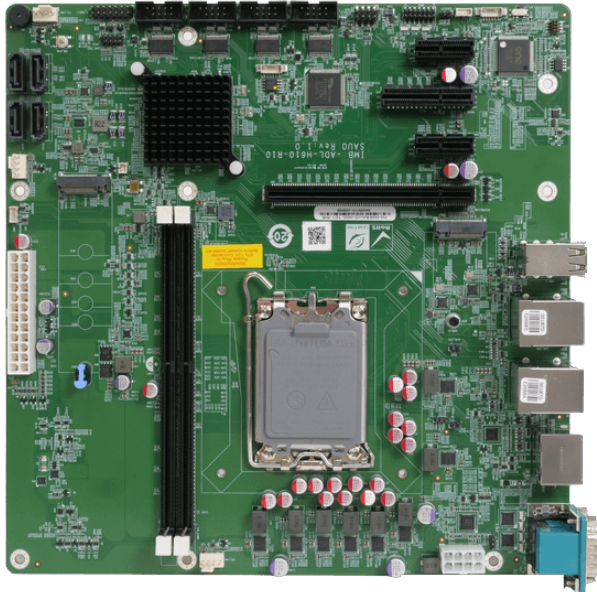


# IMB-ADL-H610

micro ATX motherboard supports LGA1700 Intel® 12th/13th Generation Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR4, Triple independent displays, dual LAN, USB 3.2, SATA 6Gb/s and RoHS



## Features

- » Support Intel® H610/H610E chipset
- » Support Intel® I225V 2.5GbE Ethernet controllers
- » Support triple independent display via HDMI™, DP and iDPM
- » Support one PCIe x16, one PCIe x4, one M.2 M Key expansions
- » Support two USB 3.2 Gen 2, two USB 3.2 Gen 1, six USB 2.0, with up to 10Gb/s transfer speed
- » Support two RS-232/422/485, four RS-232 and four SATA ports

## Specifications

Form Factor	
Form Factor	Micro-ATX Motherboard
System	
CPU	LGA1700 socket supports 12th/13th generation Alder Lake-S/Raptor Lake-S Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® Processor (up to 65W TDP CPU)
Chipset	Intel® H610/H610E
Memory	Two 288-pin Dual-Channel DDR4 (up to 3200 MHz) SDRAM Unbuffered DIMMs supported up to 64GB
Memory Max.	64GB
Cooling method / System Fan	1 x CPU fan connector (1x4 pin) 2 x System fan connector (1x4 pin)
Physical Characteristics	
Dimensions (LxWxH) (mm)	244mm x 244mm
Net Weight	700g
Storage	
Storage	4 x SATA 1 x M.2(NGFF) : M.2 M Key 2280, NVMe supported
I/O Interface	
Display Output	1 x HDMI™ : up to 4096 x 2304 @30Hz 1 x Display Port : up to 4096 x 2304 @60Hz 1 x iDPM : support iEi eDP/ LVDS/ VGA module
Ethernet	2 x LAN - LAN1: Intel® I219 LM controller LAN2: Intel® I225V 2.5GbE controller
Audio	1 x HD Audio : 1 x iAUDIO supports IEI AC-KIT-888S Audio Kit (2x5 pin)
I/O Interface	2 x External RS-232/422/485 : RS-485 support AFC 4 x Internal RS-232 : 2x5 pin, P=2.54 4 x External USB 2.0

	2 x External USB 3.2 Gen1x1 : 5Gb/s (Type A)
	2 x Internal USB 2.0 : 2x4 pin, P=2.54
	2 x External USB 3.2 Gen2x1 : 10Gb/s (Type A)
Expansion	1 x PCIe x16 : Gen4 slot with x16 Signal
	1 x PCIe x4 : Gen3 open-end
	2 x PCIe x1 : Gen3
	1 x M.2(NGFF) : M Key 2280, NVMe supported
Power	
Power Consumption	3.3V@0.35A, 5V@7.54A, 12V@5.75A, 5VSB@0.96A (Intel® Core™ i9-12900E CPU with 8 GB 3200 MHz DDR4 memory, EuP mode enabled)
Power Supply	ATX/AT power supply
	Support AT/ATX mode
	ErP/EuP Compliant
Environment	
Operating Temperature	0°C~60°C
Storage Temperature	-30°C~70°C
Humidity	5% ~95%, non-condensing

