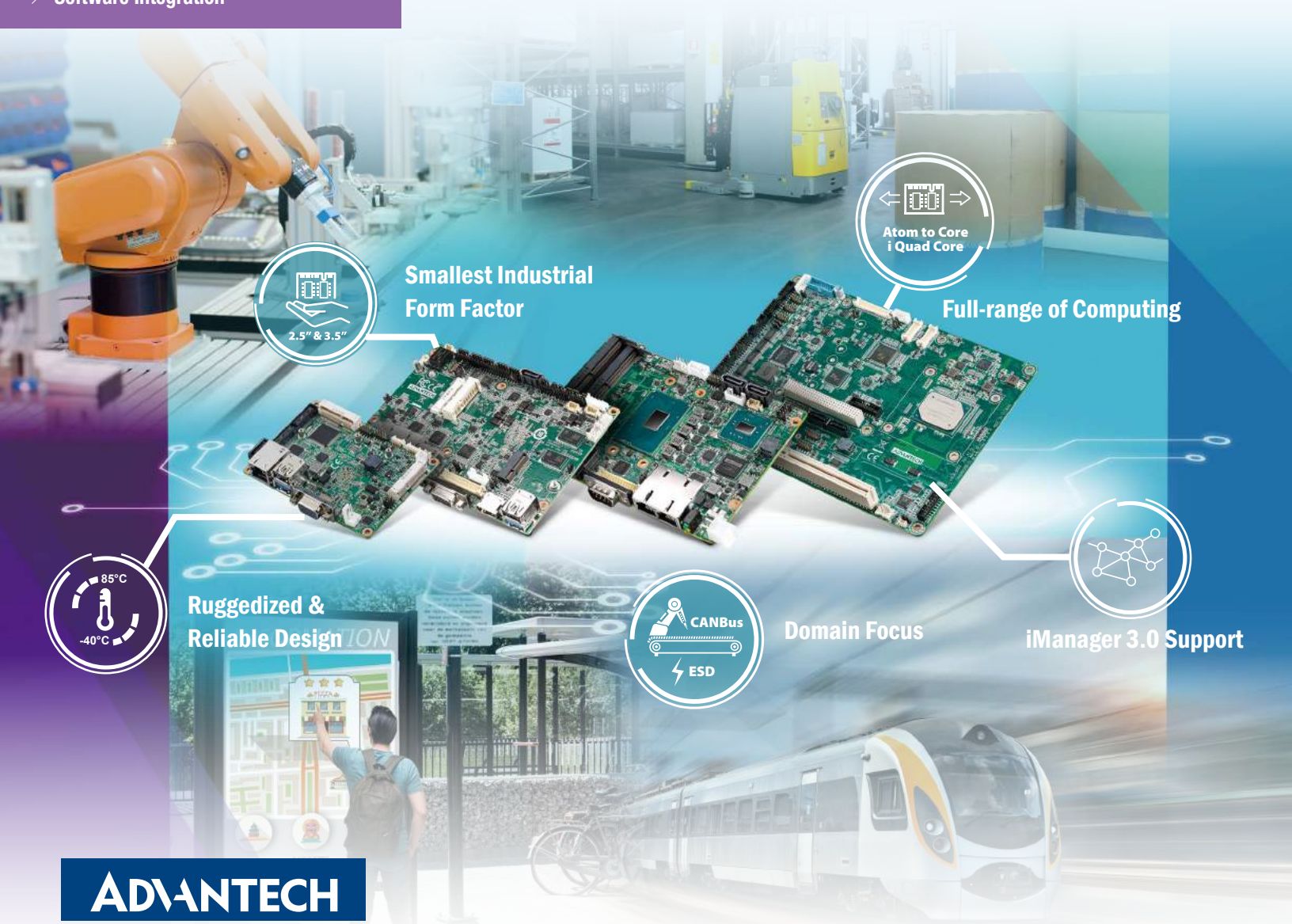
Embedded Single Board Computers

Enabling Next Generation Industrial Applications

- Full Range Offering
- Rugged Solution
- MIO Extension
- Embedded PC
- Software Integration



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Enabling an Intelligent Planet

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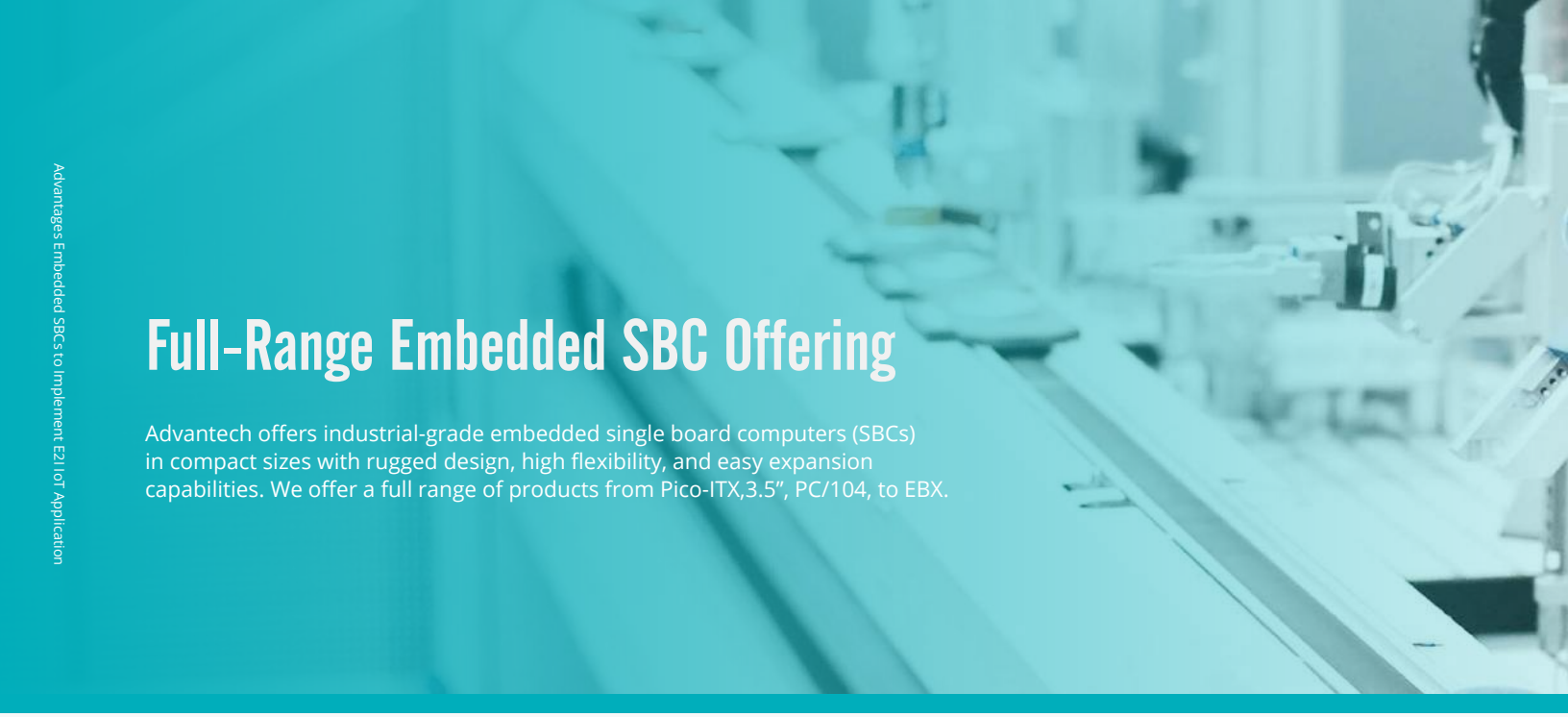


Full-Range Embedded SBC Offering

Advantech offers industrial-grade embedded single board computers (SBCs) in compact sizes with rugged design, high flexibility, and easy expansion capabilities. We offer a full range of products from Pico-ITX,3.5”, PC/104, to EBX.

Advantages of Embedded SBCs for E2I IoT Applications

Advantech Embedded Single Board Computers (SBC) series include: 2.5" Pico-ITX, 3.5" SBC, PC/104, 5.25" EBX, form factors. We offer a full-range of computing product from entry Atom series to Intel Core i7. They provide rich embedded features such as CANbus with isolation, high-speed multiple serial ports, 12-24 V power input, on-board storage and more. Moreover,Advantech's innovative MI/O (Multiple I/O) extension module delivers easy expansion capabilities to fulfill different market requirements.

Smallest Size

- 2.5” Pico-ITX
- 3.5” SBC
- PC/104

Rugged and Reliable Design

- -40~85° C wide temp support
- On-board storage for military criterial
- High ESD protection

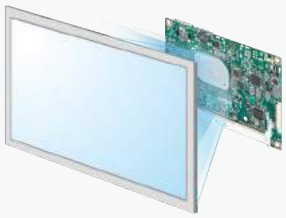
Domain Feature Focus

- 12/24V power input
- CANBus support
- MIOe Design in service

Software Integration

- Support iManager 3.0 & embedded API
- Supports embedded Yocto & Win10 IoT
- Advantech WISE-PaaS/EdgeSense IoT software

Full-Range Form Factor



2.5” Pico-ITX Single Board Computers

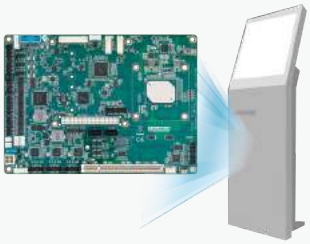
- Measures 100 x 72 mm
- Connector type: external (rear I/O)
- Single 12V DC power input
- 1 x Full-size Mini PCIe, 1 x Full-size mSATA* , 1 x MIOe
- Commercial & industrial temp support: 0 ~ 60° & 40° C ~ 85
- Performance range: Atom Quad core processor
- 6W power consumption

3.5” Single Board Computers

- Measures 146 x 102 mm
- Connector type: external (rear I/O)
- 9-36V DC power input
- 1 x Full-size Mini PCIe, 1 x Full-size mSATA* , 1 x MIOe
- Commercial & industrial temp support: 0 ~ 60° & 40° C ~ 85
- Performance range: Atom Quad core processor to Core I
- 6-12W power consumption

PC/104 CPU Boards

- Measures 96 x 90 mm to 96 x 115 mm
- Connector type: internal
- 5V ± 5% DC power input
- 1 x miniPCIe, 1 x SMBus, 1 x I2Cbus, 1 x PC/104, 1 x PCI-104, 1 x PC/104- Plus
- Commercial & industrial temp support: 0 ~ 60° & 40° C ~ 85
- Performance range: AMD LX80 to Intel Bay Trail
- 4-14W power consumption



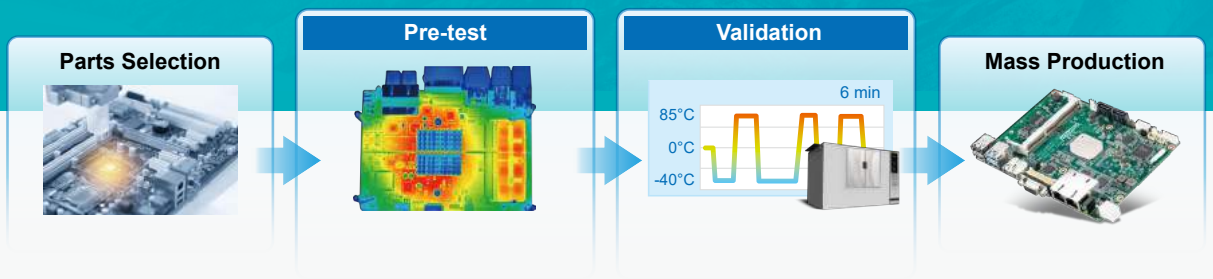
5.25” Single Board Computers

- Measures 203 x 146 mm
- Connector type: internal
- Single 12V DC power input
- 1 x Full-size Mini PCIe, 1 x Full-size mSATA* , 1 x MIOe,
- Commercial & industrial temp support: 0 ~ 60° & 40° C ~ 85
- Performance range: Intel Pentium, Celeron to Core i
- 6-45W power consumption

Rugged Solution

Industrial applications specifically designed for harsh environments or outdoor applications have unique requirements. Extreme environmental conditions, for example, high or low temperatures, thermal shock, high humidity, and electromagnetic disturbances, necessitate the most unique specifications. Because system failures are generally quite costly, all systems must have the highest level of failure tolerance to operate reliably under every possible condition. Wide temperature testing , innovative thermal solutions, and reliable component selections ensure the system's reliability in extreme operating environments.

