

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



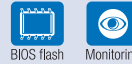
Features

- 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
- Intel AMT and Intel vPro Technology
- 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
- Software VMD 0, 1, 5, 10, TPM 2.0
- WISE-DeviceOn and Embedded Software APIs

Software APIs:



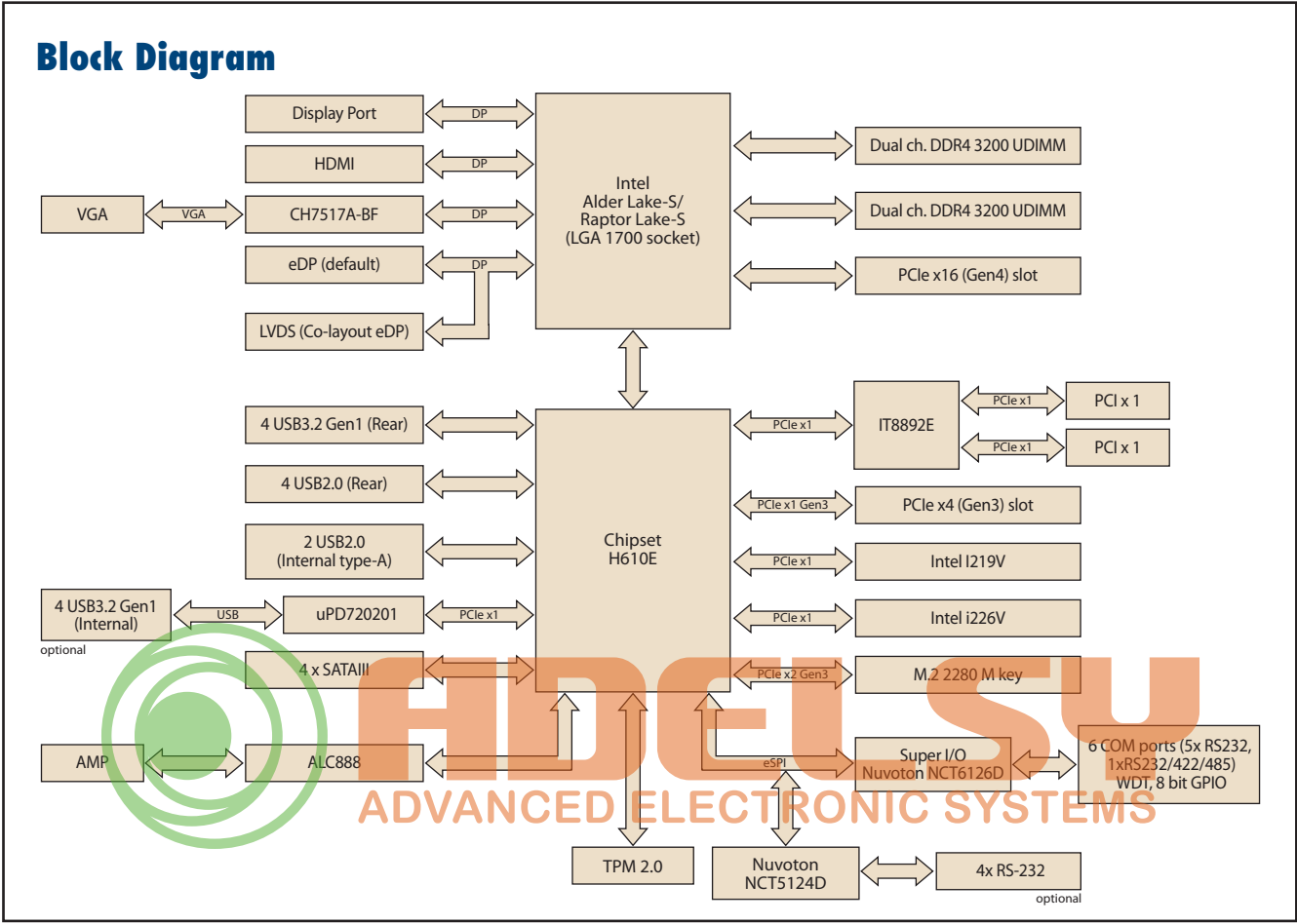
Utilities:



