

**micro-ATX Motherboard Supports LGA1700 12th/13th Gen. Intel®
Core™ i9/i7/i5/i3, Pentium® and Celeron® Processor, DDR4,
Triple Independent Display, Dual 2.5GbE LAN, M.2,
USB 3.2, SATA 6Gb/s, HD Audio and RoHS**

IMB-ADL-Q670

Quick Installation Guide **Version 1.0**

January 10, 2023

Package List

IMB-ADL-Q670 package includes the following items:

- 1 x IMB-ADL-Q670 single board computer
- 2 x SATA cable
- 1 x I/O shielding
- 1 x QIG



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Specifications

- CPU:
LGA1700 12th/13th Generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors (up to 125W TDP)
- Chipset:
Intel® Q670/Q670E
- Memory:
Four 288-pin 3200MHz dual-channel unbuffered DDR4 SDRAM DIMM slots supporting up to 128 GB memory
- BIOS:
AMI UEFI BIOS
- Graphics Engine:
New Intel® Xe Graphics architecture with SRIOV, Genlock
- Display Output:
Triple independent display
1 x VGA (up to 1920 x 1200 @ 60Hz)
1 x DVI-I (up to 1920 x 1200 @ 60Hz)
1 x Internal DP++ (up to 4096 x 2304 @ 60Hz)
- Ethernet:
LAN1: 2.5GbE RJ-45 port via Intel® I225LM controller
LAN2: 2.5GbE RJ-45 port via Intel® I225V controller
- External I/O Interface:
4 x USB 3.2 Gen 2 (Type-A) (10Gb/s)
6 x USB 3.2 Gen 1 (Type-A) (5Gb/s)
4 x USB 2.0 (Type-A)
- Internal I/O Interface:
4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
8 x RS-232 (2x20 pin, p=2.54)
2 x RS-232/422/485 (2x5 pin, p=2.54)
- Audio:
Realtek ALC888S HD Audio codec supports 7.1-channel
3 x Audio jacks (line-out, line-in, mic-in) on rear IO
1 x Front audio (2x5 pin, p=2.54)

- Front Panel:
 - 1 x Front panel (2x7 pin, p=2.54; power LED, HDD LED, speaker, power button, reset button)
- LAN LED:
 - 2 x LAN LED (1x2 pin, p=2.54)
- Expansions:
 - 1 x PCIe Gen5 x16 slot
 - 2 x PCIe Gen4 x4 open-end slot
 - 1 x PCIe Gen3 x1 slot
 - 1 x M.2 M key (2242/2280, PCIe x4), NVMe supported
 - 1 x M.2 M key (2242/2280, PCIe x2 for SSD), NVMe supported
- Digital I/O:
 - 1 x 12-bit digital I/O (2x7 pin, p=2.0)
- SMBus:
 - 1 x SMBus (1x4 pin, p=1.25)
- I²C:
 - 1 x I²C (1x4 pin, p=1.25)
- Fan Connector:
 - 1 x CPU fan connector (1x4 pin)
 - 1 x System fan connector (1x4 pin)
- Chassis Intrusion:
 - 1 x Chassis intrusion connector (1x2 pin, p=2.54)
- TPM:
 - Intel® PTT (TPM 2.0)
- IPMI:
 - 1 x IPMI slot supports intelligent platform management
- Power Supply:
 - ATX/AT power supply
 - Support AT/ATX mode
 - ErP/EuP compliant
- Power Consumption:
 - 3.3V@1.36A, 5V@11.85A, 12V@5.75A, 5VSB@0.38A
 - (Intel® Core™ i9-12900E CPU with two 32 GB 3200 MHz DDR4 memory, EuP mode enabled)

- Watchdog Timer:
Software programmable support 1–255 sec. system reset
- Operation Temperature: 0°C – 60°C
- Storage Temperature: -30°C – 70°C
- Operation Humidity: 5% – 95%, non-condensing
- Dimensions: 244 mm x 244 mm
- Weight: GW:1200 g / NW:700 g

Ordering Information

- **IMB-ADL-Q670-R10:**
micro-ATX motherboard supports LGA1700 12th/13th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR4, triple independent display, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
- **32205-000702-200-RS:**
RS-232/422/485 cable, 230mm, 2x5 pin, p=2.54
- **19800-014700-100-RS:**
RS-232 cable, 400mm, 2x20 pin, p=2.54
- **32102-000100-200-RS:**
SATA power cable, MOLEX 5264-4P to SATA15P

