Gen Intel® Core™ i3/i5/i7/i9 processor
AI Performance	up to 275 TOPS	Bundled with Hailo-8 AI module, up to 26 TOPS	Compatible with Intel Arc A370M/Quadro® A2000, up to 60W
Memory — Technology	LPDDR5	DDR5 5200 MHz	DDR5 5600MHz
Memory — Max. Capacity	32GB/64GB	Up to 64 GB	Up to 64 GB
Memory — Socket	on board	2x 262 pin SO-DIMM	2 x 262-pin SO-DIMM
Display	1 x HDMI 2.0, 3840 x 2160@60Hz	2x HDMI 2.0, 4096x2160@60Hz	1 x HDMI 2.0, 4096x2160@60Hz 1 x DP 1.4, 4096x2160@60Hz
Ethernet — Speed/Controller	3 x 2.5GbE, Intel I225-LM	1x GbE, Intel I219-LM 1 x 2.5 GbE, Intel I226-LM	1 x GbE, Intel I219-LM 2 x 2.5 GbE, Intel I226-LM
Ethernet — Wake on LAN	Yes (suspend only)	Yes	Yes
Ethernet — PoE	LAN1 & 2 optional, by adding MIOe-PSE	-	-
I/O Ports — USB 3.0 / USB 2.0	4 x USB 3.2 2 x USB 2.0 (internal)	3 x USB 3.2 1 x USB 2.0	4 x USB 3.2
I/O Ports — USB Type C	1	-	-
I/O Ports — OTG USB	1 x Micro USB (for system recovery only)	-	-
I/O Ports — COM	4 x RS232/422/485	2 x RS-232/422/485 1 x RS-485	2 x RS232/422/485
I/O Ports — DIO	16-bit	8-bit	16-bit
I/O Ports — CANBus	2	2	2
I/O Ports — Audio	Line-out	Line-out/Mic-in (switch)	Line-out/Mic-in (switch)
Storage — eMMC	64GB	-	-
Storage — 2.5" SATA	-	-	1
Storage — M.2	1 x M.2 B-Key 2280/3052 (PCIe x2, USB 3.0)	1 x M.2 M-Key 2280 (PCIe Gen4 x4, SATA)	1 x M.2 M-Key 2280 (PCIe Gen3 x4, SATA)
Storage — mSATA	-	-	-
Storage — SATA Slim		1 x SATA Slim	
Storage — SD Card	1 x SD 3.0 slot	-	-
Expansion — M.2	1 x M.2 E-Key 2230	1 x M.2 E-Key 2230 1 x M.2 B-Key 3042 (default w/ Hailo module)	1 x M.2 E-Key 2230
Expansion — PCI Express	1 x PCIe x16 (Optional, signal: PCIe x 8)	-	-
Expansion — SIM Socket	1	-	-
Expansion — GPU Card	-	-	1 x MXM3.1 Type A up to 60W
Expansion — MIPI	2	-	-
Others — Trusted Platform Module	on-board TPM 2.0	on-board TPM 2.0	on-board TPM 2.0
Others — IPMI	-	-	-
Power — Power Input	9-36V	12-24V	12-24V
Power — Power Type	ATX/AT mode, ATX default	ATX/AT mode, ATX default	ATX/AT mode, ATX default
Operating System	Built-in Linux Ubuntu 20.04 (JetPack 5.1.2)	Windows 11/10 IoT/Ubuntu 22.04	Windows 11/10 IoT/Ubuntu 22.04
Operating temp. (with 0.7 m/s air flow)	-10~60°C (MODE_50W)	-20~60°C	0~55°C (w/o MXM GPU) 0~50°C (w/ MXM GPU)
Weight (kg)	3.63	1.3	2.4
Dimensions (W x H x D)	200 x 220 x 74 mm	156 x 112 x 60 mm	215 x 220 x 55 mm

Note: "-" : means Not Applicable (N/A)

Edge AI Solutions

Edge AI Workstations

Model	AIR-510	AIR-520	AIR-530
CPU/Platform	13th Gen Intel® Core™ i3/i5/i7/i9 processor	AMD EPYC 7003 series	Arm Cortex-A78AE / IGX Orin Platform
AI Performance	NVIDIA Certified with RTX 6000 Ada (Graphics card up-to 350W)	NVIDIA Certified with 2x RTX A5000 (Graphics card up-to total 700W)	NVIDIA Certified with RTX 6000 Ada (Planning)
Memory Technology	DDR5 5600MHz	DDR4 3200MHz	LPDDR5 3200 MHz
Max. Capacity	Up to 192GB (48GB per DIMM)	Up to 768GB (128GB per DIMM)	64GB
Socket	4 x UDIMM	6 x RDIMM	on-board
Display	1 x HDMI 2.0, 4096x2160@60Hz 2 x DP 1.2,up to 4096 x 2304 @ 60Hz	1 x VGA via Aspeed AST2500 BMC	1 x DP 1.4a
Ethernet Speed/Controller	1 x GbE, Intel I219-LM 1 x 2.5 GbE, Intel I226V	1 x Gbe from BMC 2 x 2.5 GbE, Intel I226V 2 x 10 GbE, Intel X550	2 x GbE from BMC or Orin 2 x 100 GbE QSFP28 from ConnectX-7
Wake on LAN	YES	YES	-
I/O Ports USB 3.0 / USB 2.0	7 x USB 3.2 4 x USB 2.0	3 x USB 3.2	4 x USB 3.2
USB Type C	1	0	0
COM	6 (5 x RS-232, 1 x RS-232/422/485 with auto flow control), optional	1 x RS-232	4 (TBD)
DIO	1x 8-bit DIO	1x 8-bit DIO	1 (TBD)
CANBus	-	-	-
Audio	Line-out, Mic-in	None	Line-out, Mic-in
Storage eMMC	-	-	64GB
2.5" SATA	8 x 2.5" SSD (4 x 2.5"+ 4 x 3.5" by project)	6 x 2.5" SSD (4 x 2.5"+ 4 x 3.5" by project)	4 x 2.5" SSD (4 x 3.5" by project)
M.2	1 x M-Key 2280 (PCIe Gen4 x4)	1 x M-Key 2280 (PCIe Gen4 x4)	1 x M-Key 2280 (PCIe Gen4 x4)
mSATA	-	-	-
SATA Slim	-	-	-
Expansions M.2	-	-	1 x B-Key 2280 (PCIe x1 from BMC) 1 x M.2 E-Key 2230
PCI Express	1 x PCIe x4 (Gen3) 1 x PCIe x4 (Gen4) 1 x PCIe x16 (Gen5)	4 x PCIe x16(Gen4)	1 x PCIe x8 (Gen4) 1 x PCIe x16 (Gen4)
SIM Socket	-	-	1
Others Trusted Platform Module	on-board TPM 2.0	on-board TPM 2.0	on-board TPM 2.0
IPMI	-	Aspeed AST2500 BMC IPMI 2.0 with virtual media over LAN and KVM-over-LAN support	Aspeed AST2600 BMC
Power Power Input	100-240V AC	100-240V AC	100-240V AC
Power Type	ATX/AT mode, ATX Default	ATX	ATX
Operating System	Windows 10 IoT / Ubuntu 22.04	Windows Server 2019 / Ubuntu 22.04	IGX SW (OS & NIVIDA AI stack)
Operating temp. (with 0.7 m/s air flow)	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C
Weight (kg)	15.5	15.5	15
Dimensions (W x H x D)	380 x 176 x 467 mm	380 x 176 x 467 mm	380 x 176 x 467 mm

Note: "-" : means Not Applicable (N/A)

Edge Computers

Compact Series

	Model Name	ARK-1124C	ARK-1124U	ARK-1124H
CPU	CPU	Intel® Celeron DC N3350	Intel® Celeron DC N3350	Intel® Atom QC E3940
	Frequency	1.1GHz, turbo burst 2.4 GHz	1.1GHz, turbo burst 2.4 GHz	1.6GHz, turbo burst 1.8 GHz
	Core Number	2	2	4
	BIOS	AMI EFI 64-bit	AMI EFI 64-bit	AMI EFI 64-bit
	Chipset	-	-	-
Memory	Technology	DDR3L 1600 MHz	DDR3L 1600 Mhz	DDR3L 1600 Mhz
	Max. Capacity	8GB	8GB	8GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM
Display	Chipset	Intel ®HD Graphics 500	Intel ®HD Graphics 500	Intel ®HD Graphics 500
	VGA	1 x VGA, up to 2048 x 1280 @ 60Hz	1 x VGA, up to 2048 x 1280 @ 60Hz	
	DDI	-	-	2 x Lockable HDMI, up to 3840 x 2160 @ 30Hz
	Multiple Display	-	-	Dual (HDMI)
Expansion Interface	Mini PCIe	1 x Full-size MiniPCIe	1 x Full-size MiniPCIe w/ SIM	1 x Full-size MiniPCIe w/ SIM
	M.2	-	1, 2230 E key for WIFI	1, 2230 E key for WIFI
	SIM Socket	-	1 (standard size)	1 (micro SIM)
	PCIe	-	-	-
	PCI	-	-	-
	PCIe + PCI	-	-	-
	i Door	Yes	Yes	Yes
Ethernet	Controller	GbE 1: Intel i210	GbE 1: Intel i210 GbE 2: Intel i210	GbE 1: Intel i210 GbE 2: Intel i210
	Wake on LAN	Yes	Yes	Yes
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	ALC-888S-VD2-GR	ALC-888S-VD2-GR	ALC-888S-VD2-GR
	Connector	Line-in, Line-out	Line-in, Line-out	Line-in, Line-out
WatchDog Timer		Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATA drive bay (Max 9.5mm height only)	1 x 2.5" SATA drive bay (Max 9.5mm height only)	1 x 2.5" SATA drive bay (Max 9.5mm height only)
	mSATA	1 x Half-Size mSATA	-	1 x Half-Size mSATA
	M.2	-	-	-
I/O	USB 3.1/3.2	-	-	-
	USB 3.0	2	4	4
	USB 2.0	-	-	-
	GPIO	-	-	-
	COM Port	4 x RS-232/422/485	2 x RS-232/422/485	1 x RS-232/422/485
	Others			
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	Default: 12 V_DC, ± 10%; Optional: 12 V_DC - 24V_DC by power module	Default: 12 V_DC, ± 10%; Optional: 12 V_DC - 24V_DC by power module	Default: 12 V_DC, ± 10%; Optional: 12 V_DC - 24V_DC by power module
	Connector	Default: Lockable DC Jack; Optional: 2-Pin phenix connector via power module AMO-P011	Default: Lockable DC Jack; Optional: 2-Pin phenix connector via power module AMO-P011	Default: Lockable DC Jack; Optional: 2-Pin phenix connector via power module AMO-P011
	Power Consumption (Idle: CPU/Memory only)	5.5W	5W	6.02W
	Power Consumption (Full Load: CPU/Memory only)	9.8W	15.7W	15.8W
	Power Adaptor	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/5 A, 60 W	Lockable AC to DC, DC12 V/5 A, 60 W
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 60 °C; with standard temperature peripherals: 0 ~ 40 °C	With extend temperature peripherals: -20 ~ 60 °C; with standard temperature peripherals: 0 ~ 40 °C	With extend temperature peripherals: -20 ~ 60 °C; with standard temperature peripherals: 0 ~ 40 °C
	Non-operating Temperature	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Relative Humidity	95% @ 40° C Non-Condensing	95% @ 40° C Non-Condensing	95% @ 40° C Non-Condensing
	Vibration Resistance	With mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis With HDD: 0.5Grms, IEC 60068-2-64, random, 5~500Hz, 3 axes, 1hr/axis
	Shock Protection	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration	With mSATA/SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration With HDD: 10G, IEC 60068-2-27, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	Single Layer: 133 x 46.4 x 94.2mm Dual Layer: 133 x 83.6 x 94.2mm	Single Layer: 133 x 46.4 x 94.2mm Dual Layer: 133 x 83.6 x 94.2mm	Single Layer: 133 x 46.4 x 94.2mm Dual Layer: 133 x 83.6 x 94.2mm
	Weight	0.7 Kg (1.55lb)	0.7 Kg (1.55lb)	0.7 Kg (1.55lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting
Operating System	Microsoft Windows	Windows 10 64-bit	Windows 10 64-bit	Windows 10 64-bit
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	Yes	Yes	Yes
	SUSI API	-	-	-
	Other	Trellix, Acronis	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE/FCC Class B, CCC, BSMI, UKCA	CE/FCC Class B, CCC, BSMI, UKCA	CE/FCC Class B, CCC, BSMI, UKCA
	Safety Certifications	UL, CCC, BSMI, CB, UKCA	UL, CCC, BSMI, CB, UKCA	UL, CCC, BSMI, CB, UKCA

Edge Computers

Compact Series

Model Name		ARK-1125C	ARK-1125H
CPU	CPU	Intel® Atom X7211E	Intel® N200
	Frequency	1.0GHz, Max Turbo Frequency up to 3.2GHz	1.0GHz, Max Turbo Frequency up to 3.7GHz
	Core Number	2	4
	BIOS	AMI EFI 256 Mbit	AMI EFI 256 Mbit
	Chipset	-	-
Memory	Technology	DDR5 4800 MHz	DDR5 4800 MHz
	Max. Capacity	16GB	16GB
	Socket	1 x 262-pin SODIMM	1 x 262-pin SODIMM
Display	Chipset	Intel® UHD Graphics	Intel® UHD Graphics
	VGA	-	-
	DDI	1 x HDMI: 4096 x 2160@60Hz	2 x HDMI: 4096 x 2160@60Hz
	Multiple Display	Single (HDMI)	Dual (HDMI)
Expansion Interface	Mini PCIe	-	-
	M.2	3 (E key 2230 x 1, key B 2280 x 1, Key M 2242 x 1)	2 (E key 2230 x 1, key B 2280 x 1)
	SIM Socket	1 (nano SIM)	1 (nano SIM)
	PCIe	-	-
	PCI	-	-
	PCIe + PCI	-	-
	i Door	-	-
Ethernet	Controller	GbE1: Intel i226LM	GbE1: Intel i226LM GbE2: Intel i226LM
	Wake on LAN	Yes	Yes
	Speed	100/1000/2500 Mbps	100/1000/2500 Mbps
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	ALC-888S-VD2-GR	ALC-888S-VD2-GR
	Connector	Mic-in, Line-out	Mic-in, Line-out
WatchDog Timer		Yes	Yes
Storage	SATA	1 x M.2 B key, 1 x M.2 M key	1 x M.2 B key
	mSATA	-	-
	M.2	1 x M.2 B key, 1 x M.2 E key, 1 x M.2 M key	1 x M.2 B key, 1 x M.2 E key
I/O	USB 3.1/3.2	2	2
	USB 3.0	-	-
	USB 2.0	2	2
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO
	COM Port	4 x RS232/ 422/ 485	2 x RS232/ 422/ 485
	Others	Optional 1 x CANBus by replacing DIO	2 x CANBus
Power	Power Type	AT/ATX	AT/ATX
	Power Supply Voltage	12 V$_{DC}$	12 V$_{DC}$
	Connector	Lockable DC Jack	Lockable DC Jack
	Power Consumption (Idle: CPU/Memory only)	10.54W	10.05W
	Power Consumption (Full Load: CPU/Memory only)	28.19W	19.72W
	Power Adaptor	Lockable AC to DC, DC12 V/5 A, 60 W	Lockable AC to DC, DC12 V/5 A, 60 W
Environment	Operating Temperature (air flow 0.7 m/sec)	With extended temperature peripherals: -30 ~ 60 °C with 0.7m/s air flow	With extended temperature peripherals: -30 ~ 60 °C with 0.7m/s air flow
	Non-operating Temperature	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Relative Humidity	95% @ 40° C Non-Condensing	95% @ 40° C Non-Condensing
	Vibration Resistance	3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount)	3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount)
	Shock Protection	30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)	30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)
Physical Characteristics	Dimensions (W x H x D mm)	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")	133 x 46.4 x 94.2mm (5.24" x 1.83" x 3.71")
	Weight	0.7 Kg (1.55lb)	0.7 Kg (1.55lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting
Operating System	Microsoft Windows	Win 10 64-bit	Win 10 64-bit
	Linux	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	Yes	Yes
	SUSI API	Yes	Yes
	Other	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE, FCC Class B, CCC, BSMI, UKCA	CE, FCC Class B, CCC, BSMI, UKCA
	Safety Certifications	UL, CCC, BSMI, CB, Energy Star, UKCA	UL, CCC, BSMI, CB, UKCA

Note: "-" : means Not Applicable (N/A)

