

**ATX Motherboard for 22nm LGA 1155 Intel® Core™ i7/i5/i3  
CPU with Intel® Q77 Chipset, DDR3, Dual HDMI/DVI-I,  
Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, HD Audio and  
RoHS**

# **IMBA-Q770**

## **Quick Installation Guide**

### **Version 1.0**

Jul. 04, 2014

#### **Package List**

IMBA-Q770 package includes the following items:

- 1 x IMBA-Q770 Single Board Computer
- 1 x DVI-I to VGA adapter (P/N: 33Z00-000031-RS)
- 4 x SATA Cable (P/N: 32801-000703-200-RS)
- 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/i3 quad/dual core processor
- System chipset: Intel® Q77
- BIOS: UEFI BIOS
- System memory:  
Two 240-pin 1333/1066MHz Dual-Channel DDR3 SDRAM  
Unbuffered DIMM support (system max. 32GB)
- Ethernet:  
Intel® 82579L PHY with Intel® AMT 8.0 supported  
Intel® 82583V PCIe controller
- Super IO: Fintek F81866
- I/O Interface:  
5 x RS-232  
1 x RS-422/485  
4 x SATA 3Gb/s  
2 x SATA 6Gb/s  
1 x LPT  
10 x USB 2.0 (2 on rear, 8 by pin header)  
2 x USB 2.0 (2 on rear)  
1 x PS/2 KB/MB
- Expansion:  
1 x PCIe x16 slot  
1 x PCIe x4 slot  
2 x PCIe x1 slots  
3 x PCI slots
- Digital I/O: 8-bit Programmable I/O
- Display Output:  
Two HDMI integrated in the Intel® Q77  
One DVI-I integrated in the Intel® Q77
- Graphic Engine:  
Intel® HD Graphics Gen 7  
Supports DirectX 11 and OpenCL 1.1

Full MPEG-2, 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: ATX power supported
- Power Consumption:  
3.3V@1.39A, 5V@4.63A, Vcore@2.25A, 12V@0.47A,  
5VSB@0.14A (2.4 GHz Intel® Core™ i3 CPU with four 2 GB  
1333 MHz DDR3 memory)
- Temperature: Operation: -10°C~60°C
- Humidity: Operation: 5%~95% non-condensing
- Dimensions: 244mm x 305mm

## Ordering Information

- IMBA-Q770-R10 :  
ATX Motherboard for 22nm LGA 1155 Intel® Core™ i7/i5/i3 CPU,  
Intel® Q77 Chipset, DDR3, Dual HDMI/DVI-I, Dual Intel® PCIe GbE,  
USB 3.0, SATA 6Gb/s, HD Audio and RoHS
- 19800-003100-200-RS : Dual ports USB cable with bracket
- 32205-003800-100-RS : RS-422/485 cable, 200mm
- 32205-001203-200-RS : Quad-port RS-232 cable without bracket,  
400mm
- 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
- CF-1156C-RS : High performance LGA1155/LGA1156 Cooler kit, 1U  
Chassis compatible, 45W
- CF-1156D-RS : High performance LGA1155/LGA1156 Cooler kit, 1U  
Chassis compatible, 65W
- TPM-IN01-R11 : 20-pin INFINEON TPM module, software  
management Tool, Firmware V3.17

## Jumpers setting and Connectors

LABEL	FUNCTION
J_CMOS1	CMOS State Setting
JATX_AT1	AT mode or ATX mode Selection
WOL_SEL1	Wake On Lan Selection
J_FLASH	Flash Descriptor Security Override/ ME Debug Mode
CNUSB_PWR1	select +5v or +5v_dual
USB_PWR2~5	select +5v or +5v_dual
JP7	DVI or VGA selection

<b>J_CMOS1 : Clear CMOS Setup</b>	
PIN NO.	DESCRIPTION
Short 1-2	Keep CMOS Setup( <b>default</b> )
Short 2-3	Clear CMOS Setup

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

<b>J_FLASH : Flash Descriptor Security Override/ ME Debug Mode</b>	
PIN NO.	DESCRIPTION
Short 1-2	Disable ( <b>default</b> )
Short 2-3	Enable

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

<b>CNUSB1_PWR1:</b>	
PIN NO.	DESCRIPTION
Short 1-2	+5V_DUAL
Short 2-3	+5V ( <b>default</b> )

<b>USB1_PWR2~4:</b>	
PIN NO.	DESCRIPTION
Short 1-2	+5V_DUAL
Short 2-3	+5V ( <b>default</b> )

<b>JP7 : DVI or VGA selection</b>	
PIN NO.	DESCRIPTION
Short 1-2	DVI ( <b>default</b> )
Short 2-3	VGA

