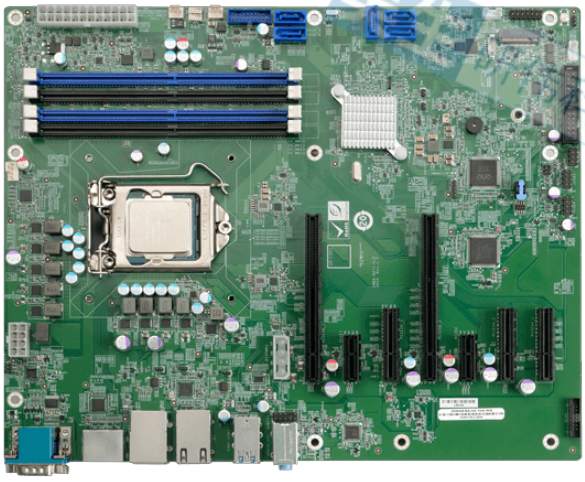
Embedded Computer > Single Board Computer > Industrial Motherboard

IMBA-Q471

ATX Motherboard Supports 10 th / 11 th Gen. LGA1200 Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® Processors, DDR4, Triple Independent Displays, Triple 2.5GbE, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS



Features

1. support HDMI, DP, VGA triple independent display output
2. support triple Intel® i225V 2.5GbE controller
3. support 2 x PCIe x16, 3 x PCIe x4, 2 x PCIe x1 and 1 x M.2 M key expansion slots
4. support 2 x USB 3.2 Gen2, 4 x USB 3.2 Gen1, 8 x USB 2.0, transfer rate up to 10Gb/s
5. support 3 x RS-232, 1 x RS-232/422/485, 5 x SATA 6Gb/s connector

Specifications

System	
CPU	10 th / 11 th Generation LGA1200 Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors
Chipset	Intel® Q470/Q470E
Memory	Four 288-pin 2933 MHz dual-channel unbuffered DDR4 SDRAM DIMM slots, supporting up to 128 GB memory
Memory Max.	up to 128 GB memory
Cooling method / System Fan	1 x CPU fan connector (1x4 pin)
	2 x System fan connector (1x3 pin)
Storage	
Storage	1 x M.2(NGFF): M-key 2242/2280 (PCIe Gen3 x2, SATA)
	5 x SATA: 6Gb/s (RAID 0/1/5/10 supported)
I/O Interface	
Display Output	1 x Display Port: up to 4096 x 2304 @ 60 Hz
	1 x HDMI: up to 4096 x 2304 @ 30 Hz
	1 x VGA: up to 1920 x 1080 @ 60 Hz
Ethernet	3 x LAN-
	LAN1: Intel® I225V 2.5GbE controller
	LAN2: Intel® I225V 2.5GbE controller
	LAN3: Intel® I225V 2.5GbE controller
Audio	1 x Front Audio: 2x5 pin, p=2.54
	1 x HD Audio: Realtek ALC888S HD Audio codec supports 7.1-channel
	1 x Line in(CD/DVD or other audio source input port)
	1 x Line out(connect this port to headphone or speaker)
	1 x Mic(connect this port to microphone)
I/O Interface	1 x DIO: 12-bit digital I/O (2x7 pin, p=2.0)
	1 x External RS-232: DB-9
	2 x External USB 2.0: Type-A
	2 x External USB 3.2 Gen1x1: 5Gb/s (Type-A)
	2 x External USB 3.2 Gen2x1: 10Gb/s (Type-A)
	2 x Internal RS-232: 2x5 pin, p=2.54

	1 x Internal RS-422/485: 1x4 pin, p=2.0
	6 x Internal USB 2.0: 2x4 pin, p=2.54
	2 x Internal USB 3.2 Gen1x1: 2x10 pin, p=2.0
Expansion	1 x M.2(NGFF): M-key 2242/2280 (PCIe x2, SATA)
	2 x PCIe x1
	2 x PCIe x16(x8 signal)
	3 x PCIe x4
Other Features	
TPM	Intel® PTT(TPM 2.0)
Power	
Power Consumption	3.3V@1.1A, 5V@3.359A, 12V@2.18A, 5VSB@0.12A
	(Intel® Core™ i5-10500TE CPU with four 8 GB 2933 MHz DDR4
	DIMMs)
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