Edge Computers

Din-Rail Series

Model Name		ARK-1221L	ARK-1250L
CPU	CPU	Intel® Atom x6413E Intel® Celeron N6210	Intel® Core™ i3-1115G4E Intel® Core™ i5-1145G7E Intel® Core™ i7-1185G7E (by project)
	Frequency	1.50 GHz, turbo burst up to 3.00 GHz 1.20 GHz, turbo burst up to 2.60 GHz	2.2/1.5/1.8 GHz
	Core Number 4/4	4/2	2/4/4
	BIOS	AMI EFI 256 Mbit	AMI EFI 256 Mbit
	Chipset	-	-
Memory	Technology	DDR4 3200 MHz	DDR4 3200 MHz
	Max. Capacity	32 GB	64 GB
	Socket	2 x 260-pin SO-DIMM	2 x 260-pin SODIMM
Display	Chipset	Intel® UHD Graphics	11th Gen Intel® UHD Graphics for Core i3 Intel® Iris® X® for Core i5/i7
	VGA	-	1 x VGA, up to 1920 x 1080 @ 60Hz
	DDI	HDMI + DP (Up to 4096 x 2160 @ 60 Hz)	1 (2 support by A2) x HDMI 2.0 port, 4096 x 2160 @ 60Hz
	Multiple Display	Dual	Dual
Expansion Interface	Mini PCIe	1x Full-size mPCIe	1x Full-size mPCIe
	M.2	2 (E key 2230x1, B key 2280x1)	2 (E key 2230x1, B key 2280x1)
	SIM Socket	1	1
	PCIe	-	-
	PCI	-	-
	PCIe + PCI	-	-
	i Door	-	Yes
Ethernet	Controller	GbE 1: Intel i225-LM GbE 2: Intel i225-LM	GbE1/3: Intel i225 GbE2: Intel i219 GbE4: Intel i225 supported by A2 version
	Speed	10/100/1000/2500 Mbps	LAN 1/3: 10/100/1000/2500 Mbps LAN 2: 10/100/1000 Mbps LAN 4(support by A2 version: 10/100/1000/2500 Mbps
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	ALC-888S	ALC-888S
	Connector	Line-out/Mic-in (switch)	Line-out/Mic-in (switch)
WatchDog Timer	WatchDog Timer	Yes	Yes
Storage	SATA	1 x 2.5" SATAIII (9mm height HDD bays)	1 x 2.5" SATAIII (9mm height HDD bays)
	mSATA	1 x Full-size mSATA (*shared with mPCIe slot)	1 x Full-size mSATA (*shared with mPCIe slot)
	M.2	1 (E key), 1 (B key)	1 (E key), 1 (B key)
I/O	USB 3.1/3.2	2	3
	USB 3.0	-	-
	USB 2.0	2	3
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO
	COM Port	2x RS-232/422/485	4x RS-232/422/485
Power	Power Type	AT/ATX	AT/ATX
	Power Supply Voltage	12 ~ 28V_{DC}	12~24V_{DC}
	Connector	3-pin terminal block AC to DC, 60 W (Optional)	3-pin terminal block AC to DC, 90W adaptor built-in
	Power Consumption (Idle: CPU/Memory only)	12.66W (Atom x6413E) 9.6W (Celeron N6210)	18W (Intel® Core™ i3-1115G4E) 19.8 W (Intel® Core™ i5-1145G7E)
	Power Consumption (Full Load: CPU/Memory only)	21.89W (Atom x6413E) 18.96W (Celeron N6210)	30.6W (Intel® Core™ i3-1115G4E) 35.1 W (Intel® Core™ i5-1145G7E)
	Power Adaptor	Lockable AC to DC, DC24 V/2.5 A, 60 W (Optional)	AC to DC, 90W adaptor by default
Environment	Operating Temperature (air flow 0.7 m/sec)	With extended temperature peripherals: -40 ~ 60 °C; With standard temperature peripherals: 0 ~ 40 °C	With extended temperature peripherals: -40 ~ 60 °C; With standard temperature peripherals: 0 ~ 40 °C
	Non-operating Temperature	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount)	With SSD: 3 Grms, IEC60068-2-64, random, 5~500 Hz, 1hr/axis (with Wall Mount)
	Shock Protection	With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)	With SSD: 30 G, IEC-60068-2-27, half sine, 11 ms duration (with Wall Mount)
Physical Characteristics	Dimensions (W x H x D mm)	60 x 158 x 114 mm (2.34" x 6.22" x 4.49")	60 x 173 x 141 mm (2.36" x 6.73" x 5.55 in)
	Weight	1.05kg (2.31lb)	1.5kg (3.3lb)
	Mounting	DIN Rail Mounting (standard) Optional VESA/ Wall mounting	DIN Rail Mounting (standard) Optional VESA/ Wall mounting
Operating System	Microsoft Windows	Yes	Yes
	Linux	Yes	Yes
Software	DeviceOn	Yes	Yes
	Other	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE/FCC Class B, CCC, BSMI, UKCA	CE/FCC Class B, CCC, BSMI, UKCA
	Safety Certifications	CB, UL, CCC, BSMI, UKCA	CB, UL, CCC, BSMI, UKCA

Note: "-" : means Not Applicable (N/A)

Edge Computers

Modular Series

Model Name		ARK-2250L	ARK-2251
CPU	CPU	Core™ i7-6600U/i3-6100U/i3-7100U	Intel® Core™ i3-1315UE/i5-1335UE/i7-1365UE
	Frequency	2.6GHz/2.3GHz/2.4GHz	1.2/1.3/1.7 GHz
	Core Number	2	2P+4E/2P+8E/2P+8E
	BIOS	AMI UEFI 128-Mbit	AMI EFI 256-Mbit
	Chipset	-	-
Memory	Technology	DDR4 2133 MHz	DDR5 4800MHz
	Max. Capacity	16GB	64GB
	Socket	1 x 260-pin SODIMM	2 x 262-pin SODIMM
Display	Chipset	Intel HD Graphics 520	Intel® Iris® Xe Graphics eligible
	VGA	Up to 1920 x 1200 @ 60Hz	-
	DDI	HDMI: 4096 x 2160 @24Hz; Optional: DP and HDMI	2 x HDMI, 4096 x 2304 @ 60Hz
	Multiple Display	Dual / Triple (Option)	Dual
Expansion Interface	Mini PCIe	2 x full size miniPCIe (One with SIM holder, one support mSATA)	1 x Full-size Mini PCIe (Supports mSATA)
	M.2	-	2, 1 x E key and 1 x M key
	SIM socket	1	1
	PCIe	-	-
	PCI	-	-
	PCIe + PCI	-	-
	i Door	Supported	Supported
Ethernet	Controller	GbE1: Intel i219 GbE2: Intel i210	GbE1: Intel i219 GbE2: Intel i226 GbE 3: Intel i226
	Speed	10/ 100/ 1000 Mbps	LAN 1: 10/100/1000 Mbps LAN 2/3: 10/100/1000/2500 Mbps
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC888S
	Connector	Line-out, Mic-in	Line-out, Mic-in
WatchDog Timer	WatchDog Timer	Yes	Yes
Storage	SATA	1 x 2.5" SATAIII HDD bay (Max 12.5mm in height)	-
	mSATA	1 x Full-size mSATA share with miniPCIe	1 x Full-size mSATA share with main miniPCIe
I/O	USB 3.1/3.2	-	6 (Gen1)
	USB 3.0	4	-
	USB 2.0	2	-
	GPIO	8-bit programmable DIO	8-bit programmable DIO
	COM Port	4 x RS232/ 422/ 485	6 x RS232/ 422/ 485
Power	Power Type	ATX	AT/ATX
	Power Supply Voltage	Default: 12 V_{DC}, ± 10%; Optional : 9-36 V_{DC}	12 V_{DC} ~ 24 V_{DC}
	Connector	Default: Lockable DC Jack	3-pin terminal block
	Power Consumption (Idle: CPU/ Memory only)	6.92W (i3-6100U)/ 7.96W (i7-6600U)	19.05W(i3-1315UE)/19.30W(i5-1335UE)/19.47W(i7-1365UE)
	Power Consumption (Full Load: CPU/ Memory only)	41.72W (i3-6100U) / 43.28W(i7-6600U);	38.21W(i3-1315UE)/41.23W(i5-1335UE)/42.13W(i7-1365UE)
	Power Adaptor	Lockable AC to DC, DC12V/5A, 60W (Optional)	120 W
Environment	Operating Temperature (air flow 0.7 m/sec)	With extended temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C	With extended temperature peripherals: -20 ~ 60° C With standard temperature peripherals: 0 ~ 40° C
	Non-operating Temperature	-40~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40~ 85° C and 40° C @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	260 x 54 x 140.2 mm(10.24 x 2.13 x 5.52 in)	260 x 54 x 140.2 mm (10.24 x 2.13 x 5.52 in)
	Weight	2.3 kg (5.07 lb)	2.3kg (5.07lb)
	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Wall mounting
Operating System	Microsoft Windows	Windows 7, Windows 8.1, Windows 10	Windows10
	Linux	Yes	Yes
Software	DeviceOn	Yes	Yes
	Other	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI, UKCA	CE/FCC class B, CCC, BSMI, UKCA
	Safety Certifications	CB, UL, CCC, BSMI, UKCA	CB, UL, CCC, BSMI, UKCA

Note: "-" : means Not Applicable (N/A)

Edge Computers

Performance Series

Model Name		ARK-3532B/C/D	ARK-3533	ARK-3534B
CPU	CPU	10th Gen Intel® Xeon® W and Core™ i3/i5/i7/i9 processor	12th/13th/14th Gen Intel® Core™ i3/i5/i7/i9 processor	12th/13th/14th Gen Intel® Core™ i3/i5/i7/i9 processor
	Frequency	by Processor	by Processor	by Processor
	Core Number	by Processor	by Processor	by Processor
	BIOS	AMI EFI 256Mbit	AMI EFI 256Mbit	AMI EFI 256Mbit
	Chipset	Intel W480E	Intel H610E	Intel H610E (R680E by project)
Memory	Technology	DDR4 2933 MHz	DDR5 4800 MHz	DDR5 4800 MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 x 260-pin SODIMM	2 x 262-pin SODIMM	2 x 262-pin SODIMM
Display	Chipset	Intel® UHD Graphics 630	Intel® UHD Graphics 770	Intel® UHD Graphics 770
	VGA	1920x1200@ 60Hz	-	-
	DDI	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@30Hz ; 3rd Display Module by Optional	2 HDMI port, HDMI 2.0 for HD video playback, 4096x2160@60Hz, (DP by project)	2 HDMI port, HDMI 2.0 for HD video playback, 4096x2160@60Hz
	Multiple Display	3rd Display Module by Option	Dual	3rd Display Module by Option
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder) #1	-	-
	M.2	1 (E key)	2, 1 x B key and 1 x E key	2, 1 x B key and 1 x E key
	SIM socket	1	1	1
	PCI/PCIe	1 slot PCIEx4, 1 slotPCIEx16 for ARK-3532B 1 slot PCIex4, 2 slots PCI for ARK-3532C 1 slot PCIex4, 2 slots PCI, 1 slot PCIex16 for ARK-3532D	2 slots PCI (optional AMO-3510)	1 slot, PCIex4, 1 slot PCIex16
	i Door	-	-	-
Ethernet	Controller	GbE1: Intel i219-LM GbE; GbE2/3/ 4: Intel i210 GbE	GbE1: Intel i219-LM GbE GbE2/3/4: Intel i226-V GbE	GbE1: Intel i219-LM GbE GbE2: Intel i225-V GbE
	Speed	10/100/1000 Mbps	LAN 1 :10/100/1000 Mbps LAN 2/3/4 : 10/100/1000/2500 Mbps	LAN 1 :10/100/1000 Mbps LAN 2 : 10/100/1000/2500 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	ALC888S	ALC888S	ALC888S
	Connector	Line-out/Mic-in (switch)	Line-out/Mic-in (switch)	Line-out/Mic-in (switch)
WatchDog Timer	WatchDog Timer	Yes	Yes	Yes
Storage	SATA	2 x 2.5" SATAIII 15mm height HDD bay support Intel SW RAID (Up to 4 x 2.5" SATAIII HDD bays by optional AMK-A0035)	2 x 2.5" SATAIII (9mm height HDD bays)	2 x 2.5" SATAIII 15mm height HDD bay support Intel SW RAID (Up to 3 x 2.5" SATAIII HDD bays)
	NVMe	-	1x PCIex2 (via M.2 2280 B Key)	1x PCIex2 (via M.2 2280 B Key)
	mSATA	1 x mSATA socket (Share with Mini PCIe)	-	-
I/O	USB 3.1/3.2	4	4	4
	USB 3.0	4	-	-
	USB 2.0	-	4	4
	GPIO	16-bit	16-bit	16-bit
	COM Port	4 x RS-232/422/485; 2 x RS-232	4 x RS-232/422/485; 4 x RS-232	4 x RS-232/422/485; 2 up to 4 (optional) x RS-232
Power	Power Type	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	12-36V$_{DC}$	9~36V$_{DC}$	9~36V$_{DC}$
	Connector	4pin phoenix head	4pin phoenix head	4pin phoenix head
	Power Consumption (Idle: CPU/ Memory only)	30W	21.2W	56.1W
	Power Consumption (Full Load: CPU/ Memory only)	64.8W	40.4W	92.4W
	Power Adaptor	230W (Optional)	150W/ 230W (Optional)	230W (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	Up to 65W processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40 °C with 0.7m/s air flow	Up to 35W processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40 °C with 0.7m/s air flow	Up to 65W processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40 °C with 0.7m/s air flow
	Non-operating Temperature	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	156 x 204 x 230 mm (6.14 x 8.03 x 9.05 in) for ARK-3532B/C 197.2 x 204 x 230 mm (7.63 x 8.03 x 9.05 in) for ARK-3532D	200 x 75 x 215 mm (7.87 x 2.95 x 8.46 in)	156 x 204 x 230 mm (6.14 x 8.03 x 9.05 in)
	Weight	5.7 kg (12.5 lb) for ARK-3532B/C 6.1 kg (14.1 lb) for ARK-3532D	3.2 kg (7.06lb)	5.705kg (12.58 lb)
	Mounting	Desk Mount	Wall Mount	Desk Mount
Operating System	Microsoft Windows	Windows 10	Windows 10	Windows 10
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Ubuntu 22.04, others by project inquiry
Software	DeviceOn	DeviceOn, DeviceOn/iEdge	DeviceOn, DeviceOn/iEdge	DeviceOn, DeviceOn/iEdge
	Other	Trellix, Acronis	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI, UKCA	CE/FCC class B, CCC, BSMI, UKCA	CE/FCC class B, CCC, BSMI, UKCA
	Safety Certifications	CB, UL, CCC, BSMI, UKCA	CB, UL, CCC, BSMI, UKCA	CB, UL, CCC, BSMI, UKCA

Note: "-" : means Not Applicable (N/A)

Edge Computers

Performance Series

Model Name		ARK-3534C	ARK-3534D
CPU	CPU	12th/13th/14th Gen Intel® Core™ i3/i5/i7/i9 processor	12th/13th/14th Gen Intel® Core™ i3/i5/i7/i9 processor
	Frequency	by Processor	by Processor
	Core Number	by Processor	by Processor
	BIOS	AMI EFI 256-Mbit	AMI EFI 256-Mbit
	Chipset	Intel H610E (R680E by project)	Intel R680E
Memory	Technology	DDR5 4800 MHz	DDR5 4800 MHz
	Max. Capacity	64GB	64GB
	Socket	2 x 262-pin SODIMM	2 x 262-pin SODIMM
Display	Chipset	Intel® UHD Graphics 770	Intel® UHD Graphics 770
	VGA	-	-
	DDI	2 HDMI port, HDMI 2.0 for HD video playback, 4096x2160@60Hz	2 HDMI port, HDMI 2.0 for HD video playback, 4096x2160@60Hz
	Multiple Display	3rd optional display module	3rd optional display module
Expansion Interface	Mini PCIe	-	-
	M.2	2, 1 x B key and 1 x E key	2, 1 x B key and 1 x E key
	SIM socket	1	1
	PCI/PCIe	2 slots PCI, 1 slot PCIe x16	2 slots PCI, 1 slot PCIe x4, 1 slot PCIe x16
	i Door	-	-
Ethernet	Controller	GbE1: Intel i219-LM GbE GbE2: Intel i225-V GbE	GbE1: Intel i219-LM GbE GbE2/3/4: Intel i225-LM GbE
	Speed	LAN 1 :10/100/1000 Mbps LAN 2 : 10/100/1000/2500 Mbps	LAN 1 :10/100/1000 Mbps LAN 2/3/4 : 10/100/1000/2500 Mbps
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	ALC888S	ALC888S
	Connector	Line-out/Mic-in (switch)	Line-out/Mic-in (switch)
WatchDog Timer	WatchDog Timer	Yes	Yes
Storage	SATA	2 x 2.5" SATAIII 15mm height HDD bay supporting Intel SW RAID (Up to 3 x 2.5" SATAIII HDD bays)	2 x 2.5" SATAIII 15mm height HDD bay supporting Intel SW RAID (Up to 3 x 2.5" SATAIII HDD bays)
	NVMe	1 x PCIe x2 (via M.2 2280 B Key)	1 x PCIe x2 (via M.2 2280 B Key)
	mSATA	-	-
I/O	USB 3.1/3.2	4	8
	USB 3.0	-	-
	USB 2.0	4	-
	GPIO	16-bit	16-bit
	COM Port	4 x RS-232/422/485; 2 up to 4(optional) x RS-232	4 x RS-232/422/485; 2 up to 4(optional) x RS-232
Power	Power Type	AT/ATX	AT/ATX
	Power Supply Voltage	9~36V$_{DC}$	9~36V$_{DC}$
	Connector	4-pin Phoenix head	4-pin Phoenix head
	Power Consumption (Idle: CPU/ Memory only)	56.1W	56.1W
	Power Consumption (Full Load: CPU/ Memory only)	92.4W	92.4W
	Power Adaptor	230W (Optional)	230W (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	Up to 65W processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40 °C with 0.7m/s air flow	Up to 65W processor with extended temp peripherals: -20 ~ 60° C with 0.7m/s air flow with HDD: 0 ~ 40 °C with 0.7m/s air flow
	Non-operating Temperature	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing	-40 ~ 85 °C and 40 °C @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration	With SSD: 30 G, IEC 60068-2-27, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	156 x 204 x 230 mm (6.14 x 8.03 x 9.05 in)	197.2 x 204 x 230 mm (7.63 x 8.03 x 9.05 in)
	Weight	5.705kg (12.58 lb)	6.41kg (14.13 lb)
	Mounting	Desk Mount	Desk Mount
Operating System	Microsoft Windows	Windows 10	Windows 10
	Linux	Ubuntu 22.04, others by project inquiry	Ubuntu 22.04, others by project inquiry
Software	DeviceOn	DeviceOn, DeviceOn/iEdge	DeviceOn, DeviceOn/iEdge
	Other	Trellix, Acronis	Trellix, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI, UKCA	CE/FCC class B, CCC, BSMI, UKCA
	Safety Certifications	CB, UL, CCC, BSMI, UKCA	CB, UL, CCC, BSMI, UKCA

