

**Micro ATX Motherboard supports 32nm LGA1155 Intel®  
Core™i7/i5/i3 CPU per Intel® Q67,  
DDR3,VGA/DVI-D/HDMI, Dual Intel PCIe GbE, USB 3.0, 10  
COM, SATA 6Gb/s, HD Audio and RoHS**

# **IMB-Q670**

## **Quick Installation Guide**

**Version 2.1**

Mar. 4, 2013

### **Package Contents**

IMB-Q670 package includes the following items:

- 1 x IMB-Q670 Single Board Computer
- 4 x SATA Cable
- 2 x Quad Ports RS-232 Cable with Bracket
- 1 x I/O Shielding
- 1 x Mini Jumper Pack
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)



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## Specifications

- CPU: LGA1155 socket supports Intel® Core™ i7/i5 Quad cores and i3 Dual cores processor
- System Chipset: Intel® Q67
- BIOS: UEFI BIOS
- System Memory: Four 240-pin 1333/1066MHZ Dual-Channel DDR3 SDRAM Unbuffered DIMM supported (system max. 32GB)
- Ethernet:
  - Intel® 82583V PCIe controller
  - Intel® 82579 PHY with Intel® AMT 7.0 supported
- Graphic Engine: Support for DX10.1 and OpenGL 3.0, Full MPEG2, VC1, AVC Decode
- Display: VGA Integrated in the Intel® Q67
  - HDMI Integrated in the Intel® Q67
  - DVI-D Integrated in the Intel® Q67
- Super I/O: Fintek F81866
- Audio: Realtek ALC892 HD Audio codec(Line-in, Line-out, Mic); Analog Front Audio supported by Realtek ALC892;
- I/O Interface:
  - 9 x RS-232
  - 1 x RS-422/485
  - 10 x USB 2.0 (2 by Rear IO, 8 by pin header)
  - 2 x USB 3.0 (Rear IO)
  - 4 x SATA 3Gb/s
  - 2 x SATA 6Gb/s
  - 1 x PS/2 KB/MS
- Infrared interface: 1 x 5-pin pin header
- Expansion:
  - 1 x PCIe x16 slot
  - 1 x PCIe x1 slot
  - 1 x PCI slot
  - 1 x PCIe x4 slot
- Digital I/O: 24-bit Digital I/O ( 12-bit input, 12-bit output)
- TPM: 20-pin (2x10) header

- SMBus: 4-pin (1x4) wafer
- Watchdog Timer:  
Software programmable supports 1~255sec system reset.
- FAN connector:  
1 x 4 pin CPU fan connector, with smart FAN  
2 x 3 pin system fan connector
- Power supply: ATX power supply
- Power Consumption: 3.3V@1.75A, 5V@6.61A, 12V@3.68A,  
12V@0.09A, 5VSb@0.12 (Intel® 2.60GHz CPU with 1333MHz  
DDR3 4GB x 4 memory)
- Operating Temperature: -10 ~ 60°C
- Operating Humidity: 5%~95% non-condensing
- Dimension: 244mm x 244mm
- Weight: GW:1200g, NW:680g

## Ordering Information

### **IMB-Q670-R21:**

Micro ATX Motherboard supports 32nm LGA1155 Intel® Core™ i7/i5/i3 CPU per Intel® Q67, DDR3, VGA/DVI/HDMI, Dual Intel PCIe GbE, 2 USB 3.0, 10 COM, 2 SATA 6Gb/s, Audio and RoHS;