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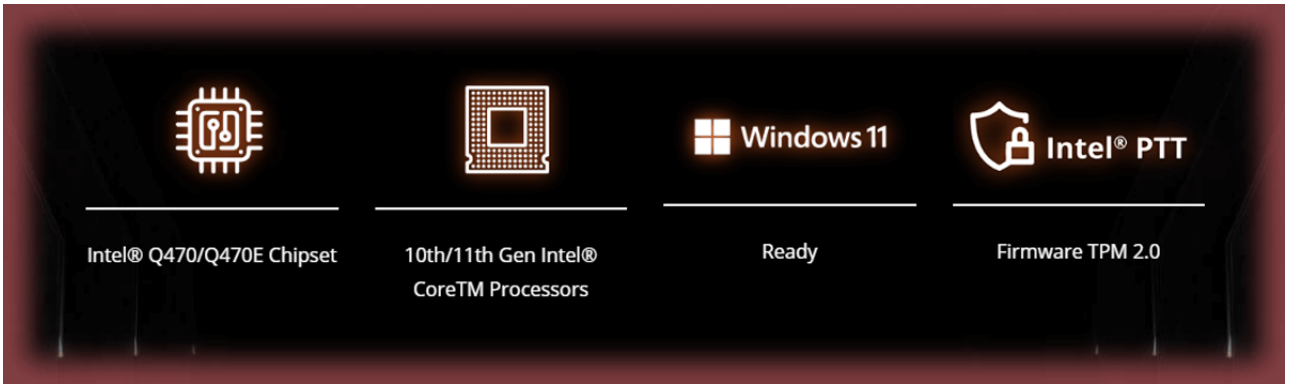
Ordering Information

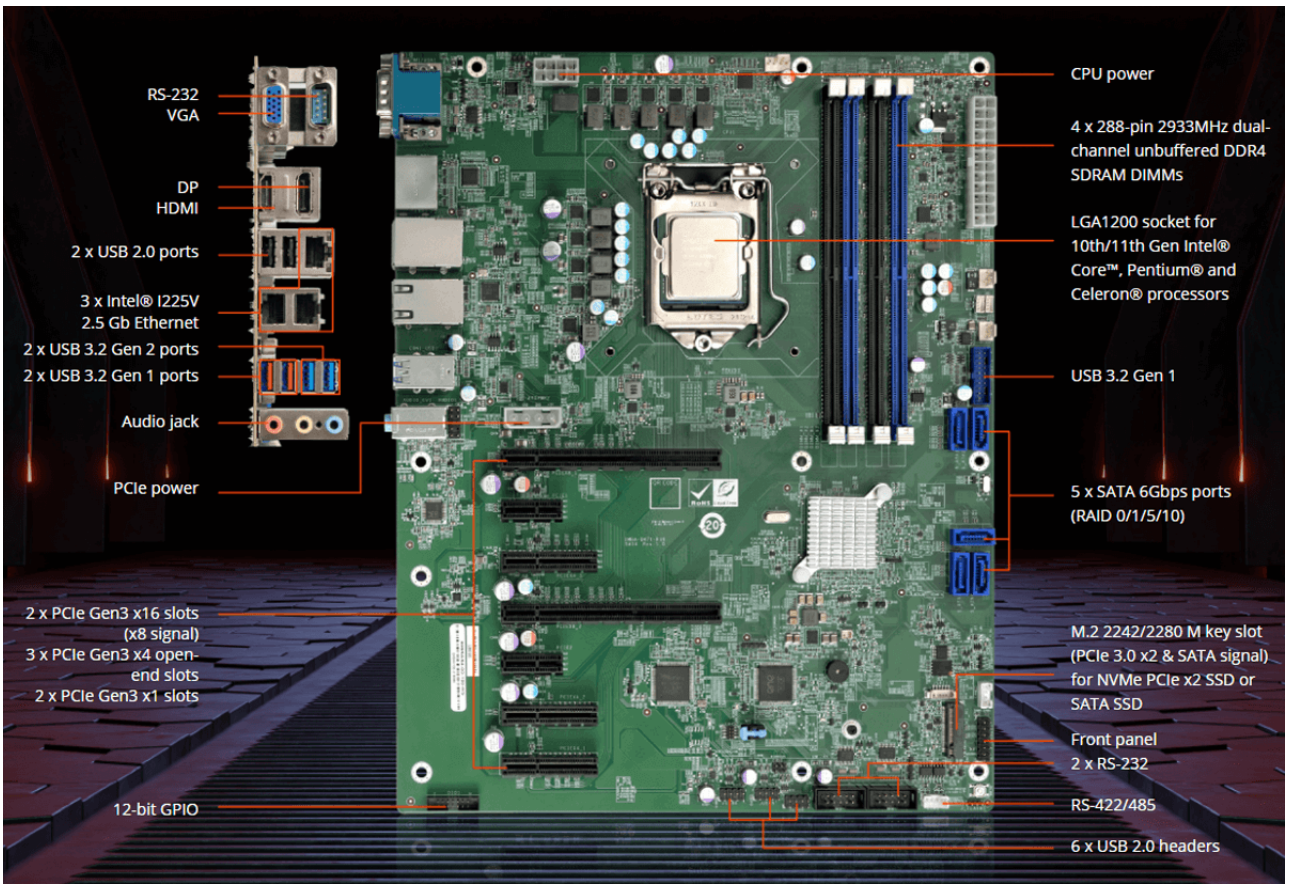
IMBA-Q471-R10	ATX motherboard supports LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, triple 2.5GbE LAN, pure PCIe slots，M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

