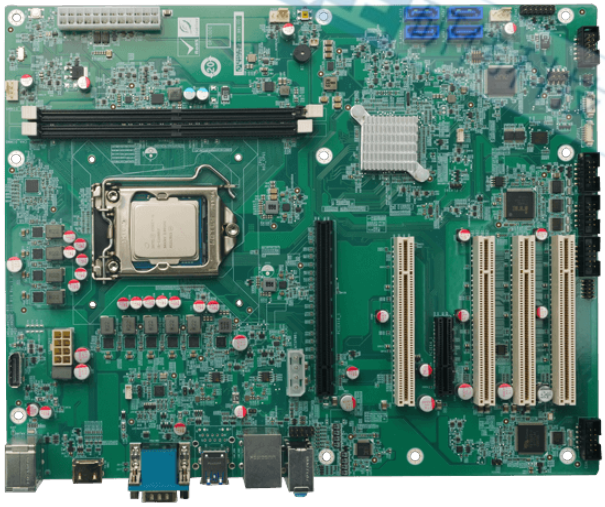
Embedded Computer > Single Board Computer > Industrial Motherboard

IMBA-H420

ATX motherboard supports 14nm LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Triple displays, 2.5GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS



Features

1. LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
2. Dual-channel DDR4 2933MHz
3. Support HDMI, DP, VGA display output
4. Support 1x PCIe x16 , 1x PCIe x4 and 4 x PCI expansion slots

Specifications

Form Factor	
Form Factor	ATX Motherboard
System	
CPU	LGA1200 Intel® 10/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
Chipset	Intel® H420E
Memory	Two 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs supported up to 64GB
Memory Max.	up to 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 305mm
Net Weight	700g
Storage	
Storage	4 x SATA : 6Gb/s (no RAID)
I/O Interface	
Display Output	1 x VGA : up to 1920 x 1200@60Hz
	1 x HDMI : up to 4096 x 2160@30Hz
	1 x DP++ : up to 4096 x 2304@60Hz
Ethernet	1 x LAN :
	LAN1: Intel® I225V 2.5GbE controller
Audio	1 x Line in
	1 x Line out
	1 x Mic
	1 x Front Audio : 2x5 pin
	1 x HD Audio : Realtek ALC888S HD codec
I/O Interface	1 x External RS-232
	External RS-232/422/485 : RS-485 support AFC
	4 x Internal RS-232 : 2x5 pin, P=2.54
	1 x Internal RS-232/422/485 : 2x5 pin, P=2.54
	2 x External USB 2.0 : Type-A

	4 x External USB 3.2 Gen1x1 : 5Gb/s(Type-A)
	2 x Internal USB 2.0 : 2x4 pin, P=2.54
	1 x PS/2
	1 x DIO : 8-bit digital I/O (2x5 pin)
Expansion	1 x PCIe x16
	1 x PCIe x4
	4 x PCI Slot
Other Features	
TPM	Intel® PTT(TPM 2.0)
Power	
Power Consumption	3.3V@0.84A, 5V@8.12A, 12V@3.77A, 5VSB@0A
	(Intel® Core™ i5-10500TE CPU with two 32 GB 2933 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
Certifications	
Safety & EMC	CE/FCC compliant

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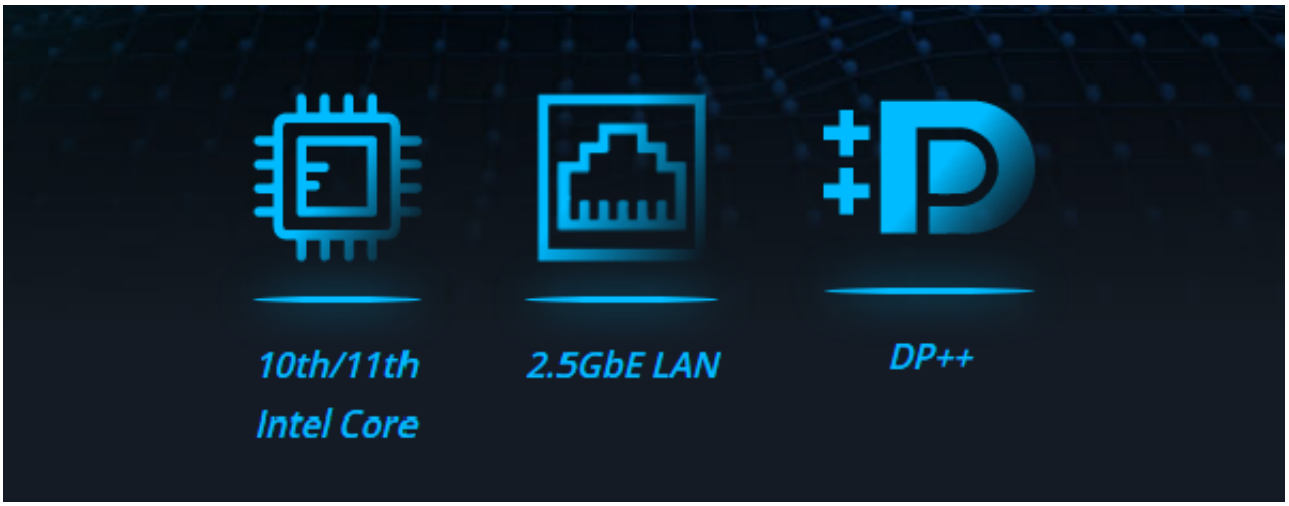
Ordering Information