Wide Temperature Testing Process



Highly Reliable Component Selections

ESBC (Embedded Single Board Computers) components are 100% compliant to -40~85°C temperature ranges for native extended temperature models. Advantech ESBC group believes that for high reliability and quality, component selection of extended temperature models should start from the beginning—at the EVT phase in the product's life cycle.

Design Stage Pre-Test

Ensuring each component selection can operate under -40 to 85°C , ESBCs with embedded peripherals and thermal solutions are validated two to three times. One of the most important tests is to confirm all components meet thermal profile testing.

Extended Temperature Testing (ETT) Solutions

During the design validation stage, embedded SBCs operate Phoenix testing to evaluate system and component performance under a range of environmental conditions, including various dynamic temperature burn-in cycles over extended periods of time. Depending on the system requirements, designs are required to pass -40 to 85°C testing without loss of function. This stringent testing process ensures the reliable performance of mission-critical applications under extreme and rapidly changing temperatures.

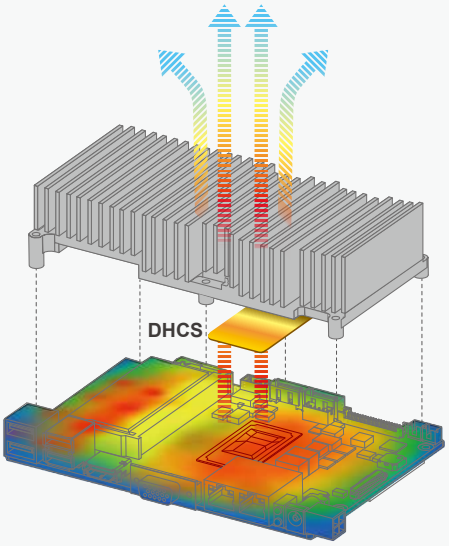
Testing for Mass Production

Advantech's Design Validation Phoenix testing process ensures embedded SBCs undergo dynamic a PassMark burn-in test at 100% loading and a power on-off test. This meets IEC60068-2-1; IEC60068-2-2; IEC60068-2-78; IEC60068-2-14 criteria. Before products are launched, embedded SBCs must receive complete certification of Phoenix operation. After launch, the embedded SBC factory operates -40 to 85°C testing again before shipping to qualify the quality, and Ongoing Reliability Tests (ORT) are performed regularly.

Innovative Thermal Solution

DHCS Technologies

The DHCS comprises a base and a heat conduction block. The base accommodates all of the parts and has a small bronze heat conduction block that mates with the CPU for efficient heat conduction, thus transferring heat from the CPU to the base.



Structure

Mates with CPU 100% for better heat transfer

Material

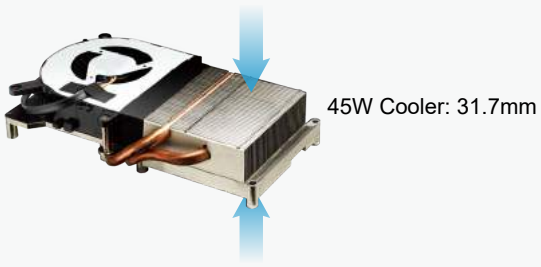
Copper deliver better thermal conductivity coefficient

Result

Achieves 20+ degree cooler than traditional Heatsink even in extremely environment

Fan Solution

In addition to a fanless design, Advantech also offers a fan-based 45W+ SBC solution with thin design. Advantech 3.5" MIO-5391 with 32mm cooler based on the Intel® Core™ i7 platform is ideal for compact and high performance applications.



Application Story

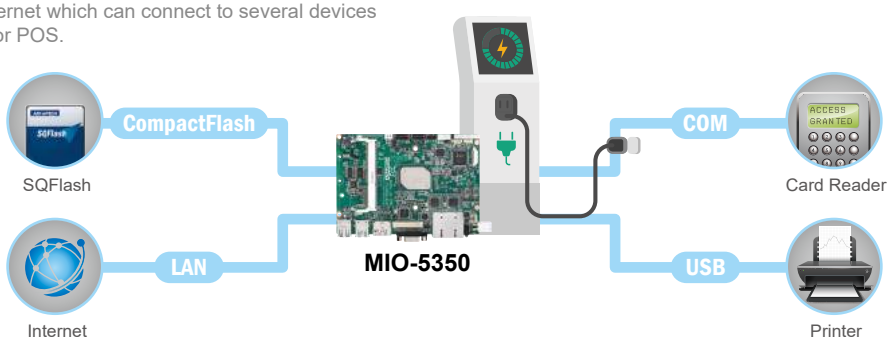
Rugged Solution for EV Charging System

Requirements

The EV charging system is expected to be an emerging market opportunity especially because the Korean government supports its introduction. It is estimated that more than 2,000 devices will be deployed over the next few years and revenues will reach USD 700K. A leading industrial company in Korea was looking for an integrated solution which is rugged, flexible, and durable for outdoor environment requirements.

Solutions

Advantech offers MIO-5350, 3.5" rugged single board computer with RAM/mSATA SQF supporting operating temperatures between -40°C~85°C. It is equipped with rich I/O options on ports such as 2 x RS-232 and 2 x RS-232/422/485, and 2 x Giga Ethernet which can connect to several devices such as printers or POS.



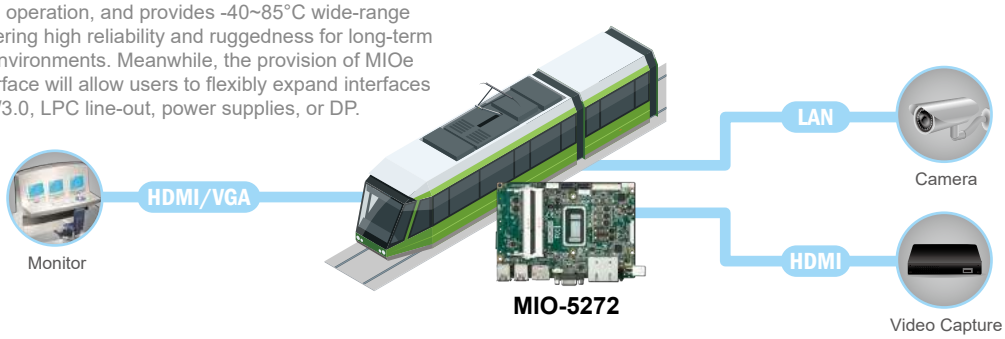
Video-based Monitoring of Pantographs on High Speed Tracks

Requirements

Our customer is a first-tier manufacturer of railway cars and equipment in China, who now has gained nearly half of the high-speed locomotive assembly market. The installation of video-based monitoring systems on roofs of high-speed trains presented many challenges including the need for high-performance CPUs to support video monitoring operations, constant vibration, drastic temperature changes, as well as physical size and space restrictions on the trains. The system has to have excellent vibration-resistance, wide temperature support, and anti-jamming capabilities.

Solutions

Advantech provided MIO-5272 3.5"single board computers, which offer high performance with Intel Core i ULT i7 processor supports and 15W low power consumption, allow fanless operation, and provides -40~85°C wide-range temperature support, delivering high reliability and ruggedness for long-term stable operation in harsh environments. Meanwhile, the provision of MIOe high-speed expansion interface will allow users to flexibly expand interfaces for PCIe, SMBus, USB 2.0/3.0, LPC line-out, power supplies, or DP.



The Smallest 2.5” SBC for AGV robot

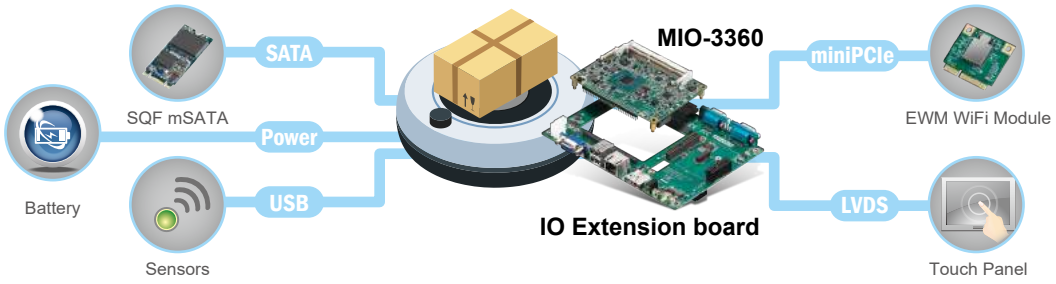
MIO-3360

Requirements

Automated Guided Vehicles (AGV) are widely used in factories and warehouses. A well-established AGV manufacturer customer in China was looking to design a new AGV vehicle incorporating the smallest form factor, low profile industrial grade computer with multiple I/O ports.

Solutions

MIO-3360 is equipped with Intel® Pentium N4200/Celeron N3350 support, and dual independent displays. It can expand its I/O quickly and flexibly via the innovative MI/O (Multiple I/O) unified connector. Using the customized MIOe board, MIO-3360 can expand I/O to a total of 1 x GbE, 2 x RS-232/422/485, and 4 x USB, etc. It also complies with the IEC standard for Electro Static Discharge (ESD) protection.



Domain Focused Solution for Robotic Applications

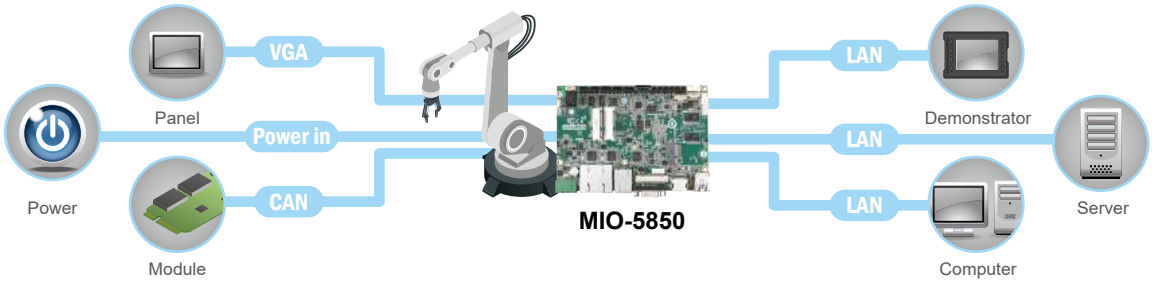
MIO-5850

Requirements

With a changing labor force and demographic dividend brought about by fertility rates and old age, accompanied by the rise of labor costs, many manufacturers in China are turning to robotic solutions and the Chinese government has been increasing its support for the robotics industry. One of our customers in China, the earliest pioneers in developing and implementing Industry 4.0 projects was looking for an industrial SBC for their solutions include robust designs, small form factors, expansion capability, and outstanding performance.

