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Product Catalog

Advantech

Embedded IoT Solutions

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Product Catalog 2022-2023

Embedded IoT Solutions

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  - Industrial Wireless Solutions
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ADVANTECH

Enabling an Intelligent Planet

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About Embedded IoT

Edge+ Empowers Future of AIoT

5G, AI, and high-performance computing are driving the growth of the AIoT industry, resulting in the increased popularity of edge intelligence. A study by Gartner indicates that the edge computing market, including software and hardware solutions and integrated services, will reach a value of US$450 billion by 2025. To exploit these trends, Advantech has worked with its global partners to create a comprehensive Edge+ solution and ecosystem blueprint that accelerates the adoption of AIoT applications.

Embedded Platform Innovations

We offer a full spectrum of embedded boards in multiple form factors — our selection includes computers-on-module, multi-I/O extension boards, embedded single board computers, and industrial motherboards. We continue to develop innovative form factor designs that fulfill diverse customer requirements in high-performance edge computing, visual AI, and mission critical applications.

Edge Intelligence, AI and Wireless Solutions

Advantech provides a series of edge, AI and wireless solutions that accelerate AIoT development and implementation. To this end, our solutions include — edge AI modules, inference systems, edge intelligence systems, wireless modules, ePaper with hardware/software integrated solutions.

Vertical Focused Solutions

Advantech offers all-in-one fanless embedded systems, easy-to-configure embedded PCs, and vertical –focused solutions with pre-integrated software services for digital signage, in-vehicle, railway, and gaming applications. These solutions allow customers to rapidly implement various applications while maximizing their benefits.

Industrial Displays and Modules

Advantech provides a wide range of industrial displays and industrial storage modules — including LCD displays, industrial monitors, touch screen panels, outdoor displays, and digital signage displays; as well as industrial flash and memory solutions. These peripherals are fully compatible with Advantech embedded boards and systems to enable rapid system integration.

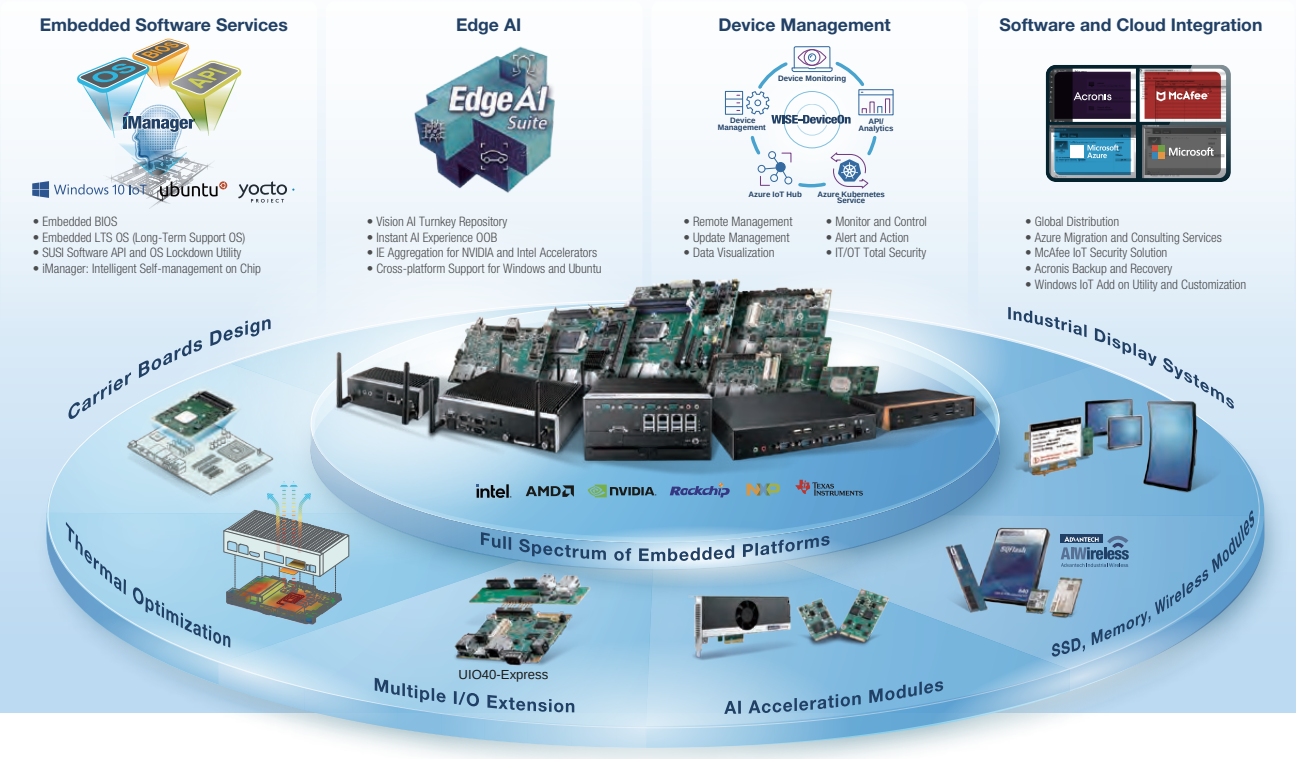
AIoT Software Service and Distribution

Advantech has a dedicated Software team that provides a range of services that cover BIOS, OS, software APIs, utilities, and WISE-DeviceOn IoT device remote management software. This team also provides software distribution solutions, including Microsoft Azure and Cloud Solution Provider(CSP) program , Microsoft Windows Embedded, McAfee embedded security, and Acronis backup/recovery software.

Embedded AIoT Design-in Services

Worldwide Leadership in Embedded Design and Services

Advantech offers a one-stop service model for the integration of embedded boards, systems, software, displays, and peripherals. This model uses customer-centric design-in services to accelerate AI and IoT deployment. Solution providers expect to reduce the time and resources required for system integration by collaborating with reliable professional embedded partners. We offer the latest embedded technology and value-added software that customers can leverage to integrate their end application software. Our comprehensive range of peripherals free customers from worrying about compatibility and longevity issues. Advantech Embedded Design-in Services provide a value-added service that eliminates complex integration difficulties.



Leading Embedded Technologies

As a pioneer and leader in the embedded market, Advantech continuously researches and develops value-added embedded software services, leading embedded technologies, and innovative form factors.

Partner Collaboration and Full Spectrum of Embedded Platforms

Advantech allies with leading industry partners — Intel, Microsoft, Arm, AMD, NXP, TI, Rockchip, etc. — to provide up-to-date technologies and comprehensive product offerings.

Multiple Peripheral Modules Integration Services

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

Power Up IoT Devices with 24/7 Operations Management

As industrial IoT applications have rapidly increased the number of connected devices currently deployed and managed across different locations, it is essential to effectively manage, monitor, and control thousands of connected devices while ensuring uninterrupted service. Advantech embedded platforms are preloaded with WISE-DeviceOn to ensure 24/7 operations management.

Speed up Your AI Application Development

AI will soon appear in diverse applications. Business decision makers are increasingly spoiled for choice when it comes to AI platforms. Advantech's Edge AI Suite helps users choose solutions efficiently by delivering integrated algorithm programs and SDKs. These features aid in validating and testing AI platform capabilities. Adopting Advantech's Edge AI Suite rapidly reduces development costs and time-to-market.

Dedicated Regional Embedded Service Teams

To meet all embedded application requirements, Advantech employs regionally-based service teams capable of providing dedicated expertise, design-in services, and customer support.

WISE-DeviceOn, Device Management Software

WISE-DeviceOn

	WISE-DeviceOn		
Introduction	IoT management platform that manages connected devices remotely and provides centralized management features.		
Highlighted Features	• Securely Automated Device Onboard: through innovative mechanisms, including Auto Device Registration, One-key to Dashboard, and Device Security, enables fast and secure connection establishment • Remote Device Monitor and Control: Power On/Off, device remote control with scheduling rules, protection management, and Windows Lockdown utility • Software Over-the-air 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 • Cloud integration: 10,000+ Scalable, Cross-geo Monitoring		
Application Extension	**DeviceOn/iEdge** Enabling Equipment-to-intelligence and Optimized Management	**DeviceOn/CommBridge** Industrial Application for Device Networking and Edge Computing	**DeviceOn/Kiosk+** Kiosk Device Operation Management Software
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 (5 GB storage) Azure Cosmos DB (Standard, 200 GB transactional Virtual Machines (1 E2s, 2 vCPU 16 GB memory) **Standalone Server:** Intel® Core™ i5 2.3 GHz CPU or above, 8GB RAM • 25 GB root partition for the system • 100 GB 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 **Device/Agent:** • Advantech HW with SUSI driver 3.02/4.0 support (or above), which is required for HWM (Hardware Monitoring Management) function 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		
Product Ordering Information	**Perpetual License:** 32WSWPE2I100A1 (100 devices) 32WSWPE2I500A1 (500 devices)	**Perpetual License: (for Non-Advantech devices)** 32WSWPDO0010A1 (10 devices) 32WSWPDO0100A1 (100 devices) 32WSWPDO0500A1 (500 devices) NRE-WSEG (Volume discount by project quotation)	

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

WISE-DeviceOn, Device Management Software

WISE-DeviceOn

	WISE-DeviceOn			
Introduction	IoT management platform that manages connected devices remotely and provides centralized management features.			
Highlighted Features	• Securely Automated Device Onboard: Through innovative mechanisms, including Auto Device Registration, One-key to Dashboard and Device Security, to fast and securely establish connection • Remote Device Monitor and Control: Power On/Off, device remote control with scheduling rules, protection management and Windows Lockdown utility • Software Over-the-air 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 • Cloud integration: 10,000+ Scalable, Cross-geo Monitoring			
Application Extension	**DeviceOn/ePaper** ePaper Device Operation Management Software	**DeviceOn/SQ Manager** SSD and Memory Health Management	**DeviceOn/Display** Remote control and monitoring for industrial displays	**IT/OT Total Security** This solution is based on the DeviceOn platform. It integrates security technologies from different aspects of IT and OT to defend against ransomware and cyber attacks.
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 (5 GB storage) Azure Cosmos DB (Standard, 200 GB transactional Virtual Machines (1 E2s, 2 vCPU 16 GB memory) **Standalone Server:** Intel® Core™ i5 2.3 GHz CPU or above, 8GB RAM • 25 GB root partition for the system • 100 GB 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 **Device/Agent:** • Advantech HW with SUSI driver 3.02/4.0 support (or above), which is required for HWM (Hardware Monitoring Management) function 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			
Product Ordering Information	**Perpetual License: (for Non-Advantech devices)** 32WSWPDO0010A1 (10 devices) 32WSWPDO0100A1 (100 devices) 32WSWPDO0500A1 (500 devices) NRE-WSEG (Volume discount by project quotation)			**Microsoft 365 BP:** 9806M365BS (Monthly subscription) **Azure Defender for IoT:** ARK-3530F-00A1 (HW for std. field) EIS-D150-E1DS641 (HW for small field) 9806AZURES (Monthly subscription)

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

Microsoft IoT Software and Services

Windows Embedded and Windows IoT

Microsoft

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Product	Windows 11 IoT Enterprise	Windows 10 IoT Enterprise	Windows Embedded Standard	Windows Embedded Enterprise	Windows Embedded Industry and POSReady
Product	• Windows 11 IoT Enterprise	• Windows 10 IoT Enterprise LTSC • Windows 10 IoT Enterprise SAC	• Windows Embedded Standard 8 • Windows Embedded Standard 7	• Windows Embedded 8.1 Industry Pro • Windows 8.1 pro for embedded system • Windows 7 pro/ultimate for embedded system	• Windows 8.1 Industry pro retail • POSReady 7 • POSReady2009
Overview	Windows 11 IoT Enterprise is the next evolution of Windows for IoT. It is designed to support today's hybrid world, and intended to be the most reliable, secure, connected, and performant Windows operating system ever.	Windows 10 IoT Enterpriseis a full version of Windows 10 with specialized features to create dedicated devices locked down to a specific set of applications and peripherals.	Windows Embedded Standard is the operating system and development platform delivering the power of Windows in componentized form to rapidly build reliable custom operating system images to deliver precise functionality to devices.	Windows Embedded Enterprise products are fully functional versions of Microsoft's desktop operating system intended for use in an embedded solution consisting of purpose-built hardware and application software.	Windows Embedded POSReadye is an easy-to-use point-of-service platform based on Windows technologies now optimized for the retail and hospitality industry.
Benefits	• The OS now supports Windows Subsystem for Linux GUI (WSLg), which enables GUI apps. • Supporting Universal Serial Bus 4 (USB4) and Wi-Fi 6E for better connectivity • Providing a support lifecycle of 36 months from the month of availability	• A rich user experience with Win32 and UWP apps • Same deployment, manageability and servicing as desktops • Familiar interface with lockdown features to control user experience	• Componentized operating system lets you choose the features that you want • Custom branding lets you provide a unique, custom experience from start to finish • Lockdown features help ensure predictable customer experience	• Take advantage of full Windows to provide a high degree of cross-platform application compatibility • Deliver an immersive, natural user experience with multi-touch and Kinect for Windows	• Easily implement retail peripherals with built-in plug and play capabilities • Includes the required retail-specific technologies and full support for standard retail applications and device peripherals
Min. Hardware Requirement	• 1GHz CPU or faster with 2 or more cores on a compatible 64-bit processor or System on a Chip (SoC). • 4GB of system memory • 64GB free space on hard disk drive (2GB recommended for 64-bit) • TPM2.0 • Compatible with DirectX 12 or later with WDDM 2.0 driver. • High definition (720p) display that is greater than 9 diagonally, 8 bits per color channel	• x86 or AMD64 processor • 1GHz CPU or higher • 1GB of system memory (2GB recommended for 64-bit) • 16G free space on hard disk drive for 32-bit (20GB for 64-bit) • DirectX 9 or later with WDDM 1.0 driver	Windows Embedded Standard 8: • 32-bit or 64-bit processor • 1GHz CPU or higher • 1GB of system memory (2GB recommended for 64-bit) • 8 GB of available hard-disk space Windows Embedded Standard 7: • 1GHz x86 or amd64 processor • 512 MB of system memory (1GB recommended for amd64) • 1 GB free space on hard disk drive (HDD) or flash-based Solid State Drive (SSD) (4 GB recommended)	• x86 or AMD64 processor • 1GHz CPU or higher • 1GB of system memory(2GB recommended for 64-bit) • 16GB free space on hard disk drive(20GB for 64-bit)	• x86 or AMD64 processors • 1GHz or faster 32-bit (x86) or 64-bit (x64) processor • 1GB of system memory for 32-bit, 2GB for 64-bit • 16 GB free space on hard disk drive (HDD) for POSReady 7 and 520MB for POSReady 2009

Product	Windows Embedded Compact	Windows Server IoT	Microsoft SQL Server IoT
Product	• Windows Embedded Compact 2013Windows Embedded Compact 7	• Windows Server IoT 2022 • Windows Server IoT 2019 • Server 2016 for embedded system	• Microsoft SQL Server IoT 2019 • Microsoft SQL Server 2017 IoT • SQL Server 2016 for Embedded System
Overview	Windows Embedded Compact is a componentized, real-time, small-footprint OS for powering some of the industry's smallest devices.	Windows Server IoT is a full version of Windows Server that delivers enterprise manageability and security to IoT solutions.	Microsoft SQL Server IoT is the binary equivalent to SQL Server and specifically for dedicated-use, server class edge devices running application software.
Benefits	• OS for specialized, small-footprint devices that need real-time performance and compatibility with ARM and x86 architectures • Platform for sensors-to-cloud intelligent systems applications	• Aggregate data from a large number of 'things' • Store and analyze very big databases to discover valuable business insights • Enhanced security capabilities • Leverage Azure IoT hosting containers managed by Azure IoT Edge	• Leverage intelligent features to analyze data aggregated from a large number of things • Built-in features for data protection data protection, access control, monitoring and alerting and security management • Run SQL Server on any platform, any dev language of your choice
Min. Hardware Requirement	• 2.4 GHz CPU, 1 GB RAM(2 GB for 2013), 1280x1040 display(1024 x 768 for 2013) • 100 GB of free hard disk space	• 1.4 GHz 64-bit processor or higher • Minimum: 512 MB system memory • Minimum: 32 GB free space • An ethernet adapter capable of at least 1 gigabit per second throughput • 1024 x 768 display	• x64 processor • 1.4 GHz or higher • 1GB of system memory • Minimum: 6 GB free space

Microsoft IoT Software and Services

Microsoft Azure Cloud Offerings

Microsoft Azure

	Azure Services
Product Positioning	Azure resources provide unlimited computing and storage as well as useful services that enhance profit while lowering maintenance and management costs.
Application Scenarios	• Data backup and disaster recovery • Web applicaton and E-ecommercial hosting • Various dashboard formats/ patterns • Automation runbook, CI/CD development • AI and big data analytics • Smart City/ Building/ Factory • Security of authentication and authorization • IoT in transportaton and logistics
Edge Computing Package on Gateways	Azure IoT Edge Azure PnP Certification (Plug and Play)
Benefit for working with Advantech	Advantech delivers both hardware and software services on Cloud in order to engender the following benefits • Proactive capacity planning, performance and cost optimization • Comprehensive design • IOT solution specialization • Consulting and tech services • Hybrid cloud deployment • Variety of security and safety solutions

Security Software

Acronis

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	Backup & Recovery				
Product	• Acronis True Image	• Acronis True Image OEM version (Personal/ HD/ Data Protection/ OEM for windows Server)	• Acronis Cyber Backup	• Acronis Snap Deploy	• Acronis Cyber Protect Cloud
Overview	Acronis True Image delivers easy, efficient, secure cyber protection, combining reliable backups with a proven, integrated AI-based defense against ransomware and cryptojacking attacks.	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.	The world's easiest and fastest data protection software for businesses of all sizes. Covers on-premises 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 – and simultaneously deploy that image to multiple machines in one easy step.	1. Fast and reliable recovery of your applications, systems and data on any device from any incident. 2. Full stack, next-generation AI/ ML-based protection against malware, including ransomware and cryptominers 3. Comprehensive yet simple endpoint management toolkit that saves IT resources
Benefit	• Easy: Intuitive user interface. Two click back up • Efficient: All-in-one protection Mirror imaging, disk cloning, boot media builder, and more. Proven to be up to 10x faster than others • Secure: Only personal backup with an AI-based defense against ransomware and cryptojacking. Automatically restores affected files	• The only backup that actively fights ransomware • Full disk image, dedicate functions 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 • Reduce time-to-action and resolve 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	• Simplified onboarding • Zero-day malware and ransomware protection • Compliance and forensic investigations • Post malware-attack recovery • Protection for all key files • Centralized patching • Auto-response to emerging threats • Minimal planned and unplanned downtime
Min. Hardware Requirement	• Processor Pentium 1 GHz • 1 GB RAM • 3.5 GB of free space on a hard disk • CD-RW/DVD-RW drive or USB drive for bootable media creation (about 600 MB of free space is required) • Screen resolution is 1024 x 768 • Mouse or other pointing device (recommended)	• Processor Pentium 1 GHz • 1 GB RAM • 3.5 GB of free space on a hard disk • CD-RW/DVD-RW drive or USB drive for bootable media creation (about 600 MB of free space is required) • Screen resolution is 1024 x 768 • Mouse or other pointing device (recommended)	• Processor - Pentium 1 GHz • 1GB of free space on a hard disk CD-RW/DVD-RW driver USB flash drive for bootable media creation • Screen resolution of 1024 x 768	• Processor - Pentium 1 GHz • 1.5 GB of free space on a hard disk CD-RW/DVD-RW driver USB flash drive for bootable media creation • Screen resolution of 1024 x 768	• Aronis Cyber Protect Cloud is servicing as SaaS which is a web-based application so that there is no specific hw requirement for you server side. • For client (agent installation) -Processor - Pentium 1 GHz -1.5 GB of free space on a hard disk CD-RW/DVD-RW driver USB flash drive for bootable media creation

McAfee™

Scan and Reach us

	Security		
Product	• McAfee ePO	• McAfee Applicaation Control • McAfee Embedded Control • McAfee Integrity Control	• McAfee Endpoint Security 10
Overview	McAfee ePolicy Orchestrator unifies the managing of endpoints, networks, and data. It is a management tool for deploying and configuring embedded security in connected devices.	McAfee whitelisting technology is ideal for protecting systems with low overhead. It does not impact system performance and is equally effective in standalone mode without network access.	McAfee blacklisting technology introduces a new framework that allows multiple endpoint defense technologies to communicate in real time, and analyzes and collaborates against new and advanced threats.
Benefits	• Central security management to monitor and report the data of managed clients • Remote deployment of security policies • Additional McAfee modules to fulfill different vertical applications • Dashboard with analytical reports	• Block unauthorized applications and change attempts • Change attempts from outside of policy are blocked • Monitors file integrity and file changes	• Includes several new, advanced malware-scanning features to defend against emerging and targeted attacks •Prevents users from browsing to malicious or unauthorized websites •Stops malicious inbound and outbound network traffic
Min. Hardware Requirement	• 64-bit Intel Pentium D or higher • 2.66 GHz or higher • 4-core or higher (recommended) • 20 GB of free space on a hard disk • 8 GB available RAM	• Processor supports x86-64 / AMD64 architectures • 1-GB RAM (64 bit 2-GB) • 100-MB free disk • TCP/IP protocol installed on the system	• Win 7 1.4 GHz or higher 2 GB RAM • Win 10 2 GHz or higher 3GB RAM • 1 GB of free space on a hard disk

Linux, Embedded BIOS and APIs

Ubuntu Product Offerings

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 graphic 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 could 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 Requirement	• 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 Turning	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 protect 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
Watch Dog Timer	Hardware monitoring	SMBus/I2C	G-sensor
Thermal protection	System information	Brightness and backlight on/off	Intelligent display
System throttling		Canbus	Virtual COM

Computer On Modules

Model Name		SOM-C350	SOM-D580	SOM-E780
		Coming Soon	Coming Soon	Coming Soon
Form Factor		COM-HPC Size C	COM-HPC Size D	COM-HPC Size E
Pin-out Type		COM-HPC Client	COM-HPC Server	COM-HPC Server (Proprietary)
Processor System	CPU	Intel® next generation desktop CPU (socket)	Intel® next generation Xeon® D HCC CPU	AMD EPYC 7003 CPU (socket)
	Base Frequency	TBD	2.1-1.8GHz	3.0-2.0GHz
	Processor Core	16/12/6/4/2	20/16/12/8/4	64/32/24/16
	LLC	30/25/18/12/6/4MB	30/25/20/15MB	256/128MB
	CPU TDP	65/35W	118/100/80/77/65W	225/180/155W
	Chipset	Intel® next generation desktop PCH	-	-
Memory	Technology	DDR5 4800	DDR4 3200	DDR4 3200
	ECC Support	ECC and non-ECC	ECC and non-ECC	ECC and non-ECC
	Max. Capacity	128GB	512GB	512GB
	Socket	4 x 262P SODIMM	4 x 288P LRDIMM	4 x 288P LRDIMM
Graphics	Controller	Intel® UHD Graphics 770	-	-
	Max. Frequency	TBD	-	-
	eDP	1	-	-
	DDI (HDMI/DVI/DisplayPort)	3	-	-
	Multiple Displays	Quad-Display	-	-
Expansion	PCIe x16	1 (Gen5)	2 (Gen4)	4 (Gen4)
	PCIe x8	-	2 (Gen3)	1 (Gen4)
	PCIe x4	-	-	1 (Gen4)
	PCIe x1	16 Gen4 + 10 Gen3	-	2 (Gen4)
	PCIe_BMC	1 (optional)	1	1
	eSPI	1	1	N/A; Support LPC
Serial Bus	SMBus	1	1	1
	I2C Bus	2	2	2
	IPMB	-	1	1
Ethernet	Controller	2 x Intel® I225	Intel® I225	Intel® I225
	GbE Speed	2.5G	2.5G	2.5G
	25Gb Ethernet	-	4 x 25Gb or 8 x 10Gb	-
I/O	SATA	2	2	2
	USB 3.2 Gen 2x2 (20Gbps)	4	-	-
	USB 3.2 Gen 2 (10Gbps)	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	4	4
	USB 2.0	8	4	4
	Audio	Soundwire/HD Audio	-	-
	BOOT_SPI	1	1	1
	GP_SPI	-	-	-
	GPIO	12	12	12
	Watchdog	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	-	-
	TPM	TPM2.0	TPM2.0	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
	Supply Voltage	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	TBD	TBD
	Power Consumption Idle	TBD	TBD	TBD
Environment	Operating Temp.	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	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

NEW

Model Name		SOM-5993	SOM-5962	SOM-9590	SOM-5992
Form Factor		COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R3.0 Type 7	COM R3.0 Type 7	COM R3.0 Type 7	COM R3.0 Type 7
Processor System	CPU	Intel® next generation Xeon® D LCC CPU	Intel® Atom Processor C3000 Series	Intel® Xeon Processor D-1539	Intel® Xeon Processor D-1500 Series
	Base Frequency	2.3-1.6GHz	2.2-1.5GHz	1.6GHz	2.2-1.3GHz
	Processor Core	10/8/4	16/12/8/4/2	8	16/12/8/6/4/2
	LLC	15/12/6MB	16/12/8/4MB	12MB	24/12/9/6/3MB
	CPU TDP	69/59/52/50/39W	31/25/17/16/11.5/8.5W	35W	45/35/25W
	Chipset	-	-	-	-
Memory	Technology	DDR4 2933	DDR4 2400/2133/1866	DDR4 2133	DDR4 2400/2133/1866
	ECC Support	ECC and non-ECC	ECC and non-ECC	ECC	ECC and non-ECC
	Max. Capacity	128GB	128GB	32GB	128GB
	Socket	4 x 260P SODIMM	4 x 260P SODIMM	-	4 x 260P SODIMM
Graphics	Controller	-	-	-	-
	Max. Frequency	-	-	-	-
	VGA	-	-	-	-
	LCD (TTL/LVDS/eDP)	-	-	-	-
	DDI (HDMI/DVI/DisplayPort)	-	-	-	-
	Multiple Displays	-	-	-	-
Expansion	PCIe x16	1 (Gen4)	-	1	1
	PCIe x8	1 (Gen3)	Up to 2 (depends on SKU)	1	1
	PCIe x4	2 (Gen3)	1	-	-
	PCIe x1	-	-	7 (max. 8 if remove GbE)	7 (max. 8 if remove GbE)
	LPC	1	1	1	1
Serial Bus	SMBus	1	1	1	1
	I2C Bus	1	1	1	1
	CAN Bus	Optional	-	-	-
Ethernet	Controller	Intel® I210	Intel® I210	Intel® I210	Intel® I210
	GbE Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	4	4 (10G/2.5G by SKU)	2	2
I/O	SATA	2	2	2	2
	USB 3.2 Gen 2 (10Gbps)	-	-	-	-
	USB 3.2 Gen 1 (5Gbps)	4	4	4	4
	USB 2.0	4	4	4	4
	Audio	-	-	-	-
	SPI Bus	1	1	1	1
	GPIO	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-
	Watchdog	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	eMMC	SATA SSD	-
	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: 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
	Power Consumption Max.	TBD	32.6W	45.56W	55.5W
	Power Consumption Idle	TBD	11.8W	12.75W	13.77W
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)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	125 mm x 95 mm (4.92" x 3.74")	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")

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

Computer On Modules

NEW

Model Name		SOM-5883	SOM-5899	SOM-5898	SOM-5897	SOM-5871
Form Factor		COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R3.0 Type 6	COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R3.0 Type 6
Processor System	CPU	Intel® 11th Gen. H Series (Tiger Lake-H)	Intel® 9th/8th Gen. Core i7/ i5/i3/Xeon/Celeron	Intel® 7th Gen. Core i7/i5/ i3/ Xeon	Intel® 6th Gen. Core i7/i5/i3/ Xeon/Celeron	AMD Ryzen™ V1000
	Base Frequency	2.6-1.5GHz	3.0-1.6GHz	3.0-2.1 GHz	2.8-1.9GHz	3.35-2.0GHz
	Processor Core	8/6/4/2	6/4/2	4/2	4/2	4/2
	LLC	24/12/8MB	12/9/8/6/2MB	8/6/3MB	8/6/3/2MB	2/1MB
	CPU TDP	45/35/25W	45/35/25W	45/35/25W	45/35/25W	35-54/12-25W
	Chipset	Intel® QM580E/RM590E	Intel® CM246/QM370/ HM370	Intel® QM175/CM238	Intel® QM170/CM236	-
Memory	Technology	DDR4 3200	DDR4 2666/2400/2133	DDR4 2400/2133	DDR4 2133/1866	DDR4 3200/2400
	ECC Support	ECC and non-ECC	ECC (Xeon only)	ECC (Xeon only)	ECC (Xeon only)	ECC and non-ECC
	Max. Capacity	128GB	96GB	32GB	32GB	32GB
	Socket	4 x 260P SODIMM	3 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM
Graphics	Controller	Intel® Iris® Xe Graphics	Intel® UHD Graphics 610/630/P630	Intel® HD Graphics 630/ P630	Intel® HD Graphics 510/530/ P530/P580	AMD Vega GPU
	Max. Frequency	1350-1250MHz	1.15GHz	1GHz-350MHz	1.05GHz-950MHz	1.3-1.0GHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
		eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)
	DDI (HDMI/DVI/DisplayPort)	3	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA
	Multiple Displays	Quad-Display	Triple-Display	Triple-Display	Triple-Display	Quad-Display
Expansion	PCIe x16	1 (Gen4)	1	1	1	-
	PCIe x8	-	-	-	-	1
	PCIe x4	-	-	-	-	-
	PCIe x1	8 (Gen3)	8	8	8	6
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	Optional
Ethernet	Controller	Intel® I225	Intel® I219LM	Intel® I219LM	Intel® I219LM	Intel® I210
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	4	4	4	4	2
	USB 3.2 Gen 2 (10Gbps)	4	4	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	-	4	4	3
	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)	-	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	NVMe SSD	-	-	-	-
	TPM	TPM2.0	TPM2.0	TPM2.0	Optional	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.	TBD	44.63W	48.1W	43.3W	67.12 W
	Power Consumption Idle	TBD	6.89W	6.77W	5.23W	15 W
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)	-40 ~ 85 °C (only on V1404I)
Mechanical	Dimensions	125 x 95mm (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")	125 x 95mm (4.92" x 3.74")

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

Computer On Modules

Model Name		SOM-6883	SOM-6872	SOM-6882	SOM-6898	SOM-6897
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact
Pin-out Type		COM R3.0 Type 6	COM R3.0 Type 6	COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6
Processor System	CPU	Intel® 11th Gen. U Series (Tiger Lake-UP3)	AMD Ryzen™ V2000	Intel® 8th Gen. Core i7/i5/i3/ Celeron	Intel® 7th Gen. Core i7/i5/i3/ Celeron	Intel® 6th Gen. Core i7/i5/i3/ Celeron
	Base Frequency	2.2-1.5GHz	3.0-1.7GHz	2.2-1.6GHz	2.8-2.2GHz	2.6-2.0GHz
	Processor Core	4/2	8/6	4/2	2	2
	LLC	12/8/6/4MB	8MB	8/6/4/2MB	4/3/2MB	4/3/2MB
	CPU TDP	28/15/12W	35-54/10-25W	15W	15W	15W
	Chipset	-	-	-	-	-
Memory	Technology	DDR4 3200 (1CH on board)	DDR4 3200	DDR4 2400	DDR4 2133	DDR3L 1600
	ECC Support	IBECC supoort by Specific CPU SKUs	ECC and non-ECC	-	-	-
	Max. Capacity	48GB	64GB	64GB	32GB	16GB
	Socket	1 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 204P SODIMM
Graphics	Controller	Intel® Iris® Xe Graphics/ Intel® UHD Graphics	AMD Radeon Graphics Vega GPU	Intel® UHD Graphics 620/610	Intel® HD Graphics 620/610	Intel® HD Graphics 520/510
	Max. Frequency	1.35-1.25GHz	1.6GHz	1.15-1.0 GHz	1.15-0.9 GHz	1.15-0.9GHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
		eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)
	DDI (HDMI/DVI/ DisplayPort)	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA
	Multiple Displays	Quad-Display	Quad-Display	Triple-Display	Triple-Display	Triple-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	1	-	-	-
	PCIe x4	1 (if remove NVMe)	-	-	-	-
	PCIe x1	5 (max. 6 if remove GbE)	8	8	8	8
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	-
Ethernet	Controller	Intel® I225	Intel® I210	Intel® I219LM	Intel® I219LM	Intel® I219LM
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2; up to 3 if remove PCIe x1	2; up to 3 if remove PCIe x1	2; up to 3 if remove PCIe x1
	USB 3.2 Gen 2 (10Gbps)	4	4	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	-	4	4	4
	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)	-	-	Optional	1	1
	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	-	eMMC	eMMC	-
	TPM	TPM2.0	TPM2.0	TPM2.0	Optional	Optional
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX/ATX: 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.	55.742W	73.25W	59.721W	24.61W	20.73W
	Power Consumption Idle	7.834W	4.798W	4.204W	4.16W	4.12W
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	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

NEW

NEW

Model Name		SOM-6832	SOM-6869	SOM-6867	SOM-7583	SOM-7569
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Mini	COM Express Mini
Pin-out Type		COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R3.0 Type 10	COM R2.1 Type 10
Processor System	CPU	Intel® Atom/Pentium/Celeron x6000 Series (Elkhart Lake)	Intel® Atom E3900 & Pentium/ Celeron N series	Intel® Atom E3800 & Celeron N/J series	Intel® 11th Gen. U Series (Tiger Lake-UP3)	Intel® Atom E3900 & Pentium/ Celeron N series
	Base Frequency	2.0-1.0GHz	1.6-1.1GHz	2.0-1.19GHz	2.2-1.5GHz	1.6-1.1GHz
	Processor Core	4/2	4/2	4/2	4/2	4/2
	LLC	1.5MB	2MB	2/1MB	12/8/6/4MB	2MB
	CPU TDP	12/10/9/7.5/6.5/6/4.5W	6/6/12/9.5/6.5/10W	10 - 6W	28/15/12W	12/9.5/6.5/6W
	Chipset	-	-	-	-	-
Memory	Technology	DDR4 3200	ECC: DDR3L 1600; Non-ECC: DDR3L 1866	DDR3L 1333	LPDDR4X up to 4267MT/s	DDR3L 1866/1600
	ECC Support	IBECC supoort by Specific CPU SKUs	A1: non-ECC; B1: ECC	-	IBECC supoort by Specific CPU SKUs	ECC and non-ECC
	Max. Capacity	32GB	8GB	8GB	16GB	8GB
	Socket	2 x 260P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	-	-
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® Iris® Xe Graphics	Intel® HD Graphics
	Max. Frequency	800-750MHz	750-550MHz	854-792MHz	1350-1250MHz	750-550MHz
	VGA	-	1	1	-	-
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	No LVDS; eDP only	LVDS 1-CH 18/24-bit
		eDP (optional)	eDP (optional)			eDP (optional)
	DDI (HDMI/DVI/ DisplayPort)	2	1; up to 2 if remove VGA	1; up to 2 if remove LVDS	1	1
	Multiple Displays	Triple-Display	Triple-Display	Dual-Display	Dual-Display	Dual-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x4	-	-	-	-	-
	PCIe x1	6	5	3 (max. 4 if remove GbE)	4	4
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	Optional
Ethernet	Controller	Maxlinear GPY215	Intel® I210	Intel® I210	Intel® I225	Intel® I210
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	2.5G	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2	2	2
	USB 3.2 Gen 2 (10Gbps)	2; up to 4 if remove PCIe	-	-	2	-
	USB 3.2 Gen 1 (5Gbps)	-	2	1	-	2
	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)	-	Optional	-	-	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	-	SATA SSD	NVMe SSD	eMMC
	TPM	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: 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: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V
	Power Consumption Max.	TBD	14.76W	15.36W	TBD	14.73W (E3950)
	Power Consumption Idle	TBD	4.46W	9.48W	TBD	4.68W (E3950)
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)	-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")	84 x 55 mm (3.3" x 2.17")	84 x 55 mm (3.3" x 2.17")

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

Computer On Modules

NEW

Model Name		SOM-7567	SOM-2532	SOM-2569	SOM-3569	SOM-3567
Form Factor		COM Express Mini	SMARC	SMARC	QSeven	Qseven
Pin-out Type		COM R2.1 Type 10	SMARC 2.1.1	SMARC 2.0/2.1	QSeven 2.1	Qseven 2.1
Processor System	CPU	Intel® Atom E3800 & Celeron N/J series	Intel® Atom/Pentium/Celeron x6000 Series (Elkhart Lake)	Intel® Atom E3900 & Pentium/Celeron N series	Intel® Atom E3900 & Pentium/Celeron N series	Intel® Atom E3800 & Celeron N/J series
	Base Frequency	2.0-1.33GHz	2.0-1.0GHz	2.5-1.8GHz	1.6-1.1GHz	2.0-1.33GHz
	Processor Core	4/2/1	4/2	4/2	4/2	4/2/1
	LLC	2MB/1MB/512KB	1.5MB	2MB	2MB	2MB/1MB/512KB
	CPU TDP	10/8/7.5/6/5/3W	12/10/9/7.5/6.5/6/4.5W	12/9/6.5/6W	12/9/6.5/6W	10/8/6/5/4.3/3W
	Chipset	-	-	-	-	-
Memory	Technology	DDR3L 1333/1066	LPDDR4 3200	LPDDR4 2400	LPDDR4 2400	DDR3L 1333/1066
	ECC Support	-	IBECC supoort by Specific CPU SKUs	-	-	-
	Max. Capacity	4GB	16GB	8GB	8GB	8GB
	Socket	-	-	-	-	-
Graphics	Controller	Intel® HD Graphics	Intel® UHD Graphics	Intel® HD Graphics 505/500	Intel® HD Graphics	Intel® HD Graphics
	Max. Frequency	854-792MHz	800-750MHz	750-550MHz	750-550MHz	854-750MHz
	VGA	-	-	-	-	-
	LCD (TTL/LVDS/eDP)	LVDS 1-CH 18/24-bit	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit
	DDI (HDMI/DVI/ DisplayPort)	1	2	2	1	1
	Multiple Displays	Dual-Display	Triple-Display	Triple-Display	Dual-Display	Dual-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x4	-	-	-	-	-
	PCIe x1	3 (max. 4 if remove GbE)	4	4 (max. 5 if remove GbE)	4	3 (max. 4 if remove GbE)
	LPC	1	N/A; Support eSPI	-	1	1
Serial Bus	SMBus	1	-	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	-	2	Optional	Optional	-
Ethernet	Controller	Intel® I210	2 x Marvell 88E1512	2 x Intel® I210	Intel® I210	Intel® I210
	GbE Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	1	1	2	2
	USB 3.2 Gen 2 (10Gbps)	-	2	-	-	-
	USB 3.2 Gen 1 (5Gbps)	1	-	2	2	1
	USB 2.0	4	6	6	8	6
	Audio	HD Audio	1 x HD Audio/ up to 2 x I2S	1 x HD Audio/ up to 2 x I2S	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	14	12	-	-
	SDIO (GPIO pin shared)	-	-	1	1	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	4 (2 x 4-wire / 2 x 2-wire)	4 (2 x 4-wire / 2 x 2-wire)	2 (2 x 4-wire, 1 on MFG pins)	2 (2 x 4-wire, 1 on MFG pins)
	Onboard Storage	SATA SSD	eMMC	eMMC	eMMC	eMMC
	TPM	-	TPM2.0	TPM2.0	TPM2.0	-
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX/AT: Vin	ATX/ATX: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-5.25V	Vin: 4.75-5.25V	Vin: 4.75-5.25V VSB: 4.75-5.25V	Vin: 4.75-5.25V VSB: 4.75-5.25V
	Power Consumption Max.	16.56W (E3845)	TBD	14.11W	9.1W	7.53W
	Power Consumption Idle	8.04W (E3845)	TBD	3.45W	2.82W	3.28W
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)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	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")	70 x 70 mm (2.75" x 2.75")	70 x 70 mm (2.75" x 2.75")