IMBA-H420-R10	ATX motherboard supports 14nm LGA1200 Intel® 10th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Triple independent displays, 2.5GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

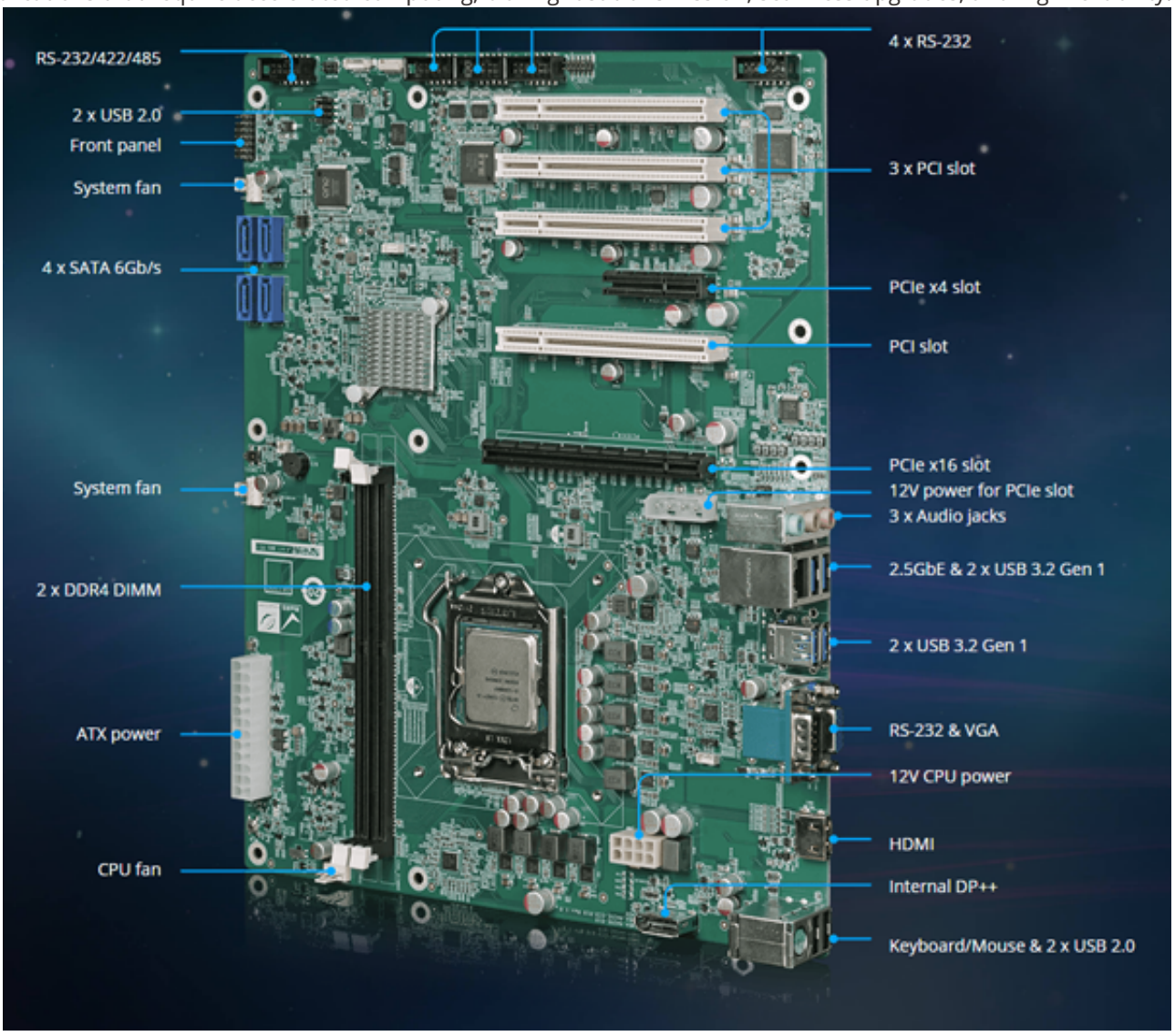
Packing List

1 x IMBA-H420 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Expanding to the Next Level of Performance



