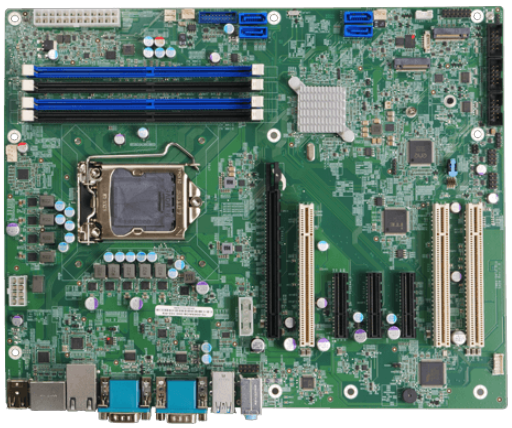
Embedded Computer > Single Board Computer > Industrial Motherboard

IMBA-Q470

ATX motherboard supports LGA1200 Intel® 10th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS



Features

» LGA1200 Intel® 10/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor

» Dual-channel DDR4 2933MHz

» Support HDMI, DP, VGA

» Support M.2 A key for WLAN expansion, M key for PCIe NVMe storage

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® Q470/Q470E
Memory	Four 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs supported up to 128GB
Memory Max.	up to 128GB
Cooling method / System Fan	1 x CPU fan connector (1x4 pin)
	2 x System fan connector (1x3 pin)
Physical Characteristics	
Dimensions (LxWxH) (mm)	244mm x 305mm
Net Weight	GW:1200g / NW:700g
Storage	
Storage	4 x SATA
	1 x M.2(NGFF) : 1 x M.2 M Key (2240/2280) with PCIe x4
I/O Interface	
Display Output	1 x VGA Up to 1920 x 1080 @60Hz
	1 x HDMI
	1 x Display Port
Ethernet	2 x LAN :
	LAN1: Intel® I225V 2.5GbE controller
	LAN2: Intel® I225V 2.5GbE controller
Audio	1 x Line in
	1 x Line out
	1 x Mic
	1 x Front Audio : 2x5 pin
I/O Interface	2 x External RS-232
	1 x External RS-422/485 : RS-485 support AFC
	2 x Internal RS-232 : 2x5 pin, P=2.54
	1 x Internal RS-232/422/485 : 2x5 pin, P=2.54 ,RS-485 support AFC
	2 x External USB 2.0 : Type-A

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	2 x External USB 3.2 Gen1x1 : 5Gb/s(Type-A)
	5 x Internal USB 2.0 : 2x4 pin, P=2.54
	2 x Internal USB 3.2 Gen1x1 : 2x10 pin, p=2.0
	1 x DIO : 8-bit digital I/O (2x5 pin
	2 x External USB 3.2 Gen2x1 : 10Gb/s (Type-A)
Expansion	1 x PCIe x16
	3 x PCIe x4
	3 x PCI Slot
	2 x M.2(NGFF) : 1 x M.2 M-key 2242/2280 (PCIe x4) 1 x M.2 A-key 2230 (PCIe x1 / USB 2.0)
Power	
Power Consumption	3.3V@1.36A, 5V@14.16A, 12V@7.5A
	(Intel® Core™ i9-10900E CPU with four 32 GB 3200 MHz DDR4 memory)
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

Ordering Information

IMBA-Q470-R10	ATX motherboard supports LGA1200 Intel® 10th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

