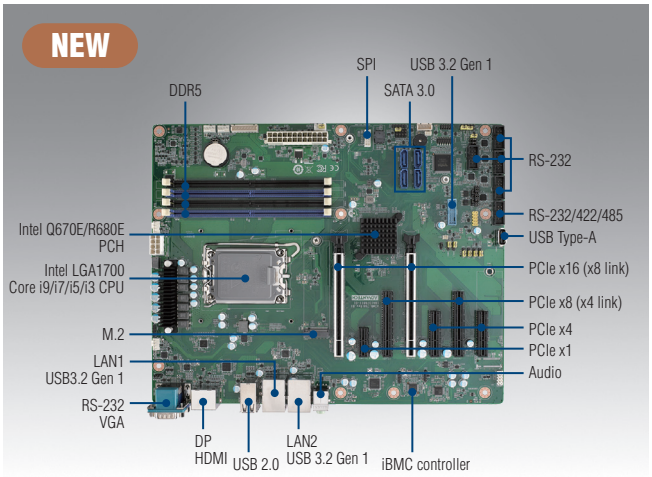
AIMB-788E

LGA1700 12th/13th/14th Generation Intel® Core™ i9/i7/i5/i3 ATX Motherboard with DP/HDMI/VGA, DDR5, USB 3.2, M.2



Features

- Intel® 12th/13th/14th generation Core™ i9/i7/i5/i3 & Pentium®/Celeron® processor with Q670E/R680E chipset
- Dual PCIe x16 expansion slots
- Four DIMM sockets up to 192 GB DDR5
- Seven PCIe slots or Dual M.2 M Key for NVMe RAID
- Triple display DP/HDMI/VGA and dual GbE LAN
- M.2, SATA RAID 0, 1, 5, 10, USB 3.2 Gen 1
- Advantech iBMC remote out-of-band power management solution on DeviceOn

Note 1: Legacy platform is not supported.
Note 2: dTPM 2.0 module is required to enable TPM technologies.
Note 3: Intel® Platform Trust Technology (Intel® PTT) ready for Windows 11.

Quiet

Specifications

14th Generation Processors	CPU	i9-14900	i9-14900T	i7-14700	i7-14700T	i5-14500	i5-14500T	i5-14400	i5-14400T	i5-14400F	i3-14100	i3-14100T	300	300T
	P-core Base Frequency	2.0 GHz	1.1 GHz	2.1 GHz	1.3GHz	2.6 GHz	1.7 GHz	2.5 GHz	1.5 GHz	2.5 GHz	3.5 GHz	2.7 GHz	3.9 GHz	3.4 GHz
	L3 Cache	36 MB	36 MB	33 MB	33 MB	24 MB	24 MB	20 MB	20 MB	20 MB	12 MB	12 MB	6 MB	6 MB
	Cores	24	24	20	20	14	14	10	10	10	4	4	2	2
	Processor Base Power	65 W	35 W	65 W	35 W	65 W	35 W	65 W	35 W	65 W	60 W	35 W	46 W	35 W
13th Generation Processors	CPU	i9-13900(E)	i9-13900TE	i7-13700(E)	i7-13700T(E)	i5-13500(E)	i5-13500T(E)	i5-13400(E)	i3-13100(E)	i3-13100T(E)				
	P-core Base Frequency	2.0 GHz	1.1 GHz	2.1 GHz	1.4 GHz	2.5 GHz	1.6 GHz	2.5 GHz	3.4 GHz	2.5 GHz				
	L3 Cache	36 MB	36 MB	30 MB	30 MB	24 MB	24 MB	20MB	12 MB	12 MB				
	Cores	24	24	16	16	14	14	10	4	4				
	Processor Base Power	65 W	35 W	65 W	35 W	65 W	35 W	65W	60 W	35 W				
12th Generation Processors	CPU	i9-12900(E)	i9-12900TE	i7-12700(E)	i7-12700TE	i5-12500(E)	i5-12400	i5-12500TE	i3-12100(E)	i3-12100TE	Pentium G7400E	Pentium G7400TE	Celeron G6900E	Celeron G6900TE
	P-core Base Frequency	2.4 GHz	1.1 GHz	2.1 GHz	1.4 GHz	3.0 GHz	2.5 GHz	1.9 GHz	3.3 GHz	2.1 GHz	3.6 GHz	3.0 GHz	3.0 GHz	2.4 GHz
	L3 Cache	30 MB	30 MB	25 MB	25 MB	18 MB	18 MB	18 MB	12 MB	12 MB	6 MB	6 MB	4 MB	4 MB
	Cores	16	16	12	12	6	6	6	4	4	2	2	2	2
	Processor Base Power	65 W	35 W	65 W	35 W	65 W	65 W	35 W	60 W	35 W	46 W	35 W	46 W	35 W
Processor System	Socket	LGA 1700												
	Chipset	Q670E/R680E												
	BIOS	AMI 256Mbit SPI Flash												
Expansion Slot	PCIe x1	1 (Gen 4)												
	PCIe x4	2 (1 x Gen 4 x4 link, 1 x Gen 3 x4 link); 1 (AIMB-788E-10 version, 1 x Gen 4 x4 link)												
	PCIe x8	2 (1 x Gen 4 x4 link, 1 x Gen 3 x4 link)												
	PCIe x16*	2 (1 x Gen 5 x8 link, 1 x Gen 4 x8 link)												
Memory	Technology	Dual Channel DDR5** Non-ECC UDIMM; Dual Channel DDR5 ECC UDIMM (AIMB-788E-0R version)												
	Max Capacity	192 GB												
	Sockets	4 x 288-pin DIMM												
Graphics	Controller	Chipset integrated Intel UHD Graphics												
	VRAM	Shares system memory is subjected to OS												
Ethernet	Interface	10/100/1000 Mbps												
	Controller	GbE LAN1: Intel I219-LM (PHY); GbE LAN2: Intel I210-AT												
	Connector	2 x RJ-45												
SATA	Channel	4												
	RAID	0, 1, 5, 10												

