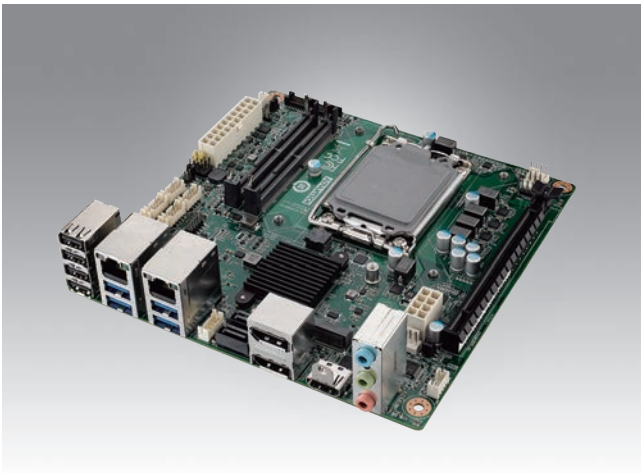


# AIMB-208

## Mini-ITX Motherboard 12th/13th Gen Intel® Core™ Processor (codename: Alder Lake-S/Raptor Lake-S)



### Features

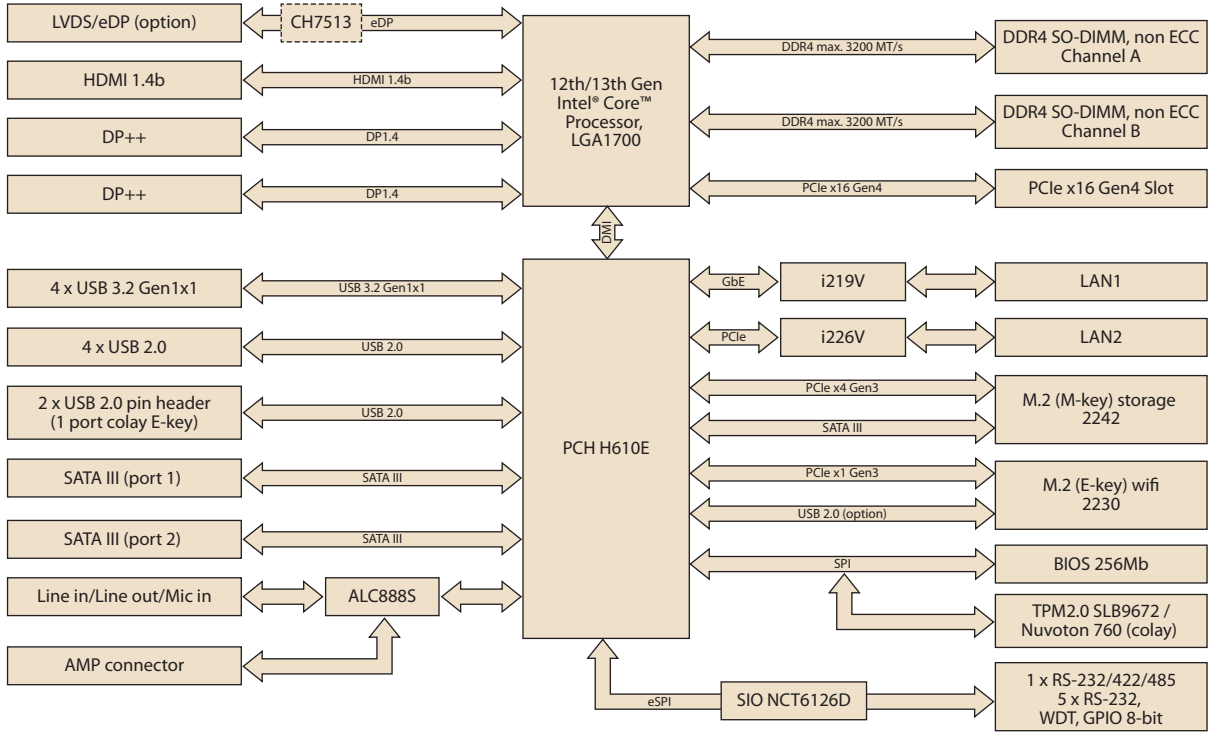
- 12th/13th Gen Intel® Core™ Desktop Processors, max. 24Core, support H610E chipset
- Up to 64GB DDR4 3200 MT/s with two SO-DIMM
- PCIe x16 Gen4
- Triple independent displays with 2 DP, 1 HDMI, 1 LVDS
- Rich expansion: 1 M.2 M-key & 1 M.2 E-key, 4 USB 3.2 Gen1x1 & 6 USB2.0, 2 SATA III and 6 COM
- WISE-DeviceOn and Embedded Software APIs



