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# Datasheet

## **ADVANTECH**

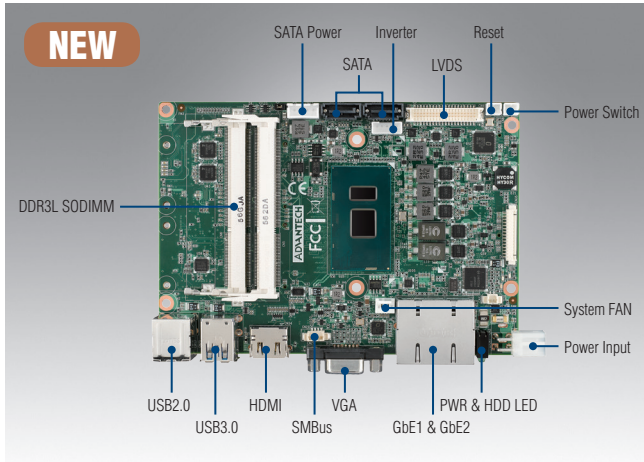
**MIO-5272**

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# MIO-5272

**6th Gen Intel® Core™ U-series (i7/i5/i3/Celeron®\*), 3.5" MI/O-Compact SBC, DDR3L, VGA, HDMI, 48-bit LVDS, 2 GbE, 2 Mini PCIe, mSATA, Fanless, MIOe**



WISE-PaaS/RMM CE FCC

## Features

- 6th Gen Intel® Core™ U-series (i7/i5/i3/Celeron®\*), 2 x DDR3L-1600/1333 SODIMM support up to 16 GB
- DirectX 11.3, OpenGL 4.4, OpenCL 2.1, 3 independent displays: VGA + LVDS + HDMI
- Flexible design using integrated multiple I/Os: MIOe to approach vertical applications & keep domain knowhow.
- 2 GbE support, HD Audio, Rich I/O interface with 2 COM, 2 SATA, SMBus/I<sup>2</sup>C, GPIO, 2 Full-size Mini PCIe (one w/ mSATA), 4 USB 2.0, 2 USB 3.0 and TPM2.0\*
- Supports Intel AMT11.0, WISE-PaaS/RMM and Embedded Software APIs