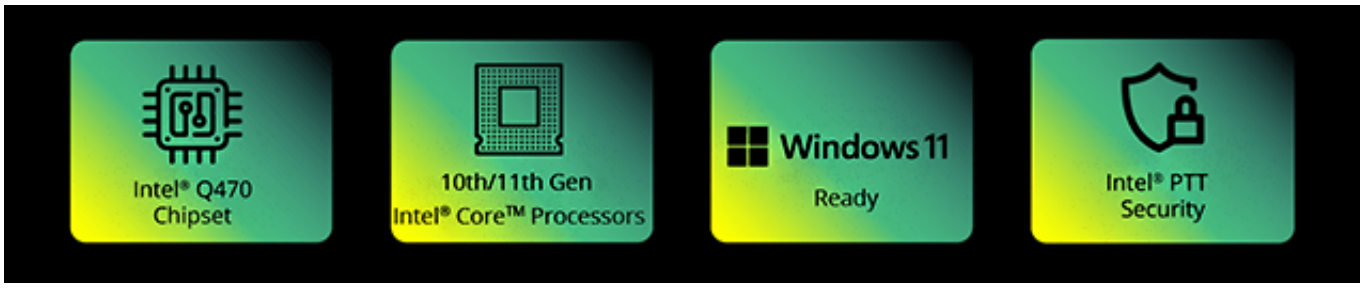
Packing List

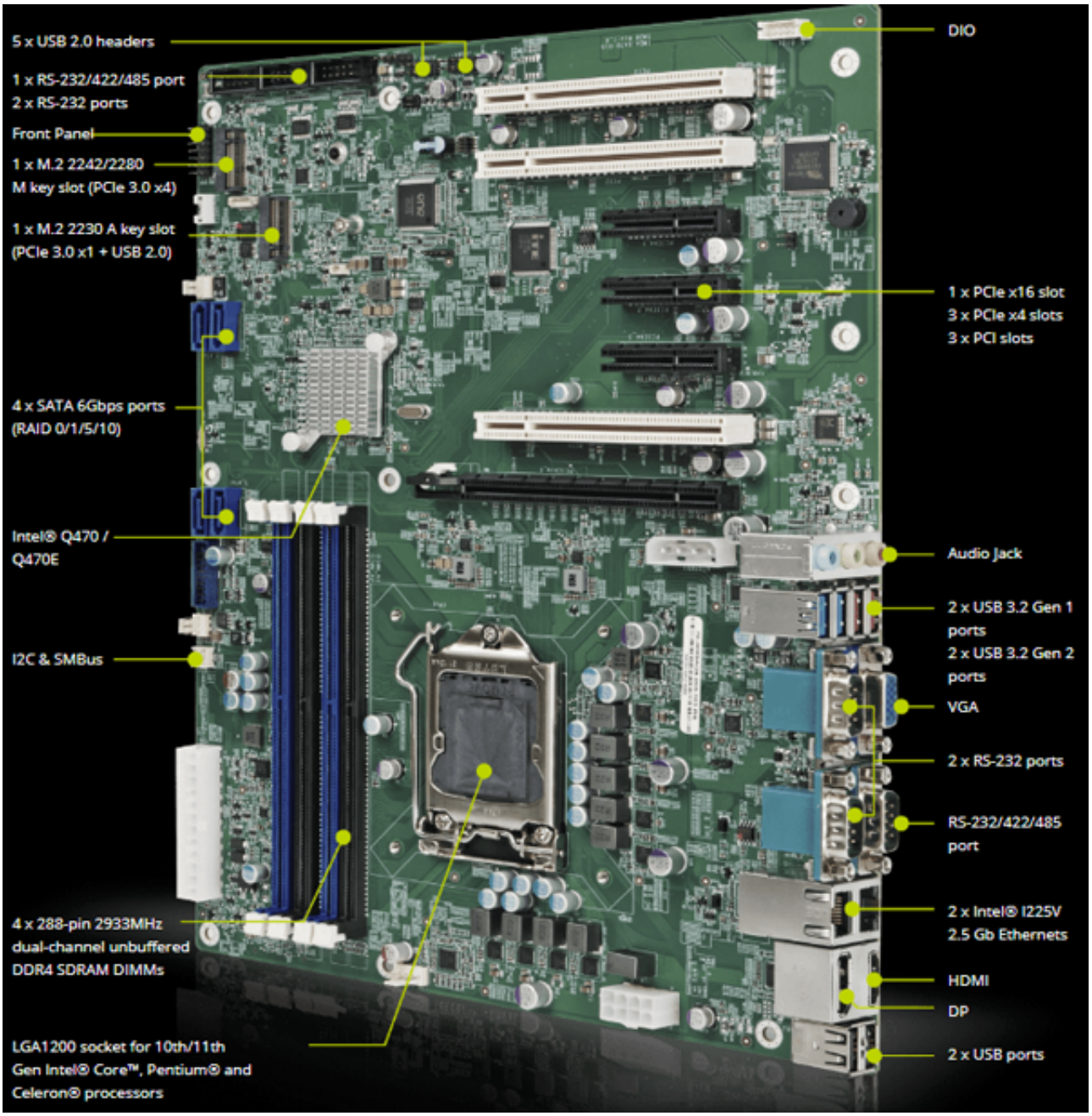
1 x IMBA-Q470 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Options

CF-115XA-R10	High-performance LGA1155/1156/1200 cooler kit, 1U chassis compatible, 73W
CF-1156C-R20	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156/1200 cooler kit, 95W
CB-USB02	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.0/USB3.2 cable 450mm with bracket, P=2.0
19800-020100-100-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 8981-4M to SATA15P, 150MM