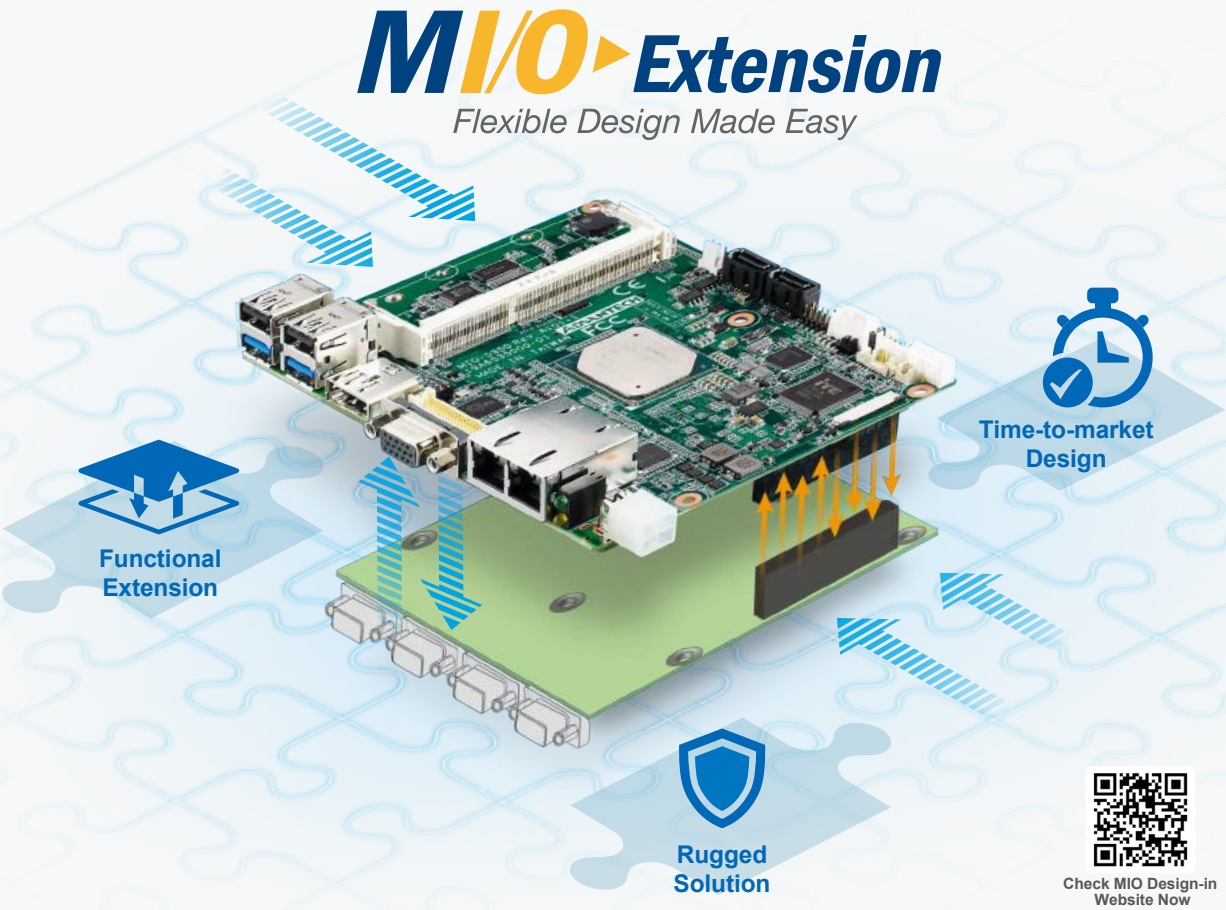
Solutions

To meet the need for factory control and automation solutions, Advantech MIO-5850 incorporates a 4th Generation Intel Atom E3825/ E3845 processor, WIN7/8/10 and Linux OS, and on-board eMMC memory in a robust fanless design. The CPU comes with a backplate to facilitate heat dissipation, and supports 3 Ethernet ports for robotic solutions and CAN bus functions as well as for standard communications. The on-board memory and storage is also part of the effort to meet the challenge of operating in harsh environments.



MIO Extension

Advantech's innovative MI/O (Multiple I/O) Extension Single Board Computers all feature flexible and integrated multiple I/O to help aid efficient development, reduce resources, and assist integrators to provide optimized solutions in a more cost-effective way. By connecting with MIOe I/O extension modules which support additional extended unified interfaces including: DisplayPort, 4 PCIe x 1, LPC, SMBus, USB 2.0/USB 3.0, rugged solutions, audio line-out and power, customers receive the best I/O choices to fulfill vertical application development as well as helping them retain their specialist domain knowhow. These features are all part of Advantech's thoughtful effort to help integrators flexibly develop market-sensitive solutions and seize those promising business opportunitie



MIO Design-in Process

Reference Design
- Off-the-shelf modules
- Available IP building blocks
- 2D/3D mechanical drawing

Design Checklist & Review
- Schematic design guide
- Layout checklist
- Local technical review service

Integration Services
- BIOS customization
- Thermal simulation & integration
- Enclosure & customization service

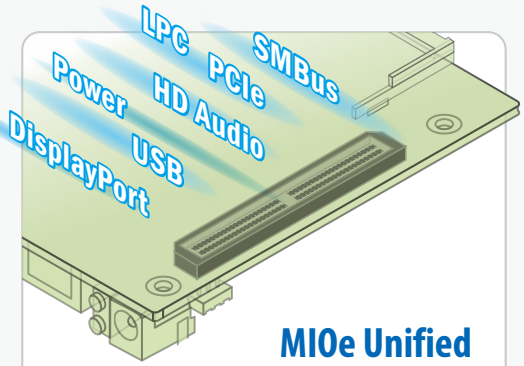
Why Advantech MI/O Extension SBCs?

- Highly integrated design saves up to 20% of system space
- Design document and evaluation board support
- Flexibility for future I/O expansion and upgrades
- Time-saving and cost-effective solution for system integrators
- Advantech Embedded SBC industrial design with rugged solution

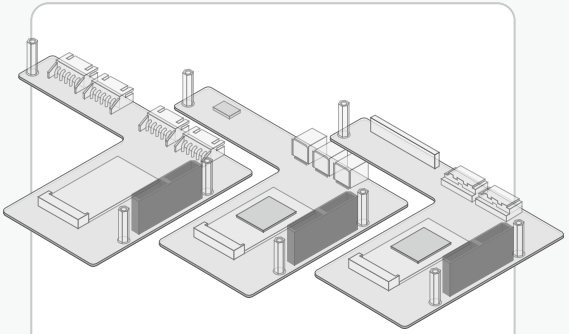
MIOe Design Features

MI/O Extension has one unified MIOe connector which supports additional extended interfaces that give more flexible support to bundled I/O modules, either from Advantech or modules designed by the customer.

- DisplayPort: HDMI, LVDS, DVI, CRT or eDP display interface
- 4 PCIe x1: GbE, USB 3.0, SATA/RAID, FPGA or PCI expansion
- USB 2.0/ 3.0: Super speed storage, capture card, HD Webcam & display interface



MIOe Unified Connector



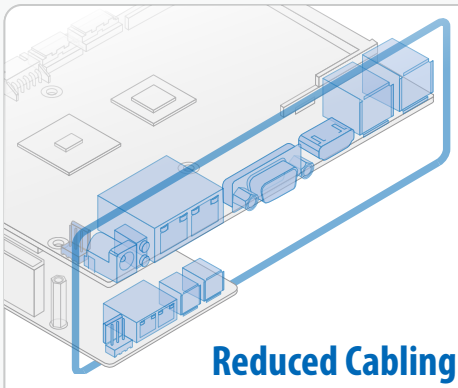
Expansion Module Options

Advantech has developed a series of modules that are ready for future interface designs and made for flexible vertical application demands.

- Display module: 48-bit LVDS/ DisplayPort/ USB2.0
- Communication module: Triple GbE
- Multiple I/O module: Multiple COM Ports

MI/O Extension single board computers come with unified I/O connector coastlines, CompactFlash and PCIe Mini Card locations. An area under the board is also designated for a 2.5" hard disk. The structural uniformity helps eradicate possible problems with integration during future upgrades.

- Less cabling and lockable connectors on the bottom side
- Reduced assembly, complexity, and labor costs



Reduced Cabling

Embedded PC

Advantech also offers Embedded PCs (EPC) which are a full range enclosures and systems designed for 3.5" single board computers. EPC-S Series are slim and fanless system which target automation applications. EPC-C Series are compact and rugged embedded PCs for high-end ans semi-outdoor applications such as outdoor kiosk.

EPC-S101

Embedded 3.5 SBC system for PCM-9310

- Intel® Braswell Celeron N3160/N3060, Atom E8000, DDR3L-1600MHz SODIMM up to 8GB
- Fanless slim system with wall-mount & desk mount removable flange, default support VESA mount & Din-rail mount at bottom side
- Supports 2 x Intel GbE, 8 x USB, HDMI, VGA, 4 x COM and 1 x Digital IO
- Built-in 1 x full size mSATA and 1 x full size MiniPCIe w/SIM
- Supports iManager, WISE-PaaS/RMM and Embedded Software APIs

EPC-S201

Fanless & Palm-sized DIN Rail System

- Intel® Braswell Celeron N3160/N3060, Atom E8000, DDR3L-1600MHz SODIMM up to 8GB
- Fanless slim system with wall-mount & desk mount removable flange, default support VESA mount & Din-rail mount at bottom side
- Supports 2 x Intel GbE, 8 x USB, HDMI, VGA, 4 x COM and 1 x Digital IO
- Built-in 1 x full size mSATA and 1 x full size MiniPCIe w/SIM
- Supports iManager, WISE-PaaS/RMM and Embedded Software APIs

EPC-C301

Compact & Rugged Solution

- Intel Skylake-U Core i5/Celeron DDR3L-1600MHz SODIMM up to 16GB
- 0~60℃ compact system with wall mount or desk mount
- One side I/O: 8 xCOM ports, 4 xGbe LAN, 6 x USB, 1 xGPIO & Dual display: VGA & HDMI
- Expansion & storage: 1 x Full size MINI PCIe slot & 1 x Full size MINI PCIe slot for mSATA
- Win7, WES7, Linux, iManager, WISE-PaaS/RMM

Laser Labeling Machine

Requirements

One of our customers with extensive experience in the industry was looking for an embedded SBC with dual display interfaces for internal and external HMI, and also multiple USB and COM ports to support monitoring, control, and feedback for a laser labeling machine. Most important, the SBC needed top reliability, despite temperature and vibration challenges, as well as a compact design that could easily fit in a very limited space.

Solutions

Advantech provides EPC-S101, an Intel® N3000 series platform with only 6W power consumption. Such low heat dissipation and a fanless system design provide excellent reliability for critical field operations. EPC-S101 Two side-bracket I/O provide plenty of flexibility, including 6 x USB3.0/2.0 ports, VGA and HDMI, 4 x COM ports, DIO, audio, etc. EPC-S101 also support internal connector features including LVDS/eDP, SMBus and add-on wireless modules with reserved antenna assemblies. Advantech also provides a built-in OS of the customer's choice—Windows or Linux—in addition to software APIs and utilities that help customers quickly implement their own applications.

Smart Factory

Requirements

Smart systems and automation equipment are essential aspects of industry4.0. The data collected from each factory forms the basis for smart factory applications. There are lots of small and mid-size factories all over the world, and many of them are built with limited space so it may be difficult for those small factories to expand and incorporate smart factory features. Small and fanless systems with sufficient I/O, together with multiple RS-232/422/485 provide an ideal choice.

Solutions

DIN rail EPC-S201 barebone systems designed with Celeron N3350, 2 x USB, 2 x RS-232/422/485 ports, 1 x GbE LAN and VGA are suitable for most existing factories. There is easy expansion for WiFi or storage and memory so there is no need for customers to worry about LAN connection. DIN rail mounting design provides suitable assembly methods for those space limited areas.

Smart Parking System

Requirements

Self-service equipment is becoming more mature and as the market keeps growing, problems caused by human error are decreasing. One such popular application is the smart parking system. Two or three cameras are required for capturing pictures of vehicles and parking space information, and these are connected to related gates for ingress and egress, printing tickets, or other features as necessary. A parking system with performance processors, multiple I/O and 6 -8 COM ports are basic requirements.

Solutions

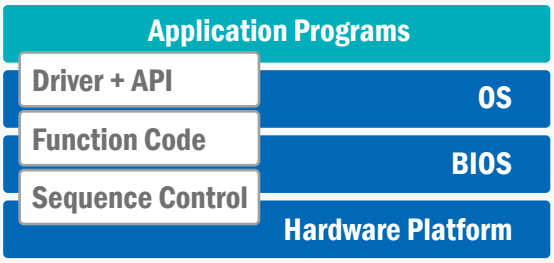
EPC-C301 is equipped with the Intel Skylake-U series CPU with 8 x COM ports (RS-232/422/485), 6 x USB ports, and at least 3 x Gbe LAN with HD audio, which are able to connect to different level devices for example, high speed cameras, Ethernet, COM ports, or GPIO. Inside the system there are two more expansion slots through miniPCIe connectors which provide variable choices for customers.