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

Embedded Single Board Computers

MIO Extension 3.5” SBCs

NEW NEW

Model Name			MIO-5375	MIO-5152	MIO-5393	MIO-5391
Form-Factor			3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact
Processor System	CPU		i3-1115G4E/ i5-1145G7E/ i7-1185G7E/ i7-1185GRE	N6210/J6412/x6425E	i5-8400H/i7-9850HL / i7-9850HE/ E-2276ME	i3-7102E/ i5-7442EQ/ i7-7820EQ/ E3-1505MV6
	# of Cores		4 ~ 8	2 ~ 4	4 ~ 6	2 ~ 4
	# of Threads		4 ~ 8	2 ~ 4	8 ~ 12	4 ~ 8
	Max. Turbo Frequency		3.90GHz ~ 4.40GHz	2.6GHz ~ 3.0GHz	4.1 GHz ~ 4.5GHz	2.90GHz ~ 4.00GHz
	Base Frequency		1.50GHz ~ 3.0GHz	1.2GHz ~ 2.0GHz	1.9 GHz ~ 2.8 GHz	2.10GHz ~ 3.00GHz
	Last Level Cache (LLC)		8MB~8MB		8MB ~12MB	3MB~8MB
	CPU TDP (Watt)		15W~28W		25W~45W	25W~45W
	BIOS		AMI EFI 256Mb	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 128Mb
Memory	Technology		DDR4-3200MHz	DDR4-3200MHz	DDR4-2400MHz	DDR4-2400MHz
	Max. Capacity		64GB	32GB	32GB (64GB*)	32GB (64GB*)
	# of Channels		2	1	2	2
	# of Sockets		2	1	2	2
	ECC Support		-	-	Support	Support
Graphics	Chipset		Integrated GFx		Intel Gen.9LP	Intel Gen.9LP
	Controller		Integrated GFx Intel® UHD Graphics 630	Intel® UHD Graphics	Intel® UHD Graphics P630	Intel® HD Graphics P630
	3D Accelerator		DX12, OGL4.0, OCL1.2	DX12, OGL4.5, OCL1.2	DX3D 2015/11.2, OGL5.0, OCL2.1/2.0/1.2	DX3D 2015/11.2, OGL5.0, OCL2.1/2.0/1.2
	VGA		-	-	-	1920 x 1200 @ 60Hz
	LFP	LVDS	48-bit, 1920 x 1200 @ 60Hz	18/24-bit, up to 1920 x 1200	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
		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 2304@30Hz, 24bpp	HDMI 2.0, 4096 x 2160@60Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp
	HDMI2		-	-	-	HDMI1.4, 4096 x 2304@30Hz, 24bpp
	DisplayPort1		HDMI2.0, 4096 x 2304@60Hz, 24bpp	DP1.4a, 4096 x 2160 x 36bpp@60Hz, 36bpp	DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-
	# of Display Pipe (Multi-Display)		4	3	3 (w/ MIOe)	3
I/O	Ethernet	LAN1	Intel i219LM	RTL8111H	Intel i219	Intel i219LM
		LAN2	Intel i210	RTL8111H	Intel i210	Intel i210IT
	SATA	# of Ports	1	1	2	2
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)
	USB	USB3.1	4	4 (10 Gbps)	4 (10 Gbps)	-
		USB3.0	-	-	-	4 (5.0 Gb/s)
		USB2.0	2 (internal)	2 (Internal)	2 (Internal)	2
	UART	RS-232/ 422/485	2	2	2	2
		RS-232	2 (4-wire)	4	-	Optional 2 Ports to GPIO
	Serial Bus	I2C Bus	1	1	1	Option to SMBus, 100K/400K
		SMBus	1	Opt. to I2C	1	1
		CANBus	1	-	1	-
	Audio	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
		Amplifier	-	-	-	-
	GPIO (DIO)		8-bit	8-bit	16-bit	16-bit
Storage	mSATA		-	-	-	F/S mSATA (SATA, USB2.0)
	eMMC		-	-	-	-
	SATA SSD		-	-	-	-
Expansion	M.2 E-Key 2230		PCIe, USB2.0	PCIe x1, USB2.0	PCIe x1, USB2.0	PCIe (x1/x2), USB2.0
	M.2 B-Key 3042		USB2.0	opt. to E-Key, PCIe x1, USB2.0	-	-
	M.2 B/M-Key 2280		-		PCIe x2, SATA, USB2.0	-
	M.2 M-Key 2242		-	SATA	-	-
	M.2 M-Key 2280		NVMe (PCIex4), opt. SATA	-	Option to M.2 B/M-Key 2280 (PCIex4, USB2.0)	-
	mini-PCIe		-	-	-	Option to mSATA (PCIex1, USB2.0)
	PC/104		-	-	-	-
	PCI104		-	-	-	-
	PC/104-Plus		-	-	-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/ SMBus/Line-out/Power Supply)		Support	-	Support	Support
Others	TPM		TPM2.0 AES-256	TPM2.0 (NPCT750AABYX)	TPM2.0 (SLB9670XQ2.0 FW7.63/SPI)	TPM2.0 (SLB9665XQ2.0 FW5.62)
	Fan		1 x SMART Fan, 4-wire	4-Wire Smart Fan	4-Wire Smart Fan	4-Wire Smart Fan
	WatchDog Timer		Support	1 ~ 255 sec	65536 Level, Minute or Second	65536 Level, Minute or Second
Power	Power Type		AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage		12V~24V	12V	12V	12V
	Connector		2X2 ATX Connector	ATX 2x2pin 90D	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack
	Power Management		ACPI	ACPI	ACPI	ACPI
	Power Consumption (Idle)		19.2W	21.39W	11.55W	TBU
	Power Consumption (Full Load)		46.8W	7.31W	44.55W/ 74.44W/ 95.38W/ 102.75W	TBU
Thermal	Fan or Fanless		Active (Fan Base)/ Passive (Fan-less)	Fanless	Active (Fan Base)/ Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0~60C	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	Storage Temperature		-40~85C	-40~85C	-40~85C	-40~85C
	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 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-	-	-

Note: “-” : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 3.5” SBCs

Model Name			MIO-5373	MIO-5272	MIO-5350	MIO-5251	MIO-5850
Form-Factor			3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact
Processor System	CPU		i7-8665UE/i5-8365UE/i3-8145UE/ Celeron 4305U*	i7-7600U/ i5-6300U/ i3-6100U	N4200/ N3350/ E3930/ E3940/ E3950	J1900/ E3845/ E3825	J1900/ E3825
	# of Cores				4/ 2/ 4/ 4/ 2	4/4/2	4/ 2
	# of Threads				2 ~ 4	4/4/2	4/ 2
	Max. Turbo Frequency		3.90GHz ~ 4.40GHz	3.0GHz ~ 3.40GHz	2.5GHz/ 2.4GHz/ 2GHz/ 1.8GHz/ 1.8GHz	2.42GHz / -/ -	2.42GHz / -
	Base Frequency		1.60GHz ~ 2.20GHz	2.30GHz ~ 2.80GHz	1.1GHz/ 1.1GHz/ 1.6GHz/ 1.6GHz/ 1.3GHz	2.00GHz/ 1.9GHz/ 1.33GHz	2.00GHz/ 1.33GHz
	Last Level Cache (LLC)		4MB~8MB	3MB~4MB	2MB/ 2MB/ 2MB/ 2MB/ 2MB	2MB/ 2MB/ 1MB	2MB/ 1MB
	CPU TDP (Watt)		15W	15W	6W/ 6W/ 12W/ 9.5W/ 6.5W	10W/ 10W/ 6W	10W/ 6W
	BIOS		AMI UEFI 256Mb		AMI UEFI 64 Mb	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology		DDR4-2400MHz	DDR3L-1600MHz	DDR3L 1867MHz	DDR3L-1333/ 1066MHz	DDR3L-1333/ 1066MHz
	Max. Capacity		32GB (64GB*)	16GB	16GB	Up to 8GB	Up to 8GB
	# of Channels		2	2	1	1	1
	# of Sockets		2	2	1	1	1
	ECC Support		-	-	-	-	-
Graphics	Chipset		Intel Gen.9	Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC
	Controller		Intel® UHD Graphics 620	Intel® HD Graphics 620	Intel Gen9 graphic engine	Intel® HD Graphics for Z3700 Series	Intel® HD Graphics for Z3700 Series
	3D Accelerator		Direct3D 2015, OpenGL4.5, OpenCL2.1	Direct3D 2015, OpenGL4.5, OpenCL2.1	Direct3D 2015, OpenGL4.5, OpenCL2.1	DX11, OGL3.2, OCL1.2	DX11, OGL3.0, OCL1.2
	VGA		-	1920 x 1200 @ 60Hz	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	48-bit, 1920 x 1200	48-bit, 1920 x 1200	48-bit, 1920 x 1200
		eDP	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. eDP1.4, 4096 x 2160@30Hz	Opt. 2560 x 1600 @ 60Hz	Opt. 2560 x 1600 @ 60Hz
	HDMI1		HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4b 3840x2160@30Hz	HDMI1.4a 1920 x 1080 @ 60Hz	HDMI1.4a, 1920x1200x24bpp @60Hz
	HDMI2		-	-	-	-	-
	DisplayPort1		DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. DP1.2a 4096x2260@60Hz	Opt. to HDMI, up to 2560 x 1600 @ 60Hz	-
	# of Display Pipe (Multi-Display)		3	3	3	2	2
I/O	Ethernet	LAN1	i219	i219	i210AT	i210AT	i210AT
		LAN2	i210IT	i210IT	i210AT	i210AT	i210AT
	SATA	# of Ports	1, option 2 to NVMe	2	1, opt. 2	1	1
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)	Gen2 (3.0 Gb/s)
	USB	USB3.1	4 (10GT/s)	-	-	-	-
		USB3.0	-	2 (5.0 Gb/s)	2 (5.0 Gb/s)	1	1
		USB2.0	2	4	4	4	4
	UART	RS-232/ 422/485	2	2	2	2	2
		RS-232	Optional 2 Ports to GPIO	-	2	2	2
	Serial Bus	I2C Bus	1	Option to SMBus	Opt. with SMBus, 100K/400K	Opt. to SMBus	Opt. to SMBus
		SMBus	1	1	Support	1	1
		CANBus	1	-	-	-	-
	Audio	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
		Amplifier	-	-	-	-	-
	GPIO (DIO)		16-bit	8-bit	8-bit	8-bit	16-bit
Storage	mSATA		-	F/S mSATA (SATA, USB2.0)	F/S mSATA (SATA, USB2.0)	F/S (SATA, USB2.0, SMBus)	F/S (SATA, USB2.0, SMBus)
	eMMC		32GB	-	-	-	On board 32GB Opt. up to 64GB
	SATA SSD		-	-	-	-	-
Expansion	M.2 E-Key 2230		PCIe x1, USB2.0	-	PCIe, USB2.0	-	Opt to mini-PCIe (PCIex1, USB2.0)
	M.2 B-Key 3042		-	-	-	-	-
	M.2 B/M-Key 2280		SATA, USB2.0	-	-	-	-
	M.2 M-Key 2242		-	-	-	-	-
	M.2 M-Key 2280		Option to M.2 B/M-Key 2280 (PCIex4, USB2.0)	-	-	-	-
	mini-PCIe		-	1 x F/S (PCIex1, USB2.0), Opt. 2nd to mSATA	-	F/S (PCIex1, USB2.0, SMBus)	F/S (PCIex1, USB2.0)
	PC/104		-	-	-	-	-
	PCI104		-	-	-	-	-
	PC/104-Plus		-	-	-	-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/ SMBus/Line-out/Power Supply)		Support	Support	Support	Support	-
Others	TPM		TPM2.0 (SLB9670XQ2.0FW7.63)	Option SLB9665XQ2.0 FW 5.00	Opt. TPM2.0 (SLB9665TT2.0)	-	-
	Fan		4-Wire Smart Fan	3-wire Smart Fan	-	Fan (12V)	Fan (12V)
	WatchDog Timer		65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second
Power	Power Type		AT, ATX	AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage		12~24V	12V	12V	12V	12V
	Connector		ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	Phoenix 1x2
	Power Management		ACPI	ACPI	ACPI	ACPI	ACPI
	Power Consumption (Idle)		6.61W@12V; 7.42W@24V	6.46W@12V	0.4A@12V	0.62A@12V	Check test report (DS need update)
	Power Consumption (Full Load)		30.10W@12V; 33.33W@24V	22.03W@12V	1.26A@12V	1.16A@12V	Check test report (DS need update)
Thermal	Fan or Fanless		Active (Fan Base)/ 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); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	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 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-	-	-	-

Note: “-” : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 2.5” Pico-ITX

NEW NEW

Model Name			MIO-2363	MIO-2375	MIO-2361	MIO-2360
Form-Factor			MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX
Processor System	CPU		x6425E/ x6413E/ x6211E	i7-1185G7E/ i7-1185GRE/ i5-1145G7E/ i3-1115G4E	E3950/ E3940/ E3930/ N4200/ N3350	E3940/ E3930/ N4200/ N3350
	# of Cores		4/ 4/ 2	4/ 4/ 4/ 2	4/ 4/ 2/ 4/ 2	4/ 2/ 4/ 2
	# of Threads		4/ 4/ 2	8/ 8/ 8/ 4	4/ 4/ 2/ 4/ 2	4/ 2/ 4/ 2
	Max. Turbo Frequency		3.0GHz / 3.0GHz /3.0GHz	4.40GHz/ 4.40GHz/4.10GHz/ 3.90GHz	2.00GHz/ 1.8GHz/1.8GHz/ 2.50GHz/ 2.4GHz	1.8GHz/1.8GHz/ 2.50GHz/ 2.4GHz
	Base Frequency		2.0GHz/ 1.5GHz/ 1.3GHz	1.80GHz/ 1.80GHz/ 1.50GHz/ 2.20GHz	1.6GHz/ 1.6GHz/ 1.3GHz/ 1.1GHz/ 1.1GHz	1.6GHz/ 1.3GHz/ 1.1GHz/ 1.1GHz
	Last Level Cache (LLC)		1.5MB/ 1.5MB/ 1.5MB	12MB/ 12MB/ 8MB/ 6MB	2MB/ 2MB/ 2MB/ 2MB/ 2MB	2MB/ 2MB/ 2MB/ 2MB
	CPU TDP (Watt)		12W/ 9W/ 6W	15W/ 15W/ 15W/ 15W	12W/ 9W/ 6W/ 6W/ 6W	9W/ 6W/ 6W/ 6W
	BIOS		AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology		LPDDR4x-3733/ 3200/ 3200	LPDDR4x-4267	LPDDR4-2400	DDR3L-1867
	Max. Capacity		up to 8GB	Onboard 16GB	Onboard 4GB	Up to 8GB
	# of Channels		2	2	2	1
	# of Sockets		-	-	-	1
	ECC Support		Support	-	-	-
Graphics	Chipset		Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC
	Controller		Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® Iris® Xe Graphics	Intel® HD Graphics 505	Intel® HD Graphics 505
	3D Accelerator		DX12, OGL4.5, OCL1.2, Vulkan 1.1	DX12, OGL4.0, OCL2.0	DX12, OGL4.3, OCL2.0	DX12, OGL4.3, OCL2.0
	VGA		-	-	-	1920 x 1200 @ 60Hz
	LFP	LVDS	18/24-bit LVDS	-	48-bit, 1920 x 1200	24-bit, 1440 x 900
		eDP	-	eDP1.4 HBR3, up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-
	HDMI1		3840 x 2160 @ 30Hz	-	HDMI 1.4b, 3840x2160x24bpp @30Hz	HDMI1.4b 3840x2160@30Hz
	HDMI2		-	-	-	-
	DisplayPort1		-	x DP1.4 (DP++), up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-
	# of Display Pipe (Multi-Display)		2	2	2	2 (3 with MIOe)
I/O	Ethernet	LAN1	i210IT	i219	i210IT	i210AT
		LAN2	i210IT	i210	i210IT	-
	SATA	# of Ports	-	1	1	1
		Speed	-	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)
	USB	USB3.1	2	2		-
		USB3.0	-	-	2	2 (5.0 Gb/s)
		USB2.0	2	2	2	2
	UART	RS-232/422/485	2	1	2	2
		RS-232	-	1	-	-
	Serial Bus	I2C Bus	1	1	Option to SMBus	Option to SMBus (Intel LPSS)
		SMBus	-	Optional	1	1
		CANBus	-	-	-	-
	Audio	CODEC	ALC888S	ALC888S	ALC888S	ALC888S
		Amplifier	-	-	-	-
	GPIO (DIO)		8-bit	4-bit	8-bit	8-bit
Storage	mSATA		-	-	Option to mini-PCIe	H/S (SATA, USB2.0)
	eMMC		128GB/ 64GB/ 64GB	-	32GB	-
	SATA SSD		-	-	-	-
Expansion	M.2 E-Key 2230		PCIe x1, USB2.0	PCIe x2, USB2.0	PCIe x1, USB2.0	-
	M.2 B-Key 3042		SATA, USB2.0, opt to PCIe x1	SATA, USB2.0	-	-
	M.2 B/M-Key 2280		-	-	-	-
	M.2 M-Key 2242		-	PCIe x2	-	-
	M.2 M-Key 2280		-	-	-	-
	mini-PCIe		-	-	F/S (PCIex1, USB2.0)	F/S (PCIex1, USB2.0)
	PC/104		-	-	-	-
	PCI104		-	-	-	-
	PC/104-Plus		-	-	-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/SMBus/Line-out/ Power Supply)		-	-	-	Support
Others	TPM		TPM2.0 (Infineon SLB 9670)	TPM2.0 (Infineon SLB 9670)	TPM2.0 (Infineon SLB 9670)	-
	Fan			Smart Fan, 1A@12V	Fan (12V)	-
	WatchDog Timer		65536 Level, 0~65535 sec	65536 Level, 0~65535 sec	65536 Level, 0~65535 sec	1~255 sec
Power	Power Type		AT, ATX	AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage		12~24V	12V	12/24V Selectable	12V
	Connector		Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm
	Power Management		ACPI	ACPI	ACPI	ACPI
	Power Consumption (Idle)		9.35W (12V), 11.60 (24V)	23.388 W	E3950: 8.59 W (12V) E3950: 8.81 W (24V)	N4200: 4.89 W (12V) N3350: 4.61 W (12V) E3940: 5.39W (12V)
	Power Consumption (Full Load)		26.69W (12V), 28.7W (24V)	9.029 W	E3950: 26.27 W (12V) E3950: 26.51 W (24V)	N4200: 12.90 W (12V) N3350: 17.18 W (12V) E3940: 13.55W (12V)
Thermal	Fan or Fanless		Passive (Fan-less)	Active (Fan Base)	Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)		Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	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 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-	-	-

Note: “-” : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 2.5” Pico-ITX

Model Name			MIO-2263	MIO-3360	MIO-3260
Form-Factor			MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX
Processor System	CPU		J1900/ E3825	N4200/ N3350	E3825/ N2930
	# of Cores		4/ 2	4/ 2	4/ 2
	# of Threads		4 /2	4 /2	4 /2
	Max. Turbo Frequency		2.42GHz / -	2.50GHz/ 2.40GHz	2.42 GHz/ -
	Base Frequency		2.0GHz/ 1.33GHz	1.10GHz/ 1.10GHz	2.0 GHz/1.33 GHz
	Last Level Cache (LLC)		2MB/ 1MB	2MB/ 2MB	2MB/ 1MB
	CPU TDP (Watt)		10W/ 6W	6W/ 6W	7.5W/ 6W
	BIOS		AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit
Memory	Technology		DDR3L-1333/ DDR3L-1066	DDR3L-1867	DDR3L 1333/ 1066 MHz
	Max. Capacity		Up to 8GB	Up to 8GB	Up to 8GB
	# of Channels		1	1	1
	# of Sockets		1	1	1
	ECC Support		-	-	-
Graphics	Chipset		Integrated SoC	Integrated SoC	Integrated SoC
	Controller		Intel® HD Graphics Z3700 Series	Intel® HD Graphics 505	Intel Gen7 graphic engine
	3D Accelerator		DX11, OGL3.0, OCL1.2, OGLES2.0	DX12, OGL4.3, OCL2.0	DX11, OGL3.0, OCL1.1, OGLES2.0
	VGA		Up to 2560 x 1600 @ 60Hz	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz
	LFP	LVDS	24-bit, 1440 x 900	48-bit, 1920 x 1200	1920 x 1200 @ 60Hz
		eDP	-	Opt. eDP1.3, 3840 x 2160@60Hz	-
	HDMI1		Opt. to VGA	HDMI 1.4b, 3840x2160x24bpp @30Hz	-
	HDMI2		-	-	-
	DisplayPort1		-	Option HDMI	Option HDMI
	# of Display Pipe (Multi-Display)		3 (2 with MIOe)	2	2
I/O	Ethernet	LAN1	i210AT	i210IT	i210IT
		LAN2	-	-	-
	SATA	# of Ports	1	-	1
		Speed	Gen2 (3.0 Gb/s)	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)
	USB	USB3.1	-	-	-
		USB3.0	1	1	1(from MIOe)
		USB2.0	3	4	4 (internal)
	UART	RS-232/422/485	1	2	2
		RS-232	1	-	-
	Serial Bus	I2C Bus	-	1	1
		SMBus	Support	1	1
		CANBus	-	-	-
	Audio	CODEC	ALC888S	ALC888S	ALC888S
		Amplifier	-	-	-
	GPIO (DIO)		8-bit	8-bit	8-bit
Storage	mSATA		H/S (SATA, SMBus, no USB2.0)	H/S (SATA, USB2.0)	F/S (SATA, USB2.0)
	eMMC		-	-	-
	SATA SSD		-	-	-
Expansion	M.2 E-Key 2230		-	-	-
	M.2 B-Key 3042		-	-	-
	M.2 B/M-Key 2280		-	-	-
	M.2 M-Key 2242		-	-	-
	M.2 M-Key 2280		-	-	-
	mini-PCIe		H/S (PCIex1, USB2.0, SMBus)	Opt. to mSATA, (PCIex1, USB2.0)	Opt. to mSATA, (PCIex1, USB2.0)
	PC/104		-	-	-
	PCI104		-	-	-
	PC/104-Plus		-	-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/SMBus/Line-out/ Power Supply)		Support	Support	Support
Others	TPM		-	-	-
	Fan		12V Only	-	-
	WatchDog Timer		1~255 sec	65536 Level, Minute or Second	1~255 sec
Power	Power Type		AT, ATX	AT, ATX	AT, ATX
	Power Supply Voltage		12V	12V	12V
	Connector		Wafer 2P 3.96mm	"ATX 2x2 90D, Optional 180D, DC-Jack"	From 64pin connecter A
	Power Management		ACPI	ACPI	ACPI
	Power Consumption (Idle)		J1900: 0.86@12V E3825: '0.59@12V	0.37 @ 12V (4.48W)	E3825: 4.47W N2930: 5.08W
	Power Consumption (Full Load)		J1900: 1.04@12V E3825: 0.76@12V	1.44 @ 12V (17.38W)	E3835: 7.13W N2930: 5.08W
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 (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	Storage Temperature		-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
	Relative Humidity (Storage)		-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-	-

Note: “-” : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" Single Board Computers

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 (Watt)		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	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	48-bit, 1920 x 1200
		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		-	-	-
	DisplayPort1		-	-	-
	# of Display Pipe (Multi-Display)		2	2	2
I/O	Ethernet	LAN1	i210IT	RTL8111	RTL8111E
		LAN2	i210IT	RTL8111	RTL8111E
	SATA	# of Ports	1	1, opt. 2 to mSATA	1
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s), opt. port with Gen2	Gen2 (3.0 Gb/s)
	USB	USB3.1	-		-
		USB3.0	2	2 (5 Gb/s)	1 (5 Gb/s)
		USB2.0	4	4	5
	UART	RS-232/ 422/485	2	2	1
		RS-232	2	2	3
	Serial Bus	I2C Bus	Option to SMBus	Option to SMBus (simulated)	Option to SMBus (simulated)
		SMBus	1 (option with I2C)	1	1 (IT8528)
		CANBus	2	-	-
	Audio	CODEC	ALC888	ALC892	ALC898
		Amplifier	-	-	-
	GPIO (DIO)		16-bit	8-bit	8-bit
Storage	mSATA		F/S (SATA, USB2.0, SMBus)	F/S (SATA, USB2.0)	F/S (SATA, USB2.0)
	eMMC		-	-	-
	SATA SSD		-	-	-
Expansion	M.2 E-Key 2230		PCIe x1, USB2.0	-	-
	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 (PCIex1, USB2.0)	F/S (PCIex1, USB2.0), opt. 2nd to mSATA	F/S (PCIex1, USB2.0)
	PC/104		-	-	-
	PCI104		-	-	-
	PC/104-Plus		-	-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/ SMBus/Line-out/ Power Supply)		-	-	-
Others	TPM		Optional (SLB9665XQ2.0 FW 5.00)	Optional TPM2.0 (SLB9665XQ2.0 FW5.00)	Optional TPM2.0 (SLB9665XQ2.0 FW5.00)
	Fan		-	Fan (12V)	-
	WatchDog Timer		65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second
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
	Power Consumption (Idle)		0.55A@12V	0.58A@12V	0.51@12V
	Power Consumption (Full Load)		1.4A@12V	1.03A@12V	0.75@12V
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 (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	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 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-	-

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

PC104 CPU Modules

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		-/ -/ 2.16 GHz	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 (Watt)		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 Gen7 graphic engine	Intel Gen9 graphic engine
	3D Accelerator		DX11, OGL3.2, OCL1.1	DX11, OGL3.2, OCL1.1
	VGA		Up to 2560 x 1600 @ 60Hz	1920 x 1200
	LFP	LVDS	1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
		eDP	-	v1.4 (1920x1200@ 60Hz)
	HDMI1		HDMI1.4a, 1920x1200x24bpp @60Hz	HDMI1.4a, 1920x1200x24bpp @30Hz
	HDMI2		-	-
	DisplayPort1		-	DP 1.2a (1920 x 1200 @60Hz)/ HDMI1.4a, (1920x1200x24bpp @30Hz)
	# of Display Pipe (Multi-Display)		2	2
I/O	Ethernet	LAN1	i210IT	i210
		LAN2	-	i210, (3rd LAN support by request)
	SATA	# of Ports	1	2 (2nd support by request)
		Speed	Gen2 (3.0 Gb/s)	Gen3 (6.0 Gb/s)
	USB	USB3.1	-	-
		USB3.0	-	2
		USB2.0	6	6
	UART	RS-232/ 422/485	1	2
		RS-232	2	4
	Serial Bus	I2C Bus	Option to SMBus	Option to SMBus
		SMBus	Support	Support
		CANBus	-	-
	Audio	CODEC	Intel High Definition audio interface (requires an audio extension module P/N: PCE-SA01-00A1E	Realtek ALC888S
		Amplifier	-	-
	GPIO (DIO)		8-bit	8-bit
Storage	mSATA		F/S (SATA signal shared with Onboard flash)	F/S (SATA, USB2.0)
	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, USB2.0)	Opt. to mSATA (PCIex1, USB2.0)
	PC/104		-	-
	PCI104		-	1
	PC/104-Plus		-	-
	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/ SMBus/Line-out/Power Supply)		-	-
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
	Power Consumption (Idle)		E3845: 4.72W E3825: 4.47W N2930: 4.42W	N4200: 0.44 @ 12V (5.28W) N3350: 0.48 @12V(5.76W)
	Power Consumption (Full Load)		E3845: 7.69W E3825: 5.68W N2930: 6.84W	N4200: 1.32 @ 12V (15.84W) N3350: 1.36 @12V(16.32W)
Thermal	Fan or Fanless		Passive (Fan-less)	Passive (Fan-less)
Environment	Operating Temperature (air flow 0.7 m/sec)		0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)
	Storage Temperature		-40~85C	-40~85C
	Relative Humidity (Operating)		40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing
	Relative Humidity (Storage)		-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing
Certification	EMC		CE/FCC Class B	CE/FCC Class B
	Safety Certifications		-	-

Industrial Motherboards

UTX

Intel Core i Platform *Intel Atom Platform*

Model Name		AIMB-U233	AIMB-U217	AIMB-U117
Form Factor		UTX-E	UTX-E	UTX
Processor System	CPU	Intel® 8th Gen Core i7/i5/i3/Celeron	Intel E3950/ E3940	Intel E3950/ E3930
	Socket	BGA1528	FCBGA	FCBGA
	Max. Speed	2.2/1.7/1.6 GHz	QC 1.6 GHz	QC 1.6/ DC 1.3 GHz
	TDP	15 W	12W/ 9.5W	12W/ 6.5W
	L2 Cache	8M/6M/4M/2M	2M	2M
	L3 Cache	-	-	-
	Chipset	-	-	-
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 128 Mbit SPI	AMI EFI 128 Mbit SPI
Expansion Slot	M.2	3 (M-key, E-key, B-Key)	1 (E-Key)	1 (E-Key)
	PCI	-	-	-
	Mini PCIe	-	1 (F/S)	1 (F/S)
	PCIe	-	-	-
Memory	Technology	DDR4 2400MHz SDRAM	Single channel DDR3L 1866/ 1600/ 1333 Mhz SDRAM	Single channel DDR3L 1866/ 1600/ 1333 Mhz SDRAM
	Max. Capacity	32 GB	8GB	8GB
	Socket	1 x 260-pin SODIMM	1 X 204-pin SODIMM	1 X 204-pin SODIMM
Graphics	Controller	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
	VGA/DVI-D/HDMI/DP	-/-/2/-	-/-/1/1	-/-/1/1
	Dual channel 24-bit LVDS/eDP	1/1 (LVDS is optional)	1/1 (LVDS is optional)	1/1 (LVDS is optional)
	Multiple Display	2 HDMI+eDP 2 HDMI+LVDS	DP+HDMI+eDP DP+HDMI+LVDS	DP+HDMI+eDP DP+HDMI+LVDS
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i211AT LAN2: Intel i211AT LAN3: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H
	Connector	RJ45 x 2	RJ-45 x3	RJ-45 x2
TPM		Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s
	Channel	1	1	1
	eSATA/mSATA	-/-	-/-	-/-
External I/O	VGA/DVI/HDMI/DP	-/-/2/-	-/-/1/1	-/-/1/1
	Ethernet	2	3	2
	USB	2 x USB3.0	4 x USB3.0	4 x USB3.0
	Audio	Line Out	Line out	Line out
	Serial	-	-	-
	PS/2	-	-	-
	DC Jack	1	1	1
Internal Connector	LVDS & Inverter	1 (Optional)	1 (Optional)	1 (Optional)
	DVI	-	-	-
	USB	2	2	-
	Serial	4 (2 x RS-232, 2 x RS-232 or 422 or 485)	4 (2 x RS-232, 2 x RS-232 or 422 or 485)	2 (1 x RS-232; 1 x RS-422 or 485)
	Parallel	-	-	-
	SATA	1	1	1
	CompactFlash/ eMMC	-	-/1 x 153 ball eMMC (optional)	-/1 x 153 ball eMMC (optional)
	GPIO	16-bit GPIO	16-bit GPIO	8-bit GPIO
	CANBus	-	1 (Isolated CANBus)	1 (Optional)
	MDB	-	-	1 (colay with RS-232)
	ccTALK	-	-	1 (colay with RS-422/ 485)
Power Input		12V DC-in Rear: DC Jack	12~24V DC-in Rear: DC Jack	12~24V DC-in Rear: DC Jack
Certification		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 NEW

Model Name		AIMB-218	AIMB-215	AIMB-216	AIMB-217	AIMB-229	AIMB-228
Form Factor		THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	Mini-ITX	THIN Mini-ITX
Processor System	CPU	Intel Pentium J6425/ Celeron J6413/Celeron N6211/Atom x6413E	Intel Celeron J1900 / N2930 / N2807	Intel Pentium N3710 & Celeron N3160/N3010 & Atom x5-E8000	Intel Pentium N4200/ Celeron N3350/Atom x7-E3950	AMD Embedded Ryzen V2000	AMD Embedded Ryzen V1000/R1000
	Socket	FCBGA	FCBGA	FCBGA	FCBGA	-	FP5
	Max. Speed	QC 1.8/QC 1.8/DC 1.2/QC 1.5 GHz	QC 2.0 / 1.83 GHz; DC 1.58 GHz	QC 1.6/QC 1.6/DC 1.04/QC 1.04 GHz	QC 1.1/DC 1.1/QC 1.6 GHz	8C 4.15Ghz / 6C 3.95GHz	QC 3.35GHz/ QC 2.00GHz/ DC 2.30GHz
	TDP	10W/10W/6.5W/9W	10 / 7.5 / 4.3 W	6 / 6 / 4 / 5 W	6 W/6 W/12 W	54W/25W	45W/ 15W/ 15W
	L2 Cache	1.5MB	2 MB / 2 MB / 1 MB	2MB	2MB	4Mb	2M/2M/1M
	L3 Cache	-	-	-	-	-	-
	Chipset	-	-	-	-	-	-
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 16 Mbit, SPI	AMI EFI 16 Mbit, SPI	AMI EFI 128 Mbit, SPI	AMI EFI 128 Mbit, SPI	AMI EFI 128Mbit, SPI
Expansion Slot	M.2	2 (B key + E key)	-	1 (B Key)	1 (E Key)	1 M Key & 1 E Key	2 (B key + E key)
	Mini PCIe	-	2	1	1	0	-
	PCIe	PCIe x1, 1 slot	PCIe x 1, 1 slot	PCIe x 1, 1 slot	PCIe x 1, 1 slot	PCIe x8, 1 slot	PCIe x 8, 1 slot (Only PCIex4 signal for R1000)
Memory	Technology	Dual channel DDR4 3200MHz SDRAM	Dual / Dual / Single channel DDR3L 1333 MHz SDRAM	Dual channel DDR3L 1600/1066 MHz SDRAM	Dual channel DDR3L 1866 MHz SDRAM	Dual Channel DDR4 3200MHz SDRAM	Dual channel DDR4 2400/2666/3200 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	8 / 8 / 4 GB	8 GB/ up to 8 GB per DIMM	8 GB/ up to 8GB per DIMM	64 GB/ 32 GB per DIMM non-ECC/ECC Support	32 GB/ up to 16 GB per DIMM
	Socket	2 x 260-pin SODIMM	2 / 2 / 1 x 204-pin SODIMM	2 x 204-pin SODIMM	2 x 204-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	AMD Radeon	AMD Radeon
	VGA/DVI-D/ HDMI/DP++	-/-/1/1	1/-/-/1	-/1/1/1 (DP only)	1/-/1/1	-/-/2/2	-/-/-/4
	Dual channel 24-bit LVDS/eDP	1/1 (LVDS & eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	-/1	1/- (LVDS is optional)
	Type C Alt.	-	-	-	-	2	-
	Multiple Display	Triple display: DP+HDMI+LVDS(or eDP)	Dual display: VGA+DP(or eDP), VGA+LVDS, LVDS+DP(or eDP)	Triple display: DVI-D+DP(or eDP)+LVDS, DVI-D+DP(or eDP)+HDMI	Triple display: VGA(or EDP)+ DP(or LVDS)+HDMI	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 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8119I LAN2: Realtek RTL8119I	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H
	Connector	RJ-45 x 2	RJ-45 x2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM		Optional	optional	Optional	Optional	TPM2.0	Optional
SATA	Max Data Transfer Rate	600 MB/s	300 MB/s	600 MB/s	600 MB/s	600 MB/s	600MB/s
	Channel	1	2	2	2	2	2
	eSATA/mSATA	-/-	-/1	-/-	-/1	-/-	-/-
Rear I/O	VGA/DVI-D/ HDMI/DP	-/-/1/1	1/-/-/1	-/1/1/1	1/-/1/1	-/-/2/2	-/-/-/V1000: 4 -/-/-/R1000: 3
	Type C Alt.	-	-	-	-	2	-
	Ethernet	2	2	2	2	2	2
	USB	4 (3 x USB3.2 Gen1/ 1 USB 2.0)	4 (1 x USB3.2 Gen1/ 3 x USB 2.0)	4 (USB3.2 Gen1)	4 (USB3.2 Gen1)	3 x USB3.2 Gen2 / 3 x USB3.2 Gen1	4 (2 USB 3.2 Gen2/ 2 USB 2.0))
	Audio	Line-out	Line-out	Line-out	Line-out	Line out + Mic/Line in	Mic-in, Line-out
	Serial	-	-	-	-	-	-
	PS/2	-	-	-	-	-	-
	DC Jack	1	1	1	1	1	1
Internal Connector	LVDS/eDP	1 (optional) /1 (optional) eDP co-lay with LVDS	1/1 (optional) eDP colay with DP	1/1 (optional) LVDs colay with HDMI, eDP colay with DP	1/1 (optional) LVDS colay with DP, eDP colay with VGA	-/1	1 (optional)/- LVDS colay with DP
	USB	4 (USB 2.0)	4 (USB 2.0)	6 (USB 2.0), USB7/8/9/10 is optional	8 (USB 2.0), USB9/10/11/12 is optional	2 (USB2.0)	2 (USB2.0)
	Serial	6 (5 x RS-232, 1 x RS-232/422/485) COM3~COM6 optional	6 (5 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 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)	6 (4 x RS-232, 2 x RS-232/422/485, 1 supports CCTalk, 1 supports TTL)
	Parallel	-	-	-	-	-	-
	SATA	1	2	2	2	2	2
	eMMC/UFS	-/1 (32~256GB), optional	-/-	-/-	-/-	-/-	-/-
	GPIO	8 bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	16 bit	16-bit GPIO
Power Input		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	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

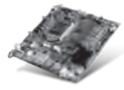
Note: "-" : means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel Core i Platform