### Software APIs:



### Utilities:

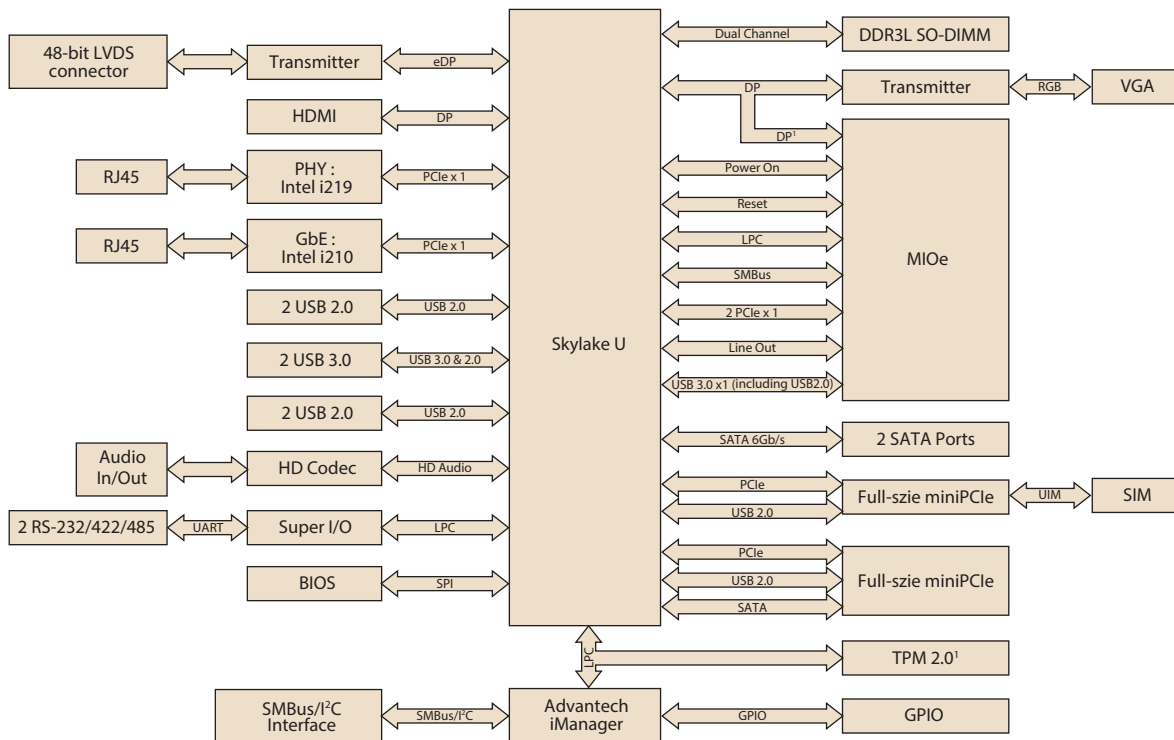


## Specifications

		Intel Core i7 6600U	Intel Core i5 6300U	Intel Core i3 6100U	Intel Celeron 3955U*
Processor System	CPU	Intel Core i7 6600U	Intel Core i5 6300U	Intel Core i3 6100U	Intel Celeron 3955U*
	Base Frequency	2.6 GHz (Dual-Core)	2.4 GHz (Dual-Core)	2.3 GHz (Dual-Core)	2.0 GHz (Dual-Core)
	Max Turbo Frequency	3.4 GHz	3.0 GHz	-	-
	L3 Cache	4MB	3MB	3MB	2MB
	BIOS	AMI UEFI 128 Mbit			
Memory	Technology	DDR3L 1600 MHz			
	Max. Capacity	16 GB			
	Socket	2 x 204-pin SODIMM			
Display	Controller	Intel HD Graphics 520 / Intel HD Graphics 510 (Celeron)			
	Processor Graphics	DirectX 11.3, OpenGL 4.4, and OpenCL 2.1 Full AVC/VC1/MPEG2 HW Decode			
	VGA	1920 x 1200 @ 60Hz or 2048 x 1152 @ 60Hz with reduced blanking			
	LVDS	LVDS with 3.3V, 5V and 12V on LCD VDD power, 5V and 12V support on LVDS inverter Dual channel 24-bit LVDS, max resolution up to 1920 x 1200 at 60Hz			
	HDMI	Supports HDMI 1.4 for HD Video playback Max resolution up to 4096 x 2160 at 24 Hz			
	Multi-Display	VGA + HDMI, VGA + LVDS, HDMI + LVDS, VGA + HDMI + LVDS			
Ethernet	Speed	10/100/1000Mbps			
	Controller	GbE1: Intel i219, GbE2: Intel i210			
	Connector	2 RJ45 on Rear I/O			
Audio	Codec	High Definition Audio (HD), Line-in, Line out, Mic-in			
	Amplifier	Optional via MIOe			
WatchDog Timer		Output System reset, Programmable counter from 1 ~ 255 minutes/ seconds			
Storage	SATA	2, up to 6.0 Gb/s (600 MB/s)			
	mSATA	1 x Full-size (support either mSATA or miniPCIe)			
Rear I/O	Ethernet	2			
	VGA	1			
	HDMI	1			
	USB 2.0	2			
	USB 3.0	2			
	LED	Power, HDD			
	DC Jack*	1			
Internal I/O	Serial	2 x RS-232/422/485 with auto flow control (ESD protection: Air gap ±15kV, Contact ±8kV)			
	USB	2			
	I <sup>2</sup> C	1 (Shares with SMBus pin)			
	SMBus	1			
	GPIO	8-bit general purpose input/output			
Security	TPM2.0*	Support by request			
Expansion	Mini PCIe	2 x Full-size (One with SIM card holder. Another one with mSATA support, default support mSATA)			
	MIOe	Displayport*, SMBus, USB3.0, LPC, 2 x PCIe x1, line out, +5 Vsb/+12 Vsb power, Power On, Reset			
Power	Power Type	Single 12V DC power input			
	Power Supply Voltage	Supports single 12V input, ± 10%			
	Power Consumption (Typical)	i7 6600U: 6.46 W, i5 6300U: 5.26 W, i3 6100U: 5.02 W, Celeron 3955U: 4.88 W			
	Power Consumption (Max)	i7 6600U: 22.03 W, i5 6300U: 20.87 W, i3 6100U: 20.45 W, Celeron 3955U: 17.81 W			
	Power Management	ACPI			
	Battery	Lithium 3 V / 210 mAh			
Environment	Operating	0 ~ 60 °C (32 ~ 140 °F) (Operating humidity: 40 °C @ 95% RH Non-Condensing)			
	Non-Operating	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing			
Physical Characteristics	Dimensions (L x W)	146 x 102 mm (5.7" x 4"), same as 3.5"			
	Weight	0.67kg, weight of total package			
	Height	Top Side: 16.5 mm; Bottom Side: 7.8 mm; PCB: 2.0 mm			