Specifications

		i9-12900E/ i9-12900TE	i7-12700E/ i7-12700TE	i5-12500E/ i5-12500TE	i3-12100E/ i3-12100TE	G7400E/ G7400TE	G6900E/ G6900TE	i9-12900	i7-12700	i5-12500	i3-12100	i9-13900E/ i9-13900TE	i7-13700E/ i7-13700TE	i5-13500E/ i5-13500TE	i3-13100E/ i3-13100TE	i9-13900	i7-13700	i5-13500	i3-13100		
Processor System	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	8P+16E	8P+8E	6P+8E	4P+0E	8P+16E	8P+8E	6P+8E	4P+0E	
	Max. Speed	5.0GHz/ 4.8GHz	4.8GHz/ 4.7GHz	4.5GHz/ 4.2GHz	4.2GHz/ 4.0GHz	3.6GHz/ 3.0GHz	3.0GHz/ 2.4GHz	5.10GHz	4.9GHz	4.6GHz	4.4GHz	4.3GHz	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	30MB/ 30MB	25MB/ 25MB	18MB/ 18MB	12MB/ 12MB	6MB/ 6MB	4MB/ 4MB	30MB	25MB	18MB	18MB	12MB	36MB/ 36MB	30MB/ 30MB	24MB/ 24MB	12MB/ 12MB	36MB	30MB	24MB	20MB	12MB
	TDP (W)	65W/35W	65W/35W	65W/35W	60W/35W	46W/35W	46W/35W	65W	65W	65W	65W	60W	65W/35W	65W/35W	65W/35W	60W/35W	35W	35W	65W	65W	60W
	Supports Model	AIMB-508HF-EA11 / AIMB-508HL-0AA1																			
	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																			
Ethernet	Dual Display	DP +VGA, DP+eDP, DP +HDMI, HDMI + eDP, HDMI + VGA, eDP+VGA																			
	Controller	LAN1: 1GbE Intel I219V (508HF/508HL) LAN2: 2.5GbE Intel I226V (508HF)																			
SATA	Connector	RJ45 x2																			
Rear I/O	Max Data Transfer Rate	600 MB/s Max. (SATA 3.0)																			
	Q'ty	4																			
	Display Port	1 (508HF)																			
	HDMI	1 (508HF)																			
	Serial	1																			
	VGA	1																			
	Ethernet	2 (AIMB-508HF); 1 (AIMB-508HL)																			
Internal Connector	USB	4 USB3.2 Gen1; 6 USB2.0																			
	Audio	2 (Mic-in/ Line-out)																			
	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																			
Watchdog Timer	Extended Display Port (eDP)	AIMB-508HF: 1 AIMB-508HL: optional																			
	M.2 (M key)	1 2280 NVMe																			
	GPIO	8-bit GPIO																			
Power Requirements	Output	System reset																			
	Interval	Programmable 1 ~ 255 sec/min																			
Environment	Power On	+5 V	3.3 V	12 V	12V_BP	5 Vsb															
	Operating	19.6A	24.04A	19A	18.5A	2.5A	Non-Operating														
Physical Characteristics	Temperature	0 ~ 60° C (14 ~ 158° F), depends on CPU speed and cooler solution																		-40 ~ 85° C (-40 ~ 185° F)	
	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	PClex16 slot Gen4	PCI slot	PClex4 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
TBD	I/O port bracket	1
TBD	AIMB-508 Startup manual	1
TBD	SATA HDD cable	TBD
TBD	M.2 screws	TBD