NEW | Preliminary | NEW



Model Name		AIMB-288	AIMB-278	AIMB-287	AIMB-277	AIMB-286	AIMB-286EF
Form Factor		THIN Miin-ITX extended (170 x 190mm)	Mini-ITX	THIN Mini-ITX	Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	Intel 12th Core i	Intel 12th Core i9/i7/i5/ i3	Intel 10th Core i9/i7/i5/i3/ Celeron	Intel 10th Core i9/i7/i5 / i3/Celeron	Intel 9th/8th Core i7/ i5 /i3 / Pentium/Celeron	Intel 9th/8th Core i7/ i5 /i3 / Pentium/Celeron
	Socket	LGA 1700 socket	LGA 1700 socket	LGA1200	LGA1200	LGA1151	LGA1151
	Max. Speed	2.8/2.9/3.1/3.2/3.8/ 3.2 GHz	P-core up to 5.0 GHz E-core up to 3.8 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	Up to 65W	Up to 65W	65W/58W/35W	65W/58W/35W	65W/54W/35W	65W/54W/35W
	L2 Cache	-	-	-	-	-	-
	L3 Cache	Up to 20MB	Up to 30MB	20MB/16MB/12MB/ 6MB/2MB	20MB/16MB/12MB/ 6MB/2MB	12MB/9 MB/6 MB/ 4 MB/2 MB	12MB/9 MB/6 MB/ 4 MB/2 MB
	Chipset	Intel H610E	Intel Q670E	Intel H420E	Intel Q470E	Intel H310	Intel H310
	BIOS	AMI EFI 256 Mb	AMI EFI 256 Mbit SPI	AMI EFI 256 Mbit SPI	AMI EFI 256 Mbit SPI	AMI EFI 128 Mbits, SPI	AMI EFI 128 Mbits, SPI
Expansion Slot	M.2	2 (B key +M Key)	2 (M key + E key)	2 (M key + E key)	2 (M key + E key)	2 (B key + E key)	2 (B key + E key)
	Mini PCIe	0	0	0	0	0	0
	PCIe	MXM , 1 slot	PCIe x 16, 1 slot	0	PCIe x 16, 1 slot	PCIe x 4, 1 slot	PCIe x 16, 1 slot
Memory	Technology	Dual Chaneel DDR5 4800 MHz SDRAM	Dual Chaneel DDR5 4800 MHz SDRAM	Dual Chaneel DDR4 2933 MHz SDRAM	Dual Chaneel DDR4 2933 MHz SDRAM	Dual Chaneel DDR4 2666 MHz SDRAM	Singel Chaneel DDR4 2666 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	32 GB/ up to 32 GB per DIMM
	Socket	2 x 262-pin SODIMM	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	TBD	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
	VGA/DVI-D/HDMI/ DP++	-/-/-/2	-/-/-/2	-/-/2/-	1/-/1/1	-/-/1/1	-/-/1/1
	Dual channel 24-bit LVDS/eDP	0/1	0/1	0/1	1/1	1/1 (eDP is optional)	1/1 (eDP is optional)
	Type C Alt.	-	1	-	-	-	-
	Multiple Display	Dual display: DP+DP, DP+eDP	Triple displays: DP+DP+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 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	LAN1: Intel i219LM LAN2: Intel i225	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i219LM LAN2: Intel i211AT	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 i211AT
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 3 (AIMB-286FL/F: AIMB-286G2: 2; AIMB-286L: 1)	RJ-45 x 3
TPM		TPM2.0	TPM2.0	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	2	3	2	4	3	3
	eSATA/mSATA	-/-	-/-	-/-	-/-	-/-	-/-
Rear I/O	VGA/DVI/HDMI/DP	-/-/-/2	-/-/-/2	-/-/2/-	-/-/1/1	-/-/1/1	-/-/1/1
	Type C Alt.	-	1	-	-	-	-
	Ethernet	2	2	2	2	FL/F SKU: 3 G2 SKU: 2 L SKU: 1	3
	USB	4 (USB3.2 Gen1)	4 (USB3.2 Gen2)	4 (USB3.2 Gen1)	4 (USB3.2 Gen2)	4 (USB 3.2 Gen1)	4 (USB3.2 Gen1
	Audio	Line out	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 (4-pin phoenix connector)	-	-/1	-	1	1
Internal Connector	LVDS/eDP	-/1	1/1 (LVDS optional)	-/1	1/1	1/1 (optional) LVDS colay with eDP	1/1 (optional) LVDS colay with eDP
	VGA	-	-	-	1 (pin header)	-	-
	USB	2 x USB 3.2 Gen1 (5Gb/s)	2 USB3.2 Gen2, 2 USB3.2 Gen1	4 (2x USB3.2 Gen1, 2xUSB2.0)	4 (USB3.2 Gen1)	4 USB 2.0 (only for FL/F/G2 SKU)	4 (USB 2.0)
	Serial	2 (RS-232/422/485; support by BOM optional)	2 (RS232/422/485 + RS232)	4 (2 x RS-232, 2 x RS-232/422/485; RS-422/485 support by BOM optional)	2 (RS232/422/485)	FL/F SKU: 6 (4 x RS-232, 2 x RS-232/422/485, RS-422/485 support by BOM optional) G2/L SKU: 2 (1 x RS-232, 1 x RS-232/422/485, RS-422/485 support by BOM optional)	2 (1 x RS-232, 1 x RS-232/422/485; RS-422/485 support by BOM optional)
	Parallel	-	-	-	-	-	-
	SATA	1	3	2	4	FL/F/G2 SKU: 3 L SKU: 2	3
	eMMC/UFS	-/-	-/-	-/-	-/-	-/-	-/-
	GPIO	0	8-bit GPIO	8-bit GPIO	8-bit GPIO	16-bit GPIO	16-bit GPIO
Power Input		19~24V / 12V DC-in Rear: Phoenix connector 4 pin	12V ATX	12~24V DC-in Rear: DC Jack Internal: ATX 4 pin	ATX Internal: ATX 24 pin + 8 pin (12V)	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	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	Intel 9th/8th Gen Core i7/ i5 / i3/ Pentium/Celeron	Intel 7th/6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel 7th/6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel 7th & 6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel® 8th Gen Core i7/i5/ i3/Celeron	Intel core i7-6600u / i5-6300u / i3-6100u/ celeron 3955u Intel core i7-7600u i5-7300u/ i3-7100u/Celeron 3965u
	Socket	LGA1151	LGA1151	LGA1151	LGA1151	BGA1528	BGA1356
	Max. Speed	3.7/3.6/3.2/3.1/3.0/2.9/ 2.4/2.1GHz	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	2.6GHz/2.4GHz/ 2.3Ghz/2Ghz
	TDP	65W/58W/54W/35W	65W/54W/ 51W/ 35W	65W/54W/ 51W/ 35W	65W/51W/54W/35W	15W	15W
	L2 Cache	-	-	-	-	-	-
	L3 Cache	12MB/9 MB/6 MB/ 4 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/2 MB	4 MB/3 MB/3 MB/2 MB
	Chipset	Intel Q370	Intel H110	Intel Q170/H110	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 Mbit, SPI
Expansion Slot	M.2	2 (B key + E key)	-	1 (B Key)	1 (B Key)	2 (M key + E key)	-
	Mini PCIe	0	2	1	1	1 (F/S), optional	2
	PCIe	PCIe x 16, 1 slot	PCIe x 4, 1 slot	PCIe x16, 1 slot	PCIe x 16, 1 slot	PCIe x1, 1 slot	-
Memory	Technology	Dual Chaneel DDR4 2666 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual channel DDR4 2400MHz SDRAM	Dual Channel DDR4 2400 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	32 GB	32 GB	32 GB	32 GB/ up to 16 GB per DIMM	32 GB/ up to 16 GB 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	Intel Graphics Gen 9	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 (eDP is optional)	1/- (LVDS only for LV sku)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)
	Type C Alt.	-	-	-	-	1	-
	Multiple Display	Triple display: DP+DP+HDMI, DP+DP+LVDS(or eDP), DP+HDMI+LVDS(or eDP)	Dual display: DP+HDMI, DP+VGA, HDMI+VGA, DP+LVDS, HDMI+LVDS, VGA+LVDS	Triple display: DP+HDMI+LVDS DP+HDMI+eDP	Dual display: DP+VGA, DP+LVDS(or eDP), DP+DVI-D, DVI-D+VGA, DVI-D+LVDS(or eDP), VGA+LVDS(or eDP)	Triple display: Type C Alt. + HDMI+LVDS(or eDP)	Triple display: 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 i211AT	LAN1: Realtek RTL8111H LAN2:Realtek RTL8111H	LAN1: Intel PHY i219-LM LAN2: Intel i211	LAN1: Realtek RTL8111H LAN2:Realtek RTL8111H	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i219LM LAN2: Intel i211AT
	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(Type C Alt.) Type C Alt. is optional	-/-/1/1
	Type C Alt.	1 (Optional)	-	-	-	1 (optional)	-
	Ethernet	2	2	2	2	2	-
	USB	8 (6 x USB 3.2 Gen2/ 2 USB3.2 Gen1), 1 optional Type-C	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen1)	8 (4 x USB3.2 Gen1/ 4 x USB2.0)	4 (USB3.2 Gen2) (3 type A+1 type C, Type C is optional)	4 (USB 3.2 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	1 (4-pin phoenix connector)	-	-	-	-	-
	DC Jack	1/1 (optional) LVDS colay with eDP	1	-	-	-	-
Internal Connector	LVDS/eDP	-	1/- (LVDs only for LV SKU)	1/1 (optional) LVDS colay with eDP	1/1 (optional) eDP colay with DP	1/1 (eDP (optional)	1/1 (eDP (optional)
	VGA	-	1	-	-	-	-
	USB	2 (USB 3.2 Gen1)	4 (USB 2.0)	6 (2 x USB 3.2 Gen1/ 4 x USB 2.0)	6 (USB 2.0), USB11/12/13/14 is optional	4 (2 x USB 3.2 Gen1, 2 x USB2.0)	4 (2 x USB 3.2 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 / 12V DC-in Rear: Phoenix connector/ DC Jack 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	ATX Internal: ATX 20 pin + 4 pin (12V)	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

Micro-ATX

Intel Core i Platform — *AMD Platform*

Preliminary NEW NEW

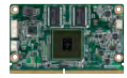
Model Name		AIMB-588	AIMB-587	AIMB-506	AIMB-586	AIMB-505	AIMB-585	AIMB-522
Form Factor		Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX
Processor System	CPU	Intel 12th Core i	Intel 10th Xeon/Core/i9/ i7/i5/i3/Pentium/Celeron	Intel 9th & 8th Gen Core i7/i5/i3/Pentium/ Celeron	Intel 9th & 8th Xeon/ Core i7/i5/i3 / Pentium/ Celeron	Intel 6th & 7th Gen Core i7/ i5/ i3 /Pentium/ Celeron	Intel 6th & 7th Gen Xeon/ Core i7/ i5/ i3/ Pentium/ Celeron	AMD Ryzen Pro
	Socket	LGA1700	LGA1200	LGA1151	LGA1151	LGA1151	LGA1151	AM4
	Max speed	Up to 3.8GHz	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	3.7/3.6/3.2/3.0/ 2.9 GHz	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 3.4GHz
	TDP	Up to 125W	95W/80W/65W/58W/ 35W	65W /58W/35W	80W/71W/65W/35W	65W / 51W / 35W	80W / 65W / 51W / 35W	Up to 105W
	L2 cache		-	-	-	-	-	-
	L3 cache	Up to 30MB	20MB/16MB/12MB/ 6MB/4MB/2MB	12 MB/ 9MB / 6MB /2MB	12MB/9 MB/8 MB/ 6 MB/4 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	Up to 64MB
	Chipset	Q670E / R680E / H610E	Intel Q470E/W480E	Intel H310	Intel Q370/C246/H310	Intel H110	Intel Q170/C236/H110	X570
	BIOS	AMI EFI 256 Mb	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits, SPI	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 256 Mb
Expansion Slot	PCI	-	-	2 (L Sku: 0)	-	1	-	-
	PCIe x16	1	1 (QG2/F: x16 link, WG2: x8 link)	1	1 (QG2/L: x16 link, WG2: x8 link)	1	1	1
	PCIe x 8	-	1 (WG2 only)	-	1 (WG2 only)	-	1(L sku: 0)	-
	PCIe x4	2	1	-	1	-	1(L sku: 0)	2
	PCIe x1	-	1	1	1 (QG2/WG2 only)	2	1(L sku: 2)	-
	mini-PCIe/ M.2	-/1(M Key)	- /1(M key)	-/ 1 (B-Key, L Sku:0)	-/ 2 (M & E key, QG2/ WG2 only)	1/-	1 / -	1 / 1(M key)
Memory	Technology	Dual Chaneel DDR5 4800 MHz SDRAM	Dual Channel DDR4 2666/2933 MHz SDRAM	Dual Channel DDR4 2400/2666 MHz SDRAM	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 32 GB per DIMM	128GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	128 GB/ up to 32 GB per DIMM	32GB	64 GB	128GB / up to 32 GB per DIMM
	Socket	4 x 288 pin DIMM	4 x 288 pin DIMM	2 x 288-pin DIMM	4 x 288-pin DIMM	2 x 288-pin DIMM	4x288- pin DIMM	4 x 288 pin DIMM
Graphics	Controller	TBD	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	intel HD Graphics	RadeonTM Graphics (Ryzen 4000 series)
	VRAM	TBD	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	TBD
	VGA	-	1 (F/WG2 only)	1	-	1	1 (optional)	1
	LCD	-	-	Dual Channel 48-bit LVDS (Optional)	Dual channel 48-bit LVDS(option)	Dual channel 48-bit LVDS (Optional)	-	-
	DVI-D	-	-	1	-	1	1	-
	HDMI	1	-	-	1 (option to HDMI2.0a)	-	1 (option to HDMI2.0a)	1
	DP/eDP	2/1	2/1 (WG2: eDP is option)	1/1 (G2/ L sku without eDP)	2 / 1 (L: eDP is option)	1/1	1 / 1	1 / -
	Dual Display	DP++ + DP++ ,DP++ + eDP, DP++ + HDM, HDMI + eDP	DP++ + VGA, DP++ + DP++ DP++ + eDP, VGA + eDP	DP+ DVI-D, DP+VGA, DVI-D+VGA, DP+eDP(LVDS), DVI-D+eDP(LVDS), VGA+eDP(LVDS)	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	eDP + HDMI + DP++, eDP + DP++ + DP++, HDMI + DP++ + DP++	DP++ + DP++ + VGA, DP++ + DP++ + eDP, DP++ + VGA + eDP	-	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
Ethernet	Interface	10/100/1000 Mbps	10/100/1000/ 10GbE 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 I225LM LAN3/4: i210-AT (Option)	LAN1: Intel I219LM (QG2/WG2/L) LAN2: Intel I211AT (QG2) I210AT (WG2) LAN3/4: X550-AM1 (QG2/WG2 Option)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel I219LM (QG2/WG2/L) LAN2: Intel I211AT (QG2) I210AT (WG2) LAN3/4: Realtek RTL8111H (Option)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel I219LM LAN2: Intel I211AT (WG2: I210)	LAN 1/2/3/4: Intel I225LM
	Connector	RJ-45 x 4 (2 option)	RJ-45 x 4 (2 option)	RJ-45 x2	RJ-45 x 4 (2 option)	RJ-45 x2	RJ-45 x2	RJ-45 x 4
TPM			Optional	Optional	Optional	Optional	Optional	
SATA	Max Data Transfer	600 MB/S	600 MB/S	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/S
	Channel	6	6 -QG2 sku; 8 - WG2/F sku (SW RAID)	3	6 -QG2 sku; 8 - WG2 sku (SW RAID)	3	4 (SW RAID, QG2/ WG2 only)	4
	mSATA/M.2	- / 1 (M key)	- / 1 (M key)	- /1 (B Key, F, G2 sku)	- / 1 (M key)	1 / -	1 / -	- / 1 (M key)
I/O Interface	VGA	-	1 (QG2/WG2 option)	1	-	1	1 (on board, option)	1
	USB	4x USB (2.0) / 5x USB (3.2 Gen1) / 3 USB (3.2 Gen2) / 1x USB (Type C)	6 USB (2.0)/ 6 USB (3.2 Gen1)/ 4 USB (3.2 Gen2)	F sku: 20 (8 USB3.0 + 12 USB2.0) G2 sku: 12 (4 USB3.0 + 8 USB2.0) L sku: 8 (4 USB3.0 + 4 USB2.0)	WG2 / QG2 sku: 4 USB3.1 +2 USB 3.0 + 8 USB2.0, 2 option) L sku: 4 USB 3.0 + 8 USB 2.0	6(USB 2.0),8(USB 3.0)	2 (USB 2.0), 12 (USB 3.0)	8x USB (3.2 Gen 2)
	Serial	6 (4x RS-232; 2x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	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)	6 (QG2/WG2: 5x RS-232, 1x RS-232/422/485) 2 (L: 1x RS-232, 1x 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)
	Parellel	-	-	-	-	1	-	-
	SIM Card Holder	-	-	1 (L Sku:0)	-	-	-	-
	PS/2	-	1 (onboard)	1 (onboard)	1 (onboard)	1 (onboard)	1 (onboard)	-
	Ethernet (GbE)	4 (2 option)	4 (2 x 10GbE option)	2	4 (2 option)	2	2	4
	IEEE 1394	-	-	-	-	-	-	-
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	GPIO	8-bit	16 bit	16-bit	16-bit	8-bit	16-bit	8-bit
Power Input		ATX Internal: ATX 24 pin + 8 pin (12V)	ATX Internal: ATX 24 pin + 8 pin (12V)	ATX Internal: ATX 24 pin + 4 pin (12V)	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	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

NEW



Model Name		ROM-3310	ROM-3420	ROM-3620	ROM-5420 B1
Form Factor		RTX V2.0	RTX V2.0	RTX V2.1	SMARC V1.1
Compatible Carrier Board		ROM-DB3900-SWA1E	ROM-DB3900-SWA1E	ROM-DB3900-SWA2E	ROM-DB5900-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	NXP Arm i.MX6 Cortex-A9 1 GHz
Memory	Technology	DDR3 800 MT/s	DDR3 1066 MT/s	LPDDR4 2400 MT/s	DDR3 1066 MT/s
	Capacity	On-board DDR3 512 MB	On-board DDR3 1 GB / 2 GB	On-board LPDDR4 2 GB	On-board DDR3 1 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	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 at 60Hz	2 x 24-bit single channel LVDS*	1 x 24-bit LVDS, 1366 x 768 at 60Hz
	MIPI-DSI	-	-	2 x 4-Lane MIPI DSI*	-
	eDP	-	-	-	-
	HDMI	-	1920 x 1080 at 60Hz	-	1920 x 1080 at 60Hz
	Parallel RGB	1 x 24-bit TTL, 1366 x 768 at 60Hz	1 x 24-bit TTL, 1920 x 1200 at 60Hz	-	1 x 24-bit TTL, 1920 x 1200 at 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	2 x IPUs. 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	Decoder: H.265/H.264(4Kp30), WMV9/ VC-1 imple, MPEG-1, MPEG-2, AVS, MPEG4.2 ASP, H.263 Encoder: H.264(1080p30)	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	TI AM3352 Integrated RGMII	NXP i.MX6 Integrated RGMII	NXP i.MX8X integrated RGMII	NXP i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
RTC		Yes	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	256-level timer interval, from 0 ~ 128 sec
TPM		-	-	TPM2.0 (ST33HTPH2E32AHC2)	-
I/O	PCIe	-	1 PCIe 1x	1 PCIe 3.0 1x	1 PCIe 1x
	SATA	-	1 SATA II	-	1 SATA II
	USB	1 USB 2.0, 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG	1 USB 3.2 Gen 1 by 1, 1 USB 2.0 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG
	Audio	I2S	I2S	I2S	I2S
	SPDIF	-	-	-	1
	SDIO	1	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)	4 UART (2 x 2-wire, 2 x 4-wire w/ 3.3V)
	SPI	1	2	2	4
	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	2 x CAN bus 2.0 A/B
	GPIO	10	10	10	12
	I2C	1	4	5	5
	Camera Input	-	1 x 4-Lane MIPI CSI-2	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	3 ~ 5.25 V
	Power Consumption	2.11W (Max)	3.3W (Max)	5.372W (Max)	3.4W (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
	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)	68 x 68 mm	68 x 68 mm	68 x 68 mm	82 x 50 mm
Operating System		Linux	Linux Android	Linux Android	Linux Android
Certifications		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

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Model Name		ROM-5620	ROM-5720	ROM-5721	ROM-5722
Form Factor		SMARC V2.1	SMARC V2.1	SMARC V2.1	SMARC V2.1
NPU		-	-	-	2.3 TOPS Neural Network Performance
Compatible Carrier Board		ROM-DB5901-SWA1	ROM-DB5901-SWA1	ROM-DB5901-SWA1	ROM-DB5901-SWA1 SOM-DB2510-00A1
Processor System	CPU	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	LPDDR4 2400 MT/s	LPDDR4 3200 MT/s	LPDDR4 3000 MT/s	LPDDR4 4000 MT/s
	Capacity	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 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	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	-	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	-	-	-	-
	VGA	-	-	-	-
	DP	-	-	1 x DP, up to 1080p (By BOM Option)	-
	Graphics Engine	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: H.265/H.264(4Kp30), WMV9/ VC-1 imple, MPEG-1, MPEG-2, AVS, MPEG4.2 ASP, H.263 Encoder: H.264(1080p30)	Decoder: HEVC/H.265(4Kp60), VP9(4Kp60), H.264(4Kp30), MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263	Decoder: H.265, H.264, VP8/9 1080p Encoder: H.264, VP8 1080p	Decoder: 1080p60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/Main/High Encoder: 1080p60 AVC/H.264, HEVC/H.265
Ethernet	Chipset	NXP i.MX8X Integrated RGMII	1 x NXP i.MX8M Integrated RGMII 1 x RTL8119I PCIE GbE controller	NXP i.MX8M Mini Integrated RGMII	NXP i.MX8M Plus Integrated RGMII
	Speed	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps
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)	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)
I/O	PCIe	1 PCIe 3.0 1x	1 PCIe 2.0 1x	1 PCIe 2.0 1x	1 PCIe 3.0 1x
	SATA	-	-	-	-
	USB	1 USB 3.2 Gen 1 by 1, 1 USB 2.0 Host, 1 USB 2.0 OTG	2 USB 3.2 Gen 1 by 1, 4 USB 2.0, 1 USB 2.0 OTG	4 USB 2.0, 1 USB 2.0 OTG	2 USB 3.2 Gen 1 by 1, 4 USB 2.0 Host, 1 USB 2.0 OTG
	Audio	2 x I2S	2 x I2S	2 x I2S	2 x I2S
	SPDIF	-	-	-	-
	SDIO	1	1	1	1
	Serial Port	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	2	1	2	2
	CAN	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	14
	I2C	4	4	4	5
	Camera Input	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	4.75 ~ 5.25V	4.75 ~ 5.25V	4.75 ~ 5.25V	4.75 ~ 5.25V
	Power Consumption	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
	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 50 mm
Operating System		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

*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

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Model Name		ROM-5780	ROM-7421	ROM-7510	ROM-7720	ROM-8720
Form Factor		SMARC V2.1	Qseven V2.0	Qseven V2.0	Qseven V2.1	COM Express Compact Type 7
Compatible Carrier Board		ROM-DB5901-SWA2 SOM-DB2510-00A1	ROM-DB7501-SCA1E	ROM-DB7502-SCA1E	ROM-DB7503-SCA1E	SOM-DB5920-00A1
Processor System	CPU	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	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	LPDDR4 3732 MT/s	DDR3 1066 MT/s	DDR3L 1066 MT/s	LPDDR4 3200 MT/s	LPDDR4 2133 MT/s
	Capacity	On-board LPDDR4 2 GB/4 GB	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/32 GB eMMC NAND 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	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	1 x Single Channel 24-bits LVDS(Default) or 1 x Dual Channel 24-bits LVDS (Shared with eDP, by BOM Option)	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	1 x 4-lane MIPI DSI, up to 1920 x 1080 at 60Hz (Shared with 4-lane MIPI-CSI, by S/W Configuration)	-	-	-	-
	eDP	1 x eDP 1.3	-	-	-	-
	HDMI	3840 x 2160 at 60Hz	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz	4096 x 2160 at 60Hz	-
	Parallel RGB	-	-	-	-	-
	VGA	-	-	-	-	-
	DP	-	-	-	-	-
	Graphics Engine	Mali-T860MP4 GPU, supports OpenGL ES1.1/2.0/3.0, OpenCL1.2, DirectX 11.1	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: 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: 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(4Kp60), VP9(4Kp60), H.264(4Kp30), MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263	-
Ethernet	Chipset	Rockchip RK3399 Integrated RGMII	NXP i.MX6 Plus integrated RGMII	TI Sitara Integrated RGMII	NXP i.MX8 Integrated RGMII	NXP LS1046A integrated XFI, RGMII, SGMII
	Speed	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	4 x 10/100/1000 Mbps 2 x 10GBASE-KR
RTC		Yes	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	1~6553s, default 60s, power on/off 1s
TPM		TPM2.0 (ST33HTPH2E32AHC2) (BOM Option)	-	-	TPM2.0 (ST33HTPH2E32AHC2)	TPM2.0 (ST33HTPH2E32AHC2)
I/O	PCIe	1 PCIe 2.0 1x	1 PCIe 1x	2 PCIe 1x	2 PCIe 1x	3 PCIe 3.0, 2 PCIe 2.0
	SATA	1 SATA II	1 SATA II	1 SATA II	1 SATA III	SATA 3.0 x1 (only supported on ROM-8720WQ-RA1E)
	USB	2 USB3.2 Gen1 by 1, 3 USB 2.0 Host, 1 USB 2.0 OTG	4 USB 2.0, 1 USB 2.0 OTG	1 USB 3.2 Gen1 by 1, 1 USB 2.0 OTG, 4 USB 2.0 Host	3 USB 3.2 Gen1 by 1, 1 USB 2.0 OTG	3 USB 3.2 Gen 1 by 1, 3 USB 2.0
	Audio	2 x I2S	I2S	I2S	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 UART (2 x 4-wire w/ 3.3V)	2 UART (2 x 4-wire)	2 UART (2 x 4-wire)	2 UART (4-wire)
	SPI	1	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	12	8	8	8	8
	I2C	5	2	2	2	1
	Camera Input	1 x 4-lane MIPI CSI-2 1 x 2-lane MIPI CSI-2	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	4.75~5.25V	5V	5V	5V	12V
	Power Consumption	8.52W (Max)	4W (Max)	10W (Max)	10.96W (Max)	TBD
Environment	Operating Temperature	0 ~ 60 °C/ -20 ~ 85 °C	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	5% ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm	70 x 70 mm	70 x 70 mm	70 x 70 mm	95 x 95 mm
Operating System		Debian Linux Android	Linux Andorid	Linux	Linux Android	Ubuntu
Certifications		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)

Arm-Based Computing Platforms

Single Board Computers

UIO40-Express

UIO40-Express NEW

UIO40-Express NEW

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 at 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 at 60Hz	1920 x 1080 at 60Hz	1 x HDMI 2.0, 1920 x 1080 at 60Hz	1 x HDMI 2.0, up to 3840 x 2160 at 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: 1080p60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/ Main/High Encoder: 1080p60 AVC/H.264, HEVC/H.265
Ethernet	Chipset	NXP i.MX6 integrated RGMII	NXP i.MX6 integrated RGMII	Rockchip RK3399 Integrated RGMII	NXP i.MX8M Plus integrated RGMII
	Speed	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 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 USB 3.2 Gen 1 by 1 Type A, 1 USB 2.0 Type A, 3 USB 2.0 in UIO 40, 1 x USB OTG	1 USB 3.2 Gen 1 by 1 Type A, 1 USB 2.0 Type A, 1 USB3.2 Gen 1 by 1 and 2 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 CAN bus 2.0 in UIO 40 (share w/ 1 UART)	-	1 CAN-FD/CAN bus* by pin header, 1 CAN 2.0B in UIO 40
	GPIO	-	12 GPIO in UIO 40, 3.3V level	8	10 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 Power LED 1 Programmable LED	1 Power LED 1 Programmable LED	1 Power LED	1 Green Power LED 1 Blue Programmable LED
Expansion	Mini PCIe	2x 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

Model Name		RSB-4220	RSB-4410	RSB-4411	RSB-4760
Form Factor		3.5" SBC	3.5" SBC	3.5" SBC	3.5" SBC
Processor System	CPU	TI Arm AM3352 Cortex-A8 1 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz	Qualcomm Arm APQ8016 Cortex-A53 1.2 GHz
AI Performance		-	-	-	-
Memory	Technology	DDR3 800 MT/s	DDR3 1066 MT/s	DDR3 1066 MT/s	LPDDR3 1066 MT/s
	Capacity	On-board DDR3 512 MB	On-board DDR3 1 GB	On-board DDR3 1 GB	On-board LPDDR3 1 GB/2 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	4 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
Graphics	LVDS	1 x 18-bit LVDS, 1366 x 768	1 x 18-bit LVDS, up to 1366 x 768 at 60Hz	1 x 18/24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz	-
	MIPI-DSI	-	-	-	-
	HDMI	-	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz
	VGA	-	1920 x 1080 at 60Hz	1920 x 1080 at 60Hz	-
	eDP	-	-	-	-
	Graphics Engine	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	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1	Adreno™ A306 3D graphics core
	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: 30 fps 1080p (MPEG-4/H.264/H.263/DivX/MPEG2/VC1/ Soreson/VP8) Encoder: 30 fps 720p (H.264 Baseline/ MPEG-4); 30 fps 1080p (MPEG-4/H.264/ VP8/H.263)
Ethernet	Chipset	TI AM3352 integrated RGMII	NXP i.MX6 integrated RGMII	NXP i.MX6 Integrated RGMII	Microchip LAN7500
	Speed	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
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	1~6553s, default 60s, power on/off 1s
TPM		-	-	-	-
I/O	SATA	-	-	1	-
	SATA Power	-	-	1	-
	USB	1 x USB 2.0 Host/OTG (Jumper selection)	1 x USB 2.0 Host 2 x USB 2.0 pin header	1 x USB 2.0 OTG, 2 x USB 2.0 Type A, 3 x USB 2.0 pin header	2 x USB 2.0 Host 1 x USB 2.0 OTG
	Audio	-	1 x Line-out	1 x Line-out, 1 x Mic-in via pin header	1 x Line-out, 1 x Mic-in by pin header
	SPDIF	-	-	-	-
	SDIO	1 x SD slot	1 x SD slot	1 x SD slot	1 x SD slot
	Serial Port	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 by DB9	2 x 2-wire RS-232 by pin header 1 x 4-wire RS-232/422/485	1 x 4-wire RS-232/422/485
	SPI	-	-	1	1
	CAN	1	-	2	-
	GPIO	4 GPI/ 4 GPO w/ isolation	-	20 GPIO w/o Isolation via pin header	8 GPIO via D-SUB 9 / 8 GPIO via pin header (3.3V TTL level)
	I2C	1	-	2	1
	Camera Input	-	-	1 x 4-Lane MIPI CSI2	-
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	Button	1 x Reset button	1 x Reset button	-	-
Indicator	LED	1 Power LED 1 Programmable LED	1 Power LED 1 RF status LED	1 Power LED	1 Power LED 1 RF status LED
Expansion	Mini PCIe	1 x mini PCIe slot (USB signal only)	1 x mini PCIe slot	1 x mini PCIe slot	1 x mini PCIe slot
	M.2	-	-	1 x M.2 2230 Key E slot	1 x M.2 2230 Key E slot
	SD Socket	1 x SD slot	1 x SD slot	1 x SD slot	1 x SD slot
	SIM	-	1 x SIM slot	1 x SIM slot	1 x SIM slot
Power	Power Supply Voltage	12 ~ 24 V	12 V	12 ~ 24 V	9~36V
	Power Type	2-pole lockable DC-in	DC-in	DC-in	DC-in
	Power Consumption	4W (Max)	5.6W (Max)	5.6W (Max)	6W (Max)
Environment	Operating Temperature	0 ~ 60 °C/ -40 ~ 85 °C	0 ~ 60°C / -40 ~ 85°C	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °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 16 mm	146 x 102 x 20 mm	146 x 102 x 20 mm	146 x 102 x 20 mm
Operating System		Linux	Linux Android	Linux Android	Yocto Linux Android Debian Linux
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

Model Name		RSB-4680	RSB-4710	RSB-4810	RSB-6410
Form Factor		3.5" SBC	3.5" SBC	3.5'' SBC	Mini-ITX SBC
Processor System	CPU	Rockchip Arm RK3288 Cortex-A17 1.6 GHz	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	Rockchip Arm RK3568 Cortex-A55 2 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz
AI Performance		-	-	0.8 TOPS NPU	-
Memory	Technology	DDR3L 1333 MT/s	LPDDR4 1333 MT/s	LPDDR4 3200 MT/s	DDR3 1066 MT/s
	Capacity	On-board DDR3L 2 GB	On-board LPDDR4 2 GB	On-board LPDDR4 2 GB/4 GB	On-board DDR3 1 GB/2 GB
	Flash	8 GB eMMC NAND Flash for O.S. and Advantech boot loader	16 GB eMMC NAND Flash for O.S.	16 GB/32 GB 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
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	1 x 18/24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch at 60Hz
	MIPI-DSI	-	-	1 x 4-Lane MIPI-DSI (shared with LVDS connector by BOM option)	-
	HDMI	3840 x 2160 at 60Hz	1 x 3840 x 2160 at 60Hz 1 x 1920 x 1080 at 60Hz	4096 x 2160 at 60Hz	1920 x 1080 at 60Hz
	VGA	1920 x 1200 at 60Hz	-	-	1920 x 1080 at 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	3D Graphics Engine: Mali-G52 Support OpenGL ES 1.1/2.0/3.2, Vulkan 1.0/1.1, OpenCL 2.0	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	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, 4kp60 Encoder: H.264 (BP@level4.0, MP, HP@ level4.0), MVC and VP8	Decoder:H.265/H.264/PV9 up to 4Kx2K @ 60fps, VP8/VC1/MPEG-4/2/1,up to 1920x1088@60fps Encoder: H.265/H.264 up to 1920x1080@100fps. Support YUV/RGB video source with rotation and mirror	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	Rockchip RK3288 Integrated RGMII	Rockchip RK3399 Integrated RGMII	Rockchip RK3568 Integrated RGMII	NXP i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
WatchDog Timer		0~22s, default 22s	0~21s, default 21s	0~21s, default 21s	1~6553s, default 60s, power on/off 1s
TPM		-	-	-	-
I/O	SATA	-	-	1 x SATA III	1
	SATA Power	-	-	1	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	1 x USB 3.2 Gen 1 by 1 Type A, 1 x USB 3.2 Gen 1 by 1 Type A/OTG* 2 x USB2.0 Pin header	6 x USB 2.0 Type A
	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 HP, 1 x Mic, 1 x speaker by pin header	1 x Line-out, 1 x Mic-in
	SPDIF	-	-	-	-
	SDIO	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot	1 x 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 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	3 x 4-wire RS-232 and 1 x 4-wire RS-232/422/485
	SPI	1	1	1	1
	CAN	-	-	2 CAN-FD by pin header	1
	GPIO	8 GPIO via pin header (3.3V TTL level)	5 GPIO	6 GPIO via pin header (3.3V TTL level)	18 GPIO
	I2C	1	1	1	2
	Camera Input	-	1x MIPI CSI	-	-
	System Bus	-	-	-	-
	Touch	-	-	-	-
	Keypad	-	-	-	-
	Button	1 Reset button 1 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	1 x Reset button by pin header 1 x Power button by pin header
Indicator	LED	1 Power LED	1 Power LED	1 Power LED 1 SATA LED	1 Power LED
Expansion	Mini PCIe	1 x mini PCIe slot	1 x mini PCIe slot (USB signal only)	1 x mini PCIe slot (USB2.0/PCIE3.0)	1 x mini PCIe slot
	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 (USB2.0/PCIe3.0/SDIO/UART)	1 x M.2 2230 Key E slot
	SD Socket	1 x Micro SD Slot	1 x Micro SD slot	1 x Micro SD slot	1 x SD slot
	SIM	1 x SIM slot	1 x Nano SIM slot	1 x Nano SIM slot	1 x SIM slot
Power	Power Supply Voltage	12V	12 V	12 V	12 V
	Power Type	DC-in	DC-in	Lockable DC-in (2pin type connector by BOM option)	DC-in
	Power Consumption	11.6W (Max)	15W (Max)	TBD	9W (Max)
Environment	Operational Temperature	0 ~ 60°C / -20 ~ 85°C	0 ~ 60°C / -20 ~ 85°C	0 ~ 60 °C / -40 ~ 85 °C	0 ~ 60 °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	170 x 170 x 35 mm
Operating System		Android Debian	Android Debian	Android Debian	Yocto 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)

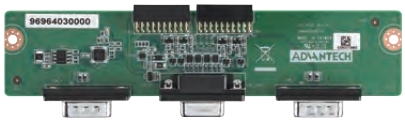
*Shared with one of the USB 3.2 Gen 1 by 1 Type A, DM, DP signal, ID pin by jumper selection

Arm-Based Computing Platforms

UIO40-Express I/O Expansion Boards

UIO-4030

1 x RS-485
1 x RS-232
1 x 4 DIs & 4 DOs



Specifications

General	
USB	–
RS-232	1 x 2-wire RS-232
RS-485	1 x RS-485
GPIO	4 DIs, 4 DOs (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 RS232, 4 DIs, 4 DOs, 1 RS-485

UIO-4032

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

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 GbE, 2 USB, 2 RS-232

UIO-4034

1 x CAN bus
2 x RS-232

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 CAN, 2 RS-232

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 GbE

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

UIO-4038

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

Specifications

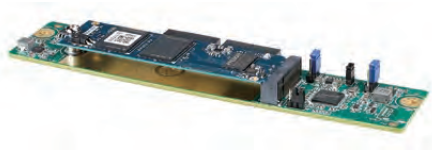
General	
USB	-
RS-232	-
RS-485	-
GPIO	-
CAN Bus	-
GbE	4 x GbE (3 x LAN; 1 x WAN)
Dimension	146 x 100 x 20mm
Environment	
Weight	300g
Operating Humidity	5 ~ 95% relative humidity, non-condensing
Operating Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C and 60 °C @ 95% RH Non-Condensing

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

Edge AI Solutions

AI Acceleration Modules

	VEGA-230	VEGA-320	VEGA-330		VEGA-340	
SoC	Kneron KL520	One Intel® Movidius™ Myriad™ X MA2485	One Intel® Movidius™ Myriad™ X MA2485	Two Intel® Movidius™ Myriad™ X MA2485	Four Intel® Movidius™ Myriad™ X MA2485	Eight Intel® Movidius™ Myriad™ X MA2485
Form Factor	Full size Mini PCIe	M.2 2230 (Key A+E)	Full size Mini PCIe		PCI Express Specification V2.0	
Signal Interface	USB2.0	PCIe Gen2 x1 and USB 2.0			PCI Express x4	
Power Consumption	0.5W	3.8W	3.8W	7.6W	Idle Mode: 6.7W Heavy Loading: 16.8W	Idle Mode: 9.6W Heavy Loading: 28W
Cooling	Passive Cooling	Passive Cooling	Passive Cooling		Active fan	
Operating Temperature	0°C ~ 70°C	-20 ~ 60 °C, with 0.7 m/s air flow	-20 ~ 60 °C, with 0.7 m/s air flow	-20 ~ 55°C, with 0.7 m/s air flow	-20 ~ 60 °C	
Power Source	-	-	-	-	Default power source from PCIe gold finger 6-pin connector for 12VDC input by cable	
Operating Systems	-	Windows 10 Enterprise 64bit Ubuntu 16.04.3 LTS (64 bit) CentOS 7.4 (64 bit)			Windows 10 Enterprise 64 bit Ubuntu 18.04. LTS, 64-bit	
Dimension (mm)	30 x 50.95 x 4.80	22 x 30 x 3.63	30 x 50.95 x 4.86		171.07 x 68.9	
AI Framework Support	ONNX, TensorFlow, Keras, Caffe, PyTorch	TensorFlow, Caffe				
Software/Toolkit	NA	Advantech Edge AI Suite and Intel OpenVINO R2 2019 or the latest				

FaceView AI Facial Recognition

	Facial Recognition	Facial Mask Detection	Body Temperature Monitoring
OS	MS Windows 10	MS Windows 10	MS Windows 10
Software Latest Version	V1.2.2.10609 (SW)	V1.2.2.10609 (SW)	FMH V4.3.1
Face Detection	Support	Support	Support
Face Recognition	Support	Support	Support
Face Tracking	Support	Support	Support
Masked Face Recognition	Not support	Support	Support
Mask Detection	Not support	Support	Support
Thermal Detection	Not support	Not support	Support
FR Captured Facial Attributes	Gender, Age, Emotion, Face Angles	Gender, Age, Emotion, Face Angles, Mask	No emotion, fewer attributes
Live Video Support	web camera, IP cam	web camera, IP cam	web camera+Thermal camera, IP cam
Emotion Detection	Happy, Sad, Angry, Surprise & Calm	Happy, Sad, Angry, Surprise & Calm	Not support
SDK Support Chipset (CPU/GPU/VPU) *disregard OS	Intel® 64, ARM64™, NVIDIA® GPU, NVIDIA® Jetson, Intel® Movidius™ VPU, MediaTek i350 APU, Qualcomm SoC(GPU), NXP i.MX8		
Development Tool	C++, RESTful API(DB access)	C++, RESTful API(DB access)	HTTP(limited)
AI Inference Engine Support *fit on demand	Intel® OpenVINO™, NVIDIA® TensorRT / CUDA, Qualcomm SNPE, MediaTeK NeuroPilot, CoreML		

Edge AI Solutions

Edge AI Inference Systems and Training Servers

AIR Series

NEW

		AIR-100	AIR-101	AIR-200	AIR-020X
Processor	CPU	Intel Atom E3950 Quad core SoC	Intel Atom E3940 Quad core SoC	Intel® i5-6442EQ QC SoC	ARM v8.2 Six core Carmel processors, Max. 1.9 GHz
	GPU	Integrated NVIDIA GT1030	-	Intel QM170	Volta 384 CUDA core and 48 Tensor cores
	VPU	One Intel Movidius MA2485	Two Intel Movidius MA2485	Two Intel Movidius MA2485	-
AI Spec	AI Engine	Intel Movidius VPU	Intel Movidius VPU	Intel Movidius VPU	NVIDIA Xavier NX
	AI Performance	4 TOPS	8 TOPS	8 TOPS	21 TOPS (INT8)
Memory		4GB memory built-in	8GB memory built-in	8GB memory built-in	8 GB LPDDR4 on board
Storage		64GB 2.5" SSD built-in	64GB SATA Slim SSD built-in	64GB 2.5" SSD built-in	16G eMMC on board, M.2 2280 128GB built-in
Display		4x HDMI	2x HDMI	2x HDMI	1x HDMI
I/O Ports	Ethernet	1x GbE	2x GbE	2x GbE	2x GbE
	COM	1x RS-232	2x RS-232/422/485, COM2 w/ 5V/12V power	3x RS-232/422/485	2x RS-232/422/485
	USB	2x USB2.0, 2x USB3.0	4x USB 3.0	3x USB3.0	2x USB 3.2 Type A, 1x USB Type C
	Digital IO	-	8 bit reserved	4x DI, 4x DO	8 bit, 4bit in, 4bit out
	CANbus	-	-	optional	1x DB9
Expansion	Expansion Slot	1x Full-size mPCIE	M.2 2230 E key	1x Full-size mPCIE 1x M.2 2230 E key	1x Full-size mPCIE w/ nano SIM slot
Power	Power Input	19 V_{DC}	12-28 V_{DC}	12-24 V_{DC}	12-24V V_{DC}
	Power Supply	DC 19V/65W adapter (built-in)	AC to DC 24V/60W adapter (optional)	Ac to DC 24V/150W adapter (optional)	AC to DC adapter 65W with 2-pin pheinex
Mechanical	Dimension	220 x 40 x 150 mm	53.5 x 158 x 114mm	260 x 86.8 x 160.2 mm	139 x 110 x 44.5mm
	Mounting	Wall mount kits for LCD or plasma panels	DIN-rail, wall mount	Wall mount	Wall mount
Environment, software and Certificate	Operational Temperature	0 ~ 50 °C with 0.7m/s air flow	-20 ~ 55 °C with 0.7 m/s air flow	-20 ~ 60 °C with 0.7m/s air flow	-10 ~ 55 °C with 0.7 m/s air flow
	Vibration during operation	2 Grms @ 5 ~ 500 Hz, random, 1 hr/axis	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis	MIL-STD-810G, Method 514.6	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis
	Operating System	Windows 10 (pre-installed)	Windows 10 (optional)	Windows 10 (pre-installed)	Ubuntu 18.04 built-in
	Software support	Edge AI Suite, OpenVINO R2 2019 or latest	Edge AI Suite, OpenVINO R2 2019 or latest	Edge AI Suite, OpenVINO R2 2019 or latest	Edge AI Suite/FaceView compatible
	EMC/Safety Certification	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)