**19800-003100-100-RS:** Dual Ports USB Cable with Bracket

**32102-000100-100-RS:** SATA Power Cable

**CF-1156A-RS:** High performance LGA1155/LGA1156 cooling kit, 1U chassis compatible, 73W

**CF-1156B-RS-R11:** High performance LGA1155/LGA1156 cooling kit, 95W

**32200-074800-RS:** RS-422/485 cable, 200mm

**TPM-IN01-R11:** 20-pin Infineon TPM module management tool, Firmware V3.17

## Jumpers Setting and Connectors

<b>LABEL</b>	<b>FUNCTION</b>
J_CMOS2	Clear CMOS Setup
USB_PWR1	USB Power Select
JATX_AT1	AT mode or ATX mode Selection
WOL_SEL1	LAN 82583V/82574L Wakeup Power Pin
COM1	External RS232 Connector
COM3~6	RS-232 Pin Header
COM7~10	RS-232 Pin Header
COM2	RS-232/422/485 Pin Header
F_PANEL	PWR、RST Buttons、Indicators and Speaker
HDMI	HDMI Connector
DIO1	Digital I/O Connector
FP_AUDIO	Front Audio Connector
CPU12V1	ATX-12V CPU Power Source Connector
IR1	Infrared Interface Connector
CPU_FAN	Smart Fan Connectors for CPU
PCH_FAN	PCH Fan Connector
SYS_FAN1/2	System Fan Connector
USB1/2/3/4	USB 2x4 Pin Pin-header
BAT1	Coin Battery holder
TPM	TPM Connector
SATA34 SATA56	Serial ATA 2.0 Connectors
SATA1/2	Serial ATA 3.0 Connectors
LAN1_USB	External LAN And USB2.0 Connectors
LAN2_USB	External LAN And USB3.0 Connectors
ATX	ATX POWER Connector
CN1	FW Programming Pin Header
KB_MS	PS/2 KB/MS Connector
SPI	SPI Connector
SPDIF	SPDIF Pin Header
DVI+CRT	DVI,CRT 2in1 Connector
AUDIO_JACK	External Audio Connector
SMBUS_1	SMBUS Connector
PCIE_POWER	PCIE Power Connector
J_FLASH1	ME debug pin header

<b>J_CMOS2 : Clear CMOS Setup</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1-2 (default)	Keep CMOS Setup (Normal Operation)
Short 2-3	Clear CMOS Setup

<b>USB_PWR1: USB Power Select</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1-2	5V
2-3	5VSB

<b>JATX_AT1: AT/ATX Mode Select</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
Open	AT Mode (Default)
Short	ATX Mode

<b>WOL_SEL1: LAN 82583V/82574L Wakeup Power Pin</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1-2	Wakeup Enable (Default)
2-3	Disable

<b>COM1 : RS232 DB9 CONN</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	NDCD1#	6	NDSR1#
2	NRXD1	7	NRTS1#
3	NTXD1	8	NCTS1#
4	NDTR1#	9	NRI1#
5	GND		

<b>COM2(RS-232/422/485): RS-232/422/485 Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	NDCD2#	2	NDSR2#
3	NRXD2	4	NRTS2#
5	NTXD2	6	NCTS2#
7	NDTR2#	8	NRI2#
9	GND	10	NC
11	TX1+	12	TX1-
13	RX1+	14	RX1-

<b>F_PANEL : PWR、RST Buttons、Indicators and Speaker</b>					
	<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>	
Power LED	1	Power LED	2	Beep Power	Speaker
	3	NC	4	NC	
	5	GND	6	NC	
PWRBTN	7	PWRBTSW#	8	PC Beep	RESET
	9	GND	10	NC	
HDDLED	11	HDDLED	12	EXTRST#	
	13	HDDLED#	14	GND	

<b>HDMI: HDMI Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	HDMI_TMDS_C_DATA2	13	NC
2	GND	14	NC
3	HDMI_TMDS_C_DATA2#	15	HDMI_DDC_SCLK
4	HDMI_TMDS_C_DATA1	16	HDMI_DDC_SDATA
5	GND	17	GND
6	HDMI_TMDS_C_DATA1#	18	+5V_HDMI
7	HDMI_TMDS_C_DATA0	19	HDMI_HPD
8	GND	20	GND
9	HDMI_TMDS_C_DATA0#	21	GND
10	HDMI_TMDS_C_CLK	22	GND
11	GND	23	GND
12	HDMI_TMDS_C_CLK#		

<b>DIO1 : 24Bit Digital Input / Output Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	GND	2	+5V
3	D_IN0	4	D_OUT0
5	D_IN1	6	D_OUT1
7	D_IN2	8	D_OUT2
9	D_IN3	10	D_OUT3
11	D_8IN0	12	D_8OUT0
13	D_8IN1	14	D_8OUT1
15	D_8IN2	16	D_8OUT2
17	D_8IN3	18	D_8OUT3

<b>FP_AUDIO: HD Audio Digital Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	MIC2_L	2	GND_AUDIO
3	MIC2_R	4	FP_AUD DETECT
5	LINE2_R	6	GND_AUDIO
7	F_SENSE	8	NC
9	LINE2_L	10	GND_AUDIO

<b>CPU12V1 : CPU POWER Source Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	GND	2	GND
3	+12V	4	+12V

<b>IR1 : IR Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	+5V	2	NC
3	IR_RX	4	GND
5	IR_TX		

<b>CPU_FAN: CPU FAN,1X4PIN HEADER,P=2.54</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	GND
2	+12V
3	FANIN
4	FANOUT

<b>PCH_FAN: PCH FAN, 1X3 PIN HEADER,P=2.54</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	FANIN
2	+12V
3	GND