### Specifications

	CPU	i9-13900E / i9-13900	i9-13900TE	i7-13700E / i7-13700	i7-13700TE	i5-13500E / i5-13500	i5-13500TE	i5-13400E / i5-13400	i3-13100E / i3-13100	i3-13100TE				
13th Generation Processors	Core Number	24	24	16	16	14	14	10	4	4				
	Base frequency (GHz)	1.8/2.0	1	1.9/2.1	0.8	2.4/2.6	1.3	2.4/2.5	3.3/3.4	2.4				
	Max Speed (GHz)	5.2/5.6	5	5.1/5.2	4.8	4.6/4.8	4.5	4.6	4.4/4.5	4.1				
	Smart cache (MB)	36	36	30	30	24	24	20	12	12				
	TDP (W)	65	35	65	35	65	35	65	60	35				
12th Generation Processors	CPU	i9-12900E / i9-12900	i9-12900TE	i7-12700E / i7-12700	i7-12700TE	i5-12500E / i5-12500/12400	i5-12500TE	i3-12100E / i3-12100		i3-12100TE	G7400E	G7400TE	G6900E	G6900TE
	Core Number	16	16	12	12	6	6	4		4	2	2	2	2
	Base frequency (GHz)	2.3/2.4	1.1	2.1	1.4	2.9/3.0/2.5	1.9	3.2		2.1	3.6	3	3	2.4
	Max Speed (GHz)	5	4.8	4.8	4.7	4.5/4.6/4.4	4.3	4.2/4.3		4	NA	NA	NA	NA
	Smart cache (MB)	30	30	25	25	18	18	12		12	6	6	4	4
TDP (W)	65	35	65	35	65	35	60		35	46	35	46	35	
Processor System	Chipset	H610E												
	BIOS	AMI EFI 256Mb SPI												
Expansion Slot	M.2	1 M-Key for SSD, 1 E-Key for Wireless connection												
	PCIe x16	PCIe x16 Gen4 for discrete GPU card and storage devices												
Memory	Technology	Dual Channel DDR4, up to 3200 MT/s (non-ECC)												
	Max. Capacity	64GB (up to 32GB per DIMM)												
	Socket	2 x 260pin SO-DIMM												
Graphics	Controller	up to Intel® UHD Graphics 770												
	HDMI	HDMI1.4b, up to 3840x2160 @ 30 Hz												
	DP	DP1.4a, up to 4096 x 2304 @ 60 Hz												
	eDP	By Option, up to 4096 x 2304 @ 60 Hz												
	LVDS	By Default, supports single/dual channel 18/24-bit, up to 1920 x 1200 @ 60 Hz (eDP coloy with LVDS)												
	Multi Displays	up to 3 display(combination of HDMI, 2DP, eDP or LVDS)												
Network	ETHERNET	10/100/1000/2500 Mbps (by BOM option)												
	Controller	Intel i219V and Intel i226V												
	Connector	2 x RJ45												
Audio	Codec	Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in												
	Amplifier	Yes (Option, 2.5W)												
SATA	Max data transfer rate	6 Gb/s												
	Channel	2 x SATA III												
Rear I/O	DP	2												
	HDMI	1												
	Ethernet	2												
	USB	Up to 4 USB3.2 Gen1x1 & 4 USB2.0												
	Audio	1 (Line in/Line out/Mic in)												
Internal Connector	USB	2 (USB2.0)												
	LVDS/eDP	1 (eDP coloy with LVDS)												
	Serial	6 (COM1-COM6 support RS-232. COM2 option RS-232/422/485)												
	SATA	2												
	M.2	1 M-key (dimension: 2242) 1 E-key (dimension: 2230)												
	GPIO	8-bit												
Watchdog Timer	Output	System reset												
	Interval	Programmable 1 ~ 255 (second or minute)												
Power Requirements	Input voltage	12V ATX												
	Connector	Internal ATX 20pin												
	Power consumption	Configuration	Intel® Core™ i9-13900E, 2pcs 32 GB DDR4 3200 MT/s											
		Max.	82.2 W											
		Typical	60 W											
Environment	Temperature	Operating: 0 ~ 60° C (32 ~ 140° F)												
	Storage	Non-Operating: -40 ~ 85° C (-40 ~ 185° F)												
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")												

**Block Diagram**



**Ordering Information**

P/N	Chipset	HDMI	DP	LVDS/eDP	GbE	COM	SATAIII	USB3.2	USB2.0	M.2 M key	M.2 E key	PCIex16	TPM	AMP
AIMB-208HF-LAA1	H610E	1	2	1/(1)	2*	6	2	4	6	1	1	1	(1)	(1)
AIMB-208HL-EAA1	H610E	1	1	(1)/1	1	2	2	2	6	1	1	1	(1)	(1)

\*() Supports by BOM options  
 \*AIMB-208HF-LAA1 support 2 GbE (default), 1 GbE and 2.5 GbE (option)

**Packing List**

P/N	Description	Quality
AIMB-208 Board	AIMB-208 motherboard	1
1700003194-21	SATA HDD cable	1
1700034404-01	1-to-1 serial port cable, 50cm	1
1960113473T001	I/O port bracket	1
2046020801	Startup manual for AIMB-208	1

**Optional Accessories**

P/N	Description
1970005349T001	LGA1700 CPU Cooler H: 55.4mm (for TDP 65W)
1970005672T001	LGA1700 CPU Cooler H: 32mm (for TDP 35W)
1700034405-01	1-to-2 USB cable, 50cm

**I/O View**



**Embedded OS**

OS/API	Part Number	968 Part Number	Description
Ubuntu	20706U22DS0023	968MOU204D	img UbuntuD AIMB-208 64b 22.04 ENU
Windows 10	20706WX1ES0059	968QW21ELE	img W10 21EL AIMB-208 64b 21H2 ENU
Windows 10	20706WX1HS0059	968QW21HLE	img W10 21HL AIMB-208 64b 21H2 ENU
Windows 10	20706WX1VS0059	968QW21VLE	img W10 21VL AIMB-208 64b 21H2 ENU

**Optional Chassis**

Part Number	Description
EPC-B2000-A030	EPC-B2000 chassis w/ 350W PSU and LGA1700 cooler