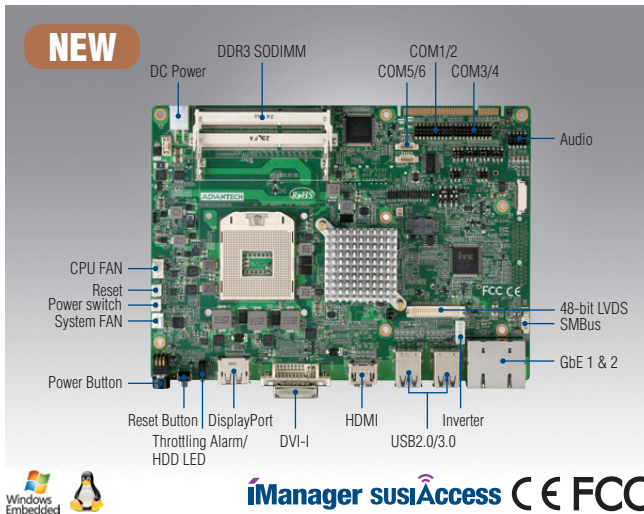


# MIO-9290

Intel® 3<sup>rd</sup> Core™ i7/i5/i3 rPGA988, 5.25" MI/O SBC, DDR3/DDR3L, DP, HDMI, DVI-I, 48-bit LVDS, 2GbE, 4 USB3.0, 2 Mini PCIe, mSATA, iManager, MIOe



## Features

- Supports Intel 3<sup>rd</sup> Generation Core™ i7/i5/i3 mobile processor (rPGA) with Intel QM77 PCH, 2 x DDR3/DDR3L SO-DIMM support up to 16 GB
- DirectX11, OpenGL3.1, OpenCL1.1, 3 independent display: DP + HDMI + DVI-I
- 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 4 COM, 2 SATA, SMBUS/I<sup>2</sup>C, 16-bit GPIO, 2 Full-size Mini PCIe/mSATA, 2 USB2.0, 4 USB3.0
- Supports iManager, SUSIAccess, Embedded Software APIs & Intel iAMT 8.0

### Software APIs:



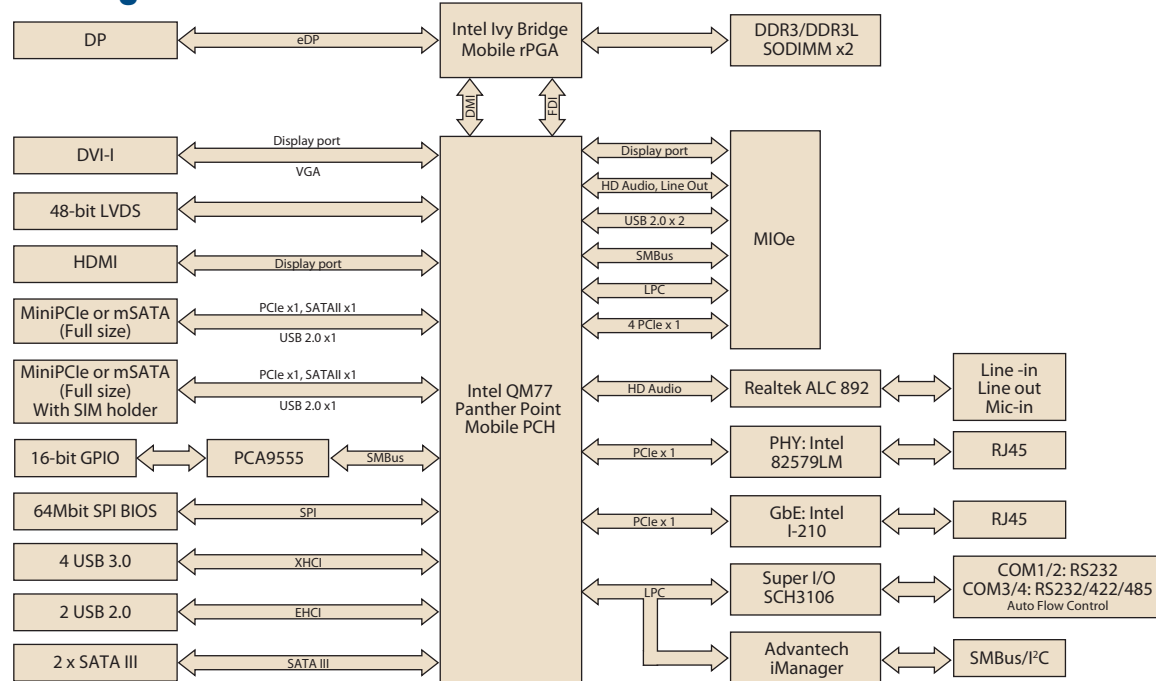
### Utilities:



