

**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, SATA 6Gb/s, HD Audio and  
RoHS**

# **IMBA-Q670**

## **Quick Installation Guide**

**Version 2.1**

Sep. 14, 2012

### **Package List**

IMBA-Q670 package includes the following items:

- 1 x IMBA-Q670 Single Board Computer
- 4 x SATA Cable
- 1 x I/O Shielding
- 1 x Mini Jumper Pack
- 1 x Utility CD(within manual)
- 1 x QIG (Quick Installation Guide)
- 1 x One Key Recovery CD



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## Specifications

- CPU:  
LGA1155 socket supports Intel® Core™ i7/i5 Quad cores and i3 Dual core 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
- Super IO: Fintek F81866
- I/O Interface:  
5 x RS-232  
1 x RS-422/485  
2 x SATA 6Gb/s  
4 x SATA 3Gb/s  
1 x LPT  
2 x USB 3.0 by NEC D720200F1  
10 x USB 2.0 (2 on rear, 8 by pin header)  
1 x PS/2 KB/MB
- Expansion:  
1 x PCIe x16 slot  
1 x PCIe x4 slot  
1 x PCIe x1 slot  
4 x PCI slots
- Digital I/O: 8-bit digital I/O (4-bit input, 4-bit output)
- Display Output:  
VGA/ HDMI/ DVI-D Integrated in the Intel® Q67
- Graphic Engine:  
Support for DX10.1 and OpenGL3.0  
Full MPEG2, VC1, AVC Decode
- Audio: Realtek ALC662 HD Audio Codec (Line-in, Line-out, Mic)

- Front Audio: 10-pin (2x5) header
- TPM: 20-pin (2x10) header
- SMBus: 4-pin (1x4) wafer
- I2C: 4-pin (1x4) wafer
- Watchdog Timer:  
Software programmable supports 1~255sec. System reset
- Power supply: 5V/12V, AT/ATX supported
- Power Consumption:  
3.3V@1.65A, 5V@6.31A, 12V@0.18A, Vcore@7.88A,  
5Vsb@0.15 (Intel® Core™ i5-2400 3.10GHz CPU with 1333MHz  
DDR3 4GB x 4 memory)
- Temperature: Operation: -10°C~60°C
- Humidity: Operation: 5%~95% non-condensing
- Dimensions: 244mm x 305mm

## Ordering Information

- IMBA-Q670-R21 :  
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, SATA 6Gb/s, HD Audio and RoHS
- CB-USB02-RS : Dual ports USB cable with bracket
- 32200-074800-RS : RS-422/485 cable, 200mm
- 19800-000051-RS : RS-232 cable, 230mm
- 32102-000100-200-RS : SATA power Cable
- 19800-000049-RS : LPT Cable
- CF-1156A-RS : High performance LGA1155/LGA1156 Cooler kit, 1U  
Chassis compatible, 73W
- CF-1156B-RS : High performance LGA1155/LGA1156 Cooler kit, 95W
- TPM-IN01-R11 : 20-pin INFINEON TPM module, software  
management Tool, Firmware V3.17

## Jumpers setting and Connectors

<b>LABEL</b>	<b>FUNCTION</b>
J_CMOS1	CMOS State Setting
JATX_AT1	AT mode or ATX mode Selection
WOL_SEL1	Wake On LAN Selection
SATA1~2&3~6	Serial ATA 6Gb/s & 3Gb/s Connector
F_PANEL1	Front Panel connector
JSPI1	SPI Flash Program Connector
TPM1	Trusted Platform Module connector
COM1,2,3,5	Internal Serial Port Connectors
LPT1	Parallel Port Connector
DIO1	Digital I/O Connector
SYS_FAN1	System Fan Connector
SPDIF1	SPDIF Connector
FP_AUDIO1	Front Panel Audio Connector
ATX1	24-Pin ATX Power Supply Connector
CPU12V1	+12V Power Source Connector
CPU_FAN1	CPU FAN
KB_MS1	Internal PS/2 Mouse & Keyboard Connector
I2C_1	I2C Connector
SMBUS_1	SMBus Connector
USB1~4	Internal USB2.0 Connectors
KB_MS2	PS/2 Mouse & Keyboard Connector
HDMI1	HDMI Connector
COM6	External Serial Port DB-9 Connectors
LAN1_USB01	RJ-45 LAN and USB2.0 Connector
LAN2_USB23	RJ-45 LAN and USB3.0 Connector
AUDIO_CV1	Audio Connector
COM4	Internal Serial Port RS-422/RS485 Connectors

