

AIMB-508

Intel® 12/13th Gen Core™ processors (Alder Lake-S/Raptor Lake-S) i9/i7/i5/i3 LGA1700, MicroATX with DP/HDMI/VGA/eDP(LVDS), 1 GbE LAN, 1 2.5GbE LAN, 4 USB 3.2, 2 PCI slot, 6 COM

Preliminary



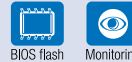
Features

- Supports Intel® 12/13th Gen Core™ processors (Alder Lake-S/Raptor Lake-S) with H610E chipset
- Supports up to 32GB DDR4 3200 MT/S with two UDIMMs
- PCIe x16 slot Gen4, PCIe x4 slot Gen3, PCI slot
- Max up to x4 USB 3.2, x6 USB 2.0, x4 SATAIII, x1 GbE LAN, x1 2.5GbE LAN, x1 M.2 M-Key
- TPM 2.0
- WISE-DeviceOn and Embedded Software APIs

Software APIs:



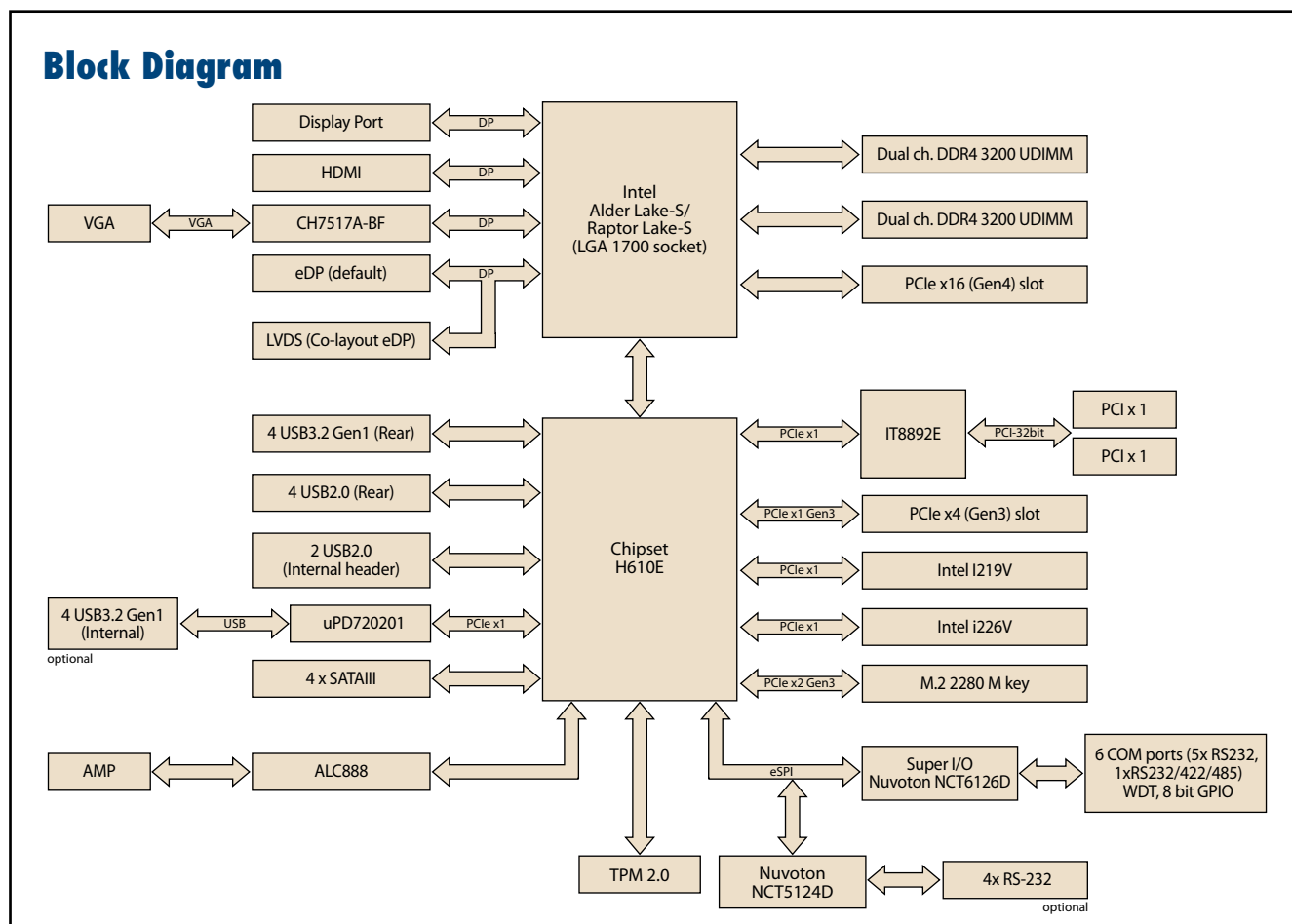
Utilities:



