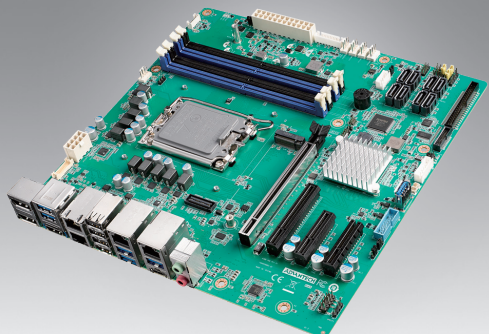


AIMB-588 B1

Micro-ATX Motherboard 12/13/14th Gen Intel® Core™ & Core 200S Processor (codename: Alder Lake-S/Raptor Lake-S/ Raptor Lake-S Refresh/Bartlett Lake-S)



Features

- Intel® 12/13/14th Gen Core™ i9/i7/i5/i3 processors with Q670E/ R680E/ H610E chipsets
- 3 2.5GbE LAN and 1 GbE LAN for digital devices
- Up to 192GB DDR5 UDIMMs for data transfer
- High speed expansions: PCIe x16 Gen5, 8 USB3.2, 1 USB3.2 Type C
- 1 internal USB3.2 type A to support USB keylock functions
- Quad displays by 2 DPs, HDMI, and eDP
- WISE-DeviceOn and Embedded Software APIs

Software APIs:



Utilities:



Windows 10



WISE-DeviceOn



Specifications

Processor System	Chipset	Q670E/R680E/H610E			
	BIOS	AMI BIOS UEFI 256 Mbits SPI			
Expansion Slot	PCIe x16 (Gen5)	1 slot			
	PCIe x8 (Gen4)	(1 slot, optional)			
	PCIe x4 (Gen3)	1 slot			
	PCIe x4 (Gen4)	1 slot (AIMB-588RF/AIMB-588QM)			
Memory	Technology	Dual Channel DDR5 up to 4400 MT/s, ECC memory supported by all CPU only with Chipset R680E			
	Max. Capacity	192GB (48 GB per DIMM)			
	Frequency	4400MT/s (2DPC - 1DIMM 1R&2R), 4000MT/s (2DPC – 2DIMM 1R), 3600MT/s (2DPC – 2DIMM 2R)			
	Socket	588RF/588QM: Four 288-pin DDR5 UDIMM sockets(Dual Channel, Two DIMMs per channel) 588HL: Two 288-pin DDR5 UDIMM sockets, (Dual Channel, One DIMM per channel)			
Graphics	Controller	Intel UHD Graphics 770 Supports DirectX12, OpenGL 4.5			
	HDMI	1, up to resolution 4096 x 2160 @ 60Hz. Supports HDR			
	eDP	1, up to resolution 3840 x 2160 @ 60 Hz (Internal pin header)			
	Display Port	2, up to 4096 x 2304 @ 60Hz			
	Multi-Display	Up to 4 independent displays (4 with R680E/Q670E)			
Ethernet	Controller	LAN1: 1GbE Intel I219-LM (AIMB-588RF/AIMB-588QM/AIMB-588HL) LAN2: 2.5GbE Intel I226LM (AIMB-588RF); 2.5GbE Intel I226V (AIMB-588QM) LAN3: 2.5GbE Intel I226LM (AIMB-588RF) LAN4: 2.5GbE Intel I226LM (AIMB-588RF)			
	Connector	RJ45 x2 (588QM) / RJ45 x4 (588RF) / RJ45 x1 (588HL)			
SATA	Max Data Transfer Rate	600 MB/s Max. (SATA 3.0)			
	Q'ty	AIMB-588RF/AIMB-588QM: 8 AIMB-588HL: 4			
Rear I/O	Display Port	2			
	HDMI	1			
	Ethernet	2 (AIMB-588QM); 4 (AIMB-588RF);1(AIMB-588HL)			
	USB	AIMB-588QM: 4 USB 3.2 Gen2 type A; 1 USB 3.2 Gen1 type A; 1 USB3.2 Gen2 Type C; 4 USB 2.0 type A AIMB-588RF: 5 USB 3.2 Gen2 type A; 1 USB 3.2 Gen2 Type C; 4 USB 2.0 type A AIMB-588HL: 2 USB 3.2 Gen2 type A; 4 USB 2.0 type A			
	Audio	2 (Mic-in/ Line-out)			
Internal Connector	USB 3.2	AIMB-588QM: 3 USB 3.2 Gen1 AIMB-588RF: 3 USB 3.2 Gen1 AIMB-588HL: 2 USB 3.2 Gen1			
	Serial	6 (5 x RS-232, 1 x RS-232/422/485 with auto flow control)			
	SATA 3.0	8			
	Extended Display Port (eDP)	1			
	M.2 (M key)	1 2280 NVMe PCIe4 (AIMB-588QM/AIMB-588RF)			
	GPIO	8-bit GPIO			
Watchdog Timer	Output	System reset			
	Interval	Programmable 1 ~ 255 sec/min			
Power Requirements	Operation	+5V	3.3V	12V	12V_8P
	Configuration: Intel® Core™ i9-14900 24-Core Processor 2.00GHz with UDIMM DDR5 4800 48GB*4pcs	1.316A	0.856A	0.192A	24.29910A
	Standby (5Vsb)	3A			
Environment		Operating			Non-Operating
	Temperature	0 ~ 60 °C (32 ~ 140 °F), depends on CPU speed and cooler solution			-40 ~ 85 °C (-40 ~ 185 °F)
Physical Characteristics	Dimensions	244 mm x 244 mm (9.6" x 9.6")			
Power	Input Mode	ATX input			

