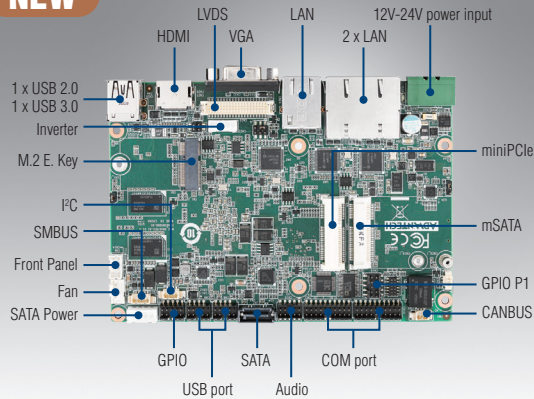


# MIO-5850

## Intel® Celeron J1900 & Atom™ E3825/E3845, 3.5" SBC

**NEW**



### Features

- Intel® Celeron J1900 & Atom™ E3825/E3845, DDR3L-1333MHz 2/4GB on board
- DirectX11, OpenGL3.2, OpenCL1.2, Dual display: HDMI, VGA, LVDS
- CPU bottom up design for system integration and rugged design for variable automation factory environments
- 3 Intel i210 GbE, rich I/O: 4COM, SATA, USB3.0, SMBus/I²C, 16 bit GPIO, full-size Mini PCIe/M.2 E Key, half size mSATA, 12-24V Power input, SIM Card holder, CANBUS with Isolation
- Supports iManager 3.0, RMM and Embedded Software APIs

#### Software APIs:



#### Utilities:



WISE-PaaS/RMM iManager CE FCC

### Specifications

Processor System	CPU	Intel Celeron J1900	Intel Atom E3845	Intel Atom E3825
	Base Frequency	2 GHz (Quad-Core)	1.91GHz (Quad-Core)	1.33 GHz (Dual-Core)
	Burst Frequency	2.42 GHz	-	-
	L2 Cache	2MB	2MB	1MB
	BIOS	AMI UEFI BIOS at 64 Mb		
Memory	Technology	DDR3L 1333 MHz	DDR3L 1333MHz	DDR3L 1066 MHz
	Max. Capacity	On board 2/4GB		
Display	Controller	Intel Gen7 graphic engine		
	Graphic Features	DirectX11, OpenGL3.2, OpenCL1.2 HW Decode: H.264, MPEG2, MVC, VC-1, WMV9, MJPEG and VP8. HW Encode: H.264 (MPEG2 and MVC only for J1900)		
	VGA	2560 x 1600 at 60Hz		
	LVDS	48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz Supports 3.3/5/12V for VDD power, 5/12V for inverter		
	HDMI	HDMI 1.4a for HD video playback, 1080P at 60Hz		
	Multit-Display	VGA + HDMI, VGA+ LVDS, HDMI +LVDS		
Ethernet	Speed	10/100/1000Mbps		
	Controller	Intel i210		
	Connector	3 RJ45		
Audio	Codec	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in		
	Amplifier*			
WatchDog Timer		Output System reset, Programmable counter from 1 ~ 255 minutes/ seconds		
Storage	SATA	1, up to 3Gb/s (300 MB/s)		
	mSATA	1 x Half size		
	eMMC	16/32/64GB* (Optional)		
Rear I/O	Ethernet	3 (10/100/1000Mbps)		
	VGA	1		
	HDMI	1		
	USB 2.0	1		
	USB 3.0	1		
	DC Jack*	1		
Internal I/O	Serial	COM1/2 RS232/422/485 with auto flow control COM3/4 RS232 (ESD protection: air gap ±15kV, contact ±8kV)		
	USB2.0	4		
	CAN bus	1 (With 2500-VRMS Isolation)		
	I²C	1 (Shared with SMBus pin)		
	SMBus	1		
	GPIO	16 Bit (5V tolerance)		
Expansion	Mini PCIe	1 x Full size (default)		
	M.2 E key	1 x Full-size (by request)		
Power	Power Type	12V/24V DC Power input		
	Power Supply Voltage	12V ± 10%		
	Power Consumption (Typical)	6.43W (12V) / 6.57W (24V)		6.10W (12V) / 7.99W (24V)
	Power Consumption (Max)	13.68W (12V) / 14.37W (24V)		9.10W (12V) / 11.74W (24V)
	Power Management	ACPI		
	Battery	Lithium 3 V / 210 mAH		
Environment	Operating	0 ~ 60 °C (32 ~ 140 °F), Extend: -40 ~ 85° C (-40 ~ 185° F)		
	Non-Operating	Storage: -40 ~ 85° C (-40 ~ 185° F)		
Physical Characteristics	Dimensions (L x W)	146 x 102 mm (5.7" x 4"), same as 3.5"		
	Weight	0.5kg (1.1lb), weight of total package		
	Height	Top Side: 19 mm; Bottom Side: 6.8 mm; PCB: 2.0 mm		