All the drivers and utility for the IMB-ADL-Q670 are available on IEI Resource Download Center. Type IMB-ADL-Q670 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>



Jumpers Setting and Connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX power mode setting
J_CMOS1	Clear CMOS jumper
FRONT-PANEL1	Audio connector
ATX1	ATX power connector
CPU12V1	ATX CPU 12V power connector
BAT2	RTC battery connector
CHASSIS1	Chassis intrusion connector
CHA_DIMM0, CHA_DIMM1, CHB_DIMM0, CHB_DIMM1	DDR4 DIMM slots
DIO1	Digital I/O connector
DP1	Internal DP++ connector
DEBUG_1	EC debug connector
CPU_FAN1, SYS_FAN1	Fan connectors
F_PANEL1	Front panel connector
J_I2C1	I ² C connector
JLAN_LED1	LAN1 link LED connector
JLAN_LED2	LAN2 link LED connector
COM3-6, COM7-10	RS-232 serial port connectors
COM1, COM2	RS-232/422/485 connectors
SATA1, SATA2, SATA3, SATA4	SATA 6Gb/s connectors
J_SMB1	SMBus connector
JSPI1	Flash SPI ROM connector
M2_M1, M2_M2	M.2 M key slots
PCIE7	PCIe x1 slots
PCIE1, PCIE6	PCIe x4 slots
PCIE8	PCIe x16 slot
PWR_BTN1	Onboard power button
J1	RAA229132 FW flash connector
J3	MP2940C FW flash connector
AUDIO1	External audio jacks
DVI1	External VGA and DVI-I combo connector

LAN1_USB1, LAN2_USB2	External 2.5GbE RJ-45 and dual USB 10Gb/s combo connector
USB5	External quad USB 2.0 connector
USB4	External dual USB 5Gb/s connector
USB3	External quad USB 5Gb/s connector

J_ATX_AT1: AT/ATX Power Mode Setting	
PIN NO.	DESCRIPTION
Short A - B	ATX Power Mode (default)
Short B - C	AT Power Mode

J_CMOS1: Clear CMOS Button	
Status	DESCRIPTION
NC	Keep CMOS Setup (Normal Operation)
Press	Clear CMOS Setup

FRONT-PANEL1: Audio Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MIC2-L	2	GND
3	MIC2-R	4	Presence#
5	LINE2-R	6	MIC2-JD
7	FRONT-IO	8	NC
9	LINE2-L	10	LINE2-JD

BAT2: RTC Battery Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBATT	2	GND

CHASSIS1: Chassis Intrusion Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CASEOPEN_N	2	GND

ATX1: 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	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: ATX CPU 12V Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

DIO1 : Digital Input/Output Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 5	4	Output 4
5	Output 3	6	Output 2
7	Output 1	8	Output 0
9	Input 5	10	Input 4
11	Input 3	12	Input 2
13	Input 1	14	Input 0

DEBUG_1: EC Debug Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	4	EDICLK
2	EDICS	5	EDIDI
3	EDIDO	6	GND

CPU_FAN1: CPU Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO	4	PWM (+5V)

SYS_FAN1: System Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO	4	PWM (+5V)

F_PANEL1: Front Panel Connector					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	PWR_LED+	2	SPKR+	SPKR
	3	NC	4	NC	
	5	PWR_LED-	6	NC	
PWR BTN	7	PWR_BTN+	8	SPKR-	
	9	PWR_BTN-	10	NC	
HDD LED	11	HDD_LED+	12	Reset+	RESET
	13	HDD_LED-	14	Reset-	

J_I2C1: I²C Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	I2C_CLK
2	I2C_DATA	4	+5V

JLAN_LED1: LAN1 Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	I225_LINK_ACT_N_1

JLAN_LED2: LAN2 Link LED Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+3.3V	2	I225_LINK_ACT_N_2

COM3-6: RS-232 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD3	2	DSR3
3	RXD3	4	RTS3
5	TXD3	6	CTS3
7	DTR3	8	RI3
9	GND3	10	GND3
11	DCD4	12	DSR4
13	RXD4	14	RTS4
15	TXD4	16	CTS4
17	DTR4	18	RI4
19	GND4	20	GND4
21	DCD5	22	DSR5
23	RXD5	24	RTS5
25	TXD5	26	CTS5
27	DTR5	28	RI5
29	GND5	30	GND5
31	DCD6	32	DSR6
33	RXD6	34	RTS6
35	TXD6	36	CTS6
37	DTR6	38	RI6
39	GND6	40	GND6

