

# **WECX-QM871**

Intel QM87

Quick Installation Guide

Rev.01, Nov. 2013

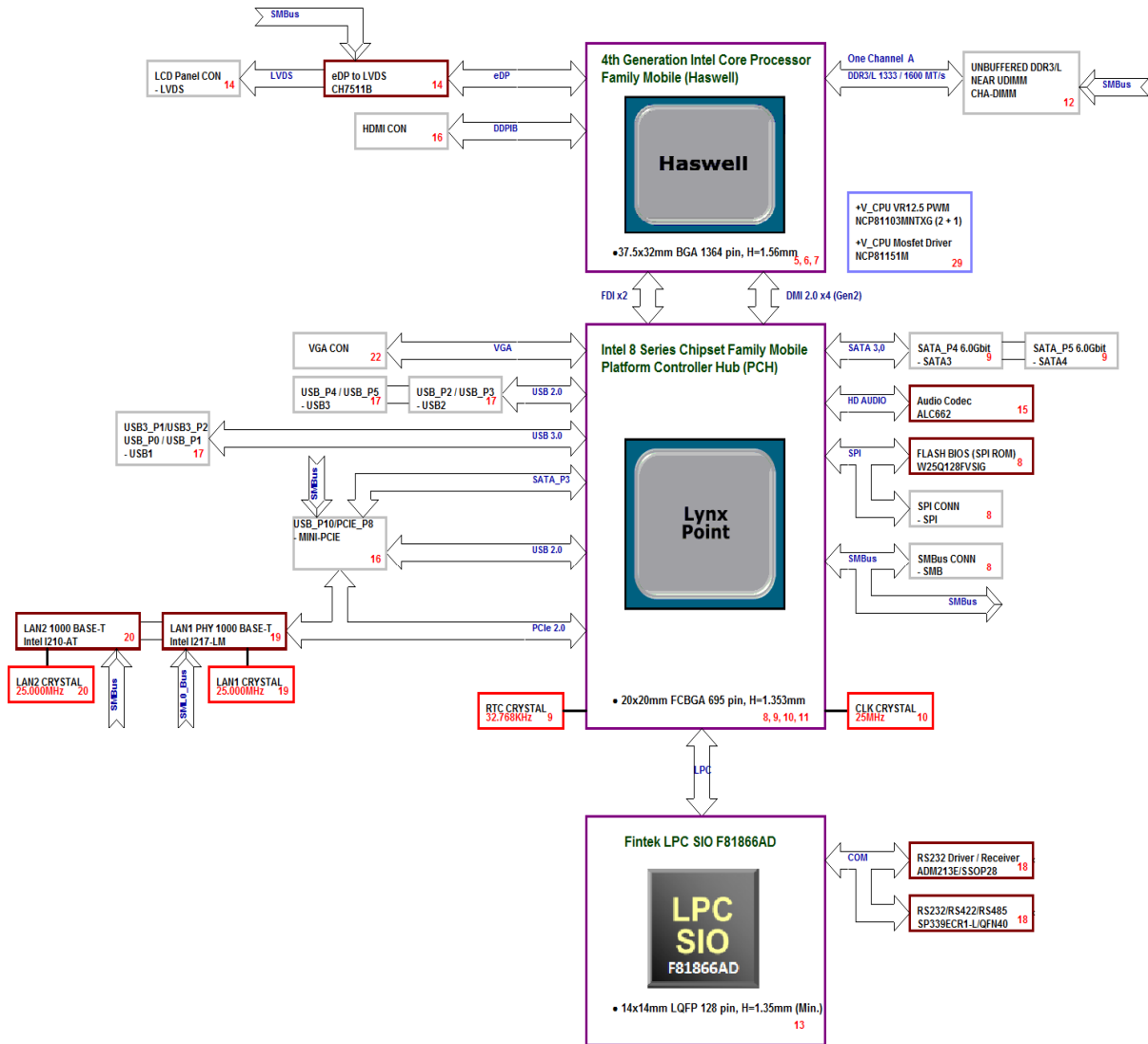
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# Chapter 1 Product Information

This chapter introduces the product features, jumper and connector information.