<b>J_COMS1 : Clear CMOS Setup</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1-2	Keep CMOS Setup(default)
Short 2-3	Clear CMOS Setup

<b>JATX_AT1: ATX mode or AT mode Selection</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
OPEN	AT Mode
SHORT	ATX Mode

<b>WOL_SEL1: Wake On LAN</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1-2 (default)*	Enable
Short 2-3	Disable

<b>SYS_FAN1、SYS_FAN2 : System Fan Connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	FANIO
2	+12V (PWM)
3	GND

<b>SATA1、SATA2 : Serial ATA 6Gb/s Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	5	RXN
2	TXP	6	RXP
3	TXN	7	GND
4	GND	8	N/C

<b>SATA3-6 : Serial ATA 3Gb/s Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	5	RXN_A
2	TXP_A	6	RXP_A
3	TXN_A	7	GND
4	GND	8	GND
9	TXP_B	10	TXN_B
11	GND	12	RXN_B
13	RXP_B	14	GND

<b>COM1,2,3,5 : Internal Serial Port Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	-NDCD1	6	-NCTS1
2	-NDSR1	7	-NDTR1
3	NSIN1	8	-XRI1
4	-NRTS1	9	GND
5	NSOUT1	10	GND

<b>F_PANEL1 : PWR &amp; RST Buttons and Indicators panel</b>					
	<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>	
PWR_LED	1	ACPILED	2	BEEP_PWR	BUZZER
	3	NC	4	NC	
	5	GND	6	NC	
PWR_BTN	7	PWRBTN_SW#_C	8	PC_BEEP	RESET
	9	GND	10	NC	
HDD_LED	11	IDELED	12	EXTRST-	
	13	IDELED-	14	GND	

<b>JSPI1: Flash SPI ROM Connector</b>			
<b>USB01, USB23, USB45</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	GND
3	CS0	4	CLK
5	SO0	6	SI
7	NC	8	NC

<b>TPM1 : TPM Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	Clock	2	GND
3	Frame#	4	NC(KEY)
5	Reset#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SMB CLK	14	SMB DATA
15	+3.3V Standby	16	Serial IRQ
17	GND	18	Clock Run#
19	Power Down#	20	DREQ#

<b>DIO1 : Digital Input / Output Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

<b>LPT1 : Parallel Port Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	STROBE#	14	AUTO FORM FEED #
2	DATA0	15	ERROR#
3	DATA1	16	INITIALIZE#
4	DATA2	17	PRINTER SELECT LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDG E#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT	26	N/C

<b>SPDIF1 : SPDIF CONNECTOR</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	5V
2	NC
3	SPDIFOUT
4	GND
5	SPDIFIN

<b>CPU_FAN 1: CPU Fan Connector</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	GND
2	+12V
3	FANIO1
4	PWM

<b>AP_AUDIO1 : Audio Source Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LMIC2_L	2	AUD GND
3	LMIC2_R	4	PRESENCE#
5	LLINE2-R	6	MIC2-JD
7	F_SENSE	8	NC
9	LLINE2-L	10	LINE2-JD

COM4	
PIN	DESCRIPTION
1	RXD485#
2	RXD485+
3	TXD485+
4	TXD485#

I2C_1	
PIN	DESCRIPTION
1	+5V_DUAL
2	PCH_GP38_PU
3	PCH_GP39_PU
4	GND

ATX1: 20Pin ATX Power Supply Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3Vdc	11	+3.3Vdc
2	+3.3Vdc	12	-12Vdc
3	GND	13	GND
4	+5Vdc	14	PS-ON
5	GND	15	GND
6	+5Vdc	16	GND
7	GND	17	GND
8	PWR-OK	18	-5Vdc
9	+5VSby	19	+5Vdc
10	+12Vdc	20	+5Vdc

ATX12V1 : +12V MAIN POWER Connector	
PIN	DESCRIPTION
1	+5V
2	GND
3	GND
4	+12V

SMBus :	
PIN	DESCRIPTION
1	+5V_DUAL
2	SMBCLK
3	SMBDATA
4	GND

KB_MS1: 6-pin Wafer Keyboard Connector	
PIN NO.	DESCRIPTION
1	VCC5_KBMS
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLK
6	KBGND



<b>USB1-4: Internal USB Connectors</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

<b>KB_MS2 : Mouse &amp; Keyboard Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	Keyboard Data	7	Mouse Data
2	NC	8	NC
3	GND	9	GND
4	VCC	10	VCC
5	Keyboard Clock	11	Mouse Clock
6	NC	12	NC