Packing List

1 x IMBA-Q471 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Built for High-performance Edge AI

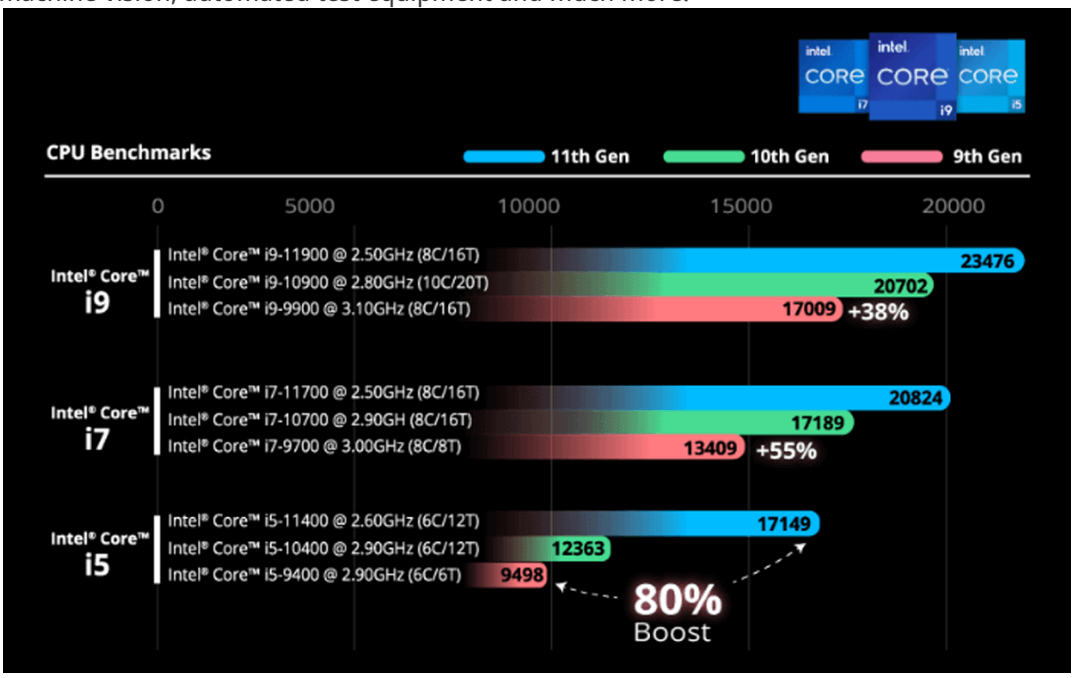


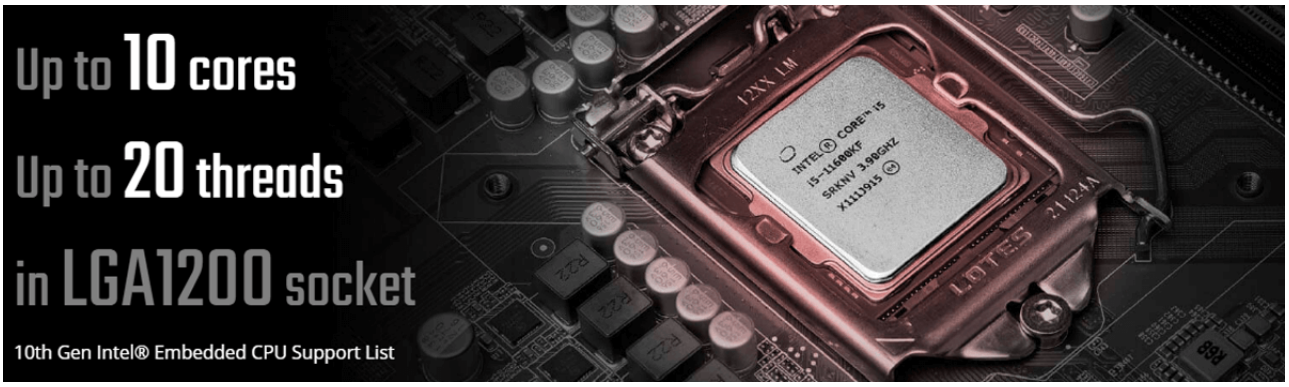


Enhanced CPU and Graphics Performance

10th Gen/11th Gen Intel® Core Processors

IEI's IMBA-Q471 motherboard supports both 10th and 11th Gen Intel® Core processors, and the performance boosts up to 80% better