## Specifications

Processor System	CPU	Intel Core i7-3610QE	Intel Core i5 3610ME	Intel Core i3 3120ME
	Frequency	2.3 GHz (Quad Core)	2.7 GHz (Dual Core)	2.4 GHz (Dual Core)
	L3 Cache	6 MB	3 MB	3 MB
	System Chipset	Intel QM77		
Memory	Technology	Dual Channel DDR3 1600 MHz, DDR3L 1333 MHz		
	Max. Capacity	8GB x 2		
	Socket	2 x 204-pin SODIMM		
Display	Controller	Intel Ivy Bridge Processor + Intel QM77 Integrated GFX Gen 7		
	Graphic Engine	DirectX11, OpenGL 3.1, and OpenCL 1.1 Hardware decode acceleration: AVC/H.264, MPEG-2, VC-1		
	DisplayPort	Max resolution up to 1920 x 1200 @ 60Hz		
	LVDS	LVDS with 3.3V, 5V on LCD VDD power, 5V and 12V support on LVDS inverter Dual channel 24-bit LVDS, max resolution up to 1920 x 1080 @ 60Hz		
	HDMI	Supports HDMI 1.4 for HD Video playback Max resolution up to 2560 x 1600 @ 60Hz		
	DVI-I	Max resolution up to 2560 x 1600 @ 60Hz		
Ethernet	Speed	10/100/1000Mbps		
	Controller	GbE1 - Intel 82579LM, GbE2 - Intel I-210IT		
	Connector	2 RJ45 on Rear I/O		
Audio	Chipset	Realtek ALC892, High Definition Audio (HD), Line-in, Line out, Mic-in		
WatchDog Timer		255 levels timer interval, programmable by software		
Storage	SATAIII	2 x Serial-ATA port, up to 6.0 Gb/s (600 MB/s)		
	mSATA	2 (Supports mSATA or USB interface module or full size miniPCIe)		
Rear I/O	Ethernet	2 (10/100/1000Mbps)		
	Display Port	1		
	DVI-I	1		
	HDMI	1		
	USB 3.0	4 (USB 3.0 compliant)		
	LED	Red: Throttling alarm, Yellow: HDD		
	Power Button	1		
	Reset Button	1		
Internal I/O	USB	2 (USB 2.0 compliant)		
	LVDS/Inverter	1		
	Serial	2 RS-232 from COM1/2, 2 RS-232/422/485 from COM3/4 (ESD protection for RS-232: Air gap ±15kV, Contact ±8kV) RS-232 with Tx/Rx only from COM5/6 is optional by request		
	I <sup>2</sup> C	1 (Shares with SMBus pin)		
	SMBus	1		
Expansion	GPIO	16-bit general purpose input/output		
	Mini PCIe	2 x Full-size Mini PCIe (Supports mSATA)		
	MIOe	SMBus, 2 USB2.0, LPC, 4 PCIe x 1, line out, 5 Vsb/12 Vsb power, Displayport		
Power	Power Type	Single 12V DC power input		
	Power Supply Voltage	Supports single 12V input, ± 10%		
	Power Consumption (Typical)	w/DDR3: TBD, w/DDR3L: TBD		
	Power Consumption (Max, test in HCT)	w/DDR3: TBD, w/DDR3L: TBD		
	Power Management	ACPI		
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)	203 x 146 mm (8" x 5.75")		
	Weight	TBD, weight of total package		

### Block Diagram



### Ordering Information

Part No.	CPU	Memory	DP	LVDS	DVI-I	HDMI	GbE	HD Audio	RS-422/485	RS-232	USB 3.0	USB 2.0	SATAIII	Full-size Mini PCIe*	MIOe	Power connector	Thermal Solution*	Operation Temp.
MIO-9290F-00A1E	Socket rPGA988*	SO-DIMM	Yes	48-bit	Yes	Yes	2	Yes	2	4	4	2	2	1	Yes	2x2 pin	Active	0 ~ 60° C

\* Full-size Mini PCIe supports mSATA  
 \* Active = with fan  
 \* Reserve Sandy Bridge CPU design

### Packing List

Part No.	Description	Quantity
	MIO-9290 SBC	1
	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
9666929000E	mini Jumper pack	1
1960054541N011	MIO-9290 cooler	1

### Optional Accessories

Part No.	Description
1700006291	SATA cable 7P/ 7P 30cm C=R 180/90
1700018785	SATA 35cm power cable
1703100260	Internal USB cable
1910002088	The Post Standoff, F= M3*6L, M=M3*5L, B=5, H=16 Ni
96MPI3M-2.4-3M9T	CPU i3-3120ME 2.4G 3M Dual Core
96MPI5-2.7-3M9T	CPU i5-3610ME 2.7G 3M Dual Core
96MPI7M-2.3-6M9T	CPU i7-3610QE 2.3G 6M Quad Core

### Embedded OS/API

Embedded OS/API	Description
Win XPE	WES2009
WES7	WES7E MIO-9290 ENG
WE8S	WE8S MIO-9290 ENG
Linux	CentOS
Software API	iManager 2.0

### Rear I/O View