\* This specification is supported by request

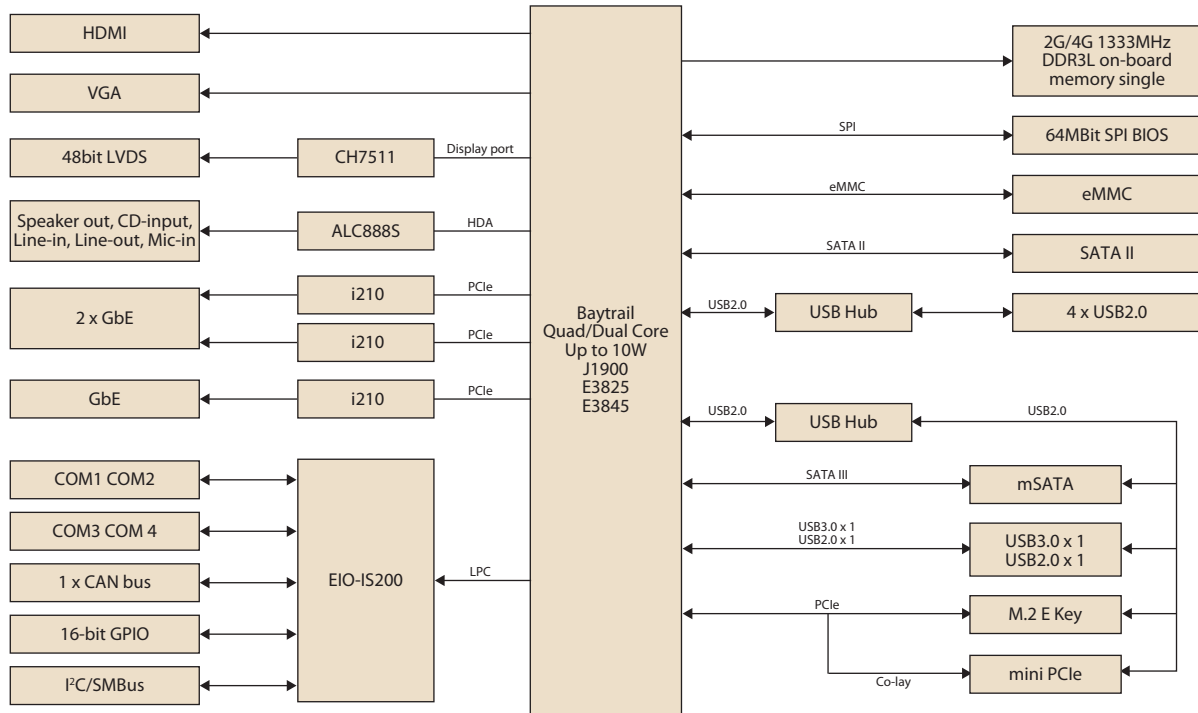
**ADVANTECH**

MI/O Extension SBCs, Modules and Chassis

All product specifications are subject to change without notice.

Last updated: 21-Dec-2023

## Block Diagram



## Ordering Information

Part.No	CPU	L2 Cache	Memory	GbE	eMMC	RS-232/422/485	RS-232	USB 3.0	USB 2.0	SATAIII	CAN bus	Mini PCIe	mSATA	M.2 E key	Thermal solution	Operating Temp.
MIO-5850J-U0A1	Intel J1900 2GHz 10W	2MB	4GB	3	-	2	2	1	5	1	Yes	Full-Size	Half size	By request	Passive	0-60°C
MIO-5850JF-U0A1	Intel J1900 2GHz 10W	2MB	4GB	3	32GB on board	2	2	1	5	1	Yes	Full-Size	Half size	By request	Passive	0-60°C
MIO-5850E-S3A1	Intel E3825 1.33GHz 6W	1MB	2GB	3	-	2	2	1	5	1	Yes	Full-Size	Half size	By request	Passive	0-60°C
MIO-5850JX-U0A1	Intel J1900 2GHz 10W	2MB	4GB	3	-	2	2	1	5	1	Yes	Full-Size	Half size	By request	Passive	-40-85°C