## Ordering Information

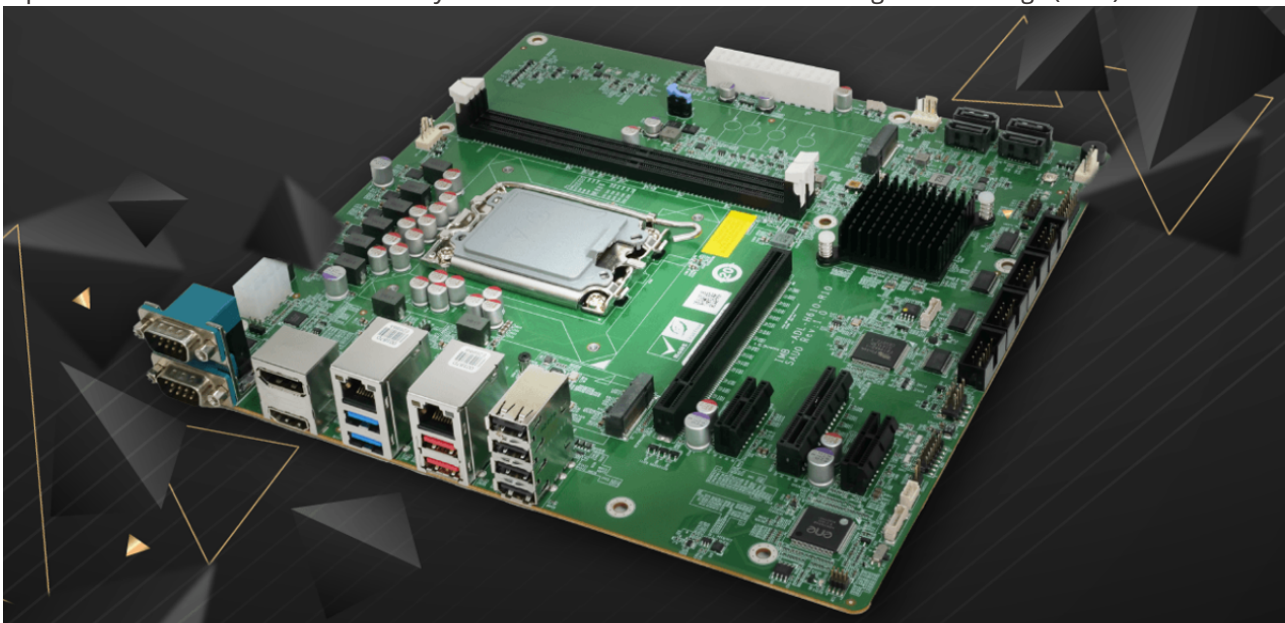
IMB-ADL-H610-R10	micro ATX motherboard supports LGA1700 Intel® 12th/13th Generation Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR4, Triple independent displays, dual LAN, USB 3.2, SATA 6Gb/s and RoHS
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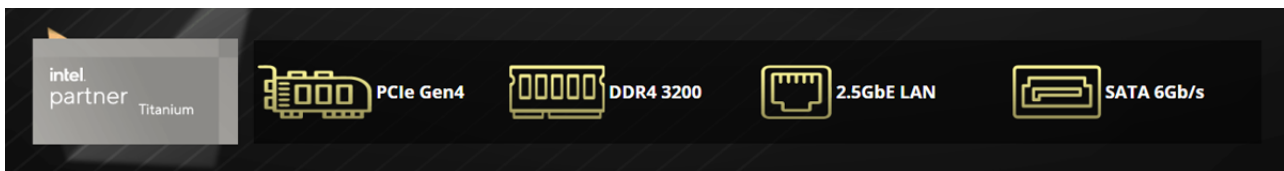
## Packing List