<b>HDMI1 : HDMI Connector</b>			
<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	20	HDMI_GND
9	HDMI_DATA0#	21	HDMI_GND
10	HDMI_CLK	22	HDMI_GND
11	GND	23	HDMI_GND

<b>AUDIO_CV1: Audio input and output connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Line-in	CD/DVD or other audio source input port
Line_ot	Connect this port to headphone or speaker
Microphone	Connect this port to microphone

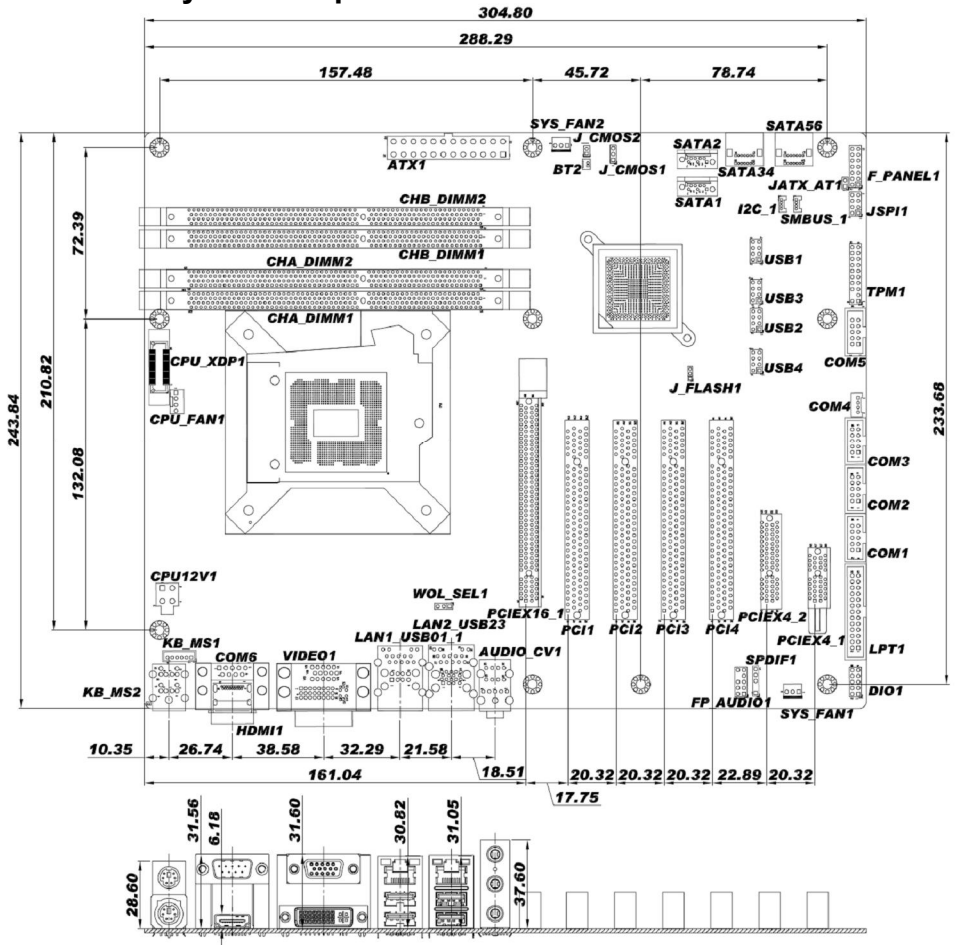
<b>COM1: External Serial Port Connector</b>	
<b>PIN</b>	<b>DESCRIPTION</b>
1	DATA CARRIER DETECT (DCD1)
2	RECEIVE DATA (RXD1)
3	TRANSMIT DATA (TXD1)
4	DATA TERMINAL READY (DTR1)
5	GND (GND1)
6	DATA SET READY (DSR1)
7	REQUEST TO SEND (RTS1)
8	CLEAR TO SEND (CTS1)
9	RING INDICATOR (RI1)

<b>LAN1、LAN2 : LAN port connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	MDIA3-	2	MDIA3+
3	MDIA2-	4	MDIA1-
5	MDIA1+	6	MDIA2+
7	MDIA0-	8	MDIA0+

<b>USB 3.0 : USB 3.0 port connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	DATA-
3	DATA+	4	GND
5	StdA_SSRX-	6	StdA_SSRX+
7	GND_DRAIN	8	StdA_SSTX-
9	StdA_SSTX+		

<b>USB 2.0 : USB 2.0 port connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC
2	DATA-
3	DATA+
4	GND

# Board Layout: Jumper and Connector Locations



(Unit:mm)