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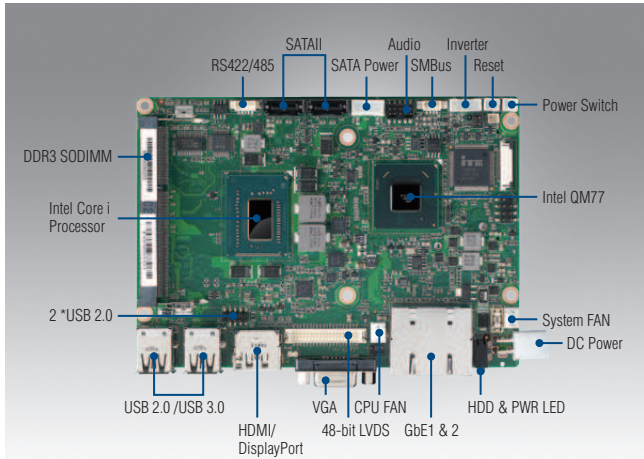
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# MIO-5290

Intel® Core™ i7 / i3, 3.5" MI/O-Compact SBC, DDR3/DDR3L, VGA, DP/HDMI, 48-bit LVDS, 2GbE, 2 x Mini PCIe, mSATA, iManager, MIOe



iManager susiAccess CE FCC

## Features

- Intel® Core™ i7, i3 and Celeron processors + Intel QM77 PCH, 1 x DDR3/DDR3L SO-DIMM support up to 8 GB
- DirectX11, OpenGL 3.1, OpenCL 1.1, 3 independent display: VGA or LVDS + DisplayPort + DisplayPort (from MIOe)
- Supports Intel® AMT8.0, USB 3.0, TPM1.2
- Flexible design using integrated multiple I/O: MIOe to approach vertical applications & keep domain knowhow
- 2 GbE support, HD Audio, Rich I/O interface with 2 COM, 2 SATA, SMBus, 8-bit GPIO, Half-size Mini PCIe, Full-size Mini PCIe & 2 USB 3.0
- Supports iManager, SUSIAccess and Embedded Software APIs