Built for High-performance Edge Computing

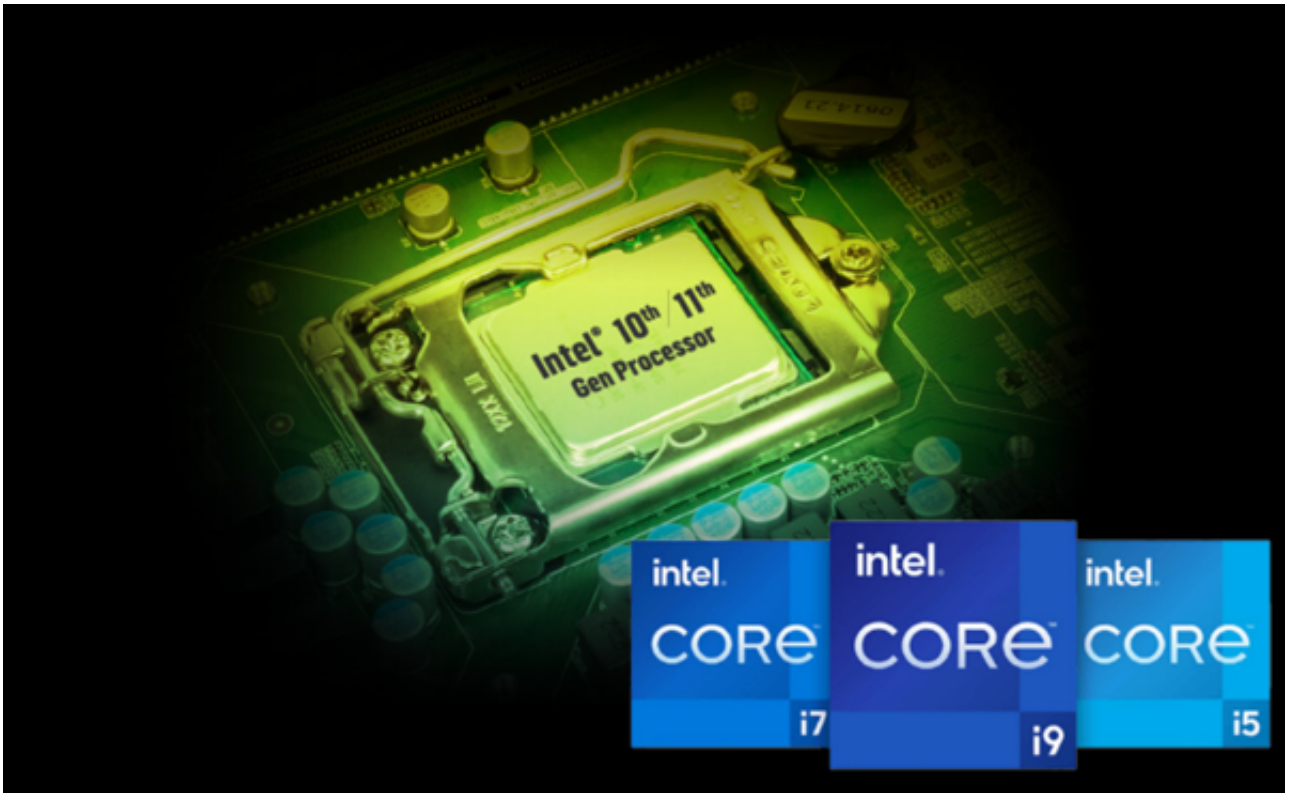


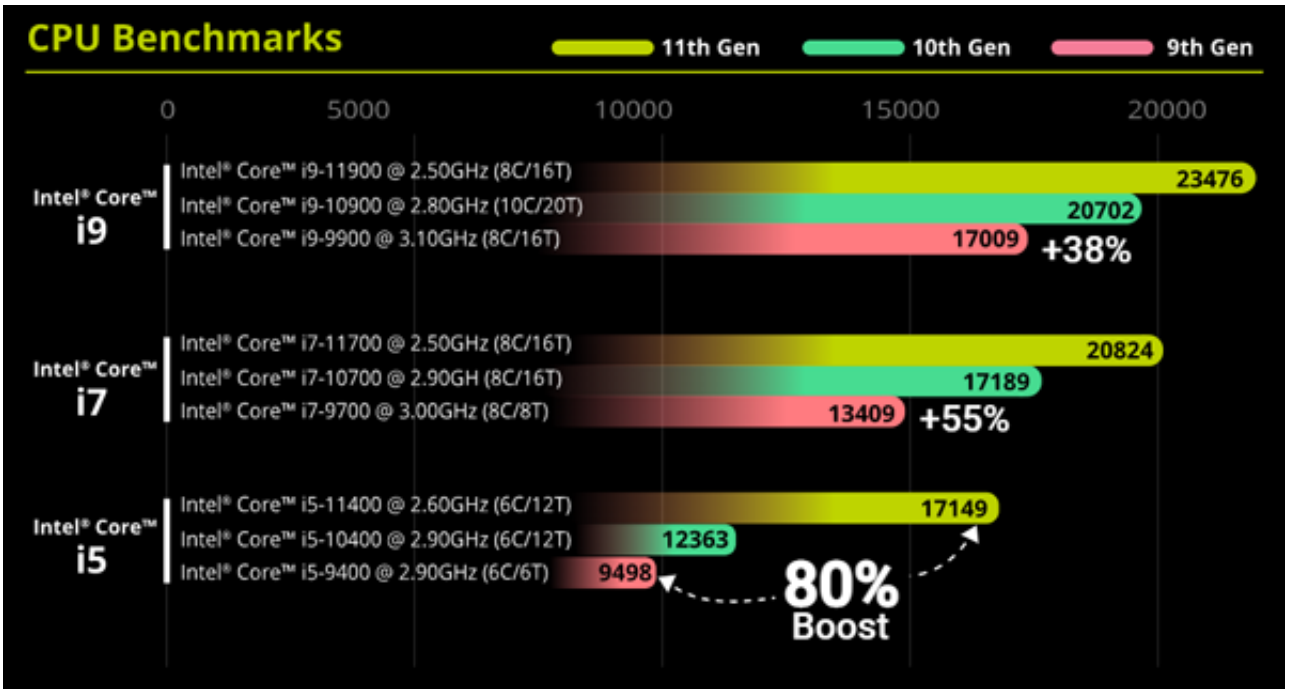


10th Gen/11th Gen Intel® Core Processors

The IEI IMBA-Q470 motherboard supports both 10th and 11th Gen Intel® Core processors, and the performance boosts up to 80% better than previous generation on i5 processor. The 10th Gen Intel® Core platform supports up to 10 cores and improved performance over Coffee Lake-Refresh. With increased I/O capacity and the latest DDR4-2933 memory support, these processors deliver the performance required to consolidate industrial multiple workloads.