Note: "-" : means Not Applicable (N/A)

Digital Signage Solutions

Ultra-Slim Series

Model Name		DS-410	DS-450	DS-082	DS-085S	DS-085L	DS-086
Processor	CPU	Intel® Celeron® J1900	Intel Elkhart Lake J6412	AMD Ryzen™ V1807B AMD Ryzen™ V1605B AMD Ryzen™ R1606G	Intel® Core™ i7-1165G7 Intel® Core™ i5-1135G7 Intel® Core™ i3-1115G4E Intel® Celeron® 6305E	Intel® Core™ i7-1165G7 Intel® Core™ i5-1135G7 Intel® Core™ i3-1115G4E Intel® Celeron® 6305E	Intel® Core™ Ultra 5 125H
	BIOS	AMI uEFI 64 Mbit	AMI uEFI 256 Mbit	AMI uEFI 128Mbit	AMI uEFI 128 Mbit	AMI uEFI 128 Mbit	AMI uEFI 64 Mbit
	Chipset	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU
Memory	Technology	LPDDR4 3733Mhz	LPDDR4 3733Mhz	DDR4 2400MHz	DDR4 2666MHz	DDR4 2666MHz	LPDDR5 5600Mhz
	Max. Capacity	4GB/8GB on Board	4GB/8GB on Board	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	96GB (48 GB per SODIMM)
	Socket	-	-	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 266-pin SODIMM
Display	Controller	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU
	Graphics Engine	Intel HD Graphics	Intel HD Graphics	AMD Radeon HD graphics	Intel® Iris® Xe Graphics	Intel® Iris® Xe Graphics	Intel® Arc™ graphics
	Graphics Memory	Shared system memory	Shared system memory	Shared system memory	Shared system memory	Shared system memory	Shared system memory
	Multiple Display	2	2	4 (V series) 3 (R series)	4	4	4
	Interface	1 x HDMI 2.0 1 x VGA	1 x HDMI 2.0 1 x HDMI 1.4	4 x HDMI 2.0 (V series) 3 x HDMI 2.0 (R series)	4 x HDMI 2.0	4 x HDMI 2.0	1 x HDMI 2.1 FRL (8K) 3 x HDMI 2.0
	Max. Resolution	4096 x 2304 @ 60Hz	3840x2160 @60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz	7680 x 4320 @ 60Hz (HDMI2.1 FRL)
Expansion Interface	M.2	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	1 x M.2 2242/2280 M key for nVME storage
	Mini PCIe	-	-	-	-	-	-
	PCIe x16	-	-	-	-	-	-
	Micro SD Card	-	-	-	-	-	-
Ethernet	Connector	2 x RJ45	2 x RJ-45	1 x RJ-45	2 x RJ-45	2 x RJ-45	1 x RJ45
Audio	Connector	-	-	1 x SPDIF/Line-out/Mic-in with jack sense support	1 x SPDIF/Line-out/Mic-in	1 x SPDIF/Line-out/Mic-in	1 x SPDIF/Line-out/Mic-in
WatchDog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Storage	SATA	-	-	-	-	-	-
	mSATA	-	-	-	-	-	-
	eMMC	-	-	-	-	-	-
I/O	USB 3.0	2	2	2	2	2	2
	USB 2.0	-	4	2	2	6	2
	COM	2 x RS-232	1 x Function Port(DB9)	1 x RS-232	1	2	1 x RS-232
Power	Power Supply	DC 19V input	DC 19V input	DC 19V input	DC 19V input	DC 19V input	DC 19V input
Environment	Operating Temperature	HDD: 0-40 °C SSD: 0-45 °C (with 0.7m/s airflow)	0-45 °C (with 0.7m/s airflow)	HDD: 0-40 °C (with 0.7m/s airflow)	0-40 °C (with 0.7m/s airflow)	0-55 °C (with 0.7m/s airflow)	0-40 °C (with 0.7m/s airflow)
Physical Characteristics	Dimensions (L x W x H)	124 x 116 x 26 mm	160 x 115 x 44 mm	180 x 190 x 19 mm	180 x 190 x 19 mm	210 x 178 x 40 mm	177 x 180 x 22mm
Operating System		Microsoft Windows, Linux (optional)	Microsoft Windows Linux (optional)	Microsoft Windows, Linux (optional)	Microsoft Windows, Linux (optional)	Microsoft Windows, Linux (optional)	Microsoft Windows Linux (optional)
Certifications	EMC	CE, FCC Class B, CCC, BSMI	CE/FCC Class B, BSMI, UKCA	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B, CCC, BSMI
	Safety	UL, CB, CCC, BSMI	UL, CB, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI

Note: "-" means not applicable.

Integrated Software

iService/ SignageCMS

Multimedia Management Software

System Management	Web interface, multimedia management, user- friendly interface, remote management
Interactive Content Editing	Add/edit/delete the interactive button or interactive content.
Dispatch Management	Remote dispatch, player overview, group dispatch, schedule dispatch, history search
Account Management	Add/edit/delete user, user name/password/description/main, account permissions

WISE-DeviceOn

Device Monitoring and Management

Device Management	Instant device monitoring and troubleshooting, regular inspections, predictive maintenance, data acquisition, device management
Monitoring & Control	Real-time monitoring, device list and status, SW/HW health monitoring, HDD predictive maintenance, system screen lost events
Update Management	OTA upgrade support, software remote patching and upgrade, update status report
Alert & Action	SMS notifications, email notifications, event log

Digital Signage Solutions

Multi-Display and Modular Series

Model Name		DS-630	DS-200	DS-202	DS-211	DS-230
Processor	CPU	AMD V2748	Intel® Core™ i5-8400H Intel® Core™ i3-8100H Intel® Celeron® G4930E	Intel® Atom™ x6413E	Rockchip RK3399	Pentium 8505 i5 1235U
	BIOS	AMI uEFI 128 Mbit	AMI uEFI 128 MBit	AMI uEFI 128 Mbit	-	AMI uEFI 128 Mbit
	Chipset	Intel Q170	Intel QM370	Integrated with CPU	-	Integrated with CPU
Memory	Technology	DDR4 3200MHz	DDR4 2400MHz	DDR4 2666MHz	LPDDR4-3200	DDR4 3200MHz
	Max. Capacity	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	2GB/4GB on-board	32GB (16GB per SODIMM)
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	-	2 x 260-pin SODIMM
Display	Controller	Integrated with CPU	Integrated with CPU	Integrated with CPU	-	Integrated with CPU
	Graphic Engine	AMD Radeon graphics	Intel UHD Graphics 630	Intel® UHD Graphics	Mali-T860MP4	Intel UHD Graphics
	Graphics Memory	Shared system memory	Shared system memory	Shared system memory	-	Shared system memory
	Multiple Display	4	3	3	2	3
	Interface	HDMI 2.0 x 2, DP++ type C x 2	1 x PCIe x8 (98 pin), 1 x Mini DP++	1 x PCIe x8 (98 pin), 1 x Mini DP++	1 x JAE TX25 (80 pin) 1 x HDMI 2.0	1 x PCIe x8 (98 pin) 1 x DP++
	Max. Resolution	4096 x 2160 @ 60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz	3840 x 2160 @ 60Hz	3840 x 2160 @ 60Hz
Expansion Interface	M.2	1 x 2230 E key	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	-	1	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi
	Mini PCIe	-	-	-	1	-
	PCIe x 8	1	-	-	-	-
	Micro SD Card	-	-	-	1	-
Ethernet	Connector	2 x RJ-45	1 x RJ-45	1 x RJ-45	2 x RJ-45	1x RJ45
Audio	Connector	2 (Line out + Mic/Line in)	1 x SPDIF/Line-out, Mic-in with jack sense support	1 x SPDIF/Line-out, Mic-in with jack sense support	-	-
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	1 x M.2 2280 M Key (PCIe)	-	-	-	-
	mSATA	-	-	3 (2 x via bracket, 1 x SDM connector)	16GB /64GB eMMC on board	-
I/O	USB 3.0	6	5 (4 x via bracket, 1 x SDM connector)	8	1	2
	USB 2.0	-	-	0	1	1
	COM	2 x RS-232	1 x RS-232 via SDM connector (Tx/Rx only)	1 x RS-232 via SDM connector (Tx/Rx only)	1 x RS-232	-
Power	Power Supply	DC 12V input	DC 12V input (via SDM Connection)	DC 12V input (via SDM Connection)	DC 12V input (via OPS connector)	DC 12V input (via SDM Connection)
Environment	Operating Temperature	0-40 °C	0-55 °C	0-55 °C	0-60 °C	0-55 °C
Physical Characteristics	Dimensions (L x W x H)	357 x 357 x 99 mm	175 x 100 x 20 mm (SDM-L compliant)	175 x 100 x 20 mm (SDM-L compliant)	200 x 119 x 30 mm (OPS compliant)	175 x 100 x 20 (SDM-L compliant)
Operating System		Microsoft Windows, Linux (optional)	Microsoft Windows, Linux (optional)	Microsoft Windows, Linux (optional)	Android 7.1.2	Microsoft Windows Linux (optional)
Certifications	EMC	CE, FCC Class B,	CE, FCC Class B	CE/FCC/VCCI/UKCA	CE, FCC Class B	CE/FCC Class B, UKCA,VCCI, RCM
	Safety	CB	N/A	CB	CCC	CB

Note: "-" means not applicable.

Security Software

Whitelisting and Backup Recovery

Triellx	**Application Control** • Protect against zero-day attacks • Proactive protection **Change Control** • Access rights- who, when, what • Prevent out-of-policy changes

Acronis	**Easy Backup Solution** • Full image / Incremental backup • Disk and partitions backup **Powerful Recovery** • Disk/partition cloning • Universal restore

EV Charging

NEW

Model Name		AFE-E350
Processor System	CPU	Intel® Atom® x6000E Series and Intel® Celeron® J Series
	Core Number	Max. Quad Core
	Frequency	Max. 3.0GHz
	CPU TDP	6W - 12W
	Chipset	SoC integrated
	BIOS	AMI UEFI 256-Mbit
Memory	Technology	DDR4-3200
	Max. Capacity	32GB
	Socket	1 x 260-pin SODIMM
Graphics	Chipset	Intel® UHD Graphics for 10th Gen Intel® Processors, SoC Integrated
	Graphic Engine	DX12, OGL4.5, OCL1.2, Vulkan 1.1; HW Decode/Encode: H.265/HEVC, H.264, VP9, VP8, WMV9/VC1, MPEG-2
	VGA	-
	LCD (TTL/LVDS/eDP)	LVDS Dual Channel 18/24-bit
	DDI (HDMI/DVI/DisplayPort)	1 x HDMI2.0 up to 4096x2160x24bpp@60 1 x DP1.4a up to 4096x2160x36bpp@60
	Multiple Display	3 simultaneous displays: LVDS/HDMI/DP
Expansion	M.2 E key	1 x E-Key 2230 (PCIe x1, USB2.0)
	M.2 B Key	1 x B-Key 3052/3042 (USB2.0, opt. PCIex2)
	SIM Socket	1 x NanoSIMM attach to B-Key
Ethernet	Controller	LAN1: Intel i210, support EdgeBMC Out-of-Band Remote Management LAN2: Intel i226, LAN3: Intel i226
	Wake on LAN	Supported
	Speed	LAN1:10/100/1000Mbps LAN2/3:10/100/1000/2500 Mbps
	GbE LAN Port	3
	POE (Optional)	LAN2/3 compliant to 802.3af support by optional MIOe-PSE
External I/O	Ethernet	3
	HDMI/DP	1/1
	USB3.2	2
Internal I/O	SATA	1 x SATA GenIII 6.0Gbps
	USB	2 x USB3.2; 2 x USB2.0
	Serial Bus	I2C default, optional SMBus
	COM Port	2 x RS-232/422/485(8-wire) , 2 x RS-232/422/485 (4-wire)
	GPIO	8-bit
	Audio	Realtek ALC888S, Line-in/Line-out/MIC
	LVDS Invertor	12V/5V
	CANBus/CAN-FD	2 x CAN-FD
	Fan	4-Wire Smart Fan
	Front Panel Control	Power-on, Reset, Buzzer, CaseOpen
Storage	NVME	1 x M.2 M-Key 2280 (SATA, opt. PCIe x1)
	SATA	1 x SATA Gen3 6.0Gbps
Board Features	WatchDog Timer	65536 level, 0~65535 sec
	TPM	TPM2.0
	iManager 3.0	SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT
Power	Power Type	ATX 2x2 pin 90D, optional DC-Jack or ATX 2x2 pin 180D*
	Power Supply Voltage	DC 12~24V ± 10%; RTC Battery: Lithium 3V/210mAH
	Power Consumption (Idle)	TBD
	Power Consumption (Full Load)	TBD
Environment	Operating Temperature	Standard 0~60° C, Extended -40~85° C
Certification	EMC	CE/FCC Class B
Mechanical	Dimensions	146 x 102 mm (5.7" x 4")

Robotics, AMR and Drone

NEW
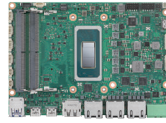
NEW

	Model Name	AFE-R360	AFE-R770
Processor System	CPU	Intel® Core™ Ultra 5/7 processor	12th/13th/14th Gen Intel® Core™ i3/i5/i7/i9 processor
	Core Number	Max. 16	by Processor
	Frequency	Max. 5.0Hz	by Processor
	L3 Cache	Max. 24MB	by Processor
	Watts	28W / 15W	35W
	Chipset	On-package Intel 600 series	Intel H610E/R680E
	BIOS	AMI EFI 256Mbit	AMI EFI 256Mbit
Memory	Technology	DDR5 5600 MHz	DDR5 5600 MHz
	Max. Capacity	96GB	64GB
	Socket	2x 262-pin SODIMM	2x 262-pin SODIMM
Graphics	Chipset	Intel® Arc™ Graphics	Intel® UHD Graphics 770
	Graphics Engine	DirectX 12.1, OpenGL 4.6, OCL3.0, HW Encode: H.265 /HEVC, H.264/AVC, AV1, MJPEG. HW Decode: H.265 /HEVC, H.264/AVC, AV1, MJPEG.	DirectX 12, OpenGL 4.5 HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8. HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9
	VGA LCD (TTL/LVDS/eDP) DDI (HDMI/DVI/DisplayPort)	1 x DP1.4a, 4096 x 2304 x 36bpp@60Hz	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@60Hz
	Multiple Displays	-	-
	M.2 E-Key	1	1
	M.2 B-Key	1	1
	SIM Socket	1 (Nano SIM Socket)	1
Ethernet	Controller	Intel i226LM	Intel i226LM
	Wake on LAN	Yes	Yes
	Speed	10/100/1000/2500 Mbps	10/100/1000/2500 Mbps
	GbE LAN Port	3	4
Audio	Audio Interface	HD Audio	HD Audio
	CODEC	ALC888S	ALC888S
	Connector	Line-in/Line-out/MIC	Line-out, Mic-in
Storage	NVME	2x M.2 M-Key (PCIe)	1x M.2 M-Key (PCIe+SATA)
	SATA	1x M.2 B-Key (PCIe. SATA)	-
I/O	Tyep C	3 (1 x USB 4, 2 x USB 3.2)	-
	USB 3.2	2	4
	USB 2.0	2	-
	COM Port	4 x RS-232/422/485	4 x RS-232/422/485 (1 isolated, 1 with 5V/12V)
	DIO	8-bit	Isolated 16-bit (8in/8out)
	CANBus/CAN FD	2 CAN FD	2 CANBus
	Others	1 x I2C/ SMBUS, 1 x Front Panel, 1 x 12V fan connector	1 x Remote switch, 1 x 12V fan connector
Camera Interface	MIPI	Up to 4, through extended docking	-
	GMSL	4, through extended docking	-
Others	Watchdog Timer	Yes	Yes
Power	Power Type	2P Phoenix	Ignition mode and PC mode (AT/ATX)
	Power Supply Voltage	12V$_{DC}$ ~ 24V$_{DC}$	9 V$_{DC}$ ~ 36 V$_{DC}$
	Power Consumption (Idle)	TBD	TBD
	Power Consumption (Full Load)	TBD	TBD
	Power Adaptor	-	-
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60°C	Up to 35W processor with extended temp peripherals: -20 ~ 70°C with 0.7m/s air flow
Mechanical	Construction	-	Aluminum/Metal
	Mounting	-	Desk, Wall, DIN-Rail
	Dimensions (W x H x D)	-	200 x 55 x 215 mm
	Weight	-	3 kg
OS Support	Microsoft Windows	Windows 10, Windows 11	Windows 10, Windows 11
	Ubuntu	Ubuntu 22.04	Ubuntu 22.04
Software Support	DeviceOn	Yes	Yes
	SUSI API	Yes	Yes
	Robotics Development SDK	Yes	Yes
Certification	EMC	CE /FCC Class B	CE/FCC Class B, UKCA, CCC, BSMI
	Safety Certifications	-	CB 61010, UL 61010, CCC, BSMI

Note: "-" : means Not Applicable (N/A)

