

ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

IMBA-Q370

Quick Installation Guide

Version 1.0

January 14, 2020

Package List

IMBA-Q370 package includes the following items:

- 1 x IMBA-Q370 single board computer
- 1 x I/O shielding
- 2 x SATA cable
- 1 x QIG



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Specifications

- CPU:
LGA1151 socket supports 8th/9th generation Intel® Core™ i9/i7/i5/i3, Pentium® or Celeron® processor
- System Chipset: Intel® Q370
- Memory:
Four 288-pin 2666/2400 MHz dual-channel DDR4 SDRAM unbuffered DIMMs supported up to 64GB
- BIOS: AMI UEFI BIOS
- Graphics Engine:
Intel® HD Graphics Gen 9 Engine with 16 low-power execution units, supports DX11.3/12, OpenGL 4.3/4.4/4.5 and OpenCL 1.2/2.0/2.1
- Display Output:
Triple independent display
1 x VGA (up to 1920 x 1080 @60Hz)
1 x DP++ (up to 4096 x 2304 @60Hz)
1 x HDMI (up to 4096 x 2304@30Hz)
1 x Internal DP (up to 4096 x 2304 @60Hz)
- Ethernet:
LAN1: Intel® I219LM PCIe controller with AMT 11.0 support
LAN2: Intel® I210AT PCIe controller
- External I/O Interface:
2 x USB 3.2 Gen 2
2 x USB 3.2 Gen 1
2 x USB 2.0
1 x PS/2 KB/MS
1 x RS-232
- Internal I/O Interface:
6 x SATA 6Gb/s with 5V/12V SATA power connector (RAID 0/1/5/10 supported)
1 x 180° DisplayPort

- 4 x USB 2.0 (2x4 pin, P=2.54)
- 2 x USB 3.2 Gen 1 (2x10 pin, P=2.0)
- 3 x RS-232 (2x5 pin, P=2.54)
- 2 x RS-232/422/485 (2x5 pin, P=2.54)
- 1 x KB/MS (1x6 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio:
 - Realtek ALC662 HD Audio codec
 - 3 x Audio Jack (Line-in, Line-out, Mic-in)
 - 1 x Analog audio (2x5 pin)
- Front Panel:
 - 1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LEN LED: 2 x LAN LED (1x2 pin)
- Expansions:
 - 2 x PCIe x8 (Slot1 & Slot3, Slot 1: PCIe x16 conn.; Slot 3: open-end PCIe x8 conn. Support TB3)
 - 3 x PCIe x4 (Slot2 & 4 & 5, Slot 5: support TB3)
 - 2 x PCI (Slot 6 & 7)
 - 1 x M.2 A-key (2230, PCIe x1 & USB 2.0)
 - 1 x M.2 M-Key (2280, PCIe x2 only, support NVMe SSD)
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- Fan Connector:
 - 1 x CPU fan connector (1x4 pin)
 - 2 x System fan connector (1x3 pin)
- Chassis Open: 1 x Chassis intrusion (1x2 pin)
- Power Supply:
 - ATX/AT power supply
 - Support AT/ATX mode
 - ErP/EuP Compliant

- Watchdog Timer:
Software programmable support 1~255 sec. system reset
- Power Consumption:
3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSV@3.4A (Intel® Core® i7-8700K up to 4.60 GHz CPU with 32GB 2600MHz DDR4 memory)
- Operation Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW:1200g / NW:700g

All the drivers and utility for the IMBA-Q370 are available on IEI Resource Download Center. Type IMBA-Q370 and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

<https://download.ieiworld.com>



Ordering Information

- **IMBA-Q370-R10:**
ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
- **19800-000075-RS:** PS/2 KB/MS cable with bracket, 220mm, P=2.0
- **19800-003100-100-RS:**
Dual port USB cable with bracket, 30mm, P=2.54

- **19800-010500-200-RS:** USB cable 457mm with bracket
- **32102-000100-200-RS:**
SATA power cable, MOLEX 5264-4P to SATA15P
- **32205-000702-200-RS:** RS-232 cable, 230mm, P=2.54
- **CF-115XC-R10:**
LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
- **CF-115XD-R10:**
LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
- **CF-115XE-R10:**
High-performance LGA1155/1156 cooler kit, 95W
- **TPM-IN02-R20:** 20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

