

AIMB-288E

1U THIN Motherboard 12/13/14th Gen Intel® Core™ Processor LGA1700 MXM GPU module Integration



Features

- 12/13/14th Gen Intel® Core™ Desktop Processors, max. 24Core, support H610E chipset
- Integrated Graphics, NVIDIA RTX/Quadro or Intel Arc™
- Up to 96GB DDR5 5600MT/s with two SO-DIMM
- Triple displays with 2 DP and 1 eDP, up to 4K
- Abundant Expansion: 1 M.2 M-key & 1 M.2 B-key, 6 USB 3.2 Gen1x1, 1 SATA III
- Qualified for Edge AI SRP of WISE-DeviceOn and Embedded Software APIs

Software APIs:

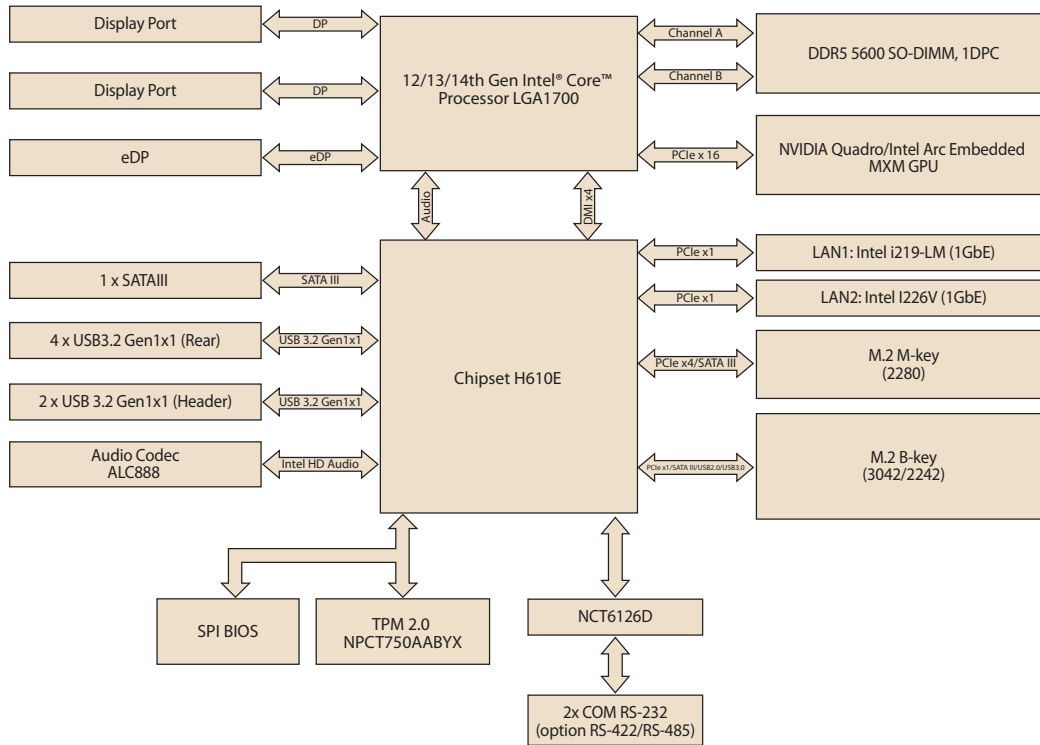
Utilities:



