

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 3.0

Nov. 27, 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-R30:

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;

19800-003100-300-RS: Dual Ports USB Cable with Bracket

32102-000100-100-RS: SATA Power Cable

CF-1156A-RS-R11: High performance LGA1155/LGA1156 cooling kit, 1U chassis compatible, 73W

CF-1156E-R11: High performance LGA1155/LGA1156 cooling kit, 95W

32205-003800-100-RS: RS-422/485 cable, 200mm

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

Jumpers Setting and Connectors

LABEL	FUNCTION
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
COM2_3_5_6	RS-232 Pin Header
COM7~10	RS-232 Pin Header
COM4	RS-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	CPU Power Connector
IR1	Infrared Interface Connector
CPU_FAN	CPU Fan Connector
PCH_FAN	PCH Fan Connector
SYS_FAN1 SYS_FAN2	System Fan Connectors
USB1, USB2 USB3, USB4	Internal USB 2.0 connectors
BAT1	Coin Battery holder
TPM	TPM Connector
SATA3, SATA4 SATA5, SATA6	Serial ATA 2.0 Connectors
SATA1, SATA2	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

J_CMOS2 : Clear CMOS Setup	
PIN NO.	DESCRIPTION
Short 1-2 (Default)	Keep CMOS Setup (Normal Operation)
Short 2-3	Clear CMOS Setup

USB_PWR1: USB Power Select	
PIN NO.	DESCRIPTION
Short 1-2	5V (Default)
Short 2-3	5VSB

JATX_AT1: AT/ATX Mode Select	
PIN NO.	DESCRIPTION
Open	AT Mode
Short	ATX Mode (Default)

WOL_SEL1: LAN 82583V/82574L Wakeup Power Pin	
PIN NO.	DESCRIPTION
Short 1-2	Wakeup Enable (Default)
Short 2-3	Disable

COM1: RS232 DB9 CONN			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD1#	6	NDSR1#
2	NRXD1	7	NRTS1#
3	NTXD1	8	NCTS1#
4	NDTR1#	9	NRI1#
5	GND		

COM4: RS-422/485 Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD485#	2	RXD485
3	TXD485	4	TXD485#

COM2_3_5_6: RS-232 Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD2#	2	NDSR2#
3	NRXD2	4	NRTS2#
5	NTXD2	6	NCTS2#
7	NDTR2#	8	NRI2#
9	GND	10	GND
11	NDCD3#	12	NDSR3#
13	NRXD3	14	NRTS3#
15	NTXD3	16	NCTS3#
17	NDTR3#	18	NRI3#
19	GND	20	GND
21	NDCD5#	22	NDSR5#
23	NRXD5	24	NRTS5#
25	NTXD5	26	NCTS5#
27	NDTR5#	28	NRI5#
29	GND	30	GND
31	NDCD6#	32	NDSR6#
33	NRXD6	34	NRTS6#
35	NTXD6	36	NCTS6#
37	NDTR6#	38	NRI6#
39	GND	40	GND

COM7~10: RS-232 Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD7#	2	NDSR7#
3	NRXD7	4	NRTS7#
5	NTXD7	6	NCTS7#
7	NDTR7#	8	NRI7#
9	GND	10	GND
11	NDCD8#	12	NDSR8#
13	NRXD8	14	NRTS8#
15	NTXD8	16	NCTS8#
17	NDTR8#	18	NRI8#
19	GND	20	GND
21	NDCD9#	22	NDSR9#
23	NRXD9	24	NRTS9#
25	NTXD9	26	NCTS9#
27	NDTR9#	28	NRI9#
29	GND	30	GND
31	NDCD10#	32	NDSR10#
33	NRXD10	34	NRTS10#
35	NTXD10	36	NCTS10#
37	NDTR10#	38	NRI10#
39	GND	40	GND

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

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

DIO1: 24Bit Digital Input / Output Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
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
19	D_8IN4	20	D_8OUT4
21	D_8IN5	22	D_8OUT5
23	D_8IN6	24	D_8OUT6
25	D_8IN7	26	D_8OUT7

FP_AUDIO: HD Audio Digital Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

CPU12V1: CPU POWER Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

IR1: IR Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	NC
3	IR_RX	4	GND
5	IR_TX		

CPU_FAN: CPU FAN, 1X4PIN HEADER, P=2.54			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO1	4	FANOUT1

PCH_FAN: PCH FAN, 1X3 PIN HEADER, P=2.54			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO2	2	FANOUT2
3	GND		

SYS_FAN1, SYS_FAN2: System Fan, 1X3 PIN PINHEADER, P=2.54			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	+12V
3	GND		

USB1: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N2	4	USB20_C_P3
5	USB20_C_P2	6	USB20_C_N3
7	GND	8	+5V

USB2: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N10	4	USB20_C_P11
5	USB20_C_P10	6	USB20_C_N11
7	GND	8	+5V

USB3: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N12	4	USB20_C_P13
5	USB20_C_P12	6	USB20_C_N13
7	GND	8	+5V

USB4: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	USB20_C_N0	4	USB20_C_P1
5	USB20_C_P0	6	USB20_C_N1
7	GND	8	+5V

BAT1: Coin battery holder			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	BAT+
3	BAT- (GND)		

TPM: TPM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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#

SATA3: SATA2.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA20_PTX_C_DRX_P2
3	SATA20_PTX_C_DRX_N2	4	GND
5	SATA20_PRX_C_DTX_N2	6	SATA20_PRX_C_DTX_P2
7	GND		

SATA4: SATA2.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA20_PTX_C_DRX_P3
3	SATA20_PTX_C_DRX_N3	4	GND
5	SATA20_PRX_C_DTX_N3	6	SATA20_PRX_C_DTX_P3
7	GND		