### Software APIs:



### Utilities:



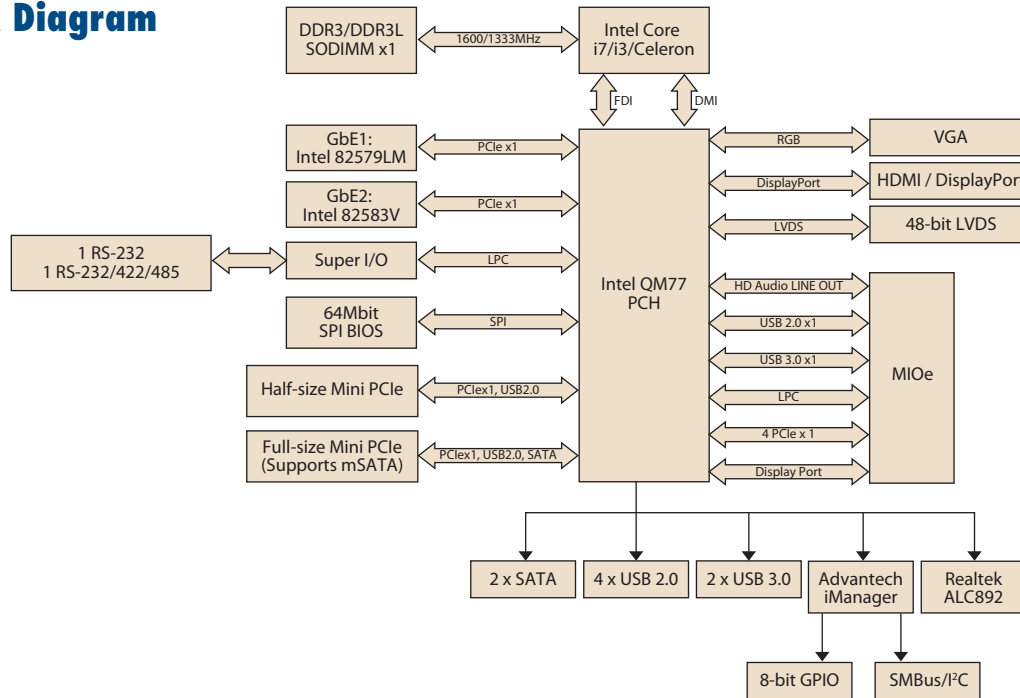
## Specifications

Processor System	CPU	Celeron 1047UE	ULV Core i3 3217UE	ULV Core i7 3517UE	LV Core i7 3555LE
	Frequency	1.4GHz (Dual-Core)	1.6GHz (Dual-Core)	1.7GHz (Dual-Core)	2.5GHz (Dual-Core)
	L3 Cache	2MB	3MB	4MB	4MB
	System Chipset	Intel QM77			
Memory	BIOS	AMI EFI 64Mbit			
	Technology	DDR3 1600MHz, DDR3L 1333 MHz			
Display	Max. Capacity	8 GB			
	Socket	1 x 204-pin SODIMM			
	Controller	Intel HD Graphics 4000 / Intel HD Graphics (Celeron)			
	Graphic Engine	DirectX11, OpenGL 3.1, and OpenCL 1.1 Hardware decode acceleration: AVC/H.264, MPEG-2, VC-1			
	VGA	Integrated 340.4MHz RAMDAC, Max resolution up to 2048 x 1536 at 75Hz			
	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 2560 x 1600 at 60Hz			
Ethernet	HDMI / DisplayPort*	Supports HDMI 1.4 for HD Video playback Max resolution up to 2560 x 1600 at 60Hz on DisplayPort, Max resolution up to 1920 x 1200 at 60Hz on HDMI			
	3 Independent Display	VGA + Displayport (coastline) + Displayport (MIOe) or LVDS + Displayport (coastline) + DisplayPort (MIOe)			
	Speed	10/100/1000Mbps			
	Controller	GbE1: Intel 82579LM, GbE2: Intel 82583V			
Audio	Connector	2 RJ45 on Rear I/O			
	Chipset	Realtek ALC892, High Definition Audio (HD), Line-in, Line out, Mic-in			
WatchDog Timer	Amplifier	Optional via MIOe			
	Output	System reset, Programmable counter from 1 ~ 255 minutes/seconds			
Storage	Storage	2, up to 6.0 Gb/s (600 MB/s)			
	mSATA	Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe			
Rear I/O	Ethernet	2 (10/100/1000Mbps)			
	VGA	1			
	HDMI / DisplayPort	1			
	USB 2.0	2 x USB 2.0			
	USB 3.0	2 x USB 3.0			
	LED	Power, HDD			
Internal I/O	DC Jack	Only on MIO-5290U-S6A1E/MIO-5290U-S7A1E			
	USB	2 x USB 2.0			
	Serial	RS-232 from COM1, RS-232/422/485 from COM2 with auto flow control (ESD protection for RS-232: Air gap ±15kV, Contact ±8kV)			
	PC	1 (Shares with SMBus pin)			
Expansion	SMBus	1			
	GPIO	8-bit general purpose input/output			
	Mini PCIe	1 x Full-size 1 x Half-size			
	MIOe	Displayport, SMBus, 1 x USB2.0, 1 x USB3.0, LPC, 4 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)	MIO-5290U-S6A1E:	w/DDR3: 1.615 A @ 12 V (19.38 W), w/DDR3L: 1.507 A @ 12 V (18.08 W)		
		MIO-5290U-S7A1E:	w/DDR3: 2.023 A @ 12 V (24.28 W), w/DDR3L: 1.965 A @ 12 V (23.5 W)		
		MIO-5290L-U5A1E:	w/DDR3: 2.356 A @ 12 V (28.27 W), w/DDR3L: 2.309 A @ 12 V (27.7 W)		
	Power Consumption (Max, test in HCT)	MIO-5290U-S4A1E:	w/DDR3: 1.18 A @ 12 V (14.16 W), w/DDR3L: 1.1 A @ 12 V (13.2 W)		
MIO-5290U-S6A1E:		w/DDR3: 2.024 A @ 12 V (24.29 W), w/DDR3L: 1.84 A @ 12 V (22.08 W)			
MIO-5290U-S7A1E:		w/DDR3: 2.412 A @ 12 V (28.94 W), w/DDR3L: 2.3 A @ 12 V (27.6 W)			
Power Management	MIO-5290L-U5A1E:	w/DDR3: 2.896 A @ 12 V (34.75 W), w/DDR3L: 2.708 A @ 12 V (32.5 W)			
Battery	MIO-5290U-S4A1E:	w/DDR3: 1.68 A @ 12 V (20.16 W), w/DDR3L: 1.49 A @ 12 V (17.88 W)			
Environment	Battery	Lithium 3 V / 210 mAH			
	Operational	0 ~ 60° C (32 ~ 140° F) (Operational humidity: 40° C @ 95% RH Non-Condensing)			
Physical Characteristics	Non-Operational	-40° C ~ 85° C and 60° C @ 95% RH Non-Condensing			
	Dimensions (L x W)	146 x 102 mm (5.7" x 4"), same as 3.5"			
	Weight	0.84 kg (1.72lb), weight of total package			
Height	Top Side: 37 mm (MIO-5290U series), 47.7 mm (MIO-5290L series); Bottom Side: 9 mm; PCB: 1.6mm				