NEW NEW

		AIR-020T	AIR-020N	AIR-300	AIR-500D
Processor	CPU	Denver 2 CPU and Cortex A57 Quad Core, Max. 2.0 GHz	ARM Cortex® A57 Quad core	Intel 6th & 7th Gen. Xeon E3/ Core i3/i5/i7	Intel Ice Lake-D LCC Xeon
	GPU	Pascal 256 CUDA cores	Maxwell 128 CUDA cores	Intel HD Graphics 630	-
	VPU	-	-	-	-
AI Spec	AI Engine	NVIDIA TX2 NX	NVIDIA Nano	-	-
	AI Performance	1.33 TFLOPS (FP16)	0.5 TFLOPS (FP16)	-	-
Memory		4 GB LPDDR4 on board	4 GB LPDDR4 on board	2 x DDR4 2133 MHz 260-pin SO-DIMM	4x SODIMM DDR4 2666MHz, upto 128GB (ECC/Non-ECC)
Storage		16G eMMC on board, M.2 2280 128GB built-in	16G eMMC on board, M.2 2280 128GB built-in	Max. 4x 2.5" SATAIII hard drive bay	4x swappble 2.5" Storage (RAID 0/1/5/10)
Display		1x HDMI	1x HDMI	1x VGA, 1x HDMI	1x VGA
I/O Ports	Ethernet	2x GbE	1x GbE	4x GbE	4x GbE
	COM	1x RS-232/422/485	1x RS-232/422/485	4x RS-232/422/485	4x RS-232/422/485
	USB	2x USB 3.2 Type A, 1x USB Type-C	2x USB 3.2 Type A, 1x USB Type-C	8x USB3.0	6x USB3.0
	Digital IO	8 bit, 4bit in, 4bit out	8 bit, 4bit in, 4bit out	optional	1x 16bit DIO
	CANbus	1x DB9 (reserved)	-	-	-
Expansion	Expansion Slot	1x Full-size mPCIE w/ nano SIM slot	1x Full-size mPCIE w/ nano SIM slot (USB signal only)	2x Full-size mPCIE 1x M.2 2230 E key 1x PCIe x16, support Max. 350W GPU card	1x M.2 2230 E key 1x M.2 2230/2280/3052 B key 2x PCIe x16 (signal x8 each) 1x PCIe x4 1x PCIe x1
Power	Power Input	12-24 V_{DC}	12-24 V_{DC}	100~240 V_{AC}	100~240 V_{AC}
	Power Supply	AC to DC adapter 65W with 2-pin pheinex	AC to DC adapter 65W with 2-pin pheinex	850 power supply built-in	1200W power supply built-in
Mechanical	Dimension	139 x 110 x 44.5mm	138 x 109.8 x 44.5mm	228.3 x 230 x 399.92mm	260 x 270 x 399mm
	Mounting	Wall mount	Wall mount	Desk mount	Wall mount
Environment, software and Certificate	Operational Temperature	-10 ~ 55 °C with 0.7 m/s air flow	-10 ~ 55 °C with 0.7 m/s air flow	0 ~ 50 °C with 0.7m/s air flow	-10 ~ 50 °C with 0.7m/s air flow
	Vibration during operation	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis	-	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis
	Operating System	Ubuntu 18.04 built-in	Ubuntu 18.04 built-in	Windows 7 & 10 (optional)	Windows 10 (optional)
	Software support	Edge AI Suite/FaceView compatible	Edge AI Suite/FaceView compatible	-	-
	EMC/Safety Certification	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)	CE/FCC Class B, CB, UL, CCC and BSMI (No RED)

Edge to Cloud Solutions

Edge Intelligence System

NEW

Model Name	EIS-D620 Low Power	EIS-D210 Wireless Connectivity	EIS-D150 High Performance	EIS-D110 Ultra Compact	EI-52 Compact High Performance
CPU	Rockchip RK3399	Intel® Celeron® N3350	Intel® 6th Gen Core™ i5 6300U	Intel® Celeron® J1900	Intel 11th Gen. Core i5-1145G7E/ Core i3-1115G4E/ Celeron 6305E
RAM/Storage	2GB RAM/16GB eMMC built-in	4GB RAM/64GB SSD built-in	8GB RAM/256GB SSD built-in	Optional	8GB/16GB DDR4 RAM and 64GB SATA Slim SSD Built-in
OS	Debian	Win 10 IoT Enterprise	Win 10 IoT Enterprise	Optional	Win 10 IoT Enterprise
I/O Interface	2 x HDMI, 2 x GbE, 1 x RS-232, 1 x USB 3.0, 1 x USB 2.0	1 x VGA, 2 x GbE, 2 x RS232/422/485, 4 x USB 3.0, iDoor	1 x HDMI, 1 x VGA, 2 x GbE, 4 x RS232/422/485, iDoor	2 x HDMI,2 x GbE, 1 x RS232/422/485	1 x HDMI, 1 x DP, 2 x GbE, 2 x RS232/422/485, 4 x USB 3.0, 2 x USB 2.0
Wireless Networking	Optional	CE RED/FCC RF Compliance	Optional		CE RED/FCC RF Compliance optional AIW-355 5G module optional AMO-WIF13 Wi-Fi kit
Dimensions (W x H x D)	135 x 130 x 29 mm; 5.3 x 5.1 x 1.1 in	133 x 46.4 x 94.2 mm; 5.2 x 1.82 x 3.7 in	260 x 54 x 140.2 mm; 10 x 2.12 x 5.5 in	133.8 x 43.1 x 94.2 mm; 5.26 x 1.69 x 3.7 in	156 x 112 x 60 mm; 6.1 x 4.4 x 2.3 in
Software Package	**DeviceOn/iEdge** **Data Integration and Edge Management** • Data Integration • Centralized Remote Management • Real-time Edge Analytics • Auto Generated Dashboard **Add-on Package:** • iEdgeSEMI for SECS/GEM protocol conversion • iEdgePLC support over 450+ PLC protocol drivers		**WebAccess/SCADA** **Smart SCADA** • Dashboard Editor Viewer • Widget Library & Widget Builder • Cross Browser & Device Viewing (For EIS-D150 and EIS-D210)		**WISE-DeviceOn** **IoT Device Operation** Management • Device Management • Monitoring & Control • Update Management EDGE X FOUNDRY™ • Heterogeneous Devices Connection • Application Integration • Data Analytics Neutral & Open Platform
Development Tools	Node-RED Data Flow Logic Designer & Dashboard Builder Protocol Plug-in SDK & Configuration Tools				Edge X API and SDK
Ordering Information	EIS-D620-D1DE121	EIS-D210W-E1DS642	EIS-D150-E1DS182	EIS-D110-01D0002	EI-52-S6A1 (i5), EI-52-S2A1 (i3), EI-52-U0A1 (Celeron)

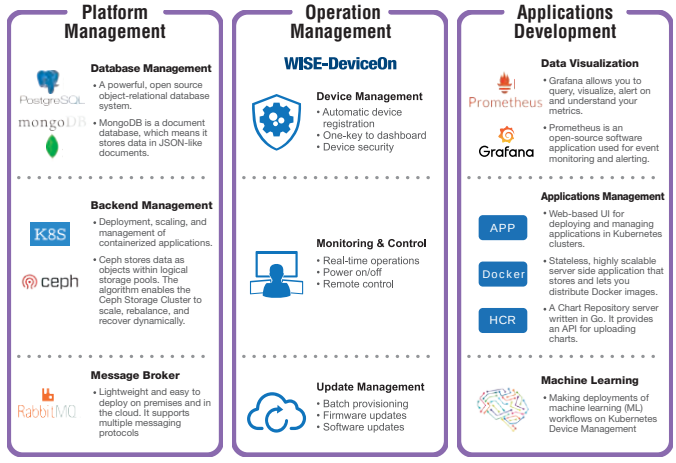
Edge to Cloud Solutions

Edge Cloud Solutions

NEW

Model Name	EIS-S232 High-end	EIS-S230 Mainstream
CPU	Intel® Core™ i7-10700E	Intel® Xeon® E3-1275 V6
RAM/Storage	32GB RAM/1TB SSD built-in	32GB RAM/512GB SSD built-in
OS	Ubuntu 20.04 (64bit)	Ubuntu 16.04 (64bit)
I/O Interface	1 x HDMI, 1 x VGA, 2 x GbEx2, 4 x USB 3.2, 4 x USB 3.0, 6 x COM, GPIO 16bit, iDoor	1 x HDMI, 4 x GbE, 4 x RS-232/422/485, 8 x USB 3.0
Wireless Networking	Optional	
Dimensions (W x H x D)	197 x 204 x 230 mm; 7.7 x 8.03 x 9 in	156 x 205 x 230 mm; 6.1 x 8 x 9 in
Software Package	**WISE-DeviceOn** **IoT Device Operation Management** • Device Management • Monitoring & Control • Update Management **Platform Management** • Docker, Kubernetes • RabbitMQ, MongoDB • PostgreSQL,Grafana	
Development Tools	Kubernetes DeKvelopment Kit	
Ordering Information	EIS-S232-U20STB1	EIS-S230-U20S501

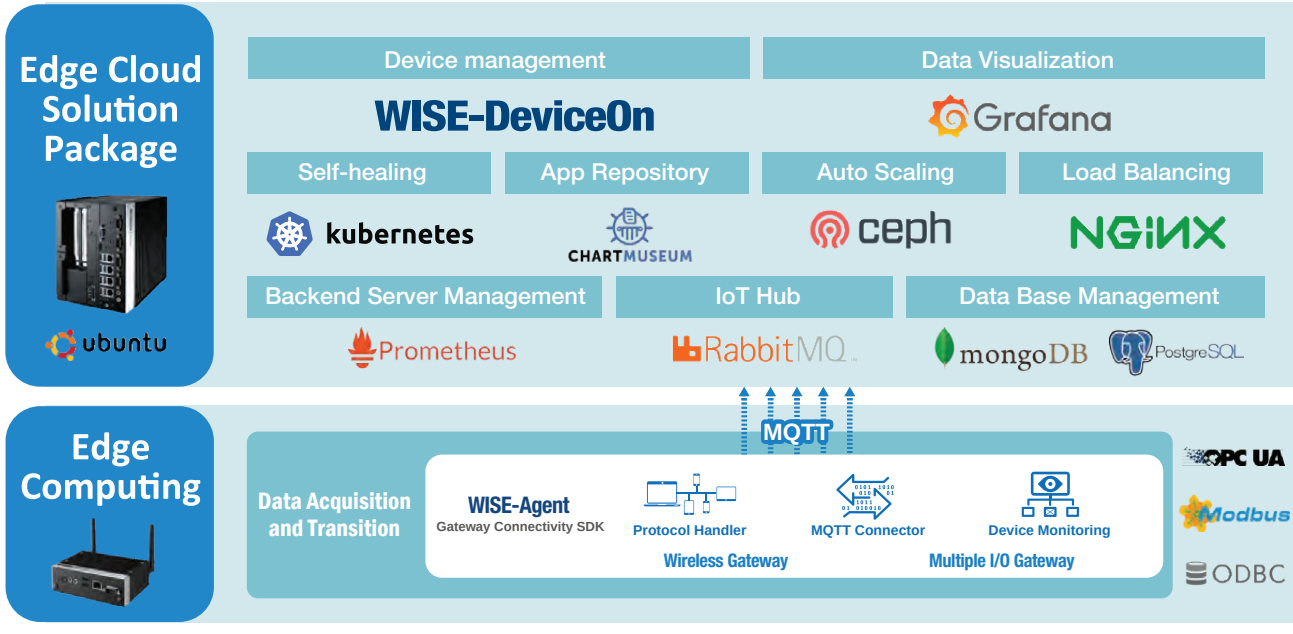
Software Stack Package



Application Dashboard

Device Status Management | Computing Resource Management | Operation Management

System Structure



Edge to Cloud Solutions

Solution Ready Package

FAB Environment Monitoring

Process Equipment Management

Equipment Health Monitoring

Solution Offerings

NEW

iEdge SEMI

SECS/GEM Protocol Conversion

- Collect equipment data and convert them to SECS/GEM protocol for IT/OT integration
- Protect equipment shutdown with automated notification center

SEMI equipment communications standard

Data convert to SECS/ GEM protocol

GEM300

Built-in GEM300 library in SECS driver

Include edge database and dashboard

Ordering Information

IEDGE-SEMI-21A

- 1 x EI-52-S6A1 (Intel Core i5-1145G7E, w/16G RAM,64G SSD)
- 1 x 20706WX9VM0024 Win10 image w/ iEdgeSEMI for EI-52
- 1 x 31ASE2ISEC0301 iEdgeSEMI License
- 1 x 36WSWPE2I001A1 DeviceOn/iEdge Client Bundle License 1 device

NEW

iEdge PLC

PLC Equipment Management

- Supports Mitsubishi, Omron, and Simens PLC protocols
- Centralized equipment management with user friendly dashboard

450+ PLC driver support

Lightweight PLC runtime application

Unlimited free trial tags for PLC connectivity

Easy implementation and deployment

Ordering Information

IEDGE-PLC-21A

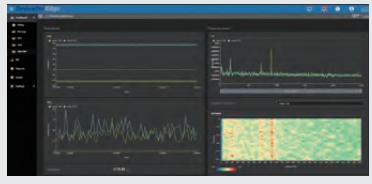
- 1 x EIS-D210 (Intel Celeron N3350/4GB RAM/64GB SSD/Win10)
- Win10 image w/ iEdgePLC for EIS-D210
- 1 x 36WSWPE2I001A1 DeviceOn/iEdge Client Bundle License 1 device
- iEdgePLC trial version

NEW

iEdge VAM

Vibration Data Monitoring

- Monitor rotating equipment in real time by converting sensor data to RMS/FFT/ Spectrogram
- Model normal status monitoring, discover problems early, and avoid costly downtime



Real-time vibration monitoring

Time-frequency vibration data analysis

Condition monitoring

Alarm management and maintenance

Ordering Information

IEDGE-VAM-21A

- EIS-D150 x1
- 1 x 36WSWPE2I001A1 DeviceOn/iEdge Client Bundle License 1 device
- Vibration Sensor, Vibration Software, Vibration DAQ

Edge Computers

Compact Series

Model Name		ARK-1123L	ARK-1123C	ARK-1123H	ARK-1124C
CPU	CPU	Intel® Atom® DC E3825	Intel® Atom® DC E3825	Intel® Celeron® QC J1900	Intel® Celeron® DC N3350
	Frequency	1.33 GHz	1.33 GHz	2.0GHz	1.1GHz, turbo burst 2.4 GHz
	Core Number 4/4	2	2	4	2
	BIOS	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 64 bit
	Chipset	-	-	-	-
Memory	Technology	DDR3L 1066 MHz	DDR3L 1066 MHz	DDR3L 1333 MHz	DDR3L 1866 MHz
	Max. Capacity	8GB	8GB	8GB	8GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM
Display	Chipset	Intel® Atom® SoC integrated	Intel® Atom® SoC integrated	Intel® Atom® SoC integrated	Intel® HD Graphics 500
	Graphic Engine	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 ; Encode: H264, MPEG2/4, VC1, WMV9 ; Decode: H264, MPEG2	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 ; Encode: H264, MPEG2/4, VC1, WMV9 ; Decode: H264, MPEG2	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 ; Encode: H264, MPEG2/4, VC1, WMV9 ; Decode: H264, MPEG2	4K Codec Decode& Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	VGA	1 x VGA, support up to 1920x1200	1 x VGA, support up to 1920x1200	-	1 x VGA, support up to 2048 x 1280 @ 60Hz
	DDI	-	-	2 x HDMI, up to 1920x1080@60Hz	-
	Multiple Display	-	-	Dual	-
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size Mini PCIe	1 x Full-size MiniPCIe
	M.2	-	-	-	-
	SIM socket	-	-	-	-
	PCIe	-	-	-	-
	PCI	-	-	-	-
	PCIe + PCI	-	-	-	-
	i Door	-	-	-	Yes
Ethernet	Controller	GbE 1 : Intel i210	GbE 1 : Intel i210 ; GbE 2 : Intel i210	GbE 1 : Intel i210 ; GbE 2 : Intel i210	GbE 1: Intel i210
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	CODEC	ALC-888S-VD2-GR	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	Line-in, Line-out
WatchDog Timer		Yes	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)	1 x 2.5" SATA drive bay (Max 9.5mm height only)
	mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA	1 x Half-Size mSATA
I/O	USB3.1/3.2	-	-	-	-
	USB 3.0	1	1	1	2
	USB2.0	1	2	2	-
	GPIO	8-bit Programmable DIO	-	-	-
	COM Port	1 x RS-232, 1 x RS-232/422/485	2 x RS-232/422/485	1 x RS-232/422/485	4 x RS-232/422/485
Power	Power Type	ATX	ATX	ATX	ATX
	Power Supply Voltage	12 V_{DC}, ± 10%	12 V_{DC}, ± 10%	12 V_{DC}, ± 10%	Default: 12 V_{DC}, ± 10%; Optional: 12 V_{DC} - 24 V_{DC} by power module
	Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Default: Lockable DC Jack ; Optional: 2-Pin phenix connector via power module AMO-P011
	Power Consumption (Idle: CPU/Memory only)	5.28W	5.28W	5.64W	5.5W
	Power Consumption (Full Load: CPU/Memory only)	8.16W	8.16W	14.04W	9.8W
	Power Adaptor	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W	Lockable AC to DC, DC12 V/3 A, 36 W
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -30 ~ 70 °C (-22 ~ 158 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -30 ~ 70 °C (-22 ~ 158 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, IEC, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis
	Shock Protection	With mSATA/SSD: 30 G, half sine, 11 ms duration; With HDD: 10G, half sine, 11 ms duration	With mSATA/SSD: 30 G, half sine, 11 ms duration; With HDD: 10G, half sine, 11 ms duration	With mSATA/SSD: 30 G, half sine, 11 ms duration; With HDD: 10G, half sine, 11 ms duration	With mSATA/SSD: 30 G, half sine, 11 ms duration; With HDD: 10G, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	133.8 x 43.1 x 94.2 mm (5.27 x 1.70 x 3.71 in)	133.8 x 43.1 x 94.2 mm (5.27 x 1.70 x 3.71 in)	133.8 x 43.1 x 94.2 mm (5.27 x 1.70 x 3.71 in)	Single Layer: 133 x 46.4 x 94.2 mm (5.23 x 1.82 x 3.7 in); Dual Layer: 133 x 83.6 x 94.2 mm (5.23 x 3.29 x 3.70 in)
	Weight	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)	1.2 kg (2.65 lb)	0.7 Kg (1.55lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting
Operating System	Microsoft Windows	Yes (Windows 7, Windows 8, Windows 10)	Yes (Windows 7, Windows 8, Windows 10)	Yes (Windows 7, Windows 8, Windows 10)	Yes (Windows 10 64bit)
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

NEW

Model Name		ARK-1124U	ARK-1124H	ARK-1220L	ARK-1220F
CPU	CPU	Intel® Celeron® DC N3350	Intel® Atom® QC E3940	Intel® Atom® QC E3940	Intel® Atom® QC E3940
	Frequency	1.1GHz, turbo burst 2.4 GHz	1.6GHz, turbo burst 1.8 GHz	1.6GHz, turbo burst 1.8 GHz	1.6GHz, turbo burst 1.8 GHz
	Core Number 4/4	2	4	4	4
	BIOS	AMI EFI 64 bit	AMI EFI 64 bit	AMI EFI 64 bit	AMI EFI 128 bit
	Chipset	-	-	-	-
Memory	Technology	DDR3L 1866 Mhz	DDR3L 1866 Mhz	DDR3L 1600 MHz	DDR3L 1600 MHz
	Max. Capacity	8GB	8GB	8GB	8GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	2 x 204-pin SO-DIMM	2 x 204-pin SO-DIMM
Display	Chipset	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® HD Graphics 500
	Graphic Engine	4K Codec Decode & Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG	4K Codec Decode & Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG	4K Codec Decode & Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG	4K Codec Decode & Encode for H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC, VP8, JPEG / MJPEG
	VGA	1 x VGA, support up to 2048 x 1280 @ 60Hz	-	-	1 (up to 1920 x 1200)
	DDI	-	2 x Lockable HDMI, support up to 3840 x 2160 @ 30Hz	2 x Lockable HDMI, support up to 3840 x 2160 @ 30Hz	1 x Lockable HDMI, support up to 3840 x 2160 @ 30Hz
	Multiple Display	-	Dual	Dual	Dual
Expansion Interface	Mini PCIe	1 x Full-size MiniPCIe w/ SIM	1 x Full-size MiniPCIe w/ SIM	1 x Full-size MiniPCIe w/ SIM	1 x Full-size MiniPCIe w/ nano SIM
	M.2	1 x 2230 E key for Wi-Fi	1 x 2230 E key for Wi-Fi	1 x 2230 E key for Wi-Fi	1 x 2230 E key for Wi-Fi
	SIM socket	1 (standard size)	1 (micro SIM)	1 (standard size)	1 (nano SIM)
	PCIe	-	-	-	-
	PCI	-	-	-	-
	PCIe + PCI	-	-	-	-
	i Door	Yes	Yes	-	-
Ethernet	Controller	GbE 1: Intel i210; GbE 2: Intel i210	GbE 1: Intel i210; GbE 2: Intel i210	GbE 1: Intel i210; GbE 2: Intel i210	GbE 1 : Intel i210-IT, GbE 2 : Intel i210-IT
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	CODEC	ALC-888S-VD2-GR	ALC-888S-VD2-GR	ALC-888S-VD2-GR	ALC-888S-VD2-GR
	Connector	Line-in, Line-out	Line-in, Line-out	Mic-in, Line-out	Line out or Mic-in
WatchDog Timer		Yes	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 (Max15mm height)	1 x 2.5" SATA drive bay (Max15mm height)
	mSATA	-	1 x Half-Size mSATA	1 x Full-size mSATA (shared w/ mCPIe)	1 x Full-size mSATA (shared w/ mCPIe)
I/O	USB3.1/3.2	-	-	-	-
	USB 3.0	4	4	4	4
	USB2.0	-	-	-	1 (plus one more internal)
	GPIO	-	-	Reserved. 8-bit Programmable DIO	8-bit Programmable DIO
	COM Port	2 x RS-232/422/485	1 x RS-232/422/485	2 x RS-232/422/485 COM2 with 5V/12V power	1 x RS-232/422/485, 1 x RS-422/485
Power	Power Type	ATX	ATX	ATX	ATX (Default)/ AT
	Power Supply Voltage	Default: 12 V_{DC}, ± 10% ; Optional: 12 V_{DC} - 24 V_{DC} by power module	Default: 12 V_{DC}, ± 10% ; Optional: 12 V_{DC} - 24 V_{DC} by power module	12 ~ 28 V_{DC}	12 ~ 28 V_{DC}
	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	3-pin terminal block	3-pin terminal block
	Power Consumption (Idle: CPU/Memory only)	5W	6.02W	7.6W	8.93W
	Power Consumption (Full Load: CPU/Memory only)	15.7W	15.7W	19W	18.36W
	Power Adaptor	Lockable AC to DC, DC12 V/5 A, 60 W	Lockable AC to DC, DC12 V/5 A, 60 W	Lockable AC to DC, DC24 V/2.5 A, 60 W (Optional)	Lockable AC to DC, DC24 V/2.5 A, 60 W (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -30 ~ 70 °C (-22 ~ 158 °F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -30~60°C (-22~140°F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis
	Shock Protection	With mSATA/SSD: 30 G, half sine, 11 ms duration ; With HDD: 10G, half sine, 11 ms duration	With mSATA/SSD: 30 G, half sine, 11 ms duration ; With HDD: 10G,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 94.2 mm (5.23 x 1.82 x 3.7 in); Dual Layer: 133 x 83.6 x 94.2 mm (5.23 x 3.29 x 3.7 in)	Single Layer: 133 x 46.4 x 94.2 mm (5.23 x 1.82 x 3.7 in); Dual Layer: 133 x 83.6 x 94.2 mm (5.23 x 3.29 x 3.7 in)	114 x 158 x 53.5 mm (4.49 x 6.22 x 2.11 in)	114 x 158 x 60 mm (4.49 x 6.22 x 2.34 in)
	Weight	0.7 Kg (1.55 lb)	0.7 Kg (1.55 lb)	1.2 Kg (2.65 lb)	1.5 Kg (3.3 lb)
	Mounting	Optional DIN Rail/ VESA/ Wall mounting	Optional DIN Rail/ VESA/ Wall mounting	DIN Rail Mounting (standard) Optional Wall mounting	DIN Rail Mounting (standard) Optional Wall mounting
Operating System	Microsoft Windows	Yes (Windows 10 64bit)	Yes (Windows 10 64bit)	Yes (Windows 10 64bit)	Yes (Windows 10 64bit)
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn, DeviceOn/iEdge	WISE-DeviceOn, DeviceOn/iEdge
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B (Heavy industrial), CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

Compact Series

Model Name		ARK-1221L	ARK-1250	ARK-1551
CPU	CPU	Intel Atom x6413E Quad Core SoC	Intel® Core i5 1145G7E/ Intel® Core i3 1115G4E	Intel® Celeron® 4305UE/Intel® Core™ i3-8145UE/ Intel® i5-8365UE
	Frequency	1.50 GHz, turbo burst up to 3.00 GHz	Intel® Core i5 1145G7E, turbo boost up to 4.1 GHz Intel® Core i3 1115G4E, turbo boost up to 3.9 GHz	2.0GHz/2.1 GHz, turbo burst up to 3.9 GHz 1.6 GHz, turbo up to 4.1 GHz
	Core Number 4/4	4	4/2	2/2/4
	BIOS	AMI EFI 256 Mbit	AMI EFI 256 Mbit	AMI UEFI 256Mbit
	Chipset	-	-	Intel® Celeron 4305UE/Intel® i5-8365UE
Memory	Technology	DDR4 3200 Mhz	DDR4 3200 Mhz	DDR4 2400MHz
	Max. Capacity	32GB	64GB	32GB
	Socket	2 x 260-pin SO-DIMM	2 x 260-pin SO-DIMM	2 x 260-pin SO-DIMM, Each SO-DIMM up to 16GB
Display	Chipset	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel 12th gen. Graphics	Intel® UHD Graphics 610/ Intel® UHD Graphics 620
	Graphic Engine	-	-	Media Codec Supported: H.264, MPEG2, MVC, VC-1, WMV9, H.265 / HEVC; 3D HW Acceleration: OpenGL 4.5, DirectX* 11.3/12, OpenCL* 2.1
	VGA	-	1 , up to 1920 x 1080@ 60Hz	1 , up to 1920 x 1080@ 60Hz
	DDI	1 x lockable HDMI 1.4b, 4096 x 2160@24Hz; 1 x DP 1.2, 4096 x 2304 @ 60Hz	1 x lockable HDMI 2.0b: 4096 x 2160 @ 60Hz	1 x lockable HDMI 1.4b, 4096 x 2160@30Hz; 1 x DP 1.2, 4096 x 2304 @ 60Hz (co-lay with VGA, by project support with MOQ = 30)
	Multiple Display	Dual (HDMI+DP)	Dual (HDMI+VGA)	Dual (VGA+HDMI)
Expansion Interface	Mini PCIe	1 x Full-size mPCIe	1 x Full-size MiniPCIe	1 x Full-size MiniPCIe w/ nano SIM
	M.2	1 x M2. 2230 E key and 1 x M.2 2280 B key with nano SIM holder	1 x M2. 2230 E key and 1 x M.2 3052 B key with nano SIM holder	1 x 2230 E key for Wi-Fi
	SIM socket	1 (Nano SIM)	1 (Nano SIM)	1 (Nano SIM)
	PCIe	-	-	-
	PCI	-	-	-
	PCIe + PCI	-	-	-
	i Door	-	-	-
Ethernet	Controller	GbE 1 : Intel i210, GbE 2 : Intel i210	GbE 1: Intel i210, GbE 2: Intel i219, GbE 3: Intel i225	GbE 1: Intel i210, GbE 2: Intel i219
	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	Realtek ALC892
	Connector	Line out or Mic-in	Line out or Mic-in	Line out or Mic-in
WatchDog Timer		Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATA drive bay	1 x 2.5" SATA drive bay	1 x removable 2.5" SATA drive bay (Max 7mm height only)
	mSATA	1 x Full-size mSATA (*share with mPCIe slot)	1 x Full-size mSATA (*share with mPCIe slot)	1 x Full-size mSATA (shared w/ mCPIe)
I/O	USB3.1/3.2	2	3	4
	USB 3.0	-	-	-
	USB2.0	2	3	-
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO	8-bit Programmable DIO
	COM Port	2 x RS-232/422/485	4 x RS-232/422/485 (COM1 share with optional CANBUS,COM1 switch to CANBUS by jumper)	4 x RS-232/422/485
Power	Power Type	ATX (Default)/ AT	ATX (Default)/ AT	ATX (Default)/ AT
	Power Supply Voltage	12 ~ 28 V_{DC}	12 ~ 24 V_{DC}	12V~24V_{DC} @-10% / +20%
	Connector	3-pin terminal block	3-pin terminal block	3-pin terminal block
	Power Consumption (Idle: CPU/Memory only)	TBD	TBD	8.93 Watt (Celeron®)/13.31Watt (Core™ i3) 13.87 Watt (Core™ i5)
	Power Consumption (Full Load: CPU/Memory only)	TBD	TBD	24.7 Watt (Celeron®)/46.1(Core™ i3) 47.12Watt (Core™ i5)
	Power Adaptor	Lockable AC to DC, DC24 V/2.5 A, 60 W (Optional)	AC to DC, 90W adaptor built-in	Core™ i3, Celeron®: AC to DC, 90W (Optional) Core™ i5: AC to DC, 90W for 0~ 40 °C (Optional) AC to DC, 120W for -20~ 55 °C (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -30~60°C (-22~140°F); with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -20~60°C (-4 ~ 140 °F) ; with standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With extend temperature peripherals: -20 ~ 55 °C (-4 ~ 131 °F) ; With standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F) -40 ~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis ; With HDD: 0.5Grms, random, 5~500Hz, 3 axes, 1hr/axis	With mSATA/SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/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, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	114 x 158 x 60 mm (4.49 x 6.22 x 2.34 in)	173 x 141 x 60 mm (6.73 x 5.55 x 2.36 in)	195 x 55 x 140 mm (7.68 x 2.16 x 5.52 in)
	Weight	1.5 Kg (3.3 lb)	TBD	1.9 kg (4.18 lbs)
	Mounting	DIN Rail Mounting (standard) Optional Wall mounting	DIN Rail Mounting (standard) Optional Wall mounting	Wall Mounting (Standard) / VESA & DIN- Rail Mounting Kit (Optional)
Operating System	Microsoft Windows	Yes (Windows 10 64bit)	Yes (Windows 10 64bit)	Yes (Windows 10 64bit)
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquire)
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn, DeviceOn/iEdge	WISE-DeviceOn
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

Modular Series

Model Name		ARK-2121L	ARK-2121F	ARK-2230L
CPU	CPU	Intel® Celeron® J1900 SoC	Intel® Celeron® J1900 SoC	Intel® Celeron® J1900 SoC
	Frequency	2.0 GHz, turbo boost up to 2.42GHz	2.0 GHz, turbo boost up to 2.42GHz	2.0 GHz, turbo boost up to 2.42GHz
	Core Number	4	4	4
	BIOS	AMI 64Mbit	AMI 64Mbit	AMI 64Mbit
	Chipset	-	-	-
Memory	Technology	DDR3L 1333 MHz	DDR3L 1333 MHz	DDR3L 1333 MHz
	Max. Capacity	8GB	8GB	8GB
	Socket	1 x 204pin SODIMM	1 x 204pin SODIMM	1 x 204pin SODIMM
Display	Chipset	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core	Intel Celeron J1900 SoC integrated, 7th Gen. Intel Graphic core
	Graphic Engine	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9 Decode: H.264, MPEG2	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9; Decode: H.264, MPEG2	DirectX 11.1, OCL 1.2, OGL 3.2 Encode: H.264, MPEG2/4, VC1, WMV9 ; Decode: H.264, MPEG2
	VGA	Up to 2048 x 1152 @ 60Hz	Up to 2048 x 1152 @ 60Hz	Up to 2048 x 1152 @ 60Hz
	DDI	HDMI: 1920 x 1080 @ 60Hz	HDMI: 1920 x 1080 @ 60Hz; Optional: HDMI and DVI	HDMI: 1920 x 1080 @ 60Hz
	Multiple Display	Dual	Dual / Triple (Option)	Dual
Expansion Interface	Mini PCIe	1 x full size Mini PCIe (With SIM holder)	2 x full size Mini PCIe (One with SIM holder)	1 x full size miniPCIe (With SIM holder)
	M.2	-	-	-
	SIM socket	1	1	1
	PCIe	-	-	-
	PCI	-	-	-
	PCIe + PCI	-	-	-
	i Door	Supported	-	Supported
Ethernet	Controller	GbE1: Intel i210 GbE2: Intel i210	GbE1: Intel i210; GbE2: Intel i210; GbE3: Intel i210 (by project); GbE4: Intel i210 (by project)	GbE1: Intel i210 GbE2: Intel i210
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	Connector	Line-in, Line out, Mic-in	Line-in, Line out, Mic-in	Line-in, Line out, Mic-in
WatchDog Timer		Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATAII HDD bay (Max up to 12.5mm in height)	1 x 2.5" SATAII HDD bay (Max up to 12.5mm in height)	1 x 2.5" SATAII HDD bay (Max up to 12.5mm in height)
	mSATA	1 x Full-size mSATA with USB signal co-lay	1 x Full-size mSATA with USB signal co-lay	1 x Full-size mSATA with USB signal co-lay
I/O	USB3.1/3.2	-	-	-
	USB 3.0	1	1	1
	USB2.0	3	5	4
	GPIO	-	8-bit Programmable DIO	8-bit Programmable DIO
	COM Port	2 x RS232, 2 x RS232/ 422/ 485	6 x RS232/ 422/ 485	2 x RS232, 2 x RS232/ 422/ 485
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	9~36V_{DC}	9~36V_{DC}	Default: 12 V_{DC}, ± 10% ; Optional : 9-36V DC
	Connector	2-pin phoenix head	2-pin phoenix head	Default: Lockable DC Jack ; Optional:2-pin phoenix head (MIOE-PWR2-00A1E)
	Power Consumption (Idle: CPU/ Memory only)	7.3W	8.4W	7.3W
	Power Consumption (Full Load: CPU/ Memory only)	13.3W	16.2W	13.3W
	Power Adaptor	Lockable AC to DC, DC19V/3.42A 65W (Optional)	Lockable AC to DC, DC19V/3.42A, 65W (Optional)	Lockable AC to DC, DC12V/5A, 60W (Optional)
Environment	Operating Temperature (air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 70 °C (-4 ~ 158 °F) With standard temperature peripherals: 0 ~ 45 °C (32 ~ 113 °F)	With extend temperature peripherals: -20 ~ 70 °C (-4 ~ 158 °F) With standard temperature peripherals: 0 ~ 45 °C (32 ~ 113 °F)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) With standard temperature peripherals: 0 ~ 45 °C (32 ~ 113 °F)
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	264.5 x 68.4 x 133.0 mm (10.41 x 2.69 x 5.24 in)	264.5 x 68.4 x 133.0 mm (10.41 x 2.69 x 5.24 in)	260 x 44 x 140.2 mm(10.24 x 1.73 x 5.52 in)
	Weight	2.3 kg (5.07 lb)	2.3 kg (5.07 lb)	2.3 kg (5.07 lb)
	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting
Operating System	Microsoft Windows	Windows 7, Windows 10	Windows 7, Windows 10	Windows 7, Windows 10
	Linux	Yes	Yes	Yes
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC class A, CCC, BSMI	CE/FCC class A, CCC, BSMI	CE/FCC class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

Entry, Multi-I/O Series

Model Name		ARK-2232L	ARK-2250L	ARK-6322
CPU	CPU	Intel® Atom® E3940	Core™ i7-6600U/i3-6100U (i5-6300U by project) Core™ i7-7600U/i3-7100U (i5-7300U by project)	Intel® Celeron® J1900 SoC
	Frequency	1.6 GHz, turbo boost up to 1.8GHz	2.6GHz / 2.3GHz; 2.8GHz / 2.4GHz	2.0 GHz
	Core Number	4	2	4
	BIOS	AMI 64Mbit	AMI UEFI 128Mbit	AMI 16Mbit SPI
	Chipset	-	-	-
Memory	Technology	DDR3L 1866 MHz	DDR4 2133 MHz	DDR3L 1333MHz
	Max. Capacity	8GB	16GB	8GB
	Socket	1 x 204pin SODIMM	1 x 260-pin SODIMM	2 x 204pin SODIMM
Display	Chipset	Intel HD Graphics 500	Intel HD Graphics 520; Intel HD Graphics 620	Intel Gen 7 Graphics Engines and media encode/ decode engine; GPU Frequency: 688 MHz
	Graphic Engine	2D: Direct2D*, DirectWrite; 3D: D3D11.3, DXGI1.3, DirectX* 11.1, OGLES 2.0; Media Codec: H.264, MPEG2, VC-1, WMV9, H.265/HEVC, VP8, JPEG/ MJPEG	DirectX 11.3, OpenGL 4.4, and OpenCL 2.1 Full AVC/ VC1/MPEG2 HW Decode	DirectX* 11.1, OGL 3.0, OCL 1.1, OGL ES 2.0 ; Encode: H264, MPEG2/4, VC1, WMV9 Decode: H264, MPEG2
	VGA	Up to 1920 x 1200 @ 60Hz	Up to 1920 x 1200 @ 60Hz	Up to 2048 x 1280
	DDI	HDMI: 3840 x 2160 @ 30Hz	HDMI: 4096 x 2160 @24Hz; Optional: DP and HDMI	DisplayPort : DP++1.2, resolution up to 2560 x 1600 x 24bpp @ 60Hz
	Multiple Display	Dual	Dual / Triple (Option)	Dual
Expansion Interface	Mini PCIe	1 x full size miniPCIe (With SIM holder)	2 x full size miniPCIe (One with SIM holder, one support mSATA)	1 x full-size mini PCIe ; 1 x half-size mini PCIe
	M.2	1, 2230 E key for WIFI	-	-
	SIM socket	1	1	-
	PCIe	-	-	-
	PCI	-	-	-
	PCIe + PCI	-	-	-
	i Door	Supported	Supported	Supported
Ethernet	Controller	GbE1: Intel i210 GbE2: Intel i210	GbE1 : Intel i219 GbE2 : Intel i210	GbE1: Realtek 8119i GbE2: Realtek 8119i
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/100/1000 Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	Connector	Line out, Mic-in	Line-out, Mic-in	Line-out, Mic-in
WatchDog Timer		Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATAII HDD bay (Max up to 12.5mm in height)	1 x 2.5" SATAIII HDD bay (Max 12.5mm in height)	1 x 2.5" or 3.5" SATA HDD bay (Max 26.1mm height only)
	mSATA	1 x Full-size mSATA share with miniPCIe	1 x Full-size mSATA share with miniPCIe	1 (Share with full-size mini-PCIe)
I/O	USB3.1/3.2	-	-	-
	USB 3.0	2	4	1
	USB2.0	4	2	7
	GPIO	8-bit Programmable DIO	8-bit Programmable DIO	8- bit DIO (Optional)
	COM Port	2 x RS232, 2 x RS232/ 422/ 485	4 x RS232/ 422/ 485	5 x RS-232 ; 1 x RS232/422/485
Power	Power Type	ATX/AT	ATX	ATX
	Power Supply Voltage	Default: 12 V_{DC}, ± 10% ; Optional : 9-36V DC	Default: 12 V_{DC}, ± 10% ; Optional : 9-36V DC	12 V_{DC}, ± 10%
	Connector	Default: Lockable DC Jack ; Optional:2-pin phoenix head (MIOE-PWR2-00A1E)	Default: Lockable DC Jack ; Optional:2-pin phoenix head (MIOE-PWR2-00A1E)	DC Jack
	Power Consumption (Idle: CPU/ Memory only)	7.79W	6.92W (i3-6100U)/ 7.96W (i7-6600U); 14.04W (i7-7600U)	15.7W
	Power Consumption (Full Load: CPU/ Memory only)	17.48W	41.72W (i3-6100U) / 43.28W (i7-6600U); 27.72W (i7-7600U)	24.7W
	Power Adaptor	Lockable AC to DC, DC12V/5A, 60W (Optional)	Lockable AC to DC, DC12V/5A, 60W (Optional)	AC to DC, DC12V/5A, 60 W (Optional)
Environment	Operating Temperature(air flow 0.7 m/sec)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) . With standard temperature peripherals: 0 ~ 45 °C (32 ~ 113 °F)	With extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F) . With standard temperature peripherals: 0 ~ 45 °C (32 ~ 113 °F)	0 ~ 40 °C (32 ~ 104 °F) with 3.5" HDD.; 0 ~ 45 °C (32 ~ 113 °F) with 2.5" HDD. 0 ~ 50 °C (32 ~ 122 °F) with SSD/mSATA
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With HDD: 0.5 Grms, random, 5 ~ 500 Hz, 1 Oct./min, 1 hr/axis
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration	With HDD: 10 G, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	260 x 44 x 140.2 mm (10.24 x 1.73 x 5.52 in)	260 x 54 x 140.2 mm(10.24 x 2.13 x 5.52 in)	200 x 64 x 200 mm (7.87 x 2.51 x 7.67 in)
	Weight	1.9 kg (4.19 lb)	2.3 kg (5.07 lb)	2.0 kg (4.41 lb)
	Mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Desk/ Wall/ VESA/ DIN-Rail mounting	Wall Mounting/VESA mounting (optional)
Operating System	Microsoft Windows	Windows 10	Windows 7, Windows 8.1, Windows 10	Windows 10
	Linux	Yes	Yes	Yes
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI	CE/FCC class B, CCC, BSMI	CE/FCC class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