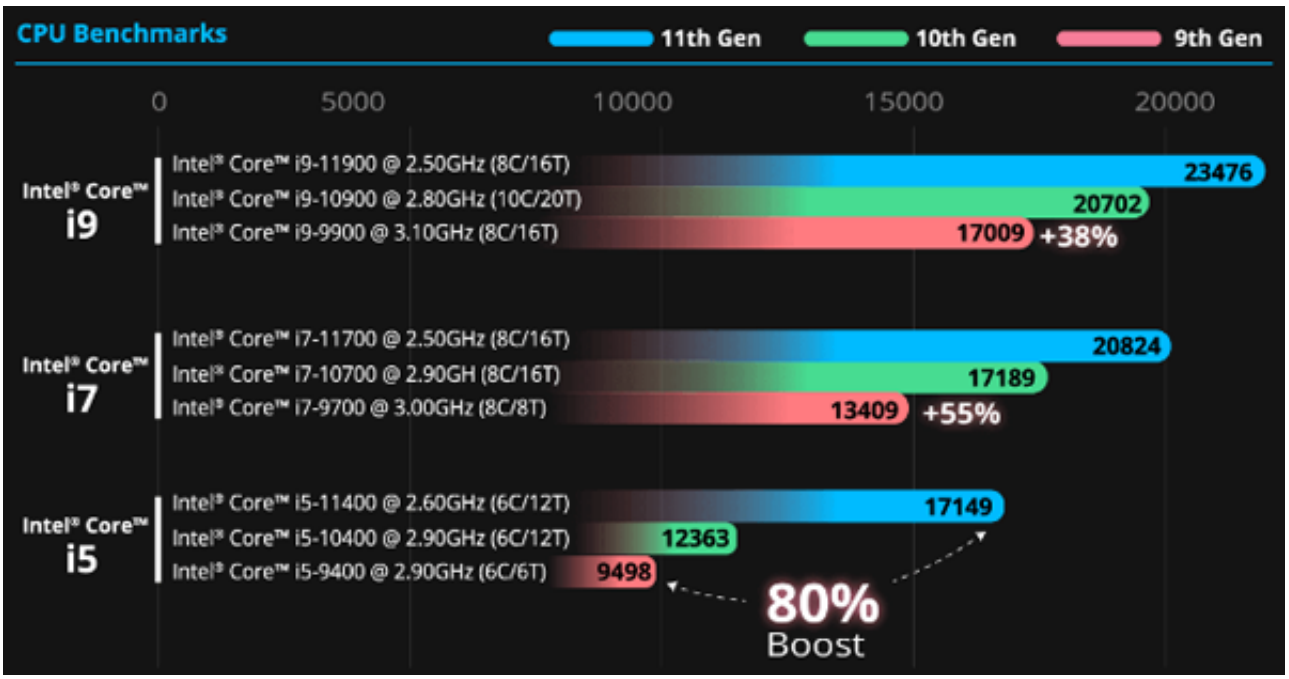
The IMBA-H420 is an ATX motherboard powered by 10th/11th Gen Intel® Core™ processors. With the support of multiple expansion slots and feature rich interfaces, it offers a variety of functionalities and capabilities for the applications that require accelerated computing, blazing-fast transmission, seamless upgrades, and high reliability.



Leadership Performance

IEI's IMBA-H420 motherboard supports both 10th and 11th Gen Intel® Core™ processors, which boosts up to 80% better performance than its precedent (Core i5 processor). The 10th Gen Intel® Core™ platform supports up to 10 cores and improved performance over Coffee Lake-Refresh. The 10th Gen Intel® Core™ processors contain Intel® UHD Graphics 630 that offers 24 execution units and support outstanding 4K displays.

With the combination of new Intel Core processor technology and graphics architecture, the IMBA-H420 delivers superior computing power that sets it apart from other products available in the market.