Specifications

	CPU	i9-14900	i9-14900T	i7-14700	i7-14700T	i5-14500	i5-14500T	i5-14400	i5-14400T	i3-14100	i3-14100T		
14th Generation Processors	Core Number	24	24	20	20	14	14	10	10	4	4		
	Base frequency (GHz)	2	1.1	2.1	1.3	2.6	1.7	2.5	1.5	3.5	2.7		
	Max Speed (GHz)	5.4	5.1	5.3	5	5	4.8	4.7	4.5	4.7	4.4		
	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		
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	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 256 Mbit SPI											
Expansion Slot	M.2	1 x M.2 M-key for storage (Type: 2280; NVMe supported) 1 x M.2 B-key for storage (Type: 2242)											
Memory	Technology	Dual Channel DDR5 5600 MT/s DIMM											
	Max. Capacity	96GB (up to 48GB per IMM)											
	Socket	2 x 262 PIN DDR5 SO-DIMM (Non-ECC)											
Graphics	GPU	Intel Arc A370M			Quadro® T1000		Quadro® A500		Quadro® A2000				
	Cores	8 Xe-cores			896 CUDA® cores		2048 CUDA® cores		2560 CUDA® cores				
	FP32 Performance (TFLOPS)	4.198			2.6		6.54		8.25				
	Memory	GDDR6 4 GB			GDDR6 4GB		GDDR6 4GB		GDDR6 8GB				
Display (From Intel® UHD Graphics)	DP	2 x Ports DP++, DP1.4a, up to 4096 x 2304 @ 60 Hz											
	eDP	1 x Port, up to 3840 x 2160 @ 60 Hz											
	Triple Display	DP+DP+eDP											
Ethernet	Controller	LAN1: 1 GbE Intel I219-LM LAN2: 1 GbE Intel I226V											
	Connector	2 x RJ45											
Audio	Codec	Realtek ALC888S, High Definition Audio (HD), Line-Out (default)											
	Amplifier	Yes (Option, 3.2W)											
SATA	Max Data Transfer Rate	6.0 Gb/s											
	Channel	1 (SATA III)											
Rear I/O	Display Port	2											
	Ethernet	2											
	USB	4 x USB 3.2 Gen1x1											
	Audio	1 (Line out by default, (Line in/Line out/Mic in programmable)											
	Power Connector	1 Terminal block (4P, Phoenix Contact)											
Internal Connector	USB	2 x USB 3.2 Gen1x1											
	eDP	1											
	Serial	2, (RS-232/422/485 with auto flow control)											
	SATA	1											
	M.2	1 x M.2 M-key (2280, for NVMe Storage) 1 x M.2 B-key (2242, for LTE wireless connectivity)											
	SATA Power Connector	1											
Watchdog Timer	Output	System reset											
	Interval	Programmable 1 – 255 (second or minute)											
Power Requirements	Input voltage	19-24V DC-in											
	Connector	4-pin Terminal block											
Environment	Operating	0 – 60° C (32 – 140° F), depends on STD or THIN GPU cooler									Non-Operating -40 – 85° C (-40 – 185° F)		
Physical Characteristics	Dimensions	170 mm x 190 mm (6.69" x 7.48")											

Block Diagram



Ordering Information

P/N	GPU SKU	DP	eDP	GbE	COM	SATA III	USB 3.2	M.2 M-key	M.2 B-key	TPM2.0	AMP	Cooler type	Temperature
AIMB-288EH-00A1	Nvidia T1000	2	1	2	2	1	6	1	1	1	(1)	STD GPU cooler	0 ~ 55 °C
AIMB-288EH-01A1	Nvidia A500	2	1	2	2	1	6	1	1	1	(1)	STD GPU cooler	0 ~ 55 °C
AIMB-288EH-02A1	Nvidia A2000	2	1	2	2	1	6	1	1	1	(1)	STD GPU cooler	0 ~ 55 °C
AIMB-288EH-03A1	Intel Arc A370M	2	1	2	2	1	6	1	1	1	(1)	STD GPU cooler	0 ~ 60 °C

*() Supports by BOM options

AIMB-288E Kit

P/N	GPU	CPU	Memory	Storage	DP	eDP	GbE	COM	SATA III	USB 3.2	M.2 M-key	M.2 B-key	TPM2.0	AMP	Cooler type	Temperature
AIMB-288EH-K1A1	Nvidia T1000	i3-12100E	32GB	512G NVMe	2	1	2	2	1	6	1	1	1	(1)	THIN cooler	0 ~ 60 °C
AIMB-288EH-K2A1	Nvidia A2000	i3-12100E	32GB	512G NVMe	2	1	2	2	1	6	1	1	1	(1)	THIN cooler	0 ~ 60 °C
AIMB-288EH-K3A1	Intel Arc A370M	i3-12100E	32GB	512G NVMe	2	1	2	2	1	6	1	1	1	(1)	THIN cooler	0 ~ 60 °C

*() Supports by BOM options

Packing List

Part Number	Description	Quantity
1700003194	SATA HDD cable	1
1700018785	SATA power cable (1 port, 25cm)	1
1700031130-01	1-to-2 serial port cable, 22cm	1
1920002598T001	I/O port bracket	1
AIMB-288E Board	Assembly of AIMB-288E and MXM GPU and GPU cooler	1
1931000590	M.2 screw (5x5L)	1
1930005673-11	M.2 screw (3x4.5L)	1

Optional Accessories

Part Number	Description
1700029719-01	M cable USB-A 9P(F)x2/2x10P-2.0 30CM USB3.0
96PSA-A230W24P4-3	ADP A/D 100-240V 230W 24V C14 TERMINAL BLOCK 4P
1970005349T001	ADL-S CPU cooler, 78x78x55.4mm (for CPU TDP max. 65W)
98R1X100010	Quadro RTX GPU T1000 STD MXM Cooler (55 °C)
98R1X050010	Quadro RTX GPU A500 STD MXM Cooler (55 °C)
98R1X200011	Quadro RTX A2000 MXM Cooler (55 °C)
1970005694T001	Intel Arc A370M Fansink (60 °C)
THIN Cooler	Thermal module of CPU & GPU Cooler for 1U system (need pre-assembly, please contact local sales or FAE)
1970005672T001	LGA1700 CPU Cooler H: 32mm (for TDP 35W)