COM7-10: RS-232 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD7	2	DSR7
3	RXD7	4	RTS7
5	TXD7	6	CTS7
7	DTR7	8	RI7
9	GND7	10	GND7
11	DCD8	12	DSR8
13	RXD8	14	RTS8
15	TXD8	16	CTS8
17	DTR8	18	RI8
19	GND8	20	GND8
21	DCD9	22	DSR9
23	RXD9	24	RTS9
25	TXD9	26	CTS9
27	DTR9	28	RI9
29	GND9	30	GND9
31	DCD10	32	DSR10
33	RXD10	34	RTS10
35	TXD10	36	CTS10
37	DTR10	38	RI10
39	GND10	40	GND10

COM1, COM2: RS-232/422/485 Connectors			
	RS-232	RS-422	RS-485
1	DCD	TXD422-	TXD485-
2	RXD	TXD422+	TXD485+
3	TXD	RXD422+	--
4	DTR	RXD422-	--
5	GND	--	--
6	DSR	--	--
7	RTS	--	--
8	CTS	--	--
9	RI	--	--

SATA1, SATA2, SATA3, SATA4: 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

J_SMB1: SMBus Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	SMB_CLK
2	SMB_DATA	4	+5V

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

J1: RAA229132 FW Flash Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PM_SCL	2	PM_SDA
3	GND		

J3: MP2940C FW Flash Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PM_SCL	2	PM_SDA
3	GND		

M2_M1: M.2 M-key Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PCIE_4_RX_DN	6	N/C

7	PCIE_4_RX_DP	8	N/C
9	GND	10	NGFF1_ACT_N
11	PCIE_4_TX_DN4	12	+3.3V
13	PCIE_4_TX_DP4	14	+3.3V
15	GND	16	+3.3V
17	PCIE_3_RX_DN	18	+3.3V
19	PCIE_3_RX_DP	20	N/C
21	GND	22	N/C
23	PCIE_3_TX_DN3	24	N/C
25	PCIE_3_TX_DP3	26	N/C
27	GND	28	N/C
29	PCIE_2_RX_DN	30	N/C
31	PCIE_2_RX_DP	32	N/C
33	GND	34	N/C
35	PCIE_2_TX_DN2	36	N/C
37	PCIE_2_TX_DP2	38	M_2_SSD_SLP
39	GND	40	N/C
41	PCIE_1_RX_DN	42	N/C
43	PCIE_1_RX_DP	44	N/C
45	GND	46	N/C
47	PCIE_1_TX_DN1	48	N/C
49	PCIE_1_TX_DP1	50	PLT_RST_N
51	GND	52	SRCCLKREQB_17_N
53	PCIE_SRC17_DN	54	NC
55	PCIE_SRC17_DP	56	N/C
57	GND	58	N/C
59	N/C	60	N/C
61	N/C	62	N/C
63	N/C	64	N/C
65	N/C	66	N/C
67	N/C	68	NC
69	N/C	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