Because of the above features, the IMBA-Q470 is suitable for edge computing, industrial automation, medical equipment, machine vision, automated test equipment and much more.





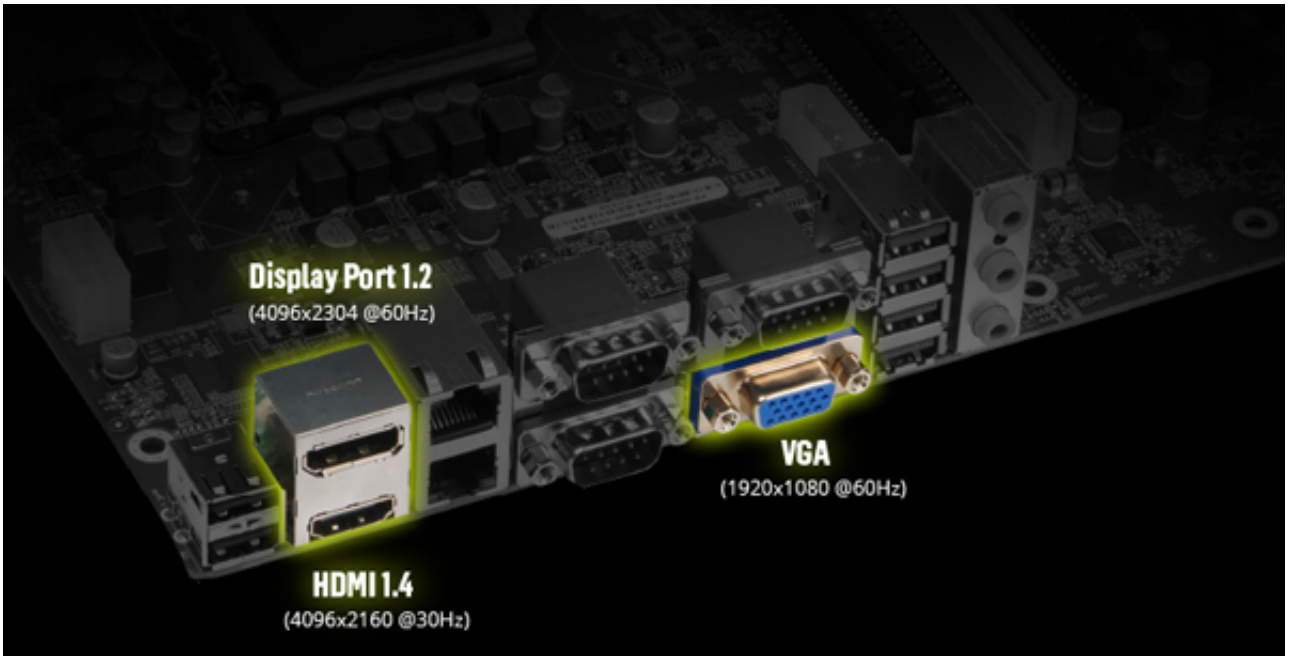
10th Gen Intel® Embedded CPU Support List

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
			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	