Jumpers setting and connectors

LABEL	FUNCTION
J_CMOS1	Clear CMOS
SW_BIOS1_2	Switch BIOS1 or BIOS2 (optional function)
Flexibility I/O	Flexibility for PCIE_2 Slot & PCIE_3 slot (optional function)
J_ATX_AT1	AT/ATX Power Mode Setting
USB SW1 Power USB SW2 Power	USB Power Setting
J_FLASH1	Flash Descriptor Security Override
F_PANEL1	PWR & RST Buttons and Indicators
VGACOM1	15-pin VGA Female Connector and External Serial Port DB-9 Connector
HDMI_DP1	HDMI Connector and Display Port Connector
LAN1_USB1	RJ-45 LAN and USB 3.2 Gen 2 Connector
LAN2_USB2	RJ-45 LAN and USB 3.2 Gen 1 Connector
K/M_USB1	Keyboard & Mouse And USB 2.0 Connector
KB_MS1	6-pin-header Keyboard & Mouse Connector
USB1, USB2	Internal USB 2.0 Connectors
USB3-1	Internal USB 3.2 Gen 1 Connector
M2_A1	M.2 A Key Connector
COM2 COM3, COM4	Internal Serial Port Connectors
COM5, COM6	Internal Serial Port RS-232/RS-422/RS-485 Connector
AUDIO_CV1	HD Audio Connector
FRONT_PANEL1	Front Panel Audio Connector
SATA1, SATA2 SATA3, SATA4 SATA5, SATA6	SATA 6Gb/s Connectors
M2_M1	M.2 M Key Connector
CPU_FAN1	CPU Fan Connector
SYS_FAN1, SYS_FAN2	System Fan Connectors
DIO1	Digital I/O Connector
ATX1	24-pin ATX Power Source Connector
CPU12V1	+12V Power Source Connector

ATXPWR1	PCIe Power Connector
TPM1	Trusted Platform Module Connector
CN1	EC Debug Port Connector
JSPI1	Flash SPI ROM
JSPI2	Flash EC ROM
SMB1	SMBus Connector
I2C1	I ² C Connector (to EC)
LED_LAN1	LAN1 Link LED Connector
LED_LAN2	LAN2 Link LED Connector
CHASSIS1	Chassis Status Connector

J_CMOS1: Clear CMOS Button	
PIN NO.	DESCRIPTION
NC (default)	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

SW_BIOS1_2: Switch BIOS1 or BIOS2 (option function)	
PIN NO.	DESCRIPTION
Short 1 - 2(Right)	BIOS1 (default)
Short 2 - 3(Left)	BIOS2

J_ATX_AT1: AT/ATX Power Mode Setting	
PIN NO.	DESCRIPTION
Short 1 - 2(Right)	ATX Power Mode (default)
Short 2 - 3(Left)	AT Power Mode

J_FLASH1: Flash Descriptor Security Override	
PIN NO.	DESCRIPTION
Short 1 - 2	Disabled (default)
Short 2 - 3	Enabled

USB SW1 Power, USB SW2 Power: USB Power Setting	
USB SW1	DESCRIPTION
+5V DUAL	5V DUAL (Default)
+5V	+5V

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

Chipset

Auto Power Button Status	[Disabled(ATX)]	
Restore AC Power Loss	[Last State]	-----
> PCI Express Configuration > PCI Azalia Configuration		
Power Saving Function (ERP)	[Disabled]	
PCIEX16 Power	[1 x16 PCIE]	
USB SW1 Power	[+5V DUAL]	
USB SW2 Power	[+5V DUAL]	

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F_PANEL1: PWR & RST Buttons and Indicators					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	+5V	2	BEEP_PWR	SPKR
	3	NC	4	IPMI ID_LED+	IPMI LED
	5	GND	6	IPMI ID_LED-	
PWR BTN	7	PWRBTN_SW#	8	PC_BEEP	SPKR
	9	GND	10	NC	
HDD LED	11	+5V	12	EXTRST-	RESET
	13	SATA_LED#	14	GND	

VGACOM1: 15-pin VGA Female Connector and External Serial Port DB-9 Connector			
VIDEO1 : 15-pin VGA Female Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	RED	V2	GREEN
V3	BLUE	V4	NC
V5	GND	V6	Hot plug detect
V7	GND	V8	GND
V9	VCC	V10	GND
V11	NC	V12	DDCDA
V13	HSYNC	V14	VSYNC
V15	DDCCLK		
COM1: External Serial Port DB-9 Connector			
PIN NO.	PIN NO.	PIN NO.	PIN NO.
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND1	6	DSR1
7	RTS1	8	CTS1
9	RI1		

HDMI1: HDMI Connector and DisplayPort Connector			
HDMI1: 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
12	HDMI_CLK#		
DP1: DisplayPort Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	11	AUXP
2	LANE1N	12	AUXN
3	LANE1P	13	GND
4	GND	14	LANE2P
5	LANE3N	15	LANE2N
6	LANE3P	16	GND
7	GND	17	LANE0P
8	AUX_CTRL_DET_D	18	LANE0N
9	GND	19	+3.3V
10	HPD		