Performance Series

Model Name		ARK-3520P	ARK-3520L	ARK-3530L	ARK-3530F	ARK-3531
CPU	CPU	6th gen, Intel® Core™, i7-6820EQ, i5-6440EQ	6th gen, Intel® Core™ , i7-6820EQ, i5-6440EQ	6th/7th gen, Intel® Desktop Xeon E3/ Core™ i series (Support up to 65W)	6th/7th gen, Intel® Desktop Xeon E3/ Core™ i series (Support up to 65W)	8th/9th gen, Intel® Desktop Core™ i series (Support up to 35W))
	Frequency	2.8 GHz/2.7 GHz	2.8 GHz/2.7 GHz	by Processor	by Processor	by Processor
	Core Number 4/4	4/4	4/4	by Processor	by Processor	by Processor
	BIOS	AMI EFI 128Mbit	AMI EFI 128Mbit	AMI EFI 128Mbit	AMI EFI 128Mbit	AMI EFI 128Mbit
	Chipset	Intel QM170	Intel QM170	Intel C236	Intel C236	Intel H370
Memory	Technology	DDR4 2133 MHz	DDR4 2133 MHz	DDR4 2133 MHz	DDR4 2133 MHz	DDR4 2666 MHz
	Max. Capacity	32GB	32GB	32GB	32GB	64GB
	Socket	2x 260-pin SODIMM	2x 260-pin SODIMM	2x 260-pin SODIMM	2x 260-pin SODIMM	2 x 260-pin SODIMM
Display	Chipset	Intel® QM170 Integrated GFX Gen 9	Intel® QM170 Integrated GFX Gen 9	Intel® C236 Integrated GFX Gen 9	Intel® C236 Integrated GFX Gen 9	Intel® UHD Graphics 630
	Graphic Engine	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	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	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	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	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	1920x1200@ 60Hz	1920x1200@ 60Hz	1920x1200@ 60Hz	1920x1200@ 60Hz	2048x1280@60Hz
	DDI	1 HDMI port, HDMI 1.4b for HD video playback, 3840x2160@30Hz; 3rd Display Module by Optional	1 HDMI port, HDMI 1.4b for HD video playback, 3840x2160@30Hz ; 3rd Display Module by Optional	1 HDMI port, HDMI 2.0 for HD video playback, 3840x2160@30Hz ; 3rd Display Module by Optional	1 HDMI port, HDMI 2.0 for HD video playback, 3840x2160@30Hz ; 3rd Display Module by Optional	HDMI 1.4 for HD video playback, 3840 x 2160 at 30Hz
	Multiple Display	Triple/Dual	Triple/Dual	Triple/Dual	Triple/Dual	Dual
Expansion Interface	Mini PCIe	2 x Full-size Mini PCIe (Supports mSATA)	2 x Full-size Mini PCIe (Supports mSATA)	2 x Full-size Mini PCIe (Supports mSATA)	2 x Full-size Mini PCIe (Supports mSATA)	1 x Full-size Mini PCIe (Supports mSATA), (M.2 B/M Key support by AMO-I026)
	M.2	1 (E key)	1 (E key)	1 (E key)	1 (E key)	1(E key)
	SIM socket	1	1	1	1	1
	PCIe	Optional 2 slots PCIex4 (AMO-R022E)	-	-	Optional 2 slots PCIex8(AMO-R026)	-
	PCI	2 PCI slots	-	-	2 PCI slots	-
	PCIe + PCI	-	-	-	-	-
	i Door	Supported	Supported	Supported	Supported	-
Ethernet	Controller	GbE1: Intel I219-LM GbE2 : Intel I-210	GbE1: Intel I219-LM GbE2 : Intel I-210	GbE1: Intel I219-LM GbE2 : Intel I-210	GbE1: Intel I219-LM GbE2/3/4 : Intel I-210	GbE1: Intel I219-LM; GbE2/3/4 : Intel I-210IT(3rd/4th LAN by project support)
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	CODEC	ALC888S	ALC888S	ALC888S	ALC888S	ALC888S
	Connector	Line out, Mic in	Line out, Mic in	Line out, Mic in	Line out, Mic in	Line-out/Mic-in (switch)
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	2 x 2.5" SATAIII HDD bay (Max 15 mm height) (SATA III, support Max. Data Transfer Rate 600 MB/s, Support RAID 0, 1)	2 x 2.5" SATAIII HDD bay (Max 15 mm height) (SATA III, support Max. Data Transfer Rate 600 MB/s, Support RAID 0, 1)	2 x (Optional up to 4) x 2.5" SATAIII HDD bay (Max 15 mm height) (SATA III, support Max. Data Transfer Rate 600 MB/s, Support RAID 0, 1, 5, 10)	2 x (Optional up to 4) x 2.5" SATAIII HDD bay (Max 15 mm height) (SATA III, support Max. Data Transfer Rate 600 MB/s, Support RAID 0, 1, 5, 10)	2 x 2.5" SATAIII HDD bay (Max 9.5 mm height) (SATA III, support Max. Data Transfer Rate 600 MB/s, Support RAID 0, 1)
	mSATA	1 (Share with full-size mini-PCIe)	1 (Share with full-size mini-PCIe)	2(Share with full-size mini-PCIe)	2 (Share with full-size mini-PCIe)	1 (Share with full-size mini-PCIe)
I/O	USB3.1/3.2	-	-	-	-	2
	USB 3.0	6	6	8	8	6
	USB2.0	2	2	-	-	-
	GPIO	16-bit	16-bit	16-bit (optional)	16-bit (optional)	16-bit
	COM Port	4 x RS232, 4 x RS232/422/485	4 x RS232, 4 x RS232/422/485	4 x RS232/422/485, 2 x RS232 (optional)	4 x RS232/422/485, 2 x RS232 (optional)	4 x RS232; 4 x RS232/422/485
	Power Type	ATX	ATX	ATX	ATX	ATX
	Power Supply Voltage	9-36V_{DC}	12 V_{DC}, ± 10%	12 V_{DC}, ± 10%	9-36V_{DC}	9-36V_{DC}
	Connector	4pin phoenix head	Lockable DC jack	Lockable DC jack (4pin phoenix head with AMO-P010E)	4pin phoenix head	4pin phoenix head
Power	Power Consumption (Idle: CPU/ Memory only)	11.4W	11.4W	25.68W	25.68W	16.8W
	Power Consumption (Full Load: CPU/ Memory only)	68.4W	68.4W	88.92W	88.92W	34.8W
	Power Adaptor	150W (optional)	150W (optional)	150W (optional)	150W (optional)	150W (optional)
Environment	Operating Temperature(air flow 0.7 m/sec)	With SSD and extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); With HDD and standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With SSD and extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); With HDD and standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With SSD and extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); With HDD and standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With SSD and extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); With HDD and standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)	With SSD and extend temperature peripherals: -20 ~ 60 °C (-4 ~ 140 °F); With HDD and standard temperature peripherals: 0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40 ~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis. ; With HDD: 0.3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis. ; With HDD: 0.3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration With HDD: 20 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration With HDD: 20 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration
Physical Characteristics	Dimensions (W x H x D mm)	220 x 101 x 233 mm (8.66 x 3.98 x 9.17 in)	220 x 101 x 233 mm (8.66 x 3.98 x 9.17 in)	105 x 205 x 230 mm (4.13 x 8.07 x 9.06 in)	156.5 x 205 x 230 mm (6.16 x 8.07 x 9.06 in)	200 x 75 x 215 mm (7.87 x 2.95 x 8.46 in)
	Weight	4.4 kg (9.7 lb)	4.4 kg (9.7 lb)	5.3 kg (11.6 lb)	5.87 kg (12.9 lb)	3.2 kg/7.05
	Mounting	Desk	Desk	Desk	Desk	Desk
Operating System	Microsoft Windows	Windows 7, Windows 10	Windows 7, Windows 10	Windows 7, Windows 10	Windows 7, Windows 10	Windows 10
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn	WISE-DeviceOn, DeviceOn/Kiosk+
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC class A, CCC, BSMI	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 Certifications	CE LVD, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Edge Computers

Performance Series

NEW

Model Name		ARK-3532B	ARK-3532C	ARK-3532D
CPU	CPU	Intel® 10th Gen. Xeon® W and Core™ i3/i5/i7/i9 processor	Intel® 10th Gen. Xeon® W and Core™ i3/i5/i7/i9 processor	Intel® 10th Gen. Xeon® W and Core™ i3/i5/i7/i9 processor
	Frequency	by Processor	by Processor	by Processor
	Core Number 4/4	by Processor	by Processor	by Processor
	BIOS	AMI EFI 256Mbit	AMI EFI 256Mbit	AMI EFI 256Mbit
	Chipset	Intel W480E	Intel W480E	Intel W480E
Memory	Technology	DDR4 2933 MHz	DDR4 2933 MHz	DDR4 2933 MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Display	Chipset	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	Graphic Engine	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	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	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	1920x1200@ 60Hz	1920x1200@ 60Hz	1920x1200@ 60Hz
	DDI	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@30Hz ; 3rd Display Module by Optional	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@30Hz ; 3rd Display Module by Optional	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@30Hz ; 3rd Display Module by Optional
	Multiple Display	Triple (Option) / Dual	Triple (Option) / Dual	Triple (Option) / Dual
Expansion Interface	Mini PCIe	1 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder) #1	1 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder) #1	1 x Full-size Mini PCIe (1 x support mSATA, 1 x support SIM holder) #1
	M.2	1 (E key)	1 (E key)	1 (E key)
	SIM socket	1	1	1
	PCIe	1 slot PCIE*4, 1 slotPCIE*16	1 slot PCIE*4,	-
	PCI	-	2 Slot PCI	-
	PCIe + PCI	-	-	1 slot PCIE*4, 1 slotPCIE*16,2 Slot PCI
	i Door	-	-	-
Ethernet	Controller	GbE1: Intel I219-LM GbE ; GbE2/3/ 4: Intel I210 GbE	GbE1: Intel I219-LM GbE ; GbE2/3/ 4: Intel I210 GbE	GbE1: Intel I219-LM GbE ; GbE2/3/ 4: Intel I210 GbE
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 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		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 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 15mm height HDD bay support Intel SW RAID (Up to 4 x 2.5" SATAIII HDD bays by optional AMK-A0035)
	mSATA	1 x mSATA socket (Share with Mini PCIe)	1 x mSATA socket (Share with Mini PCIe)	1 x mSATA socket (Share with Mini PCIe)
I/O	USB3.1/3.2	4	4	4
	USB 3.0	4	4	4
	USB2.0	-	-	-
	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; 2 x RS-232	4 x RS-232/422/485; 2 x RS-232
	Power Type	AT/ATX	AT/ATX	AT/ATX
	Power Supply Voltage	9-36V_{DC}	9-36V_{DC}	9-36V_{DC}
	Connector	4pin phoenix head	4pin phoenix head	4pin phoenix head
Power	Power Consumption (Idle: CPU/ Memory only)	30W	30W	30W
	Power Consumption (Full Load: CPU/ Memory only)	64.8W	64.8W	64.8W
	Power Adaptor	230W (Optional)	230W (Optional)	230W (Optional)
Environment	Operating Temperature(air flow 0.7 m/sec)	Up to 65W processor with extended temp peripherals: -20 ~ 60° C (-4 ~ 140 °F) with 0.7m/s air flow with HDD: 0 ~ 40 °C (32 ~ 104 °F) with 0.7m/s air flow	Up to 65W processor with extended temp peripherals: -20 ~ 60° C (-4 ~ 140 °F) with 0.7m/s air flow with HDD: 0 ~ 40 °C (32 ~ 104 °F) with 0.7m/s air flow	Up to 65W processor with extended temp peripherals: -20 ~ 60° C (-4 ~ 140 °F) with 0.7m/s air flow with HDD: 0 ~ 40 °C (32 ~ 104 °F) with 0.7m/s air flow
	Non-operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40 ~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing	-40 ~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, half sine, 11 ms duration	With SSD: 30 G, 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)	156 x 204 x 230 mm (6.14 x 8.03 x 9.05 in)	197.2 x 204 x 230 mm (7.76 x 8.03 x 9.06 in)
	Weight	5.7 kg/ 1.5 lb	5.7 kg/ 1.5 lb	6.41 kg/14.1 lb
	Mounting	Desk	Desk	Desk
Operating System	Microsoft Windows	Windows 10	Windows 10	Windows 10
	Linux	Yes (by project inquiry)	Yes (by project inquiry)	Yes (by project inquiry)
Software	DeviceOn	WISE-DeviceOn, DeviceOn/iEdge	WISE-DeviceOn, DeviceOn/iEdge	WISE-DeviceOn, DeviceOn/iEdge
	Other	McAfee, Acronis	McAfee, Acronis	McAfee, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI	CE/FCC class B, CCC, BSMI	CE/FCC class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI

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

Extreme Series

NEW

Model Name		ARK-7060
CPU	CPU	Intel® 2nd Gen. Xeon® D SoC
	Frequency	by Processor
	Core Number	2-10
	BIOS	AMI EFI 512Mbit
	Chipset	-
Memory	Technology	DDR4 2666MHz
	Max. Capacity	128GB
	Socket	4 x 260-pin SODIMM
Display	Chipset	-
	Graphic Engine	-
	VGA	1
	DDI	-
	Multiple Display	-
Expansion Interface	Mini PCIe	-
	M.2	1 x B Key, 1 x E key
	SIM socket	1
	PCIe	1 x PCIex4, 1 x PCIex16
	PCI	1
	PCIe + PCI	-
	i Door	-
Ethernet	Controller	GbE 1/2: Intel I210 GbE GbE3/4: Intel X550-AT2 (optional)
	Speed	10/100/1000 Mbps 10Gbps (Optional)
Audio	Audio Interface	-
	CODEC	-
	Connector	-
WatchDog Timer		Yes
Storage	SATA	4 x 2.5" SATAIII HDD bays (Max 15mm in height)
	mSATA	-
I/O	USB3.1/3.2	-
	USB 3.0	4
	USB2.0	-
	GPIO	-
	COM Port	4 x RS-232/422/485
Power	Power Type	AT/ATX
	Power Supply Voltage	100-240V AC
	Connector	C13
	Power Consumption (Idle: CPU/ Memory only)	TBD
	Power Consumption (Full Load: CPU/ Memory only)	TBD
	Power Adaptor	850W Power Supply
Environment	Operating Temperature (air flow 0.7 m/sec)	With extended temp peripherals: -10 ~ 50 °C (14 ~ 122 °F) with 0.7m/s air flow
	Non-operating Temperature	-40~ 85 °C (-40 ~ 185 °F) and 40 °C (104 °F) @ 95% RH Non-Condensing
	Vibration Resistance	With SSD: 3 Grms, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock Protection	With SSD: 30 G, half sine, 11 ms duration
Physical Characteristics	"Dimensions (W x H x D mm)"	230 x 205 x 390 mm (9.05 x 8.07 x 15.35 in)
	Weight	9.7Kg
	Mounting	Desk
Operating System	Microsoft Windows	Windows 10/Server 2019
	Linux	Yes (by project inquire)
Software	DeviceOn	WISE-DeviceOn, DeviceOn/iEdge
	Other	McAfee, Acronis
Certification	EMC	CE/FCC class B, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMII

Embedded PCs

EPC-U Series

NEW

Model Name		EPC-U2117	EPC-U2217	EPC-U3233
Barebone system	Description	Fanless w/Adapter, memory	Fanless w/Adapter, memory	Fanless with BGA CPU, w/o DRAM, storage
Processor System	CPU	Intel Atom E3930 (on board)	Intel Atom E3940 (on board)	i7-8665UE i5-8365UE i3-8145UE
	BIOS	AMI EFI 16Mbit SPI	AMI EFI 16Mbit SPI	AMI EFI 256 Mbit SPI
Memory	Socket	1 x 204-pin DDR3L SODIMM (Non-ECC)	1 x 204-pin DDR3L SODIMM (Non-ECC)	1, 260-pin DDR4 SODIMM
	Technology	DDR3L 1866MHz SDRAM	DDR3L 1866MHz SDRAM	DDR4 2400MHz SDRAM
	Max. Capacity	Up to 8GB SODIMM	Up to 8GB SODIMM	Up to 32GB SODIMM
Graphics	Chipset Integrated	Intel HD Graphics GEN9	Intel HD Graphics GEN9	Intel® UHD Graphics 620
Storage	2.5" HDD Bay	1(support 2.5" HDD/SSD, max 7.5mm height)	1(support 2.5" HDD/SSD, max 7.5mm height)	-
	mSATA Slot	1, colay with F/S miniPCIE	1, colay with F/S miniPCIE	-
	eMMC	Onboard eMMC 5.1 upto 128GB	Onboard eMMC 5.1 upto 128GB	-
	M.2 2280 slot	-	-	1, M-Key, support PCIe Gen3 x4 SSD, SATA III SSD
	M.2 2242/3042 slot	-	-	1, B-Key, support PCIe Gen3 x2 SSD, SATA III SSD
	M.2 2230 slot	-	-	1, E-Key, support PCIe Gen3 x2 SSD
Ethernet	Interface	10/100/1000 GbE LANs.	10/100/1000 GbE LANs.	10/100/1000 GbE LANs
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1/2: Intel i210TE LAN3: Realtek RTL8111H	LAN1: Intel Jacksonville i219LM LAN2: Intel Springville i211AT
	Connector	2 (RJ-45)	3 (RJ-45)	2 (RJ-45)
Audio	Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Internal expansion Slot	Mini-PCIe	1 (F/S)	1 (F/S)	-
	M.2	1 (E-Key)	1 (E-Key)	1, B-Key PCIe x2, USB 2.0, SATA co-layout 1, E-Key, PCIe x2, USB 2.0 co-lay, support WiFi/ BT or Movidius modules
	SIM slot	-	-	1, Nano SIM
	SD slot	-	-	-
Front Panel	DP++	-	-	-
	DP/HDMI	-	-	-
	VGA	-	-	-
	DVI	-	-	-
	COM	2 (1 RS-232, 1 RS-485)	4 (3 RS-232, 1 RS-422/485)	2, COM1 (RS-232), COM2 (RS-232/422/485)
	LAN	2	3	2
	USB	4 (USB3.0)	4 (USB3.0)	2 (USB3.2 Gen2 x1 Type-A)
	Audio Jack	1	1	-
	Antenna (optional)	-	-	-
Rear Panel	DP++	-	-	-
	DP/HDMI	1/1	1/1	0/2
	VGA	-	-	-
	CAN bus	-	Isolated CANBus	-
	COM	-	-	-
	LAN	-	-	-
	USB	-	-	-
	Audio Jack	-	-	1
	GPIO	-	16bit (2 DB9)	16bit (2 DB9)
	Antenna (optional)	Up to 4	Up to 4	-
Right Panel	USB	-	-	2, USB2.0 Type A
	Antenna (optional)	-	-	Up to 3
Left Panel	COM	-	-	2, COM3 (RS-232), COM4 (RS-232/422/485)
	Antenna (optional)	-	-	Up to 3
Mounting		Wall Mount (Default) Din Rail (Optional)	Wall Mount (Default) Din Rail (Optional)	Wall Mount (Default) Din Rail (Optional)
Power Requirements	Power Voltage	12V~24V DC-in	12V~24V DC-in	12V~24V DC-in
	Power Input Type (Inlet)	DC Jack (2.5Ø)	DC Jack (2.5ø)	DC Jack (2.5Ø)
	Consumption	12V@0.987A	12V@1.409A	~24W
Environment	Operating Temperature	0 ~ 50 °C	-20 ~ 60 °C (32 ~ 104 °F) with RF module by max system performance	0 ~ 50 °C
	Non-operating Temperature	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing
	Humidity	-		0.95
	Vibration (5 ~500Hz)	3G (with 2.5" SSD)	3G (with 2.5" SSD)	3.0 Grms
	Shock	-		30G, 11ms, half sine wave
Certification		CE/FCC/CCC/BSMI	CE/FCC/CCC/BSMI	CE/ FCC/ CB/ UL /CCC/ BSMI
Physical Characteristics	Dimensions (W x H x D)	170 x 52.6 x 117	170 X 52.6 X 117	170 x 116.7 x 66 mm
	Weight	1.1KG	1.2KG	1.9 kg

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

Embedded PCs

EPC-T Series

Model Name		EPC-T1217	EPC-T1228	EPC-T2285	EPC-T2286
Barebone system	Description	Fanless barebone, w/ adapter, w/o SSD, memory	Fan-base barebone, w/ adapter, w/o HDD, memory	Fan-base barebone, w/o adapter, HDD, memory	Fan-base barebone, w/o adapter, HDD, memory
Processor System	Thermal Solution	Fanless (0.7 m/s air flow)	1x chassis fan (4cm/23.8CFM)	2x chassis fan (4cm/23.8CFM)	2x chassis fan (4cm/23.8CFM)
	CPU	Intel Pentium N4200 (on board)	AMD V1000 V1605B (on board)	Intel® 6th/7th Gen Core™ i processor (LGA1151)	Intel® 8th Gen Core™ I processor (LGA1151)
	BIOS	AMI 128 Mbit SPI	AMI 128Mbit SPI	AMI EFI 128 Mbit, SPI	AMI EFI 128 Mbit, SPI
Memory	Socket	2 x 204-pin SO-DIMM (Non-ECC)	2 x 260-pin DDR4 SO-SIMM with ECC Support	260 PIN DDR4 SO-DIMM	260 PIN DDR4 SO-DIMM
	Technology	DDR3L 1866 MHz SDRAM	DDR4 2400 / 2666 / 3200MHz SDRAM	Dual Channel DDR4 2133 MHz SDRAM	Dual Channel DDR4 2666 MHz SDRAM
	Max. Capacity	8 GB/8 GB per SO-DIMM	32 GB/16 GB per SO-DIMM	32 GB/up to 16 GB per SODIMM	32 GB/up to 16 GB per SODIMM
Graphics	Chipset Integrated	Intel Gen 9 Graphics Engines and media encode/decode engine	AMD Integrated Vega GCN	Intel® HD Graphics, Supports DirectX12, OpenCL 4.5	Intel® UHD Graphics, Supports DirectX12, OpenCL 4.5
Storage	2.5" HDD Bay	1 (supports 2.5" SSD, max 9.5 mm height)	1 (supports 2.5" HDD/SSD, max 9.5 mm height)	1 (supports 2.5" HDD/SSD, max 9.5 mm height)	1 (supports 2.5" HDD/SSD, max 9.5 mm height)
	mSATA Slot	1 (share w/ full size Mini-PCIe slot)	1 x B key of M.2 for SSD	1 (share w/ full size Mini-PCIe slot)	1 x B key of M.2 for SSD
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H LAN3: Intel i211AT
	Connector	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)	3 (RJ-45)
Audio	Codec	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
Internal expansion Slot	Mini-PCIe	1 (Full-size)	-	2 (Full-size, Half-size)	-
	Expansion Slot	-	-	-	-
	M.2	1 (E Key, type: 2230)	2, (1 B key for SSD and 3G/4G, type: 3042, 3042mm, with SIM card holder; 1 E key for wireless, type: 2230mm)	-	2, (1 B key for SSD and 3G/4G , type: 2242, 3042mm, with SIM card holder; 1 E key for wireless, type: 2230mm)
	SIM slot	1	1	1	1
	SD slot	-	-	-	-
Front Panel	DP++	-	-	-	-
	DP/HDMI	-	-	-	-
	VGA	-	-	-	-
	DVI	-	-	-	-
	COM	5 (4 RS-232, 1 RS232/422/485, 1 support 5V/12V)	5 (4 RS-232, 1 RS232/422/485, 1 support 5V/12V	2 (1 RS-232/422/485, 1 RS-232/422/485 and support 5V/12V)	4 (3 RS-232, 1 RS-232/422/485 by BOM option)
	Lan	-	-	-	-
	USB	4 (USB2.0; optional)	2 (USB2.0)	4 (USB2.0)	4 (USB2.0)
	Audio Jack	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In) (Optional)
	Remote Power Jack	0	0	0	1
	Antenna (optional)	up to 2	up to 2	up to 2	up to 2
Rear Panel	DP++	-	-	1	-
	DP/HDMI	1/1	4/0	1 (HDMI 1.4)	1/1
	VGA	1	-	-	-
	DVI	-	-	-	-
	COM	1 (RS232)	-	-	2 (1 RS-232/422/485, 1 support 5V/12V by jumper selection)
	Lan	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)	3 (RJ-45)
	USB	4 (USB3.0)	2 (USB3.0); 2 (USB2.0)	4 (USB3.0)	4 (USB3.0)
	Audio Jack	1 (line out)	2 (Line-Out, Mic-in)	2 (Line-Out, Mic-in)	2 (Line-Out, Mic-in)
	GPIO	8 bit (Optional)	16 bit (Optional)	8 bits (Optional)	8 bits (Optional)
	Antenna (optional)	up to 2	up to 2	up to 2	up to 2
Miscellaneous	LED Indicators	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)
	Switch	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Power Remote Jack)
	Circular Cutouts	-	-	1(Reserved for internal cable)	1(Reserved for internal cable)
Mounting		Wall mount, VESA mount, Rack mount	Wall mount, VESA mount, Rack mount	Wall mount, VESA mount, Rack mount,DIN rail	Wall mount, VESA mount, Rack mount,DIN rail
Power Requirements	Power Voltage	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Power Input Type (Inlet)	2.5Ø DC jack	2.5Ø DC jack	DC jack (2.5Ø with locked design)	DC jack (2.5Ø with locked design)
	Consumption	21.5W (N4200, Max load)	TBD	89.36W (idle with Inte i7-6700 Processor)	86.4W (i7-8700, Max load)
Environment	Operating Temperature	Fanless: 0 ~ 45 °C (32 ~ 113 °F)	Fan-based: 0 ~ 45 °C (32 ~ 113 °F)	0 ~ 50 °C (32 ~ 122 °F)	0 ~ 50 °C (32 ~ 122 °F)
	Non-operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	Humidity	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40 °C, non-condensing	10~95% @ 40 °C, non-condensing
	Vibration (5 ~500Hz)	3 Grms (SSD x 1)	0.5 Grms (HDD x 1); 3 Grms (SSD x 1)	0.5 Grms (HDD x 1); 3 Grms (SSD x 1)	0.5 Grms (HDD x 1); 3 Grms (SSD x 1)
	Shock	-	-	-	-
Certification		CE, FCC	CE, FCC	CE/FCC/CCC/BSMI	CE/FCC/CCC/BSMI
Physical Characteristics	Dimensions (W x H x D)	250 x 43 x 210 mm (9.84" x 1.69" x 8.27")	250 x 43 x 210 mm (9.84" x 1.69" x 8.27")	250 x 44.2 x 225 mm (9.84" x 1.74" x 8.85")	250 x 44.2 x 225 mm (9.84" x 1.74" x 8.85")
	Weight	3.1kg	3.1kg	3.68kg	3.68kg

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

Embedded PCs

EPC-T Series

NEW

Model Name		EPC-T3285	EPC-T3217	EPC-T4218	EPC-T4286
Barebone system	Description	Fan-base barebone, w/o HDD, memory	Fanless barebone, w/ adapter,w/o SSD, memory	Fanless barebone, w/ adapter,w/o SSD, memory	w/Fan, w/o adaptor, memory
Processor System	Thermal Solution	2 x chassis fan (4cm/23.8CFM)	Fanless (0.7 m/s air flow)	Fanless (0.7 m/s air flow)	2 Chassis Fans, 1 CPU cooler
	CPU	Intel® 6th/7th Gen Core™ i processor (LGA1151)	Supports Intel Pentium, Celeron Quad Core & Dual Core processor	Intel Celeron J6413	Intel® 8th Gen Core™ I processor (LGA1151)
	BIOS	AMI EFI 128 Mbit SPI	AMI 128 Mbit SPI	AMI 256 Mbit SPI	AMI EFI 128 Mbit SPI
Memory	Socket	2 x 260 PIN DDR4 SO-DIMM	2 x 204-pin SO-DIMM	2 x 260-pin SO-DIMM (Non-ECC)	260 PIN DDR4 SO-DIMM
	Technology	Dual Channel DDR4 2133 MHz SDRAM	Dual channel DDR3L 1866 MHz SDRAM	DDR4 3200 MHz SDRAM	Dual Channel DDR4 2666 MHz SDRAM
	Max. Capacity	32GB (up to 16GB per SO-DIMM)	8 GB/8 GB per SO-DIMM	32 GB/32 GB per SO-DIMM	32 GB/up to 16 GB per SODIMM
Graphics	Chipset Integrated	Intel® HD Graphics, Supports OpenGL 5.x, DirectX12, OpenCL 2.X	Intel Gen 9 Graphics Engines and media encode/decode engine	Intel Gen 11 Graphics Engines	Intel® UHD Graphics, Supports DirectX12, OpenCL 4.5
Storage	2.5" HDD Bay	2 (supports 2 x 2.5" HDD/SSD, or 1 3.5" HDD)	2 (supports 2 x 2.5" HDD/SSD, or 1 3.5" HDD)	1 (supports 2.5" SSD, max 7 mm height)	1 (supports 2.5" HDD/SSD, max 7 mm height)
	mSATA Slot	1 (share w/ full size Mini-PCIe slot)	1 (F/S with SIM card holder)	-	1 x B key of M.2 for SSD
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps Ethernet
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	GbE LAN1: Realtek 8111H GbE LAN2: Realtek 8111H	LAN1/2: Realtek RTL8111H LAN3: Intel i211AT
	Connector	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)	3 (RJ-45)
Audio	Codec	Realtek ALC888S	Realtek ALC888	Realtek ALC888	Realtek ALC888
Internal expansion Slot	Mini-PCIe	2 (Full-size, Half-size) 1 PCIe slot (Full height)	1 (Full-size)	-	-
	M.2	-	1 (E key for wireless module, type: 2230)	E key for wireless module (Type: 2230) B key for storage and LTE module, only support PCIex1 signal (Type: 2242/2280)	2 (1x B key for SSD and 3G/4G w/ Type: 2242, 3042mm; with SIM card holder; 1 x E key for wireless w/ Type: 2230mm)
	SIM slot	1	1	1	1
	SD slot	-	-	-	-
Front Panel	DP++	-	-	1	-
	DP/HDMI	-	-	0/1	1/1
	VGA	-	-	-	-
	DVI	-	-	-	-
	COM	2 (1 RS-232/422/485, 1 RS- 232/422/485 with 5V/12V)	4 (1 RS-232/422/485, 3 RS-232)	2	2 (RS-232)
	LAN	-	-	2	3 (RJ45)
	USB	4 (USB2.0)	4 (USB2.0)	8	6 (4 USB3.0, 2 USB2.0)
	Audio Jack	2 (Line-Out, Mic-In)	2 (Line-Out, Mic-In)	2	2 (1 Line-out, 1 Mic-in)
	Remote Power Jack	-	-	1	1
	Antenna (optional)	up to 2	up to 2	-	up to 2
Rear Panel	DP++	1	-	-	-
	DP/HDMI	1 (HDMI1.4)	1/1	-	-
	VGA	-	1	-	-
	DVI	-	-	-	-
	COM	-	-	4 (RS-232, optional)	4 (RS-232, optional)
	LAN	2 (RJ-45)	2 (RJ-45)	-	-
	USB	4 (USB3.0)	4 (USB3.0)	-	-
	Audio Jack	2 (Line-Out, Mic-in)	1 (Line-Out)	-	-
	GPIO	8 bits (Optional)	8 bits (Optional)	-	-
	Antenna (optional)	up to 2	up to 2	-	2
Miscellaneous	LED Indicators	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)
	Switch	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch)	1 (Power Switch)
	Circular Cutouts	-	-	-	1 (Reserved for internal cable)
Mounting		Wall mount, Rack mount	Wall mount, Rack mount	Wall mount, VESA mount, Rack mount,DIN rail	Wall mount, VESA mount, Rack mount,DIN rail
Power Requirements	Power Voltage	12V DC-in (Optional 9~36V)	12V DC-in (Optional 9~36V)	12V	12V DC-In
	Power Input Type (Inlet)	DC jack (2.5Ø)	DC jack (2.5Ø)	DC Jack (2.5Ø)	DC Jack (2.5Ø)
	Consumption	102.3W (i7-7700, Max load)	21.5W (N4200, Max load)	TBD	86.4W (i7-8700, Max load)
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 50 °C (32 ~ 122 °F)	0 ~ 50 °C (32~122°F)
	Non-operating Temperature	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	Humidity	10~95% @ 40 °C, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40 °C, non-condensing	10~95% @ 40°C, non-condensing
	Vibration (5 ~500Hz)	1 Grms (2.5" HDD x 1); 0.5 Grms (HDD x 2, 3.5" HDD x 1)	1 Grms (2.5" HDD x 1); 0.5 Grms (HDD x 2, 3.5" HDD x 1	3 Grms (SSD x 1)	0.5 Grms (HDD x 1); 3 Grms (SSD x 1)
	Shock	-	-		-
Certification		CE/FCC	CE/FCC		CE/FCC/CCC/CB/UL
Physical Characteristics	Dimensions (W x H x D)	330 x 44 x 270 mm (13" x 1.73" x 10.62")	330 x 44 x 270 mm (13" x 1.73" x 10.62")	188 x 44 x 188 mm (7.4" x 1.7" x 7.4")	188 x 44 x 188 mm (7.4" x 1.7" x 7.4")
	Weight	5.68kg	5.68kg	3.1 Kg	3.1 Kg

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

Embedded PCs

EPC-P Series

Model Name		EPC-P3066	EPC-P3086
Barebone system	Description	Fan-base barebone, w/ C246 chipset	Fan-base barebone, w/ H310 chipset
Processor System	CPU	Supports Intel® 8th Gen Core™ i7/i5/i3 processor	Supports Intel® 8th Gen Core™ i7/i5/i3 processor
	BIOS	AMI EFI 256 Mbit SPI	AMI EFI 256 Mbit SPI
Memory	Socket	2 x 260-pin DDR4 SO-DIMM 2	2 x 260-pin DDR4 SO-DIMM 2
	Technology	Dual Channel DDR4 2400/2666MHz Non-ECC SDRAM	Dual Channel DDR4 2400/2666MHz Non-ECC SDRAM
	Max. Capacity	Up to 32GB (16GB per SO-DIMM)	Up to 32GB (16GB per SO-DIMM)
Graphics	Chipset Integrated	Intel HD Graphics Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1	Intel HD Graphics Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1
Storage	2.5" HDD Bay	2 (supports 2 x 2.5" HDD)	2 (supports 2 x 2.5" HDD)
	mSATA Slot	2 (Full-size, Half size)	1 (Full-size, Half size)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel I219LM PHY LAN 2: Intel i210AT LAN 3: Realtek RTL8111H	LAN1: Intel I219LM LAN2: Intel I211AT
Audio	Codec	Realtek ALC888	Realtek ALC888
Internal expansion Slot	Mini-PCIe	2 (F/S)	1 (F/S, H/S); colay mSATA
	M.2	2 (1 B-Key, 1 E-Key)	-
	SIM slot	2 (Optional)	-
	SD slot	-	-
Front Panel	HDMI	1	1
	VGA (default)	1	1
	COM	6 (2 RS-232/422/485, 4 RS-232)	6 (2 RS-232/422/485, 4 RS-232)
	GPIO	16 bits (2 DB-9)	16 bits (2 DB-9)
	LAN	3 (RJ-45)	2 (RJ-45)
	USB	6 (USB3.0)	4 (USB3.0); 2 (USB2.0)
	LED indicatior	5 (COM1 TX/RX, COM2 TX/RX, HDD LED)	5 (COM1 TX/RX, COM2 TX/RX, HDD LED)
	Power SW / LED	1	1
	Remote Control	Power SW+/SW- ; Power LED+/- ; RST +/-	Power SW+/SW- ; Power LED+/- ; RST +/-
	Power input	12~24V	12~24V
	i Door window (option)	1	1
	Audio Jack	Supported by project	Supported by project
	Antenna (optional)	up to 2	up to 2
Riser Card option	1 PCIe x16 1 PCIe x4	✓	✓
	1 PCIe x8 3 PCIe x4	✓	-
	2 PCIe x8 2 PCI	✓	✓ (1 PCIe x16, 2 PCI)
	1 PCIe x16 3 PCIe x1	✓	✓
Mounting		Wall mount, Rack mount	Wall mount, Rack mount
Power Requirements	Power Voltage	12 ~ 24V DC input	12~24V DC input
	Power Input Type (Inlet)	Terminal block 4P	Terminal block 4P
	Consumption	TBD	TBD
Environment	Operating Temperature	0 ~ 50 °C (Fan W/SSD)	0 ~ 50 °C (Fan W/SSD)
	Non-operating Temperature	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
	Vibration (5 ~500Hz)	1 Grms (HDD*1); 0.5 Grms (HDD*2)	1 Grms (HDD*1); 0.5 Grms (HDD*2)
Certification		CE/FCC/BSMI/CCC/KCC	CE/FCC/BSMI/CCC/KCC
Physical Characteristics	Dimensions (W x D x H)	335 x 260 x 88 mm (13.2" x 10.23" x 3.46")	335 x 260 x 88 mm (13.2" x 10.23" x 3.46")
	Weight	6.8KG	6.8KG