## 1.1 Block Diagram

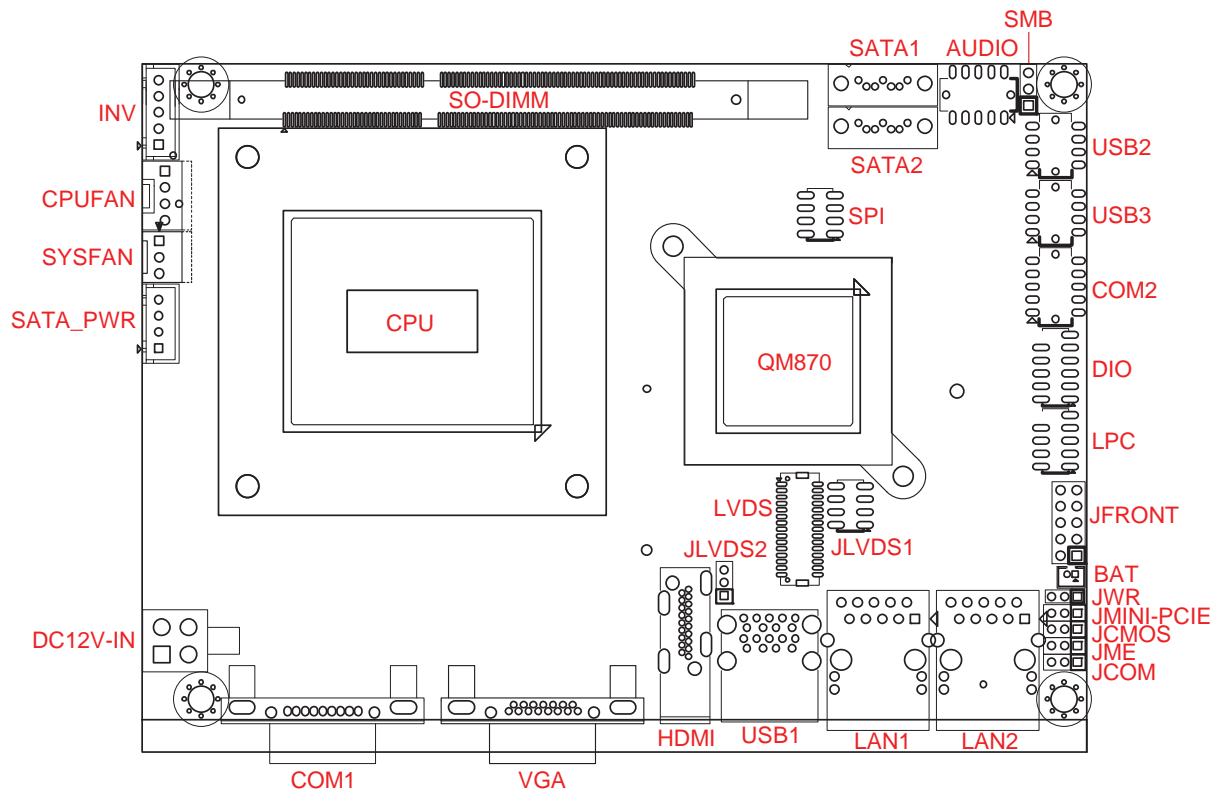


## 1.2 Features

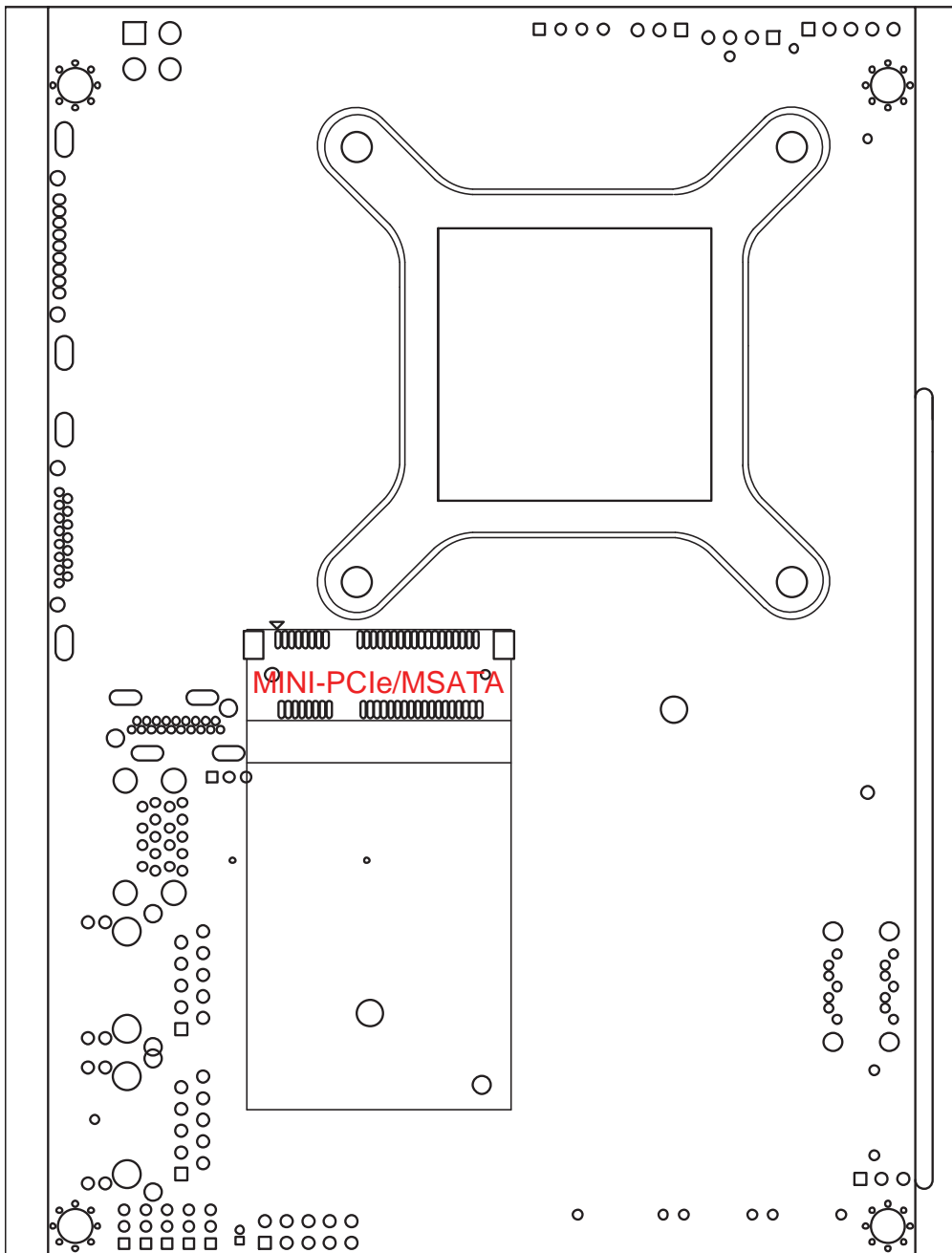
<b>System Processor/ Chipsets</b>	<b>Processor</b>	Intel® 4 <sup>th</sup> Generation Core™ i5-4402E Processor on board 1.6GHz, 25W, BGA 1364 (Haswell)
	<b>Chipset</b>	Intel 8 Series Chipset Family Mobile Platform Controller Hub (PCH)
	<b>BIOS</b>	AMI
<b>Memory</b>	<b>Technology</b>	DDR3 1333/1600 MHz SDRAM
	<b>Max. Capacity</b>	Up to 8GB DDR3 DRAM
	<b>Socket</b>	1x204-pin DDR3L SO-DIMM, Up to 8GB
<b>Display</b>	<b>Chipset</b>	Intel QM87
	<b>VRAM</b>	Intel® Core™ integrated HD Graphics 4000 Shared system memory up to 2GB
	<b>Resolution</b>	Analog Display: Up to 2048 x 1536
	<b>LVDS</b>	24bit, dual channel
	<b>LVDS Resolution</b>	Digital LVDS: Up to 1920 x 1200
	<b>Dual Display</b>	CRT+LVDS, CRT+HDMI, HDMI+LVDS
	<b>Triple Display</b>	HDMI+LVDS+CRT
<b>Ethernet</b>	<b>Interface</b>	10/100/1000 Mbps