Note1: J1900 and E3845/E3825 with different version BIOS and only for 64bit Win8/Win7, 32bit supported by T-P/N. (Default setting is Legacy boot)  
 Note2: passive=fanless

## Packing List

Part No.	Description	Quantity
	MIO-5850 SBC	1
2006585000	Startup Manual	1
1700006291	M Cable SATA 7P/SATA 7P 30cm C=R 180/90	1
1700018785	SATA 35cm power cable	1
1701200220	COM RS-232 Cable 2*10P-2.0/D-SUB 9P (M)*2 22CM	2
1700019584	Audio Cable 2*5P-2.0/JACK*3 20cm	1
1700021705-01	A cable D-SUB 9P/1*3p-1.25+G-TEM 30cm	1
9689000002	mini Jumper pack	1
1960087101T001	Heatsink	1
1960090298T001	Wide temp. heatsink	1

## Optional Accessories

Part No.	Description
1960089697N001	Heat spreader (16.7mm height)
1703100264	Internal 1 port USB cable 22.5cm

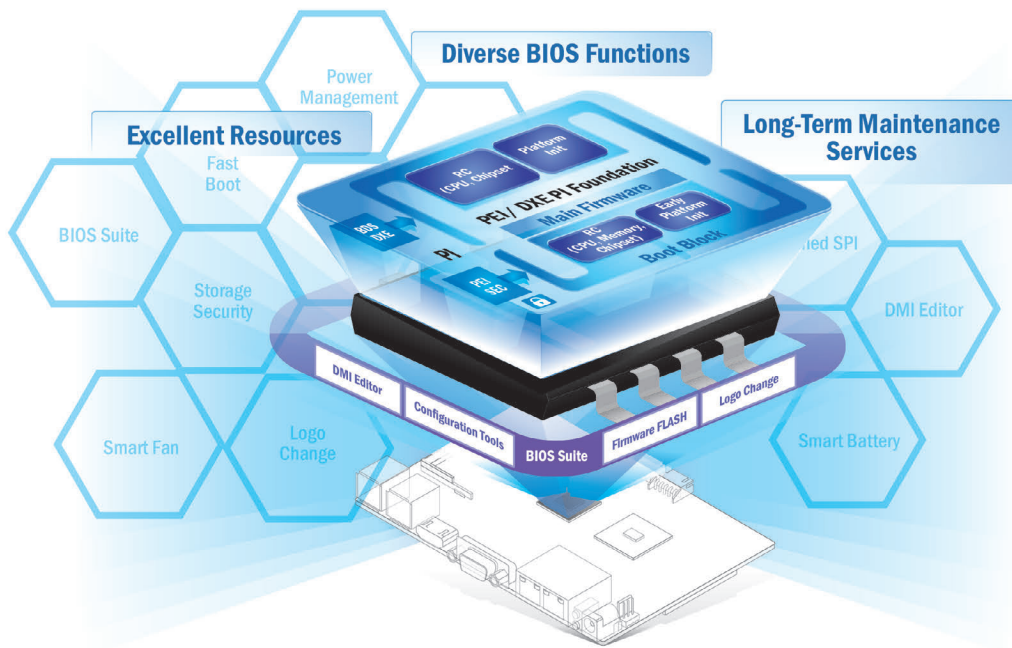
## Embedded OS/API

Embedded OS/API	Part No.	Description
Win10	20706WX6ES0009	64bit (ENG/T-CH/S-CH/JP)
WES7E	20706WE7ES0003	64bit (ENG/T-CH/S-CH/JP)
Software API		iManager 3.0

# Reliable Embedded BIOS Solutions

Custom BIOS services with long-term support

Advantech's high-quality embedded BIOS solutions deliver rapid execution and feature expert BIOS team support. These solutions feature multi-functional designs that ensure security and enable power/boot management. Advantech further provides 10+ years of BIOS version management, internal management, and longevity support for both hardware and BIOS — enhancing application efficiency, diversifying functionality, and optimizing performance.