1 x IMB-ADL-H610 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

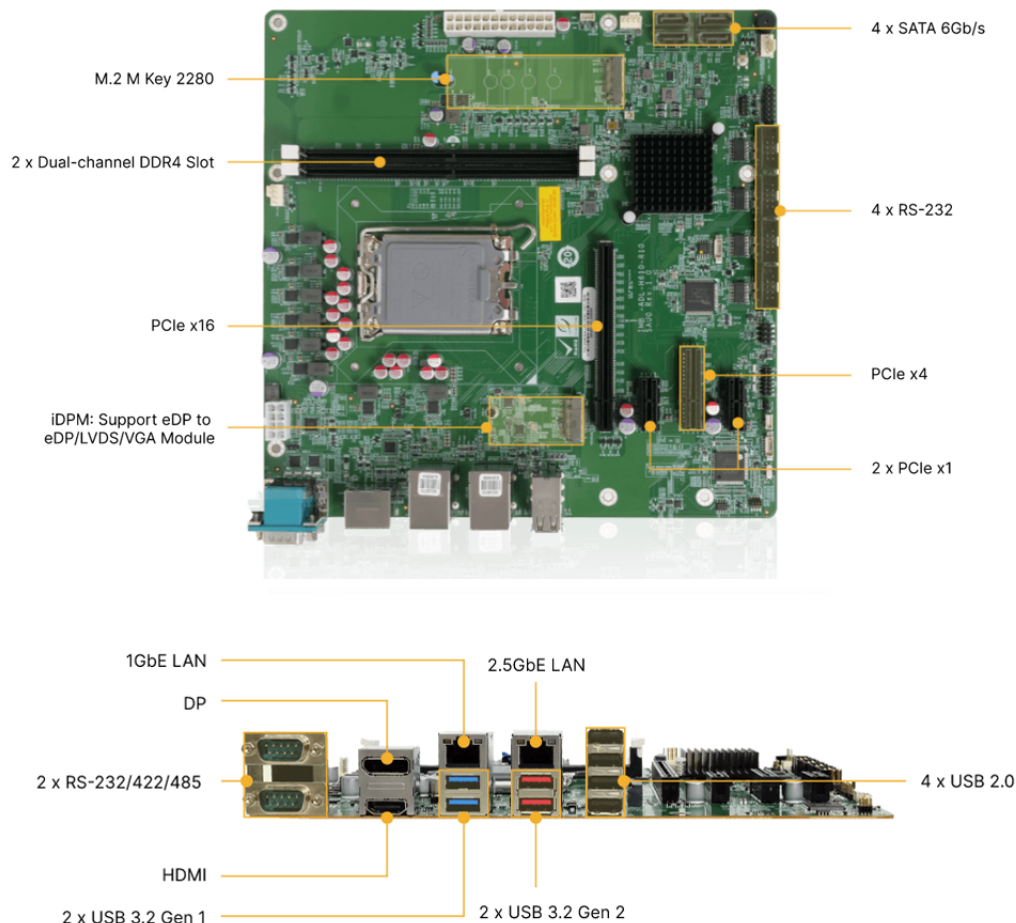
## New Advanced Industrial ATX Motherboard

The IMB-ADL-H610 is IEI's cost-effective microATX industrial motherboard. It supports both 12th and 13th Gen Intel® Core™ processors, and is equipped with one PCIe Gen4 x16 to deploy and run your AI projects in retail, transportation and surveillance efficiently. It drives a new era in artificial intelligence of things (AIoT).