* The PCIe x16 slot, from CPU, can only support graphic cards and storage cards according to the specification recommended by Intel. Other types of add-on cards might not work properly. For the compatible device list validated on the PCIe x16 slot, please refer to the user manual.
** DDR5 runs at 4400 MT/s with one DIMM per channel, 4000 MT/s with two DIMMs in one channel, and 3600MT/s with two DIMMs per channel.

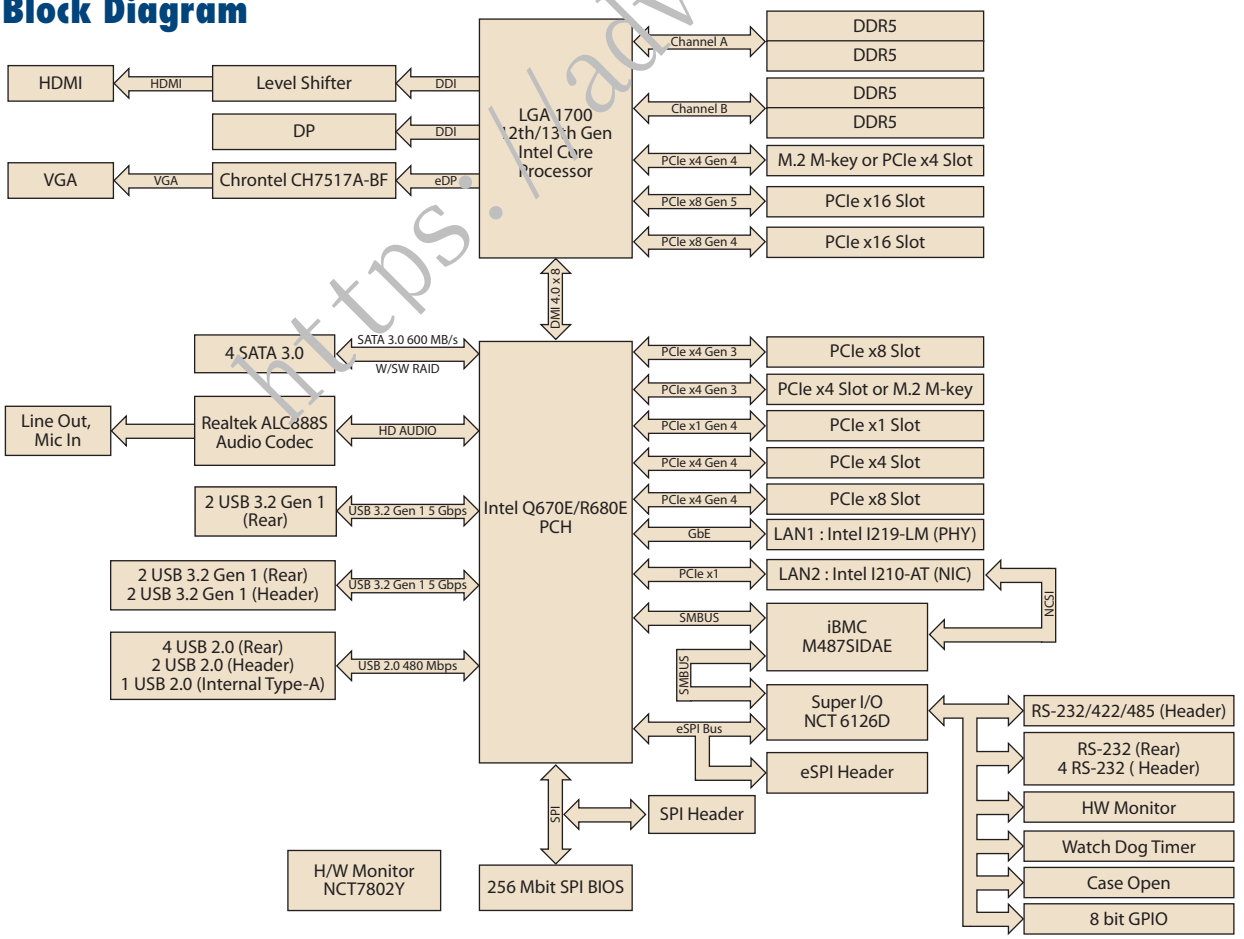
https://advavee.com

Specifications (Cont.)

Rear I/O	VGA	1 (Resolution up to 1920 x 1200 @ 60Hz)					
	HDMI	1 (Resolution up to 3840 x 2160 @ 60Hz)					
	DisplayPort	1 (Resolution up to 4096 x 2304 @ 60Hz)					
	Ethernet	2					
	USB	8 (4 x USB 3.2 Gen 1, 4 x USB 2.0)					
	Audio	2 (Line-out, Mic-in)					
	Serial	1 (RS-232)					
Watchdog Timer	Output	System reset					
	Interval	Programmable 1 ~ 255 sec					
Power Requirement	Power On	Intel Core i 65W , DDR5 32 GB x 4					
	Voltage	+3.3 V	+5 V	+12 V	+5 Vsb	-12 V	-5 V
	Current	1.54 A	1.96 A	0.07 A	0.08 A	0.04 A	0.01 A
Internal Connectors	USB	5 (2 x USB 3.2 Gen 1 via pin header, 2 x USB 2.0 via pin header, 1 x USB 2.0 type A connector)					
	Serial	5 (4 x RS-232, 1 x RS-232/422/485)					
	SATA	4					
	M.2	1 (PCIe x4 Gen 4 M-key 2280 type); 2 (AIMB-788E-10 version, 1 x PCIe x4 Gen 4, 1 x PCIe x4 Gen 3 M-key 2280 type)					
	SPI	1 (Optional dTPM 2.0 module available)					
	GPIO	8-bit					
Environment		Operating			Non-Operating		
	Temperature	0 ~ 60 °C (32 ~ 140 °F), depends on CPU loading and system thermal solution			-40 ~ 85 °C		
