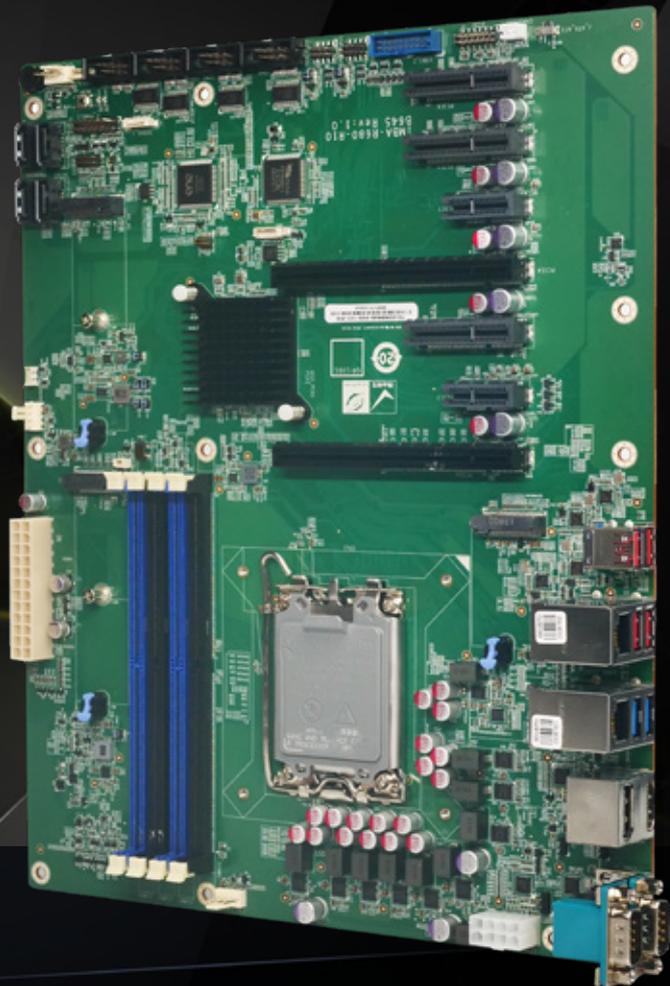# IMBA-R680

ATX motherboard supports LGA1700 Intel® 12th/13th/14th Generation Core™ i9/i7/i5/i3, Pentium® and Celeron® processor