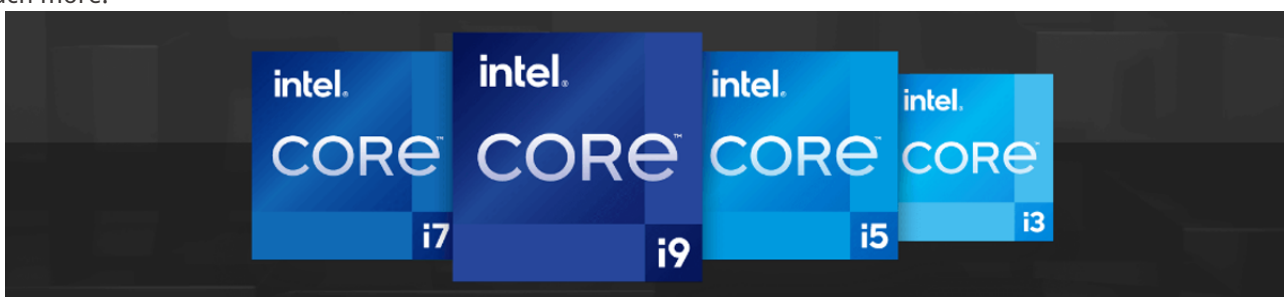


## Internal I/O



## Improved Efficiency and Performance with 12th/13th Gen Intel® Processors

IEI's IMB-ADL-H610 motherboard supports both 12th and 13th Gen Intel® Core™ processors, which boosts up to 1.36x in single-thread performance and up to 1.35x in multi-thread performance than 10th Gen Intel® Core™ processors. Supporting up to 16 cores and 24 threads in innovative high-performance chip design, the processors feature enhanced graphics performance, fast AI with hardware acceleration and real-time capabilities to help expand your IoT potential. The increased I/O capacity and the latest PCIe 4.0 support help deliver the performance required to consolidate industrial multiple workloads. With the above features, the IMB-ADL-H610 is suitable for edge computing, industrial automation, medical equipment, machine vision, automated test equipment, smart factory and much more.



Up to

**16**

cores

Up to

**24**

threads

Up to

**1.36x**

faster single-thread  
performance

Up to

**1.35x**

faster multi-thread  
performance

### CPU Benchmark

Intel® Core™ i5-10500

12,955

Intel® Core™ i5-11500

17,616

Intel® Core™ i5-12500

20,306

**↑56%**

Intel® Core™ i7-10700

16,807

Intel® Core™ i7-11700

20,090

Intel® Core™ i7-12700

31,285

**↑86%**

Intel® Core™ i9-10900

20,293

Intel® Core™ i9-11900

22,996

Intel® Core™ i9-12900

36,289

**↑78%**

## Triple Display with Stunning 4K Resolution

The 12th generation Intel® processors is integrated with Intel® UHD Graphics 770, which offers up to 32 EUs to drive a maximum resolution of 4kp60. Equipped with one HDMI™ 1.4 (up to 4096 x 2160@30Hz), one DP 1.4 (up to 4096 x 2160 @60Hz) and the iDPM 3040 slot (for IEI eDP/LVDS/VGA modules) to support triple independent displays, the ATX motherboard brings more possibilities to upgrade IoT devices at the edge.



## Free to Choose Display Connections with iDPM Modules

More display I/Os are supported via IEI iDPM connector. The iDPM display converter boards allow the IMB-ADL-H610 to meet customers' diverse display interface requirements such as the legacy display port, VGA and LVDS, or eDP for TFT LCD connection.