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

EPC-B Series

Model Name		EPC-B2205	EPC-B2275	EPC-B2276
Barebone system	Description	Fan-base barebone, w/ 150W PSU, w/o HDD, memory	Fan-base barebone, w/ 150W PSU, w/o HDD, memory	Fan-base barebone, Coffee lake, w/ 150W Adapter, w/o HDD, memory
Processor System	Thermal Solution	2 x chassis fan (7cm/28CFM)	2 x chassis fan (7cm/28CFM)	2 x chassis fan (7cm/28CFM)
	CPU	Intel® 7th Gen Core™ & 6th Gen Core™ i processor /Pentium / Celeron (LGA1151) with Intel H110 chipset	Intel® 7th & 6th Gen Core™ i processor (LGA1151)	Intel® 8th/9th Gen Core™ i processor (LGA1151)
	BIOS	AMI EFI 128 Mbit SPI	AMI EFI 128 Mbit, SPI	AMI EFI 256 Mbit SPI
Memory	Socket	2 x 260-pin DDR4 SO-DIMM	2 x 260-pin DDR4 SO-DIMM (Non-ECC)	2 x 260 PIN DDR4 SO-DIMM (Non-ECC)
	Technology	Dual channel DDR4 2400/2133 MHz non ECC SDRAM (Only supports DDR4 2133 MHz SDRAM for SKL-S CPU)	Dual Channel DDR4 2133 MHz SDRAM	Technology Dual Channel DDR4 2666 MHz SDRAM
	Max. Capacity	Up to 32GB (16GB per SO-DIMM)	32 GB/up to 16 GB per SODIMM	64GB (up to 32GB per SO-DIMM)
Graphics	Chipset Integrated	Integrated Intel® HD Graphics 530	Intel® HD Graphics, Supports OpenGL 5.x, DirectX12, OpenCL 2.X	Intel® UHD Graphics 630 / Intel® HD Graphics 615
Storage	2.5" HDD Bay	2 (supports 2 x 2.5" HDD/ SSD, or 1 slim ODD & 1 x 2.5" HDD/SSD)	2 (supports 2 x 2.5" HDD/ SSD, or 1 slim ODD & 1 x 2.5" HDD/SSD)	2 (supports 2 x 2.5" HDD/ SSD, or 1 slim ODD & 1 x 2.5" HDD/SSD)
	mSATA Slot	1 (share w/ full size Mini-PCIe slot)	1 (Full-size, Half size)	-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel i219LM LAN2: Intel I211AT	LAN1: Intel i219LM LAN2: Intel I211AT
	Connector	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)
Audio	Codec	Realtek ALC888, High Definition Audio (HD)	Realtek ALC888, High Definition Audio (HD)	Realtek ALC888S
Internal expansion Slot	Mini-PCIe	1 (Full-size)	1+1 (Full-size, Half-size)	-
	M.2	1 (B Key, 2242)	1 (B Key, 2242)	1 (B key, 2242, 3042) 1 (E key, 2230)
	SIM slot	-	-	1
	SD slot	-	-	-
Front Panel	DP++	-	-	-
	DP/HDMI	-	-	-
	VGA	-	-	-
	DVI	-	-	-
	COM	4 (Optional)	1 (RS232/422/485, Optional)	up to 2 (RS232/422/485, Optional)
	LAN	-	-	-
	USB	2 (USB2.0; Optional)	4 (USB2.0; optional)	up to 2 (USB3.0, Optional)
	Audio Jack	-	-	-
	Antenna (optional)	up to 2	up to 2	up to 2
Rear Panel	DP++	-	-	-
	DP/HDMI	1/0	1/1	2 / 1
	VGA	1	1	-
	DVI	1 (DVI-D)	-	-
	COM	-	1 (RS232, supports 5V/12V)	-
	LAN	2 (RJ-45)	2 (RJ-45)	2 (RJ-45)
	USB	4 (USB3.0); 4 (USB2.0)	4 (USB3.0)	5 USB 3.1 + 2 USB USB 3.0
	Audio Jack	3 (line-in, line-out, mic-in)	3 (Mic in, Line out, Line in)	3 (Mic-in, Line-out, Line-in)
	GPIO	8 bits (Optional)	8 bits (Optional)	8 bits (Optional)
	Antenna (optional)	up to 2 (Optional)	up to 2 (Optional)	-
Miscellaneous	LED Indicators	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)	2 (Power LED, HDD LED)
	Switch	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)	1 (Power Switch); 1 (Reset Switch)
	Circular Cutouts	-	-	-
Mounting		Wall mount	Wall mount	Wall mount
Power Requirements	Power Voltage	Power Voltage: 100V~240V AC input	Power Voltage: 100V~240V AC input	12V DC input
	Power Input Type (Inlet)	Power Code input	Power Code input	DC Jack (2.5Ø)
	Consumption	TBD	TBD	TBD
Environment	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)	0 ~ 40 °C (32 ~ 104 °F)
	Non-operating Temperature	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Humidity	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing	10~95% @ 40°C, non-condensing
	Vibration (5 ~500Hz)	1 Grms (HDD*1+ODD*1); 0.5 Grms (HDD*2)	1 Grms (HDD*1+ODD*1); 0.5 Grms (HDD*2)	1 Grms (HDD*1+ODD*1); 0.5 Grms (HDD*2)
	Shock	-	-	-
Certification		CE/FCC/CCC/CB/UL/BSMI	CE/FCC/CCC	CE/FCC/CCC/BSMI
Physical Characteristics	Dimensions (W x H x D)	250 x 98 x 255 mm (9.84" x 3.86" x 10.04")	250 x 98 x 255 mm (9.84" x 3.86" x 10.04")	250 x 98 x 255 mm (9.84" x 3.86" x 10.04")
	Weight	3.8kg	3.8kg	3.8kg

Embedded PCs

EPC-B Series

Model Name		EPC-B5505	EPC-B5587
Barebone system	Description	Fan-based 4U system with PSU	Fan-based 4U system with PSU
	Thermal Solution	Default CPU cooler: 1960047669N001 Sys Fan: 1750009361-01	Default CPU cooler: 1960047669N001 (65W) Optional CPU Cooler: 1960067860N001 (80W) Sys Fan: 1750009361-01
	CPU	i7-6700 i7-6700TE i5-6500 i5-6500TE i3-6100 i3-6100TE	*W1290E / *W1290TE *W1270E / *W1270TE *W1250E / *W1250TE i9-10900E / i9-10900TE i7-10700E / i7-10700TE i5-10500E / i5-10500TE
	BIOS	AMI 128 Mbit SPI	AMI 256 Mbit SPI
Memory	Socket	2 x 288 pin U DIMM	4 x 288 pin U DIMM
	Technology	Dual Channel DDR4 2400 MHz	Dual Channel DDR4 2400/2666/2933 MHz Non-ECC SDRAM/ ECC SDRAM
	Max. Capacity	32GB (16GB per DIMM)	128GB (32GB per DIMM)
Graphics	Chipset Integrated	Intel HD Graphics	Intel HD Graphics
Storage	2.5" HDD Bay	3 (supports 2.5" SSD, max 7 mm height)	6 (supports 2.5" SSD, max 7 mm height)
	mSATA Slot		-
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps / 10 Gbps
	Controller	GbE LAN1:Realtek RTL8111G GbE LAN2:Realtek RTL8111G	LAN1: Intel I219LM LAN2: Intel I210AT LAN3/4: Intel X550-AT2
	Connector	2 (RJ-45)	4 (RJ-45)
Audio	Codec	Realtek ALC892	Realtek ALC888S
Internal expansion Slot	Mini-PCIe	-	-
	M.2	-	M.2 M-Key 2280
	SIM slot	-	-
	SD slot	-	-
Front Panel	DP++	-	-
	DP/HDMI	-	-
	VGA	-	-
	DVI	-	-
	COM	-	-
	Lan	-	-
	USB	-	4
	Audio Jack	-	-
	Remote Power Jack	-	1
	Antenna (optional)	-	-
Rear Panel	DP++	-	2
	DP/HDMI	1/0	-
	VGA	1	1
	DVI	1	-
	COM	6	6
	Lan	2	4
	USB	-	4
	Audio Jack	2	2
	GPIO	-	-
	Antenna (optional)	-	-
Miscellaneous	LED Indicators	1 Power-On LED 1 Power LED 1 Storage LED 2 LAN LED	1 Power-On LED 1 Power LED 1 Storage LED 2 LAN LED
	Switch	1 (Power Switch)	1 (Power Switch)
	Circular Cutouts		-
Power Requirements	Power Voltage	ATX AC Power-In	ATX AC Power-In
	Power Input Type (Inlet)	ATX AC Power-In	ATX AC Power-In
	Consumption	TBD	TBD
Environment	Operating Temperature	0 ~ 40°C w/o Expansion card	0 ~ 40°C w/o GPU card 0 ~ 35°C w/ GPU card
	Non-operating Temperature	-20 ~ 60°C	-20 ~ 60°C
	Humidity	10 ~ 95% @ 40 °C, non-condensing	10 ~ 95% @ 40 °C, non-condensing
	Vibration (5 ~500Hz)	3Grms w/o GPU card (Tested with 2.5"" SSD & 4U Type)	3Grms w/o GPU card 1Grms w/ GPU card (Tested with 2.5"" SSD & 4U Type)
	Shock	10G, 11ms, half sine wave	10G, 11ms, half sine wave
Certification		CE & CB / FCC / CCC / UL / BSMI (Certified w/o any add-on cards)	CE & CB / FCC / CCC / UL / BSMI (Certified w/o any add-on cards)
Physical Characteristics	Dimensions (W x H x D)	380 x 176 x 467 mm	380 x 176 x 467 mm
	Weight	15 Kg	15 Kg

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

IoT Gateway

Model Name		UTX-3117
Processor System	CPU	Intel® Apollo Lake E3900 series & N series Processor
	Core Number	Quad Core / Dual Core
	BIOS	AMI EFI 16 Mbit, SPI
	Chipset	-
Memory	Technology	Dual channel DDR3L 1866 MHz SDRAM
	Max. Capacity	8GB/ up to 8GB per DIMM
	Socket	2 x 204-pin DDR3L SODIMM (Non-ECC)
Display	Controller	Intel HD Graphics GEN9
	VGA	-
	HDMI	1
	Display Port	1
Storage	2.5" HDD bay	1 (support 2.5" HDD/SSD, max 7.5mm height)
	mSATA	1, colay with H/S miniPCIE
Ethernet	Interface	10/100/1000 GbE LANs.
	Controller	LAN1: Intel I210AT LAN2: Realtek RTL8111H
	Connector	2 (RJ45)
Audio	Chipset	Realtek ALC888, High Definition Audio(HD)
	Connector	Mic-in, Line-out combo
Internal expansion Slot	Mini-PCIe	2 (1 x F/S miniPCIE slot, 1 x H/S miniPCIE slot), 1 M.2 (E-Key)
	SIM socket	1
Front Panel	USB	2 (USB 3.0)
	Audio	Mic-in, Line-out Combo
	LAN	2
	Power button	1
	LED Indicators	1(HDD LED)
Rear Panel	HDMI	1
	VGA	- (change to DP1.2 port)
	USB	-
	USB	2 (USB3.0)
	COM	2 (1RS-232 & 1RS-422/485)
	Power jack	1 (DC12~24V)
Power	Control	1(Power button)
	Voltage	12~24VDC ± 10%
	Power Consumption	12V@0.61A
	Power Adapter	AC to DC adapter 12/24V/3A
Environment	Operating Temperature	-20 ~ 60 °C (32 ~ 104 °F) with RF module by max system performance
	Non-operating Temperature	-40 ~ 85 °C and 95% @ 40 °C Non-Condensing
	Vibration	3G (with 2.5" SSD)
Dimensions (W x H x D)		152 x 37.1 x 128 mm (5.6" x 1.46" x 5.04")
Weight		1.2KG
Certification	EMC	CE/FCC/CCC
	Safety	CCC

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

Embedded PCs

EPC-S & EPC-C Series

NEW

Model Name		EPC-S101	EPC-S201	EPC-S202	EPC-C301
Barebone system	Description	3.5"-Base Slim System	2.5" Pico-Base Compact System	2.5" Pico-Base Compact System	Performance MIO-Plus System
Processor System	Compatible Motherboard	PCM-9310	MIO-2360	MIO-2361	MIO-5373
	Thermal Solution	Fanless	Fanless	Fanless	Fanless
	CPU	Intel® Celeron® N3160/N3060, Atom® x5-E8000	Intel® Celeron® N3350	Intel® Atom® x7-E3950/x5-E3930	Intel® Core™ i7-8665UE/i5-8365UE
	BIOS	AMI UEFI 64Mb SPI	AMI UEFI 64Mb SPI	AMI UEFI 64Mb SPI	AMI UEFI 256Mb SPI
Memory	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	N/A (On board LPDDR4)	2 x 260-pin SODIMM
	Technology	DDR3L-1600	DDR3L-1866	LPDDR4-2400	DDR4-2400
	Max. Capacity	Default 2GB, up to 8GB	8GB	Default 4GB, up to 8GB	Default 8GB/16GB, up to 32GB
Graphics	Chipset Integrated	Intel® HD Graphics	Intel® HD Graphics 500	Intel® HD Graphics 505/500	Intel® UHD Graphics 620
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	Full size (opt. mPCIe)	Half size	Full size	-
	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: Realtek RTL8111E LAN2: Realtek RTL8111E	Intel I210	LAN1: Intel I219; LAN2: Intel I210	LAN1: Intel I219; LAN2: Intel I210 LAN3: Intel I210; LAN4: Intel I210
	Connector	RJ-45 x 2	RJ45	RJ-45 x 2	RJ-45 x 4
Audio	Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Internal Expansion Slot	Mini-PCIe	Full size	Full size	-	Full size
	M.2	-	-	1 x E-Key 2230 (PCIe x1, USB2.0)	1 x E-Key 2230 (PCIe x1, USB2.0) 1 x B-Key 3042 (USB2.0)
	SIM slot	1	-	-	-
Front Panel	DP/HDMI	1 x HDMI (up to 2560 x 1600 @ 60Hz)	-	1 x HDMI (up to 3840x2160 @ 30Hz)	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)
	VGA	1	1	-	-
	COM	-	1 (RS-232/422/485)	1 (RS-232/422/485)	2 (RS-232/422/485)
	LAN	2	1	2	4
	USB	4 (USB2.0 x 2, USB3.0 x 2)	2 x USB3.0	2 x USB3.0	8 (USB3.0 x4, USB2.0 x4)
	Audio Jack	-	Line-in/Line-out	Line-in/Line-out	Mic-in/Line-out
	SIM slot	-	-	-	1 x Nano SIM
	Antenna (optional)	up to 1	up to 2	up to 2	-
Side Panel	COM	4 (2 x RS-232/422/485, 2 x RS-232)	1 (RS-232/422/485)	1 (RS-232/422/485)	2 (1 x RS-232/422/485, 1 x RS-232)
	USB	2 (USB2.0)	-	-	-
	Audio Jack	Line-in, Line-out, Mic-in	-	-	-
	GPIO	8-bit	8-bit	2 x 8-bit	8-bit
	CAN Bus	-	-	-	2 (2.5KV isolation)
	Antenna (optional)	up to 1	-	-	up to 4
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, VESA mount, DIN rail	Desk mount, Wall mount, DIN rail	Desk mount, Wall mount, DIN rail	Desk mount, Wall mount, DIN rail
Power Requirements	Power Voltage	12V DC-in	12V DC-in	12V DC-in	12V DC-in
	Power Input Type (Inlet)	Phoenix DC plug-in	Phoenix DC plug-in	Phoenix DC plug-in	DC Jack with lock
	Consumption	4.5W (idle with Celeron N3060)	4.89W (idel with Celeron N3350)	8.59W (idel with Atom X7-E3950)	6.61W (Idle with i7-8665UE)
Environment	Operating Temperature	0 ~ 50 °C (32 ~ 122 °F)	0 ~ 50 °C (32 ~ 122 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)
	Non-operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
	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/BSMI/KCC	CE/FCC(Class B) CB/UL/BSMI/VCCI	CE/FCC(Class B) CB/UL/CCC	CE/FCC(Class B) CB/UL/CCC/KCC
Physical Characteristics	Dimensions	188 x 150 x 39 mm	139 x 100 x 44 mm	139 x 100 x 44 mm	170 x 118 x 70 mm
	Weight	0.95kg	0.6Kg	0.6Kg	1.5Kg

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

Embedded PCs

EPC-R Series - Edge AI Box

Model Name		EPC-R3720	EPC-R5710	EPC-R7000	EPC-R7200
Description		Arm-based Fan-less UIO40-Express System	Arm-based Fan-less System	Arm-based Fan-less System	Arm-based Fan-less UIO40-Express Barebone System
Processor System	Compatible Single Board Computer	RSB-3720	-	-	Compatable with NVIDIA Jetson Series Module Nano / TX2 NX / Xavier NX
	Thermal Solution	Fanless	Fanless	Fanless	Fanless
	CPU	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz	NXP Arm i.MX 8M Plus Cortex-A53 1.8 GHz	NVIDIA Arm Jetson TX2 2 GHz	Compatable with NVIDIA Jetson Series Module Nano / TX2 NX / Xavier NX
	BIOS	Advantech boot loader	Advantech boot loader	-	-
AI Performance		2.3 TOPS NPU	2.3 TOPS NPU	1.33 TFLOPs	472 GFLOPS for Nano 1.33 FLOPS for TX2 NX 21 TOPS for Xavier NX
Memory	Socket	On-board	On-board	On-board	On-board
	Technology	LPDDR4 4000 MT/s	LPDDR4 4000 MT/s	LPDDR4 3200 MT/s	LPDDR4 3200 MT/s
	Max. Capacity	6 GB	6 GB	8 GB	Nano (4 GB) / TX2 NX (4 GB) / Xavier NX (8 GB)
Graphics	Chipset Integrated	Decoder: 1080p60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/ Main/High Encoder: 1080p60 AVC/H.264, HEVC/H.265	Decoder: 1080p60 HEVC/H.265 Main, VP9 Profile 0/2, VP8, AVC/H.264 Baseline/Main/High Encoder: 1080p60 AVC/H.264, HEVC/H.265	NVIDIA Pascal™ GPU Architecture with 256 NVIDIA CUDA Cores	Nano (128-core NVIDIA Maxwell™ GPU) TX2 NX (256-core NVIDIA Pascal™ GPU) Xavier NX (384-core NVIDIA Volta™ GPU with 48 Tensor Cores)
Storage	On-board Storage	16 GB eMMC 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	32 GB eMMC NAND Flash for O.S.	16 GB eMMC Flash for O.S.
	mSATA Slot	-	2.5" SSD , Optional	2.5" HDD/SSD 1TB, Optional	-
Ethernet	Interface	2 x 10/100/1000 Mbps	5 x 10/100/1000 Mbps, 1 x 1000Mbps Fiber	1 x 10/100/1000 Mbps	Up to 2 x 10/100/1000 Mbps
	Controller	NXP i.MX8M Plus integrated RGMII	NXP i.MX8M Plus integrated RGMII	NVIDIA Jetson integrated RGMII	NVIDIA Jetson integrated RGMII and Intel 1GbE Controller
	Connector	2 x RJ45	5 x RJ45,1 x FSP Fiber	RJ45	2 x RJ45
Audio	Codec	SGTL5000	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 (USB 2.0/PCIe/UART/I2C) 1 x M.2 3052 Key B slot (USB 3.2 Gen 1 by 1/ I2C)	-	1 M.2 2230 Key E Slot (USB 2.0/PCIe/UART/I2S) 1 M.2 3042 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 Micro SD slot	-	1 x Micro SD slot
Front Panel	DP++	-	-	-	-
	DP/HDMI	1 x HDMI 2.0, up to 3840 x 2160 at 30Hz	1 x HDMI up to 1920 x 1080	-	1 x HDMI up to 3840 x 2160
	VGA	-	-	-	-
	DVI	-	-	-	-
	COM	-	-	1 x 4-wire RS-232	-
	GPIO	-	-	12 x GPIO (6 x DIs, 6 x DOs)	-
	LAN	2	4 x 10/100/1000 Mbps, 1 x 1000Mbps Fiber	-	2
	USB	1 USB 3.2 Gen 1 by 1 Type A, 1 USB 2.0 Type A	2 x USB 3.2 Gen 1 by 1 Type A, 2 x USB 2.0 Type A	-	2 USB 3.2 Gen 1 by 2 Type A
	Audio Jack	-	-	-	-
	Antenna (optional)	-	2 x 4G/5G 2 x WiFi5/6	-	2 x Antenna holes
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 4-wire RS-232/422/485 1 x 2-wire RS-232/Debug port	-	2 x 2-wire RS-232 w/ UIO-4032/UIO-4034 1 x RS-485, 1 x 2-wire 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 10/100/1000Mbps, WAN, TSN	2 x 802.3af (PSE Power Max 15.4W Out)	1 x 10/100/1000 Mbps w/ UIO-4032 4 x 10/100/1000 Mbps w/ UIO-4036
	USB	2 x USB 2.0 w/ UIO-4032	-	4 x USB3.0 Host 1 x USB2.0 OTG	2 x USB 2.0 w/ UIO-4032
	CAN bus	1 x CAN bus 2.0 A/B w/ UIO-4034	-	1 x Line out	1 x CAN bus 2.0 A/B w/ UIO-4034
	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	6	-	4 x DI, 4 x DO w/ UIO-4030
	Antenna (optional)	4 x Antenna holes	2 x 4G/5G 2 x GPS/BT	2 x Antenna holes	2 x Antenna holes
Miscellaneous	LED Indicators	1 Green LED for system power 1 Blue Programmable LED	6 Green/Orange LED for power, system, storage, 5G,4G,Wi-Fi and fiber status	1 Green LED for system power	1 Green LED for system power 1 Green LED for programable
	Switch	1 x Reset button	1 x Reset button 1 x Recovery button	1 x Reset button 1 x Recovery button	1 x Reset button
	Circular Cutouts	-	-	-	-
Mounting		Wall mount/Din Rail (optional)	Wall mount	Wall mount	Wall mount/Din Rail (optional)
Power Requirements	Power Voltage	12V	12V	19V	9-24V
	Power Input Type (Inlet)	DC-in	DC-in	DC-in	DC-in
	Consumption	9.2W	13.9W	15W	TBD
Environment	Operating Temperature	-40 ~ 70 °C	0 ~ 50° C/-40 ~ 70 °C	-20 ~ 60 °C	-20 ~ 60 °C / -20~70 °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	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	IEC60068-2-27 half-sine 10G/11ms
Certification		CE/FCC Class B CCC/BSMI	CCC/CE/FCC Class B	CE/FCC Class B	CCC/CE/FCC Class B
Physical Characteristics	Dimensions (W x H x D)	152 x 108 x 38 mm	180 x 120 x 60 mm 180 x 120 x 85 mm(AI Card)	204 x 138 x 67 mm	152 x 137 x 42 mm
	Weight	0.75KG	1.3KG/1.5KG	1.52KG	0.925KG

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

Embedded PCs

EPC-R Series - Edge Gateway

NEW

Model Name		EPC-R3220	EPC-R3430	EPC-R3710	EPC-R4680	EPC-R4760
Description		Arm-based Fan-less System	Arm-based Fan-less UIO40-Express System	Arm-based Fan-less UIO40-Express System	Arm-based Fan-less System	Arm-based Fan-less System
Processor System	Compatible Single Board Computer	-	RSB-3430	RSB-3710	RSB-4680	RSB-4760
	Thermal Solution	Fanless	Fanless	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	Rockchip Arm RK3288 Cortex-A17 1.6 GHz	Qualcomm Arm APQ8016 Cortex-A53 1.2 GHz
	BIOS	Advantech boot loader	Advantech boot loader	Advantech boot loader	Advantech boot loader	Advantech boot loader
AI Performance		-	-	-	-	-
Memory	Socket	On-board	On-board	On-board	On-board	On-board
	Technology	DDR3 800 MT/s	DDR3L 1066 MT/s	LPDDR4 1333 MT/s	DDR3L 1333 MT/s	LPDDR3 1066 MT/s
	Max. Capacity	1 GB	1 GB	2 GB	2 GB	1 GB
Graphics	Chipset Integrated	-	2 IPUs. OpenCL ES 2.0 for 3D, BitbIt 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	Mali-T764 GPU processor with OpenGL ES3.0, OpenCL1.1 and DirectX11	Adreno 306 GPU
Storage	On-board Storage	8 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for ADV.	4 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	8 GB 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	2 x 10/100/1000 Mbps	10/100/1000 Mbps	2 x 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	Rockchip RK3288 Integrated RGMII	Microchip LAN7500
	Connector	2 x RJ45	RJ45	2 x RJ45	RJ45	RJ45
Audio	Codec	-	SGTL5000	-	Realtek ALC5660	PM8916
Internal Expansion Slot	Mini-PCIe	1 x Full-size	1 x Full-size	1 x Full-size (USB & PCIe signal)	1 x Full-size	1 x Full-size
	M.2	-	1 x M.2 Key E slot	-	1 x M.2 Key E slot (SDIO 3.0 & UART signal only)	1 x M.2 Key E slot
	SIM Slot	1 x Nano SIM slot	1 x Nano SIM slot	1 x Nano SIM slot	1	1
	SD Slot	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot	1 x Micro SD slot	1 x SD slot
Front Panel	DP++	-	-	-	-	-
	DP/HDMI	-	1x HDMI up to 1920 x 1080	1	-	1 x HDMI up to 1920 x 1080
	VGA	-	-	-	-	-
	DVI	-	-	-	-	-
	COM	2 x 4-wire RS-232/485	1 x 4-wire RS-232/422/485	-	4 x 4-wire RS-232	1 x 4-wire RS-232/422/485
	GPIO	6	-	-	-	-
	LAN	2	1	2	-	1
	USB	-	2 USB 2.0	1 x USB 3.2 Gen 1 by 1 Type A, 1 x USB 2.0 Type A	USB 2.0	2 USB 2.0
	Audio Jack	-	-	-	-	-
	Antenna (optional)	2 x Antenna holes	-	-	3 x antenna holes	2 x antenna holes
Rear Panel/ Side Panel	DP++	-	-	-	-	-
	DP/HDMI	-	-	-	1x HDMI up to 3840 x 2160	-
	VGA	-	-	-	1	-
	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	1 x 4-wire RS-232/485 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	-
	USB	1 x USB 2.0 OTG	2 x USB 2.0 w/ UIO-4032	2 x USB 2.0 w/ UIO-4032	2 x USB 2.0 Host 1 x USB 2.0 OTG	2 x USB 2.0 Host
	CAN bus	-	1 x CAN bus 2.0 A/B w/ UIO-4034	-	-	-
	Audio Jack	-	-	-	1 x Line out 1 x Mic in	-
	GPIO	-	4 x DI, 4 x DO w/ UIO-4030	4 x DI, 4 x DO w/ UIO-4030	8 x GPIO by DB9	-
	Antenna (optional)	1 x Antenna holes	2 x Antenna holes	3 x Antenna holes	2 x Antenna holes	3 x Antenna holes
Miscellaneous	LED Indicators	1 Green LED for system power 3 Red Programmable LED	-	1 Green LED for system power 1 Green Programmable LED	1 Green LED for system power 1 Orange LED for WLAN	1 Green LED for system power 1 Yellow LED for WLAN
	Switch	1 x Reset button	-	1 x Reset button	1 x Reset button 1 x Power button	-
	Circular Cutouts	-	-	-	-	-
Mounting		Wall mount/DIN rail mount (optional)	Wall mount	Wall mount/Din Rail (optional)	Wall mount	Wall mount
Power Requirements	Power Voltage	12~24V	12V	12V	12V	9~36V
	Power Input Type (Inlet)	2-pole lockable DC-in	DC-in	DC-in	DC-in	DC-in
	Consumption	4.7W	4.05W	15W	11.6W	7.6W
Environment	Operating Temperature	-20 ~ 70 °C	-20~60 °C	0 ~ 50 °C/-20 ~ 70 °C	0 ~ 55 °C/-20 ~ 70 °C	0 ~ 40 °C
	Non-operating Temperature	-40 ~ 85 °C	-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	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	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	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	CE/FCC Class B CCC/BSMI	CE/FCC Class B CB/UL/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	190 x 150 x 43 mm	188 x 150 x 39 mm
	Weight	0.6KG	0.48KG	0.75KG	0.95KG	1.2KG

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

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

Embedded PCs

EPC-R Series - Edge Gateway

NEW

Model Name		EPC-R4710	EPC-R6410
Description		Arm-based Fan-less System	Arm-based Fan-less System
Processor System	Compatible Single Board Computer	RSB-4710	RSB-6410
	Thermal Solution	Fanless	Fanless
	CPU	Rockchip Arm RK3399 Cortex-A72 1.8 GHz	NXP Arm i.MX6 Cortex-A9 1 GHz
	BIOS	Advantech boot loader	Advantech boot loader
AI Performance		-	-
Memory	Socket	On-board	On-board
	Technology	LPDDR4 1333 MT/s	DDR3L 1333 MT/s
	Max. Capacity	2 GB	1 GB / 2 GB
Graphics	Chipset Integrated	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	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
Storage	On-board Storage	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 ADV.
	mSATA Slot	-	-
Ethernet	Interface	2 x 10/100/1000 Mbps	10/100/1000 Mbps
	Controller	Rockchip RK3399 Integrated RGMII	NXP i.MX6 Integrated RMII
	Connector	2 x RJ45	RJ45
Audio	Codec	Realtek ALC5660	SGTL5000
Internal Expansion Slot	Mini-PCIe	1 x Full-size (USB signal only)	1 x Full-size
	M.2	1 x M.2 2230 Key E slot (USB/PCIe/SDIO/UART)	1 x M.2 Key E slot
	SIM Slot	1 x SIM slot	1
	SD Slot	1 x Micro SD slot	1 x SD slot
Front Panel	DP++	-	-
	DP/HDMI	-	-
	VGA	-	-
	DVI	-	-
	COM	2 x RS232/485 2 x RS232	2 x 4-wire RS-232 1 x debug port
	GPIO	-	
	LAN	-	-
	USB	3	-
	Audio Jack	-	-
	Antenna (optional)	3	2 x antenna holes
Rear Panel/ Side Panel	DP++	-	-
	DP/HDMI	2	1x HDMI up to 1920 x 1080
	VGA	-	1
	DVI	-	-
	COM	1 x RS-232/Debug 1 x RS232	1 x 4-wire RS-232/485 1 x 4-wire RS-232
	LAN	2	1
	USB	1 x USB 3.2 Gen1 1 x USB 2.0	6 x USB2.0 Host
	Audio Jack	1 x Line out 1 x Mic in	1 x Line out 1 x Mic in
	GPIO	5	-
	Antenna (optional)	2 x Antenna holes	2 x Antenna holes
Miscellaneous	LED Indicators	1 Green LED for system power 1 Yellow LED for WLAN	1 Green LED for system power
	Switch	1 x Reset button 1 x Power button	1 x Reset button 1 x Power button
	Circular Cutouts	-	-
Mounting		Wall mount	Wall mount
Power Requirements	Power Voltage	12V	12V
	Power Input Type (Inlet)	DC-in	DC-in
	Consumption	15W	9W
Environment	Operating Temperature	0 ~ 50° C/-20 ~ 70 °C	0 ~ 55 °C
	Non-operating Temperature	-40 ~ 85 °C	-40 ~ 85 °C
	Humidity	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
	Shock	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
Physical Characteristics	Dimensions (W x H x D)	190 x 150 x 43 mm	200 x 230 x 50 mm
	Weight	0.95KG	2.26KG

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

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 at 60Hz	-
	HDMI	1920 x 1080 at 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	NXP i.MX6 integrated RGMII	TI AM3352 Integrated RGMII
	Speed	1 x 10/100/1000 Mbps	2 x 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 USB 2.0 Host, 1 USB 2.0 OTG	1 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 DIs, 4 x DOs with isolation
	CANBus	-	1
	I2C	-	1
	Button	-	1 x Reset button
Indicator	LED	1 Power LED 1 Programmable LED	1 Power LED 1 RF status LED
Expansion	Mini PCIe	2 x mini PCIe slots (1 x half-size, 1 x full-size USB signal only)	1x mini PCIe slot (USB signal only)
	SD Socket	1x SD slot	1 x SD slot
	SIM	1x 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

Wireless ePaper Solutions

EPD Device

Product		EPD-230,EPD-232	EPD-332	EPD-660,662	EPD-210
Display	Panel Size	2.9"	5.65"	13.3"	2.9"
	Resolution	296x128 pixels	600 x448pixels	1600 x 1200 pixels	296x128 pixels
Interface		LED x 3, Button x 3	LED x 1, Button x 1	LED x 1(2 color), Button x 5	
Dimension		100 x 47 x 17.9 mm/ 3.93 x 1.85 x 0.7 in	140 x 118.3 x 14 mm/ 5.51 x 5.64 x .55 in	235 x 328 x 23 mm/ 9.25 x 12.9 x 0.9 in	66.9 x 29.06 mm/ 2.63 x 1.14 in
Network		2.4G/IEEE802.15.4 proprietary	2.4G/IEEE802.15.4 proprietary	2.4G/Wi-Fi	NFC
Power		Battery CR2450x4	Battery CR2450x4	Battery CR2450x4	Battery-less
Operating Temperatures		0 ~ 50 °C/32 ~ 122 °F	0 ~ 40 °C/32 ~ 104 °F	0 ~ 40 °C/32 ~ 104 °F	0 ~ 40 °C/32 ~ 104 °F
Certification		CE/FCC/NCC	CE/FCC/NCC	CE/FCC/NCC	CE/FCC/BSMI
Ordering Information		EPD-230-001, EPD-232-001	EPD-332-001	EPD-660-101, EPD-662-101 EPD-660-001, EPD-662-001	EPD-210-001, EPD-210-101

EPD Router and Reader

Product	WISE-3240	WISE-3220	WISE-3270	EPR-210
Interface	Ethernet and Wireless	Ethernet and Wireless	Ethernet and Wireless	RF reader
Protocol	IEEE 802.15.4, proprietary	2.4G Wi-Fi	4G/LTE	13.56 MHz (+/-7 KHz)
Connected Quantities	400pcs EPD-230,232,332	100pcs EPD-660,EPD-662	1 pc EPD-770	1 pc EPD-210
Power	DC12V/2A	DC12V/2A	DC12V/2A	Micro USB 5V
Operating Temperatures	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	0 ~ 70 °C/32 ~ 158 °F
Dimensions	143 x 101 x 30 mm/5.6 x 3.97 x 1.18 in	143 x 101 x 30 mm/5.6 x 3.97 x 1.18 in	143 x 101 x 30 mm/5.6 x 3.97 x 1.18 in	121 x 74.2 x 14.5 mm/5.6 x 3.97 x 1.18 in
Certifications	CE/FCC/IC Class B,NCC	CE/FCC Class B, NCC	CE/FCC Class B, NCC	CE/FCC/BSMI
Ordering Info	WISE-3240IOS-41A1T for Taiwan	WISE-3220IOS-21A1T for Taiwan	WISE-3270IOS-71A1T for Taiwan	LEO-D30-RD1

Enterprise Server

Product	ARK-2250L A2
Description	ARK2250L, Intel i7-6600U, 1 TB HDD, 16GRAM, ADP
Software	DeviceOn/ePaper in Ubuntu 18.4
Connected Quantities	10,000pcs EPD-230/232/332 or 500pcs EPD-660,662,770
Power	DC12V/5A
Certifications	CE/FCC Class B, CCC, BSMI, UL, CCC, BSMI
Ordering Info.	ARK-2250L-EP1A2 with 500 device licenses

Value Server

Product	ARK-1123H A2
Description	ARK-1123H, Intel® Celeron Quad Core J1900 SoC, 128SSD, 8GRAM, ADP
Software	DeviceOn/ePaper in Ubuntu 18.4
Connected Quantities	100pcs EPD-230/232/332 or 20pcs EPD-660,662,770
Power	DC12V/5A
Certifications	CE/FCC Class B, CCC, BSMI, UL, CCC, BSMI
Ordering Info.	ARK-1123H-EP2A2 with 500 device licenses

Ordering Information

Product	Zigbee Like Version	Wi-Fi Version	4G/LTE
EPD Device	EPD-230-001 EPD-232-001 EPD-332-001	EPD-660-101 /EPD-660-001 EPD-662-101/EPD-662-001	EPD-770-101 EPD-780-101
Router	WISE-3240IOS-41A1E Router for EU WISE-3240IOS-41A1J Router for Japan WISE-3240IOS-41A1N Router for NA WISE-3240IOS-41A1T Router for Taiwan WISE-3240IOS-41A1C Router for China	WISE-3220IOS-21A1E Router for EU WISE-3220IOS-21A1J Router for Japan WISE-3220IOS-21A1N Router for NA WISE-3220IOS-21A1T Router for Taiwan WISE-3220IOS-21A1C Router for China	-
Server	Value Server: ARK-1123H-EP2A2, Enterprise Server: ARK-2250L-EP1A2		

Edge Visualization Solutions

Entry-Level Series

Ultra-Slim Series

Model Name		DS-100	DS-100 Lite	DS-066	DS-082	DS-085S	DS-085L
Processor	CPU	Rockchip RK3399	Rockchip RK3399	Intel® Celeron® J1900	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
	BIOS	-	-	AMI uEFI 64 Mbit	AMI uEFI 128Mbit	AMI uEFI 128 Mbit	AMI uEFI 128 Mbit
	Chipset	-	-	Integrated with CPU	Integrated with CPU	Integrated with CPU	Integrated with CPU
Memory	Technology	LPDDR3 1600MHz	LPDDR3 1600MHz	DDR3L 1333MHz	DDR4 2400MHz	DDR4 2666MHz	DDR4 2666MHz
	Max. Capacity	2 GB on board	2 GB on board	8 GB (4 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)
	Socket	-	-	2 x 204-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
	Graphics Engine	Mali-T860MP4	Mali-T860MP4	Intel HD Graphics	AMD Radeon HD graphics	Intel® Iris® Xe Graphics	Intel® Iris® Xe Graphics
	Graphics Memory	-	-	Shared system memory	Shared system memory	Shared system memory	Shared system memory
	Multiple Display	2	2	2	4 (V series) 3 (R series)	4	4
	Interface	1 x HDMI 2.0, 1 x HDMI 1.4	1 x HDMI 2.0, 1 x HDMI 1.4	2 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
	Max. Resolution	3840 x 2160 @ 60Hz 1920 x 1080 @ 60Hz	3840 x 2160 @ 60Hz 1920 x 1080 @ 60Hz	1920 x 1080 @ 60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz
Expansion Interface	M.2	1 x 2230 E key	1 x 2230 E key	-	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
	Mini PCIe	-	-	1	-	-	-
	PCIe x16	-	-	-	-	-	-
	Micro SD Card	1	1	-	-	-	-
Ethernet	Connector	2 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45	2 x RJ-45	2 x RJ-45
Audio	Connector	1 x Line-out	1 x Line-out	2 x SPDIF/Line-out, Mic-in with jack sense support	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
WatchDog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Storage	SATA	-	-	1 x 2.5" SATA II HDD/SSD	-	-	-
	mSATA	-	-	-	-	-	-
	eMMC	16 GB eMMC on board	16 GB eMMC on board	-	-	-	-
I/O	USB 3.0	1	1	1	2	2	2
	USB 2.0	1	1	3	2	2	6
	COM	1 x Console port	-	1 x RS-232	1 x RS-232	1	2
Power	Power Supply	DC 12V input	DC 12V input	DC 19V input	DC 19V input	DC 19V input	DC 19V input
Environment	Operating Temperature	0 ~ 45°C/ 32~113°F	0 ~ 45°C/ 32~113°F	HDD: 0 ~ 40 °C/ 32 ~ 104 °F SSD: 0 ~ 50 °C/ 32 ~ 122 °F (with 0.7m/s airflow)	HDD: 0 ~ 40 °C/ 32 ~ 104 °F (with 0.7m/s airflow)	0 ~ 40 °C (with 0.7m/s airflow)	0 ~ 55 °C (with 0.7m/s airflow)
Physical Characteristics	Dimensions (L x W x H)	135 x 130 x 29 mm/ 5.31 x 5.11 x 1.14 in	115 x 110 x 20 mm/ 4.52 x 4.33 x 0.78 in	180 x 190 x 19 mm/ 7.08 x 7.48 x 0.74 in	180 x 190 x 19 mm/ 7.08 x 7.48 x 0.74 in	180 x 190 x 19 mm/ 7.08 x 7.48 x 0.74 in	210 x 178 x 40 mm
Operating System		Android 7.1.2	Android 7.1.2	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, CCC, BSMI	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, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI

Note: "-" means not applicable.