Rugged & Mission Critical

Application	NVR		Rolling Stock	
Model Name	**ARK-2121S**	**ARK-2250S**	**ARK-2231R**	**ARK-2250R**
Processor — CPU	Intel Atom® E3845	Intel Core™ i5-6442EQ/ i7-6822EQ	Intel Atom® E3845	Intel Core™ i5-6442EQ/ i7-6822EQ
Frequency	1.91GHz	1.9GHz / 2.0GHz	1.9GHz	1.9GHz / 2.0GHz
Memory — Technology	DDR3L 1333MHz	DDR4 2133MHz	DDR3L 1333MHz	DDR4 2133MHz
Max. Capacity	8GB	32GB	8GB	32GB
Socket	1 x 204-pin SODIMM	2 x 260-pin SODIMM	1 x 204-pin SODIMM	2 x 260-pin SODIMMs
Graphics — Controller	Intel® HD Graphics	Intel® HD Graphics 530	Intel® HD Graphics	Intel® HD Graphics 530
Others — Redundant BIOS ROM	-	-	-	-
Warranty	2 years	2 years	2 years	2 years
Production	Made in China	Made in China	Made in China	Made in China
Sensing — GPS	-	-	Yes (GPS, Galileo, GLONASS, BeiDou)	Yes (GPS, Galileo, GLONASS, BeiDou)
G-Sensor	-	-	Optional (3-Axis, ±2 g/±4 g/±8 g/±16 g)	Optional (3-Axis, ±2 g/±4 g/±8 g/±16 g)
Temperature	-	-	-	-
Display — VGA	1 x DB15, up to 2560x1600	-	1 x DB15, up to 2560x1600	1 x DB15, up to 1920x1200
HDMI	1 x HDMI 1.4a, up to 1080P (lockable)	2 x lockable HDMI, up to 1080P	1 x HDMI 1.4a, up to 1080P (lockable)	2 x HDMI 1.4a, up to 1080P (lockable)
Audio — Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
Connector	3 x Audio jack (Line-in, Line-out, Mic-in)	3 x Audio jack (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)
3G Voice	-	-	-	-
Internal I/O — Expansion	1 x Full-size Mini-PCIe/mSATA (USB/SATA); 1 x Full-size Mini-PCIe (PCIe/USB); 2 x Full-size Mini-PCIe (USB)	1x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA); 1x Full-size Mini-PCIe (PCIe/USB); 1x M.2 (2230 E-Key)	1 x Full-sze Mini-PCIe/mSATA (PCIe/USB/SATA); 1 x Full-size Mini-PCIe (PCIe/USB); 1 x Full-size Mini-PCIe (USB)	1x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA); 1x Full-size Mini-PCIe (PCIe/USB); 1x M.2 (2230 E-Key)
SIM Socket	3	-	-	-
SATA	1 x SATA III	2 x SATA III	2 x SATA III	2 x SATA III
External I/O — Drive Bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Option (2nd 2.5" drive bay in extended module)	1 x 2.5" removable drive bay Option (2nd 2.5" drive bay in extended module)	1 x 2.5" removable drive bay Option (2nd 2.5" drive bay in extended module)
SIM Socket	-	2	1	2
Ethernet	2 x 10/100/1000 Mbp (RJ-45)	2 x 10/100/1000 Mbp (M12 X-code)	2 x 10/100/1000 Mbp (M12 X-code)	2 x 10/100/1000 Mbp (M12 X-code)
Power over Ethernet	4 x 10/100M bps PoE (E3845); *4 ports full-load, IEEE802.3af Class2 (7W); *2 ports full-load, IEEE802.3af Class3 (15.4W)	Optional (4/8 GbE PoE, M12 D/X-code in extended module) *IEEE802.3at compliant (full-load 34.2W)	Optional (4/8 GbE PoE, M12 D/X-code in extended module) *IEEE802.3at compliant (full-load 34.2W)	Optional (4/8 GbE PoE, M12 D/X-code in extended module) *IEEE802.3at compliant (full-load 34.2W)
COM	2 x RS-232/422/485 (DB-9)	3 x RS-232/422/485 (DB-9)	2 x RS-232/422/485 (DB-9)	3 x RS-232/422/485 (DB-9)
CANBus	-	Optional	Optional	Optional
USB	1 x USB 3.0 (Type A); 3 x USB 2.0 (Type A)	3 x USB 2.0 (type A)	1 x USB 2.0/3.0 (M20 Type A); 1 x USB 2.0 (M12 A-Code); 1 x USB 2.0 (Type A)	2 x USB 2.0 (M12 A-code); 1 x USB 3.0 (Type A)
GPIO	6 x DI & 2 x DO (phoenix, isolation)	4 x DI & 4x DO (DB-9, isolation)	4 x DI & 4 x DO (Phoenix, programmable)	4 x DI & 4 x DO (Phoenix, programmable)
Remote Control / DC Output	-	1 x Phoenix • Power ON/OFF • Reset • Power LED • HDD LED 5V • HDD LED active; 1 x Phoenix • 12V$_{DC}$ output/1.5A	1 x Phoenix • Power ON/OFF • Reset • Power LED • HDD LED 5V • HDD LED active	1 x Phoenix • Power ON/OFF • Reset • Power LED • HDD LED 5V • HDD LED active
Power — Input Voltage	9~36VV$_{DC}$ w/ Isolation	Nominal voltage 12/24V$_{DC}$ (9~36V$_{DC}$ range, power ignition management, isolation	Nominal voltage 24V$_{DC}$ (isolation)	Nominal voltage 24/72/110V$_{DC}$ (9~36V$_{DC}$ range, power ignition management, isolation) Nominal voltage 48V$_{DC}$ (by project)
Protection	-	-	-	-
Regulation	-	-	EN50155 S2&C1	EN50155 S2&C1
Environment — Temperature	-30 ~ 60°C / 22 ~ 140°F	-20 ~ 70°C / -4 ~ 158°F	-40 ~ 70°C / -40 ~ 158°F * EN50155 TX	-40 ~ 70°C / -40 ~ 158°F * EN50155 TX
Humidity	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F
Altitude	-	-	-	-
IP Rating	-	-	-	-
Salt Fog	-	-	-	-
Vibration Resistance	IEC 60068-2-64	MIL-STD 810G, Method 514.6	IEC61373 Category1, Class B	IEC61373 Category1, Class B
Shock Protection	IEC 60068-2-27	MIL-STD 810G, Method 514.6	IEC61373 Categoryl, Cass B	IECG61373 Category1, Class B
Physical — Dimensions (WxHxD)	264.5x69.2x133.0 mm / 10.41x2.72x5.24 in	264x69.2x133 mm / 10.3x27.2x5.2 in	260x57x160 mm / 10.2x224x29 in; 260x83.6x160 mm / 110.2x3.29x6.29 in (w/ extension module)	260x73x160 mm / 10.24x2.87x6.30 in; 260x96x160 mm / 10.24x3.78x6.30 in (w/ extension module)
Certification — EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI, EN50121-3-2	CE/FCC Class B, CCC, BSMI, EN50121-3-2, EN50121-4
Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI, NEMATS2	UL, CCC, BSML CB, EN50155	UL, CCC, BSMI, CB, EN50155

Note: "-" : means Not Applicable (N/A)

Rugged & Mission Critical

Application		In-Vehicle			Outdoor	
Model Name		**ARK-2121V**	**ARK-2250V**	**TS-206**	**TS-207**	**ROCK-301**
Processor	CPU	Intel® Atom® E3825/E3845	Intel® Core™ i5-6442EQ/i7-6822EQ	Intel® Core™ i5-6300U/i7-6600U	Intel® Celeron® 6305E / Core™ i5-1145GRE	Intel® Core™ i3-1315URE/i7-1365URE
	Frequency	1.33GHz/1.91GHz	1.9GHz/2.0GHz	2.4GHz/2.6GHz	1.8 GHz / 1.5~4.1 GHz	1.2~4.5GHz / 1.7~4.9GHz
Memory	Technology	DDR3L 1066/1333 MHz	DDR4 2133MHz	DDR3L 1600MHz	DDR4 3200MHz	DDR5 4800MHz
	Max. Capacity	8GB	32GB	16GB	32GB	64GB
	Socket	1 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 204-pin SODIMM	1 x 260-pin SODIMM and 1 x onboard 8GB (6305E) 2 x 260-pin SODIMMs (one is installed with 8GB, i5-1145GRE)	2 x 262-pin SODIMMs (one of the SODIMMs is installed with 8GB)
Graphics	Controller	Intel® HD Graphics	Intel® HD Graphics 530	Intel® HD Graphics 520	Intel® Iris® Xe Graphics/UHD	Intel® Iris® Xe Graphics/UHD
Others	Redundant BIOS ROM	-	-	-	-	Yes
	Warranty	2 years	2 years	2 years	3 years	3 years
	Production	Made in China	Made in China	Made in China	Made in Taiwan	Made in Taiwan
Sensing	GPS	Yes (GPS, Galileo, GLONASS, BeiDou)	Yes (GPS, Galileo, GLONASS, BeiDou)	Option (GPS, Galileo, GLONASS, BeiDou)	-	-
	G-Sensor	Optional (3-Axis, ±2 g/±4 g/±8 g/±16 g)	Optional (3-Axis, ±2 g/±4 g/±8 g/±16 g)	Optional (3-Axis, ±2 g/±4 g/±8 g/±16 g)	-	-
	Temperature	-	-	-	-	Yes
Display	VGA	1 x DB15, up to 2560x1600	1 x DB15, up to 1920x1200	1 x DB15, up to 1920x1200	-	-
	HDMI	1 x HDMI 1.4a, up to 1080P (lockable)	1 x HDMI 1.4a, up to 1080P (lockable)	1 x HDMI 1.4a up to 4Kx2K (lockable)	2 x HDMI 2.0b up to 4Kx2K (lockable)	2 x HDMI 1.4b, up to 4096x2160 (M25, Type A, w ESD protection, lockable)
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	-
	Connector	3 x Audio jack (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line -out. Mic-in)	3 x Audio jack (Line-in, Line-out, Mic-in)	Pin header (by project)	-
	3G Voice	2 x Audio jack (Line-out, Mic-in)	-	2 x Audio jack (Line-out, Mic-in)	-	-
Internal I/O	Expansion	1 x Full-sze Mini-PCIe/mSATA (USB/SATA) 1 x Full-size Mini-PCIe (PCIe/USB) 2 x Full-size Mini-PCIe (USB)	1 x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA) 1 x Full-size Mini-PCIe (PCIe/USB) 1 x M.2 (2230 E-Key)	1 x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA) 1 x Full-size Mini-PCIe (PCIe/USB) 2 x Full-size Mini-PCIe (USB)	1 x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA) 1 x Full-size Mini-PCIe (PCIe/USB) 1 x M.2 2230 E-Key (PCIe, USB 2.0)	1 x Full-size Mini-PCIe/mSATA (PCIe/USB/SATA) 1 x M.2 (3042/3052 B-Key) 1 x M.2 (2280 M-Key)
	SIM Socket	3	-	2	1	-
	SATA	1 x SATA III	2 x SATA III	1 x SATA III	1 x SATA III	1 x SATA III
External I/O	Drive Bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Option (2nd 2.5" in extended module)	1 x 2.5" removable drive bay	Option (1 x internal 2.5" drive)	1 x internal 2.5" drive
	SIM Socket	-	2	-	-	1 (Nano-SIM)
	Ethernet	2 x 10/100/1000 Mbp (RJ-45)	2 x 10/100/1000 Mbp (M12 X-code)	2 x 10/100/1000 Mbp (RJ-45)	-	1 x 10/100/1000/2500 Mbps (M12 X-code, w/ ESD protection)
	Power over Ethernet	4 x 10/100M bps PoE (E3845) *4 ports full-load, IEEE802.3af Class2 (7W) *2 ports full-load, IEEE802.3af Class3 (15.4W)	Optional (4/8 GbE PoE, M12 D/X-code in extended module) *IEEE802.3at compliant (full-load 34.2W)	4 x 10/100M bps PoE (i7-6600U) *4 ports full-load, IEEE802.3af Class2 (7W) *2 ports full-load, IEEE802.3af Class3 (15.4W)	4 x 10/100/1000Mbps (M12 X-code) *IEEE802.3af PoE with maximum 60W	4 x 10/100 Mbps PoE* (M12 X-code, i7-1365URE) * it can achieve speeds of up to GbE when using only 1x M12 X-code port. * IEEE802.3af PoE with maximum 60W
	COM	2 x RS-232/422/485 (DB-9) 2 x RS-232/422/485 (DB-9, isolation, E3845)	2 x RS-232/422/485 (DB-9)	2 x RS-232/422/485 (DB-9) 2 x RS-232/422/485 (DB-9, isolation, i7-6300U)	2 x RS-232/422/485 (DB-9)	1 x RS-232/422/485 (M12 A-code, w/ ESD protection)
	CANBus	Optional (CANBus 2.0A/B, 1 x COM will be replaced)	Optional	Optional (CANBus 2.0A/B, 1 x COM will be replaced)	-	1 x CANbus 2.0 A/B (M12 A-code, ESD protection)
	USB	1 x USB 3.0 (Type A) 3 x USB 2.0 (Type A)	3 x USB 3.0 (Type A)	2 x USB 3.0 (Type A) 2 x USB 2.0 (Type A)	2 x USB 3.0/2.0 (Type A) 2 x USB 2.0 (M12 Type A)	1 x USB 3.0/2.0 (M20 Type A, w/ ESD) 1 x USB (M20 Type C, w/ ESD)
	GPIO	6 x DI & 2 x DO (phoenix, isolation)	4 x DI & 4 x DO (DB-9, isolation)	6 x DI & 2 x DO (phoenix, isolation)	-	4 x DI, 4 x DO (M12 A-code, w/ ESD protection)
	Remote Control/ DC Output	-	1 x Phoenix • Power ON/OFF • Reset • Power LED, HDD LED 5V & LED active 1 x Phoenix • 12V_DC output/1.5A	-	-	1 x M12 A-code (w/ ESD protection) • Power ON/OFF • Reset • 12V_DC output/1A
Power	Input Voltage	Nominal voltage 12/24V_DC (11~36Vdc range, power ignition management, isolation)	Nominal voltage 12/24V_DC (9~36V_DC range, power ignition management, isolation)	Nominal voltage 12/24V_DC (9~36V_DC range, power ignition management, isolation)	Nominal voltage 12/24VV_DC (for in-Vehicle) Nominal voltage 24V_DC (for rolling stock)	Nominal voltage 12/24V_DC (9~36V_DC range, power ignition management, isolation)
	Protection	-	-	-	Over Current Protection: 30A	Over Voltage Protection: 38.5V Over Current Protection: 30A ESD Protection: 8k contact/ 15kV air Surge Protection: 1kV (line to line)
	Regulation	ISO 7637-2 lev.4	ISO 7637-2 lev.4	ISO 7637-2 lev.4	EN50155 S2&C1	-
Environment	Temperature	-40-70C/-40-158°F	-20-70°C/-4-158°F	20-60°C/-4-140°F	-40-70C/-40-158°F * EN50155 TX	Operating: -40 ~71 °C / -40 ~ 159.8°F Storage: -40 ~ 85°C / -40 ~ 185°F (MIL-STD-810H)
	Humidity	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F	Storage: 95% @ 60°C / 140°F (non-condensina, MIL-STD-810H)
	Altitude	-	-	-	-	15000 ft (MIL-STD-810H)
	IP Rating	-	-	-	IP65	IP65
	Salt Fog	-	-	-	-	96 hours at 35°C/95°F (MIL-STD-810H)
	Vibration Resistance	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD-810H	IEC 60721-3-5 Class 5M3, MIL-STD-810H
	Shock Protection	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC 60721-3-5 Class 5M3	IEC 60068-2-27, MIL-STD-810H	IEC 60068-2-27, MIL-STD-810H
Physical	Dimensions (WxHxD)	264.5x69.2x133.0 mm / 10.41x2.72 x5.24 in	264x76.1x133 mm / 10.3x29.9x5.2 in	264.5x75.1x133.0 mm / 10.41 x 2.96x5.24 in	316x81x230 mm / 12.44 x 3.19 x 9.06 in (with wall-mounting)	285x180x115 mm / 11.22x7.08x4.52 in (w/ side panel heat sink) 260x180x115 mm / 10.23x7.08x4.52 in
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, ISO7637-2	CE/FCC Class A, EN61000-6-4, EN61000-6-2, ISO7637-2, MIL-STD-461
	Safety Certifications	UL, CCC, BSMI, CB, E-Mark	UL, CCC, BSMI, CB, E-Mark	UL, CCC, BSMI, CB, E-Mark	UL, CB, E-Mark, EN50155	UL, CB, E-Mark

Note: "-" : means Not Applicable (N/A)