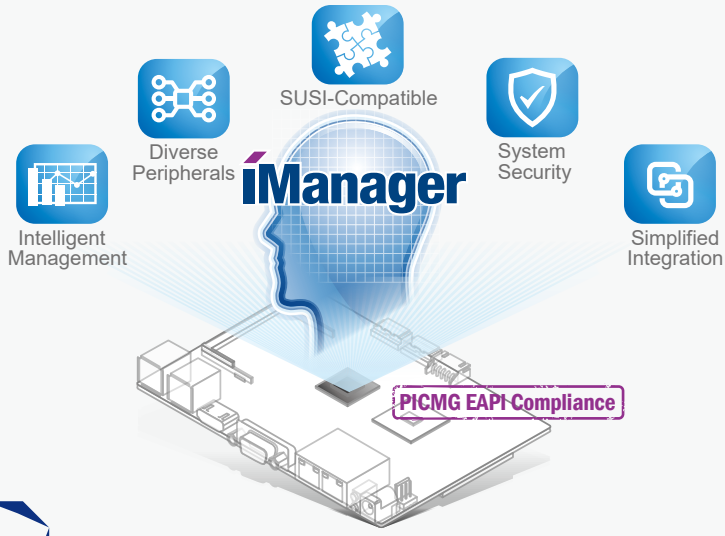
Software Integration

Advantech provides embedded software services including embedded OS, iManager 3.0, BIOS services, and IoT software WISE-PaaS/EdgeSense. Embedded software services help decrease design effort and project complexity, and accelerate product development.

iManager 3.0

To fulfill the ever-changing specialized demands of various industrial applications, Advantech designed an intelligent self-management firmware agent. iManager is a built-in solution chip with a standardized API that integrates several unique platform consolidating functions needed by embedded system integrators to help improve consistency, lighten development efforts, and speed up product time-to-market.





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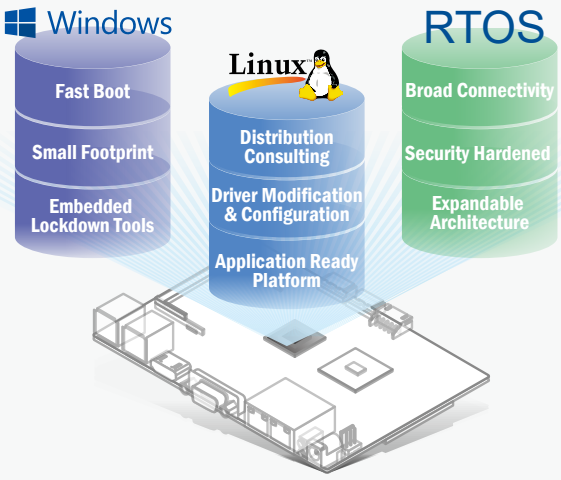
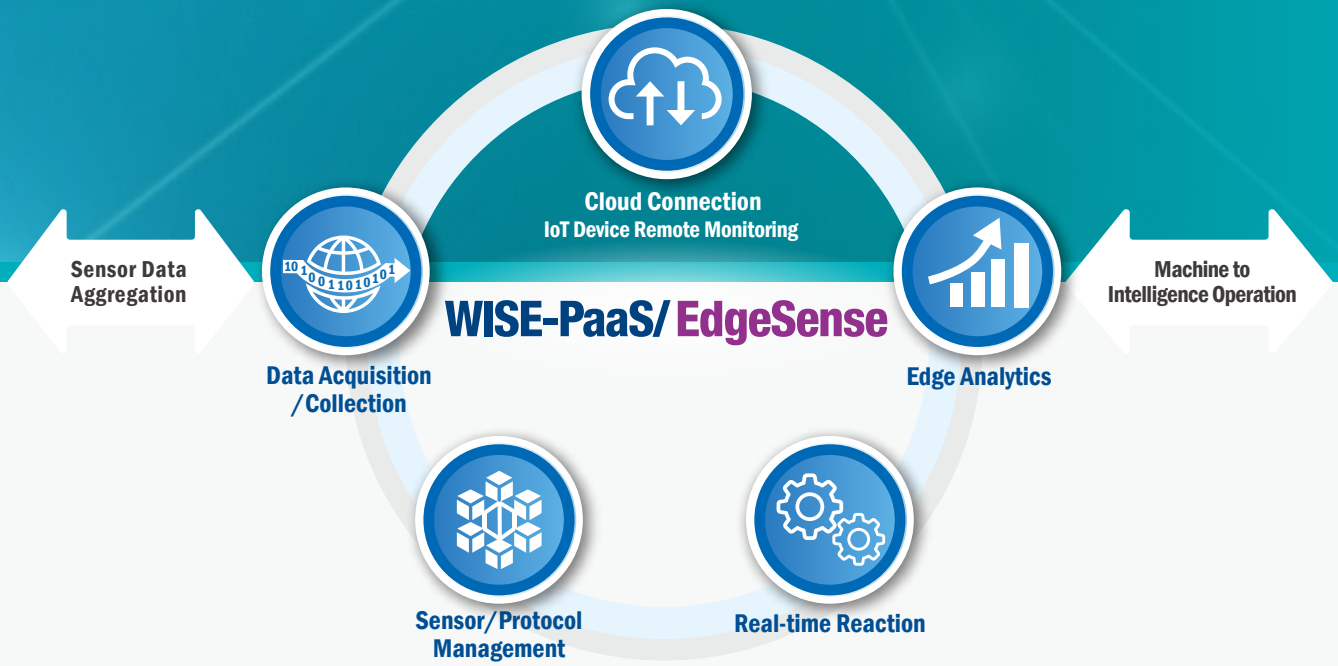


Embedded OS

Advantech provides full-featured Embedded BIOS solutions that deliver the superior performance compatibility and functionality that System Integrators need. A variety of options and extensions let customers tailor their products to a wide range of target markets, with the coreboot extended firmware feature delivering a lightning fast and secure boot experience. Furthermore, it includes a BIOS suite for building custom firmware tools for multiple OS, such as DMI, BIOS configurations, and modules.

WISE-PaaS/EdgeSense - Edge Intelligence & Sensor Integration

WISE-PaaS/EdgeSense is an edge intelligence and sensing integration software solution that incorporates sensor data aggregation, over-the-air software-in-time updates, edge analytics, cloud applications, and secure end-to-end data protection for fast and easy real-time device-to-cloud operational intelligence.



WISE-PaaS/RMM
IoT Device Remote Monitoring and Management

WISE-PaaS/OTA
Over-the-Air Software Updates

WISE-PaaS/WISE Agent
Edge Intelligence Interface

WISE-PaaS/Security
Whitelisting & Application Control

WISE-PaaS/ESL
Electronic Shelf Label

WISE-PaaS/RMM for Remote Monitoring and Management

WISE-PaaS/RMM is one of Advantech's IoT software platform services aimed at remote monitoring and management of IoT devices, bridging layers of IoT platform architecture, and anchoring predictive maintenance, big data analysis, and other domain-specific cloud applications.

Remote Device Management

- Remote monitoring and control (Power On/Off, KVM)
- Devices/groups/map view device management

Data Flow Logic Editor

- IBM Node-RED flow design tool
- Drag and drop plug-in nodes
- Integrated WISE-PaaS/RMM function nodes

Data Acquisition

- WISE-Agent dynamic data collection module
- Deployment plug-ins for various usage scenarios

Dashboard Builder

- Supports widgets for Google Maps, Gauge, Sparkline, Progress Bar, etc.
- Multiple data source formats supported