	Humidity	95%@ 40 °C, non-condensing			5% @ 60 °C, non-condensing		
Physical Characteristics	Dimension (L x H)	304.8 x 244 mm (12" x 9.6")					

https://advaved.com

Block Diagram



Ordering Information

Part number	Chipset	Memory	Display	USB 3.2 Gen 1	USB 2.0	COM	GbE LAN	AMT	M.2	SATA 3.0	SW RAID	iBMC
AIMB-788E-00A1	Q670E	Non-ECC UDIMM DDR5 up to 192 GB	VGA + HDMI + DP	6	7	6	2	Yes	1	4	Yes	Yes
AIMB-788E-10A1	Q670E	Non-ECC UDIMM DDR5 up to 192 GB	VGA + HDMI + DP	6	7	6	2	Yes	2	4	Yes	Yes
AIMB-788E-0RA1	R680E	ECC UDIMM DDR5 up to 192GB	VGA + HDMI + DP	6	7	6	2	Yes	1	4	Yes	Yes

Packing List

Part Number	Description	Qty
1700003194	SATA data cable	2
1960104181T001	I/O port bracket (for 2U chassis or higher)	1
2041078800	Startup manual	1

Note: Driver CD is not provided. Please visit Advantech support website for driver download.

I/O View



AIMB-788E-00A1
AIMB-788E-10A1
AIMB-788E-0RA1

Optional Accessories

Part number	Description
1700002204	2-port USB 2.0 cable w/ BKT(27 cm)
1700028292-01	2-port USB 3.0 cable w/ BKT(30 cm)
1970005349T000	CPU cooler for 2U, 4U, and wallmount chassis (for CPU Base Power=35~125W)
1701090401	Single COM port cable(40 cm)
1701092300	Dual COM port cable(28.5 cm)
1700022749-11/ 1700022749-12/ 1700022749-13	SATA power cable
PCA-TPMSPI-00A1	dTPM 2.0 SPI module to enable TPM and vPro technologies

Note: Purchasing AIMB-788's proprietary CPU cooler from Advantech is highly recommended. Other brands' CPU coolers are NOT compatible with AIMB-788. Especially the cooler type with fan aside is not allowed to use on AIMB-788 due to heat dissipation on MOSFET.

https://advwee.com