Gaming Computing Platforms

Standalone Series

Model Name		DPX-S2455	DPX-S455	DPX-S2450	DPX-S450	DPX-S2445	DPX-S445	DPX-S2451	DPX-S451
Form Factor		DPX Gaming System	DPX Gaming Board	DPX Gaming System	DPX Gaming Board	DPX Gaming System	DPX Gaming Board	DPX Gaming System	DPX Gaming Board
Processor System	CPU	Intel 12/13th Generation Core		AMD Ryzen Embedded V1000/R1000 APU		Intel 6th / 7th Generation Core-i7/i5/i3		AMD Ryzen Embedded R2000 APU	
	Socket	LGA1700		BGA		LGA 1151		BGA	
	max. speed	1.10 (4.80) GHz		3.35 (3.8) GHz		2.9 GHz (3.8) GHz		3.35 (3.7) GHz	
	TDP	35W		45W		54W		45W	
	Chipset	H610E		SoC		Q170		SoC	
	BIOS	AMI APTIO UEFI (Gaming optimised)		AMI APTIO UEFI (Gaming optimised)		AMI APTIO UEFI (Gaming optimised)		AMI APTIO UEFI (Gaming optimised)	
Expansion Slot	PCI	-		-		-		-	
	MINI PCIe/ mSATA	-		-		-		-	
	PCIe	PCIe x 16		PCIe x 16 (x8 signal)		PCIe x 16		PCIe x 16 (x8 signal)	
	MXM	-		-		-		-	
Memory	Technology	Single Channel DDR5 4800MHz		Dual Channel DDR4 3200MHz		Dual Channel DDR4 2400MHz		Dual Channel DDR4 3200MHz	
	Max. Capacity	32GB		32GB		32GB		32GB	
	Socket	1x SODIMM		2x SODIMM		2x SODIMM		2x SODIMM	
Graphics	Controller	in CPU (Intel UHD Graphics 770)		in APU (AMD Radeon VEGA series graphics engine)		in CPU (Intel GT2-530)		in APU (AMD Radeon VEGA graphics engine)	
	VGA	-		-		-		-	
	DVI	-		-		-		-	
	DP	3		4		3		4	
	HDMI	-		-		-		-	
Ethernet	LAN1	GbE		GbE		GbE		GbE	
	LAN2	GbE		GbE		GbE		GbE	
Storage	SATA	1		2		2		2	
	CompactFlash	-		-		-		-	
	Cfast	-		2		-		2	
	M.2	1		1		-		1	
Rear I/O	VGA/ DVI/ HDMI/ DP	0/0/0/3		0/0/0/4		0/0/0/3		0/0/0/4	
	Ethernet	2		2		2		2	
	USB 2.0	6		8		9		8	
	USB 3.0	3		3		2		3	
	Audio	1 (ch5.1), SPDIF		1 (ch5.1), SPDIF		1 (ch5.1), SPDIF		1 (ch5.1), SPDIF	
	Serial Port	10		10		10		10	
	Serial Type RS232/ Cctalk/ TTL/485	10/2/2/1		9/2/2/1		10/2/2/1		9/2/2/1	
Gaming Hardware	SRAM	8MB		8MB		8MB		8MB	
	ROM Sockets	SPI ROM module		SPI ROM module		SPI ROM module		SPI ROM module	
	TPM	TPM 2.0		TPM 2.0/1.2		TPM 2.0/1.2		TPM 2.0/1.2	
	Audio Amplifier	-		15W+15W+15W (FL,FR, LFE)		15W+15W+15W (FL,FR, LFE)		15W+15W+15W (FL,FR, LFE)	
	Digital Inputs	32 (ESD protected)		32 (ESD protected)		32 (ESD protected)		32 (ESD protected)	
	Digital Outputs	32 (OC 500mA 50V)		32 (OC 500mA 50V)		32 (OC 500mA 50V)		32 (OC 500mA 50V)	
	Intrusion Inputs	8		8		8		8	
	iButton/ GPIO	2		2		2		2	
	DPCI Expansion	-		-		-		-	
	Watchdog Timer	1		1		1		1	
	Dual BIOS	-		-		-		-	
Gaming Software	DPCI Advanced Gaming API & Runtime	Standard		Standard		Standard		Standard	
	DPX Connector Peripherals Libraries	Standard		Standard		Standard		Standard	
	Embedded OS Support	Standard		Standard		Standard		Standard	
	BIOS Customization	Optional		Optional		Optional		Optional	
	DPX SAS Connector	Optional		Optional		Optional		Optional	
	Media Validation Toolkit	Optional		Optional		Optional		Optional	
Other Features		I2C, Precision RTC, ATX or 12VDC power		I2C, Precision RTC, ATX or 12VDC power		I2C, Precision RTC, ATX or 12VDC power		I2C, Precision RTC, ATX or 12VDC power	

Note: "-" : means Not Applicable (N/A)

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Gaming Computing Platforms

Economy Series

Model Name		DPX-E145	DPX-E140
Form Factor		DPX Gaming System	DPX Gaming System
Processor System	CPU	11th Generation Intel Core SOC CPU	AMD Ryzen Embedded V1000/R1000 APU
	Socket	BGA	BGA
	max. speed	2.8 (4.4) GHz	3.35 (3.8) GHz
	TDP	28W (passive cooled)	15-25W (passive cooled), 54W (fan)
	Chipset	SoC	SoC
	BIOS	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)
Expansion Slot	PCI	-	-
	MINI PCIe/mSATA	-	-
	PCIe	-	-
	MXM	-	-
Memory	Technology	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz
	Max. Capacity	32GB	32GB
	Socket	2x SODIMM	2x SODIMM
Graphics	Controller	in CPU (Intel Iris Xe integrated graphics engine)	in APU (AMD Radeon VEGA series graphics engine)
	VGA	-	-
	DVI	-	-
	DP	4	4
	HDMI	-	-
Ethernet	LAN1	GbE	GbE
	LAN2	GbE	GbE
Storage	SATA	2	2
	CompactFlash	-	-
	Cfast	2	2
	M.2	1	1
Rear I/O	VGA/DVI/HDMI/DP	0/0/0/4	0/0/0/4
	Ethernet	2	2
	USB 2.0	6	7
	USB 3.0	3	2
	Audio	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF
	Serial Port	9	9
	Serial Type RS232/Cctalk/TTL/485	4/2/1/1	4/2/1/1
Gaming Hardware	SRAM	8MB	8MB
	ROM Scokets Sockets	SPI ROM module	SPI ROM module
	TPM	TPM 2.0/1.2	TPM 2.0/1.2
	Audio Amplifier	20W+20W (FL, FR)	20W+20W (FL, FR)
	Digital Inputs	32 (ESD protected)	32 (ESD protected)
	Digital Outputs	32 (OC 500mA 50V)	32 (OC 500mA 50V)
	Intrusion Inputs	8	8
	iButton / GPIO	2	2
	DPCI Expansion	-	-
	Watchdog Timer	1	1
	Dual BIOS	-	-
Gaming Software	DPCI Advanced Gaming API & Runtime	Standard	Standard
	DPX Connector Peripherals Libraries	Standard	Standard
	Embedded OS Support	Standard	Standard
	BIOS Customization	Optional	Optional
	DPX SAS Connector	Optional	Optional
	Media Validation Toolkit	Optional	Optional
Other Features		ATX or 12VDC power	ATX or 12VDC power

Note: "-" : means Not Applicable (N/A)

Jamma Series

Model Name		DPX-J100
Form Factor		Extended Mini-ITX
Processor System	CPU	AMD Ryzen Embedded V1000/R1000 APU
	Socket	BGA
	max. speed	2.6 (3.5) GHz
	TDP	15W
	Chipset	SoC
	BIOS	AMI APTIO UEFI BIOS
Expansion Slot	PCI	-
	MINI PCIe/mSATA	half mini-PCI
	PCIe	-
	MXM	-
Memory	Technology	Dual Channel DDR4 2400MHz
	Max. Capacity	32GB
	Socket	2x SODIMM
Graphics	Controller	in APU (AMD Radeon VEGA series graphics engine)
	VGA	1
	DVI	-
	DP	1
	HDMI	1
Ethernet	LAN1	GbE
	LAN2	GbE
Storage	SATA	1
	CompactFlash	-
	Cfast	1
	M.2	1
Rear I/O	VGA/DVI/HDMI/DP	1/0/1/1
	Ethernet	2
	USB 2.0	4
	USB 3.1	2
	Audio	1 (ch5.1), SPDIF (Option)
	Serial Port	6
	Serial Type RS232/Cctalk/TTL/485	3/2/0/1
Gaming Hardware	FRAM (NVRAM	Option for FRAM (2 banks) up to 2MB total. (Default is zero FRAM)
	ROM Scokets Sockets	-
	TPM	TPM2.0 (Option)
	Audio Amplifier	6W+6W (FL, FR)
	Digital Inputs	24 (ESD protected)
	Digital Outputs	24 (500mA), 5 (2A)
	Intrusion Inputs	8
	iButton / GPIO	iButton/ one-wire (Option)
	DPCI Expansion	-
	Watchdog Timer	-
	Dual BIOS	-
Gaming Software	DPCI Advanced Gaming API & Runtime	N/A
	DPX Connector Peripherals Libraries	Standard
	Embedded OS Support	Standard
	BIOS Customization	Optional
	DPX SAS Connector	Optional
	Media Validation Toolkit	Optional
Other Features		12VDC for V1605, 5, 12V JAMMA input for R series

Note: "-" : means Not Applicable (N/A)

Gaming Computing Platforms

Modular Series

Model Name	DPX-M266	DPX-M1266	DPX-M270	DPX-M1270	DPX-E265	DPX-E1265
Form Factor	Extended Mini-ITX	DPX Gaming System	Extended Mini-ITX	DPX Multimedia Gaming System	Extended Mini-ITX	DPX Gaming System
Processor System — CPU	AMD Ryzen Embedded R2000 APU		Intel 8th & 9th Gen. Core-i7/i5/i3		AMD Ryzen Embedded V1000 APU	
Socket	BGA		LGA1151		BGA	
max. speed	3.35 (3.7) GHz		3.2(4.6) GHz		3.35 (3.8) GHz	
TDP	Up to 54W		65W		54W	
Chipset	SoC		Q370/H310		SoC	
BIOS	AMI UEFI SPI with Media validation/ OPROM support		AMI UEFI SPI with Secureboot support		AMI APTIO UEFI (Gaming optimised)	
Expansion Slot — PCI	-		-		-	
MINI PCIe/ mSATA	-		-		-	
PCIe x 16	PCIe x16 slot, Gen 3 (x8 electrical, x4 with R2312 APU)		PCIe x16 Gen3		PCIe x16 (x8 signal)	
Side Expansion Port	2x PCIe x1, 2x USB2.0 ports, 5x intrusion/DI inputs. (R2312 APU supports 1x PCIe, 2 USB)		2 PCIe x1, 2(1) USB, I2C, Control		2 PCI-e x1 (via side expansion)	
MXM	-		-		-	
Memory — Technology	32GB		Dual Channel DDR4 2666 MHz SDRAM (Non-ECC)		Dual Channel DDR4 3200MHz	
Max. Capacity	2x SODIMM		32 GB/ 16 GB per SO-DIMM		32GB	
Socket	2x 260 PIN DDR4 SO-DIMM		2 x 260 PIN DDR4 SO-DIMM		2x SODIMM	
Graphics — Controller	Radeon VEGA GPU with up to 8 compute units		Intel UHD Graphics 630 / Intel HD Graphics 615		in APU (AMD Radeon VEGA series graphics engine)	
VGA	-		-		-	
DVI	-		-		-	
DP	4x DP++ (3 with R2312)		2		4	
HDMI	-		1		-	
Ethernet — LAN1	GbE		GbE		GbE	
LAN2	GbE		GbE		GbE	
Storage — SATA	2		2		2	
CompactFlash	-		-		-	
Cfast	2		-		2	
M.2	1		1		1	
Rear I/O — VGA/ DVI/ HDMI/ DP	0/0/0/4		0/0/1/2		0/0/0/4	
Ethernet	2		2		2	
USB 2.0	2		10 (Q370. 2 via side expansion) / 6 (H310. 1 via side expansion)		6 (2 via side expansion)	
USB 3.0	3		4		3	
Audio	6		6-Way header (Line-out (FL, FR, LFE), SPDIF_Out)		1 (ch2.1)	
Serial Port	2 x (RS-232 full signal, supports 9 bit data) COM1 & COM2		2 x DB-9 RS-232 full signal, supports 9 bit data)		6	
Serial Type RS232/ Cctalk/ TTL/485	6/1/1/1		6/1/1/0		6/1/1/1	
Gaming Hardware — SRAM	-		-		-	
ROM Sockets	SPI ROM module		-		SPI ROM module	
TPM	TCG TPM 2.0 device (soldered).		TPM2.0		TPM 2.0/1.2	
Audio Amplifier	-		-		-	
Digital Inputs	-		-		-	
Digital Outputs	-		-		-	
Intrusion Inputs	5 (4 via side expansion)		5 (4 via side expansion)		1	
iButton/ GPIO	-		-		-	
DPCI Expansion	-		-		-	
Watchdog Timer	1		1		1	
Dual BIOS	-		-		-	
Gaming Software — DPCI Advanced Gaming API & Runtime	N/A		N/A		N/A	
DPX Connector Peripherals Libraries	Standard		Standard		Standard	
Embedded OS Support	Standard		Standard		Standard	
BIOS Customization	Optional		Optional		Optional	
DPX SAS Connector	Optional		Optional		Optional	
Media Validation Toolkit	Optional		Optional		Optional	
Other Features	ATX or 12VDC power		12VDC power		ATX or 12VDC power	

Note: "-" : means Not Applicable (N/A)

Industrial Wireless Solutions

AIWireless
Advantech Industrial Wireless

AIW 100 Series

Wi-Fi and Bluetooth Combo

Model Name	AIW-162BS	EWM-W165M201E	AIW-170BQ	AIW-171HQ	EWM-W179M201E	EWM-W180H01E
Chipset	BCM43752	Intel AX210	WCN6856	WCN6856	RTL8852BE	RTL8822CU
Wireless Generation	Wi-Fi 6+BT 5.0	Wi-Fi 6E+BT 5.3	Wi-Fi 6E+BT 5.3	Wi-Fi 6E+BT 5.3	Wi-Fi 6+BT 5.2	Wi-Fi 5+ BT 5.0
Form Factor	M.2 2230 E-Key	M.2 2230 A+E Key	M.2 2230 E-Key	Half-Size Mini-PCIe	M.2 2230 A+E Key	Half-Size Mini-PCIe
Interface	Wi-Fi: PCIe BT: UART	Wi-Fi: PCIe BT: USB	Wi-Fi: PCIe BT: USB	Wi-Fi: PCIe BT: USB	Wi-Fi: PCIe BT: USB	Wi-Fi: USB BT: USB
Antenna Information	2 x MHF4 connectors	2 x MHF4 connectors	2 x MHF4 connectors	2 x MHF1 connectors	2 x MHF4 connectors	2 x MHF1 connectors
Advanced Security	WPA/WPA2/WPA3					WPA/WPA2
Operating Temperture Range	-40 ~ 85°C	0 ~ 70°C	-40 ~ 85°C		0 ~ 70°C	-20 ~ 70°C
OS Support*	Linux/Android	Windows/Linux on X86	Windows/Linux	Windows/Linux	Windows/Linux/Android	Windows/Linux/Android
Maximum Data Rate**	1200Mbps					866Mbps
Certification	FCC/CE/IC/TELEC	Multiple certificates authorized by Intel	FCC/CE/IC/TELEC/NCC/KC	FCC/CE/IC	Multiple certificates authorized by Realtek	FCC/CE/IC/TELEC
Recommened Antenna	AIW-512	AIW-511	AIW-512			

* Some features are only suported in Windows 11 and Windows 7 is no longer on the ADV support list. Linux support depends on the kernel version.

**Maximum datarate is based on the theoretical value of Wi-Fi technology.

AIW 200 Series

GPS / GNSS

Model Name	AIW-210	AIW-212	AIW-213
Part Number	AIW-210XU-001	AIW-212HU-001	AIW-213HU-001
Chipset	NEO-M9N	NEO-M9N	NEO-M9V
GPS Signal Type	L1	L1	L1
Form Factor	M.2 2242 B-Key	Half-Size Mini-PCIe	Half-Size Mini-PCIe
Signal Protocol	USB 2.0	USB 2.0	USB 2.0
Operating Temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
RF Receiver Type	GPS module, multi-GNSS (GPS/BeiDou/Galileo/GLONASS/QZSS/SBAS)	GPS module, multi-GNSS (GPS/BeiDou/Galileo/GLONASS/QZSS/SBAS)	GPS module, multi-GNSS (GPS/BeiDou/Galileo/GLONASS/QZSS/SBAS)
GPS Acquisition	Cold Start: 24s, Hot Start: 2s, Aided Start: 2s	Cold Start: 24s, Hot Start: 2s, Aided Start: 2s	Cold Start: 24s, Hot Start: 2s, Aided Start: 3s
GPS Accuracy	1.5m CEP with SBAS assistance	1.5m CEP with SBAS assistance	1.5m CEP with SBAS assistance
GPS Sensitivity	Tracking & Navigation: -167 dBm Reacquisition: -160 dBm Cold Start: -148 dBm	Tracking & Navigation: -167 dBm Reacquisition: -160 dBm Cold Start: -148 dBm	Tracking & Navigation: -159 dBm Reacquisition: -158 dBm Cold Start: -147 dBm
Dead Reckoning	No	No	Yes
Antenna Information	1 x MHF1 connectors	1 x MHF1 connectors	1 x MHF1 connectors
Recommended Antenna	AIW-520	AIW-520	AIW-520

Industrial Wireless Solutions

AIW 300 Series

4G LTE CAT6

NEW

Model Name	AIW-340
Part Number	AIW-340CQ-GI1
Chipset	Qualcomm SDX12
Radio Technology	LTE Cat.6 + GPS
Form Factor	M.2 3042 B-Key
SIM Slot	No
Signal Protocol	USB 3.1
Downlink/Uplink	600Mbps/150Mbps
Frequency Band	LTE FDD: Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 18, 19, 20, 25, 26, 28, 29, 32, 66, 71 LTE TDD: Band 38, 39, 40, 41, 42, 43, 48 WCDMA: Band 1, 2, 4, 5, 6, 8, 9, 19
Operating Temperature	Extended: -40°C ~ 85°C
Support Area	Global
Antenna Information	2 x MHF4 connectors
Recommended Antenna	AIW-531