Specifications

	CPU	i9-13900E/ i9-13900TE	i7-13700E/ i7-13700TE	i5-13500E/ i5-13500TE	i3-13100E/ i3-13100TE	i9-13900	i7-13700	i5-13500	i5-13400	i3-13100		
13th Generation Processors	CPU											
	Core Number (Performance and Efficient core)	8P+16E	8P+8E	6P+8E	4P+0E	8P+16E	8P+8E	6P+8E	6P+4E	4P+0E		
	Max. Speed	5.20GHz/ 5.00GHz	5.10 GHz/ 4.80 GHz	4.60 GHz/ 4.50 GHz	4.40 GHz/ 4.10 GHz	5.60 GHz	5.20 GHz	4.80 GHz	4.80 GHz	4.50 GHz		
	Intel Smart Cache	36MB/ 36MB	30MB/ 30MB	24MB/ 24MB	12MB/ 12MB	36MB	30MB	24MB	20MB	12MB		
	TDP (W)	65W/35W	65W/35W	65W/35W	60W/35W	35W	35W	65W	65W	60W		
12th Generation Processors	CPU											
	Core Number (Performance and Efficient core)	8P+8E	8P+4E	6P+0E	4P+0E	2P+0E	2P+0E	8P+8E	8P+4E	6P+0E	6P+0E	4P+0E
	Max. Speed	5.0GHz/ 4.8GHz	4.8GHz/ 4.7GHz	4.5GHz/ 4.3GHz	4.2GHz/ 4.0GHz	3.6GHz/ 3.0GHz	3.0GHz/ 2.4GHz	5.10GHz	4.9GHz	4.6GHz	4.4GHz	4.3GHz
	Intel Smart Cache	30MB/ 30MB	25MB/ 25MB	18MB/ 18MB	12MB/ 12MB	6MB/ 6MB	4MB/ 4MB	30MB	25MB	18MB	18MB	12MB
	TDP (W)	65W/35W	65W/35W	65W/35W	60W/35W	46W/35W	46W/35W	65W	65W	65W	65W	60W
Processor System	Supports Model	AIMB-508HF-EAA1/ AIMB-508HL-OAA1										
	Chipset	H610E										
	BIOS	AMI BIOS UEFI 256 Mbits SPI										
Expansion Slot	PCIe x16 (Gen4)	1 slot										
	PCI	2 slots										
	PCIe x4 (Gen3)	1 slot										
Memory	Technology	Dual Channel DDR4 3200 MHz SDRAM										
	Max. Capacity	64GB (32 GB per DIMM)										
	Frequency	3200 MT/s										
	Socket	2 x 288-pin DDR4 DIMM Sockets (Non-ECC)										
Graphics	Controller	Intel UHD Graphics 770 Supports DirectX12, OpenGL 4.5										
	HDMI	1, up to resolution 4096*2160@ 30Hz										
	eDP	1, up to resolution 3840 x 2160 @ 60 Hz, co-design with LVDS, default eDP										
	Display Port	1, up to 4096 x 2304 @ 60Hz										
	LVDS	1, default eDP										
	Triple Display	eDP+HDMI+DP, eDP+VGA+DP, HDMI+DP+VGA, HDMI+eDP+VGA										
	Dual Display	DP +VGA, DP+eDP, DP +HDMI, HDMI + eDP, HDMI + VGA, eDP+VGA										
Ethernet	Controller	LAN1: 1GbE Intel I219V (508HF/508HL) LAN2: 2.5GbE Intel I226V (508HF)										
	Connector	RJ45 x2										
SATA	Max Data Transfer Rate	600 MB/s Max. (SATA 3.0)										
	Qty	4										
Rear I/O	Display Port	1 (508HF)										
	HDMI	1 (508HF)										
	Serial	1										
	VGA	1										
	Ethernet	2 (AIMB-508HF); 1 (AIMB-508HL)										
	USB	4 USB3.2 Gen1; 6 USB2.0										
	Audio	2 (Mic-in/ Line-out)										
Internal Connector	USB 3.2	AIMB-508HF: 4 USB3.2 Gen1(optional)										
	USB 2.0	2 USB2.0										
	Serial	6 (5 x RS-232, 1 x RS-232/422/485 with auto flow control)										
	SATA 3.0	4										
	Extended Display Port (eDP)	AIMB-508HF: 1 AIMB-508HL: optional										
	M.2 (M key)	1 2280 NVMe										
	GPIO	8-bit GPIO										
Watchdog Timer	Output	System reset										
	Interval	Programmable 1 – 255 sec/min										
Power Requirements	Power On	+5 V	3.3 V	12 V	12V_8P	5 Vsbs						
		19.6A	24.04A	19A	18.5A	2.5A						
Environment	Temperature	Operating 0 – 60° C (14 – 158° F), depends on CPU speed and cooler solution								Non-Operating -40 – 85° C (-40 – 185° F)		
Physical Characteristics	Dimensions	244 mm x 244 mm (9.6" x 9.6")										
Power	Input Mode	ATX input										