<b>SYS_FAN1/2: System Fan CONN 1X3 PIN PINHEADER,P=2.54</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	NC
2	+12V
3	GND

<b>USB1/2/3/4: 2x4 Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	+USB_PWR	2	GND
3	USB20_C_N	4	USB20_C_P
5	USB20_C_P	6	USB20_C_N
7	GND	8	+USB_PWR

<b>TPM: TPM Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	TPMCLK	2	GND
3	LPC_FRAME#	4	NC
5	BUF_PCIRST#	6	+5V
7	LPC_AD3	8	LPC_AD2
9	+3.3V	10	LPC_AD1
11	LPC_AD0	12	GND
13	SMBCLK_RESUME	14	SMBDATA_RESUME
15	+3.3V_STBY	16	SERIRQ
17	GND	18	+3.3V
19	LPCPD_N	20	LDRQ0#

**SATA34/SATA56: SATA2.0 Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
S1	GND	S9	SATA20_PTX_DRX_P3/5
S2	SATA20_PTX_DRX_P2/4	S10	SATA20_PTX_DRX_N3/5
S3	SATA20_PTX_DRX_N2/4	S11	GND
S4	GND	S12	SATA20_PRX_DTX_N3/5
S5	SATA20_PRX_DTX_N2/4	S13	SATA20_PRX_DTX_P3/5
S6	SATA20_PRX_DTX_P2/4	S14	GND
S7	GND	G1	GND
S8	GND	G2	GND

**SATA1/2: SATA3.0 Connector**

PIN	DESCRIPTION
1	GND
2	SATA30_PTX_DRX_P0/1
3	SATA30_PTX_DRX_N0/1
4	GND
5	SATA30_PRX_DTX_N0/1
6	SATA30_PRX_DTX_P0/1
7	GND

**BAT1 :  
Coin battery holder**

PIN	DESCRIPTION
1	NC
2	BAT+
3	BAT-(GND)

**LAN1\_USBA: RJ45 Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
P1	1.9V_LAN1	P8	TRD1P3
P2	TRD1P0	P9	TRD1N3
P3	TRD1N0	P10	GND
P4	TRD1P1	P11	L1_100#
P5	TRD1N1	P12	L1_1000#
P6	TRD1P2	P13	L1_LINK_ACT#
P7	TRD1N2	P14	3.3V_LAN1

**LAN2\_USBA: RJ45 Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
19	+1.05V_LAN2	26	TRD2P3
20	TRD2P0	27	TRD2N3
21	TRD2N0	28	GND
22	TRD2P1	29	3.3V_LAN
23	TRD2N1	30	L2_LINK_ACT#
24	TRD2P2	31	L2_100#
25	TRD2N2	32	L2_1000#



<b>LAN1_USBB: USB Port</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
U1	USBPWR1/2	U2	USB20_C_N0
U3	USB20_C_P0	U4	GND
U5	USBPWR1/2	U6	USB20_C_N1
U7	USB20_C_P1	U8	GND

<b>LAN2_USBB: USB Port</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	USB_3P0_VCC1	10	USB_3P0_VCC2
2	USB2P0_DM1_L	11	USB2P0_DM2_L
3	USB2P0_DP1_L	12	USB2P0_DP2_L
4	GND	13	GND
5	USB3P0_RXDN1	14	USB3P0_RXDN2
6	USB3P0_RXDP1	15	USB3P0_RXDP2
7	GND	16	GND
8	USB3P0_TXDN1_C	17	USB3P0_TXDN2_C
9	USB3P0_TXDP1_C	18	USB3P0_TXDP2_C

<b>ATX: ATX POWER Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	IO_PS_ON-
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWRGD_PS	20	NC
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

<b>CN1: FW Programming Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	+3.3V	2	TDO
3	TDI	4	NC
5	NC	6	TMS
7	GND	8	TCK

<b>SPI: BIOS Programming Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	SPI_VCC	2	GND
3	SPI_CS0#_CN	4	SPI_CLK0_CN
5	SPI_CS0#_CN	6	SPI_SI0_CN
7	NC	8	NC

<b>SPDIF: SPDIF Pin Header</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	+5V	2	NC
3	SPDIFOUT	4	GND
5	SPDIFIN		

<b>KB_MS: KB/MS Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
A1	KBDATA	B1	MSDATA
A2	NC	B2	NC
A3	GND	B3	GND
A4	+5V_KBMS	B4	+5V_KBMS
A5	KBCLK	B5	MSCLK
A6	NC	B6	NC
A7	GND	B7	GND
A8	GND	B8	GND
A9	GND		