SATA5: SATA2.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA20_PTX_C_DRX_P4
3	SATA20_PTX_C_DRX_N4	4	GND
5	SATA20_PRX_C_DTX_N4	6	SATA20_PRX_C_DTX_P4
7	GND		

SATA6: SATA2.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA20_PTX_C_DRX_P5
3	SATA20_PTX_C_DRX_N5	4	GND
5	SATA20_PRX_C_DTX_N5	6	SATA20_PRX_C_DTX_P5
7	GND		

SATA1: SATA3.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA30_PTX_C_DRX_P0
3	SATA30_PTX_C_DRX_N0	4	GND
5	SATA30_PRX_C_DTX_N0	6	SATA30_PRX_C_DTX_P0
7	GND		

SATA2: SATA3.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATA30_PTX_C_DRX_P1
3	SATA30_PTX_C_DRX_N1	4	GND
5	SATA30_PRX_C_DTX_N1	6	SATA30_PRX_C_DTX_P1
7	GND		

LAN1_USBA: RJ45 Connector			
PIN NO.	DESCRIPTION	PIN NO.	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 NO.	DESCRIPTION	PIN NO.	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#

LAN1_USBB: USB Port			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
U1	USBPWR1	U2	USB20_C_N8
U3	USB20_C_P8	U4	GND
U5	USBPWR1	U6	USB20_C_N9
U7	USB20_C_P9	U8	GND

LAN2_USB: USB Port			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB3_PWR1	10	USB3_PWR1
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

ATX: ATX POWER Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

CN1: FW Programming Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	TDO
3	TDI	4	NC
5	NC	6	TMS
7	GND	8	TCK

KB_MS: KB/MS Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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		

SPI: BIOS Programming Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+SPI_VCC	2	SPI_CS0#_CN
3	SPI_SO0_CN	4	SPI_CLK0_CN
5	SPI_SIO_CN	6	GND

SPDIF: SPDIF Pin Header			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	NC
3	SPDIFOUT	4	GND
5	SPDIFIN		

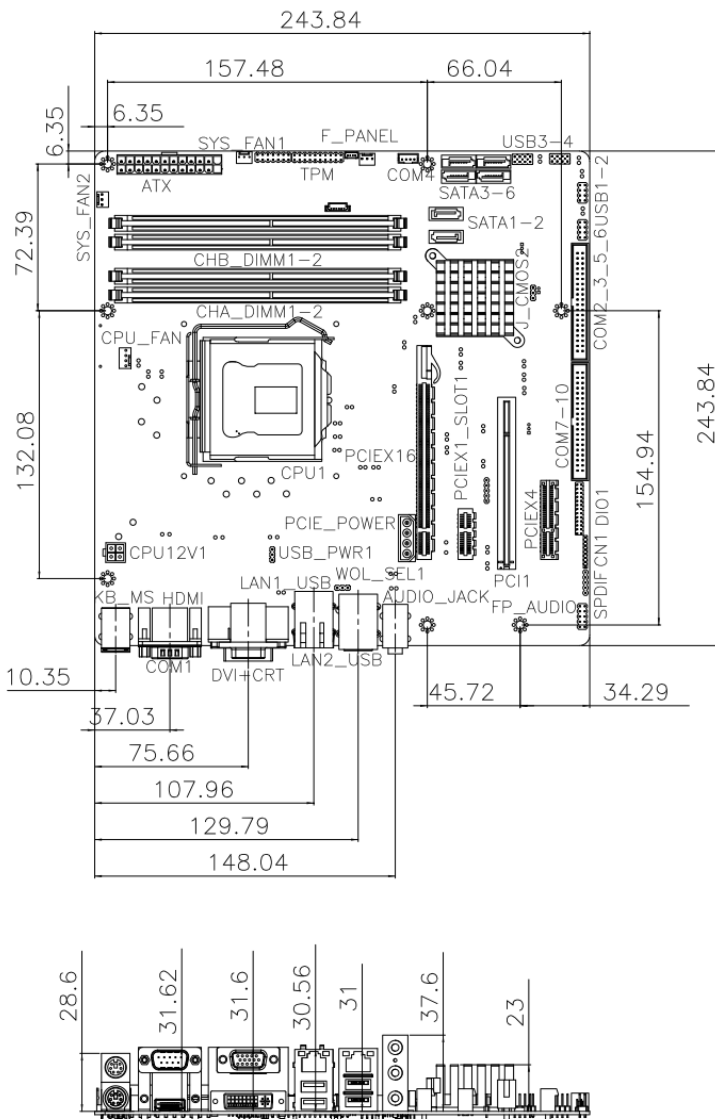
SMBUS_1: SMBUS CONN WAFER 1*4 180D, P=1.25MM			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V_DUAL	2	SMBCLK_RESUME
3	SMBDATA_RESUME	4	GND

PCIE_POWER: PCIE_POWER CONN			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	GND	4	+12V

J_FLASH1: ME debug pin	
PIN NO.	DESCRIPTION
Short 1-2 (Default)	Overwrite disable
Short 2-3	Overwrite enable

DVI+CRT: DVI, CRT 2in1 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	DVI_TMDS_C_DATA2#	13	NC
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
8	NC	20	NC
9	DVI_TMDS_C_DATA1#	21	NC
10	DVI_TMDS_C_DATA1	22	GND
11	GND	23	DVI_TMDS_C_CLK
12	NC	24	DVI_TMDS_C_CLK#
C1	NC	V1	CRT_RED
C2	NC	V2	CRT_GREEN
C3	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)