\* Supported by request; please contact Advantech if this function is needed.

## Block Diagram



<sup>1</sup> Supported by request

## Ordering Information

Part No.	CPU <sup>1</sup>	L3 Cache	Memory	LVDS	VGA	HDMI	GbE	HD Audio	RS-232/422/485	USB 3.0	USB 2.0	SATAIII	Full-size Mini PCIe <sup>2</sup>	MIOe	Power connector <sup>3</sup>	Thermal Solution	Operating Temp.
MIO-5272U-U6A1E	Intel i7 6600U 2.6GHz 15W	4MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	0 ~ 60 °C
MIO-5272U-U4A1E	Intel i5 6300U 2.4GHz 15W	3MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	0 ~ 60 °C
MIO-5272U-U3A1E	Intel i3 6100U 2.3GHz 15W	3MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	0 ~ 60 °C
MIO-5272Z-U6A1E	Intel i7 6600U 2.6GHz 15W	4MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	-40 ~ 85° C
MIO-5272Z-U4A1E	Intel i5 6300U 2.4GHz 15W	3MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	-40 ~ 85° C
MIO-5272Z-U4A1E	Intel i5 6300U 2.4GHz 15W	3MB	SODIMM	48-bit	Yes	Yes	2	1	2	2	4	2	2	1	2x2 pin	Passive	-20 ~ 80° C

<sup>1</sup> Intel Celeron 3955U is supported by request

<sup>2</sup> One Mini PCIe default support mSATA

<sup>3</sup> DC jack is supported by request

## Packing List

Part No.	Description	Quantity
MIO-5272	SBC	1
2006527200	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	1
1700019584	Audio Cable 2*5P-2.0/JACK*3 20cm	1
9689000002	Mini Jumper pack	1
1960068763T001	Heatsink (145 x 84 x 24 mm) for MIO-5272	1
1960072272T001	Heatsink (145.4 x 84.2 x 34 mm) for MIO-5272Z/Z2 only	1

## Optional Accessories

Part No.	Description
1960074236N001	Heat spreader (145 x 84 x 16 mm) for MIO-5272
1700002172	Internal 2 ports USB cable 17CM

## Embedded OS/API

Embedded OS/API	Part No.	Description
Windows Embedded 7 Standard	2070014274	img WES7E MIO-5272 x64 V5.7.0 EN/JP/TC/SC
VxWorks		7.0 (TBD)
Linux		Ubuntu 15.10
Software API		SUSI 4.0

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