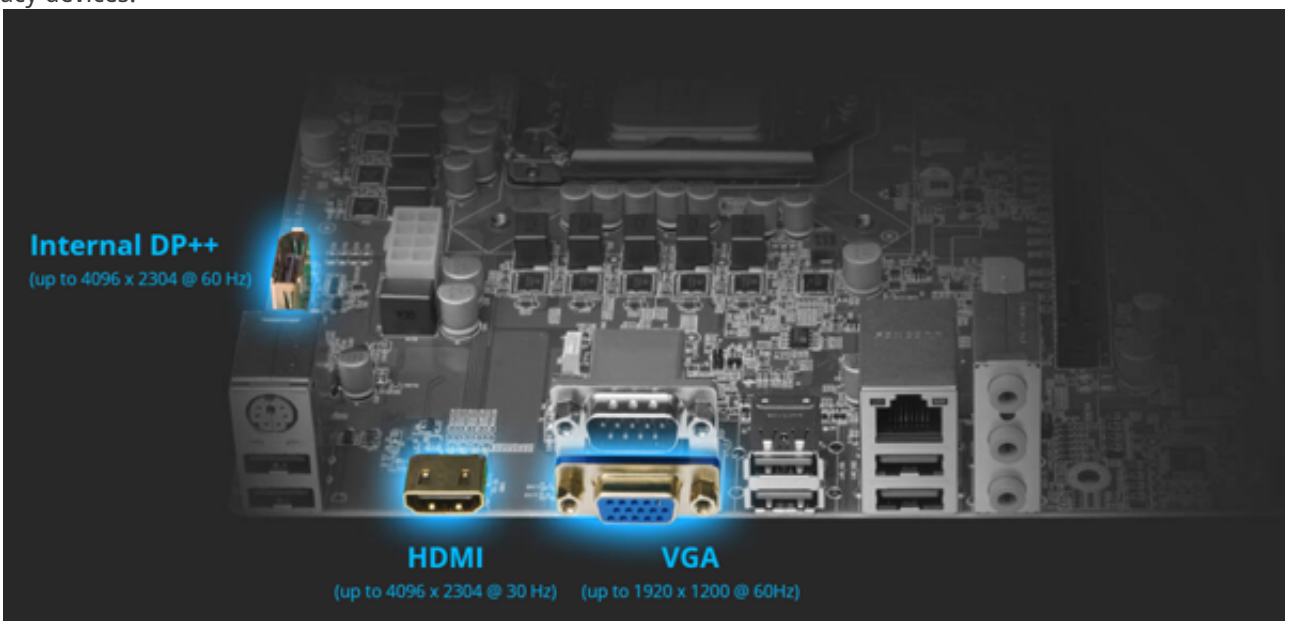
10th Gen Intel® Embedded CPU Support List

Up to 10 cores / 20 threads in LGA1200 socket

Sockets	Brand	Process	Cores/Threads	CPU	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1200	CoreTM i9	14nm Comet Lake-S	10/20	I9-10900E	2.8 GHz	20MB	65W	Intel® UHD Graphics 630	350 MHz	DDR4-2933	Q470/Q470E
			10/20	I9-10900TE	1.8 GHz	20MB	35W			DDR4-2933	
	CoreTM i7		8/16	I7-10700E	2.9 GHz	16MB	65W			DDR4-2933	
			8/16	I7-10700TE	2.0 GHz	16MB	35W			DDR4-2933	
	CoreTM i5		6/12	I5-10500E	3.1 GHz	8MB	65W			DDR4-2666	
	CoreTM i5		6/12	I5-10500TE	2.3 GHz	8MB	35W			DDR4-2666	
	CoreTM i3		4/8	I3-10100E	3.2 GHz	9MB	65W			DDR4-2666	
	CoreTM i3		4/8	I3-10100TE	2.3 GHz	9MB	35W			DDR4-2666	
	Pentium®		2/4	G6400E	3.8 GHz	4MB	58W			DDR4-2400	
	Pentium®		2/4	G6400TE	3.2 GHz	4MB	35W			DDR4-2400	
	Celeron®		2/2	G5900E	3.2 GHz	2MB	58W			DDR4-2400	
	Celeron®		2/2	G5900TE	3.0 GHz	2MB	35W			DDR4-2400	

Pixel-accurate 4K Resolution

The IMBA-H420 is equipped with three display output connectors, including HDMI, internal DP++ and VGA. The HDMI and DP++ interfaces support pixel-accurate 4K resolutions for high-end applications while the VGA is reserved for legacy devices.