MI/O Extension 2.5" Pico-ITX

NEW NEW

Model Name		MIO-2360	MIO-2263	MIO-2270	MIO-3260	MIO-6300
Form Factor		2.5" MI/O-Ultra (Pico-ITX)	2.5" MI/O-Ultra (Pico-ITX)	2.5" MI/O-Ultra (Pico-ITX)	2.5" MI/O-Ultra (Pico-ITX)	-
Processor System	CPU	Intel® Pentium N4200/ Intel® Celeron N3350	Intel Celeron J1900/ Intel Atom E3825	AMD G-Series SoC GX-415GA/ AMD G-Series SoC GX-210JA	Intel Atom E3825/ Intel Celeron N2930	Intel Celeron N2930,1.83 GHz (Quad-Core)
	CPU TDP	6W	6W/ 10W	15W/ 6W	7.5W/ 6W	7.5W
	Frequency	2.5GHz/2.4GHz	2.0(Turbo: 2.42) GHz/1.33 GHz	1.5 GHz/ 1.0 GHz	2.0(Turbo: 2.42) GHz/1.33 GHz	1.83 GHz (Quad-Core)
	Core Number	4/2	4/2	4/ 2	4/2	4
	L2 Cache	2	2 MB/ 1MB	2 MB/ 1 MB	2 MB/ 1MB	2
	L3 Cache	-	-	-	-	-
	BIOS	AMI EFI 64 Mbit	AMI EFI 64 Mbit	AMI EFI 32 Mbit	AMI EFI 64 Mbit	AMI EFI 64 Mbit
	Chipset	-	-	-	-	-
Memory	Technology	DDR3L-1866MHz	DDR3L 1333/ 1066 MHz	DDR3/3L 1600/ 1066 MHz	DDR3L 1333/ 1066 MHz	DDR3L 1333 MHz for N2930
	Max. Capacity	8GB	8 GB	8 GB	8 GB	8 GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Controller	Intel Gen9 graphic engine	Intel Gen7 graphic engine	AMD Radeon HD 8330E/ 8180	Intel Gen7 graphic engine	Intel Gen7 graphic engine
	Graphic Memory	Shared with system memory up to 1792MB	Shared with system memory up to 384 MB	Shared with system memory up to 384 MB	Shared with system memory up to 384 MB"	Shared with system memory up to 1792MB
	VGA	up to 1920x1200	Up to 2560 x 1600 at 60Hz	Up to 2048 x 1536 at 60Hz	Up to 2560 x 1600 at 60Hz	2560 x 1600 at 60Hz
	LCD (TTL/LVDS/eDP)	24-bit up to 1440 x 900 at 60Hz	LVDS 18/24-bit, up to 1440 x 900 at 60 Hz	LVDS 18-bit, up to 1600 x 900 at 60 Hz	LVDS 18/24-bit, up to 1440 x 900 at 60 Hz	single channel 24-bit LVDS up to 1440 x 900 at 60Hz
	DDI (HDMI/DVI/ DisplayPort)	HDMI 1.4b(3840x2160@30Hz)	HDMI 1.4a 1920x1200 at 60 Hz/ 24bpp	HDMI 1.4a 1920x1200 at 60 Hz/ 24bpp	-	HDMI 1.4a for HD video playback, 1080P at 60Hz Displayport*, up to 2560 x 1600 at 60Hz
	Multiple Display	VGA+LVDS, HDMI+LVDS	VGA+LVDS, HDMI+LVDS	VGA+LVDS, HDMI+LVDS	LVDS+VGA, LVDS+DP/HDMI, VGA+DP/HDMI	VGA+LVDS
	Triple Display	-	-	-	-	-
Expansion Interface	Mini PCIe	1 x Half size	1 x Half size	1 x Half size	1 x Full-size	2 x Full size
	SIM Socket	-	-	-	-	-
	SMBus	1	1	1	1 (from 64pin connector B)	1
	I²C	1 (Shares with SMBus pin)	-	-	1 (from 64pin connector B)	1 (Shares with SMBus pin)
	MIOe	SMBus, 2 x USB3.0, LPC, 2 x PCIe x1, line out, DisplayPort/HDMI*, +5 Vsb/+12 Vsb power, Power On, Reset, SATA*	SMBus, 2 x USB2.0, LPC, 2 x PCIe x1, line out, DisplayPort/HDMI*, +5 Vsb/+12 Vsb power, Power On, Reset	2 x USB2.0, 2 PCIe x1, LPC, HD Audio line-out, DP or HDMI supported by request, 5 Vsb/12 Vsb power	SMBus, USB3.0, LPC, 2 x PCIe x1, Line out, DisplayPort/HDMI*, +5 Vsb/+12 Vsb power, Power On, Reset	-
	64-pin connecter A	-	-	-	12V DC input, Inverter, VGA, 2 x USB2.0, 1GbE	-
	64-pin connecter B	-	-	-	SMBus, I2C, Power/Reset button, HDD/Power LED, 2 x USB2.0, 8-bit GPIO, HD Audio Line-in, Line out, Mic-in, 2 x RS-232/422/485	-
Ethernet	Controller	Intel i210	Intel i210	GbE Realtek RTL8111E	Intel i210	GbE1: Intel i210 GbE2: Intel i210
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	Connector	RJ45 x 1	RJ45 x 1	RJ45 x 1	from 64pin connecter A	RJ45 x 3
Audio	Audio Interface	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	Amplifier	-	Optional via MIOe	Optional via MIOe	Optional via MIOe	Optional via MIOe
	Connector	Line-in, Line-out	Line-in, Line-out	Line-in, Line-out	Line-in, Line out, Mic-in (from 64pin connector B)	Line-in, Line-out, Mic-in
WatchDog Timer		255 levels timer interval, programmable by software	255 levels timer interval, programmable by software	255 levels timer interval, programmable by software	255 levels timer interval, programmable by software	255 levels timer interval, programmable by software
Storage	SATA	1, up to 6Gb/s (600 MB/s)	1, up to 3Gb/s (300 MB/s)	1, up to 6Gb/s (600 MB/s)	1, up to 3Gb/s (300 MB/s)	
	mSATA	1	1	1 (Integrates USB signal, supports either mSATA or USB interface module)	1 (Integrates USB signal, supports either mSATA or USB interface module)	2 x Full size
	CompactFlash	-	-	-	-	-
I/O	USB3.0	2	1	2	1 (from MIOe)	1
	USB2.0	6	3 (1 from rear, 2 from internal)	2 (from internal)	4 (from internal)	3 (1 from Rear, 2 from Internal)
	GPIO	8-bit general purpose input/output	8-bit general purpose input/output	8-bit general purpose input/output	8-bit GPIO (from 64pin connector B)	8-bit general purpose input/output
	COM Port	2 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485 with RS-485 Auto-flow control	1 x RS-232, 1 x RS-232/422/485 with RS-485 Auto-flow control	2 RS-232/422/485 (form 64-pin connector B)	2xRS-232/422/485 with RS-485 auto flow control
	Reset Button	1	1	1	1	1
	Fan	-	-	1	-	-
Power	Power Type	Single 12V DC power input	Single 12V DC power input	Single 12V DC power input	Single 12V DC power input	12V/24V power input
	Power Supply Voltage	single 12V input, ±10%	single 12V input, ±10%	single 12V input, ±10%	single 12V input, ±10%	single 12V/24V input, ± 10%
	Connector	ATX 1x2p, DC Jack (optional)	ATX 1x2p, DC Jack (optional)	ATX 1x2p, DC J ack (optional)	From 64pin connecter A	ATX 2x2P
	Power Consumption (Idle)	N3350: 0.41 @ 12V (4.89 W)	J1900: 10.59W E3825: 7.08W	GX-415GA: 12.6W GX-210JA: 5.93W	E3835: 4.47W N2930: 5.08W	N2930: 4.4W
	Power Consumption (Full Load)	N3350: 1.09 A @ 12 V (12.90 W)	J1900: 12.48W E3825: 9.12W	GX-415GA: 15.12W GX-210JA: 10.2W	N2930: 5.08W E3835: 7.13W	N2930: 7W
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V/ 210 mA	Lithium 3 V/ 210 mA	Lithium 3 V/ 210 mA	Lithium 3 V / 210 mAH
Environment	Operational Temperature	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95 RH Non-Condensing)	(Operational humidity: 40 °C @ 95% RH Non-Condensing)
Physical Characteristics	Dimensions (L x W x H)	100 x 72 mm (3.9" x 2.8")	100 x 72 mm (3.9" x 2.8")	100 x 72 mm (3.9" x 2.8")	100 x 72 mm (3.9" x 2.8")	146 x 102 mm (5.7" x 4")
Operating System	Microsoft Windows	Yes	Yes	Yes	Yes	Yes
	Linux	Yes	Yes	Yes	Yes	Yes
	SUSIAccess/ WISE-PaaS/RMM	Yes	Yes	Yes	Yes	Yes
	iManager	-	-	-	-	-
Certification	EMC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC

MI/O Extension 3.5" SBCs

NEW NEW

Model Name		MIO-5350	MIO-5251	MIO 5272	MIO-5271
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	Intel® Pentium N4200 Celeron N3350 & Atom™ E3950/E3940/E3930	Intel Atom E3825/ E3845, Celeron J1900	Intel Core i7-7600U/i7-6600U/ i5-6300U/i3-6100U / Celeron 3955U	Intel Core i5-4300U, Celeron 2980U
	CPU TDP	6W/6W/12W/9W/6W	6W/ 10W/ 10W	15W	15W
	Frequency	1.1GHz/1.1GHz/1.6GHz/1.6GHz/1.3GHz	1.33 GHz/ 1.91 GHz/ 2(Turbo: 2.42) GHz	2.8(Turbo: 3.9)GHz/ 2.6(Turbo: 3.4)GHz/ 2.4(Turbo: 3.0) GHz/ 2.3 GHz/ 2.0 GHz	1.9(Turbo: 2.9) GHz/ 1.6 GHz
	Core Number	4/2/4/4/2	2/ 4/ 4	2	2
	L2 Cache	2	1MB/ 2MB	-	-
	L3 Cache	-	-	4MB/4MB/ 3MB/ 3MB/ 2MB	3MB/ 2MB
	BIOS	AMI UEFI 64 Mb	AMI UEFI 64Mbit	AMI UEFI 128 Mbit	AMI UEFI 128 Mb
	Chipset	-	-	-	-
Memory	Technology	DDR3L 1867 MHZ	DDR3L 1066/1333MHz	DDR3L 1333/1600 MHz	DDR3L 1333/1600 MHz
	Max. Capacity	8 GB	8 GB	16 GB	8 GB
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	2 x 204-pin SODIMM	1 x 204-pin SODIMM
Display	Controller	Intel Gen9 graphic engine	Intel Gen7 graphic engine	Intel® HD Graphics 500 series	Intel® HD Graphics 4400 / Intel HD Graphics (Celeron)
	Graphic Memory	Shared with system memory up to 1792MB	Shared with system memory up to 384 MB	Shared with system memory upto 3968MB	Shared with system memory up to 1792MB
	VGA	2560 x 1600 at 60Hz	Up to 2560 x 1600 at 60Hz	Up to 1920 x 1200 at 60 Hz	Up to 1920 x 1200 at 60 Hz
	LCD (LVDS/eDP)	48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz	LVDS 48-bit, up to 1920 x 1200 at 60Hz eDP (optional): up to 2560 x 1600 at 60Hz	LVDS 48-bit, up to 1920 x 1200 at 60Hz	LVDS 48-bit, up to 1920 x 1200 at 60Hz
	DDI (HDMI/DVI/ DisplayPort)	HDMI 1.4a for HD video playback, 1080P at 60Hz Displayport*, up to 2560 x 1600 at 60Hz	HDMI: up to 1920 x 1080 at 60Hz DisplayPort (optional): up to 2560 x 1600 at 60Hz	HDMI: up to 4096 x 2160 at 24 Hz	HDMI: up to 4096 x 2304 at 24Hz DisplayPort (optional): up to 3200 x 2000 at 60Hz
	Multiple Display	VGA + LVDS (eDP *) + HDMI (DP*)	VGA+HDMI/DP, VGA+LVDS/eDP, HDMI/ DP+LVDS/eDP	VGA + HDMI + LVDS	VGA+LVDS, VGA+HDMI/DP, HDMI/DP+LVDS, VGA+HDMI/DP+LVDS
Expansion Interface	Mini PCIe	1 x Full size	1 x Full-size	2 x Full-size	1 x Full-size, 1 x Half-size
	SIM Socket	-	1	1	1
	SMBus	1	1	1	1
	I²C	1 (Shares with SMBus pin)	1 (Shares with SMBus pin)	1 (Shares with SMBus pin)	1 (Shares with SMBus pin)
	MIOe	Displayport(optional), SMBus, 3 x USB2.0, LPC, 1 x PCIe x1, line out, +5 Vsb/+12 Vsb power, Power On, Reset#	SMBus, 3xUSB2.0, LPC, 1 x PCIe, line-out, DisplayPort (optional), Reset, Power On, +5Vsb, +12Vsb	SMBus, USB3.0, LPC, 2 x PCIe, line-out Displayport (optional), Reset, PowerOn, +5Vsb, +12Vsb	SMBus, 3 x USB2.0, LPC, 1 x PCIe, line-out Displayport (optional), Reset, PowerOn, +5Vsb, +12Vsb
Ethernet	Controller	GbE1 & GbE2: Intel i210	GbE1 & GbE2: Intel i210	GbE1: Intel i219, GbE2: Intel i210	GbE1: Intel i218, GbE2: Intel i210
	Speed	10/100/1000Mbps	10 /100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps
	Connector	RJ45 x 2	RJ45 x 2	RJ45 x 2	RJ45 x 2
Audio	Audio Interface	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
	Amplifier	Optional via MIOe	Optional via MIOe	Optional via MIOe	Optional via MIOe
	Connector	Line-in, Line-out, Mic-in	Line-in, Line-out, Mic-in	Line-in, Line-out, Mic-in	Line-in, Line-out, Mic-in
WatchDog Timer		255 levels timer interval, programmable by software	255 levels timer interval	255 levels timer inte	255 levels timer interval
Storage	SATA	2* SATAIII (Max. Data Transfer Rate up to 6.0 Gb/s)	1, up to 3Gb/s (300MB/s)	2, up to 6 Gb/s (600 MB/s)	2, up to 6 Gb/s (600 MB/s)
	mSATA	1 x Full size	1 x Full-size	Supports either mSATA or full size miniPCIe, default support mSATA	Supports either mSATA or full size miniPCIe, default support mSATA
	CFast	-	-	-	-
I/O	USB3.0	2	1	2	2
	USB2.0	4 (2 from Rear, 2 from Internal)	3 (3 from rear, 1 from internal)	4 (2 from rear, 2 from internal)	3 (2 from rear, 1 from internal)
	GPIO	8-bit general purpose input/output	8-bit general purpose input/output	8-bit general purpose input/output	8-bit general purpose input/output
	COM Port	2xRS-232, 2xRS-232/422/485 with RS-485 auto flow control	2 x RS-232, 2 x RS-232/422/485 with RS-485 auto flow control	2 x RS-232/422/485 with RS-485 auto flow control	2 x RS-232, 2 x RS-232/422/485 with RS-485 auto flow control
	Reset Button	1	1	1	1
	Smart Fan	-	-	-	-
Security	TPM	TPM 2.0 (optional)	-	TPM 2.0 (optional)	-
Power	Power Type	Single 12V DC power input	Single 12V DC power input	Single 12V DC power input	Single 12V DC power input
	Power Supply Voltage	Supports single 12V input,±10%	Supports single 12V input, ±10%	Supports single 12V input, ± 10%	Supports single 12V input, ±10%
	Connector	ATX 2x2P/ DC Jack	ATX 2x2P (DC Jack optional)	ATX 2x2P (DC Jack optional)	ATX 2x2P (DC Jack optional)
	Power Consumption (Idle)	N4200: 0.4A @ 12V (4.80W) N3350: 0.4A @ 12V (4.80W	E3825: 5.42 W / E3845: 6.12W / J1900: 5.88 W	i7 7600U: TBD i7 6600U: 6.46 W / i5 6300U: 5.26 W / i3 6100U: 5.02 W, / Celeron 3955U: 4.88 W	i5 4300U: 4.68 W Celeron 2980U: 4.56 W
	Power Consumption (Full Load)	N4200: 1.26A @ 12V (15.12W) N3350: 1.29 @ 12V (15.48W)	E3825: 9.72 W / E3845: 11.04W / J1900: 13.32 W	i7 7600U: TBD(W) i7 6600U: 22.03 W, / i5 6300U: 20.87 W, / i3 6100U: 20.45 W, / Celeron 3955U: 17.81 W	i3 4300U: 29.52 W / Celeron 2980U: 20.52 W
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V/ 210 mA	Lithium 3 V / 210 mA	Lithium 3 V/ 210 mA
Environment	Operational Temperature	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)
Physical Characteristics	Dimensions (L x W x H)	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4")	146 x 102mm (5.7" x 4")
Operating System	Microsoft Windows	Yes	Yes	Yes	Yes
	Linux	Yes	Yes	Yes	Yes
	SUSIAccess/ WISE-PaaS/RMM	Yes	Yes	Yes	Yes
	iManager/SUSI 4.0	Yes	Yes	Yes	Yes
Certification	EMC	CE, FCC	CE, FCC	CE, FCC	CE, FCC