## Embedded BIOS Solution Advantages

### Sufficient Sources

- Strong partnership with BIOS vendors
- 50+ engineers with extensive industrial BIOS experience

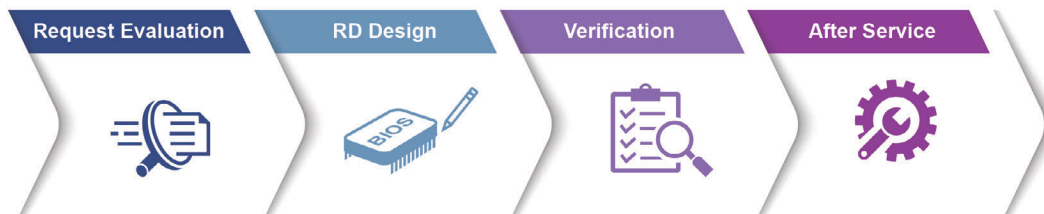
### Diverse BIOS Functions

- Multi-layer security
- 3 second fast boot
- Power management
- BIOS suite utility

### Long-Term Maintenance Services

- Platform longevity support
- 10-year BIOS version control
- BIOS remote backup

## Value-Added Customization Process



# Embedded Linux Support and Design-in Services

## Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.



### Features

<p><b>Certified OS and BSP</b></p> <ul style="list-style-type: none"> <li>Platform compatibility tests</li> <li>Preloaded functional driver and software stacks</li> </ul>	<p><b>Licensed Services</b></p> <ul style="list-style-type: none"> <li>License authorized Canonical delivers 10-years of bug fixes and security updates</li> <li>In-house bundled service</li> </ul>	<p><b>Numerous AI and Edge Resources</b></p> <ul style="list-style-type: none"> <li>Containerized technology for service provision and deployment</li> <li>AI resources from Caffe, TensorFlow, and mxnet</li> </ul>	<p><b>Local Partner Alliance</b></p> <ul style="list-style-type: none"> <li>Embedded Linux and Android Alliance (ELAA)</li> </ul>
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# Edge AI Suite

AI development for diverse application at the Edge

Increasing demand for AI inference/analytic capabilities at the Edge make AI training models, software development environments, and hardware configuration key factors in successful solution deployment. Advantech's Edge AI Suite helps users build AI demo devices quickly and choose optimal hardware solutions easily.



5x Performance Boost	All-in-one Installation	One Click AI Experience	Plug-and-play Environment	Discover Cost-effective Hardware
<ul style="list-style-type: none"> <li>Integrated Intel® OpenVINO™ technology</li> <li>Boost AI using Advantech hardware</li> </ul>	<ul style="list-style-type: none"> <li>Build AI environment in under 5 minutes</li> <li>Ready-to-use configuration</li> </ul>	<ul style="list-style-type: none"> <li>User friendly configuration guidance</li> <li>One-click Benchmark acquisition</li> </ul>	<ul style="list-style-type: none"> <li>Easy access to 100+ AI inference extensions</li> <li>Software development package available</li> </ul>	<ul style="list-style-type: none"> <li>Diverse CPU/RAM options</li> <li>Find hardware solutions for AI development</li> </ul>

# WISE-DeviceOn

## Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.



### Features

Comprehensive Management	Remote Access	Efficient Operations
<ul style="list-style-type: none"> <li>• Devices status</li> <li>• Peripherals/firmware</li> <li>• Open for extension</li> </ul>	<ul style="list-style-type: none"> <li>• Real-time monitoring</li> <li>• Remote controls</li> <li>• Troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• Zero-touch on-boarding</li> <li>• OTA updates</li> <li>• Batch control</li> </ul>

### Product Highlights



**SOM-6883**

High-performance 11<sup>th</sup> Gen Intel<sup>®</sup> COMe Type 6 Module



**MIO-5375**

Compact 11<sup>th</sup> Gen Intel<sup>®</sup> Outdoor Focused 3.5" SBC



**EPC-B5587**

10<sup>th</sup> Gen Intel<sup>®</sup> Xeon<sup>®</sup> based Edge server



**EPC-R3220**

Arm based IoT Edge Gateway