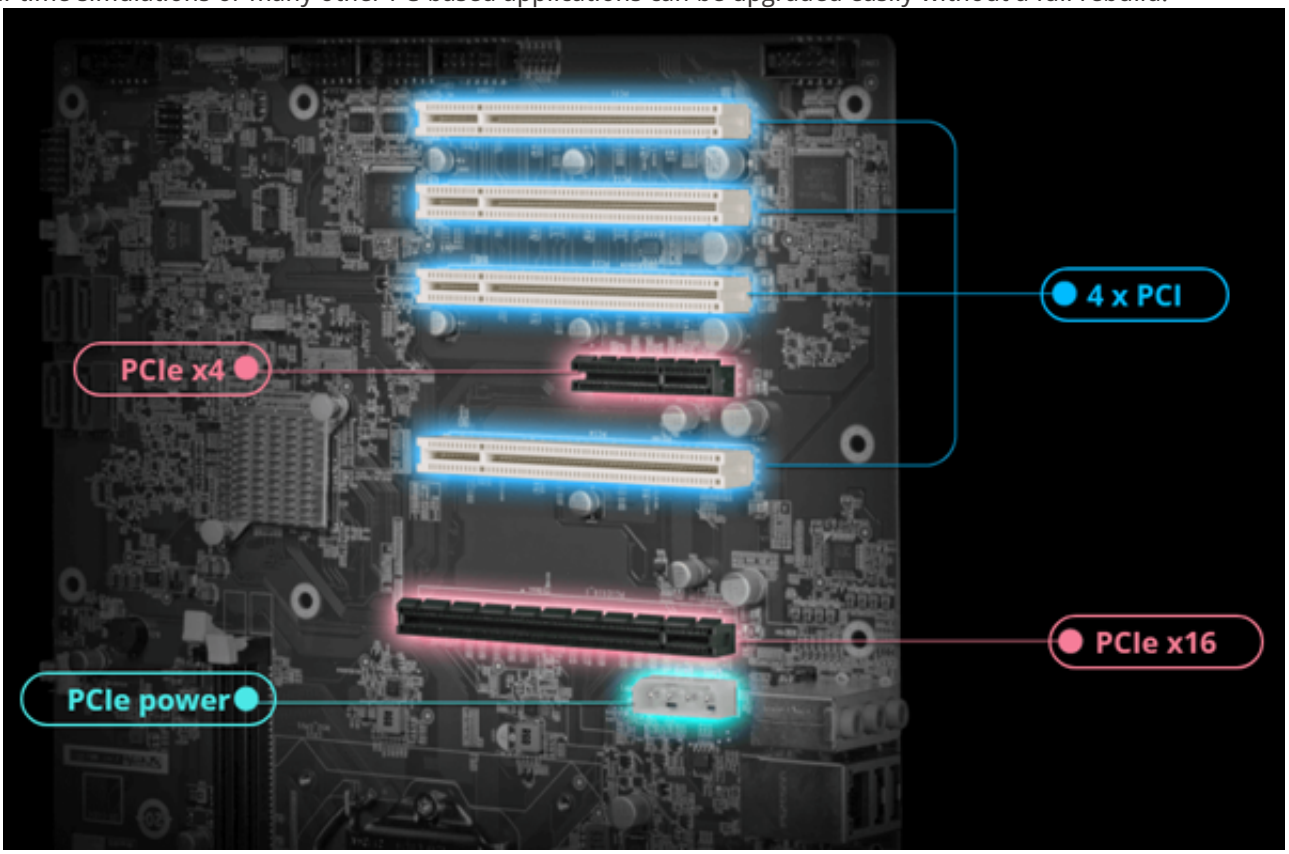


DP++ Supported

The IMBA-H420 provides various display outputs for customers to connect to a device with the same native interface to avoid quality loss. However, when conversion is needed, the equipped DisplayPort Dual-Mode (DP++) connector allows the use of a simple, inexpensive passive adapter to convert to HDMI. It is completely plug and play, handles both video and audio, and does not need any driver to work.