Block Diagram



Ordering Information

P/N	Chipset	Memory (Non-ECC)	USB 3.2 Gen 1	USB 2.0	PCIex16 slot Gen4	PCI slot	PCIex4 slot Gen3	GbE LAN	2.5GbE LAN	DP	HDMI	VGA	eDP/LVDS	SATA III	COM	M.2 M-key 2280	TPM	AMP
AIMB-508HF-EAA1	H610E	DDR4x2	4 + (4)	6	1	2	1	1	1	1	1	1	1/(1)	4	6 + (4)	1	1	1
AIMB-508HL-OAA1	H610E	DDR4x2	4	6	1	2	1	1	0	0	0	1	(1)/(1)	4	5	1	(1)	(1)

() means BOM option

Packing List

Part Number	Description	Quantity
1960113372T001	I/O port bracket	1
TBD	AIMB-508 Startup manual	1
1700003194	SATA HDD cable	TBD
1930001071	M.2 screws	TBD

Optional Accessories

Part Number	Description
1970005349T001	LGA1700 CPU cooler for 2U chassis, for CPU TDP 65W, 78.0(W) x 78(L) x 55.4 (H)

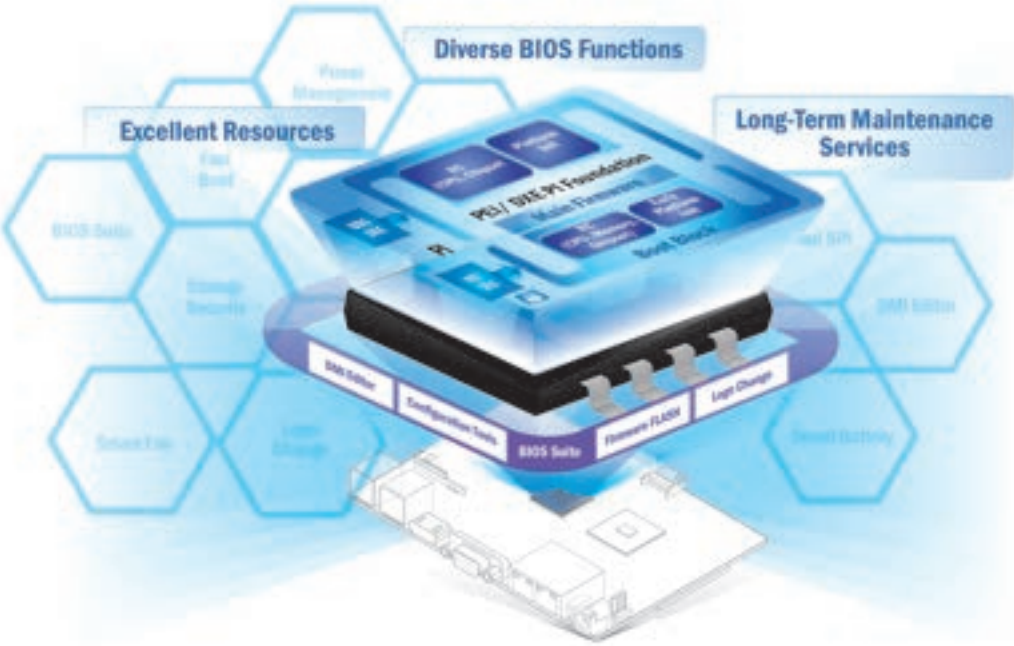
Embedded OS/API

OS/API	Part No.	Description
TBD		

Reliable Embedded BIOS Solutions

Custom BIOS services with long-term support

Advantech's high-quality embedded BIOS solutions deliver rapid execution and feature expert BIOS team support. These solutions feature multi-functional designs that ensure security and enable powerboot management. Advantech further provides 10+ years of BIOS version management, internal management, and longevity support for both hardware and BIOS — enhancing application efficiency, diversifying functionality, and optimizing performance.



Embedded BIOS Solution Advantages

Sufficient Sources

- Strong partnership with BIOS vendors
- 50+ engineers with extensive industrial BIOS experience

Diverse BIOS Functions

- Multi-layer security
- 3 second fast boot
- Power management
- BIOS suite utility

Long-Term Maintenance Services

- Platform longevity support
- 10-year BIOS version control
- BIOS remote backup

Value-Added Customization Process



WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.



Features

Comprehensive Management	Remote Access	Efficient Operations
<ul style="list-style-type: none">• Devices status• Peripherals/firmware• Open for extension	<ul style="list-style-type: none">• Real-time monitoring• Remote controls• Troubleshooting	<ul style="list-style-type: none">• Zero-touch on-boarding• OTA updates• Batch control