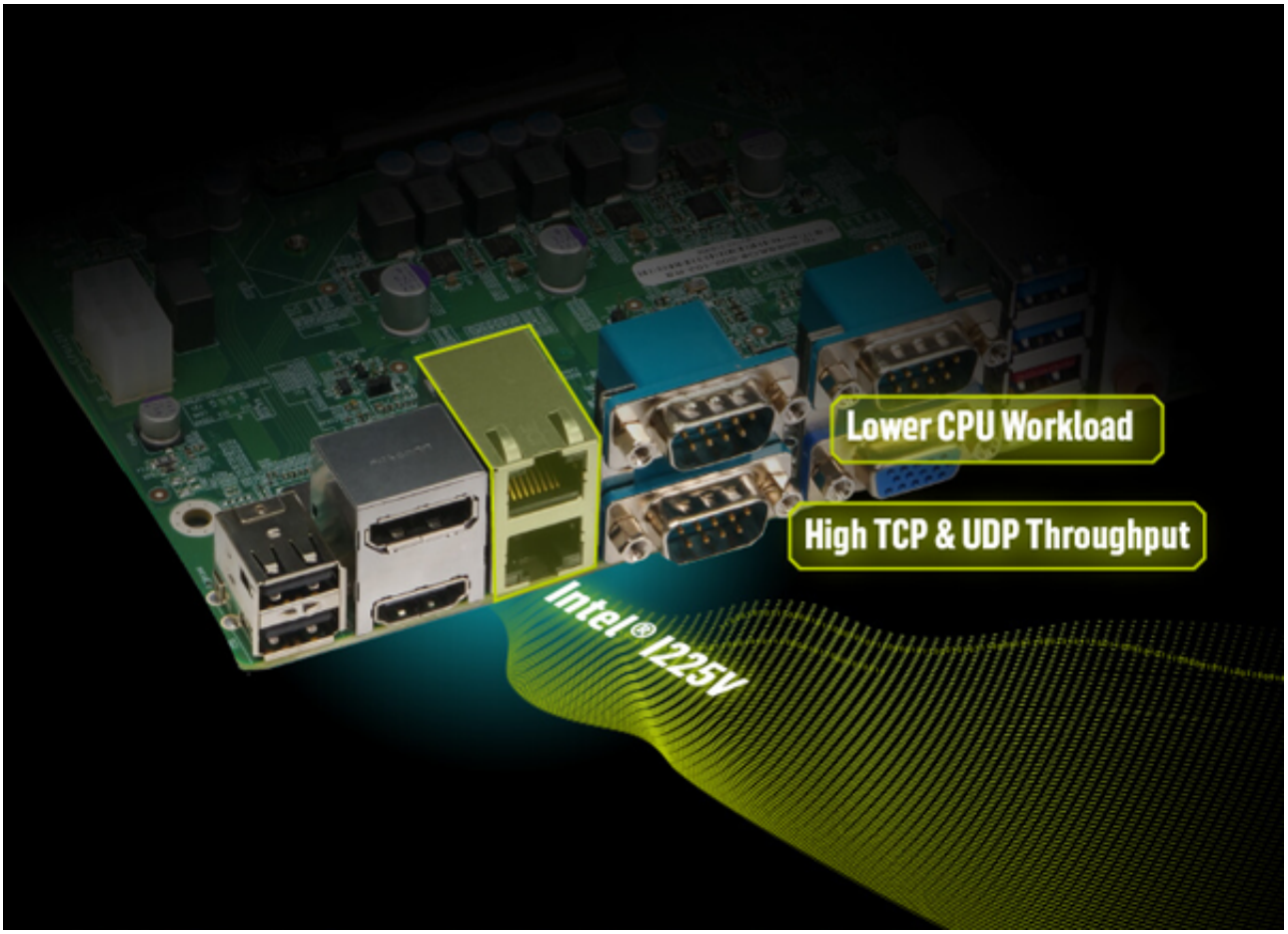
Stunning 4K Resolution and Triple Display

The IMBA-Q470 is equipped with Intel® UHD Graphics to display videos and images in stunning 4K resolutions. Among its three independent display ports (VGA+HDMI+DP), the HDMI and DisplayPort can both support up to 4K high resolution. The enhanced visual quality responses the high precision demand of users.

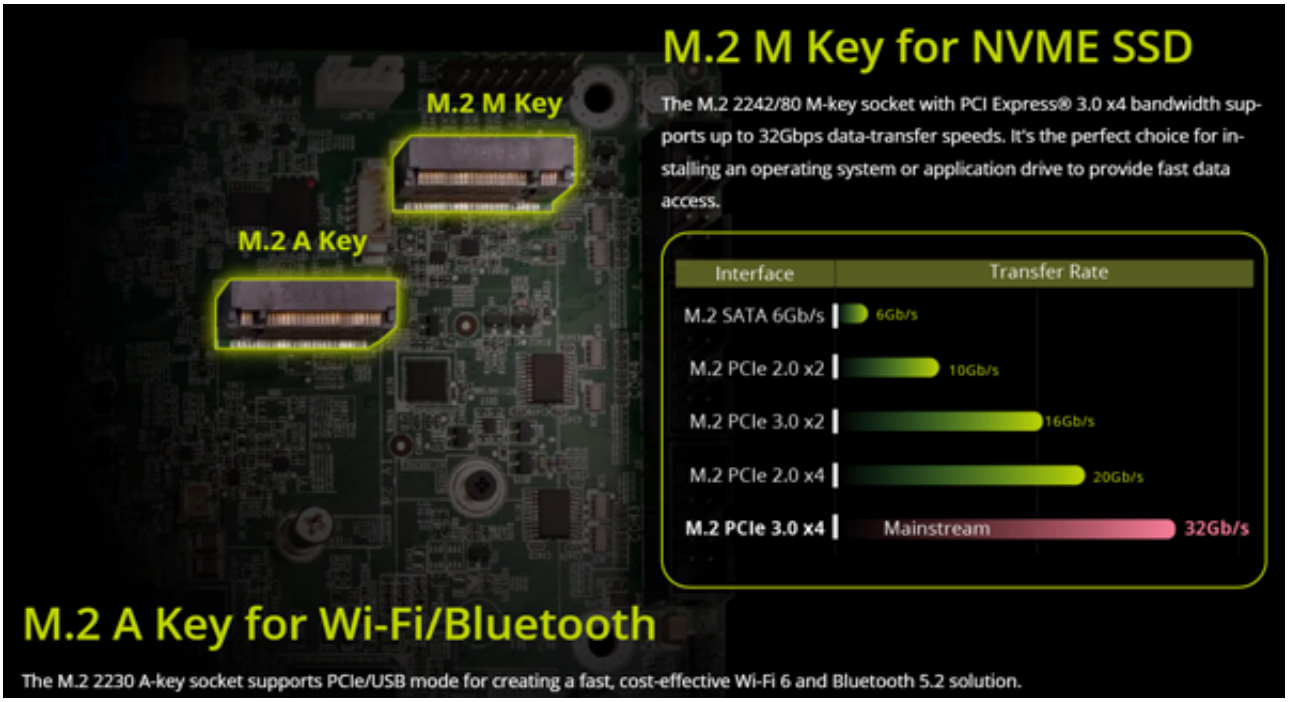


Dual Intel® 2.5G Ethernet

The IMBA-Q470 is equipped with two Intel 2.5GbE controllers, which are ready for the latest-performance router. With two 2.5GbE ports owning the benefits of low-latency, high-throughput and cost-effective, the IMBA-Q470 can meet the bandwidth-intensive requirements such as large file transfers and high resolution video streaming, which is ideal for machine vision and AI edge computing applications.