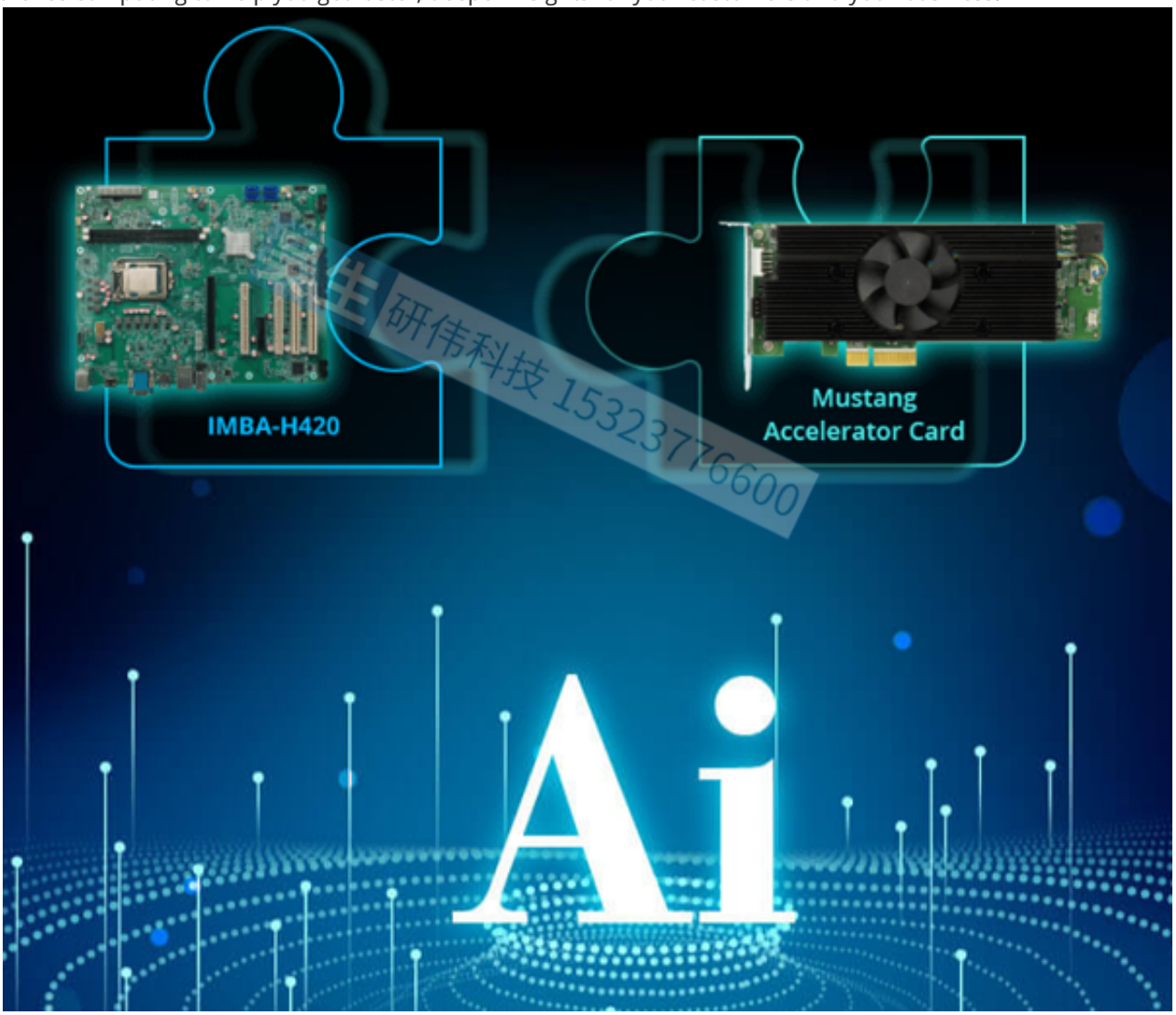
Rich Expansion Options

Bringing together PCIe 3.0 technology and legacy PCI standard creates endless possibilities in developing a wide range of solutions. A graphics card or AI card can be added via the PCIe x16 for sophisticated applications, like medical diagnosis, machine vision, robotics or AI-based projects.
Four PCI slots are also provided to maintain backward compatibility. Legacy systems in machine controllers, test rigs, real-time simulations or many other PC-based applications can be upgraded easily without a full rebuild.



Tap into the Power of AI

In recent years, Edge AI has became a virtual role. We are now at a time where AI is revolutionizing the world. The IMBA-H420 can deliver excellent computing capabilities to accelerate AI adoption in food/fruit inspection, factory automation and test equipment. By adding IEI's Mustang accelerator card, it could be used for deep learning inference computing to help you get faster, deeper insights for your customers and your business.