Product Highlights

 SOM-6883 High-performance 11" Gen Intel® COMe Type 6 Module	 MIO-5375 Compact 11" Gen Intel® Outdoor Focused 3.5" SBC	 EPC-85587 10" Gen Intel® Xeon® based Edge server	 EPC-R3220 Arm based IoT Edge Gateway
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Edge AI Suite

AI development for diverse application at the Edge

Increasing demand for AI inference/analytic capabilities at the Edge make AI training models, software development environments, and hardware configuration key factors in successful solution deployment. Advantech's Edge AI Suite helps users build AI demo devices quickly and choose optimal hardware solutions easily.



5x Performance Boost	All-in-one Installation	One Click AI Experience	Plug-and-play Environment	Discover Cost-effective Hardware
<ul style="list-style-type: none">• Integrated Intel® OpenVINO™ technology• Boost AI using Advantech hardware	<ul style="list-style-type: none">• Build AI environment in under 5 minutes• Ready-to-use configuration	<ul style="list-style-type: none">• User friendly configuration guidance• One-click Benchmark acquisition	<ul style="list-style-type: none">• Easy access to 100+ AI inference extensions• Software development package available	<ul style="list-style-type: none">• Diverse CPU/RAM options• Find hardware solutions for AI development

Embedded Linux Support and Design-in Services

Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.



Features

Certified OS and BSP	Licensed Services	Numerous AI and Edge Resources	Local Partner Alliance
<ul style="list-style-type: none"> Platform compatibility tests Preloaded functional driver and software stacks 	<ul style="list-style-type: none"> License authorized Canonical delivers 10-years of bug fixes and security updates In-house bundled service 	<ul style="list-style-type: none"> Containerized technology for service provision and deployment AI resources from Caffe, TensorFlow, and mxnet 	<ul style="list-style-type: none"> Embedded Linux and Android Alliance (ELAA)