Integrated Software

WISE-PaaS/SignageCMS

Multimedia Management Software

System Management	Web interface, multimedia management, user- friendly interface, remote management
Interactive Content Editing	Add/edit/delete content, display control management, subtitle support
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, device events
Update Management	OTA upgrade support, software remote patching and upgrade, update status report
Alert & Action	SMS notifications, email notifications, event log

Edge Visualization Solutions

Multi-Display Series

Modular Series

Edge Cloud

Model Name		DS-580	DS-980	DS-200	DS-280	DS-211	EIS-S230-E1DS2A1
Processor	CPU	Intel® Atom™ x7-E3950	Intel® Core™ i7-6700TE Intel® Core™ i5-6500TE Intel® Core™ i3-6100TE	Intel® Core™ i5-8400H Intel® Core™ i3-8100H Intel® Celeron® G4930E	Intel® Core™ i7-6822EQ Intel® Core™ i5-6442EQ Intel® Core™ i3-6102EQ Intel® Celeron® G3902E	Rockchip RK3399	Intel® Core™ i7-7700
	BIOS	AMI uEFI 64 Mbit	AMI uEFI 128 Mbit	AMI uEFI 128 MBit	AMI uEFI 128 Mbit	-	AMI uEFI 128 Mbit
	Chipset	Integrated in CPU	Intel Q170	Intel QM370	Intel QM170	-	Integrated with CPU
Memory	Technology	DDR3L 1866MHZ	DDR4 2133MHz	DDR4 2400MHz	DDR4 2133MHz	LPDDR4-3200	DDR4 2666MHz
	Max. Capacity	16 GB (8 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	32 GB (16 GB per SODIMM)	2GB/4GB on-board	16 GB (8 GB per SODIMM)
	Socket	2 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	-	2 x 260-pin SODIMM
Display	Controller	NVIDIA GeForce GT1030	Integrated with CPU	Integrated with CPU	Integrated with CPU	-	Integrated with CPU
	Graphic Engine	-	Intel HD Graphics 530	Intel UHD Graphics 630	Intel HD Graphics 530/510	Mali-T860MP4	Intel® HD Graphics 630
	Graphics Memory	2G GDDR5 (on board memory)	Shared system memory	Shared system memory	Shared system memory	-	Shared system memory
	Multiple Display	4	3+ (Up to 9 with a graphics card)	3	3	2	2
	Interface	2 x HDMI 2.0, 2 x HDMI 1.4	1 x HDMI 2.0, 2 x HDMI 1.4	1 x PCIe x8 (98 pin), 1 x Mini DP++	1 x JAE TX25 (80 pin), 1 x HDMI 2.0, 1 x DP	1 x JAE TX25 (80 pin) 1 x HDMI 2.0	1 x HDMI 1.4, 1 x VGA
	Max. Resolution	3840 x 2160 @ 60Hz	4096 x 2160 @ 60Hz	4096 x 2304 @ 60Hz	4096 x 2304 @ 60Hz	3840 x 2160 @ 60Hz	3840x2160@30Hz
Expansion Interface	M.2	1 x 2230 E key	1 x 2230 E key	1 x 2242 M key for storage 1 x 2230 E key for Wi-Fi	-	1	1 x 2230 E key for Wi-Fi
	Mini PCIe	1	1	-	1	1	2
	PCIe x16	-	1	-	-	-	NA
	Micro SD Card	-	-	-	-	1	NA
Ethernet	Connector	2 x RJ-45	2 x RJ-45	1 x RJ-45	2 x RJ-45	2 x RJ-45	4 x RJ-45
Audio	Connector	2 x SPDIF/Line-out, Mic-in with jack sense support	2 x SPDIF/Line-out, Mic-in with jack sense support	1 x SPDIF/Line-out, Mic-in with jack sense support	1 x Line-out with jack sense support	-	1 x Line-out, 1 x Mic-in
WatchDog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5" SATA III HDD/SSD	1 x 2.5" SATA III HDD/ SSD (top); 1 x 2.5" SATA III SSD (bottom), supports RAID 0/1	-	1 x 2.5" SATA III HDD/ SSD	-	2
	mSATA	Mini PCIe colay mSATA	Mini PCIe colay mSATA	-	Mini PCIe colay mSATA	16GB /64GB eMMC on board	2
I/O	USB 3.0	2	4	5 (4 x via bracket, 1 x SDM connector)	3	1	8
	USB 2.0	2	2	-	-	1	0
	COM	1 x RS-232	1 x RS-232/2 x RS-485/422 with extension cable	1 x RS-232 via SDM connector (Tx/Rx only)	-	1 x RS-232	4
Power	Power Supply	DC 19V input	DC 12V input	DC 12V input (via SDM Connection)	DC 12V-19V input (via OPS connector)	DC 12V input (via OPS connector)	DC 9-36V
Environment	Operating Temperature	HDD: 0 ~ 40 °C/ 32 ~ 104 °F SSD: 0 ~ 50 °C/ 32 ~ 122 °F (with 0.7m/s airflow)	0 ~ 40 °C/32 ~ 104 °F	0 ~ 55 °C/32 ~ 131 °F	HDD: 0 ~ 40 °C/32 ~ 104 °F SSD: 0 ~ 50 °C/32 ~ 122 °F	0 ~ 60°C	0 ~ 60 °C
Physical Characteristics	Dimensions (L x W x H)	220 x 150 x 40 mm/ 8.66 x 5.9 x 1.57 in	267.6 x 205 x 88 mm/ 10.53 x 8.07 x 3.46 in	175 x 100 x 20 mm/ 6.88 x 3.93 x 0.78 in (SDM-L compliant)	200 x 119 x 30 mm/ 7.87 x 4.68 x 1.18 in	200 x 119 x 30 mm (OPS compliant)	156.5 x 205 x 230 mm 6.16 x 8.07 x 9.06 in
Operating System		Windows 10, Linux (optional)	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, CCC, BSMI	CE, FCC Class B, CCC, BSMI	CE, FCC Class B	CE, FCC Class B, CCC, BSMI	CE, FCC Class B	CE, FCC Class B, CCC, BSMI
	Safety	UL, CB, CCC, BSMI	UL, CB, CCC, BSMI	N/A	UL, CB, CCC	CCC	UL, CB, CCC, BSMI

Note: "-" means not applicable.

FaceView

AI Facial Recognition

Advanced Face Property	Age, gender, emotion, ID, head pose, facial mask
Customer/List Enrollment	Input by webcam, photos, and db files
VIP/Blacklist Notification	Live-view, e-mail, and mobile apps
Model Complexity*	Ultra High, Very High, and High
Accuracy**	99.50%~ 94.12%

* Accuracy: Ultra high>Very high>High; Speed: Ultra high<Very high<High
**Results depend on selected model complexity and false accept rate (1E-6~1E-4)

Digital Signage Displays

DSD-7055

55" full HD display with Intel SDM compliance

VUE-5000 Series

32"~86" full HD large format displays

Intelligent Transportation Solutions

Application		Outdoor NVR			In-Vehicle
Model Name		ARK-2121S	ARK-2151S	ARK-2250S	ARK-2121V
Processor System	CPU	Intel Atom® E3845	4th Gen Intel® Core™ i5 4300U	6th Gen Intel® Core™ i5-6442EQ/i7-6822EQ	Intel Atom® E3825/E3845
	Frequency	1.91 GHz	1.9 GHz	1.9GHz/2.0GHz	1.33 GHz / 1.91 GHz
	Core Number	4	2	4	2/4
	BIOS	AMI EFI 64 Mbit	AMI EFI 128 Mbit	AMI UEFI 128Mbit	AMI EFI 64 Mbit
	Chipset	SoC	SoC	QM170	SoC
Memory	Technology	DDR3L 1333 MHz	DDR3L 1600 MHz	DDR4 2133MHz	DDR3L 1066/1333 MHz
	Max. Capacity	8 GB	8 GB	32 GB	8 GB
	Socket	1 x 204-pin SO-DIMM	1 x 204-pin SO-DIMM	2 x 260-pin SODIMM	1 x 204-pin SODIMM
Display	VGA	1 (up to 1600 x 1200)	1 (up to 1920 x 1200)	-	1 (up to 1600 x 1200)
	DDI (HDMI/DVI/ DisplayPort)	1 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 4K at 24 Hz	2 x lockable HDMI, up to 1080P	1 x lockable HDMI, up to 1080P
	Multiple Display	Dual	Dual	Dual	Dual
Expansion Interface	MiniPCIe / M.2	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders
	SIM socket	2	2	2 (accessible)	2
Other	GPS	-	-	-	Supports GPS, GLONASS, GALILEO and OZSS signals
	G-Sensor	-	-	-	Optional
	PoE	4 x 10/100 Mbps PoE	4 x 10/100 Mbps PoE	Optional extended modules 4/8 GbE PoE (M12 D/X-coded)	4 x 10/100 Mbps PoE (E3845)
	CANBus	-	-	optional	optional
Ethernet	Controller	GbE 1: Intel I210-IT GbE 2: Intel I210-IT	GbE 1: Intel I218 GbE 2: Intel I210-IT	GbE 1: Intel i219 GbE 2: Intel i210	GbE 1: Intel I210-IT GbE 2: Intel I210-IT
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)
	3G Voice	-	-	-	1 x Line-out, 1 x Mic-in
WatchDog Timer		Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in extended modules	1 x 2.5" removable drive bay
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	1	2	3	1
	USB 2.0	3	2	-	3
	GPIO	6 x DI & 2 x DO with isolation	6 x DI & 2 x DO with isolation	4 x DI & 4 x DO with isolation	6 x DI & 2 x DO with isolation
	COM Port	2 x (RS-232/422/485)	2 x (RS-232/422/485)	3 x RS-232/422/485	2 x isolated RS-232/422/485 2 x RS-232/422/485 (E3825) 2 x RS-232/422/485 (E3845)
	LAN	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Power	Power Supply Voltage	9 ~ 36 V_{DC} w/ isolation	9 ~ 36 V_{DC} w/ isolation	12 ~ 24 V_{DC} w/ isolation	9 ~ 36 V_{DC} w/power ignition management
	Connector	3-pin Phoenix	3-pin Phoenix	5-pin Phoenix	3-pin Phoenix
	Power Adaptor	AC to DC, 19 V_{DC}, 120W	AC to DC, 19 V_{DC}, 120W	AC to DC, 24Vdc, 150W	AC to DC, 19 V_{DC}, 120W
	Regulation	-	-	-	ISO 7637-2 lev.4
Environment	Operating Temperature (air flow 0.7 m/sec)	-30 ~ 60 °C (-22 ~ 140 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 70 °C (-4 ~ 158 °F)	-30 ~ 70 °C (-22 ~ 158 °F) (E3825) -30 ~ 60 °C (-22 ~ 140 °F) (E3845)
	Vibration Resistance	IEC 60068-2-64	IEC 60068-2-64	MIL-STD 810G, Method 514.6	IEC 60721-3-5 Class 5M3
	Shock Protection	IEC 60068-2-27	IEC 60068-2-27	MIL-STD 810G, Method 514.6	IEC 60721-3-5 Class 5M3
Physical Characteristics	Dimensions (W x H x D)	264 x 69.2 x 133 mm (10.3 x 2.72 x 5.2 in)	264 x 75.1 x 133 mm (10.3 x 2.95 x 5.2 in)	260 x 73 x 160 mm (10.2 x 2.8 x 6.29 in) 260 x 99.6 x 160 mm (10.2 x 3.84 x 6.29 in) with 2nd stack	264 x 69.2 x 133 mm (10.3 x 2.72 x 5.2 in)
Operating System	Microsoft Windows	Yes (Win7, 10)	Yes (Win7, 10)	Yes (Win7, 10)	Yes (Win7, 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (by Project)
APIs	WISE-PaaS/DeviceOn	Yes	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class A, CCC, BSMI
	Safety Certifications	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI	CB, UL, CCC, BSMI, NEMA TS2	UL, CCC, BSMI, CB, E-Mark

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

Intelligent Transportation Solutions

NEW

Application		In-Vehicle			Rolling Stock	
Model Name		ARK-2151V	ARK-2250V	TS-206	ARK-2231R	ARK-2250R
Processor System	CPU	4th Gen Intel® Celeron® 2980U/Core i5-4300U	6th Gen Intel® Core™ i5-6442EQ/i7-6822EQ	6th Gen Intel® Core™ i5-6300U/ i7-6600U	Intel Atom® E3845	6th Gen Intel® Core™ i5-6442EQ/i7-6822EQ
	Frequency	1.6 GHz / 1.9 GHz	1.9GHz/2.0GHz	2.4GHz/2.6GHz	1.91GHz	1.9GHz/2.0GHz
	Core Number	2	4	2 / 2	4	4
	BIOS	AMI EFI 128 Mbit	AMI UEFI 128 Mbit	AMI UEFI 128Mbit	AMI EFI 64-bit	AMI UEFI 128 Mbit
	Chipset	SoC	QM170	SoC	SoC	QM170
Memory	Technology	DDR3L 1333/1600 MHz	DDR4 2133MHz	DDR3L 1600MHz	DDR3L 1333	DDR4 2133MHz
	Max. Capacity	8 GB	32G	16GB	8G	32G
	Socket	1 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 204-pin SODIMM	1 x 204-pin SODIMM	2 x 260-pin SODIMM
Display	VGA	1 (up to 1920 x 1200)	1 (up to 1920 x 1200)	1(Up to 1920 x 1200)	1 (up to 2560 x 1600)	-
	DDI (HDMI/DVI/ DisplayPort)	1 x lockable HDMI, up to 4K at 24 Hz	1 x lockable HDMI, up to 1080P	1x lockable HDMI,Up to 1080P	1 x lockable HDMI, up to 1080P	2 x lockable HDMI, up to 1080P
	Multiple Display	Dual	Dual	Dual	Dual	Dual
Expansion Interface	MiniPCIe / M.2	1 x Half-size Mini PCIe 1 x Full-size Mini PCIe 2 x Full-size Mini PCIe w/SIM holders	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders	2 x Full-size Mini PCIe, 2 x Full-size Mini PCIe w/SIM holder	1 x Full-size Mini PCIe 1 x Full-size Mini PCIe 1 x Full-size Mini PCIe w/SIM holder	1x M.2 (2230 E Key) 2 x Full-size Mini PCIe w/SIM holders
	SIM socket	2	2 (accessible)	3	1 (accessible)	2 (accessible)
Other	GPS	Support GPS, GLONASS, GALILEO and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals	Optional	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals	Support GPS, GLONASS, GALILEO, BeiDou and QZSS signals
	G-Sensor	Optional	Optional	Optional	Optional	Optional
	PoE	4 x 10/100 Mbps PoE (4300U)	Optional extended modules 4/8 GbE PoE (M12 D/X-coded)	4 x 10/100 Mbps PoE (6600U)	Optional extended modules 4/8 GbE PoE (M12 D/X-coded)	Optional extended modules 4/8 GbE PoE (M12 D/X-coded)
	CANBus	optional	optional	Optional	optional	optional
Ethernet	Controller	GbE 1: Intel I218 GbE 2: Intel I210-IT	GbE 1: Intel i219 GbE 2: Intel i210	GbE1: Intel I219LM, GbE2: Intel I210-IT	GbE 1: Intel I210-IT GbE 2: Intel I210-IT	GbE 1: Intel i219 GbE 2: Intel i210
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	Connector	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	3 (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)	DB9 (Line-in, Line-out, Mic-in)
	3G Voice	1 x Line-out, 1 x Mic-in	-	1 x Line-out, 1 x Mic-in	-	-
WatchDog Timer		Yes	Yes	Yes	Yes	Yes
Storage	SATA	1 x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in extended modules	1x 2.5" removable drive bay	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in extended modules	1 x 2.5" removable drive bay Optional 2nd 2.5" drive bay in extended modules
	mSATA	1 x Full-size mSATA	1 x Full-size mSATA	1x Full-size mSATA	1 x Full-size mSATA	1 x Full-size mSATA
I/O	USB 3.0	2	3	2	1 (Water-proof)	1 (Type A female)
	USB 2.0	2	-	2	2 (M12 A-Coded)	2 (M12 A-Coded)
	GPIO	6 x DI & 2 x DO with isolation	4 x DI & 4 x DO with isolation	6xDI & 2xDO with isolation	1 x 8bit DIO	1 x 8bit DIO
	COM Port	2 x isolated RS-232/422/485 2 x RS-232/422/485 (2980U) 2 x RS-232/422/485 (4300U)	3 x RS-232/422/485	2x isolated RS-232/422/485, 2x RS-232/422/485 (6300U), 2x RS-232/422/485 (6600U)	2 x RS-232/422/485	2 x RS-232/422/485
	LAN	2 x RJ45	2 x RJ45	2 x RJ45	2 x M12 X-code	2 x M12 X-code
Power	Power Supply Voltage	9 ~ 36 V_{DC} w/power ignition management	12/24 V_{DC} w/power ignition management	12/24Vdc w/power ignition management	24 V_{DC} (48 V_{DC}, 72 V_{DC}, 110 V_{DC} optional)	24 V_{DC} (48 V_{DC}, 72 V_{DC}, 110 V_{DC} optional)
	Connector	3-pin Phoenix	5-pin Phoenix	3-pin Phoenix	M12 A-coded	M12 A-coded
	Power Adaptor	AC to DC, 19 V_{DC}, 120W	AC to DC, 24Vdc, 150W	AC to DC, 24Vdc, 150W	AC to DC, 24Vdc, 180W	AC to DC, 24Vdc, 180W
	Regulation	ISO 7637-2 lev.4	ISO 7637-2 Lev.4	ISO 7637-2 lev.4	EN50155 S2&C1	EN50155 S2&C1
Environment	Operating Temperature (air flow 0.7 m/sec)	-20 ~ 60 °C (-4 ~ 140 °F)	-20 ~ 70 °C (-4 ~ 158 °F)	-20 ~ 60 °C (-4 ~ 140 °F)	-40 ~ 70 °C (-40 ~ 158 °F) (EN50155 TX)	-40 ~ 70 °C (-40 ~ 158 °F) (EN50155 TX)
	Vibration Resistance	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC 60721-3-5 Class 5M3	IEC61373 Category1, Class B	IEC61373 Category1, Class B
	Shock Protection	IEC 60721-3-5 Class 5M3	IEC 60721-3-5 Class 5M3, MIL-STD 810G	IEC 60721-3-5 Class 5M3	IEC61373 Category1, Class B	IEC61373 Category1, Class B
Physical Characteristics	Dimensions (W x H x D)	264 x 75.1 x 133 mm (10.3 x 2.95 x 5.2 in)	260 x 73 x 160 mm (10.2 x 2.8 x 6.29 in) 260 x 99.6 x 160 mm (10.2 x 3.92 x 6.29 in) with extension module	264 x 76.1 x 133 mm (10.3 x 2.99 x 5.2 in)	260 x 57 x 160 mm (10.2 x 2.24 x 6.29 in) 260 x 83.6 x 160 mm (10.2 x 3.29 x 6.29 in) with extension module	260 x 73 x 160 mm (10.2 x 2.8 x 6.29 in) 260 x 99.6 x 160 mm (10.2 x 3.92 x 6.29 in) with extension module
Operating System	Microsoft Windows	Yes (Win7, 10)	Yes (Win7, 10)	Yes (Win 7, 10)	Yes (Win7, 10)	Yes (Win7, 10)
	Linux	Yes (by Project)	Yes (by Project)	Yes (by Project)	Yes (By project)	Yes (By project)
APIs	WISE-PaaS/DeviceOn	Yes	Yes	Yes	Yes	Yes
Certification	EMC	CE/FCC Class A, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC Class B, CCC, BSMI	CE/FCC, CCC, BSMI, EN50121-3-2	CE/FCC, CCC, BSMI, EN50121-3-2, EN50121-4
	Safety Certifications	UL, CCC, BSMI, CB, E-Mark	CB, UL, CCC, BSMI, E-Mark	UL, CCC, BSMI, CB, E-Mark	UL, CCC, BSMI, CB, EN50155	UL, CCC, BSMI, CB, EN50155

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

Gaming Computing Platforms

Standalone Series

Model Name		DPX®-S2450	DPX®-S450	DPX®-S2445	DPX®-S445
Form Factor		DPX® Gaming System	DPX® Gaming Board	DPX® Gaming System	DPX® Gaming Board
Processor System	CPU	AMD Ryzen™ Embedded V1000/R1000 APU		Intel® 6th / 7th Generation Core™- i	
	Socket	BGA		LGA 1151	
	Max. Speed	3.35 (3.8) GHz		2.9 GHz (3.8) GHz	
	TDP	45W		54W	
	Chipset	SoC		Q170	
	BIOS	AMI APTIO UEFI (Gaming optimised)		AMI APTIO UEFI (Gaming optimised)	
Expansion Slot	PCI	-		-	
	Mini PCIe / mSATA	-		-	
	PCIe	PCIe x 16 (x8 signal)		PCIe x 16	
	MXM	-		-	
Memory	Technology	Dual Channel DDR4 3200MHz		Dual Channel DDR4 2400MHz	
	Max. Capacity	32GB		32GB	
	Socket	2x SODIMM		2x SODIMM	
Graphics	Controller	in APU (AMD Radeon™ VEGA series graphics engine)		in CPU (Intel GT2-530)	
	VGA	-		-	
	DVI	-		-	
	DP	4		3	
	HDMI	-		-	
Ethernet	LAN1	GbE		GbE	
	LAN2	GbE		GbE	
Storage	SATA	2		2	
	CompactFlash	-		-	
	Cfast	2		-	
	M.2	1		-	
I/O	VGA/DVI/HDMI/DP	0/0/0/4		0/0/0/3	
	Ethernet	2		2	
	USB 2.0	8		9	
	USB 3.0	3		2	
	Audio	1 (ch5.1), SPDIF		1 (ch5.1), SPDIF	
	Serial Port	10		10	
	Serial Type RS232/ Cctalk/TTL/485	9/2/2/1		10/2/2/1	
Gaming Hardware	SRAM	8MB		8MB	
	ROM Sockets	SPI ROM module		SPI ROM module	
	TPM	TPM 2.0/1.2		TPM 2.0/1.2	
	Audio Amplifier	15W+15W+15W (FL,FR, LFE)		15W+15W+15W (FL,FR, LFE)	
	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	
	SecureBoot	Optional		Optional	
Other Features		I2C, Precision RTC, ATX or 12VDC power		I2C, Precision RTC, ATX or 12VDC power	

Gaming Computing Platforms

Economy Series

Model Name		DPX®-E145	DPX®-E140	DPX®-E265	DPX®-E1265
Form Factor		DPX® Gaming System	DPX® Gaming System	Extended Mini-ITX	DPX® Gaming System
Processor System	CPU	11th Generation Intel® Core™ SOC CPU	AMD Ryzen™ Embedded V1000 APU	AMD Ryzen™ Embedded V1000 APU	
	Socket	BGA	BGA	BGA	
	Max. Speed	2.8 (4.4) GHz	3.35 (3.8) GHz	3.35 (3.8) GHz	
	TDP	28W (passive cooled)	15-25W (passive cooled), 54W (fan)	54W	
	Chipset	SoC	SoC	SoC	
	BIOS	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	AMI APTIO UEFI (Gaming optimised)	
Expansion Slot	PCI	-	-	-	
	Mini PCIe / mSATA	-	-	-	
	PCIe	-	-	PCIe x16 (x8 signal), 2 PCI-e x1 (via side expansion)	
	MXM	-	-	-	
Memory	Technology	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR4 3200MHz	
	Max. Capacity	32GB	32GB	32GB	
	Socket	2x SODIMM	2x SODIMM	2x SODIMM	
Graphics	Controller	in CPU (Intel Iris Xe integrated graphics engine)	in APU (AMD Radeon™ VEGA series graphics engine)	in APU (AMD Radeon™ VEGA series graphics engine)	
	VGA	-	-	-	
	DVI	-	-	-	
	DP	4	4	4	
	HDMI	-	-	-	
Ethernet	LAN1	GbE	GbE	GbE	
	LAN2	GbE	GbE	GbE	
Storage	SATA	2	2	2	
	CompactFlash	-	-	-	
	Cfast	2	2	2	
	M.2	1	1	1	
I/O	VGA/DVI/HDMI/DP	0/0/0/4	0/0/0/4	0/0/0/4	
	Ethernet	2	2	2	
	USB 2.0	6	7	6 (2 via side expansion)	
	USB 3.0	3	2	3	
	Audio	1 (ch5.1), SPDIF	1 (ch5.1), SPDIF	1 (ch2.1)	
	Serial Port	9	9	6	
	Serial Type RS232/ Cctalk/TTL/485	4/2/1/1	4/2/1/1	6/1/1/1	
Gaming Hardware	SRAM	8MB	8MB	-	
	ROM Sockets	SPI ROM module	SPI ROM module	SPI ROM module	
	TPM	TPM 2.0/1.2	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	1	
	iButton® / GPIO	2	2	-	
	DPCI Expansion	-	-	-	
	Watchdog Timer	1	1	1	
	Dual BIOS	-	-	-	
Gaming Software	DPCI Advanced Gaming API & Runtime	Standard	Standard	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	
	SecureBoot	Optional	Optional	Optional	
Other Features		ATX or 12VDC power	ATX or 12VDC power	ATX or 12VDC power Side expansion for M series modules	

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

Gaming Computing Platforms

Modular Series

Model Name		DPX®-M270	DPX®-M1270
Form Factor		Extended Mini-ITX	DPX® Multimedia Gaming System
Processor System	CPU	Intel® 8th & 9th Gen. Core™-i7/i5/i3	
	Socket	LGA1151	
	Max. Speed	3.2(4.6) GHz	
	TDP	65W	
	Chipset	Q370/H310	
	BIOS	AMI UEFI SPI with Secureboot support	
Expansion Slot	PCI	-	
	Mini PCIe / mSATA	-	
	PCIe x 16	PCIe x16 Gen3	
	Side Expansion Port	2 PCIe x1, 2(1) USB, I2C, Control	
	MXM	-	
Memory	Technology	Dual Channel DDR4 2666 MHz SDRAM (Non-ECC)	
	Max. Capacity	32 GB/ 16 GB per SO-DIMM	
	Socket	2 x 260 PIN DDR4 SO-DIMM	
Graphics	Controller	Intel UHD Graphics 630 / Intel HD Graphics 615"	
	VGA	-	
	DVI	-	
	DP	2	
	HDMI	1	
Ethernet	LAN1	GbE	
	LAN2	GbE	
Storage	SATA	2	
	CompactFlash	-	
	Cfast	-	
	M.2	1	
I/O	VGA/DVI/HDMI/DP	0/0/1/2	
	Ethernet	2	
	USB 2.0	10 (Q370. 2 via side expansion) / 6 (H310. 1 via side expansion)	
	USB 3.0	4	
	Audio	6-Way header (Line-out (FL, FR, LFE), SPDIF_Out)	
	Serial Port	2 x DB-9 RS-232 full signal, supports 9 bit data)	
	Serial Type RS232/ Cctalk/TTL/485	6/1/1/0	
Gaming Hardware	SRAM	-	
	ROM Sockets	-	
	TPM	TPM2.0	
	Audio Amplifier	-	
	Digital Inputs	-	
	Digital Outputs	-	
	Intrusion Inputs	5 (4 via side expansion)	
	iButton® / GPIO	-	
	DPCI Expansion	-	
	Watchdog Timer	1	
	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	
	SecureBoot	Optional	
Other Features		12VDC power	

Note 1: "-" : means Not Applicable (N/A)
Note 2: (3 simultaneous for Q370, 2 simultaneous for H310)

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
I/O	VGA/DVI/HDMI/DP	1/0/1/1
	Ethernet	2
	USB 2.0	4
	USB 3.0	2
	Audio	1 (ch5.1), SPDIF (Option)
	Serial Port	6
	Serial Type RS232/ Cctalk/TTL/485	3/2/0/1
Gaming Hardware	SRAM	-
	ROM 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
	SecureBoot	Optional
Other Features		12V DC for V1605, 5V/ 12V JAMMA input for R series

Industrial Wireless Solutions

4G LTE CAT4

ADVANTECH AIWireless
Advantech Industrial Wireless

Model Name	AIW-344		
Part Number	AIW-344FQ-N01	AIW-344FQ-E01	AIW-344FQ-J01
Form Factor	mini PCI-e FMC	mini PCI-e FMC	mini PCI-e FMC
SIM Slot	no	no	no
Radio Technology	CAT4	CAT4	CAT4
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
Main Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07	Qualcomm MDM9X07
Operating Temperature	Extended: -40 ~ 85 °C (-40 ~ 185 °F)	Extended: -40 ~ 85 °C (-40 ~ 185 °F)	Extended: -40 ~ 85 °C (-40 ~ 185 °F)
Signal Protocol	USB 2.0	USB 2.0	USB 2.0
Support Area	US	EU	JP

NEW

Model Name	AIW-346	
Part Number	AIW-346 FQ-N01	AIW-346 FQ-N02
Form Factor	Full-size Mini PCIe	M.2 3052
SIM Slot	Yes	Yes
Radio Technology	LTE CAT4+GPS	LTE CAT4+GPS
Downlink/ Uplink	FDD LTE Max150Mbps(DL) / 50Mbps(UL)	FDD LTE Max150Mbps(DL) / 50Mbps(UL)
Frequency Band	4G LTE bands: 2/4/5/12/13/14/66/71 WCDMA bands: 2/4/5	4G LTE bands: 2/4/5/12/13/14/66/71 WCDMA bands: 2/4/5
Main Chipset	Qualcomm MDM9X07	Qualcomm MDM9X07
Operating Temperature	-30~80C (-22~176F) (Operating)	-30~80C (-22~176F) (Operating)
Signal Protocol	USB 2.0	USB 2.0
Support Area	US	US

Industrial Wireless Solutions

ADVANTECH AIWireless
Advantech Industrial Wireless

5G

NEW

Model Name	AIW-355		
Part Number	AIW-355DQ-N01	AIW-355DQ-E01	AIW-355DQ-C01
Form Factor	M.2 3052 B-key	M.2 3052 B-key	M.2 3052 B-key
SIM Slot	no	no	no
Radio Technology	5G NR SUB6/LTE FDD/LTE TDD/WCDMA	5G NR SUB6/LTE FDD/LTE TDD/WCDMA	5G NR SUB6/LTE FDD/LTE TDD/WCDMA
Downlink/Uplink	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps	Max DL peak rate 4.1 Gbps DL 4*4 NR Sub6 EN-DC Max UL peak rate 525Mbps
Frequencey Band	NR: n2, n5, n7, n12, n14, n25, n41, n48, n66, n71, n78 LTE FDD: Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 29, 30, 66, 71 LTE TDD: Band 41, 42, 43, 48 LAA Band 46 Receiver only WCDMA: B1, 2, 4, 5, 8 GNSS: Support GPS, GLONASS, BDS, Galileo, QZSS	NR: n1,n3,n5,n8,n20, n28, n38,n41, n77, n78, n79 LTE FDD: Band 1,3,5,7,8,19,20,28 LTE TDD: Band 38,40,41,42,43 WCDMA: B1, 3, 5, 8,19 GNSS: support GPS, GLONASS, Galileo, BDS, QZSS	NR: n1, n28, n41, n77, n78, n79 LTE FDD: Band 1,2,3,5,7,8 LTE TDD: Band 34,39,40,41 WCDMA: B1, 2, 5, 8 GNSS: support GPS, GLONASS, Galileo, BDS, QZSS
Main Chipset	Qualcomm SDX55	Qualcomm SDX55	Qualcomm SDX55
Operating Temperature	-30 ~ 75 °C (-22 ~ 167 °F)	-30 ~ 75 °C (-22 ~ 167 °F)	-30 ~ 75 °C (-22 ~ 167 °F)
Signal Protocal	USB 3.0/3.1	USB 3.0/3.1	USB 3.0/3.1
Support Area	US	EU	China

5G Antenna

Part Number	1750009372-01
Size(cm)	16.7*2.5
Support frequency	5G(sub 6GHz) dipole antenna
Antenna gain	1.78 dBi @ 699~ 960MHz 3.27 dBi @ 1710~2700MHz 0.18 dBi @ 3300 MHz 4.02 dBi @ 5150~5850MHz
Polarization	Linear
Connector	SMA Male
Impedance	50 ohm

Wi-Fi 6

NEW

Model Name	AIW-166K1/K2
Part Number	AIW-166K1/K2
Form Factor	M.2 2230 A-E key
Wireless Standard	802.11 a/b/g/n/ac/ax+BT5.2
Chipset	6E AX210 (no-Vpro/Vpro)
Signal Protocol	PCI-e/USB 2.0
Antenna	2 x antennas
Operating Voltage	3.3V
Temperature Range	0 ~ 70 °C (32 ~ 158 °F)
Dimensions (LxWxH)	22 x 30 x 2.2 mm (.86 x 1.18 x .086 in)
Security	WPA2*; WPA3* Authentication Protocols 802.1x EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0 -MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA') Encryption 128-bit AES-CCMP, 56-bit AES-GCMP
SISO/MIMO	MIMO
Data Rate	1201Mbps in 802.11ax
Bluetooth	BT 5.2
O.S Supported	Linux / Windows 10/ Chrome OS
Host Connector Type	M.2 2230

Industrial Wireless Solutions

ADVANTECH AIWireless
Advantech Industrial Wireless

Wi-Fi and Bluetooth Combo

Model Name	AIW-154	EWM-W162	EWM-W159	EWM-W193	AIW-165
Part Number	AIW-154BN	EWMm-W162M201E	EWM-W159M201E	EWM-W193H01E	EWM-W159M201E
Form Factor	M.2 2230 A-E key	M.2-2230 (A-E key)	M.2 2230 (A-E Key)	M.2 2830 A-E key	M.2 2830 A-E key
Wireless Standard	802.11 ac + BT 5.0	802.11 ac/a/b/g/n + BT 4.2	802.11ac+ BT5.0	802.11 ac + BT 5.0	802.11ax + BT5.3
Chipset	NXP 88W8997	88W8897	RTL 8822CE-CG	RTL8822CE-CG	NXP 88W9098
Signal Protocol	PCIe/UART	Wi-Fi: PCIe BT: USB Differential	Wi-Fi: PCIe BT: USB Differential	Wi-Fi: PCIe BT: USB Differential	PCIe / UART
Antenna	2 x IPEX MHF 4 connectors	2 x I-PEX MHF4 connectors	2 x I-PEX MHF4 connectors	2 x MHF4 connectors	3 x I-PEX MHF4 connectors
Operating Voltage	3.3V	DC 3.3V ± 5%	DC 3.3V ± 5%	DC 3.3V+-5%	3.3V
Temperature Range	-30 ~ 85 °C (- 22 ~ 158 °F)	-30 ~ 85 °C (-22 ~ 185 °F) (Operating)	Extended operating temperature: 0~70°C (32~158°F)	-30 ~ 85 °C (-22 ~ 185 °F) (Operating)	-40 ~ 85 °C (-40 ~ 185 °F)
Dimensions (L x W x H)	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	26.6 x 29.8 x 2.7 mm /1.09 x 1.17 x 2.75 in	28 x 30 x 3.95 mm (1.10 x 1.18 x 0.15 in)
Security	WAPI WEP 64-bit and 128-bit encryption with H/W TKIP processing WPA/WPA2/WPA3 (Wi-Fi Protected Access)	64/128-bit WEP, WPA, WPA2, 802.1x, TKIP and AE	WAPI, 64/ 128-bit WEP, WPA/WPA2 TKIP and AES	WAPI, 64/ 128-bit WEP, WPA/WPA2 TKIP and AES	WPA/WPA2 (Wi-Fi Protected Access) / WAPI / WEP 64-bit with H/W TKIP
SISO/MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO	2T2R MIMO
Data Rate	867Mbps	867Mbps	867Mbps	867Mbps	1.2 Gbps
O.S Supported	Linux	Windows 10 & Linux	Windows 10 & Linux	Windows 10 & Linux	Linux

Wireless Kit

Model Name	EWM-W192		
Part Number	EWM-W192K1	EWM-W192K2	EWM-W192K5
Form Factor	M.2 2230 A-E key	M.2 2230 A-E key	M.2 2230 A-E key
Wireless Standard	802.11 a/b/g/n/ac+BT5.0	802.11 a/b/g/n/ac+BT5.0	802.11 a/b/g/n/ac+BT5.0
Chipset	Intel® AC9260(no vPro)	Intel® AC9260(supports Intel vPro)	Intel® AC9260(no vPro)
Signal Protocol	PCI-e/USB 2.0	PCI-e/USB 2.0	PCI-e/USB 2.0
Antenna	2 x antenna	2 x antenna	2 x antenna
Operating Voltage	3.3V	3.3V	3.3V
Temperature Range	0 ~ 70 °C (32 ~ 158 °F)	0 ~ 70 °C (32 ~ 158 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Dimensions (LxWxH)	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in	22 x 30 x 2.2 mm/.86 x 1.18 x .086 in
Security	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA, EAP-AKA') 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA, EAP-AKA') 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP,EAP-SIM, EAP-AKA, EAP-AKA') 64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 128-bit and 256-bit AES-GCMP Wi-Fi Direct* Encryption and Authentication WPA2-PSK, AES-MIMO
SISO/MIMO	MIMO	MIMO	MIMO
Data Rate	802.11ac:up to1200 Mbps	802.11ac:up to1200 Mbps	802.11ac:up to1200 Mbps
O.S Supported	Windows 10	Windows 10	Windows 10
Package	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2	Intel AC9260 dual band 802.11AC 2*2 WiFi/BT5.0 M.2 2230 module card*1+ cables*2+certification ready dipole antenna*2

Industrial Wireless Solutions

GPS

Model Name	EWM-G109	EWM-G110
Part Number	EWM-G109H01E	EWM-G110H01E
Form Factor	Half Size Mini PCI-e	Half Size Mini PCI-e
GPS Type	Hardware standalone	Hardware standalone
Signal Protocol	USB	USB
Chipset	NEO-M8N	NEO-M8U+3D inertial sensors
Operating Temperature	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
RF Receiver Type	GPS module, multi-GNSS (GPS, Beidou, GLONASS, Galileo, QZSS and SBAS)	GPS module, multi-GNSS (GPS, Beidou, GLONASS, Galileo, QZSS and SBAS)
GPS Acquisition	Cold starts: 26s / Aided starts: 2	Cold starts: 26s / Aided starts: 2
GPS Accuracy	Aided starts: 2	Aided starts: 2
GPS Sensitivity	Tracking: -167 dBm / Cold starts: -148 dBm / Reacquisition: -160 dBm	Tracking: -167 dBm / Cold starts: -148 dBm / Reacquisition: -160 dBm

Optional Antenna Selection

Part Number	1750008717-01	1750008303-01
Dimensions	10.9 x 1 cm/4.29 x .393 in	16.7 x 2.5 cm/6.57 x 0.98 in
Support Frequency	Wi-Fi dual band antenna (2.4Ghz and 5Ghz)	4G LTE dipole antenna
Antenna Gain	2.89 dBi @ 2.4-2.5GHZ 3.58dBi @ 5.15-5.85GHz	0.9 dBi @ 700 ~ 960 MHz 2.0 dBi @ 1710 ~ 2700 MHz
Polarization	Linear	Linear
Connector	RP-SMA male	SMA Male
Impedance	50 ohm	50 ohm

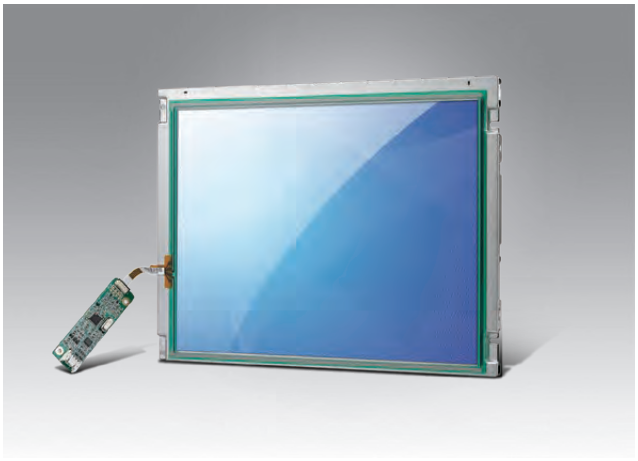
Wi-Fi Extension Cable

Part Number	1750008767-01
Length (cm)	150 cm/59 in
Cable Type	Wi-Fi cable
Cable Loss	0.62dB@2500MHz for 1Meter
Polarization	Linear
Connector	SMA(F)/SMA(M)
Impedance	50 ohm

Industrial Display Systems

IDK-1000

Industrial Touch LCD Kits



Features

- 5.7"~28" industrial grade LCD kits with LED backlight
- Suitable for indoor applications
- LVDS signal interface
- Resistive/Projected Capacitive touchscreen support
- Touch controller included with USB cable
- Full compatibility with embedded boards