4G LTE CAT4

Model Name	AIW-343		
Part Number	AIW-343FQ-N01	AIW-343FQ-E01	AIW-343FQ-J01
Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07	Qualcomm MDM9X07
Radio Technology	LTE Cat.4 + GPS	LTE Cat.4 + GPS	LTE Cat.4 + GPS
Form Factor	Full-size Mini-PCIe	Full-size Mini-PCIe	Full-size Mini-PCIe
SIM Slot	Yes	Yes	Yes
Signal Protocol	USB 2.0	USB 2.0	USB 2.0
Downlink/Uplink	150Mbps/50Mbps	150Mbps/50Mbps	150Mbps/50Mbps
Frequency Band	4G: Band 2, 4, 5, 12, 13, 14, 66, 71 3G: Band 2, 4, 5	4G: Band 1, 3, 7, 8, 20, 28A 3G: Band 1, 3, 8 2G: Band 3, 8	4G: Band 1, 3, 5, 8, 9, 18, 19, 26, 28 3G: Band 1, 5, 6, 8, 19
Operating Temperature	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C
Support Area	NA	EU, TW	JP, Australia
Antenna Information	3 x MHF1 connectors	3 x MHF1 connectors	3 x MHF1 connectors
Recommened Antenna	AIW-531	AIW-531	AIW-531

Industrial Wireless Solutions

4G LTE CAT4

Model Name	AIW-344		
Part Number	AIW-344FQ-N01	AIW-344FQ-E02	AIW-344FQ-J01
Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07	Qualcomm MDM9X07
Radio Technology	LTE Cat.4 + GPS	LTE Cat.4 + GPS	LTE Cat.4 + GPS
Form Factor	Full-size Mini-PCIe	Full-size Mini-PCIe	Full-size Mini-PCIe
SIM Slot	No	No	No
Signal Protocol	USB 2.0	USB 2.0	USB 2.0
Downlink/Uplink	150Mbps/50Mbps	150Mbps/50Mbps	150Mbps/50Mbps
Frequency Band	LTE FDD: Band 2,4,5,12,13,17,66,71 WCDMA: Band 2,4,5	FDD-LTE: Band 1,3,5,7,8,20,28 TDD-LTE: Band 38,40,41 HSPA/UMTS:Band 1,5,8 GSM/GPRS/EDGE850/900/1800MHz	LTE FDD: band1,3,8,11,18, 19,21,26,28 LTE TDD: Band41 WCDMA/HSPA+: Band1,6,8,19
Operating Temperature	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C
Support Area	NA	EU, TW, Australia, Brazil	JP
Antenna Information	3 x MHF1 connectors	3 x MHF1 connectors	3 x MHF1 connectors
Recommened Antenna	AIW-531	AIW-531	AIW-531

Model Name	AIW-346	
Part Number	AIW-346FQ-N01	AIW-346FQ-N02
Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07
Radio Technology	LTE Cat.4 + GPS	LTE Cat.4 + GPS
Form Factor	Full-size Mini-PCIe	M.2 3052 B-Key
SIM Slot	Yes	Yes
Signal Protocol	USB 2.0	USB 2.0
Downlink/Uplink	150Mbps/50Mbps	150Mbps/50Mbps
Frequency Band	LTE bands: 2/4/5/12/13/14/66/71 WCDMA bands: 2/4/5	LTE bands: 2/4/5/12/13/14/66/71 WCDMA bands: 2/4/5
Operating Temperature	-30 ~ 80°C	-30 ~ 80°C
Support Area	US	US
Antenna Information	3 x MHF1 connectors	3 x MHF1 connectors
Recommened Antenna	AIW-531	AIW-531

Industrial Wireless Solutions

5G NR FR1

AIWireless
Advantech Industrial Wireless

Model Name	AIW-356			
Part Number	AIW-356DQ-N01	AIW-356DQ-E01	AIW-356DQ-C01	AIW-356DQ-JK1
Chipset	Qualcomm SDX62	Qualcomm SDX62	Qualcomm SDX62	Qualcomm SDX62
Radio Technology	5G FR1 + GPS	5G FR1 + GPS	5G FR1 + GPS	5G FR1 + GPS
Form Factor	M.2 3052 B-Key	M.2 3052 B-Key	M.2 3052 B-Key	M.2 3052 B-Key
SIM Slot	No	No	No	No
Signal Protocol	USB 3.1	USB 3.1	USB 3.1	USB 3.1
Downlink/Uplink	Max DL peak rate 3.47 Gbps, Max UL peak rate 555 Mbps	Max DL peak rate 3.2 Gbps, Max UL peak rate 555 Mbps	Max DL peak rate 2.4 Gbps, Max UL peak rate 555 Mbps	Max DL peak rate 3.2 Gbps, Max UL peak rate 555 Mbps
Frequency Band	NSA: n2/5/12/25/30/41/66/71/77 SA: n2/5/12/14/25/30/41/48/66/70/71/77 TDD-LTE: Band 41/48/46 (LAA) FDD-LTE: Band 2/4/5/12/13/29/30/66/71	NSA: n1/3/5/7/8/20/28/38/40/77/78 SA: n1/3/5/7/8/20/28/38/40/41/75/76/77/78 TDD-LTE: Band 38/40/41/42/43 FDD-LTE: Band 1/3/5/7/8/20/28/32 WCDMA: Band 1/5/8	NSA: n41/78/79 SA: n1/28/41/78/79 TDD-LTE: Band 34/38/39/40/41 FDD-LTE: Band 1/3/5/8 WCDMA: Band 1/8	NSA: n1/3/28/41/77/78/79 SA: n1/3/7/8/28/41/77/78/79 TDD-LTE: Band 39/41/42 FDD-LTE: Band 1/3/5/7/8/18/19/26/28
Operating Temperature	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C	Extended: -40°C ~ 85°C
Support Area	NA	EU, Brazil	China	JP, South Korea
Antenna Information	4 x MHF4 connectors	4 x MHF4 connectors	4 x MHF4 connectors	4 x MHF4 connectors
Recommened Antenna	AIW-532	AIW-532	AIW-532	AIW-532

Model Name	AIW-357	
Part Number	AIW-357DK-G1P	AIW-357DK-G2U
Chipset	MediaTek T700	MediaTek T700
Radio Technology	5G FR1 + GPS	5G FR1 + GPS
Form Factor	M.2 3052 B-Key	M.2 3052 B-Key
SIM Slot	No	No
Signal Protocol	PCIe	USB 3.1
Downlink/Uplink	Max DL peak rate 2.97 Gbps, Max UL peak rate 1150 Mbps	Max DL peak rate 2.97 Gbps, Max UL peak rate 1150 Mbps
Frequency Band	NSA: n1/2/3/5/8/20/28/38/41/66/71/77/78/79 SA: n1/2/3/5/7/8/20/25/28/30/38/40/41/48/66/71/ 77/78/79 LTE: B1/2/3/4/5/7/8/12/13/ 14/17/18/19/20/25/26/ 28/29/30/32/34/38/39/ 40/41/42/43/46/48/66/ 71 WCDMA: Band 1/2/4/5/8	NSA: n1/2/3/5/8/20/28/38/41/66/71/77/78/79 SA: n1/2/3/5/7/8/20/25/28/30/38/40/41/48/66/71/ 77/78/79 LTE: B1/2/3/4/5/7/8/12/13/ 14/17/18/19/20/25/26/ 28/29/30/32/34/38/39/ 40/41/42/43/46/48/66/ 71 WCDMA: Band 1/2/4/5/8
Operating Temperature	Extended: -30 ~ 80°C	Extended: -30 ~ 80°C
Support Area	US, EU, TW, JP	US, EU, TW, JP
Antenna Information	4 x MHF4 connectors	4 x MHF4 connectors
Recommened Antenna	AIW-533	AIW-533

Industrial Wireless Solutions

AIW 500 Series

Antennas

Model Name	AIW-512	AIW-513	AIW-520
Antenna Type	Dipole	Dipole	Patch
Frequency	2.4-2.5GHz, 5.15-5.85GHz 5.925-7.125GHz	2.4-2.5GHz, 5.15-5.85GHz 5.925-7.125GHz	L1: 1575.42MHz B2: 1561.098MHz GNSS: 1602MHz
Antenna Peak Gain	2.87dBi @2.4GHz 3.11dBi @5GHz 3.22dBi @6GHz	2.06dBi @2.4-2.5GHz, 4.16dBi @5.15-5.85GHz, 4.61dBi @6-7.125GHz	Antenna: 3dBicLNA: 28+/- 2db
Length (cm)	11.1 x 1.0	23 x 2.2	2.5*2.5*0.4wire length: 500 cm
Connector	RP-SMA male	RP-SMA male	SMA male
IP Level	IP55	IP65	-
Operating Temperature	-10 ~ 55°C	-40 ~ 70°C	-40 ~ 85°C

Model Name	AIW-532	AIW-533	AIW-534
Antenna Type	Dipole	Dipole	Dipole
Frequency	699~960MHz, 1710~2700MHz, 3300~5000MHz, 5150~5850MHz	0.6-6GHz	699~960MHz, 1710~2700MHz, 3300~5000MHz, 5150~5850MHz
Antenna Peak Gain	1.78dBi @699~960MHz, 3.27dBi @1710~2700MHz, 0.18dBi @3300~5000MHz, 4.02dBi @5150~5850MHz	2dBi @617~960MHz, 2.6dBi @1450~2700MHz, 3.5dBi @3300~5000MHz, 3.7dBi @5150~5850MHz	1.49dBi @699~960MHz, 2.62dBi @1710~2700MHz, 3.59dBi @3300~5000MHz, 3.83dBi @5150~5850MHz
Length (cm)	13 x 2.5	13.4 x 1.9	23 x 2.2
Connector	SMA male	SMA male	SMA male
IP Level	-	-	IP65
Operating Temperature	-25 ~ 70°C	-30 ~ 65°C	-40 ~ 70°C

Industrial Wireless ePaper Solutions

EPD Device

Product		EPD-203-B	EPD-210	EPD-230	EPD-232
Product	Screen Size	2.13"	2.9"		
	Resolution	122 x 250 pixels	296 x 128 pixels		
	Display Color	3 Colors (Black,White,Red)	2 Colors (Black,White)		3 Colors (Black,White,Red)
Button/Indicator		LED x 1 (7 colors)	NA	LED x 3 (1 color), Button x 3	
Dimensions		80.9 x 39 x 10.8 mm	101 x 58 x 4 mm w/o fastener	100 x 47 x 17.9 mm	
Network		BLE 5.4, 2.4G	NFC	Zigbee 2.4GHz	
Power		Battery CR2032 x 2	NFC Power Harvesting	Battery CR2450 x 4	
Operating Temperature		0 ~ 40°C	0 ~ 40°C	0 ~ 50°C	0 ~ 40°C
Storage Temperature		-25 ~ 60°C	-25 ~ 60°C	-25 ~ 60°C	-25 ~ 60°C
Certifications		TBD	Not Necessary	CE/FCC/NCC/UL/CB/Telec	
Ordering Information		EPD-203-B1B01	EPD-210-001	EPD-230-011	EPD-232-011

Product		EPD-303-N	EPD-333	EPD-707-W	EPD-702-B
Product	Screen Size	3.7"	5.6"	7.3"	7.5"
	Resolution	240 x 416 pixels	122 x 250 pixels	800 x 480 pixels	480 x 800 pixels
	Display Color	3 Colors (Black,White,Red)	7 Colors (Black, White, Red, Yellow, Blue, Green, and Orange)	7 Colors (Black, White, Red, Yellow, Blue, Green, and Orange)	2 Colors (Black,White)
Button/Indicator		NA	LED x 1 (2 colors), Button x 1	NA	LED x 2 (7 colors), Button x 1
Dimensions		62.5 x 110.9 x 5.2 mm	118.3 x 140 x 14 mm	174.1 x 116.3 x 21 mm	38 x 145.6 x 15.4 mm
Network		NFC	Zigbee 2.4GHz	Wi-Fi 2.4GHz	BLE 5.4, 2.4GHz
Power		NFC Power Harvesting	Battery CR2450 x 4	Battery capacity 3000mAh/5V & DC5V/2A	Battery CR2450 x 6
Operating Temperature		0 ~ 40°C	15 ~ 35°C	15 ~ 35°C	0 ~ 50°C
Storage Temperature		-25 ~ 60°C	-25 ~ 60°C	-25 ~ 60°C	-25 ~ 70°C
Certifications		Not Necessary	CE/FCC/NCC/UL/CB	NCC/FCC/CE/VCCI	NCC/FCC/CE/VCCI
Ordering Information		EPD-303-N1001	EPD-333-011	EPD-707-W1B01	EPD-702-B1B01

Product		EPD-660	EPD-662	EPD-258-D	EPD-262-L	EPD-262-C
Product	Screen Size	13.3"		25.3"	13.3" x 2	
	Resolution	1600 x 1200 pixels		3200 x 1800 pixels	1600 x 1200 pixels x 2	
	Display Color	2 Colors (Black,White)	3 Colors (Black,White,Red)	>30k colors	2 Colors (Black,White)	
Button/Indicator		LED x 1 (2 colors), Button x 5		NA	NA	
Dimension		328 x 235 x 23 mm		602.4 x 353.4 x 37.5 mm	682.8 x 334.8 x 69 mm	
Network		Wi-Fi 2.4GHz		Wi-Fi 2.4GHz	4G/LTE	USB 2.0
Power		Battery capacity 8233mAh/5V & DC5V/2A		DC20V/2.25A	DC12V/3A	
Operating Temperature		0 ~ 50°C	0 ~ 40°C	15 ~ 35°C	-15 ~ 65°C	
Storage Temperature		-10 ~ 60°C	-10 ~ 50°C	-25 ~ 50°C	-25 ~ 70°C	-25 ~ 70°C
Certifications		CE/FCC/NCC/UL/CB/Telec		NCC/FCC/CE/VCCI	by Project	
Ordering Information		EPD-660-002 (w/ battery) EPD-660-102 (w/o battery)	EPD-662-003 (w/ battery) EPD-660-103 (w/o battery)	EPD-258-W1D00	EPD-262-L1D01	EPD-262-C1D01

Industrial Wireless ePaper Solutions

EPD Module

| Product		EPM-203	EPM-023B1	EPM-507-C
Product	Screen Size	2.13"	2.9"	5.6"
	Resolution	122 x 250 pixels	296 x 128 pixels	122 x 250 pixels
	Display Color	3 Colors (Black,White,Red)	2 Colors (Black,White)	7 Colors (Black, White, Red, Yellow, Blue, Green, and Orange)
Dimension	ePaper Display Panel	29.2 x 59.2 x 1.0 mm	79.0 x 36.7 x 1.17 mm	99.5 x 125.4 x 0.91 mm
	PCBA	Main Board: 73.5 x 29.2 x 5.45 mm IO Board: 43 x 36 x 5 mm	Main Board: 89 x 36.8 x 5.86 mm IO Board: 43 x 36 x 5 mm	Main Board: 89 x 36.8 x 5.86 mm IO Board: 43 x 36 x 5 mm
IO	RS-485 (USB-C connector)	1	1	1
	USB	1	1	1
	Interactive	LED x 1 (7 colors)	LED x 3 (1 color), Button x 3	LED x 1(2 colors), Button x 1
	Reset Button	1	0	0
	GPIO	12	6	6
Power	Battery (Optional)	CR2032 x 2	CR2450 x 4	CR2450 x 4
	DC-in	USB-C, 5V/0.2A	USB-C, 5V/0.2A	USB-C, 5V/0.5A
Operating Temperature		0 ~ 40°C	0 ~ 50°C	15 ~ 35°C
Storage Temperature		-25 ~ 60°C	-25 ~ 60°C	-25 ~ 60°C
Certification		FCC/NCC/CE	FCC/NCC/CE/Telec	FCC/NCC/CE/Telec
Ordering Information		EPM-203-B1D01	EPD-023B1AG-NTC01	EPM-507-C1D01

Product		EPM-702-C	EPM-132-C	EPM-880
Product	Screen Size	7.5"	13.3"	31.2"
	Resolution	480 x 800 pixels	1600 x 1200 pixels	2560 x 1440 pixels
	Display Color	2 Colors (Black,White)	3 Colors (Black,White,Red)	2 Colors (Black,White for 16 Gray Level)
Dimensions	ePaper Display Panel	111.2 x 170.2 x 1.2 mm	285.8 x 213.65 x 2.04 mm	697.2 x 402.8 x 0.805 mm
	PCBA	Main Board: 73.5 x 29.2 x 5.45 mm IO Board: 43 x 36 x 5 mm Panel Board: 53 x 24 x 3.5 mm	Main Board: 122 x 108 x 1.6 mm Power Board: 120 x 36 x 1.6 mm	400 x 65 x 14.6 mm
IO	RS-485 (USB-C connector)	1	NA	NA
	USB	1	1	1
	Interactive	LED x 2 (7 colors), Button x 1	NA	NA
	Reset Button	1	1	1
	GPIO	12	8	8
Power	Battery (Optional)	CR2450 x 6	8233mAh/5V	NA
	DC-in	USB-C, 5V/0.2A	USB-C, 5V/3A	DC, 12V/0.5A
Operating Temperature		0 ~ 50°C	0 ~ 40°C	0 ~ 50°C
Storage Temperature		-25 ~ 70°C	-10 ~ 50°C	-25 ~ 70°C
Certification		FCC/NCC/CE	FCC/NCC/CE/Telec	FCC/NCC/CE/Telec
Ordering Information		EPM-702-C1D01	EPM-132-C1D01	EPM-880-101

Product	Reference Design	EPM-203	EPM-023B1	EPM-507-C	EPM-702-C	EPM-132-C	EPM-880
Outline Dimensions	131.5 x 39.5 x 16 mm	75.5 x 70 x 15.1 mm	117 x 52.7 x 16.9 mm	TBD	178.5 x 129.6 x 9.2 mm	420 x 271 x 26.7 mm	733 x 435 x 64 mm

