

**ATX Motherboard for 22nm LGA 1155 Intel® Xeon® E3/  
Intel® Core™ i3 CPU with Intel® C216, DDR3, VGA, Dual  
Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, HD Audio and RoHS**

# **IMBA-C2160**

## **Quick Installation Guide**

### **Version 1.0**

Aug. 18, 2014

### **Package List**

IMBA-C2160 package includes the following items:

- 1 x IMBA-C2160 Single Board Computer
- 4 x SATA Cable (P/N: 32801-000703-200-RS)
- 1 x I/O Shielding (P/N: 45014-0034C0-00-RS)
- 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® Xeon® E3 and Intel® Core™ i3 quad/dual core processors
- System Chipset: Intel® C216
- Memory:  
Four 240-pin 1600/1333MHz dual-channel DDR3 SDRAM ECC and non-ECC unbuffered DIMMs supported (system max. 32GB)
- BIOS: UEFI BIOS
- Ethernet:  
Intel® 82579 PHY with Intel® AMT 8.0 supported  
Intel® 82574L PCIe controller
- Graphics Engine:  
Supports DX10.1 and OpenGL 3.0  
Full MPEG2, VC1, AVC Decode
- Display Output:  
VGA integrated in the Intel® C216
- Super I/O: Fintek F81866
- Audio:  
Realtek ALC662 HD audio codec (Line-in, Line-out, Mic)
- I/O Interface:  
5 x RS-232  
1 x RS-422/485  
4 x USB 3.0 (rear I/O)  
10 x USB 2.0 (4 on rear, 6 by pin header)  
4 x SATA 3Gb/s  
2 x SATA 6Gb/s (RAID 0/1/5/10 support)  
1 x LPT  
1 x PS/2 KB/MS  
1 x 6-pin wafer for PS/2 KB/MS
- Front Panel :  
1 x Front panel connector (power LED, HDD LED, speaker, power button, reset button)

- Expansion:
  - 2 x PCIe x16 slot (share 1 PCIe x16 signal)
  - 2 x PCIe x4 slot
  - 1 x PCIe x1 slot
  - 2 x PCI slot
- Watchdog Timer:
  - Software programmable supports 1~255 sec. system reset
- Digital I/O:
  - 24-bit Digital I/O (24-bit GPIO is for programming I/O)
- FAN:
  - 1 x 4-pin CPU fan connector
  - 2 x 3-pin system fan connector
- Power supply: ATX power supply
- Power Consumption:
  - 3.3V@1.55A, 5V@3.43A, Vcore@3.12A, 12V@0.20A, 5VSB@0.18A (Intel® Xeon® 2.2GHz CPU with two 1333MHz 4GB DDR3 memory)
- Operation Temperature:
  - 10°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW:1200g/NW: 700g

## Ordering Information

- IMBA-C2160-R10 :  
ATX motherboard supports 22nm LGA1155 Intel® Xeon® E3/ Intel® Core™ i3 CPU with Intel® C216, DDR3, VGA, Dual Intel® PCIe GbE, USB 3.0, SATA 6Gb/s, HD Audio and RoHS
- 19800-003100-200-RS : Dual ports USB cable with bracket
- 32006-000300-100-RS : Male PS/2 KB/MS Y-cable w/o bracket, 12cm(KB)+14cm(MS)
- 32205-003800-100-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
- 19800-000075-RS : PS/2 KB/MS Y-cable with bracket, 6-pin header, 220mm
- 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
J_FLASH	Flash Descriptor Security Override/ ME Debug Mode
CNUSB_PWR1	Select +5v or +5v_dual
USB_PWR1-3	Select +5v or +5v_dual
K/M_USB1_PWR1	Select +5v or +5v_dual
SATA1~2 & 3~6	Serial ATA 3Gb/s 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
USB1~3	Internal USB2.0 Connectors
K/B_USB1	PS/2 MOUSE & KEYBOARD Connector & USB2.0 Connector
COM1	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	Battery
KB_MS1	PS/2 MOUSE & KEYBOARD Connector

<b>J_COMS1 : Clear CMOS Setup</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
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>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
OPEN	AT Mode
SHORT	ATX Mode

<b>WOL_SEL1: WOL Mode select</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1-2	WOL Mode Enable ( <b>default</b> )
Short 2-3	WOL Mode Disable

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

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

<b>USB_PWR2~4: Select +5v or +5v_dual</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1-2	+5V_DUAL
Short 2-3	+5V(default)

<b>K/M_USB1_PWR1: Select +5v or +5v_dual</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1-2	+5V_DUAL
Short 2-3	+5V(default)

<b>SATA1~2: SATA 3Gb/s connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	TX
3	TX-	4	GND
5	RX-	6	RX
7	GND		

<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>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-	RESET
	13	IDELED-	14	GND	