\* In order to have optimize compatibility on HDMI, DisplayPort is not under best configuration. If any compatibility issue occur on DP, please help to contact with technical service.



## Block Diagram



## Ordering Information

Part No.	CPU	L3 Cache	LVDS	VGA	HDMI/DP	GbE	HD Audio	RS-232/422/485	RS-232	USB 3.0	USB 2.0	SATA	Half-size Mini PCIe	Full-size Mini PCIe <sup>1</sup>	MIOe	Power connector	Thermal Solution <sup>2</sup>	Operation Temp.
MIO-5290U-S6A1E	Intel Core i3 ULV 1.6GHz 3217UE DC, 17W	3MB	48-bit	Yes	Yes	2	Yes	1	1	2	4	2	1	1	Yes	DC Jack	Active	0 ~ 60° C
MIO-5290U-S7A1E	Intel Core i7 ULV 1.7GHz 3517UE DC, 17W	4MB	48-bit	Yes	Yes	2	Yes	1	1	2	4	2	1	1	Yes	DC Jack	Active	0 ~ 60° C
MIO-5290L-U5A1E	Intel Core i7 LV 2.5GHz 3555LE DC, 25W	4MB	48-bit	Yes	Yes	2	Yes	1	1	2	4	2	1	1	Yes	2x2 pin	Active	0 ~ 60° C
MIO-5290U-S4A1E	Intel Celeron 1.40 GHz 1047UE DC, 17W	2MB	48-bit	Yes	Yes	2	Yes	1	1	2	4	2	1	1	Yes	2x2 pin	Active	0 ~ 60° C

<sup>1</sup> Full-size Mini PCIe supports mSATA

<sup>2</sup> Active = with fan

## Packing List

Part No.	Description	Quantity
	MIO-5290 SBC	1
2006529000	Startup Manual	1
1700006291	M Cable SATA 7P/SATA 7P 30cm C=R 180/90	1
1700018785	SATA 35cm power cable	1
1700019435	COM RS-485 D-SUB 9P (M)/1*5P 1.25 25cm 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
1960057431N001	Cooler for MIO-5290L series only (Height: 47.7mm)	1
1960057432N001	Cooler for MIO-5290U series only (Height: 37mm)	1

## Rear I/O View



MIO-5290U-S6A1E  
MIO-5290U-S7A1E



MIO-5290L-U5A1E  
MIO-5290U-S4A1E

## Optional Accessories

Part No.	Description
1960058000N001	Heat spreader for MIO-5290
1700006291	SATA cable 7P/ 7P 30cm C=R 180/90
1703100260	Internal USB cable
1757003934	Adaptor 100-240V 60W 12V 5A W/O PFC

## Embedded OS/API

Embedded OS/API	Part No.	Description
Windows Embedded Standard	2070011449	WES2009 MIO-5290 ENG
Windows Embedded Standard 7	2070011453/ 2070011452	WES7E 32/64bit MIO-5290 ENG/GER/JPN/CH
VxWorks		6.9.2
QNX		6.5
Linux		CentOS 6.3/Ubuntu 12.04
Software API		iManager 2.0