CPU List

Intel® Core™ Processors (Series 2, Hybrid)	Processor	Core7 251E	Core7 251TE	Core5 221E	Core5 221TE	Core5 211E	Core5 211TE	Core3 201E	Core3 201TE	300	300T		
	Cores	24	24	14	14	10	10	4	4	2	2		
	Base frequency (GHz)	2.1 / 1.6	1.4 / 1.0	2.7 / 2.1	1.8 / 1.3	2.7 / 2.0	1.7 / 1.3	3.6 / NA	2.9 / NA	3.9 / NA	3.4 / NA		
	Max frequency (GHz)	5.6 / 4.4	5.4 / 3.9	5.2 / 3.9	5.0 / 3.6	4.9 / 3.7	4.8 / 3.4	4.8 / NA	4.6 / NA	3.9 / NA	3.4 / NA		
	Smart cache (MB)	36	36	24	24	20	20	12	12	6	6		
	TDP (W)	65	45	65	45	65	45	60	45	46	35		
Intel® Core™ Processors (Series 2, P-core only)	Processor	Core9 273 PQE	Core9 273PE	Core9 273PTE	Core7 253PQE	Core7 253PE	Core7 253PTE	Core5 223PQE	Core5 223PE	Core5 213PE	Core5 213PTE		
	Cores	12	12	12	10	10	10	8	8	8	8		
	Base frequency (GHz)	3.4	2.3	1.4	3.5	2.5	1.8	4	2.9	2.3	2.7	2.1	
	Max frequency (GHz)	5.9	5.7	5.5	5.7	5.5	5.4	5.5	5.4	5.4	5.2	5.2	
	Smart cache (MB)	36	36	36	33	33	33	24	24	24	24	24	
	TDP (W)	125	65	45	125	65	45	125	65	45	65	45	
Intel® Core™ Processors (14th gen)	Processor	i9-14900	i9-14900T	i7-14700	i7-14700T	i5-14500	i5-14500T	i5-14400	i5-14400T	i3-14100	i3-14100T		
	Cores	24	24	20	20	14	14	10	10	4	4		
	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 frequency (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)	36	36	33	33	24	24	20	20	12	12		
	TDP (W)	65	35	65	35	65	35	65	35	60	35		
Intel® Core™ Processors (13th gen)	Processor	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			
	Cores	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 frequency (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			
Intel® Core™ Processors (12th gen)	Processor	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
	Cores	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 frequency (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