<b>JSPI1: Flash SPI ROM Connector</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>COM2,3,5,6 : 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>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	ACKNOWLEDGE#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT	26	N/C



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

<b>FP_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

<b>ATX1: 20Pin ATX Power Supply Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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

<b>CPU12V1 : +12V MAIN POWER Connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V
2	GND
3	GND
4	+12V

<b>CPU_FAN1 : CPU Fan Connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND
2	+12V
3	FANIO1
4	PWM

<b>I2C_1</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V_DUAL
2	PCH_GP38_PU
3	PCH_GP39_PU
4	GND

<b>SMBus_1 :</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V_DUAL
2	SMBCLK
3	SMBDATA
4	GND

<b>USB1~3: Internal USB Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

<b>K/B_USB1 : PS/2 MOUSE &amp; KEYBOARD Connector &amp; USB2.0 Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	USB20_D1+
3	USB20_D1-	4	VCC
5	GND	6	USB20_D2+
7	USB20_D2-	8	VCC
9	GND	10	KBDATA
11	MSDATA	12	VCC5
13	MBCLK	14	MSCLK

<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>COM4</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	RXD485#
2	RXD485+
3	TXD485+
4	TXD485#

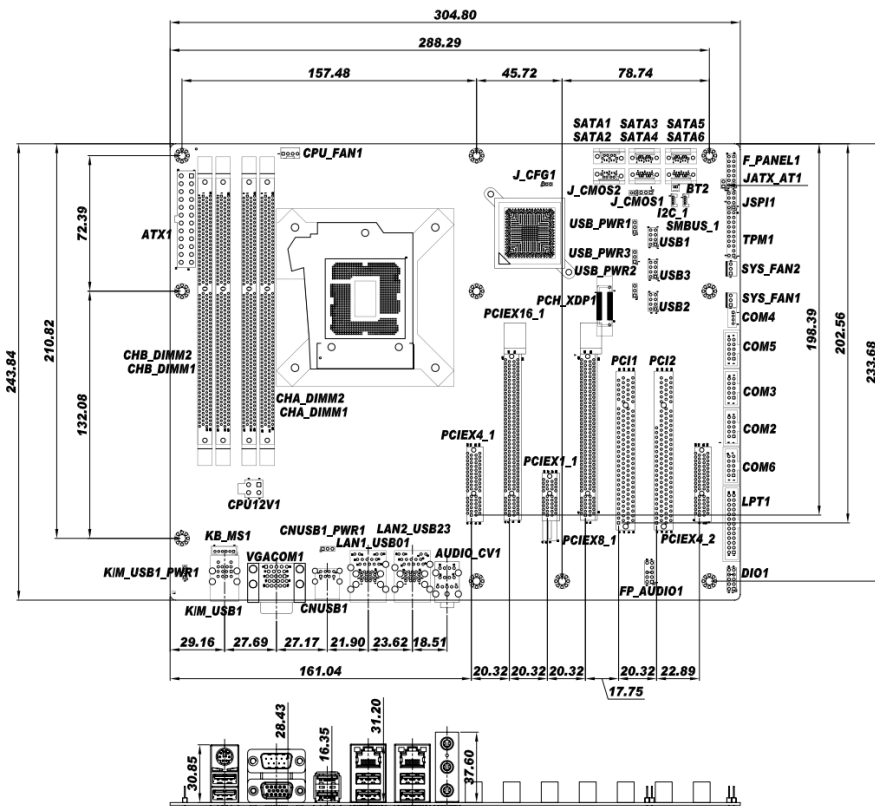
<b>KB_MS1: Mouse &amp; Keyboard Connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC5
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLOCK
6	GND

<b>COM1: External Serial Port Connector</b>	
<b>PIN NO.</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_USB01, LAN2_USB23: RJ-45 LAN and USB3.0 Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
U1	+5V	U10	+5V
U2	USB20_C_N2	U11	USB20_C_N3
U3	USB20_C_P2	U12	USB20_C_P3
U4	GND	U13	GND
U5	USB3_RX3_DN_C	U14	USB3_RX4_DN_C
U6	USB3_RX3_DP_C	U15	USB3_RX4_DP_C
U7	GND	U16	GND
U8	USB3_TX3_DN_C	U17	USB3_TX4_DN_C
U9	USB3_TX3_DP_C	U18	USB3_TX4_DP_C
R1	+1.9V_LAN1	L1	L1_1000#
R2	TRD1P0	L2	L1_100#
R3	TRD1N0	L3	L1_LINK_ACT#
R4	TRD1P1	L4	POWER+
R5	TRD1N1	G1	GND
R6	TRD1P2	G2	GND
R7	TRD1N2	G3	GND
R8	TRD1P3	G4	GND
R9	TRD1N3	G5	GND
R10	GND	G6-G8	GND

<b>BT2 : Battery</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VBAT
2	GND

# Board Layout: Jumper and Connector Locations



(Unit:mm)