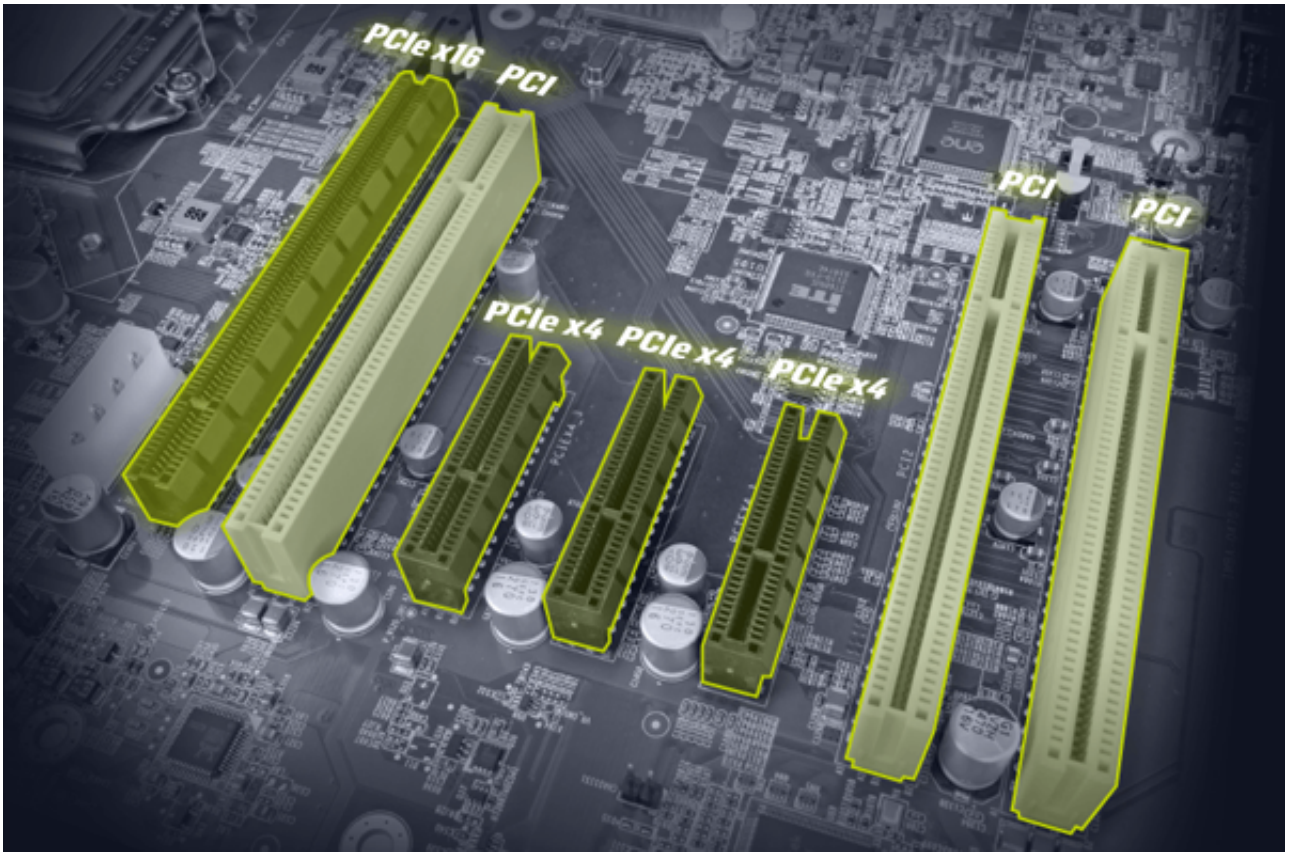

Lower CPU Workload
High TCP & UDP Throughput
Intel® I225V

Theoretical Performance
USB 2.0
0.48 Gbps
USB 3.2 Gen 1x1
5 Gbps
USB 3.2 Gen 2x1
10 Gbps
2X FASTER
USB 3.2 Gen 2x1 10 Gb/s
Two USB 3.2 Gen 2x1 (10 Gb/s) ports are integrated to support high density data transmission.



PCIe x16/4 & PCI Expansion Slots

There is an array of expansion interfaces on the IMBA-Q470 to meet different demands of each customer. It supports up to three PCI, three PCIe x4 , and one PCIe x16 slot, which can be used to install a variety of interface cards, including motion control cards, frame grabber cards, video capture cards, I/O cards, communication cards, AI accelerator cards and GPGPU cards.