Industrial Wireless ePaper Solutions

EPD Router and Reader
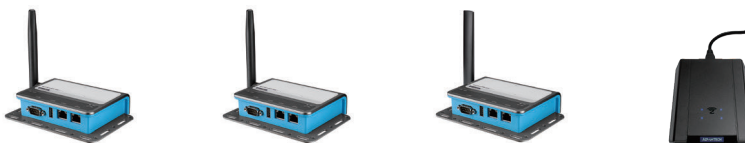
Product	WISE-3250	WISE-3240	WISE-3220	WISE-3270	EPR-210
Network	BLE 5.4, 2.4GHz	Zigbee 2.4GHz	WiFi 2.4GHz	4G/LTE	NFC Reader
Available Connections	Max. 400 pcs EPD-203/EPD-702	Max. 400 pcs EPD-230/EPD-232/EPD-333	Max. 100 pcs EPD-660/EPD-662	1 pc EPD-262	1 pc EPD-210/EPD-303
Power	DC12V/2A	DC12V/2A	DC12V/2A	DC12V/2A	Micro USB 5V/0.5A
Operating Temperature	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C	0 ~ 70°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Dimensions	143 x 101 x 30 mm	143 x 101 x 30 mm	143 x 101 x 30 mm	143 x 101 x 30 mm	121 x 74.2 x 14.5 mm
Certification	CE/FCC/NCC	CE/FCC/NCC	CE/FCC/NCC	CE/FCC/NCC	NA
Ordering Information	WISE-3250IOS-41A1T for Taiwan	WISE-3240IOS-41A1T for Taiwan	WISE-3220IOS-21A1T for Taiwan	WISE-3270IOS-71A2T for Taiwan	LEO-D30-RD1

Enterprise Server

Product	ARK-2250 A2
Description	Intel® i7-6600U, 1TB HDD, 16GRAM, ADP
Software	Ubuntu 18.4 with DeviceOn/ePaper
Available Connections	10,000 pcs (EPD-203/EPD-230/EPD-232/EPD-333/EPD-702 500pcs EPD-707/EPD-660/EPD-662/EPD-258/EPD-262)
Power	DC12V/5A
Operating Temperature	0 ~ 45°C
Storage Temperature	-40 ~ 85°C
Dimensions	260 x 140.2 x 54 mm
Certification	CE/FCC Class B, CCC, BSMI, UL
Ordering Information	ARK-2250L-EP1A2 with 500 device licenses

Value Server

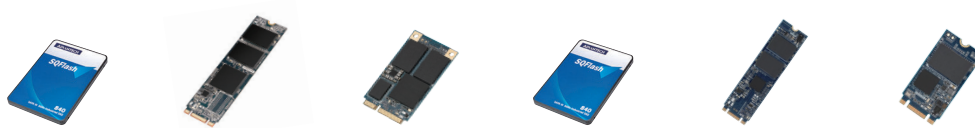| Product	ARK-1123 A2
Description	Intel® Celeron® J1900 SoC, 128GB SSD, 8GRAM, ADP
Software	Ubuntu 18.4 with DeviceOn/ePaper
Available Connections	100 pcs (EPD-203/230/EPD-232/EPD-333/EPD-702 20pcs EPD-707/EPD-660/EPD-662/EPD-258/EPD-262)
Power	DC12V/5A
Operating Temperature	0 ~ 40°C
Storage Temperature	-40 ~ 85°C
Dimensions	133.8 x 94.2 x 43.11 mm
Certification	CE/FCC Class B, CCC, BSMI, UL
Ordering Information	ARK-1123H-EP2A2 with 500 device licenses

Ordering Information

Product		Zigbee-Like	Wi-Fi	4G/LTE	BLE5.4
EPD Devices		EPD-230-011 EPD-232-011 EPD-333-011	EPD-707-W1B01 EPD-660-002/EPD-660-102 EPD-662-003/EPD-662-103 EPD-258-W1D00	EPD-262-L1D01	EPD-203-B1B01 EPD-702-B1B01
Routers	EU: JP: NA: TW: CN:	WISE-3240IOS-41A1E WISE-3240IOS-41A1J WISE-3240IOS-41A1N WISE-3240IOS-41A1T WISE-3240IOS-41A1C	WISE-3220IOS-21A1E WISE-3220IOS-21A1J WISE-3220IOS-21A1N WISE-3220IOS-21A1T WISE-3220IOS-21A1C	WISE-3270IOS-71A1E WISE-3270IOS-71A1J WISE-3270IOS-71A1N WISE-3270IOS-71A1T WISE-3270IOS-71A1C	WISE-3250IOS-71A1E WISE-3250IOS-71A1J WISE-3250IOS-71A1N WISE-3250IOS-71A1T WISE-3250IOS-71A1C
Servers		Ubuntu 18.4/128G SSD/8G RAM and built-in ePaper Manager Software with 500 device licenses			

Industrial Flash and Memory Solutions

SQFlash Industrial Storage Modules

SATA SSD

	Performance Series			Power loss protection		
Model Name	**SQF-S25 840 series**	**SQF-SM8 840 series**	**SQF-SMS 840 series**	**SQF-S25 840V series**	**SQF-SM8 840V series**	**SQF-SM4 840V series**
Form Factor	2.5" SSD	M.2 2280 (NGFF)	mSATA (MO-300A)	2.5" SSD	M.2 2280 (NGFF)	M.2 2242 (NGFF)
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	M.2 with B+M Key SATA pin-out	Mini PCIe with SATA pin-out	7 + 15 pin SATA	M.2 with B+M key SATA pin-out	M.2 with B+M key SATA pin-out
Flash Type	3D TLC / sTLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	4.6W	3.0W	3.0W	3.7W	2.9W	2.4W
Capacity	TLC: 240GB ~ 15.3TB sTLC: 60GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 1.9TB	240GB ~ 7.6TB	240GB ~ 960GB	240GB ~ 480GB
Maximum Read/Write Performance (MB/s)	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 520 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/100K	Sequential: 550 / 530 Random IOPS@4K: 98K/88K	Sequential: 550 / 530 Random IOPS@4K: 82K/84K
Operation Temperature	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

	Enterprise Series	FIPS Certified	
Model Name	**SQF-S25 840L series**	**SQF-S25 840F series**	**SQF-SM8 840F series**
Form Factor	2.5" SSD	2.5" SSD	M.2 2280
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	7 + 15 pin SATA	M.2 with B+M Key SATA pin-out
Flash Type	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	3.4W	2.2W	2.0W
Capacity	240GB ~ 7.6TB	240GB ~ 1.9TB	240GB ~ 1.9TB
Maximum Read/Write Performance (MB/s)	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K	Sequential: 550 / 530 Random IOPS@4K: 100K/90K
Operation Temperature	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

Industrial Flash and Memory Solutions

SQFlash Industrial Storage Modules

SATA SSD

Embedded Series			
Model Name	**SQF-S25 650 series**	**SQF-SMS 650 series**	**SQF-S8B 650 series**	**SQF-S4B 650 series**
Form Factor	2.5" SSD	mSATA	M.2 2280	M.2 2242
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	7 + 15 pin SATA	Mini PCIe with SATA pin-out	M.2 with B+M Key SATA pin-out	M.2 with B+M Key SATA pin-out
Flash Type	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC
Maximum Power Consumption	1.8W	1.8W	1.8W	1.8W
Capacity	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB
Maximum Read/Write Performance (MB/s)	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K	Sequential: 550 / 520 Random IOPS@4K: 96K/86K
Operation Temperature	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

Embedded Series		
Model Name	**SQF-SHM 650 series**	**SQF-S10 650 series**	**SQF-SLM 650 series**
Form Factor	Half-size mSATA	CFast Card	SATA Slim SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	Mini PCIe with SATA pin-out	CFast Type-I	7 + 15 pin SATA
Flash Type	3D TLC / sTLC	3D TLC / sTLC	3D TLC
Maximum Power Consumption	1.3W	1.6W	1.4W
Capacity	TLC: 64GB ~ 1TB sTLC: 32GB ~ 256GB	TLC: 64GB ~ 512GB sTLC: 32GB ~ 128GB	TLC: 64GB ~ 1TB
Maximum Read/Write Performance (MB/s)	Sequential: 550 / 510 Random IOPS@4K: 89K/86K	Sequential: 550 / 510 Random IOPS@4K: 91K/85K	Sequential: 550 / 520 Random IOPS@4K: 96K/87K
Operation Temperature	0 ~ 70°C / -20 ~ 85°C/ -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C/ -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C/ -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz

Industrial Flash and Memory Solutions

SQFlash Industrial Storage Modules

NVMe SSD   *NEW*

	Edge Series						
Model Name	**SQF-CU2 EU-2 series**	**SQF-CE3 EU-2 series**	**SQF-CE1 EU-2 series**	**SQF-CU3 EU-1 series**	**SQF-CE1 930L series**	**SQF-CU2 ER-1 series**	**SQF-C8M ER-1 series**
Form Factor	2.5" U.2 SSD	E3.S	E1.S (9.5mm/15mm)	2.5" U.3 SSD	E1.S (9.5mm/15mm)	2.5" U.2 SSD	M.2 2280
Transfer Protocol	PCIe Gen.5 x4	PCIe Gen.5 x4	PCIe Gen.5 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4
Connector	U.2 NVMe Interface (SFF-8639)	E3.S interface (SFF-TA-1008)	E1.S interface (SFF-TA-1006)	U.3 NVMe Interface (SFF-TA-1001)	E1.S interface (SFF-TA-1006)	U.2 NVMe Interface (SFF-8639)	M.2 with M key PCIe pin-out
Flash Type	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	25W	25W	(TBD)	22W	13.5W	11.5W	7.3W
Capacity	1.9TB ~ 15.3TB	1.9TB ~ 15.3TB	480GB ~ 3.8TB	1.9TB ~ 30.7TB	480GB ~ 3.8TB	400GB ~6.4TB	400GB ~3.2TB
Maximum Read / Write Performance (MB/s)	Seq.: 14,000 / 8,600 Ran. IOPS@4K: 3,000K / 380K	Seq.: 14,000 / 8,600 Ran. IOPS@4K: 3,000K / 420K	(TBD)	Seq.: 7,000 / 6,800 Ran. IOPS@4K: 1,600K / 480K	Seq.: 6,800 / 2,000 Ran. IOPS@4K: 960K / 60K	Seq.: 6,700 / 5,700 Ran. IOPS@4K: 779K / 761K	Seq.: 6,500 / 5,000 Ran. IOPS@4K: 779K / 753K
Op. Temperature	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz

	Enterprise Series		Performance Series		
Model Name	**SQF-C8M 930L series**	**SQF-CBM 930L series**	**SQF-C8M 930 series**	**SQF-C25 920 series**	**SQF-CM8 920 series**
Form Factor	M.2 2280	M.2 22110	M.2 2280	2.5" U.2 SSD	M.2 2280
Transfer Protocol	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.3 x4	PCIe Gen.3 x4
Connector	M.2 with M-Key PCIe pin-out	M.2 with M-Key PCIe pin-out	M.2 with M-Key PCIe pin-out	U.2 NVMe Interface (SFF-8639)	M.2 with M-Key PCIe pin-out
Flash Type	3D TLC	3D TLC	3D TLC	3D TLC	3D TLC
Maximum Power Consumption	11W	11W	11W	7.5W	5.5W
Capacity	400GB ~3.8TB	400GB ~3.8TB	400GB ~3.8TB	400GB ~15.3TB	240GB ~1.9TB
Maximum Read / Write Performance (MB/s)	Seq.: 7,200 / 6,300 Ran. IOPS@4K: 550K / 1000K	Seq.: 7,200 / 6,300 Ran. IOPS@4K: 550K / 1000K	Seq. : 7,200 / 6,300 Ran. IOPS@4K: 550K / 1000K	Seq. : 3,300 / 3,000 Ran. IOPS@4K: 590K / 470K	Seq. : 3,300 / 3,000 Ran. IOPS@4K: 650K / 650K
Op. Temperature	0 ~ 70°C / -20 ~ 85°C	0 ~ 70°C / -20 ~ 85°C	0 ~ 70°C -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms	1,500G, Peak / 0.5ms
Vibration	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz

Industrial Flash and Memory Solutions

SQFlash Industrial Storage Modules

NVMe SSD

Model Name	Embedded Series						
	SQF-C8M **730 series**	**SQF-C3M** **730 series**	**SQF-C3A** **720 series**	**SQF-C4M** **720 series**	**SQF-C8B** **720 series**	**SQF-C8M** **720 series**	**SQF-CFX** **720 series**
Form Factor	M.2 2280	M.2 2230	M.2 2230	M.2 2242	M.2 2280	M.2 2280	CFexpress card
Transfer Protocol	PCIe Gen.4 x4	PCIe Gen.4 x4	PCIe Gen.3 x2	PCIe Gen.3 x4	PCIe Gen.3 x2	PCIe Gen.3 x4	PCIe Gen.3 x2
Connector	M.2 with M-Key PCIe pin-out	M.2 with M-Key PCIe pin-out	M.2 with A+E key PCIe pin-out	M.2 with M-Key PCIe pin-out	M.2 with B+M key PCIe pin-out	M.2 with M-Key PCIe pin-out	CFexpress (Type B)
Flash Type	3D TLC	3D TLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC
Maximum Power Consumption	5.3W	5.2W	2.0W	3.6W	3.0W	3.6W	3.4W
Capacity	TLC: 256GB ~ 4TB	TLC: 256GB ~ 512GB	TLC: 128GB ~ 512GB sTLC: 32GB ~ 128GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 2TB sTLC: 32GB ~ 512GB	TLC: 128GB ~ 1TB sTLC: 32GB ~ 256GB
Maximum Read / Write Performance (MB/s)	Seq.: 3,500 / 3,100 Ran. IOPS@4K: 400K / 700K	Seq. : 4,900 / 3,300 Ran. IOPS@4K: 320K / 600K	Seq. : 1,200 / 900 Ran. IOPS@4K: 130K / 210K	Seq. : 2,450 / 1,900 Ran. IOPS@4K: 250K / 420K	Seq. : 1,750 / 1,650 Ran. IOPS@4K: 260K / 380K	Seq. : 2,450 / 1,900 Ran. IOPS@4K: 250K / 420K	Seq. : 1,750 / 1,650 Ran. IOPS@4K: 270K / 380K
Op. Temperature	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C	0 ~ 70°C / -20 ~ 85°C / -40 ~ 85°C
DeviceOn / SQ Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms
Vibration	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G, Peak / 80~2,000Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz	20G,Peak / 80 ~2,000 Hz

Other Flash Products

NEW

Model Name	Onboard BGA SSD		eMMC		High Speed Card		Pen Drive
	SQF-CUS **730 series**	**SQF-SUS** **640 series**	**SQF-MM5**	**SQF-MMC**	**SQF-ISD**	**SQF-MSD**	**SQF-UPD**
Form Factor	291 ball BGA (1620)	156 ball BGA (1620)	153 ball BGA (1113)	100 ball BGA (1113)	SD Card	Micro SD Card	USD Drive
Transfer Protocol	PCIe Gen.4 x4	SATA 6Gb/s	eMMC 5.0	eMMC 5.0	UHS-I, CL10, A2 SD / SPI	UHS-I, CL10, A2 SD / SPI	USB 3.2 GEN 1
Connector	N/A	N/A	N/A	N/A	9-pin	8-pin	USB-A
Flash Type	3D TLC	MLC / UMLC / 3D TLC	MLC / UMLC / 3D TLC/ sTLC	MLC / UMLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC
Maximum Power Consumption	3.2W	1.5W	0.4W	0.4W	1.4W	1.4W	1.8W
Capacity	256GB ~ 1TB	4GB ~ 512GB	2GB ~ 64GB	2GB ~ 64GB	16GB ~ 256GB	16GB ~ 512GB	64GB ~ 256GB
Maimum Read / Write Performance (MB/s)	Seq. : 3,700 / 3,000 Random IOPS@4K: 600K / 310K	Seq. : 550 / 490 Random IOPS@4K: 74K / 86K	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 250/ 150 HS200 Upto 200MB/s HS400 Upto 400MB/s	Seq. : 100/ 93 Random IOPS@4K: 9.8K / 2.7K (Up to V30)	Seq. : 100/ 93 Random IOPS@4K: 9.8K / 3.8K (Up to V30)	Seq. : 210/ 60
Op. Temperature	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	0 ~ 70°C / -40 ~ 85°C	-25 ~ 85°C / -40 ~ 85°C	-25 ~ 85°C / -40 ~ 85°C	0 ~ 70°C

Industrial Flash and Memory Solutions

SQRAM Industrial Memory Modules

DDR5 *NEW*

Series	SQR-SD5N	SQR-SD5I	SQR-SD5U	SQR-SD5 (ECC)	SQR-UD5N	SQR-UD5 (ECC)	SQR-RD5N	SQR-HS5N
Interface	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	RDIMM	SODIMM
Pin	262pin	262pin	262pin	262pin	288pin	262pin	288pin	262pin
Frequence(MHz)	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800	5600/4800
Capacity	8/16/24/32/48	8/16/24/32/48	8/16/32	16/32	8/16/24/32/48	16/32GB	16/32/64/128GB	8/16/24/32/48
Voltage	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v	1.1v
Temperature	0 ~ 95°C	-40 ~ 95°C	-40 ~ 105°C	0 ~ 95°C	0 ~ 95°C	0 ~ 95°C	0 ~ 95°C	0 ~ 95°C

