

AIMB-279 A1

Mini-ITX Motherboard 12/13/14th Gen Intel® Core™ Processor (codename: Alder Lake-S/Raptor Lake-S/ Raptor Lake-S Refresh)



Features

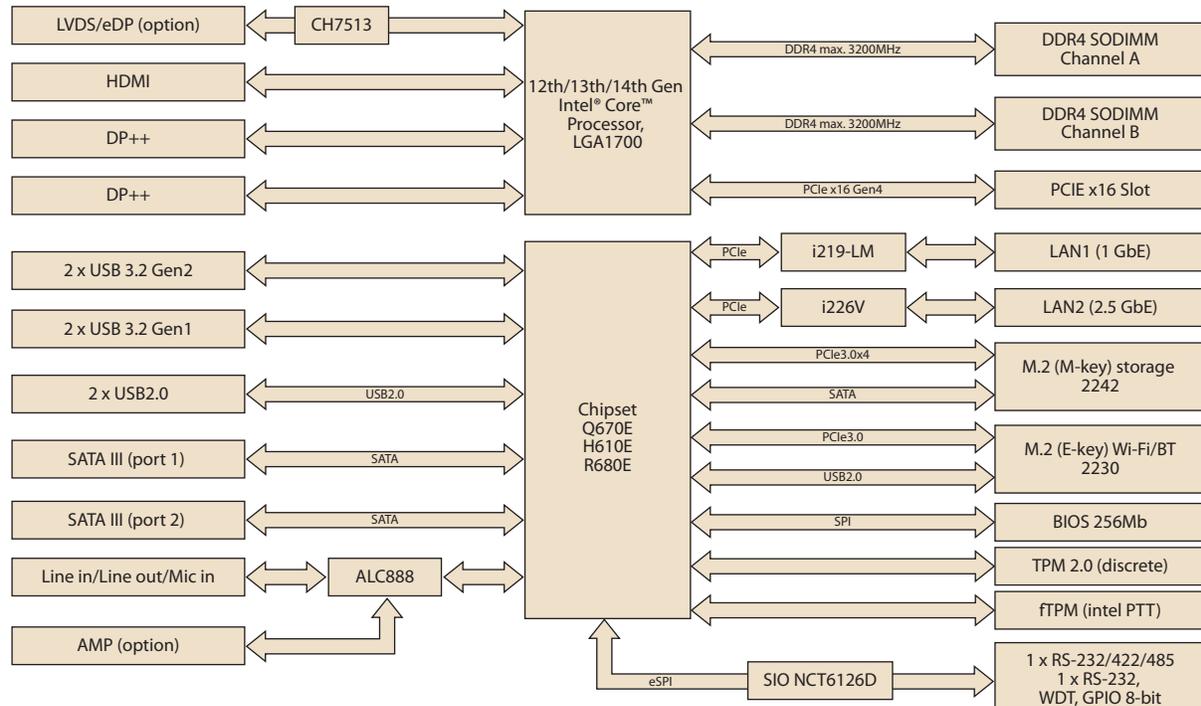
- 12/13/14th Gen Intel® Core™ Desktop Processors, max. 24Core, support Q670E/H610E/R680E Chipset
- Up to 64GB DDR4 3200MHz with two SODIMM
- PCIe x16 Gen4 (16GT/s)
- Four independent displays with 2 DP, 1 HDMI, 1eDP
- Rich expansion: 1 M.2 M key & 1 M.2 E key, 4 USB 3.2 & 2 USB2.0, 2 SATA
- 12-24V DCIN power input
- WISE-DeviceOn and Embedded Software APIs