Ready for Windows 11

To comply with Windows 11, IEI BIOS enables Intel firmware-based TPM function, Intel® PTT. TPM can be leveraged to encrypt your storage drive. This protects your data, including your identity and operating system files. Encryption also protects your data in the case of physical theft.
IEI's HYPER-AL is equipped with a high-performance Intel® Celeron® N3350 processor (codenamed Apollo Lake), which is the successor to the Braswell family and based on 1.1GHz typical frequency and rising to a 2.4GHz in bust mode. By leveraging IEI's expertise and the cutting-edge technologies, the HYPER-AL delivers performance and flexibility to power the next generation of edge computing applications, and usable even in confined spaces.

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14 nm Technology Process

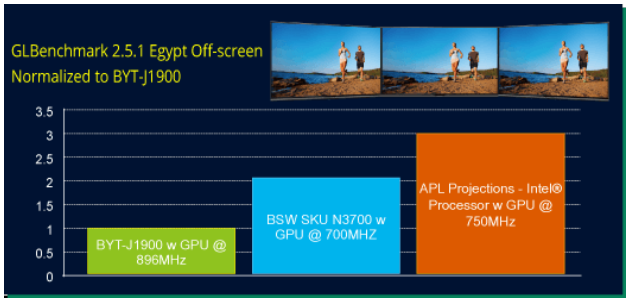
Intel® Celeron® N3350 CPU performance than the previous generation, Intel® Celeron® N3010

Improved memory performance

DDR3L up to 1866 MHz compared to 1600 MHz of Braswell

Three Times Graphics Performance

Intel® Apollo Lake built with Intel® Gen9 graphics engine same as Skylake integrated on the SoC provides up to 18 execution units and supports up to 4K decode and encode capabilities for HEVC4, H.264, VP8, SVC and MVC. The Graphics performance is estimated to be three times higher in contrast to the Bay Trail.



Improved 3D & Full-HD Media Performance:
» Fast HD video acceleration over previous generation
» Up to 15 simultaneous 1080p30 decode streams
» Fast graphics and media performance @ ISO power over previous generation

Dual Independent Display for Multi-task 24-bit LVDS + 4K UHD HDMI

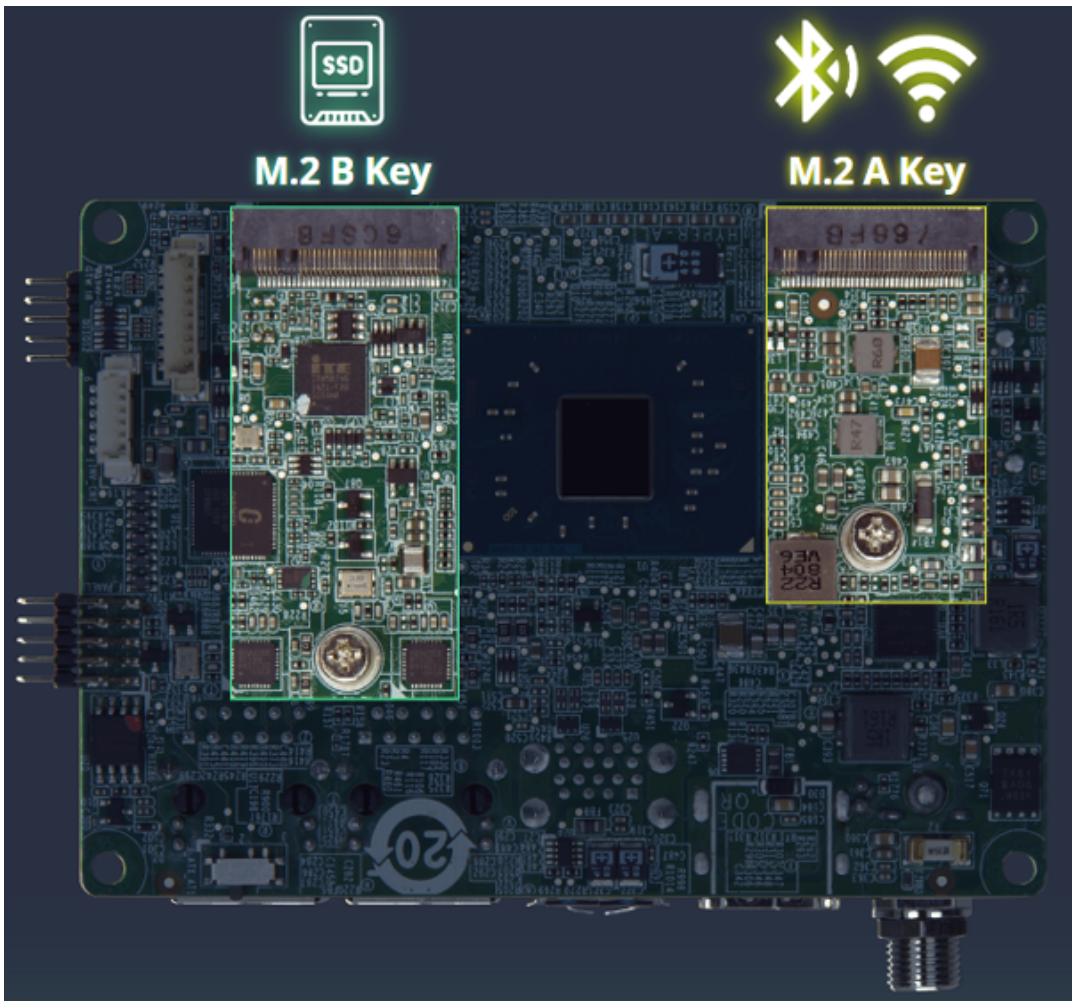
The HYPER-AL includes LVDS and HDMI 1.4b delivering brilliant 4K2K 30Hz resolution, increasing productivity and giving you enhanced multitasking capabilities.