## Table of Connectors

LABEL	FUNCTION
SATA1~2&3~6	Serial ATA 3.0 & 2.0 Connector
F_PANEL1	Front Panel connector
JSPI1	SPI Flash Program Connector
TPM1	Trusted Platform Module connector
COM2_3_5_6	Internal Serial Port DB-9 Connectors
LPT1	Parallel Port Connector
DIO1	Digital I/O Connector
SYS_FAN1~2	System FAN Connector
FP_AUDIO1	Front Panel Audio Connector
ATX1	24Pin ATX Power Supply Connector
CPU12V1	+12V Power Source Connector
CPU_FAN1	CPU FAN
I2C_1	I2C Connector
SMBUS_1	SMBUS Connector
USB2~5	Internal USB2.0 Connectors
KB_MS1	PS/2 MOUSE & KEYBOARD Connector
HDMI1,2	HDMI Connector
CNUSB1	USB2.0 Connector
VIDEO1	DVI and External Serial Port DB-9 connectors
LAN1_USB01 LAN2_USB23	RJ45 LAN and USB3.0 Connector
AUDIO_CV1	Audio Connector
COM4	Internal Serial Port RS422/RS485 Connectors
BT2	BT2(battery)

• **SATA1、SATA2 : Serial ATA 3.0 Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	RXN
2	TXP	6	RXP
3	TXN	7	GND
4	GND	8	N/C

• **SATA3~6 : Serial ATA 2.0 Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

• **F\_PANEL1 : PWR & RST Buttons and Indicators panel**

	PIN	DESCRIPTION	PIN	DESCRIPTION	
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	NC
	9	GND	10	NC	
HDD_LED	11	IDELED	12	EXTRST-	RESET
	13	IDELED-	14	GND	

• **JSPI1: Flash SPI ROM Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	GND
3	CS0	4	CLK
5	SO0	6	SI
7	NC	8	NC

• **TPM1:Trusted Platform Module connector**

<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	LCLK	2	GND2
3	LERAME#	4	KEY
5	LRESRT#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND3
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND1	18	GLKRUN#
19	LPCPD#	20	LDRQ#

• **COM2\_3\_5\_6: External Serial Port Connector**

<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	NDCD2	21	NDCD5
2	NDSR2	22	NDSR5
3	NSIN2	23	NSIN5
4	NRTS2	24	NRTS5
5	NSOUT2	25	NSOUT5
6	NCTS2	26	NCTS5
7	NDTR2	27	NDTR5
8	XRI2	28	XRI5
9	GND	29	GND
10	GND	30	GND
11	NDCD3	31	NDCD6
12	NDSR3	32	NDSR6
13	NSIN3	33	NSIN6
14	NRTS3	34	NRTS6
15	NSOUT3	35	NSOUT6
16	NCTS3	36	NCTS6
17	NDTR3	37	NDTR6
18	XRI2	38	XRI6
19	GND	39	GND
20	GND	40	GND

• **DIO1 : Digital Input / Output Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

• **LPT1: Parallel Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RSTROBE#	2	RPD0
3	RPD1	4	RPD2
5	RPD3	6	RPD4
7	RPD5	8	RPD6
9	RPD7	10	SIO_ACK#
11	SIO_BUSY	12	SIO_PE
13	SIO_SLCT	14	SIO_AFD#
15	SIO_ERR#	16	SIO_INIT#
17	SIO_SLIN#	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	NC

• **ATX1: 24Pin ATX Power Supply 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_PSON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWRGD_PS	20	NC
9	V_5P0_A	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND



• **SYS\_FAN1 \ SYS\_FAN2 : System Fan Connector**

PIN NO.	DESCRIPTION
1	FANIO
2	+12V (PWM)
3	GND

• **FP\_AUDIO1 : Audio Source Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

• **CPU12V1 : +12V MAIN POWER Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	VREG_12V	4	VREG_12V

• **CPU\_FAN : CPU Fan Connector**

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	FANIO1
4	PWM

• **I2C\_1**

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	PCH_GP38_PU
3	PCH_GP39_PU
4	GND

• **SMBus\_1**

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	SMBCLK
3	SMBDATA
4	GND

• **USB2~5: Internal USB Connectors**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

• **KB\_MS1: 6-pin Wafer Keyboard Connector**

PIN NO.	DESCRIPTION
1	VCC5_KBMS
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLK
6	GND