than the 9th Gen 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-Q471 is suitable for edge computing, industrial automation, medical equipment, machine vision, automated test equipment and much more.





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	

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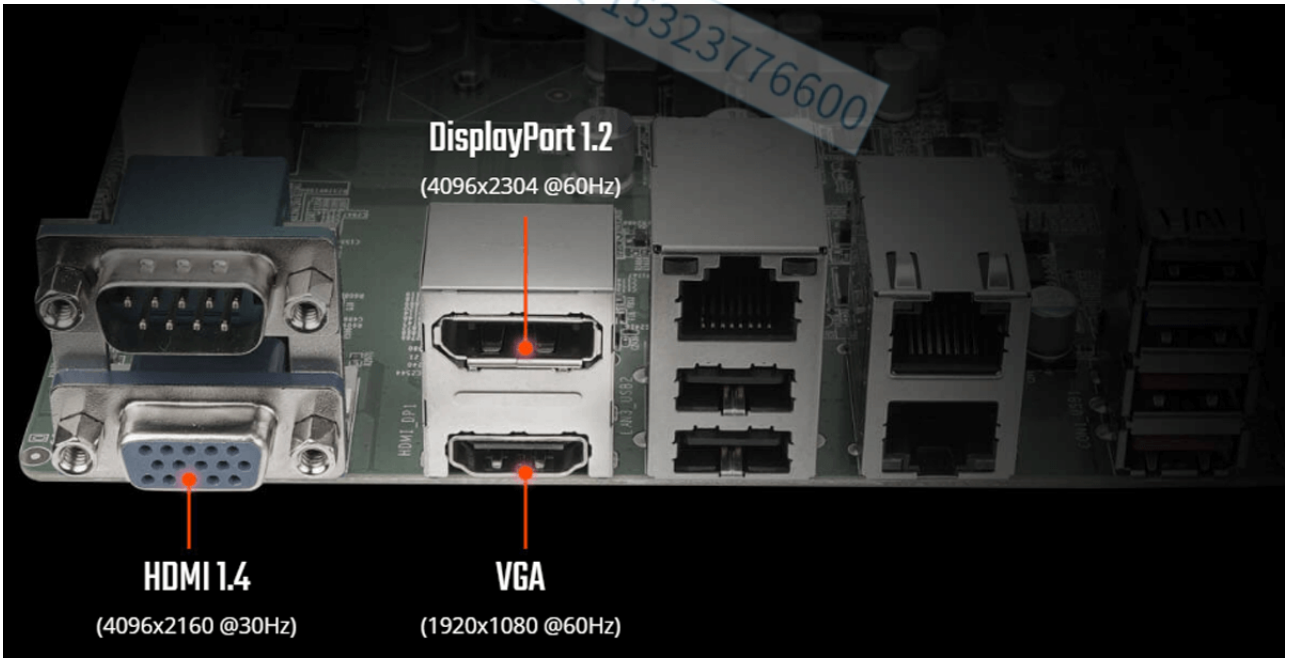
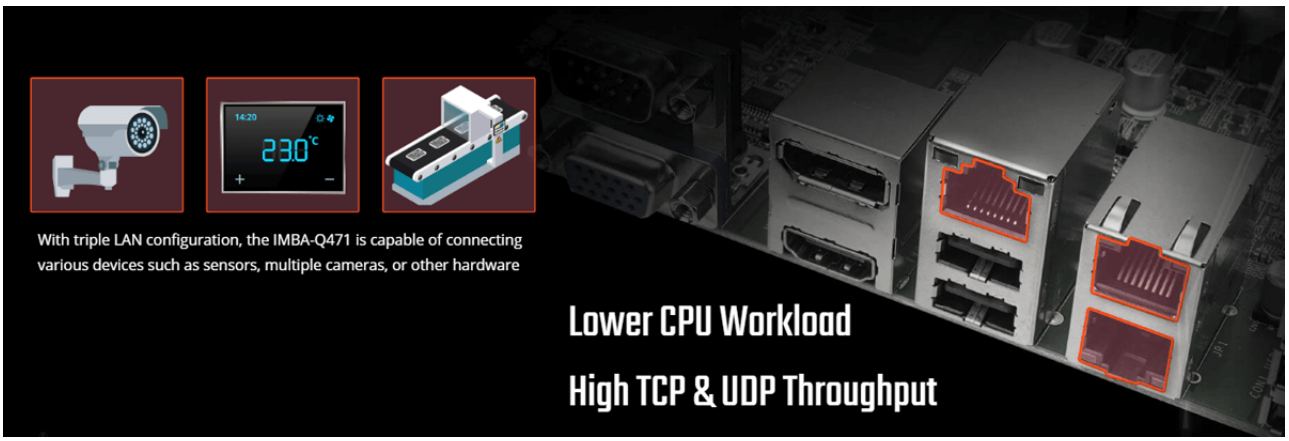