	<b>Controller</b>	Intel 210AT GbE Controller Intel 217LM GbE PHY
<b>Audio</b>	<b>Interface</b>	High Definition Audio
	<b>Controller</b>	Realtek ALC662 HD CODEC
<b>SATA</b>	<b>Max. Data Transfer Rates</b>	SATA III 600MB/s
	<b>Port</b>	2 x SATA III
<b>Expansion Slot</b>	mini PCIe	1
<b>Onboard Pin-Header</b>	<b>USB 2.0</b>	4
	<b>SATA III</b>	2
	<b>LVDS 24bit</b>	1

	COM	1 x RS232/RS422/RS485
	Audio	1(Line In, Line out, Mic in)
	Front Panel	1
	DIO	8 bit programmable digital input/output
Rear I/O	VGA	1
	COM	1
	LAN	2 x RJ45
	HDMI	1
	USB 3.0	2
Power	DC 12V Input	1x2*2-pin ATX power connector for DC +12V input
Watchdog Timer	Interval	Programmable 1~255 sec./min.
	Output	System reset
Environment *Note1	Operating Temp.	-5°C~60°C (23°F~140°F)
	Storage Temp.	-20°C~80°C (-68°F~176°F)
	Relative Humidity	0%~ 95% (non-condensing)
Form Factor	Dimension (L*W)	146mm x 102mm (5.75" x 4.01")