• **HDMI1、HDMI2 : HDMI Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

• **CNUSB1**

PIN NO.	DESCRIPTION
1	VCC
2	DATA-
3	DATA+
4	GND

• **VIDEO1 : Serial Port Connector and DVI-I Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	DVI_DATA2#	V20	N/C
V2	DVI_DATA2	V21	N/C
V3	GND	V22	GND
V4	NC	V23	DVI_CLK
V5	NC	V24	DVI_CLK#
V6	DDCCLK	C1	BR
V7	DDCDATA	C2	BG
V8	5V_VSYNC	C3	BB
V9	DVI_DATA1#	C4	5V_HSYNC
V10	DVI_DATA1	C5	GND
V11	GND	D1	-NDCD1
V12	NC	D2	NSIN1
V13	NC	D3	NSOUT1
V14	+5V	D4	-NDTR1
V15	GND	D5	GND
V16	DVI_HPD	D6	-NDSR1
V17	DVI_DATA0#	D7	-NRTS1
V18	DVI_DATA0	D8	-NCTS1
V19	GND	D9	-XRI1

• **LAN1\_USB01&LAN2\_USB23**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3.	MDIA2-	7	MDIA0-
4.	MDIA1-	8	MDIA0+

<b>USB</b>			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBUS	2	D-
3	D+	4	GND
5	STDA_SSRX_N	6	STDA_SSRX_P
7	GND_DRAIN	8	STDA_SSTX_N
9	STDA_SSTX_P		

• **AUDIO\_CV1**

<b>PIN NO.</b>	<b>DESCRIPTION</b>
Line-in	CD/DVD or other audio source input port
Line-out	Connect this port to headphone or speaker
Microphone	Connect this port to microphone

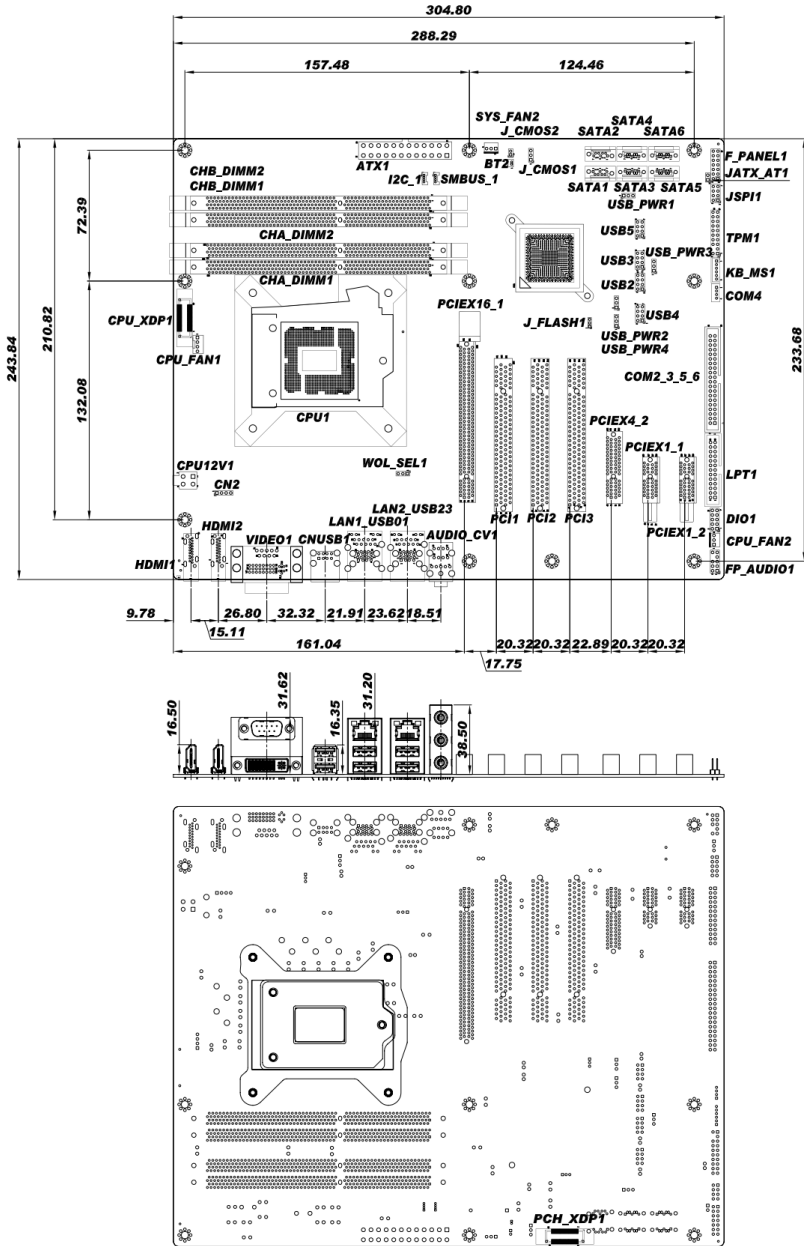
• **COM4 : External Serial Port Connector**

<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	RXD485#	3	TXD485+
2	RXD485+	4	TXD485#

• **BT2: BT2(Battery 1)**

<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>
1	VBATT	2	GND

# Board Layout: Jumper and Connector Locations



(Unit:mm)