NEW NEW

Model Name		MIO-5270	MIO-5290	MIO-5850	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	AMD G- Series T56N/ T40E/ T40R	Intel Core i7-3555LE/ i7-3517UE / i3-3217UE/ Celeron 1047UE	Intel Celeron J1900/E3845/E3825	Intel Core i7-7820EQ i5-7442EQ i3-7102E
	CPU TDP	18 W/ 6.4 W/ 5.5 W	25 W/ 17 W/ 17W/ 17W	6W/10W/10W	45W/25W/25W
	Frequency	1.65 GHz/ 1.0 GHz /1.0 GHz	2.5(Turbo: 3.0) GHz/ 1.7(Turbo: 2.6) GHz/ 1.6 GHz/ 1.4 GHz	2 GHz (Quad-Core)/ 1.91GHz (Quad-Core)/ 1.91GHz (Quad-Core)	3.0 GHz (Turbo: 3.7GHz) / 2.1 GHz (Turbo: 2.9GHz) / 2.1 GHz (Turbo: 2.1GHz)
	Core Number	2/ 2/ 1	2	2004/4/2	4/4/2
	L2 Cache	1MB/ 512KB/ 512KB	-	2MB	8MB 6MB 3MB
	L3 Cache	-	4MB/ 4MB/ 3MB/ 2MB	-	-
	BIOS	AMI EFI 32Mbit	AMI EFI 64Mbit	AMI UEFI 64Mb	AMI UEFI 128Mb
	Chipset	AMD A50M	Intel QM77	-	Intel QM175
Memory	Technology	DDR3 1066 MHz, 1333MHz only for T56N	DDR3 1600MHz, DDR3L 1333 MHz	DDR3 1333MHz	DDR4 up to 2400MHz
	Max. Capacity	4 GB	8 GB	On board2/4GB	up to 32G
	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM	-	2x 260P SODIMM
Display	Controller	AMD Radeon™ HD 6320/6250/6250	Intel® HD Graphics 4000 / Intel® HD Graphics (Celeron)	Intel Gen7 graphic engine	Intel Gen 9 low power graphics
	Graphic Memory	Share with system memory up to 384MB	Share with system memory up to 1792MB	HW Decode: H.264, MPEG2, MVC, VC-1, WMV9, MJPEG and VP8. HW Encode: H.264 (MPEG2 and MVC only for J1900)	HW Codec: H.265/HEVC 8bit/10bit encode/ decode
	VGA	T56N up to 2560 x 1600, T40R & T40E up to 1920 x 1200 at 60Hz	Up to 2048 x 1536 at 75Hz	2560 x 1600 at 60Hz	_
	LCD (LVDS/eDP)	LVDS 48-bit, up to 1920 x 1200 at 60 Hz	LVDS 48-bit, up to 2560 x 1600 at 60 Hz	48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz Supports 3.3/5/12V for VDD power, 5/12V for inverter	48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz Supports 3.3/5/12V for VDD power, 5/12V for inverter
	DDI (HDMI/DVI/ DisplayPort)	HDMI: up to 1920 x 1080 at 60Hz & 36bpp	HDMI: up to 1920 x 1200 at 24Hz DisplayPort (optional): up to 2560 x 1600 at 60Hz	HDMI 1.4a for HD video playback, 1080P at 60Hz	"Supports 2 x HDMI 1.4 for HD Video playback Max resolution up to 4096 x 2304 @ 60Hz"
	Multiple Display	VGA+LVDS, VGA+HDMI, HDMI+LVDS	VGA+LVDS, VGA+HDMI/DP, HDMI/DP+LVDS,VGA/LVDS + DP (coastline) + DP (MIOe)	VGA + HDMI, VGA+ LVDS, HDMI +LVDS	HDMI + LVDS, Dual HDMI + LVDS
Expansion Interface	Mini PCIe	1 x Full-size	1 x Full-size, 1 x Half-size	1 x Full-size*	1 x Full-size
	SIM Socket	-	-	-	1
	SMBus	1	1	1	1
	I²C	1 (Shares with SMBus pin)	1 (Shares with SMBus pin)	1 (Shared with SMBus pin)	1 (Shared with SMBus pin)
	MIOe	SMBus, 3 x USB2.0, LPC, 4 x PCIe, line-out, Displayport (optional), Reset, PowerOn, +5Vsb, +12Vsb	SMBus, 1 x USB3.0, LPC, 4 x PCIe x1, line-out, Displayport, Reset, PowerOn, +5Vsb, +12Vsb	"DDI x 1, 4 PCIe x1, USB2.0 LPC, SMBUS, rest, line out, power on"	"DDI x 1, 4 PCIe x1, USB2.0 LPC, SMBUS, rest, line out, power on"
Ethernet	Controller	GbE1 & GbE2: Realtek RTL8111E-VB-GR	GbE1: Intel 82579LM, GbE2: Intel 82583V	"Gbe1: intel I210 Gbe2: intel I210 Gbe3: intel I210	"Gbe1: intel I210 Gbe2: intel I219"
	Speed	10/ 100/ 1000 Mbps	10/ 100/ 1000 Mbps	10/100/1000Mbps	10/100/1000Mbps
	Connector	RJ45 x 2	RJ45 x 2	RJ45 x 3	RJ45 x 2
Audio	Audio Interface	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio
	CODEC	Realtek ALC892	Realtek ALC892	Realtek ALC888S	Realtek ALC888S
	Amplifier	Optional via MIOe	Optional via MIOe	-	optional via MIOe
	Connector	Line-in, Line out, Mic-in	Line-in, Line out, Mic-in	Line-in, Line out,	Line-in, Line out,
WatchDog Timer		255 levels timer interval	255 levels timer interval	255 level timer interval	255 level timer interval
Storage	SATA	2, up to 3Gb/s (300 MB/s)	2, up to 6.0 Gb/s (600 MB/s)	1, up to 3Gb/s (300 MB/s)	2, up to 6Gb/s (600 MB/s)
	mSATA	Supports either mSATA or full size miniPCIe, default support miniPCIe	Supports either mSATA or full size miniPCIe	1 x Full Size	supports either mSATA or full size miniPCIe
	CFast	1	-	-	-
I/O	USB3.0	-	2	1	4
	USB2.0	6 (4 from rear, 2 from internal)	4 (2 from rear, 2 from internal)	5	2
	GPIO	8-bit general purpose input/output	8-bit general purpose input/output	2 x 8bit GPIO (5V tolerance)	2 x 8bit GPIO (5V tolerance)
	COM Port	3 x RS-232, 1 x RS-232/422/485 with RS-485 auto flow control	1 x RS-232, 1 x RS-232/422/485 with RS-485 auto flow control	2 x RS-232 from COM1/2, 2 x RS-232/422/485 from COM3/4	1 x RS-232 from COM1, 1 x RS-232 with auto flow control (ESD protection: air gap ±15kV, contact ±8kV)
	Reset Button	1	1	1	1
	Smart Fan	1 (T56N only)	1	1	1
Security	TPM	-	-	-	1 (optional)
Power	Power Type	Single 12V DC power input	Single 12V DC power input	single 12V /24VDC power input	single 12V DC power input
	Power Supply Voltage	Supports single 12V input, ± 10%	Supports single 12V input, ± 10%	12V/24V ± 10%	12V ± 10%
	Connector	ATX 2x2p/ DC Jack	ATX 2x2P/ DC Jack	ATX 2x2P (DC Jack optional)	ATX 2x2P (DC Jack optional)
	Power Consumption (Idle)	T40R: 7.08 W / T40E: 6.36 W / T56N: 7.8 W	i7 3517UE: 23.5 W / i7 3555LE: 27.7 W / i3 3217UE: 18.08 W / Celeron 1047UE: 13.2 W	MIO-5850J-U0A1E: 0.63A @12V (7.56W)	TBD
	Power Consumption (Full Load)	T40R: 9.6 W / T40E: 9.84 W / T56N: 16.2 W	i7 3517UE: 27.6 W / i7 3555LE: 32.5 W / i3 3217UE: 22.08 W / Celeron 1047UE: 17.88 W	MIO-5850J-U0A1E: 1.74A @12V (20.88W)	TBD
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V / 210 mAH	Lithium 3V/210mAH	Lithium 3V/210mAH
Environment	Operational Temperature	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	"0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)"	"0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)"
Physical Characteristics	Dimensions (L x W x H)	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4")
Operating System	Microsoft Windows	Yes	Yes	yes	yes
	Linux	Yes	Yes	yes	yes
	SUSIAccess/ WISE-PaaS/RMM	Yes	Yes	yes	yes
	iManager/SUSI 4.0	Yes	Yes	yes	yes
Certification	EMC	CE, FCC	CE, FCC	CF,CFF	CF,CFF