# 1.3 PCB Layout Top View

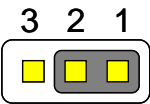
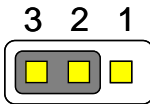


# Bottom View

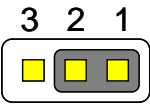
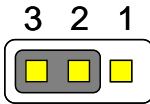


## 1.4 Jumper Setting

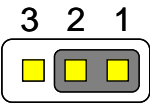
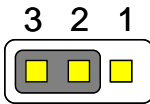
### JCMOS: CMOS Clear

Pin No.	1-2	2-3
Function	Normal Operation (Default)	Clear CMOS Contents
Jumper Setting		

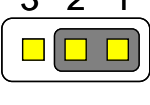
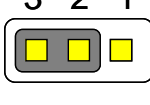
### JLVDS: LCD Power (+3.3V/+5V) Select

Pin No.	1-2	2-3
Function	LCD Power +3.3V (Default)	LCD Power +5V
Jumper Setting		

### JME: ME Clear

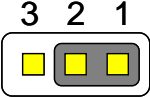
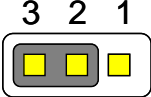
PAD	PAD Open	PAD Short
Function	Normal Operation (Default)	Clear ME Contents
Setting		

### JPWR: AT/ATX Mode Select

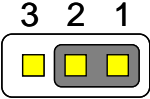
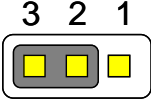
Pin No.	1-2	2-3
Function	AT Mode	ATX Mode (Default)
Jumper Setting		



**JCOM : SP339E RS232/422/485 Slew Rate select**

Pin No.	1-2	2-3
Function	250Kbps(Default)	1Mbps
Jumper Setting		

**JMINI-PCIE : mPCIE SEL**

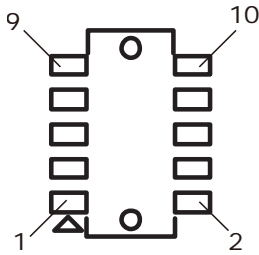
Pin No.	1-2	2-3
Function	Mini-PCle(Default)	mSATA
Jumper Setting		

## 1.5 Connector Function List

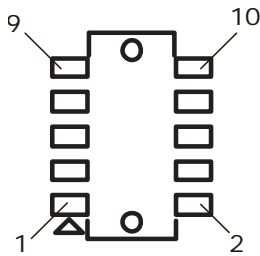
Connector	Function	Note
AUDIO	Line-In/MIC-In/Line-Out with Pin-header	
CHA-DIMM	DDR3 SO-DIMM connector	
COM1	Serial port connector	
COM2	Serial port connector with Pin-header	
CPUFAN	CPUFAN 4-pin connector	
DIO	Digital Input/output with Pin-header	
HDMI	HDMI port connector	
INV	LCD inverter with Box-header	
FRONT	Front Panel with Pin-header	
LPC	Reserved for debug	
SMB	SMBUS with Pin-header	
LAN1,LAN2	RJ45 connector	
LVDS	LVDS connector	
MINI-PCIE	Mini PCI Express connector/mSATA (share)	
JCOM	SP339E RS232/422/485 Slew Rate select	
PWR1	ATX 2x2 connector	
SATA1,2	SATA3.0 connector	
SATA_PWR	SATA Power with Box-header	
SYSFAN	System FAN connector	
USB2,3	USB2.0 with Pin-header	
USB1	USB3.0 connector	
VGA	VGA connector	
JMINI-PCI	mPCIE_SEL	
SPI	Reserved for debug	

## 1.6 Internal Connector Pin Define

### AUDIO: Audio with Box-header (2.0mm)



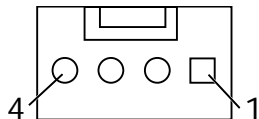
Pin No.	Signal	Pin No.	Signal
1	Line-In Right	2	Line-In Left
3	Line-In Jack Detect	4	MIC Jack Detect
5	MIC-In Right	6	MIC-In Left
7	Line-Out Jack Detect	8	Audio Ground
9	Line-Out Right	10	Line-Out Left



### COM2: Serial Port with Box-header (2.0mm)

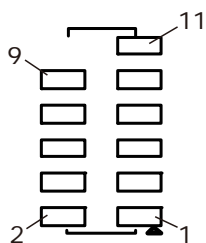
Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI#
9	Ground	10	+NC