Optional Accessories

Part Number	Description
TBD	

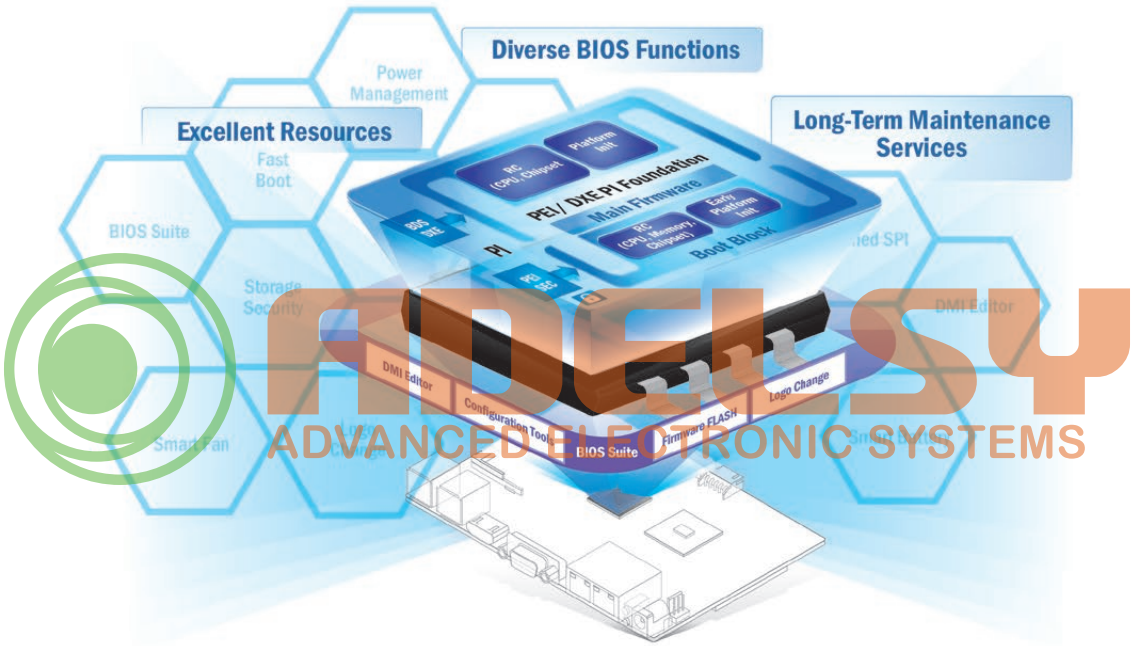
Embedded OS/API

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 power/boot 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

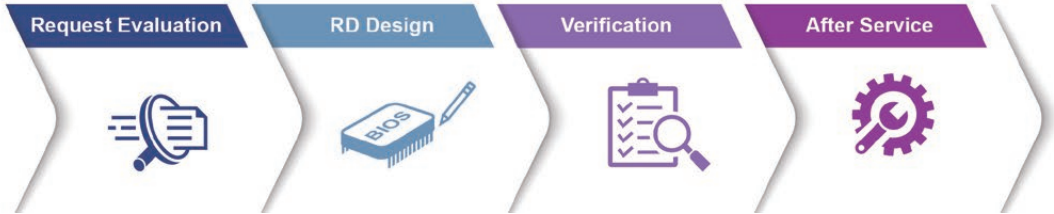
Diverse BIOS Functions

- 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

 <p>SOM-6883 High-performance 11th Gen Intel[®] COMe Type 6 Module</p>	 <p>MIO-5375 Compact 11th Gen Intel[®] Outdoor Focused 3.5" SBC</p>	 <p>EPC-B5587 10th Gen Intel[®] Xeon[®] based Edge server</p>	 <p>EPC-R3220 Arm based IoT Edge Gateway</p>
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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™ technologyBoost AI using Advantech hardware	<ul style="list-style-type: none">Build AI environment in under 5 minutesReady-to-use configuration	<ul style="list-style-type: none">User friendly configuration guidanceOne-click Benchmark acquisition	<ul style="list-style-type: none">Easy access to 100+ AI inference extensionsSoftware development package available	<ul style="list-style-type: none">Diverse CPU/RAM optionsFind 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)