Stunning 4K Resolution and Triple Display

The IMBA-Q471 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.

Leading Connectivity



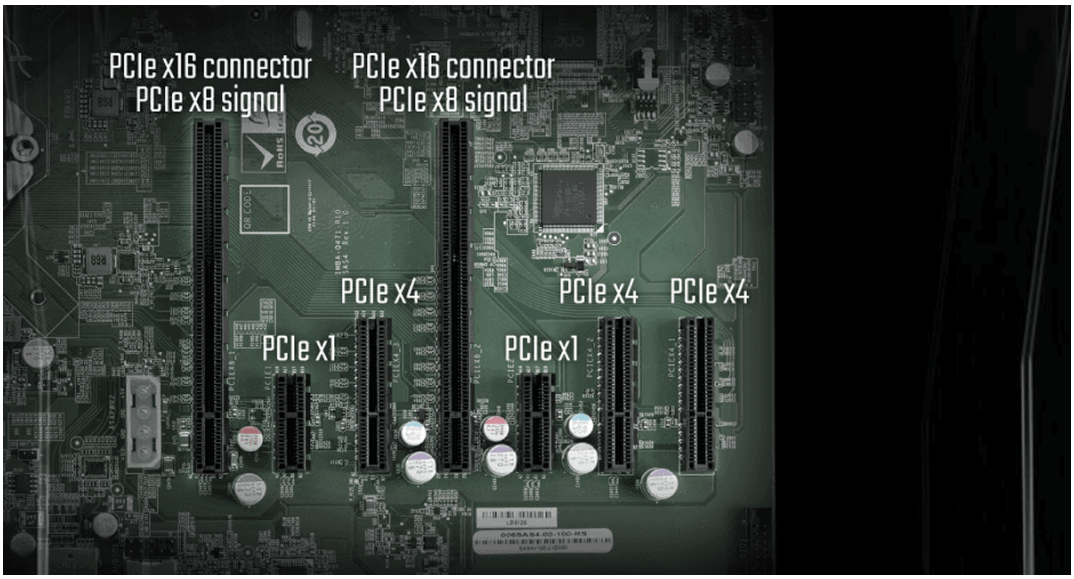
Triple Intel® 2.5G Ethernety

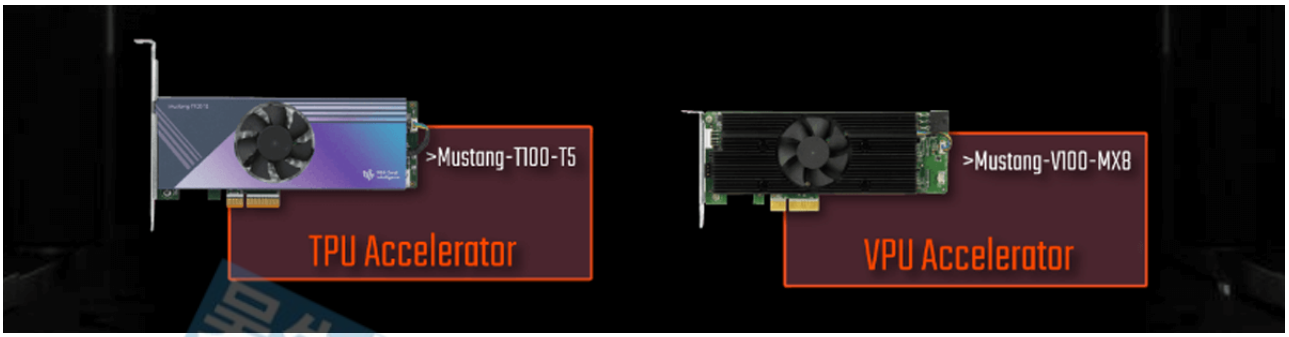
The IMBA-Q471 is equipped with triple Intel 2.5GbE controllers, which are ready for the latest-performance router. With triple 2.5GbE ports owning the benefits of low-latency, high-throughput and cost-effective, the IMBA-Q471 can meet the bandwidth-intensive requirements such as large file transfers and high resolution video streaming, which is ideal for machine vision and AI edge computing applications.

Pure Speed USB 3.2 10 Gb/s