3.5" Single Board Computers

NEW

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Model Name		PCM-9366	PCM-9365	PCM-9310	PCM-9376	PCM-9375
Form Factor		3.5" SBC	3.5" SBC	3.5" SBC	3.5" SBC	3.5" SBC
Processor System	CPU	Intel® Pentium N4200 Celeron N3350 & Atom™ E3950/E3940/E3930	Intel Celeron N2930/ Intel Atom E3825	Intel Celeron N3160/N3060, Intel® Atom E8000	AMD G-Series T16R/ T40E	AMD Geode LX800
	CPU TDP	6W/6W/12W/9W/6W	7.5W/ 6W	6W/ 4.5W	4.5/ 6.4 W	3.6 W
	Frequency	1.1GHz/1.1GHz/1.6GHz/1.6G Hz/1.3GHz	1.83/ 1.33 GHz (Burst: 2.16 GHz/ -)	1.6 GHz	615 MHz/ 1.0GHz	500 MHz
	Core Number	4/2/4/4/2	4/2	4/ 2	1/ 2	1
	L2 Cache	2MB	2MB/ 1MB	2/ 1 MB	512 KB	128 KB
	BIOS	AMI EFI 16Mbit	AMI UEFI BIOS at 64 Mbit	AMI UEFI BIOS at 64 Mb	AMI EFI 32Mbit	Award 4Mbit
	Chipset	-	-	-	AMD A55E	AMD CS5536
Memory	Technology	DDR3L-1866MHz	DDR3L 1333 MHz for N2930, DDR3L 1066 MHz for E3825	DDR3L-1600MHz	DDR3/DDR3L 1066 MHz	DDR 333/400 MHz
	Max. Capacity	8GB	4 GB	8 GB	4 GB	1 GB
	Socket	1 x 204-pin SODIMM	-	1 x 204-pin SODIMM	1 x 204-pin SODIMM	1 x 200-pin SODIMM
	Onboard Memory	-	Onboard 2GB/ 4GB	-	1 GB	-
Display	Controller	Intel Gen9 graphic engine	Intel Gen7 graphic engine	Intel Gen8 graphic engine	AMD G-series T16R/T40E	AMD Geode LX800
	Graphic Memory	Share with system memory up to 1792MB	-	-	Optimized shared memory Architecture up to 384 MB system memory	Optimized shared memory architecture up to 64MB system memory
	VGA	up to 1920x1200	2560 x 1600 at 60Hz	1920 x 1200 at 60Hz	1920 x 1200 at 85Hz	1920 x 1440 @ 32bpp (85Hz)
	LCD (TTL/LVDS/eDP)	48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz	48-bit dual LVDS up to WUXGA 1920 x 1200 at 60Hz, the 2nd LVDS is supported by request Supports 3.3/5/12V for VDD power, 1A@5V/12V for inverter	LVDS: Single/dual-ch 18/24bit up to 1920 x 1200 at 60Hz eDP: eDP 1.3 up to 2560x1440 (Optional)	Supports single/dual channel 18/24-bit LVDS up to 1920 x 1200, 24-bit TTL	24-bit TTL (PCM-9375F) up to 1600 x 1200 @ 32bpp (60Hz) Single channel 18-bit LVDS (PCM-9375E) up to 1600 x 1200 @ 32bpp (60Hz)
	DDI (HDMI/DVI/ DisplayPort)	HDMI 1.4a for HD video playback, 1080P at 60Hz	HDMI 1.4a for HD video playback, 1080P at 60Hz	HDMI: 1.4b up to 2560x1600 at 60Hz	-	-
	Multiple Display	VGA + LVDS * eDP + HDMI	VGA + LVDS, HDMI*+ LVDS, LVDS + LVDS*	VGA + HDMI + LVDS/eDP	VGA+LVDS, VGA+TTL, LVDS+TTL	VGA + LVDS, VGA + TTL
Expansion Interface	Mini PCIe	1 x Full size	1x Full-size	2x Full-size	1 (Half-size), Full-size supported by request	-
	LPC	-	-	-	1	-
	SIM Socket	1	-	-	-	-
	SMBus	1	1	1 (shared with I2C)	1 (shared with I²C)	-
	I2C Bus	1 (Shares with SMBus pin)	1 (shared with SMBus pin)	1 (shared with SMBus)	1 (shared with SMBus)	optional
	PC/104	-	-	-	1	1
	PCI-104	-	1	-	-	-
	M.2	1 (Key E)	-	-	-	-
Ethernet	Controller	GbE1: Intel i210 GbE2: Intel i210	Realtek RTL8111E-VL-CG	GbE1/2: RTL8111E	GbE1/2 Realtek RTL8111E	GbE 1/2 Realtek RTL8139
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100 Mbps
	Connector	RJ45 x 2	RJ45 x 2	RJ45 x 2	RJ45 on GbE1, box header on GbE2	RJ45 on , box header on GbE2
Audio	Audio Interface	HD Audio	HD Audio	HD Audio	HD Audio	AC97
	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC892	Realtek ALC892	Realtek ALC203, AC97
	Amplifier		-	-	-	Max. 2.2W/ch Stereo into a 3(Ω) Load
	Connector	Line-in, Line-out, Mic-in	pin header (Line-in, Line out, Mic-in)	Line-in, line-out, mic-in	pin header (Line-in, Line out, Mic-in)	pin header (Line-in, Line out, Mic-in, speaker-out)
WatchDog Timer		-	Yes	-	Yes	Yes
Storage	SATA	1* SATAIII (Max. Data Transfer Rate up to 6.0 Gb/s)	1, up to 3Gb/s (300 MB/s)	1x SATAIII (up to 600 MB/s), 1x SATA II (optional, up to 300 MB/s)	2 x SATAII (Max. Data Transfer Rate 300 MB/s)	-
	mSATA	1 x Full size	1 x Full-size	1x Full-size (support Mini PCIe by request)	1 (Full-size)	-
	IDE	-	-	-	-	1
	CompactFlash	-	-	-	-	CompactFlash Type I/II (Primary Master IDE Channel)
	Floppy	-	-	-	-	1 (Shared with LPT)
I/O	USB3.0	2	-	-	-	-
	USB2.0	4	4	4	4	4
	GPIO	16-bit general purpose input/output	8-bit	8-bit GPIO	8-bit GPIO	8-bit GPIO
	LPT	-	-	-	-	1 (Shared with Floppy)
	COM Port	2xRS-232, 2xRS-232/422/485 with RS-485 auto flow control	3 RS-232 (ESD protection: Air gap ±15kV, Contact ±8kV)	4 (2x RS-232, 2x RS-232/422/485)	4 (2xRS-232, 2xRS-232/422/485)	4 (3xRS-232, 1xRS-232/422/485)
	PS/2 KB/Mouse	-	-	-	1	1
	Reset Button	1	-	-	1	1
	Smart Fan	-	-	-	-	-
Power	Power Type	AT/ATX	-	Single 12V DC power input	AT/ ATX	AT/ ATX
	Power Supply Voltage	9 (-5%) - 36 (+10%)V DC power input	12V ± 10%	12V ± 10%	5V±5% (+12V option for LCD, PC/104)	5V±5% (+12V option for LCD, PC/104)
	Connector	2x2P phenix power connector	1x4Pin power connector	ATX 2x2P (DC Jack Optional)	1x4pin power connector	1x4pin power connector
	Power Consumption (Idle)	N4200: 0.4A @ 12V (4.80W) N3350: 0.4A @ 12V (4.80W	PCM-9365E-2GS3A1E :0.39A @ 12V (4.68W) PCM-9365EV-4GS3A1E : 0.44A @ 12V (5.28W) PCM-9365N-4GS8A1E : 0.509A @ 12V (6.108W)	N31501.03A @ 12 V (12.27 W) N3060 0.85A @12 V (10.20 W) E8000 0.85A @ 12 V (10.20W)	T40E: 1.67A @ 5V (8.35W) T16R: 1.48 A @ 5 V (7.4 W)	0.6 A @ 5 V, 0.03A @ 12V (3.36 W)
	Power Consumption (Full Load)	N4200: 1.26A @ 12V (15.12W) N3350: 1.29 @ 12V (15.48W)	PCM-9365E-2GS3A1E : 0.49A @ 12V (5.88W) PCM-9365EV-4GS3A1E : 0.554A @ 12V (6.648W) PCM-9365N-4GS8A1E : 0.745A @ 12V (8.94W)	N3150 0.58 A @ 12 V (7.05 W) N3060 0.38 A @ 12 V (4.55 W) E8000 0.58A @ 12V (6.95W)	T40E: 2.34A @5V (11.7W) T16R: 2.28 A @ 5 V (11.4 W)	1.2 A @ 5 V, 0.23A @ 12V (8.76 W)
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V / 210 mAH	Lithium 3V/ 210 mAH	Lithium 3 V / 210 mAH	Lithium 3 V / 196 mAH
Environment	Operational Temperature	(Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @85% RH non-condensing)	0~60 °C (32~140 °F) (Operational humidity: 40 °C @95% RH non-condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)
Physical Characteristics	Dimensions (L x W x H)	146 x 102 mm (5.7" x 4")	146 x 102 mm (5.7" x 4"), same as 3.5"	146 x 102mm	146 x 102 mm	146 x 102 mm
	Construction	-	Aluminum with fanless design	Aluminum with fanless design	Aluminum with fanless design	Aluminum with fanless design
Operating System	Microsoft Windows	Yes	Yes	Yes	Yes	Yes
	Linux	Yes	Yes	Yes	Yes	Yes
	SUSIAccess	Yes	SUSI4	Yes	Yes	Yes
	iManager	Yes	Yes	Yes	CE, FCC	CE, FCC
Certification	EMC	CE, FCC	CE,FCC	CE, FCC	-	-

NEW

5.25" Single Board Computers

Model Name		PCM-9563	MIO-9290
Form Factor		5.25"	5.25"
Processor System	CPU	Intel® Pentium N4200 Celeron N3350 & Atom™ E3950/E3940/ E3930	Intel Core I & Celeron 1020E (rPGA988 socket)
	CPU TDP	6W/6W/12W/9W/6W	up to 45W
	Frequency	1.1GHz/1.1GHz/1.6GHz/1.6GHz /1.3GHz	up to 2.3(Turbo: 3.3) GHz
	Core Number	4/2/4/4/2	up to 4 core
	L2 Cache	2	-
	L3 Cache	-	up to 6MB
	BIOS	AMI EFI 16Mbit	AMI EFI 64Mbit
	Chipset	-	Intel QM77
Memory	Technology	DDR3L-1866MHz	DDR3/DDR3L 1333/1600 MHz
	Max. Capacity	8GB	8 GB x 2
	Socket	1 x 204-pin SODIMM	2 x 204-pin SODIMM
Display	Controller	Intel Gen9 graphic engine	Intel Ivy Bridge Processor + Intel QM77
	Graphic Memory	Share with system memory up to 1792MB	Share with system memory up to 512 MB
	VGA	up to 1920x1200	-
	LCD (TTL/LVDS/ eDP)	up to 1920x1200	Yes
	DDI (HDMI/DVI/ DisplayPort)	DP 1.2a (1920 x1200@60Hz) / HDMI 1.4b(1920 x1200@30Hz) Displayport*, up to 1920 x1200 at 60Hz	DisplayPort: Yes HDMI: Yes DVI-I: Yes
	Multiple Display	VGA + LVDS (eDP *) + HDMI *(DP *)	DP + HDMI + DVI-I
Expansion Interface	Mini PCIe	1	2 (Full-size, shared with mSATA)
	PCI	1	-
	PC/104-Plus	1	-
	I2C	1 (Shares with SMBus pin)	-
	MIOe	-	SMBus, 3 x USB2.0, LPC, 4 x PCIe, line out, Displayport, 5 Vsb/12 Vsb power
Ethernet	Controller	GbE1: Intel i210 GbE2: Intel i210	GbE1: Intel 82579LM GbE2: Intel I210
	Speed	10/100/1000Mbps	10/100/1000 Mbps
	Connector	RJ45 x 3	RJ45 x 2
Audio	Audio Interface	High Definition Audio	HD Audio
	CODEC	Realtek ALC888S	Realtek ALC892
	Amplifier	-	-
	Connector	Speaker out, CD-input, Line-in, Line-out, Mic-in	Line-in, Line out, Mic-in
WatchDog Timer		255 levels timer interval, programmable by software	Yes
Storage	SATA	2* SATAIII (2nd SATAIII by request)	2 SATA III (up to 600 MB/s)
	mSATA	1 x full size mSATA	1 (Full-size, shared with mini PCIe)
	CompactFlash	-	-
	Floppy	-	-
I/O	USB3.0	2	4
	USB2.0	6	2
	SPI Bus	-	-
	GPIO	8-bit general purpose input/output	16-bit
	LPT	-	-
	COM Port	4 x RS-232, 2 x RS-422/485	4 x RS-232 (2 with Tx/Rx only) 2 x RS-232/422/485
	PS/2 KB/Mouse	1	-
	Reset Button	1	1
	Power Button	-	1
	Smart Fan	1	Yes
	SMBus	1	1
	I2C Bus	1	1 (Shares with SMBus)
Power	Power Type	AT/ATX	AT/ ATX
	Power Supply Voltage	Single 12V DC power input	Single 12V input, ± 10%
	Power Consumption (Idle)	N4200: 0.44 @ 12V (5.28W) N3350: 0.48 @ 12V (5.76W)	i7 3610QE w/DDR3: 0.646 A @ 12 V (7.75 W) i5 3610ME w/DDR3: 0.614 A @ 12 V (7.37 W) i3 3120ME w/DDR3: 0.622 A @ 12 V (7.46 W) Celeron 1020E w/DDR3: 0.632 A @ 12 V (7.58 W)
	Power Consumption (Full Load)	N4200: 1.32 @ 12V (15.84W) N3350: 1.36 @ 12V (16.32W)	i7 3610QE w/DDR3: 3.759 A @ 12 V (45.11 W) i5 3610ME w/DDR3: 2.375 A @ 12 V (28.5 W) i3 3120ME w/DDR3: 1.675 A @ 12 V (20.1 W) Celeron 1020E w/DDR3: 1.595 A @ 12 V (19.14 W)
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V / 210 mAH
Environment	Operational Temperature	(Operational humidity: 40 °C @ 95% RH Non-Condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 95% RH Non-Condensing)
Physical Characteristics	Dimensions (L x W x H)	203 x 146 mm	203 x 146 mm
	Construction	-	Copper with fan design
Operating System	Microsoft Windows	Yes	Yes
	Linux	Yes	Yes
	SUSIAccess/ WISE-PaaS/RMM	Yes	Yes
	iManager	Yes	Yes
	QNX	-	Yes
Certification	EMC	CE, FCC	CE, FCC