- LGA1700 Intel® 12th/13th/14th Generation Core i9/i7/i5/i3, Pentium and Celeron processor (125W)
- Dual-channel DDR5 up to 4400MHz
- Support DisplayPort 1.4a, HDMI & iDPM module
- Support 2 x M.2 M key for NVMe storage
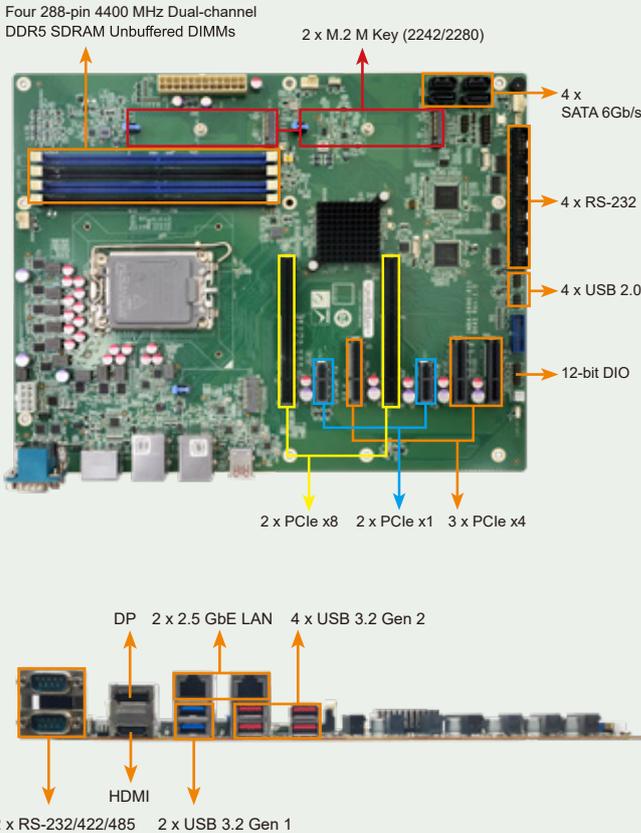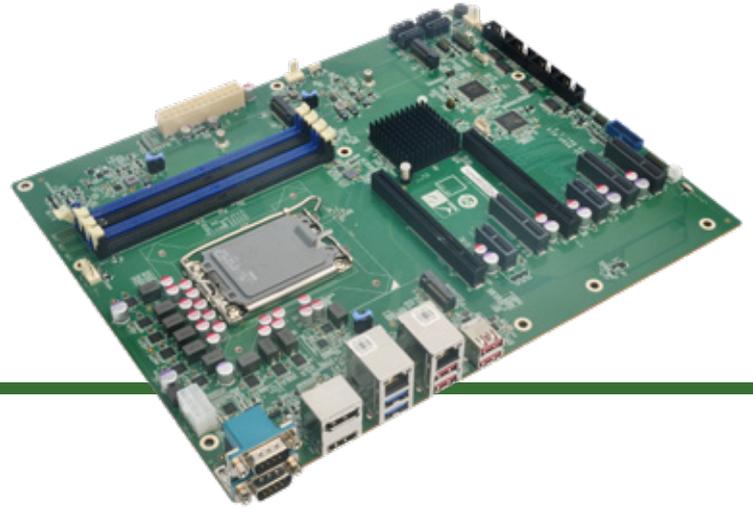- High Performance ATX motherboard with PCIe Gen4&Gen5 expansion Slot

High Performance Capability with multi-tasking function

iEi®

www.ieiworld.com

IMBA-R680

ATX motherboard supports LGA1700 Intel® 12th/13th/14th Generation Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR5, Triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, and RoHS

Four 288-pin 4400 MHz Dual-channel DDR5 SDRAM Unbuffered DIMMs

2 x M.2 M Key (2242/2280)

4 x SATA 6Gb/s

4 x RS-232

4 x USB 2.0

12-bit DIO

2 x PCIe x8   2 x PCIe x1   3 x PCIe x4

DP   2 x 2.5 GbE LAN   4 x USB 3.2 Gen 2

HDMI

2 x RS-232/422/485   2 x USB 3.2 Gen 1

DDR5 4400

Triple Display

M.2

2.5GbE LAN

TPM 2.0

SERIAL ATA 6Gb/s SATA 6Gb/s

Support 12th/13th/14th Gen Intel® Core™ CPU

Support LGA1700 socket 12th/13th/14th generation Alder Lake-S/ Raptor Lake-S/Bartlett Lake-S Intel® Core™ i9/i7/i5/i3/Pentium® /Celeron® Processor (up to 125W TDP CPU), up to 24cores/ 32thresds for outstanding Multi Threaded performance