LAN1_USB1: Ethernet and USB 3.2 Gen 2 Connectors			
USB1: External USB 3.2 Gen 2 Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+
LAN1: RJ-45 LAN Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
20	LAN1_MDI0P	24	LAN1_MDI2P
21	LAN1_MDI0N	25	LAN1_MDI2N
22	LAN1_MDI1P	26	LAN1_MDI3P
23	LAN1_MDI1N	27	LAN1_MDI3N

LAN2_USB2: Ethernet and USB 3.2 Gen 1 Connectors			
USB2: External USB 3.2 Gen 1 Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+
LAN2: RJ-45 LAN Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
20	LAN1_MDI0P	24	LAN1_MDI2P
21	LAN1_MDI0N	25	LAN1_MDI2N
22	LAN1_MDI1P	26	LAN1_MDI3P
23	LAN1_MDI1N	27	LAN1_MDI3N

K/M_USB1: Keyboard/Mouse and USB 2.0 Connector			
USB1: External USB2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	VCC
2	USB_DATA-	6	USB_DATA-
3	USB_DATA+	7	USB_DATA+
4	GND	8	GND
KB_MS1: Keyboard / Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
9	GND	12	VCC
10	KEYBOARD DATA	13	KEYBOARD CLOCK
11	MOUSE DATA	14	MOUSE CLOCK

KB_MS1: 6-pin-header Keyboard/Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	Mouse Data
3	Mouse Clock	4	Keyboard Data
5	Keyboard Clock	6	GND

USB1, USB2: Internal USB 2.0 Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

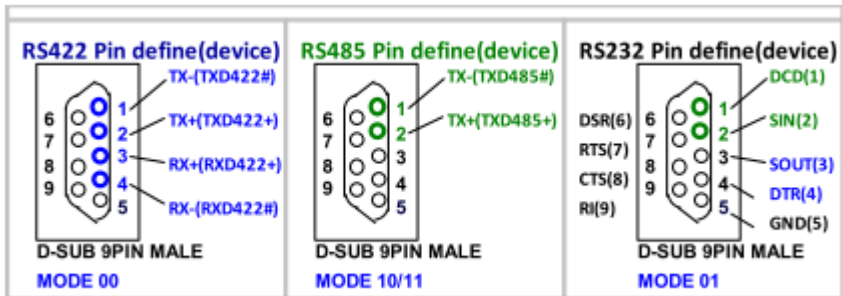
USB3-1 : Internal USB 3.2 Gen 1 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	11	USB_DATA+
2	USB3_RX-	12	USB_DATA-
3	USB3_RX+	13	GND
4	GND	14	USB3_TX+
5	USB3_TX-	15	USB3_TX-
6	USB3_TX+	16	GND
7	GND	17	USB3_RX+
8	USB_DATA-	18	USB3_RX-
9	USB_DATA+	19	VCC
10	NC		

M2_A1: M.2 A Key Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	USB2_DP	4	+3.3V
5	USB2_DN	6	NC
7	GND	8	
9		10	
11		12	

13		14	
15		16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	PETP0	36	GND
37	PETN0	38	NC
39	GND	40	NC
41	PERP0	42	NC
43	PERN0	44	NC
45	GND	46	NC
47	PCIE_CLK+	48	NC
49	PCIE_CLK-	50	NC
51	GND	52	PLT_RST
53	NC	54	NC
55	PCIE_WAKE	56	W_DIS
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	CLK_REQ
69	GND	70	+3.3V
71	NC	72	+3.3V
73	NC	74	+3.3V
75	GND		

COM2, COM3, COM4: Internal RS-232 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

COM5, COM6: Internal RS-232/RS-422/RS-485 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND



AUDIO_CV1 : Audio Line-In/Out MIC Connector	
PIN NO.	DESCRIPTION
Line-in (Blue)	CD/DVD or other audio source input port
Line-out (Green)	Connect this port to headphone or speaker
Microphone (Pink)	Connect this port to microphone

FRONT-PANEL1 : 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	FRONT-IO	8	NC
9	LLINE2-L	10	LINE2-JD

SATA1, SATA2, SATA3, SATA4, SATA5, SATA6: SATA 6Gb/s Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	SATA_RX-
2	SATA_TX+	6	SATA_RX+
3	SATA_TX-	7	GND
4	GND	8	N/C

M2_M1: M.2 M Key Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	USB2_DP	4	+3.3V
5	USB2_DN	6	NC
7	GND	8	
9		10	
11		12	
13		14	
15		16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC

33	GND	34	NC
35	PETP0	36	GND
37	PETN0	38	NC
39	GND	40	NC
41	PERP0	42	NC
43	PERN0	44	NC
45	GND	46	NC
47	PCIE_CLK+	48	NC
49	PCIE_CLK-	50	NC
51	GND	52	PLT_RST
53	NC	54	NC
55	PCIE_WAKE	56	W_DIS
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	CLK_REQ
69	GND	70	+3.3V
71	NC	72	+3.3V
73	NC	74	+3.3V
75	GND		

CPU_FAN1: CPU Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO	4	PWM

SYS_FAN1: System Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO	2	PWM
3	GND		

SYS_FAN2: System Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO	2	+12V
3	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

ATX1: 24-pin ATX Power Source 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	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power good	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

CPU12V1: +12V Power Source Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

ATXPWR1: PCIe Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	GND
3	GND	4	+12V

TPM1: Trusted Platform Module Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME#	4	KEY
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN#
19	LPCPD#	20	LDRQ#

CN1: EC Debug Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	NC
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	NC
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_KSI5
17	EC_EPP_PD7	18	EC_EPP_KSI4

JSPI1: Flash SPI ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

JSPI2: Flash EC ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

SMB1: SMBus Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

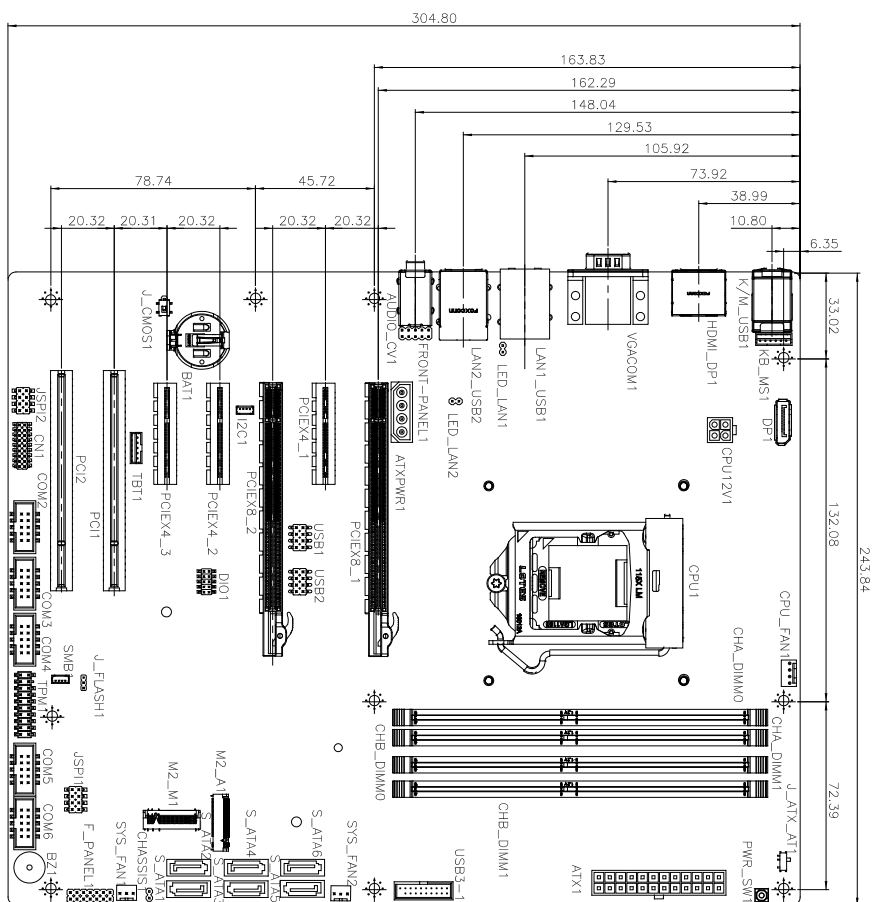
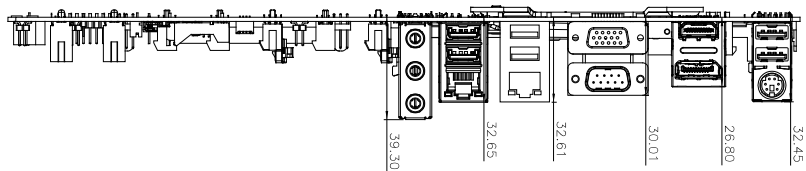
I2C1: I²C Connector (to EC)			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	I2C_DAT
3	I2C_CLK	4	+5V

LED_LAN1: LAN Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	LAN1_LED_LNK#_ACT

LED_LAN2: LAN Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	LAN2_LED_LNK#_ACT

CHASSIS1: Chassis Status Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3VSB	2	CHASSIS OPEN

Board Layout: Jumper and Connector Locations



(Unit: mm)