HDMI: 1.4b up to 3840x2160 @ 30Hz

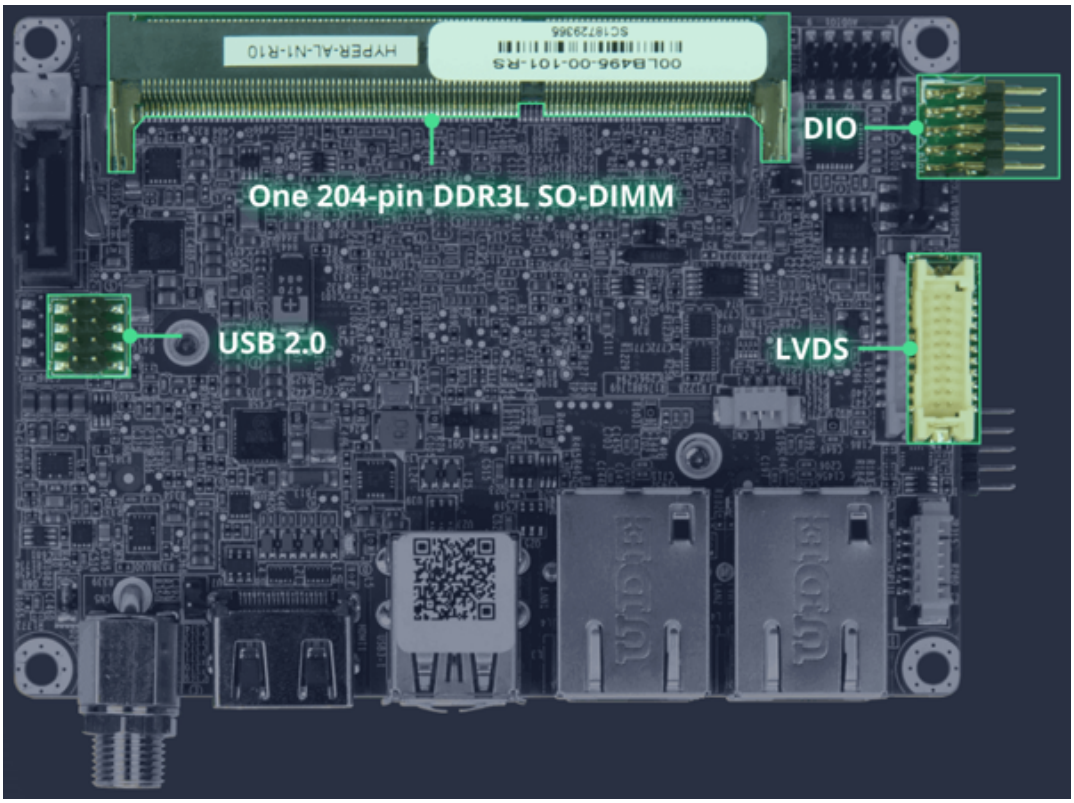
LVDS: 2x10 pin, single channel, 24-bit, up to 1366x768

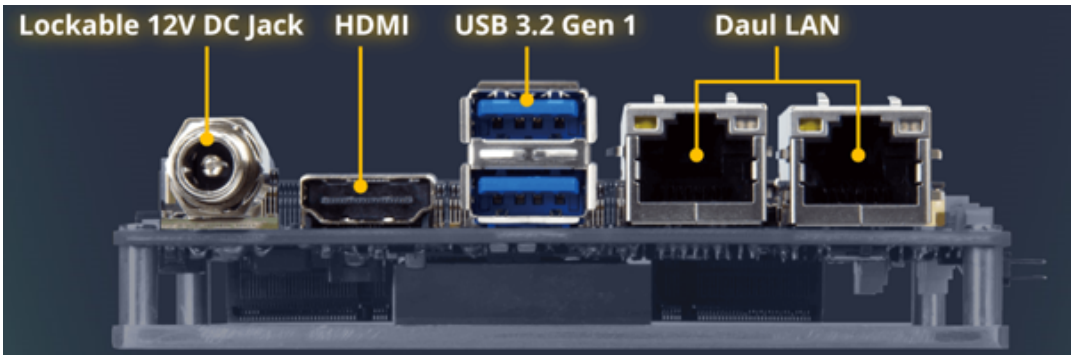
M.2 Expansion for WLAN, Bluetooth and SSD

With M.2 A-key 2230 slot and B-key 2242 slot, the HYPER-AL can support Bluetooth, Wi-Fi and SSD storage.



Product Overview





Applications

Autonomous Robot

Panel PC