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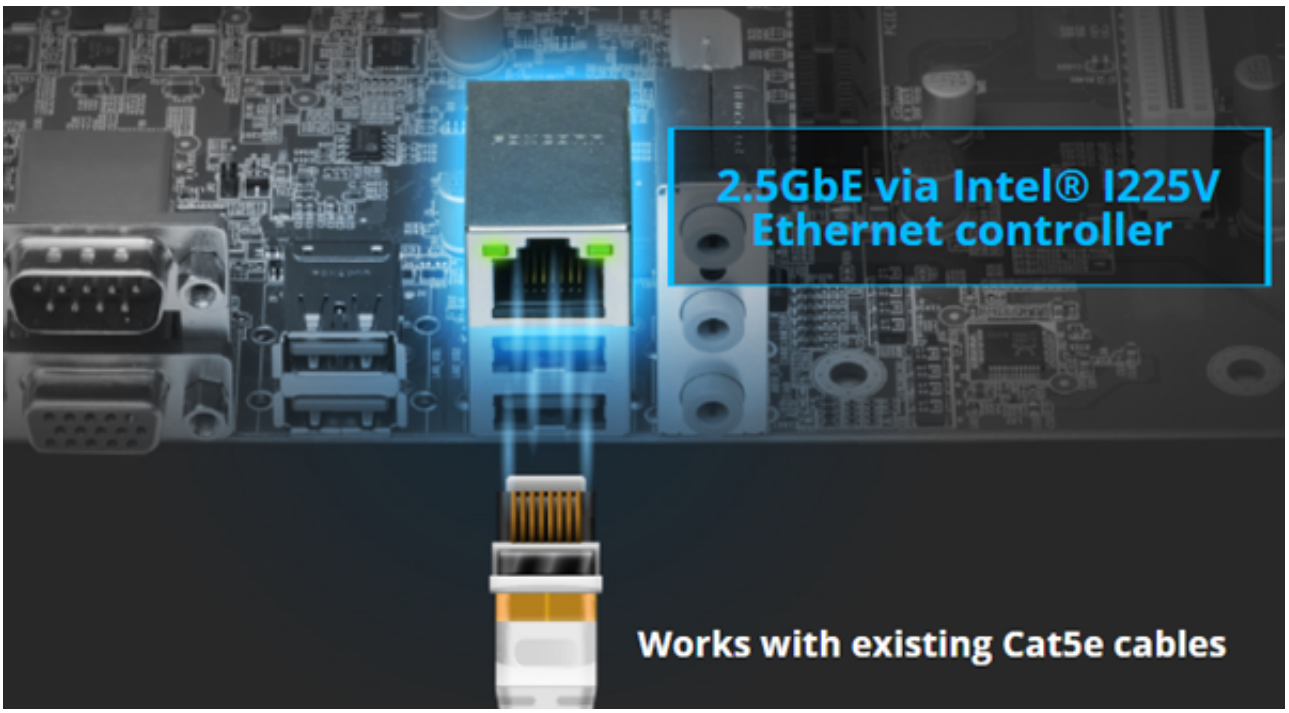
2.5GBASE-T Ethernet Technology

The 2.5GBASE-T speed is a contemporary solution to an old problem due to the increases in throughput. Enterprises that choose the IMBA-H420 as their solutions for the implementation of 2.5GBASE-T technology will benefit from a simple change that achieves a noticeable gain in bandwidth, while at the same time realizing cost savings from reuse of existing Cat5e cables.



Energy Efficiency

As shown in the following table, the IMBA-H420 is compliant with ErP, which requires a system should not consume more than 0.5 W during off state or standby. The IMBA-H420 consumes nearly no energy in sleep mode or shutdown, making it a green and eco-friendly product that saves cost and electricity.

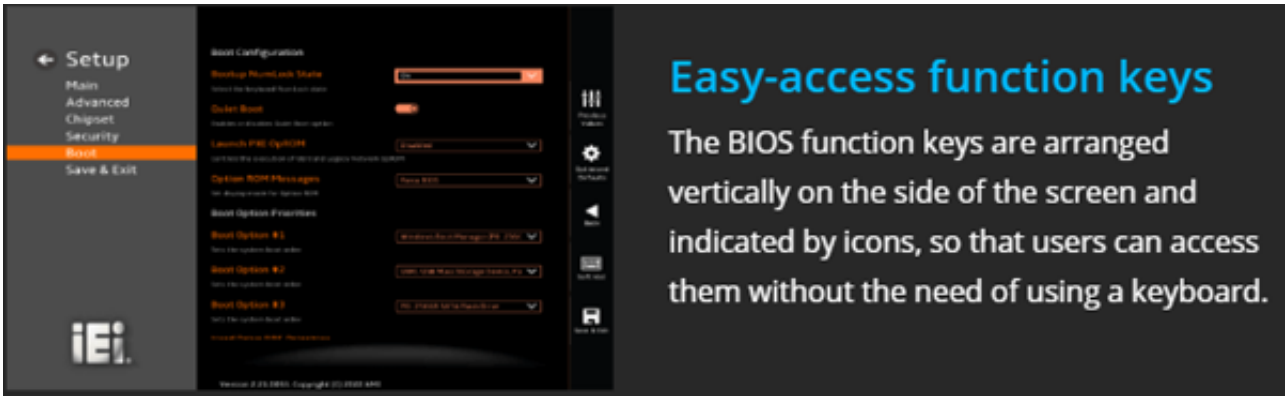
	Voltage	3.3 V	5 V	5 V Standby	12 V
EuP Mode Enabled	Current	0.84 A	8.12 A	0A	3.77 A
	Power Consumption	2.77 W	40.6 W	0W	45.24 W
EuP Mode Disabled	Current	0.81 A	8.21 A	0.02A	3.84 A
	Power Consumption	2.67 W	41.5 W	0.1W	46.08 W