### CPUFAN: 4Pin FAN connector

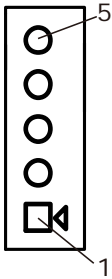


Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense
4	Control

### DIO: Digital I/O with Pin-header (2.54mm)

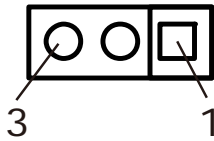


Pin No.	Signal	Pin No.	Signal
1	DIO-Out4	2	DIO-In0
3	DIO-Out5	4	DIO-In1
5	DIO-Out6	6	DIO-In2
7	DIO-Out7	8	DIO-In3
9	+12V	10	+5V
11	Ground	12	NC



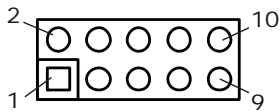
### **INV: Inverter with Box-header (2.50mm)**

Pin No.	Signal
1	+12V
2	+5V
3	Ground
4	Inverter Brightness Adjust
5	Inverter Enable



### **SMB: SMBUS with Pin-header (2.54mm)**

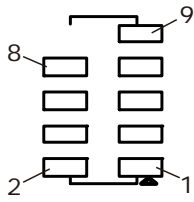
Pin No.	Signal
1	SMB_CLK
2	SMB Data
3	Ground



### **FRONT: Front Panel with Pin-header (2.54mm)**

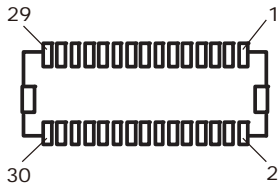
Pin No.	Signal	Pin No.	Signal
1	+5V (470 Ohm) (Power LED+)	2	Power LED – (Ground)
3	+5V (470 Ohm) (HDD LED+)	4	HDD LED# (HDD LED-)
5	5VSB (470 Ohm) (Suspend LED+)	6	Suspend LED# (Suspend LED-)
7	Reset Switch +	8	Reset Switch – (Ground)
9	Power Switch +	10	Power Switch – (Ground)

**LPC: Debug Port with Pin-header (2.0mm)**



Pin No.	Signal	Pin No.	Signal
1	LAD0	2	LPC Reset#
3	LAD1	4	LFRAME#
5	LAD2	6	+3.3V
7	LAD3	8	Ground
9	LPC33MHz	10	NC

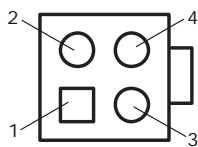
**LVDS: LVDS Panel Signal with Box-header (1.0mm)**



Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	LVDSA_DATA3+	4	LVDSA_DATA3-
5	LVDSA_CLK+	6	LVDSA_CLK-
7	LVDSA_DATA2+	8	LVDSA_DATA2-
9	LVDSA_DATA1+	10	LVDSA_DATA1-
11	LVDSA_DATA0+	12	LVDSA_DATA0-
13	Ground	14	Ground
15	LVDSB_DATA3+	16	LVDSB_DATA3-
17	LVDSB_CLK+	18	LVDSB_CLK-
19	LVDSB_DATA2+	20	LVDSB_DATA2-
21	LVDSB_DATA1+	22	LVDSB_DATA1-
23	LVDSB_DATA0+	24	LVDSB_DATA0-
25	Ground	26	Ground
27	LVDS Power	28	LVDS Power
29	LVDS Power	30	LVDS Power

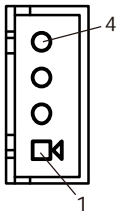
Note1 : LVDS Power = +12V, +5V or +3.3V (Default)

**PWR1: 2x2 +12V Input**



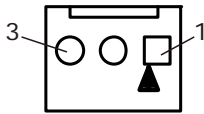
Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	+12V	4	+12V

**SATA PWR: SATA Power with Box-header (2.50mm)**



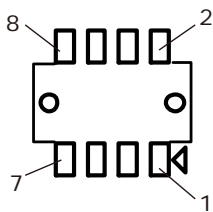
Pin No.	Signal
1	+5V
2	Ground
3	Ground
4	+12V

**SYSFAN: System FAN 3 Pin connector**



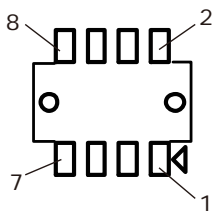
Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense

**USB2,3: USB with Pin-header (2.0mm)**



Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA-	4	USB DATA-
5	USB DATA+	6	USB DATA+
7	Ground	8	Ground

**SPI : Debug Port with Pin-header (2.0mm)**



Pin No.	Signal	Pin No.	Signal
1	SPI_CS0_N	2	+V3.3M_SPI
3	SPI_SO	4	SPI_HOIID_N
5	NA	6	SPI_CK
7	Ground	8	SPI_SI