With twice of the bandwidth compared to its previous generation, and backwards compatible with USB 2.0 and 3.0, the much improved USB 3.2 protocol USB Type-A connector for better compatibility over a wider range of devices.

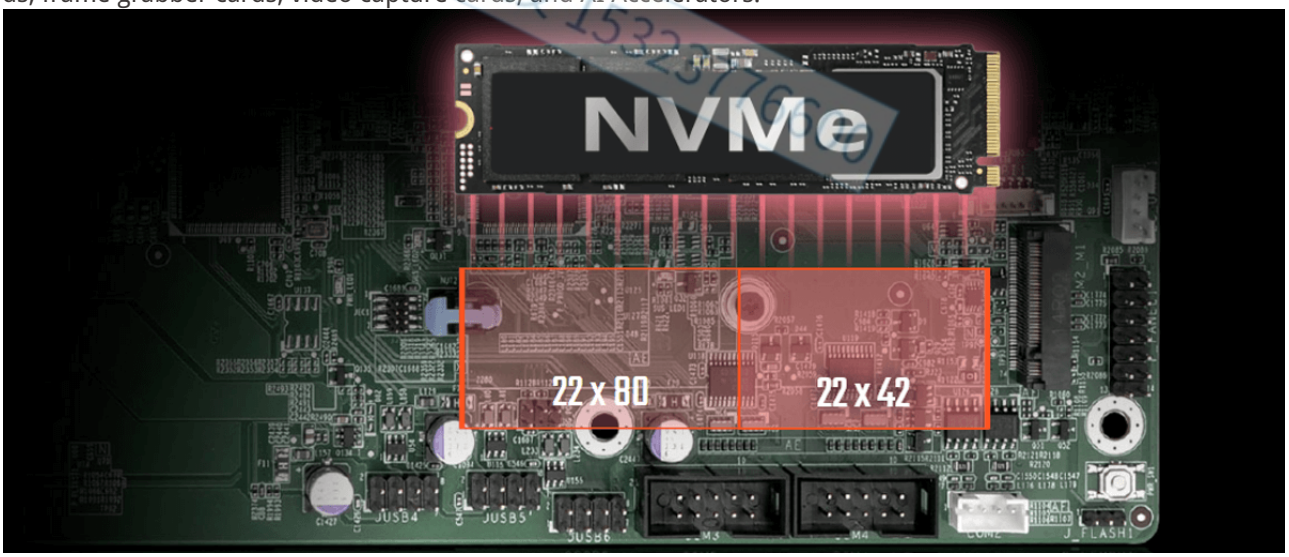
Multiple Expansion Slots for Increased Functionality and Flexible Configuration





Complete PCIe expansions make high speed transmission possible

There is an array of expansion interfaces on the IMBA-Q471 to meet different demands of each customer. It supports up to seven PCIe slots, which can be used to install a variety of high bandwidth interface cards, including network cards, frame grabber cards, video capture cards, and AI Accelerators.