### iDPM-LVDS

eDP to 24-bit dual channel  
LVDS converter board

[Learn more](#)


### iDPM-eDP

eDP to eDP converter  
board

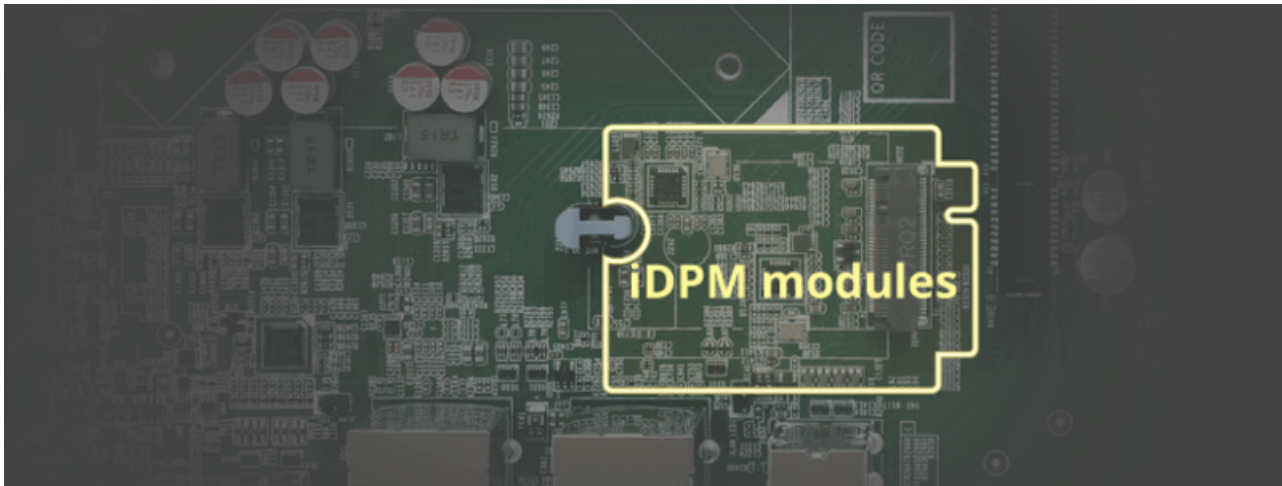
[Learn more](#)


### iDPM-VGA

eDP to VGA converter  
board

[Learn more](#)





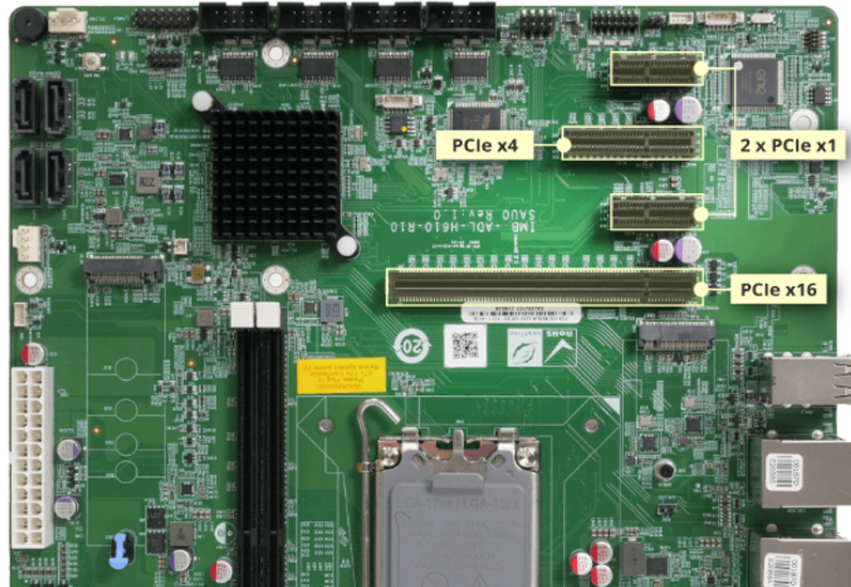
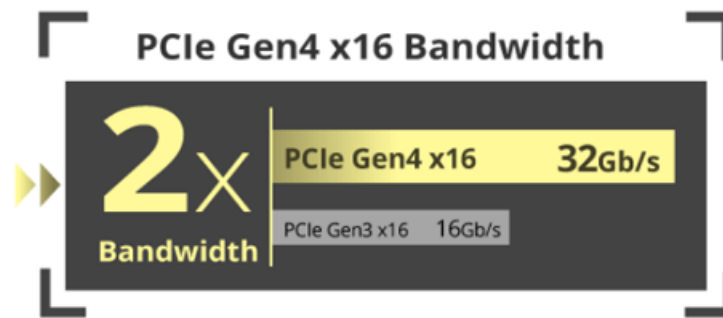
## Makes Adequate AIoT Application in Practice