RoHS COMPLIANT 2002/95/EC

Specifications

		IDK-1105	IDK-065	IDK-1107			IDK-1108	IDK-1110W		IDK-1110			IDK-1112		IDK-1115WP		IDK-1115		IDK-1119	IDK-1121	
LCD Display	Size	5.7"	6.5"	7"			8.4"	10.1"		10.4"			12.1"		15.6"		15"		19"	21.5"	
	Resolution	640x480 (VGA)	640x480 (VGA)	800x480 (WVGA)	800x480 (WVGA)	1024x600 (WSVGA)	800x600 (SVGA)	1024x600 (WSVGA)	1280x800 (WXGA)	800x600 (SVGA)	1024x768 (XGA)	1024x768 (XGA)	800x600 (SVGA)	1024x768 (XGA)	1366x768 (HD)	1920x 1080 (FHD)	1024x768 (XGA)	1024x768 (XGA)	1280x 1024 (SXGA)	1920x 1080 (FHD)	1920x 1080 (FHD)
	Brightness (cd/m2)	500	800	400	400	500	450	500	500	400	500	500	450	500	500	450	500	500	350	300	250
	Colors	262K	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K	262K / 16.2M	262K / 16.2M	16.2M	16.2M	262K / 16.2M	262K / 16.2M	262K	16.2M	262K / 16.2M	262K / 16.2M	16.7M	16.7M	16.7M
	Viewing Angle (H/V°)	140/100	160/140	178/178 (Full view)	178/178 (Full view)	150/140	160/140	120/140	170/170 (Full view)	160/130	176/176 (Full view)	176/176 (Full view)	160/140	178/178 (Full view)	160/150	170/170 (Full view)	178/178 (Full view)	178/178 (Full view)	170/160	178/178 (Full view)	178/178 (Full view)
	Contrast Ratio	250:1	600:1	750:1	700:1	600:1	600:1	500:1	800:1	700:1	1000:1	1000:1	700:1	1000:1	600:1	800:1	2500:1	2500:1	1000:1	5000:1	1000:1
	ResponseTime (ms)	50	25	25	25	25	30	25	25	20	25	25	35	25	11	25	23	23	5	25	14
	Signal Interface	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	2 Channel LVDS	LVDS	LVDS	2 Channel LVDS	2 Channel LVDS	2 Channel LVDS
	Backlight Type	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED
	Backlight Life (hrs)	30,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	30,000	50,000	50,000	70,000	70,000	50,000	50,000	30,000
	Power Consumption (W)	1.8	3.86	2.47	2.47	3.57	2.94	7.99	6.18	4.8	7.47	7.47	6.7	9.62	12.1	16	12.8	12.8	20.55	19.82	11.05
	Dimensions (mm)	127 x 98 x 8	153 x 118 x 11	170 x 110 x 6	170 x 110 x 6	165.5 x 104.44 x 8.97	203 x 143 x 8	235 x 146 x 8	231 x 153 x 7	243 x 184 x 7	225.5 x 176.3 x 8.7	225.5 x 176.3 x 8.7	279 x 209 x 9	261 x 240 x 8.4	364 x 216 x 9.3	364 x 216 x 9.3	327 x 254 x 9.1	327 x 254 x 9.1	396 x 324 x 18	497 x 292 x 13	498 x 292 x 11
	Weight (g)	200	170	182.8	182.8	160	250	320	360	365	320	320	580	490	720	1050	960	960	1670	2300	1685
Touchscreen	Touchscreen	4-Wire Resistive	4-Wire Resistive	4-Wire Resistive	P-cap	4-Wire Resistive	4-Wire Resistive	4-Wire Resistive	P-cap	4-Wire Resistive	4-Wire Resistive	P-cap	5-Wire Resistive	P-cap	P-cap	P-cap	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	P-cap
	Durability (touches)	1 million	1 million	1 million	50 million ~	1 million	1 million	1 million	50 million ~	1 million	1 million	50 million ~	10 million	50 million ~	50 million ~	50 million ~	10 million	50 million ~	10 million	10 million	50 million ~
	Surface Hardness	3H	3H	3H	Mohs 5H	3H	3H	3H	Mohs 5H	3H	3H	Mohs 5H	3H	Mohs 5H	Mohs 5H	Mohs 5H	3H	Mohs 5H	3H	3H	Mohs 5H
	Transparency	80%	82.50%	82.50%	90%	83%	82.50%	82.50%	91%	82.50%	82.50%	90%	80%	88%	87%	87%	80%	91%	80%	80%	91%
Environment	Operating Temperature (°C)	-20 ~ 70	-10 ~ 60	-5 ~ 60	-20 ~ 70	-20 ~ 70	-10 ~ 60	-5 ~ 60	-20 ~ 65	-10 ~ 60	-10 ~ 60	-20 ~ 70	-20 ~ 70	-20 ~ 70	-20~70	-20~70	-20 ~ 70	-20 ~ 70	0 ~ 50	0 ~ 60	0 ~ 50

Industrial Display Systems

IDK-2000

High Brightness Industrial LCD Kits

Features

- 8.4" ~ 21.5" industrial grade LCD kits with LED backlight
- 1200 nits for outdoor applications
- LVDS signal interface
- Resistive touch
- Auto-dimming light sensor (optional)
- Full compatibility with embedded boards

RoHS COMPLIANT 2002/95/EC

Specifications

		IDK-2108	IDK-2110		IDK-2112		IDK-2115	IDK-2117	IDK-2119	IDK-2121
LCD Display	Size	8.4"	10.4"		12.1"		15"	17"	19"	21.5"
	Resolution	800 x 600 (SVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)	800 x 600 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)	1280 x 1024 (SXGA)	1920 x 1080 (FHD)
	Brightness (cd/m^2)	1200	1200	1300	1200	1200	1200	1200	1200	1200
	Colors	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	262K / 16.2M	16.2M	16.7 M	16.7M
	Viewing Angle (H/V°)	160/140	160/130	170/170	160/140	178/178 (Full view)	178/178 (Full view)	170/160	170/160	178/178 (Full view)
	Contrast Ratio	600:1	500:1	700:1	700:1	1000:1	2000:1	1000:1	1000:1	5000:1
	ResponseTime (ms)	30	35	30	35	25	25	5	5	16
	Signal Interface	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	2 Channel LVDS	2 Channel LVDS	2 Channel LVDS
	Backlight Type	LED	LED	LED	LED	LED	LED	LED	LED	LED
	Backlight Life (hrs)	50,000	50,000	70,000	50,000	50,000	50,000	50,000	50,000	50,000
	Power Consumption (W)	5.85	7.1	16.05	8.92	18	18.12	19.12	35.42	46.8
	Dimensions (mm)	203.0 x 142.5 x 8.0	236.0 x 176.9 x 5.7	230 x 180.2 x 12.3	279 x 209.0 x 9.0	260.5 x 240 x 8.4	326.5 x 253.5 x 9.1	358.5 x 296.5 x	396 x 324 x 17.8	495.6 x 292.2 x 11.7
	Weight (g)	260	495	480	600	540	1060	1300	1770	2050
Touchscreen	Touchscreen	4-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive
	Durability (touches)	1 millions	1 million	1 million	10 million	50 million ~	10 million	10 million	10 million	10 million
	Surface Hardness	3H	3H	3H	3H	Mohs 5H	3H	3H	3H	3H
	Transparency	82.50%	82.50%	82.50%	80%	88%	80%	80%	80%	80%
Environment	Operating Temperature (°C)	-20 ~ 70	-10~60	-10~60	-20 ~ 70	-20 ~ 70	-20 ~ 70	0 ~ 50	0 ~ 50	0 ~ 55

Industrial Display Systems

IDS-3100

Open Frame Monitors

- 6.5" ~ 27" industrial grade LCD panel with LED backlight
- Slim open frame design with integrated bracket
- VGA/DVI/HDMI interfaces
- P-cap and resistive touch screen options
- Rear/VESA mount
- Optional high brightness solution
- Easy integration with embedded box PCs

FCC RoHS COMPLIANT 2002/95/EC CE

Specifications

Model		IDS-3106	IDS-3110				IDS-3112				IDS-3115			IDS-3117		IDS-3118W		IDS-3119	IDS-3121W		IDS-3127W	
LCD Display	Screen Size	6.5"	10.4"	10.4"	10.4"		12.1"	12.1"	12.1"		15"	15"	15"	17"	17"	18.5"		19"	21.5"		27"	
	Resolution	640 x 480 (VGA)	800 x 600 (SVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)		800 x 600 (SVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)		1024 x 768 (XGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)	1280 x 1024 (SXGA)	1366 x 768 (HD)		1280 x 1024 (SXGA)	1920 x 1080 (FHD)		1920 x 1080 (FHD)	
	Colors	16.2M	16.2M	16.2M	16.2M		16.2M	16.2M	16.2M		16.2M	16.7M	16.2M	16.7M	16.7M	16.7M		16.7M	16.7M		16.7M	
	Viewing Angle (H/V°)	160/140	160/130	160/140	176/176		160/140	160/140	160/140		176/176	176/176	176/176	170/160	170/160	170/160		170/160	178/178		178/178	
	Contrast Ratio	600:1	500:1	700:1	1000:1		700:1	700:1	700:1		2000:1	2500:1	2500:1	1000:1	800:1	1000:1		1000:1	1000:1		3000:1	
	Response Time (ms)	25	35	30	25		35	35	16		16	23	23	5	30	5		5	5		20	
	Brightness (cd/m²)	800	230	400	500		450	450	600		300	500/1200	500/1200	250	350	300		350	250		300	
	Backlight Type	LED	LED	LED	LED		LED	LED	LED		LED	LED	LED	LED	LED	LED		LED	LED		LED	
	Backlight Life	50,000	30,000	50,000	50,000		50,000	50,000	50,000		70,000	70,000	70,000	40,000	50,000	50,000		50,000	30,000		30,000	
	Dimensions (mm) (without touch)	215 x 160 x 32.1	279.4 x 220 x 30	279.4 x 220 x 30	279.4x220x30		320.2 x 252 x 30.7	320.2 x 252 x 30.7	320.2 x 252 x 30.7		362 x 288 x 32.8	362 x 288 x 32.8	362 x 288 x 32.8	400 x 344.7 x 33.4	400 x 344.7 x 33.4	478 x 303 x 33		438 x 369.7 x 34.3	546.6 x 299.2 x 45.5		619.6 x 362.3 x 19.6	
	Weight (kg) (without touch)	0.8	0.95	1	1		1.6	1.6	1.6		3.8	3.8	3.8	4.1	3.45	5		5.2	6		5.6	
Environment	Operating Temperature (°C)	0~50	0~45	-20~60	-20~60		0~45	-20~60	-20~60		0~45	-20~60	-20~60	0~45	-20~60	0~55		0~45	0~45		0~45	
	Storage Temperature (°C)	-20~60	-20~60	-30~70	-30~70		-20~60	-30~70	-30~70		-20~60	-30~70	-30~70	-20~60	-30~70	-20~60		-20~60	-20~60		-20~60	
	Humidity (non-condensing)	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C		5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C		5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	90% @ 40°C		5~95% @ 40°C	5~95% @ 40°C		5~95% @ 40°C	
Touchscreen (Optional)	Type	4-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	P-cap	Glass	P-cap
	Transparency	80%	81%	81%	81%	90%	80%	80%	80%	90%	80%	80%	89%	80%	80%	80%	86%	80%	80%	87%	90%	87%
	Surface Hardness	3H	3H	3H	3H	5H	3H	3H	3H	7H	3H	3H	5H	3H	3H	3H	6H	3H	3H	7H	6H	6H
System	I/O Ports	VGA x 1; DVI x 1; 12 V_{DC} Jack x 1; USB x 1 (USB is reserved for the connection to enable touch usage only)	VGA x 1; DVI x 1; 12 V_{DC} Jack x 1; USB x 1; RS-232 x 1 (USB & RS-232 are reserved for the connection to enable touch usage only)																		VGA x 1; DVI x 1; DP x 1, 12 V_{DC} Jack x 1; USB x 1; (USB is reserved for the connection to enable touch usage only)			
	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																				
	Power	36W power adapter, with AC 100 ~ 240V input and DC +12V @ 3A output									60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output											

Industrial Display Systems

IDS-3200

Panel Mount Monitors

Features

- 6.5" ~ 21.5" industrial grade LCD panel with LED backlight
- Rugged metal front frame design
- VGA/DVI/HDMI interfaces
- P-cap and resistive touch screen options
- Panel/VESA mount
- Optional high brightness solution
- Easy integration with embedded box PCs

FCC RoHS COMPLIANT 2002/95/EC CE

Specifications

Model		IDS-3206	IDS-3210		IDS-3212			IDS-3215			IDS-3217		IDS-3218W	IDS-3219	IDS-3221W	
LCD Display	Screen Size	6.5"	10.4"	10.4"	12.1"	12.1"	12.1"	15"	15"	15"	17"	17"	18.5"	19"	21.5"	
	Resolution	640 x 480 (VGA)	800 x 600 (SVGA)	800 x 600 (SVGA)	800 x 600 (SVGA)	800 x 600 (SVGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1024 x 768 (XGA)	1280 x 1024 (SXGA)	1280 x 1024 (SXGA)	1366 x 768 (HD)	1280 x 1024 (SXGA)	1920 x 1080 (FHD)	
	Colors	16.2M	16.2M	16.2M	16.2M	16.2M	16.2M	16.2M	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M	16.7M	
	Viewing Angle (H/V°)	160/140	160/130	160/140	160/140	160/140	160/140	176/176	176/176	176/176	170/160	170/160	170/160	170/160	178/178	
	Contrast Ratio	600:1	500:1	700:1	700:1	700:1	700:1	2000:1	2500:1	2500:1	1000:1	800:1	1000:1	1000:1	1000:1	
	Response Time (ms)	25	35	30	35	35	16	16	23	23	5	30	5	5	5	
	Brightness (cd/m²)	800	230	400	450	450	600	300	500	500	250	350	300	350	250	
	Backlight Type	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	
	Backlight Life	50,000	30,000	50,000	50,000	50,000	50,000	70,000	70,000	70,000	40,000	50,000	50,000	50,000	30,000	
	Dimensions (mm)	219 x 171.8 x 37.66	290.2 x 237.64 x 35.1	290.2 x 237.64 x 35.1	323.7 x 262.4 x 36.5	323.7 x 262.4 x 36.5	323.7 x 262.4 x 36.5	365 x 291 x 38	365 x 291 x 38	365 x 291 x 39.2	425 x 357.5 x 39	425 x 357.5 x 39	482 x 307 x 39.2	449.7 x 374.4 x 40.4	551 x 341.6 x 51.7	
	Weight (kg) (without touch)	1.2	1.95	2	3	3	3	4.8	4.3	4.5	4.45	4.85	5	6	6.2	
Environment	Operating Temperature (°C)	0~50	0~45	-20~60	0~45	-20~60	-20~60	0~45	-20~60	-20~60	0~45	-20~60	0~55	0~45	0~45	
	Storage Temperature (°C)	-20~60	-20~60	-30~70	-20~60	-30~70	-30~70	-20~60	-30~70	-30~70	-20~60	-30~70	-20~60	-20~60	-20~60	
	Humidity (non-condensing)	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	5~95% @ 40°C	
Touchscreen (Optional)	Type	4-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	P-cap	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive / P-cap (two columns)	5-Wire Resistive	5-Wire Resistive	P-cap
	Transparency	80%	81%	81%	80%	80%	80%	90%	80%	80%	89%	80%	80%	80% / 86% (two columns)	80%	80%	87%
	Surface Hardness	3H	3H	3H	3H	3H	3H	7H	3H	3H	5H	3H	3H	3H / 6H (two columns)	3H	3H	7H
System	I/O Ports	VGA x 1; DVI x 1; 12 V_{DC} Jack x 1; USB x 1 (USB is reserved for the connection to enable touch usage only)	VGA x 1; DVI x 1; 12 V_{DC} Jack x 1; USB x 1; RS-232 x 1 (USB & RS-232 are reserved for the connection to enable touch usage only)													
	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														
	Power	36W power adapter, with AC 100 ~ 240V input and DC +12V @ 3A output						60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output								

Industrial Display Systems

IDS-3300 Series

Features

- Front IP65 for waterproof and dustproof
- 5-wire resistive and P-cap touch screen solution or tempered smudge resistant protected glass
- Multiple signal interfaces with HDMI, VGA and DVI
- Slim mechanical design with integrated brackets
- Panel/VESA mount

Specifications

Model		IDS-3315		IDS-3319
LCD Display	Screen Size	15"		19"
	Resolution	1024 x 768 (XGA)		1280 x 1024 (SXGA)
	Colors	16.2M		16.7M
	Viewing Angle (H/V°)	176/176		170/160
	Contrast Ratio	2500:1		1000:1
	Response Time (ms)	16		5
	Brightness (cd/m2)	500		350
	Backlight Type	LED		LED
	Backlight Life	70,000		50,000
	Dimensions (mm)	365 x 291 x 46		605 x 485 x 165
	Weight (kg)	4.5		6
Environment	Operating Temperature (°C)	-20~60		0~45
	Storage Temperature (°C)	-30~70		-20~60
	Humidity (non-condensing)	5~95% @ 40°C		5~95% @ 40°C
Touchscreen	Type	5-Wire Resistive	P-cap	5-Wire Resistive
	Transparency	80%	89%	80%
	Surface Hardness	3H	5H	3H
System	I/O Ports	HDMI x 1, VGA x 1; DVI x 1; 12 V_{DC} Jack x 1; USB x 1; RS-232 (USB and RS-232 is reserved for the connection to enable touch usage only)		
	OSD	OSD Key: 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		
	Power	60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output		

Industrial Display Systems

IDP31 Series

Proflat 100% Flat Touch Monitors

Features

- 10.1", 15", 15.6" , 21.5", 23.8", 27" industrial grade LCD panel with LED backlight
- 100% flat front glass for easy maintenance
- Elegant rounded edge design, no need for additional enclosures
- HDMI/VGA/DVI/DP(23.8"&27") interface
- Projected capacitive touch screen for multi-touch
- Stand/VESA mount, panel mount
- LED strip surrounded(23.8”&27”)

FCC RoHS COMPLIANT 2002/95/EC CE

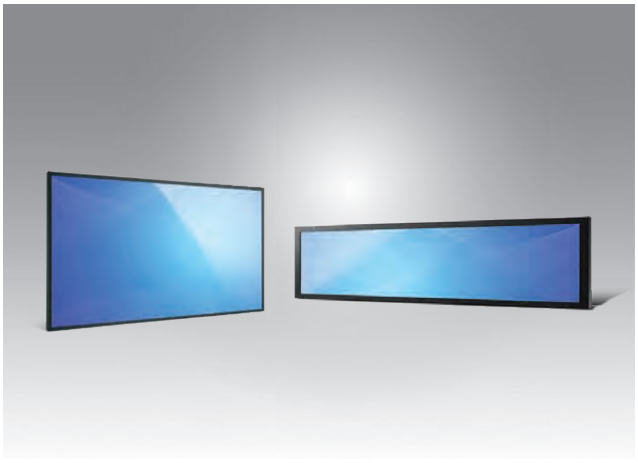
Specifications

		IDP31-101W	IDP31-150	IDP31-156W		IDP31-215W		IDP31-238W		IDP31-270W	
LCD Display	Screen Size	10.1	15"	15.6"	15.6"	21.5"	21.5"	23.8"		27"	
	Resolution	1280 x 800 (WXGA)	1024 x 768 (XGA)	1920 x 1080 (FHD)	1366 x768 (HD)	1920 x 1080 (FHD)	1920 x 1080 (FHD)	1920 x 1080 (FHD)		1920 x 1080 (FHD)	
	Colors	16.2M	16.2M	16.2M	16.2M	16.7M	16.7M	16.7M		16.7M	
	Viewing Angle (H/V°)	170/170	176/176	170/170	160/150	178/178	178/178	178/178		178/178	
	Contrast Ratio	800:1	2500:1	800:1	800:1	1000:1	1000:1	1000:1		3000:01:00	
	Response Time (ms)	11	16	25	11	14	22	14		20	
	Brightness (cd/m2)	500	500	450	500	250	250	350		300	
	Backlight Type	LED	LED	LED	LED	LED	LED	LED		LED	
	Backlight Life	50,000	70,000	50,000	50,000	30,000	50,000	30,000		30,000	
	Dimensions (mm)	330 x 170 x 360	356.1 x 280 x 425	510 x 175 x 410	485 x 165 x 365	620 x 200 x 410	620 x 180 x 480	579.04 x 348.46 x 56.05		647.60 x 386.15 x 56.57	
Environment	Operating Temperature (°C)	-20~65	-20~60	-20~60	-10~55	0~45	0~60	0~45		0~45	
	Storage Temperature (°C)	-25~70	-30~70	-30~70	-20~60	-20~60	-20~60	-20~60		-20~60	
	Humidity (non-condensing)	10~90% @ 40°C	5~95% @ 40°C	10~90% @ 40°C	10~90% @ 40°C	5~95% @ 40°C	5~80% @ 50°C	5~95% @ 40°C		5~95% @ 40°C	
Touchscreen	Type	P-cap	P-cap	P-cap	P-cap	P-cap	P-cap	Glass	P-cap	Glass	P-cap
	Transparency	90%	86%	86%	80%	86%	85%	90%	88%	90%	88%
	Surface Hardness	7H	6H	6H	7H	7H	7H	6H	6H	6H	6H
System	I/O Ports	HDMI; 12 V_{DC} Jack x 1; USB x 1	HDMI x 1; VGA x 1; DVI-D x 1; Audio x 1 (audio output 3W) 12 V_{DC} 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 V_{DC} Jack x 1; USB x 1	DP x 1; VGA x 1; DVI-D x 1;12 V_{DC} Jack x 1; USB x 1 (USB is reserved for the connection to enable touch usage only)			
			(USB is reserved for the connection to enable touch usage only)								
	OSD	Keys: Power on/off, Menu/Enter, Left/Up, Right/Down, Exit/Auto, Source									
		Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language,Reset, Auto Adjust	Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust				Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language,Reset, Auto Adjust	Menu Functions: Brightness, Contrast, Screen Setting, Color Temp, OSD Language, VGA/DVI, Reset, Auto Adjust			
	Power	60W power adapter, with AC 100 ~ 240V input and DC +12V @ 5A output									

Industrial Display Systems

DSD-3000/DSD-5000/DSD-7000 Series

Digital Signage Displays



Features

- 28" ~ 65" size options
- Wide viewing angle
- Fanless design
- HDMI/VGA/DVI/DP interface
- Optional optical touch support
- Stand/wall mount
- Portrait & landscape modes support

RoHS COMPLIANT 2002/95/EC

Specifications

		DSD- 3032	DSD-3042	DSD- 5028	DSD- 5038	DSD-7055
LCD Display	Size	32"	42"	28"	38"	55"
	Resolution	1920 x 1080	1920x1080	1920 x 360	1920 x 538	1920 x 1080
	Colors	16.7 M	16.7M	16.7M	16.7M	16.7M
	Viewing Angle (H/V°)	178/178	178/178	178/178	176/176	178/178
	Contrast Ratio	3000:1	4000:1	1200:1	4000:1	4000:1
	Response Time (ms)	8	8	8	9.5	8
	Brightness	500	500	700	800	500
	Backlight Type	LED	LED	LED	LED	LED
	Backlight Life (hrs)	50,000	50,000	50,000	50,000	50,000
	Dimensions (mm)	743.6 x 438.11 x 73	1007.12x614.61x82.25	738x 167.5 x 44.5	980.9 x 303.2 x 44.35	1242.4 x 722 x 53
	Weight (kg)	14	18		6.4	17
Touchscreen (Optional)	Type	Optical Touch	Optical Touch	-	-	-
	Durability	10 million touches	10 million touches	-	-	-
	Surface Hardness	7H	7H	-	-	-
	Transparency	92%	92%	-	-	-
Environment	Temperature (Operating)	5 ~ 45 °C	5 ~ 45 °C	0 ~ 45 °C	0 ~ 45 °C	0~40 °C
	Temperature (Storage)	-20 ~ 55 °C	-20 ~ 55 °C	-10 ~ 60 °C	-10 ~ 60 °C	-20~60 °C
	Humidity	20 ~ 80 % RH	20 ~ 80 % RH	20 ~ 80 % RH	20 ~ 80 % RH	10 ~ 80 % RH
System	I/O Ports	HDMI/VGA/DisplayPort	HDMI/VGA/DisplayPort	VGA/DVI/HDMI	VGA/DVI	DVI/DP/HDMI/Audio/VGA/ SDM Slot
	OSD control	RS-232/RS-485/Remote	RS-232/RS-485/Remote	RS-232	RS-232	RS232
	Power Consumption (W)	80	130	40	76	95(w/o SDM)

Industrial Display Systems

CRV430W-CurveView™

43” 4K Curved Monitors

Features

- 43" in Ulrta HD 3840 x 2160
- Curved concave format monitors
- Totally unique industrial design
- Compelling user experience
- Large format, deep curved sizes
- Integrated Projected Capacitive (PCAP) Multi-touch
- VGA, Display port, HDMI interface
- Optional design of C shape and J shape
- Custom bending and monitor configuration available

Introduction

CurveView™ is the latest in a series of exciting product innovations from Advantech Display Systems. The introduction of deep curved profiles to a large area display creates exciting opportunities for industrial and user interface design alike. Packaged together with an industrial grade video card and power supply, CurveView™ is available with Triptic™ HDMI 1.4, HDMI 2.0, Display Port and Analog RGB and can be specified with or without 10-point multi-touch overlay. All products can be used in either portrait or landscape mode and are cleverly packaged in such a way that no further mechanical parts are needed other than a VESA mount to create a display system. The use of a metal chassis provides a rugged and stable platform to build solutions for the widest range of applications.

Typical Applications

- Casino slot machines
- Information kiosks
- Digital advertising
- Way-finders and digital assistants
- Medical
- Gaming

Specifications

	CRV-430 (43" 1500R Concave Monitor)		
Model	CRV-430W (C type)	CRV-430JP (J type)	Notes
Backlight	LED	LED	Light Source
Resolution	Ulrta HD 3840 x 2160	Ultra HD 3840 x2160	Native resolution. Other resolutions supported by A/D card scaling
Brightness	450 cd/m^2	450nits	Measured at typ. operating voltage
Viewing angle	89/89/89/89	89/89/89/89	Left/Right/Up/Down
Contrast Ratio (Resp.Time)	1100:1 (14ms)	1100:1(14ms)	In laboratory conditions
Touch Screen (optional)	4mm Multi-touch PCT (10 touches)	4mm Multi-touch PCT (10 touches)	Projected capacitive glass overlay
Operating Temp	0 ~ 50 °C	0 ~ 50 °C	Professional use
Input / Output	HDMI 1.4, HDMI 2.0, Display Port, VGA		

Display

This LCD module has a TFT active matrix type liquid crystal panel 3840 x 2160 pixels, and diagonal size of 43 inch. This module supports 3840 x 2160 mode. Each pixel is divided into red, green and blue subpixels or dots which are arranged in vertical stripes. Grayscale or the brightness of the sub-pixel color is determined with a 10-bit gray scale signal for each dot. The CRV-CurveView™ has been designed to apply the 10-bit V by one interface method. It is intended to support displays where narrow bezel width, long life, wide viewing angle, high color saturation, and high color depth are very important.

Display Characteristics

Items	Specification	Specification	Unit
Active Screen Size	43	43	inch
Display Area	941.184(H) x 529.416(V)	941.184(H) x 529.416(V)	mm
Outline Dimension	998.70(H) x 586.1(V) x 162.5(D)	1030.98(H) x 610.1(V) x 141.45(D)	mm
Driver Element	a-Si TFT active matrix	a-Si TFT active matrix	-
Display Colors	10 bits (1.07B)	10 bits (1.07B)	colors
Number of Pixels	3840 x 2160	3840 x 2160	Pixel
Pixel Pitch	0.2451(H) x 0.2451(W)	0.2451(H) x 0.2451(W)	mm
Pixel Arrangement	RGB vertical stripe	RGB vertical stripe	-
Display Operation Mode	Normally Black	Normally Black	-
Surface Treatment	Anti-Glare, 3H	Anti-Glare, 3H	-
Display Orientation	Portrait/Landscape Enable	Portrait/Landscape Enable	-

Industrial Flash and Memory Solutions

SQFlash Industrial Storage Modules

SATA SSD

Extreme Performance

Embedded

Model Name	SQF-S25 840 series	SQF-SM8 840 series	SQF-SMS 840 series	SQF-S25 830 series	SQF-SMS 830 series	SQF-SM8 830 series	SQF-S25 640 series
Form Factor	2.5" SATA SSD	M.2 2280 SATA SSD (NGFF)	mSATA SSD (MO-300A)	2.5" SATA SSD	mSATA SSD (MO-300A)	M.2 2280 SATA SSD (NGFF)	2.5" SATA SSD
Transfer Protocol	SATA 6Gb/s	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	Mini PCIe with SATA pin-out	M.2 with B+M key SATA pin-out	7 + 15 pin SATA
Flash Type	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	SLC / Ultra MLC / MLC	SLC / Ultra MLC / MLC	SLC / Ultra MLC / MLC	Ultra MLC / MLC / 3D TLC / sTLC
Maximum Power Consumption	720 mA	900 mA	900 mA	1,080 mA	1,260 mA	1,260 mA	530 mA
Capacity	240GB ~ 7.6TB	240GB ~ 1.9TB	120GB ~ 1.9TB	64GB ~ 2TB	32GB ~ 512GB	32GB ~ 512GB	16GB ~ 1TB
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: 540 / 480 Random IOPS@4K: 88K / 91K	Sequential: 540 / 480 Random IOPS@4K: 88K / 91K	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K
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	0 ~ 70 °C	0 ~ 70 °C	0 ~ 70 °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 ~ 2,000 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

Embedded

Model Name	SQF-SM8 640 series	SQF-SM4 640 series	SQF-SMS 640 series	SQF-SHM 640 series	SQF-S10 640 series	SQF-SLM 640 series	SQF-SUS 640 series
Form Factor	M.2 2280 SATA SSD (NGFF)	M.2 2242 SATA SSD (NGFF)	mSATA SSD (MO-300A)	H/S mSATA SSD (MO-300B)	CFast	Half-Slim SSD	Micro SSD
Transfer Protocol	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Connector	M.2 with B+M key SATA pin-out	M.2 with B+M key SATA pin-out	Mini PCIe with SATA pin-out	Mini PCIe with SATA pin-out	CFast Type-I	7 + 15 pin SATA	Onboard
Flash Type	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC / 3D TLC / sTLC	Ultra MLC / MLC/ 3D TLC
Maximum Power Consumption	750 mA	500 mA	750 mA	500 mA	500 mA	500 mA	500 mA
Capacity	16GB ~ 1TB	16GB ~ 512GB	16GB ~ 1TB	16GB ~ 512GB	16GB ~ 512GB	16GB ~ 512GB	4GB ~ 128GB
Maximum Read / Write Performance (MB/s)	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K	Sequential: 560 / 500 Random IOPS@4K: 86K / 91K	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K	Sequential: 560 / 470 Random IOPS@4K: 82K / 82K	Sequential: 560 / 490 Random IOPS@4K: 86K / 91K	Ultra MLC: 490/190 MLC: 480/190
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	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	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 ~2,000 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

NVMe SSD

Enterprise

Embedded

Model Name	SQF-C25 920 series	SQF-CM8 920 series	SQF-C3A 720 series	SQF-C4M 720 series	SQF-C8B 720 series	SQF-C8M 720 series	SQF-CFX 720 series	SQF-CMS 710 series
Form Factor	2.5" U.2 NVMe SSD	M.2 2280 NVMe SSD (NGFF)	M.2 2230 NVMe SSD (NGFF)	M.2 2242 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	M.2 2280 NVMe SSD (NGFF)	CFexpress card	Full-size Mini PCIe SSD
Transfer Protocol	PCIe Gen3 x4	PCIe Gen3 x4	PCIe Gen3 x2	PCIe Gen3 x4	PCIe Gen3 x2	PCIe Gen3 x4	PCIe Gen3 x2	PCIe Gen3 x2
Connector	U.2 NVMe Interface (SFF 8639)	M.2 M-key with PCIe pin-out	M.2 A+E key with PCIe pin-out	M.2 M key with PCIe pin-out	M.2 B+M key with PCIe pin-out	M.2 M key with PCIe pin-out	CFexpress (Type B)	Mini PCIe with PCIe pin-out
Flash Type	3D TLC	3D TLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC / sTLC	3D TLC
Maximum Power Consumption	790 mA	2,430 mA	910 mA	1160 mA	1370 mA	1370 mA	1160 mA	957 mA
Capacity	240GB ~7.6TB	240GB ~1.9TB	32GB ~ 512GB	32GB ~ 2TB	32GB ~ 2TB	32GB ~ 2TB	32GB ~ 1TB	64GB ~ 1TB
Maximum Read / Write Performance (MB/s)	Read: upto 3,200 Write: upto 3,000	Read: upto 3,200 Write: upto 2,700	Read: upto 850 Write: upto 780	Read: up to 1,730 Write: up to 1,560	Read: up to 1,700 Write: up to 1,480	Read: up to 1,730 Write: up to 1,560	Read: up to 1,420 Write: up to 1,200	Read: upto 1,560 Write: upto 1,000
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	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	Supported	Supported
Shock	1,500G, Peak / 0.5 ms	1,500G, Peak / 0.5 ms	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
Vibration	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80 ~2,000 Hz	20G, Peak / 80~2,000Hz	20G, Peak / 80~2,000Hz	20G, Peak / 80~2,000Hz	20G, Peak / 80~2,000Hz	20G, Peak / 80~2,000Hz	20G, Peak / 80 ~2,000 Hz

PATA/SD/eMMC/USB Storage

Model Name	SQF-P10 P8/P9	SQF-P25 P9	SQF-ISD	SQF-MSD	SQF-MM5	SQF-MMC	SQF-UPD
Form Factor	CF card	2.5" PATA SSD	Industrial SD	Industrial Micro SD	Industrial eMMC 153ball	Industrial eMMC 100ball	USB Pen Drive
Interface	IDE / PCMCIA	IDE	SD	SD	eMMC	eMMC	USB
Transfer Protocol	UDMA 2 / UDMA 4 / UDMA 5	UDMA 4	SD 6.x	SD 6.x	eMMC 5.x	eMMC 5.x	USB 3.1/2.0/1.1
Connector	CF Type-I	44-pin Male	SD 9-pin	SD 9-pin	onboard	onboard	USB type
Flash Type	SLC / Ultra MLC / MLC	SLC / Ultra MLC / MLC	SLC / Ultra MLC / MLC / 3D TLC/ sTLC	SLC / Ultra MLC / MLC / 3D TLC/ sTLC	Ultra MLC / MLC / 3D TLC / sTLC	MLC	MLC 3D TLC / sTLC
Maximum Power Consumption	160 mA	210 mA	100 mA	200 mA	200 mA	200 mA	190 mA
Capacity	256MB ~ 512 MB 1GB ~ 64GB	4GB ~ 512GB	1GB ~ 256G	1GB ~ 256GB	4GB ~ 128GB	4GB ~ 128GB	4GB ~ 256GB
Maimum Read / Write Performance (MB/s)	4 channel: 83/87 2 channel: 43/40 1 channel: 22/15	SLC: 65/55 MLC: 63/28	Read: up to 100 Write up to 90	Read: up to 100 Write: up to 90	Read: up to 250 Write: up to 150	Read: up to 250 Write: up to 150	MLC: TBD
Op. Temperature	0 ~ 70 °C / -40 ~ 85 °C	0 ~ 70 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C	-25 ~ 85 °C / -40 ~ 85 °C/ -40 ~ 105 °C	-25 ~ 85 °C / -40 ~85 °C / -40 ~ 105 °C	0 ~ 70 °C
DeviceOn/ SQ Manager	Supported	Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not 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	5G, Peak / 10 ~2,000 Hz	5G, Peak / 10 ~2,000 Hz	5G, Peak / 10 ~2,000 Hz	20G, Peak / 80 ~ 2,000 Hz	15G, Peak / 10 ~2,000 Hz

Industrial Flash and Memory Solutions

SQRAM Industrial Memory Modules

Embedded DRAM Modules

SODIMM UDIMM

Model	SQR-SD5N	SQR-SD4N	SQR-SD4M	SQR-SD3N	SQR-SD3M	SQR-UD5N	SQR-UD4N	SQR-UD4M	SQR-UD3N	SQR-UD3M
DDR	DDR5	DDR4	DDR4	DDR3L	DDR3L	DDR5	DDR4	DDR4	DDR3L	DDR3L
DIMM Type	SODIMM	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM	UDIMM	UDIMM	UDIMM
Pin Number	262pin	260pin	260pin	204pin	204pin	288pin	288pin	288pin	240pin	240pin
Frequence(MHz)	4800	3200/2666/ 2400	3200/2666/ 2400	1866/1600	1866/1600	4800	3200/2666/ 2400	3200/2666/ 2400	1866/1600	1866/1600
Capacity	8/16/32GB	2/4/8/16/32GB	4/8/16GB	2/4/8GB	2/4/8GB	8/16/32GB	2/4/8/16/32GB	4/8/16GB	2/4/8GB	2/4/8GB
Voltage	1.1V	1.2V	1.2V	1.35V	1.35V	1.1V	1.2V	1.2V	1.35V	1.35V
Operating Temperature	0 ~ 85 °C	0 ~ 85 °C	-20 ~ 85 °C	0 ~ 85 °C	-20 ~ 85 °C	0 ~ 85 °C	0 ~ 85 °C	-20 ~ 85 °C	0 ~ 85 °C	-20 ~ 85 °C
DeviceOn/ SQ Manager	Developing	Supported				Developing	Supported			

Ruggedized DRAM Modules

Rugged SODIMM SODIMM UDIMM

Model	SQR-YD4	SQR-SD5I	SQR-SD4I	SQR-SD3I	SQR-HS4N	SQR-SD2I	SQR-SD1M	SQR-UD4I	SQR-UD3I
DDR	DDR4	DDR5	DDR4	DDR3L	DDR4	DDR2	DDR1	DDR4	DDR3L
DIMM Type	Rugged SODIMM	SODIMM	SODIMM	SODIMM	SODIMM	SODIMM	SODIMM	UDIMM	UDIMM
Pin Number	260pin	262pin	260pin	204pin	260pin	200pin	200pin	288pin	240pin
Frequence(MHz)	2666/3200	4800	3200/2666/2400	1866/1600	3200/2666	800/667	400/333	3200/2666/2400	1866/1600
Capacity	16/32GB	16/32GB	4/8/16/32GB	2/4/8GB	8/16/32GB	1/2GB	512MB/1GB	4/8/16/32GB	2/4/8GB
Voltage	1.2V	1.1V	1.2V	1.35V	1.2v	1.8V	2.5V	1.2V	1.35V
Operating Temperature	0 ~ 85 °C -40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	0 ~ 85 °C	-40 ~ 85 °C	-20 ~85 °C	-40 ~ 85 °C	-40 ~ 85 °C
Value-Added Service	Real-time DRAM Software support								
DeviceOn/SQ Manager	Supported	Developing	Supported						

High Performance & Server DRAM Modules

LRDIMM RDIMM UDIMM ECC Rugged SODIMM SODIMM ECC

Model	SQR-LD4N	SQR-RD5N	SQR-RD4N	SQR-RD4I	SQR-UD4N (ECC)	SQR-VU4N	SQR-UD3N (ECC)	SQR-YD4 (ECC)	SQR-SD4 (ECC)	SQR-SD3 (ECC)
DDR	DDR4	DDR5	DDR4	DDR4	DDR4	DDR4	DDR3L	DDR4	DDR4	DDR3L
DIMM Type	LRDIMM	RDIMM	RDIMM	RDIMM	UDIMM	UDIMM VLP	UDIMM	Rugged SODIMM	SODIMM	SODIMM
Pin Number	288pin	288pin	288pin	288pin	288pin	288pin	240pin	260pin	260pin	204pin
Frequence(MHz)	2666	4800	3200/2666	2666/ 2400	3200/ 2666	2666	1600	2666/3200	3200/ 2666	1600
Capacity	64/128GB	16/32/64GB	8/16/32GB	8/16/32GB	4/8/16/32GB	8/16GB	4/8GB	16/32GB	4/8/16/32GB	4/8GB
Voltage	1.2V	1.1V	1.2V	1.2V	1.2V	1.2V	1.35V	1.2V	1.2V	1.35V
Operating Temperature	0 ~ 85 °C	0 ~ 85 °C	0 ~ 85 °C	-40 ~ 85 °C	0 ~ 85 °C -40 ~ 85 °C	0 ~ 85 °C -40 ~ 85 °C	0 ~ 85 °C	0 ~ 85 °C -40 ~ 85 °C	0 ~ 85 °C -40 ~ 85 °C	0 ~ 85 °C -40 ~ 85 °C
Function	ECC	ECC	ECC	ECC	ECC	ECC	ECC	ECC	ECC	ECC
Register	Yes	Yes	Yes	Yes	x	x	x	x	x	x
DeviceOn/SQ Manager	Not supported				Supported					

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	MiniPCIe thru PCIe and USB	MiniPCIe 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	MiniPCIe thru PCIe	MiniPCIe thru PCIe	MiniPCIe thru PCIe	MiniPCIe thru PCIe	H/S MiniPCIe thru PCIe	MiniPCIe thru 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: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe thru USB External USB port: 2.0 mm, 1x4-pin, male type wafer box	Internal USB port: MiniPCIe 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)

Memo

Memo

Memo

Mission

Enabling an Intelligent Planet

Growth Model

Segmented Business Units
Powered by Global Trusted Brand

Focus & Goal

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