PC/104 CPU Modules

Model Name		PCM-3365	PCM-3356
Form Factor		PC/104-Plus	PC/104
Processor System	CPU	Intel Atom E3825/E3845/N2930	AMD® G-Series™ Processor T16R /T40E
	Frequency	1.33GHz/1.91GHz/1.83GHz	615 MHZ/ 1.0 GHz
	Core Number	2/4/4	1/2
	L2 Cache	1MB/2MB/2MB	512 KB
	BIOS	AMI UEFI BIOS at 64 Mb	AMI 32-Mbit
	Chipset	1 x 204-pin SODIMM	AMD A55E
Memory	Technology	DDR3L 1066MHz/1333MHz/1333MHz	DDR3L 1066 MHz
	Max. Capacity	8GB	SO-DIMM: 4GB / On-board: 1GB
	Socket	-	1 x 204-pin SODIMM
	Onboard Memory	-	Onboard 1GB (by sku)
Display	Controller	Intel Gen7 graphic engine	AMD® G-Series™ Processor T16R/T40E
	Graphics Engine	Gen 3.5 graphic core, DX9 compliant, MPEG2 Hardware AccelerationDirectX11, OpenGL3.2, OpenCL1.1 Full HW acceleration, decode: H.264, MPEG2/4, VC-1, WMV9. Encode: H.264, MPEG2	DirectX 11 graphics with UVD 3.0, Open CL 1.1, Open GL 4.0 Hardware decode (UVD 3) for H.264, VC-1 and MPEG2
	Graphics Memory	Share with system memory up to 384 MB	Optimized shared memory architecture up to 384 MB system memory
	HDMI/DVI	DVI 1.0 (DVI-D), up to 1920x1080	-
	Multiple Displays	VGA + LVDS, VGA + HDMI/DVI, HDMI/DVI + LVDS	LVDS+VGA
Expansion Interface	Mini PCIe	1 x Full-size	1 half size
	SMBus	1 (configurable to I²C by customer's request)	1
	I²C Bus	1 (supported by request)	-
	PC/104	-	1
	PCI-104	-	-
	PC/104-Plus	1	-
Ethernet	Controller	Intel I210	GbE1: Realtek RTL8111E-VB-GR GbE2: Realtek RTL8111E-VB-GR
	Speed	10/100/1000 Mbps	10/100/1000 Mbps
	Connector	Pin Header	Box Header
Audio	Codecs	Intel High Definition audio interface (requires an audio extension module P/N: PCE-SA01-00A1E	Realtek ALC892
WatchDog Timer		Output System Reset, Programmable counter from 1 ~ 255 sec	Output System reset, Programmable 1 ~ 255 sec
Storage	SATA	1 SATA II	1 SATA II
	mSATA	1 x Full-size (default, SATA signal shared with Onboard flash)	1 half size
	IDE	-	-
	CompactFlash	-	-
	Onboard Flash	16GB/32GB/64GB (by request)	-
	Floppy	-	-
I/O	USB2.0	6	4
	SPI Bus	-	-
	GPIO	8-bit GPIO	8-bit GPIO
	LPT	-	-
	COM Port	3 (1 x RS-232/422/485, 2 RS-232)	3 x RS-232/422/485
	PS/2 KB/Mouse	1	-
Power	Power Type	AT/ATX	AT/ATX
	Power Supply Voltage	5 V ± 5% only to boot up (12 V is optional for LCD inverter and add on card)	5 V ± 5% only to boot up (12 V is optional for LCD inverter and add on card)
	Power Consumption (Idle)	E3825: 4.474W E3845: 4.72W N2930: 4.417W	T16R: 1.17 A @ +5 V (5.85 W) T40E: 1.22 A @ +5 V (6.1 W)
	Power Consumption (Full Load)	E3825: 5.675W E3845: 8.581W N2930: 6.845W	T16R: 1.43 A @ +5 V (7.15 W) T40E: 1.77 A @ +5 V (8.85 W)
	Battery	Lithium 3 V / 210 mAH	Lithium 3 V / 210 mAH
Environment	Operational Temperature	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 85% RH non-condensing)	0 ~ 60 °C (32 ~ 140 °F) (Operational humidity: 40 °C @ 85% RH non-condensing)
	Non-Operational Temperature	-40 °C ~ 85 °C and 60 °C @ 95% RH non-condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH non-condensing
Physical Characteristics	Dimensions (L x W x H)	96 x 90 mm (3.8" x 3.5")	96 x 115 mm (3.8" x 4.5")
	Weight	0.735kg (1.62lb) (with heat-sink)	0.590 kg (1.30 lb)
Operating System	Microsoft Windows	Yes	Yes
	Linux	Yes	Yes
	SUSIAccess	Yes	Yes
Certifications	EMC	CE, FCC	CE, FCC

EPC-S Series

NEW

Preliminary

Model Name		EPC-S101	EPC-S201
Barebone system	Description	Fanless barebone w/ memory adoption	Fanless barebone system
Processor System	Compatible Motherboard	PCM-9310	MIO-2360
	Thermal Solution	Fanless	Fanless
	CPU	Intel Celeron N3160/N3060, Atom x5-E8000	Intel Celeron N3350 1.10GHz
	BIOS	AMI UEFI 64Mb SPI	AMI UEFI 64Mb SPI
Memory	Socket	1 x 204-pin SODIMM	1 x 204-pin SODIMM
	Technology	DDR3L-1600	DDR3L-1866
	Max. Capacity	Default 2GB adopted, up to 8GB	8GB
Graphics	Chipset Integrated	Intel Gen8LP	Intel Gen9LP
Storage	2.5" HDD Bay	Room for 1 x 2.5" SSD, max. 9.5mm height	-
	mSATA Slot	Full size SATAIII (opt. mPCIe)	Half size SATAIII
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Realtek RTL8111E LAN2: Realtek RTL8111E	Intel i210
	Connector	RJ-45 x 2	RJ45
Audio	Codec	Realtek ALC892	Realtek ALC888
Internal expansion Slot	Mini-PCIe	Full size PCIe Gen2 (opt. 2 slots)	Full size PCIe Gen2
	M.2	1	-
	SIM slot	1	-
	SD slot	-	-
Front Panel	DP++	-	-
	DP/HDMI	HDMI 1.4b up to 2560 x 1600	Opt. HDMI 1.4b up to 3840 x 2160
	VGA	1	1
	DVI	-	-
	COM	-	1 (RS-232/422/485)
	LAN	2	1
	USB	4 (USB2.0 x 2, USB3.0 x 2)	2 x USB3.0
	Audio Jack	-	Line-in/Line-out
	Antenna (optional)	up to 1	up to 2
Rear Panel/ Side Panel	DP++	-	-
	DP/HDMI	-	-
	VGA	-	-
	DVI	-	-
	COM	4 (2 x RS-232, 2 x RS-232/422/485)	1 (RS-232/422/485)
	LAN	-	-
	USB	2 (USB2.0)	-
	Audio Jack	Line-in, Line-out, Mic-in	-
	GPIO	8-bit	8-bit
	Antenna (optional)	up to 1	-
Miscellaneous	LED Indicators	2 (Power LED, HDD LED)	1 (Power LED)
	Switch	1 (Power Switch)	1 (Power Switch)
	Circular Cutouts	1	-
Mounting		Desk mount, VESA mount, DIN rail	Desk mount, Wall mount, DIN rail
Power Requirements	Power Voltage	12V DC-in	12V DC-in
	Power Input Type (Inlet)	Phoenix DC plug-in	Phoenix DC plug-in
	Consumption	4.5W (idle with Celeron N3060)	TBD
Environment	Operating Temperature	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)
	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
	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
	Shock	IEC60068-2-27 half-sine 30G/11ms	IEC60068-2-27 half-sine 30G/11ms
Certification		CE/FCC Class B CB/UL/CCC/BSMI	CE/FCC Class B CB/UL/CCC/BSMI/ KCC
Physical Characteristics	Dimensions (W x H x D)	188 x 39 x 150 mm	134 x 100 x 44mm
	Weight	0.95kg	TBD

EPC-C Series

Model Name		EPC-C100	EPC-C300
Model Name		EPC-C100	EPC-C300
Supported Form Factor		3.5" SBC	3.5"MIO-Compact
Compatible Boards		PCM-9362/9363	MIO-5250/5251/5271
Thermal Solution		Fanless	Fanless, Fan-based for MIO-5271
Driver Bay	2.5" HDD and Slim ODD	1x2.5"HDD	1 x 2.5"HDD
Expansion	Slot		1 x SD card
	Socket	1 x miniPCIe	1 x mSATA, 1 x miniPCIe
Front Panel I/O		2 x USB, 2 x GbE, 1 x VGA, 1 x COM, 1 x PS/2	4 x USB, 3 x COM, LINE-IN, LINE-OUT, MIC-IN
Rear Panel I/O		4 x USB, 2 x GbE, 1 x VGA, 1 x HDMI	4 x COM ,GPIO, LINE-IN, LINE-OUT, MIC-IN
Miscellaneous	LED Indicators	2 x (Power LED, HDD LED)	2 x (Power LED, HDD LED)
	Switch	1 x (Power Switch)	1 x (Power Switch)
Power Requirements	Power Input Type (Inlet)	Single 12V DC, 2-Pole Pheonix DC plug in	Single 12V DC, 2-Pole Pheonix DC plug in
	Power supply	DC input with power adaptor	DC input with power adaptor
Environment	Operating Temperature	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)
	Humidity	10~85% @ 40 °C, non-condensing	10~85% @ 40 °C, non-condensing
	Vibration (5 ~500Hz)	SSD : 30G, IEC 60068-2-27, half sine, 11 ms duration	SSD : 30G, IEC 60068-2-27, half sine, 11 ms duration
	Shock	SSD : 30G, IEC 60068-2-27, half sine, 11 ms duration	SSD : 30G, IEC 60068-2-27, half sine, 11 ms duration
Certification		CE,FCC Class A	CE,FCC Class A
Physical Characteristics	Dimensions (W x H x D)	200 x 60 x 145 mm	188 x 54 x 150 mm
	Weight	0.95kg	1.38kg

More information

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Regional Service & Customization Centers

China	Kunshan 86-512-5777-5666	**Taiwan**	Taipei 886-2-2792-7818	**Netherlands**	Eindhoven 31-40-267-7000	**Poland**	Warsaw 00800-2426-8080	**USA**	Milpitas, CA 1-408-519-3898

Worldwide Offices

Greater China

China

Toll Free	800-810-0345
Beijing	86-10-6298-4346
Shanghai	86-21-3632-1616
Shenzhen	86-755-8212-4222
Chengdu	86-28-8545-0198
Hong Kong	852-2720-5118

Taiwan

Toll Free	0800-777-111
Taipei & IoT Campus	886-2-2792-7818
Taichung	886-4-2329-0371
Kaohsiung	886-7-229-3600

Middle East and Africa

Israel	072-2410527

Asia

Japan

Toll Free	0800-500-1055
Tokyo	81-3-6802-1021
Osaka	81-6-6267-1887
Nagoya	81-0800-500-1055

Korea

Toll Free	080-363-9494
Seoul	82-2-3663-9494

Singapore

Singapore	65-6442-1000

Malaysia

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London	44-0-870-493-1433

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Warsaw	48-22-31-51-100

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