With powerful AI computing performance, graphics-rich performance of multi-display connection, and flexible expansion slots, the IMB-ADL-H610 ATX motherboard makes adequate AIoT application in practice, such as industrial automation, smart factory, data analysis, video surveillance, computer vision, and medical imaging. All features plus its stability and reliability enable it an ideal platform for AIoT edge development.



## Support PCIe Gen4

The IMB-ADL-H610 equips one PCIe Gen4 x16, one PCIe Gen3 x4 (open-end) and two PCIe Gen3 x1 to provide high-level PCI Express connectivity. This microATX motherboard is AI edge ready, and supports IEI's AI accelerators, Mustang series. IEI Mustang AI accelerators can bring much larger and computationally-intensive neural networks to the edge, and they are ideal for deep learning inference computing to help you get faster, deeper insights for your customers and your business.



## Dual M.2 M Key for NVMe SSD

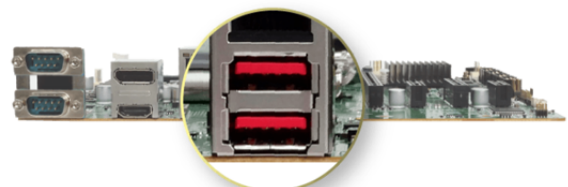
SSDs feature shock resistance, long lifetime and high stability. It is widely used in industrial applications to provide reliable data storage. The equipped M.2 2242/2280 M-key sockets come with PCI Express® Gen3 x4 bandwidth and support up to 32Gbps data-transfer speeds, making them the perfect choice for installing NVMe SSD to provide fast data access in rugged environment.



## High Speed Transmission

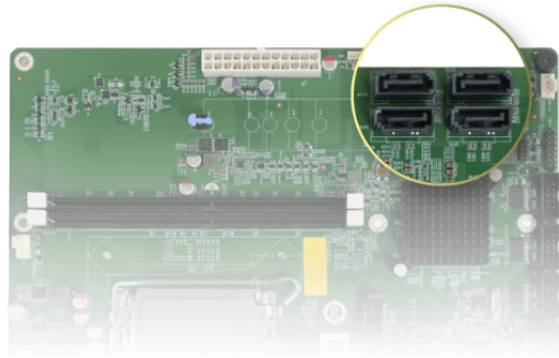
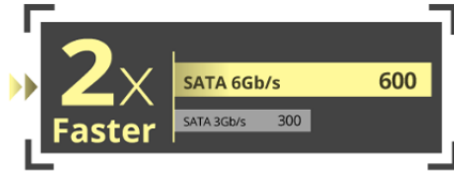
### Dual USB 3.2 Gen 2 (10Gb/s)

Dual USB 3.2 Gen 2x1 (10 Gb/s) ports are integrated to support high density data transmission.



## Four SATA 6Gb/s

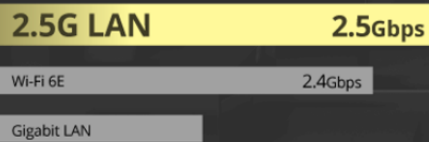
The SATA 6Gb/s ports are capable of delivering lightning fast data transfer experience for edge AI applications in data processing.



## Networking

### Delivers Low-Latency 2.5G LAN Powered by Intel

The on-board Intel® I225V 2.5GbE controller enables the IMB-ADL-H610 to meet the bandwidth-intensive requirements such as large file transfers and high-resolution video streaming.



## Dimensions