I/O View



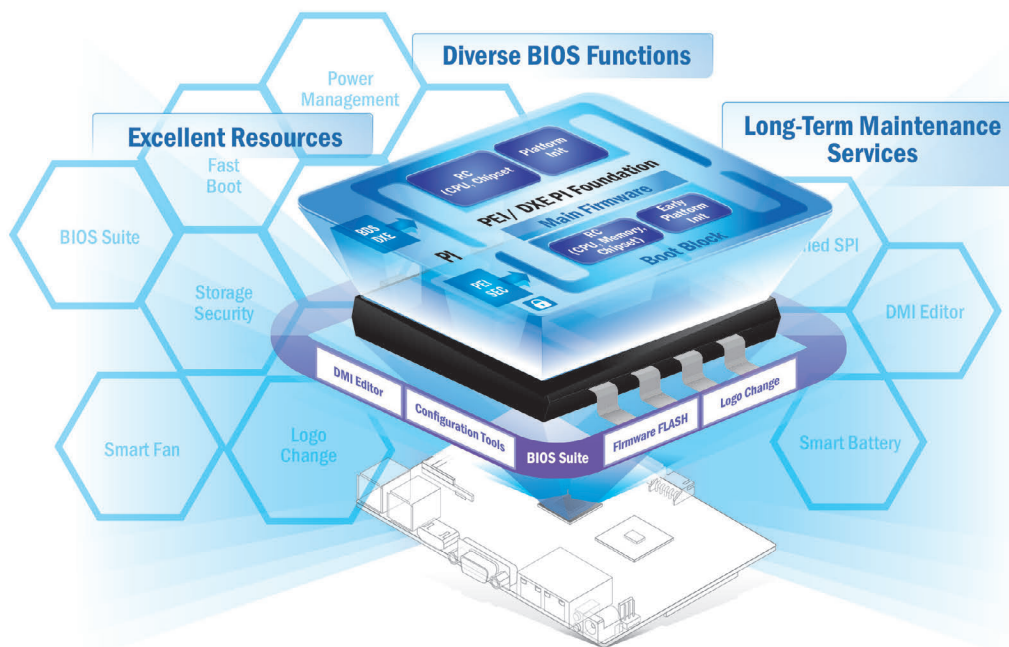
Embedded OS/API

OS/API	Part No.	968 P/N	Description
Windows 10	20706WX1ES0007	968QW21ELE	img W10 21EL AIMB-288E 64b 21H2 ENU
Windows 10	20706WX1HS0007	968QW21HLE	img W10 21HL AIMB-288E 64b 21H2 ENU
Windows 10	20706WX1VS0007	968QW21VLE	img W10 21VL AIMB-288E 64b 21H2 ENU
Windows 11	20706WLE1S0014	968QW1124ELOXE	img W11 24EL AIMB-288E 64b 24H2 ENU
Windows 11	20706WLH1S0014	968QW1124HLOXE	img W11 24HL AIMB-288E 64b 24H2 ENU
Windows 11	20706WLV1S0014	968QW1124VLOXE	img W11 24VL AIMB-288E 64b 24H2 ENU
Ubuntu22.04	20706U22DS0032	968MOU204D	img UbuntuD AIMB-288E 64b 22.04 ENU

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

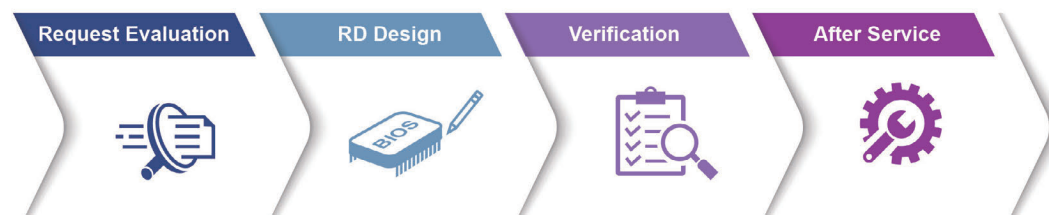
Diverse BIOS Functions

- 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

Edge AI OTA and Container Management

WISE-DeviceOn End-to-End Solution for Edge AI

Even if all datasets, algorithms, trainings, UI/UX, and more are functioning, how can you easily deploy an AI application to hundreds, or thousands, of inference devices in production? How can you efficiently manage AI models (software updates, CI/CD), in addition to all remote, hardware devices, such as sensors?



Solution Advantages



Performance Booster

- Inference optimization
- Open Neural Network Compiler (ONNC)
- Save over 45% DRAM consumption



Fleet Management

- Remote batch control for power management, reboot, terminal and screenshot
- Real-time monitoring, diagnostics and notification
- Over 10,000 devices around the globe



Container and OTA

- Streamlined deployment process
- Docker container management
- Software OTA (over-the-air) updates



AI Security

- AI containers deployed via Azure Container Registry and Harbor
- Secured data connection (TLS/SSL)
- Integrity protection based on digital signature

👉 Find More Information about [WISE-DeviceOn End-to-End Solution for Edge AI](#)

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)