DDR4

Series	SQR-SD4N	SQR-SD4I	SQR-SD4E	SQR-SD4 (ECC)	SQR-UD4N	SQR-UD4 (ECC)	SQR-RD4N	SQR-RD4I	SQR-YD4N	SQR-HS4N
Interface	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4	DDR4
Form Factor	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	RDIMM	RDIMM	RUGGED DIMM	SODIMM
Pin	262pin	262pin	262pin	262pin	288pin	288pin	288pin	288pin	260pin	262pin
Frequence(MHz)	3200/2666	3200/2666	3200	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666	3200/2666
Capacity	4/8/16/32GB	4/8/16/32GB	8/16/32GB	8/16/32GB	4/8/16/32GB	8/16/32GB	8/16/32/64/128GB	8/16/32/64/128GB	16/32GB	8/16/32GB
Voltage	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v	1.2v
Temperature	0 ~ 85°C	-40 ~ 85°C	-40 ~ 125°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	-40 ~ 85°C	0 ~ 85°C	0 ~ 85°C

DDR3/DDR2/DDR1
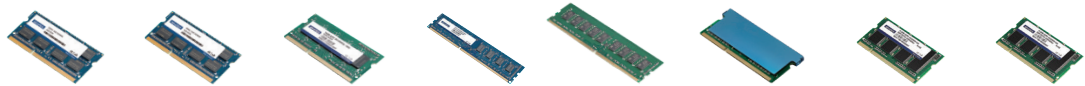
Series	SQR-SD3N	SQR-SD3I	SQR-SD3 (ECC)	SQR-UD3N	SQR-UD3N (ECC)	SQR-HS3N	SQR-SD2N	SQR-SD1N
Interface	DDR3	DDR3	DDR3	DDR3	DDR3	DDR3	DDR2	DDR1
Form Factor	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	SODIMM	SODIMM	SODIMM
Pin	204pin	204pin	204pin	240pin	240pin	204pin	200pin	200pin
Frequence(MHz)	1600	1600	1600	1600	1600	1600	667	333
Capacity	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	2/4/8GB	1G/2G	512M/1G
Voltage	1.35v	1.35v	1.35v	1.35v	1.35v	1.35v	1.8v	2.5v
Temperature	0 ~ 85°C	-40 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C

Industrial Flash and Memory Solutions

EXM Embedded Extension Modules

Adapter

Model Name	EXM-CMPF1 (A-Key)	EXM-CMPF1 (E-Key)	EXM-110 (EMIO-100TL)
Type	M.2 (NGFF) to mPCIe (PCIe+USB) adapter	M.2 (NGFF) to mPCIe (PCIe+USB) adapter	LVDS to 1-Ch RGB TTL port
Communication Interface	PCIe and USB	PCIe and USB	18/24-bit LVDS
Interface Connector	Mini-PCIe thru PCIe and USB	Mini-PCIe thru PCIe and USB	External 18/24-bit LVDS, DF13-20DP-1.25V
Channel Connector	1 (2230/2242 A-Key)	1 (2230/2242 E-Key)	1
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-10 ~ 70°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
LED Status	Activated indicator	Activated indicator	-
Dimensions (L x W x H)	50.59 x 30 x 15 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

PCIe Signal

Model Name	EXM-510 (EMIO-100E)	EXM-523	EXM-520 (EMIO-200SA)	EXM-521 (EMIO-200U3)	EXM-522	EXM-540
Type	PCIe to 1-Ch Giga LAN port	PCIe to 2-Ch Giga LAN port	PCIe to 2-Ch SATA III port	PCIe to 2-Ch USB 3.0 port	PCIe to 2-Ch USB 2.0 port	PCIe to 4-Ch USB 2.0 port
Communication Interface	PCIe	PCIe	PCIe	PCIe	PCIe	PCIe
Interface Connector	Mini-PCIe thru PCIe	Mini-PCIe thru PCIe	Mini-PCIe thru PCIe	Mini-PCIe thru PCIe	H/S Mini-PCIe thru PCIe	Mini-PCIe through PCIe
Channel Connector	1	2	2	2	2	4
Operating Temperature	-40 ~ 85°C	0 ~ 70°C	-10 ~ 70°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
LED Status	Reserve the LED signal for external usage	Reserve the LED signal for external usage	Activated indicator	-	-	-
Dimensions (L x W x H)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in) + iDoor PCB Board	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	26.65 x 30 x 15 mm (1.04 x 1.18 x .59 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

Note: "-" : means Not Applicable (N/A)

USB Signal

Model Name	EXM-310 (EMIO-100P)	EXM-311 (EMIO-100S)	EXM-321 (EMIO-210S)	EXM-322 (EMIO-220S)	EXM-320 (EMCB-200U)
Type	USB to 1-Ch Parallel port	USB to 1-Ch High Speed Serial COM port	USB to 2-Ch High Speed RS-232 port	USB to 2-Ch High Speed RS-422/RS-485 port	USB to 2-Ch CANBus port
Communication Interface	Combo USB (Internal/ External)	Combo USB (Internal/ External)	Combo USB (Internal/ External)	Combo USB (Internal/ External)	Combo USB (Internal/ External)
Interface Connector	Internal USB port: Mini-PCIe thru USB. External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: Mini-PCIe thru USB. External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: Mini-PCIe thru USB. External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: Mini-PCIe thru USB. External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: Mini-PCIe thru USB. External USB port: 2.0 mm, 2x5-pin, male header
Channel Connector	1	1	2	2	2
Operating Temperature	0 ~ 70°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Storage Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
LED Status	Activated indicator	Activated indicator	Power On/Off: Red LED COM-1 working : Green LED COM-2 working: Green LED	Power On/Off: Red LED COM-1 working : Green LED COM-2 working: Green LED	Activated indicator
Dimensions (L x W x H)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)	50.5 x 30 x 20 mm (1.98 x 1.18 x .78 in)	50.5 x 30 x 15 mm (1.98 x 1.18 x .59 in)

Industrial Display Solutions

IDK-1000 Indoor LCD Kits

	IDK-1105	IDK-1106	IDK-1107W		IDK-1110W		IDK-1110	
Size	5.7"	6.5"	7"		10.1"		10.4"	
Resolution	640 x 480, VGA	640 x 480, VGA	800 x 480, WVGA	1024 x 600, WVGA	1024 x 600, WSVGA	1280 x 800, WXGA	800 x 600, SVGA	1024 x 768, XGA
Brightness (cd/m²)	500	800	500	500	500	500	400	500
Viewing Angle (H/V°)	140/100	160/140	178/178	178/178	140/120	170/170	160/130	176/176
Contrast Ratio	250:1	600:1	800:1	800:1	500:1	800:1	700:1	1000:1
Touchscreen	4-Wire Resistive	4-Wire Resistive	5-Wire Resistive and P-cap	P-cap	4-Wire Resistive	P-cap	4-Wire Resistive	4-Wire Resistive and P-cap
Signal Interface	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS
Backlight Life (hrs)	30,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Durability (touches)	1 million	1 million	1 million	No limit	1 million	No limit	1 million	1 million
Operating Temperature	-20 ~ 70°C	-10 ~ 60°C	-5 ~ 60°C	-20 ~ 70°C	-5 ~ 60°C	-20 ~ 65°C	-10 ~ 60°C	-10 ~ 60°C

	IDK-1112	IDK-1115	IDK-1115WP	IDK-1121W	
Size	12.1"	15"	15.6"	21.5"	
Resolution	1024 x 768, XGA	1024 x 768, XGA	1920 x 1080, FHD	1920 x 1080, FHD	1920 x 1080, FHD
Brightness (cd/m²)	500	500	450	300	250
Viewing Angle (H/V°)	178/178	178/178	170/170	178/178	178/178
Contrast Ratio	1000:1	2500:1	800:1	5000:1	1000:1
Touchscreen	5-Wire Resistive and P-cap	5-Wire Resistive and P-cap	P-cap	5-Wire Resistive	P-cap
Signal Interface	LVDS	LVDS	2 Channel LVDS	2 Channel LVDS	2 Channel LVDS
Backlight Life (hrs)	30,000	70,000	50,000	50,000	30,000
Durability (touches)	10 / No limit	10 / No limit	No limit	10 million	No limit
Operating Temperature	-20 ~ 70°C	-20 ~ 70°C	-20 ~ 70°C	0 ~ 60°C	0 ~ 50°C

IDK-2000 Outdoor LCD Kits

	IDK-2107	IDK-2108	IDK-2110W	IDK-2110		IDK-2115	IDK-2115W	IDK-2121W
Size	7"	8.4"	10.1"	10.4"		15"	15.6"	21.5"
Resolution	1024x600 WSVGA	800 x 600 SVGA	1280x800 WXGA	800 x 600 SVGA	1024 x 768 XGA	1024 x 768 XGA	1920 x 1080 FHD	1920 x 1080 FHD
Brightness (cd/m²)	1000	1200	1500	1200	1000	1200	1200	1200
Viewing Angle (H/V°)	170/170	160/140	170/170	160/130	176/176	178/178	170/170	178/178
Contrast Ratio	800:1	600:1	800:1	500:1	1000:1	2500:1	800:1	5000:1
Touchscreen	P-CAP	4-Wire Resistive	P-CAP	4-Wire Resistive	P-CAP	5-Wire Resistive	PCAP	P-CAP
Signal Interface	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	2 Channel LVDS	2 Channel LVDS
Backlight Life (hrs)	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Durability (touches)	No limit	1 million	No limit	1 million	No limit	10 million	No limit	No limit
Operating Temperature	-20 ~ 70°C	-20 ~ 70°C	-20 ~ 70°C	-10 ~ 60°C	-20 ~ 70°C	-20 ~ 70°C	0 ~ 55°C	0 ~ 60°C

Industrial Display Solutions

IDS-3100/3200 Slim Open Frame/Panel Mount Monitors

	IDS-3106/ IDS-3206	IDS-3110/ IDS-3210	IDS-3112/ IDS-3212	IDS-3115/ IDS-3215	IDS-3117/ IDS-3217	IDS-3118W/ IDS-3218W	IDS-3119/ IDS-3219	IDS-3121W/ IDS-3221W	IDS-3127W
Size	6.5"	10.4"	12.1"	15"	17"	18.5"	19"	21.5"	27"
Resolution	640 x 480, VGA	800 x 600, SVGA 1024 x 768, XGA	800 x 600, SVGA 1024 x 768, XGA	1024 x 768, XGA	1280 x 1024, SXGA	1366 x 768, HD	1280 x 1024, SXGA	1920 x 1080, FHD	1920 x 1080, FHD
Brightness(cd/m²)	800	400/500	450/600	400/500	350	300	350	250	300
Viewing Angle(H/V°)	160/140	160/140	160/140	160/140	170/160	170/160	170/160	178/178	178/178
Contrast Ratio	600 : 1	700 : 1	700 : 1	700 : 1	800 : 1	1000:1	1000:1	1000:1	3000:1
Touchscreen	Glass and 4-Wire Resistive	5-wire Resistive and P-cap	5-wire Resistive and P-cap	5-wire Resistive and P-cap	Glass and 5-Wire Resistive	5-wire Resistive and P-cap	Glass and 5-wire Resistive	5-wire resistive and P-cap	Glass and p-cap
Backlight Life (hrs)	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	30,000
Durability	1 million touches	10/50 million touches	10/50 million touches	10/50 million touches	10 million touches	10/50 million touches	10/50 million touches	10/50 million touches	50 million touches
Operating Temperature	0 ~ 50°C	- 20 ~ 60°C	- 20 ~ 60°C	- 20 ~ 60°C	- 20 ~ 60°C	0 ~ 55°C	0 ~ 45°C	0 ~ 45°C	0 ~ 45°C
I/O Ports	VGA x 1; DVI x 1; 12 VDC Jack x 1; USB x 1	VGA x 1; DVI x 1; HDMI x 1 (selected models); 12 VDC Jack x 1; USB x 1; RS-232 x 1							VGA x 1; DVI x 1; DP x 1; 12 VDC Jack x 1; USB x 1
OSD	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, Source Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust								

IDS-3300 Industrial IP65 Monitors

	IDS-3315	IDS-3319
Size	15"	19"
Resolution	1024 x 768, XGA	1280 x 1024, SXGA
Brightness (cd/m²)	500 / 1200	350
Viewing Angle (H/V°)	176/176	170/160
Contrast Ratio	2500:1	1000:1
Touchscreen	5-Wire Resistive Touchscreen / Projected Capacitive Touchscreen	5-Wire Resistive Touchscreen / Projected Capacitive Touchscreen
Backlight Life (hrs)	70,000/50,000	50,000
Durability	10 million touches	10 million touches
Operating Temperature	- 20 ~ 60°C	-20 ~ 60° C
I/O Ports	VGA x 1; DVI x 1; HDMI x 1 12VDC Jack x 1; USB x 1; RS-232 x 1	
OSD	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, Source Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust	

Industrial Display Solutions

IDP31 Series Proflat Touch Monitors

	IDP31-101WP	IDP31-150	IDP31-150P	IDP31-156W	IDP31-156WP	IDP31-215W	IDP31-215WP
Size	10.1"	15"	15"	15.6"	15.6"	21.5"	21.5"
Resolution	1280 x 800, WXGA	1024 x 768, XGA	1024 x 768, XGA	1920 x 1080, FHD	1920 x 1080, FHD	1920 x 1080, FHD	1920 x 1080, FHD
Brightness(cd/m²)	500/1200	500	500/1200	450	450/1200	250	250/1200
Viewing Angle (H/V°)	170/170	178/178	178/178	170/170	178/178	178/178	178/178
Contrast Ratio	800:1	1500:1	1000:1	800:1	800:1	1000:1	1000:1
Touchscreen	Projective Capacitive Touch	Projective Capacitive Touch	Projective Capacitive Touch	Projective Capacitive Touch	Projective Capacitive Touch	Projective Capacitive Touch	Projective Capacitive Touch
I/O Ports	HDMI 12 VDC Jack x 1; USB x 1	HDMI x 1; VGA x 1; DVI-D x 1 Audio x 1 (audio output 3W) 12 VDC Jack x 1; USB x 1	HDMI 12 VDC Jack x 1; USB x 1	HDMI x 1; VGA x 1; DVI-D x 1 Audio x 1 (audio output 3W) 12 VDC Jack x 1; USB x 1	HDMI 12 VDC Jack x 1; USB x 1	HDMI x 1; VGA x 1; DVI-D x 1 Audio x 1 (audio output 3W) 12 VDC Jack x 1; USB x 1	HDMI 12 VDC Jack x 1; USB x 1
Surface Hardness	7H	6H	6H	6H	7H	7H	7H
Backlight Life (hrs)	50,000	50,000	50,000	50,000	50,000	30,000	50,000
Operating Temperature	-20 ~ 65 °C	-20 ~ 60 °C	-20 ~ 70 °C	-20 ~ 60 °C	-20 ~ 65 °C	0 ~ 45°C	-20 ~ 60 °C
Certification	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC

IDP31 with LED

	IDP31-238W	IDP31-270W
Size	23.8"	27"
Resolution	1920 x 1080	1920 x 1080
Brightness(cd/m²)	350	300
Viewing Angle (H/V°)	178/178	178/178
Contrast Ratio	1000:1	3000:1
Touchscreen	Glass and P-cap	Glass and P-cap
I/O Ports	VGA x 1; DVI x 1; DP x 1; 12 VDC Jack x 1; USB x 1	VGA x 1; DVI x 1; DP x 1; 12 VDC Jack x 1; USB x 1
Surface Hardness	6H	6H/7H
Backlight Life (hrs)	30,000	30,000
Operating Temperature	0 ~ 45° C	0 ~ 45° C
Certification	CE, FCC, CCC	CE, FCC, CCC

DSD-3000 Large Format Digital Signage Displays

	DSD-3032	DSD-3043	DSD-3055
Size	32"	43"	55"
Resolution	1920 x 1080(FHD)	1920 x 1080(FHD)	3840 x 2160(UHD)
Brightness (cd/m²)	350	500	500
Viewing Angle (H/V°)	178/178	178/178	178/178
Contrast Ratio	3000:1	4000:1	4000:1
Touchscreen	Optical Touch	Optical Touch	Optical Touch
Signal Interface	HDMI/VGA/ DisplayPort	HDMI/VGA/ DisplayPort	HDMI/VGA/ DisplayPort
Backlight Life (hrs)	50,000	50,000	50,000
Durability	10 million touches	10 million touches	10 million touches
Operating Temperature	5 ~ 45° C	5 ~ 45° C	5 ~ 45° C

Industrial Display Solutions

DSD-5000 Stretched Digital Signage Displays

	DSD-5028	DSD-5038
Size	28"	38"
Resolution	1920 x 360	1920 x 538
Brightness (cd/m²)	700	800
Viewing Angle (H/V°)	178/178	176/176
Contrast Ratio	1200:1	4000:1
Touchscreen	N/A	N/A
Signal Interface	VGA/DVI/HDMI	VGA/DVI/HDMI
Backlight Life (hrs)	50,000	50,000
Durability	N/A	N/A
Operating Temperature	0 ~ 45° C	0 ~ 45° C

CRV Curved Multi-touch Displays

	CRV-430WP	CRV-430JP
Size	43" C type	43" J type
Resolution	3840 x 2160 UHD	
Brightness (cd/m²)	450	
Contrast Ratio	1100:1 (8ms)	
Curved Radius	1500	
Touchscreen	Multi-touch PCT(10 touches)	
Cover Glass	4mm	
Operating Temperature	0 ~ 50° C	
I/O Ports	HDMI 1.4 (2 ports), HDMI 2.0 (1 ports), DisplayPort, VGA,	

CRV Curved Multi-touch Displays with LED

	CRV-430WP	CRV-430JP
Size	43" C type	43" J type
Resolution	3840 x 2160 UHD	
Brightness (cd/m²)	450	
Contrast Ratio	1100:1 (8ms)	
Curved Radius	1500	
Touchscreen	Multi-touch PCT(10 touches)	
Cover Glass	4mm	
Operating Temperature	0 ~ 50° C	
I/O Ports	HDMI 1.4 (2 ports), HDMI 2.0 (1 ports), DisplayPort, VGA,	

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