Support DDR5 4400MHz

iEi design the IMBA-R680 support 4 x 288-pin Dual-Channel DDR5 (up to 4400 MHz) SDRAM Unbuffered DIMMs, system up to 192GB (ECC&non-ECC support)
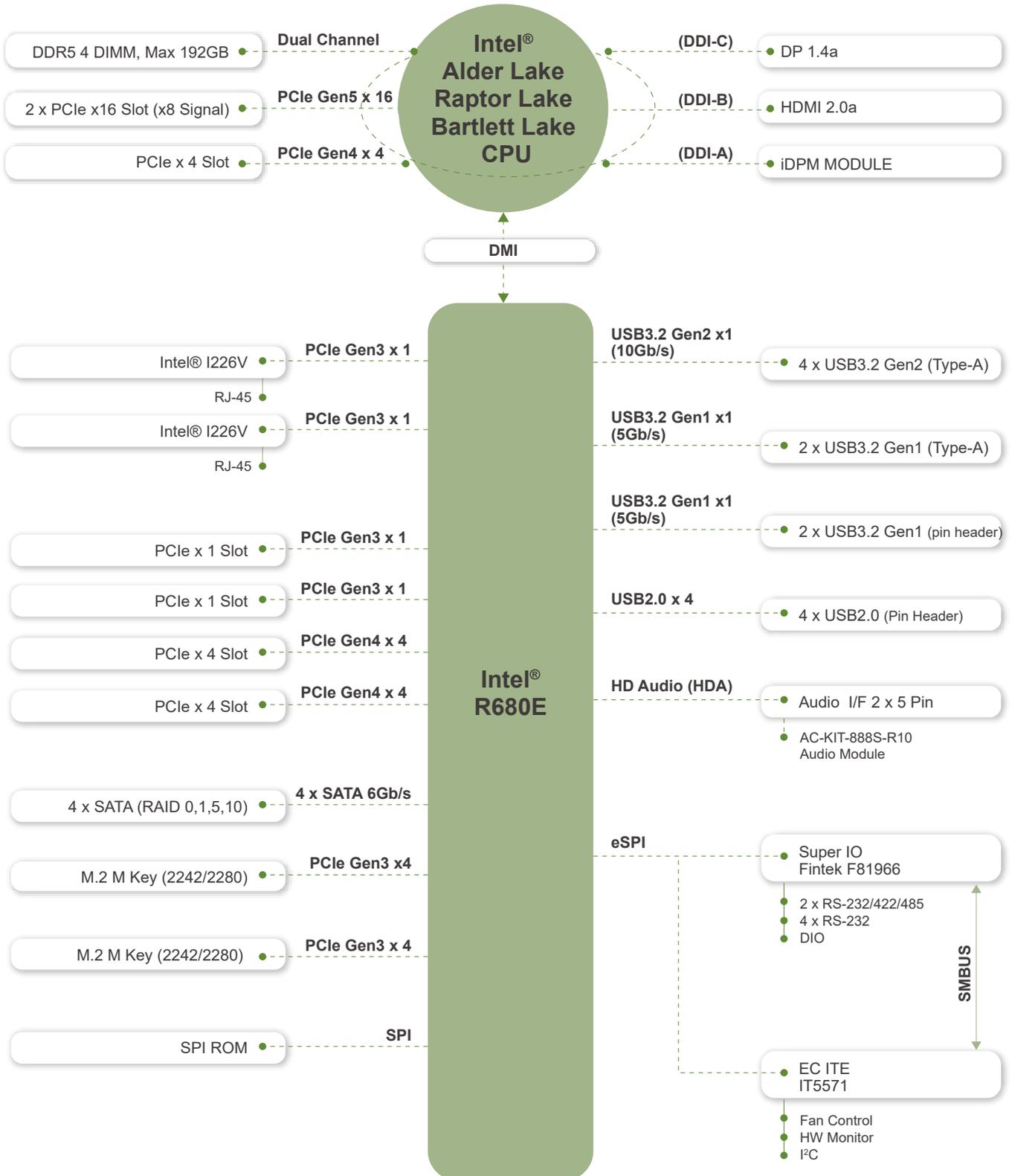
Pure PCIe Expansion Slot