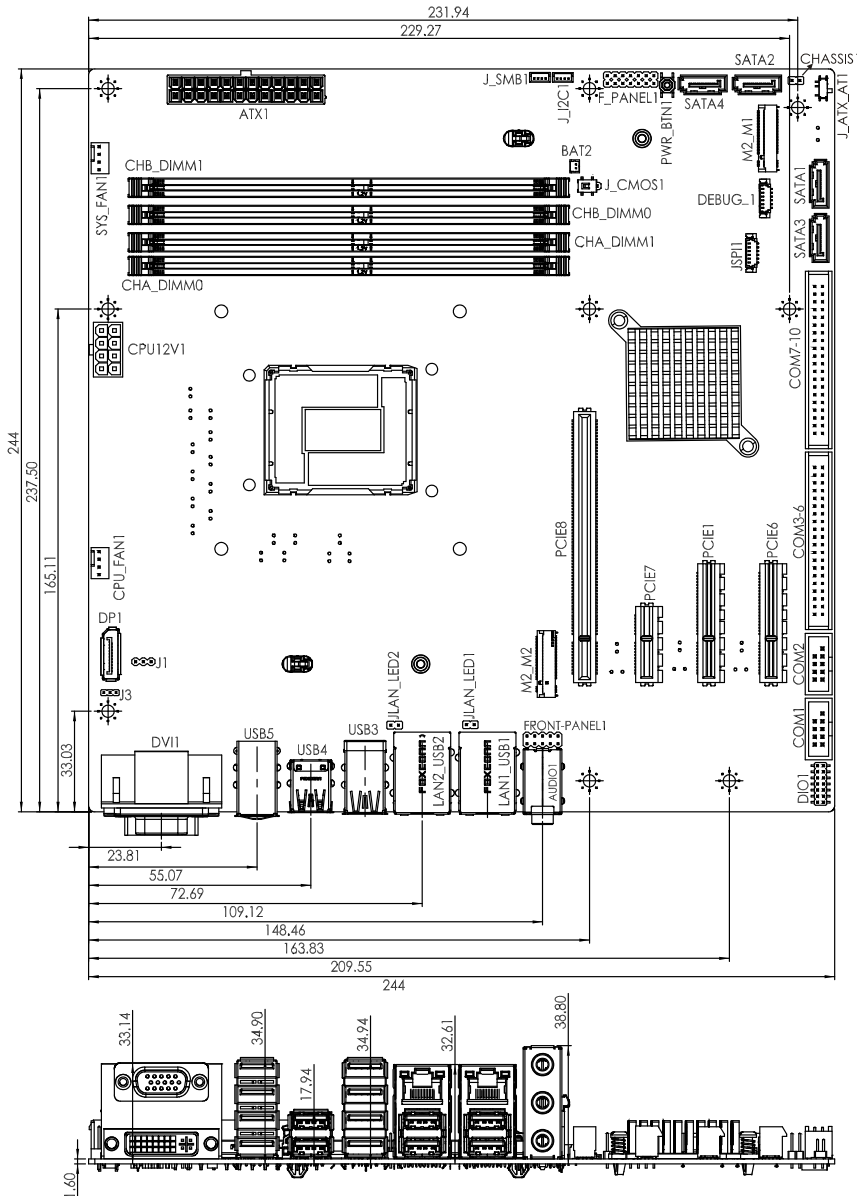
M2_M2: M.2 M-key Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V
5	EXP_A_RX_19_DN	6	N/C
7	EXP_A_RX_19_DP	8	N/C
9	GND	10	NGFF2_ACT_N
11	EXP_A_TX_19_C_DN	12	+3.3V
13	EXP_A_TX_19_C_DP	14	+3.3V
15	GND	16	+3.3V
17	EXP_A_RX_18_DP	18	+3.3V
19	EXP_A_RX_18_DN	20	N/C
21	GND	22	N/C
23	EXP_A_TX_18_C_DN	24	N/C
25	EXP_A_TX_18_C_DP	26	N/C
27	GND	28	N/C
29	EXP_A_RX_17_DN	30	N/C
31	EXP_A_RX_17_DP	32	N/C
33	GND	34	N/C
35	EXP_A_TX_17_C_DN	36	N/C
37	EXP_A_TX_17_C_DP	38	M_2_SATA_SLP
39	GND	40	N/C
41	EXP_A_RX_16_DN	42	N/C
43	EXP_A_RX_16_DP	44	N/C
45	GND	46	N/C
47	EXP_A_TX_16_C_DN	48	N/C
49	EXP_A_TX_16_C_DP	50	PERST_N
51	GND	52	SRCCLKREQB_15_N
53	PCIE_CLK_DN15	54	NC
55	PCIE_CLK_DP15	56	N/C
57	GND	58	N/C
59	N/C	60	N/C
61	N/C	62	N/C
63	N/C	64	N/C
65	N/C	66	N/C

67	N/C	68	NC
69	N/C	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

DVI1			
External VGA Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	BR	9	CRT_VCC
2	BG	10	CRT_PLUG#
3	BB	11	NC
4	NC	12	VGA_SDA
5	GND	13	5HSYNC
6	GND	14	5VSYNC
7	GND	15	VGA_SCL
8	GND		
External DVI-I Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2#1_L	15	SHIELD_GND
2	HDMI_DATA2-1_L	16	HDMIC_OB_HPD
3	SHIELD_GND	17	HDMI_DATA0#1_L
4	NC	18	HDMI_DATA0-1_L
5	NC	19	SHIELD_GND
6	HDMIC_OB_SCL	20	NC
7	HDMIC_OB_SDA	21	NC
8	NC	22	SHIELD_GND
9	HDMI_DATA1#1_L	23	HDMI_CLK-1_L
10	HDMI_DATA1-1_L	24	HDMI_CLK#-1_L
11	SHIELD_GND	25	SHIELD_GND
12	NC	26	SHIELD_GND
13	NC	27	SHIELD_GND
14	+5V	28	SHIELD_GND

LAN1_USB1, LAN2_USB2			
External Dual USB 3.2 Gen 2 Connector			
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+
2.5GbE RJ-45 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

Board Layout: Jumper and Connector Locations



(Unit: mm)