Windows 10 ubuntu® WISE-DeviceOn CE FCC

Specifications

14th Generation Processors	CPU	i9-14900	i9-14900T	i7-14700	i7-14700T	i5-14500	i5-14500T	i5-14400	i5-14400T	i3-14100	i3-14100T		
	Core Number	24	24	20	20	14	14	10	10	8	8		
	Base frequency (GHz)	2.0/1.5	1.1/0.8	2.1/1.5	1.3/0.9	2.6/1.9	1.7/1.2	2.5/1.8	1.5/1.1	3.5/NA	2.7/NA		
	Max Speed (GHz)	5.8/4.3	5.5/4.0	5.4/4.2	5.2/3.7	5.0/3.7	4.8/3.4	4.7/3.5	4.5/3.2	4.7/NA	4.4/NA		
	Smart cache (MB)	36MB	36MB	33MB	33MB	24MB	24MB	20MB	20MB	12MB	12MB		
TDP (W)	65W	35W	65W	35W	65W	35W	65W	35W	65W	35W			
13th Generation Processors	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			
	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	1.9/2.1	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	Q670E / H610E / R680E											
	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 (16GT/s) for discrete GPU card and storage devices											
Memory	Technology	Dual Channel DDR4, up to 3200 MHz (non-ECC)											
	Max. Capacity	64GB (up to 32GB per SODIMM)											
	Socket	2 x 260pin SODIMM											
Graphics	Controller	Intel® UHD Graphics Driven by Xe Architecture											
	HDMI	HDMI2.0b, supports max. resolution 4096 x 2160 @ 60 Hz											
	DP	2 DP++, DP1.4a, supports max. resolution 4096 x 2304 @ 60 Hz											
	eDP	By option, with internal pin header, supports max. resolution 4096 x 2304 @ 60 Hz											
	LVDS	By default, internal pin header, supports single/dual channel 18/24-bit with maximum resolution up to 1920 x 1200 @ 60 Hz (eDP coloy with LVDS)											
	Multi Displays	up to 4 independent displays (4 with Q670E)											
Network	ETHERNET	up to 2500 Mb/s											
	Controller	LAN1: Intel i219 (GbE) LAN2: Intel i226 (2.5GbE)											
	Connector	2 x RJ45											
SATA	Max data transfer rate	600 MB/s											
	Channel	2 x SATAIII											
Rear I/O	DP	2											
	HDMI	1											
	Ethernet	2											
	USB	2 ports USB3.2 Gen2x1											
	Audio	1 (Line in/Line out/Mic in)											
Internal Connector	USB	2 ports USB3.2 Gen1x1 & 2 ports USB2.0											
	LVDS/eDP	1 (LVDS coloy with eDP)											
	Serial	2 ports (COM1 RS232, COM2 RS232/422/485)											
	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 sec/min											
Power Requirements		i9-14900E 5.2GHz, 2pcs 32GB DDR4 3200MHz, 24V @4.45A with 24V DC Input adapter											
Environment	Temperature	Operating: 0 – 60° C (32 – 140° F), depends on CPU speed and cooler solution											
	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	2.5GbE	COM	SATA III	USB 3.2	USB 2.0	M.2 M Key	PCIe x16	TPM	AMP
AIMB-279QF-LDA1	Q670E	1	2	1/(1)	1	1	2	2	4	2	1	1	1	1
AIMB-279HL-EDA1	H610E	1	1/(1)	(1)/1	1	1	2	2	4	2	1	1	(1)	(1)
AIMB-279HL-LDA1	H610E	1	1/(1)	1/(1)	1	1	2	2	4	2	1	1	(1)	(1)
AIMB-279QF-EDA1	Q670E	1	2	(1)/1	1	1	2	2	4	2	1	1	1	1
AIMB-279HLO-LDA1U	H610E	1	1/(1)	1/(1)	1	1	2	2	4	2	1	1	(1)	(1)
AIMB-279RF-LDA1U	R680E	1	2	1/(1)	1	1	2	2	4	2	1	1	1	1

*() Supports by BOM options

Packing List

P/N	Description	Quantity
AIMB-279 Board	AIMB-279 A1 motherboard	1
1700034404-01	1-to-1 serial port cable, 50cm	1
1700003194	SATA HDD cable	1
1700018785	SATA PWR cable	1
1960114859T001	I/O port bracket	1
2046027900	Startup manual for AIMB-279	1
19350304A0	M.2 screws (M3, L=4mm)	2

Optional Accessory

P/N	Description
1970005672T001	LGA1700 CPU Cooler (for CPU TDP <= 35W), H: 32mm
1970005349T001	LGA1700 CPU Cooler (for CPU TDP <= 65W), H: 56.5mm
1700034405-01	1-to-2 USB cable, 50cm
96PSA-A330W24P4-3	A/D 100-240V 330W 24V C14 TERMINAL BLOCK 4P

I/O View



Embedded OS / API

OS/API	Part No.	968 P/N	Description
Windows 10	20706WX1HS0080	968QW21HLE	img W10 21HL AIMB-279 64b 21H2 ENU
Windows 10	20706WX1VS0079	968QW21VLE	img W10 21VL AIMB-279 64b 21H2 ENU
Windows 10	20706WX1ES0080	968QW21ELE	img W10 21EL AIMB-279 64b 21H2 ENU
Windows 11	20706WLE1S0019	968QW1124ELOXE	img W11 24EL AIMB-279 64b 24H2 ENU
Windows 11	20706WLH1S0019	968QW1124HLOXE	img W11 24HL AIMB-279 64b 24H2 ENU
Windows 11	20706WL1S0019	968QW1124VLOXE	img W11 24VL AIMB-279 64b 24H2 ENU
Ubuntu22.04	20706U22DS0035	968MOU204D	img UbuntuD AIMB-279 64b 22.04 ENU

Optional Chassis

PN	Description
EPC-B2000-AC00	Mini-ITX Chassis