It supports 2 x PCIe Gen5 x16 slot with x8 Signal ,3 x PCIe Gen4 x4 slot open-end and 2 x PCIe Gen3 x1 slot, for more PCI express card to install
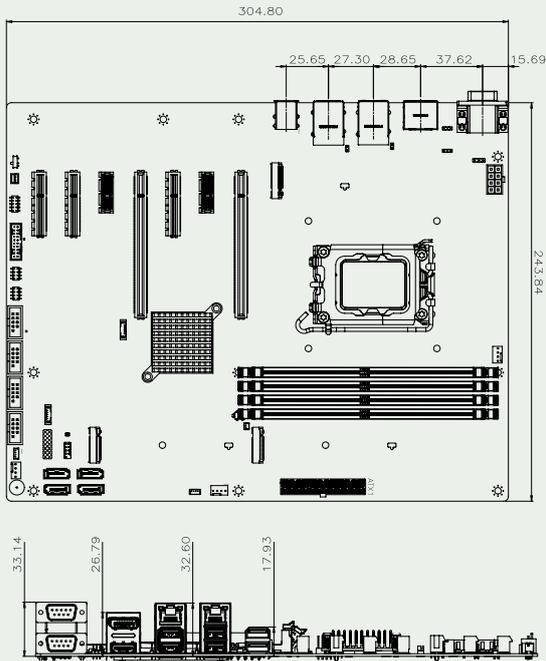
Support Four SATA for Storage

It supports 4 x SATA 6Gb/s, and RAID 0/1/5/10 supported. Otherwise, there are 2 x M.2 M key with PCIe signal support NVMe storage

iEi®

IMBA-R680 Block Diagram

DDR5 4 DIMM, Max 192GB —— **Dual Channel**

2 x PCIe x16 Slot (x8 Signal) —— **PCIe Gen5 x 16**

PCIe x 4 Slot —— **PCIe Gen4 x 4**

**Intel®
Alder Lake
Raptor Lake
Bartlett Lake
CPU**

(DDI-C) —— DP 1.4a

(DDI-B) —— HDMI 2.0a

(DDI-A) —— iDPM MODULE

DMI

**Intel®
R680E**

Intel® I226V —— **PCIe Gen3 x 1**
RJ-45

Intel® I226V —— **PCIe Gen3 x 1**
RJ-45

PCIe x 1 Slot —— **PCIe Gen3 x 1**

PCIe x 1 Slot —— **PCIe Gen3 x 1**

PCIe x 4 Slot —— **PCIe Gen4 x 4**

PCIe x 4 Slot —— **PCIe Gen4 x 4**

4 x SATA (RAID 0,1,5,10) —— **4 x SATA 6Gb/s**

M.2 M Key (2242/2280) —— **PCIe Gen3 x4**

M.2 M Key (2242/2280) —— **PCIe Gen3 x 4**

SPI ROM —— **SPI**

**USB3.2 Gen2 x1
(10Gb/s)** —— 4 x USB3.2 Gen2 (Type-A)

**USB3.2 Gen1 x1
(5Gb/s)** —— 2 x USB3.2 Gen1 (Type-A)

**USB3.2 Gen1 x1
(5Gb/s)** —— 2 x USB3.2 Gen1 (pin header)

USB2.0 x 4 —— 4 x USB2.0 (Pin Header)