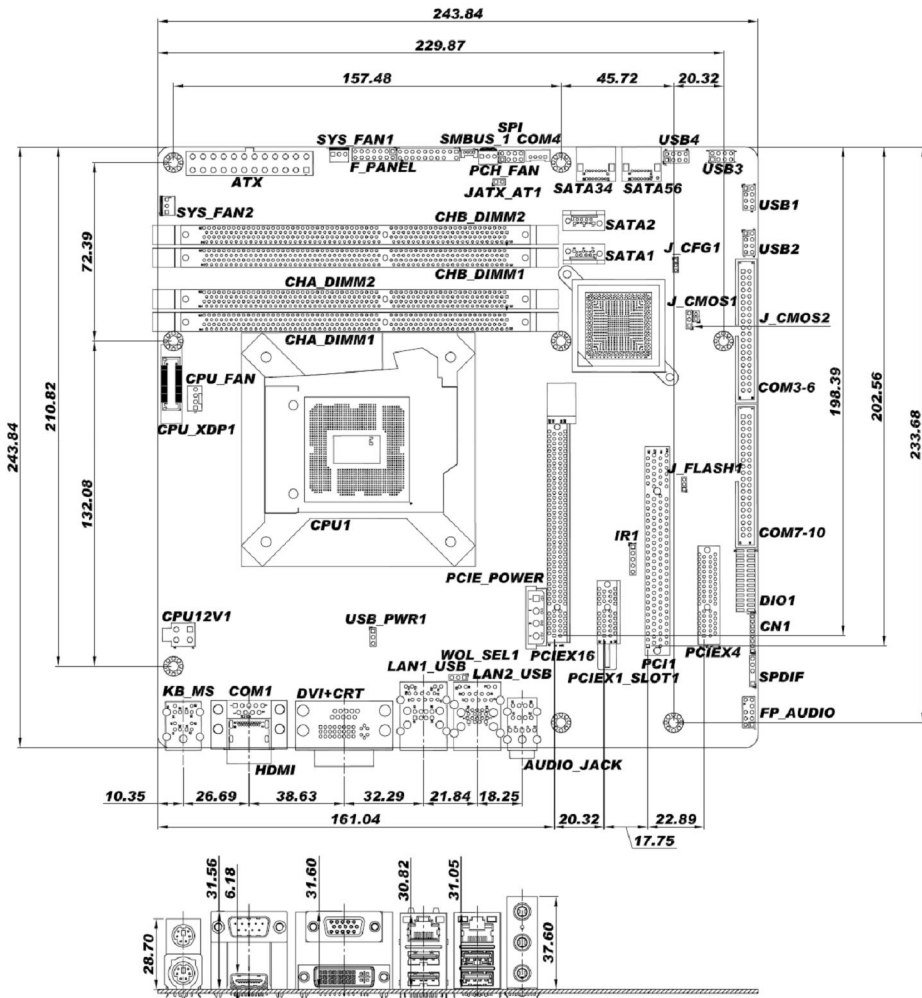
<b>SMBUS_1: SMBUS CONN WAFER 1*4 180D,P=1.25MM</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	5V
2	SMBCLK_RESUME
3	SMBDATA_RESUME
4	GND

<b>PCIE_POWER:PCIE_POWER CONN</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	+5V
2	GND
3	GND
4	+12V

<b>J_FLASH1: ME debug pin</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1-2	Overwrite disable
2-3	Overwrite enable

<b>DVI+CRT:DVI,CRT 2in1 Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	DVI_TMDS_C_DATA2#	13	NV
2	DVI_TMDS_C_DATA2	14	+5V_DVI
3	GND	15	GND
4	NC	16	DVI_HPD
5	NC	17	DVI_TMDS_C_DATA0#
6	DVI_DDC_SCLK	18	DVI_TMDS_C_DATA0
7	DVI_DDC_SDATA	19	GND
9	DVI_TMDS_C_DATA1#	20	NC
10	DVI_TMDS_C_DATA1	21	NC
11	GND	22	GND
12	NC	23	DVI_TMDS_C_CLK
C1	NC	24	DVI_TMDS_C_CLK#
C2	NC	V1	CRT_RED
C3	NC	V2	CRT_GREEN
8	NC	V3	CRT_BLUE
C4	NC	V4	NC
C5	GND	V5	GND
C6	NC	V6	GND
25	GND	V7	GND
26	GND	V8	GND
27	GND	V9	+5V_CRT
28	GND	V10	CRT_PLUG#
		V11	NC
		V12	CRT_DDC_DATA
		V13	CRT_HSYNC
		V14	CRT_VSYNC
		V15	CRT_DDC_CLK

# Board Layout: Jumper and Connector Locations



(Unit: MM)