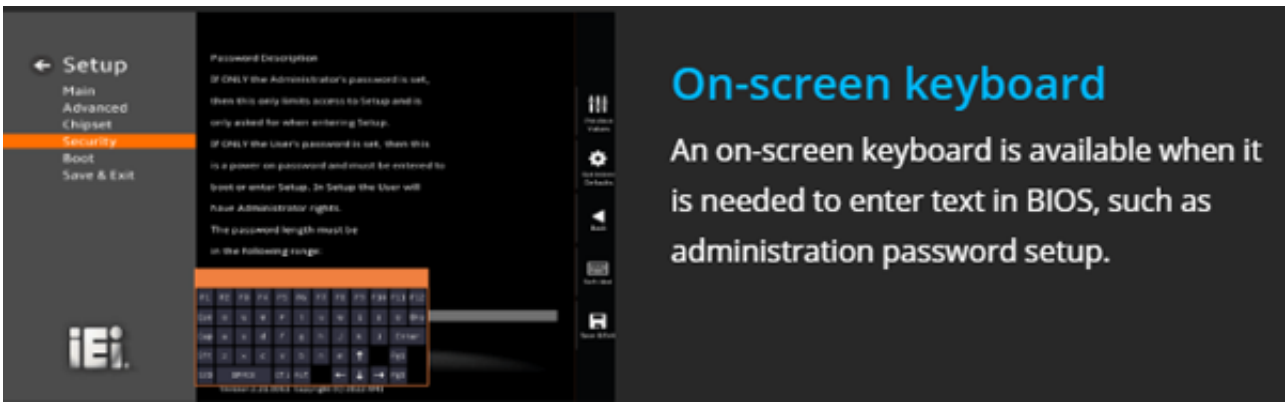
Touch-enabled BIOS

The BIOS menu in the latest IEI products is re-designed to a touch-enabled user interface to eliminate excessive steps and unnecessary keyboard connection. It allows users to navigate with finger on a touch-enabled monitor to make BIOS configuration easily. The new design features the followings:

Graphical interface

BIOS menus is transformed from text-based to graphical user interface, making it intuitive and easy to navigate.





One-Stop Service

IEI provides a one-stop source of products for the IMBA-H420 motherboard, ranging from industrial chassis, accelerator cards and CPU fans, to help you with your integration needs.

Industrial Chassis

Industrial Chassis	ECA-100 Desktop/Wall-mount Chassis	ECA-300 Mini-Tower Chassis
Dimensions (mm)	365 x 291 x 162	210 x 320 x 480.5
I/O Ports	2 x USB 6 x COM	6 x USB 2 x COM
Expansion Slots	7	7
Storage	1 x 3.5"/2.5" HDD/SSD 1 x Additional 3.5"/2.5" HDD/SSD by the optional ECA-HDDKIT-R10	2 x 5.25" 1 x 3.5"/2.5" HDD/SSD
Fan	1	1

Accelerator Card

Accelerator Card	Mustang-V100-MX8	Mustang-T100-T5
Main Chip	Intel® Movidius™ Myriad™ X	Five Google Coral Edge TPU Accelerator Modules
Operating Systems	Ubuntu* 16.04.3 (LTS), 64-bit CentOS 65-bit	Linux: 64-bit version of Debian 10 or Ubuntu 16.04 (or newer) Windows: 64-bit version of Windows 10
Physical PCIe Interface	PCI Express 2.0 x4	PCI Express 2.0 x4
Fan	Active	Active
Dimensions	Standard half-height, half-length, single-width	

CPU Cooling Kits