HD Audio (HDA) —— Audio I/F 2 x 5 Pin
AC-KIT-888S-R10
Audio Module

eSPI —— Super IO
Fintek F81966
2 x RS-232/422/485
4 x RS-232
DIO

SMBUS

EC ITE
IT5571
Fan Control
HW Monitor
I²C

Dimensions

Specifications

Model	IMBA-R680
CPU	LGA1700 socket supports Intel® 12th/13th/14th Generation Alder Lake-S/Raptor Lake-S/Bartlett Lake-S Core™ i9/i7/i5/i3/Pentium®/Celeron® Processor (up to 125W TDP CPU)
Chipset	Intel® R680E
BIOS	AMI UEFI BIOS
Memory	Four 288-pin Dual-Channel DDR5 (up to 4400 MHz) SDRAM Unbuffered DIMMs supported up to 192GB (ECC&non-ECC support)
Graphics Engine	New Intel® Xe Graphics architecture with SRIOV, Genlock
Display Output	Triple independent display 1 x DP (up to 4096 x 2304 @60Hz) 1 x HDMI (up to 3840*2160 @30Hz) 1 x iDPM support iEi eDP/ LVDS/ VGA module
Ethernet	LAN1: Intel® I226LM 2.5GbE controller (CO-LAYI226V support vPro) LAN2: Intel® I226V 2.5GbE controller
External I/O Interface	4 x USB 3.2 Gen2 (Type-A) (10Gb/s) 2 x USB 3.2 Gen1 (Type-A) (5Gb/s) 2 x RS-232/422/485 (RS-485 support AFC)
Internal I/O Interface	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 4 x USB 2.0 (2x4 pin, P=2.54) 2 x USB 3.2 Gen1 (2 X 10PIN P=2.00 pin wafer) (5Gb/s) 4 x RS-232 (2x5 pin, P=2.54)
SMBus	1 x SMBus (1x4 pin)
I²C	1 x I2C (1x4 pin)
Audio	1 x iAUDIO supports IEI AC-KIT-888S Audio Kit (2x5 pin)
Front Panel	1 x Front Panel (2x7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
LAN LED	2 x LAN LED (1x2 pin)
Expansion	**2 x PCIe Gen5 x16 slot with x8 Signal **1 x PCIe Gen4 x4 open-end 2 x PCIe Gen4 x4 open-end 2 x PCIe Gen3 x1 2 x M.2 M key 2242/80(PCIe Gen3 x4)
Digital I/O	1 x 12-bit digital I/O (2x7 pin)
TPM	Intel® PTT (TPM 2.0)
Fan Connector	1 x CPU fan connector (1x4 pin) 2 x System fan connector (1x4 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@0.89A, 5V@10.05A, 12V@6.05A, 5VSB@0.64A (Intel® Core™ i7-12700E CPU with four 16 GB 4800 MHz DDR5 memory, EuP mode enabled)
Operating Temperature	0°C~60°C
Storage Temperature	-30°C ~ 70°C
Operating Humidity	5% ~95%, non-condensing
Dimensions	244mm x 305mm
Weight	GW:1200g / NW:700g
Certification	CE/FCC compliant

**Intel® recommends that Alder Lake-S CPU PCIe ports are only used for discrete graphics and storage devices

Optional accessories

AC-KIT-888S-R10

CB-USB02A-RS

19800-010500-200-RS

32102-000100-200-RS

32205-000702-100-RS

19100-000323-00-RS

19100-000326-00-RS

19100-000319-00-RS

19100-000333-00-RS

19100-000327-00-RS

iDPM-eDP-R10

iDPM-VGA-R10

iDPM-LVDS-R10

iDPM-DP-R10

iDPM-VBO-R10

Packing List

1 x IMBA-R680 single board computer	1 x I/O shielding (PN: 45014-0096C0-00-HF)
2 x SATA cable (PN: 32801-012500-100-RS)	1 x QIG

Ordering Information

IMBA-R680-R11	ATX motherboard supports LGA1700 Intel® 12th/13th/14th Generation Core™ i9/i7/ i5/i3, Pentium® and Celeron® processor, DDR5, Triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, and RoHS

Optional Accessories

AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CB-USB02-RS	Dual-port USB cable with bracket, 300mm, p=2.54
19800-010500-200-RS	USB 3.0 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
19100-000323-00-RS	LGA1700 cooler kit, 65W
19100-000326-00-RS	LGA1700 cooler kit,125W
19100-000319-00-RS	High-performanc 1 U LGA1700 cooler, 65W, 95*90*27.45mm
19100-000333-00-RS	High-performance LGA1700 cooler, 80W, 72*48.5*73.5mm
19100-000327-00-RS	High-performance LGA1700 cooler, 125W, 96.5*91.4*119.5mm
iDPM-eDP-R10	eDP to eDP DisplayPort converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS DisplayPort converter board (for IEI iDPM connector)
iDPM-VGA-R10	eDP to VGA Connetor converter board (For IEI Display Module)
iDPM-VBO-R10	eDP to VBO DisplayPort converter board (for IEI iDPM connector)
iDPM-DP-R10	eDP to DP DisplayPort converter board (for IEI iDPM connector)