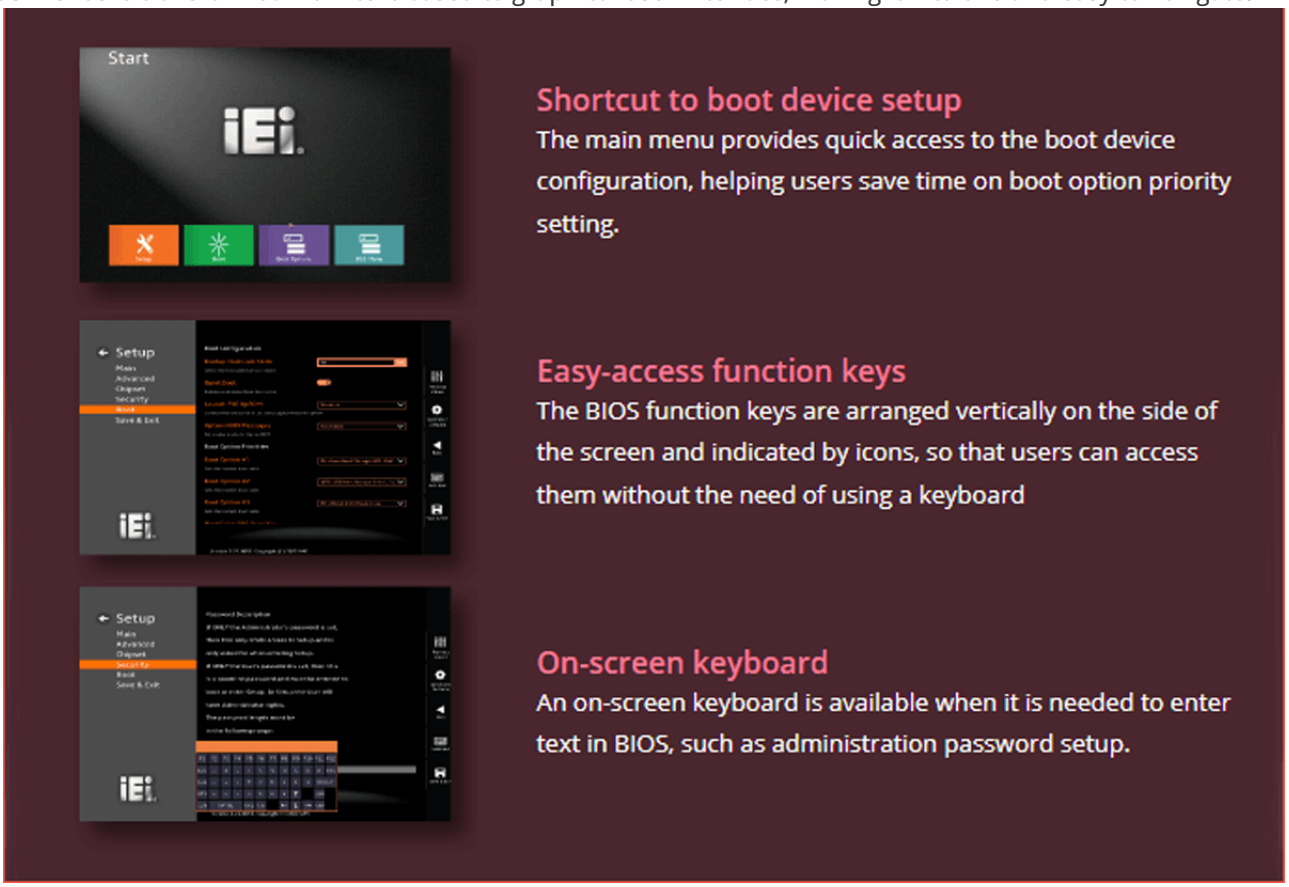


NVMe SSD Ready for Edge Intelligence

Combining the M.2 M-key interface with 2-lane NVMe PCIe can increase storage read/write speeds by up to 200% compared to a traditional SATA 3.0 SSD. Rapid data speeds enable more reflexive inference analysis at the edge.

Graphical interface

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

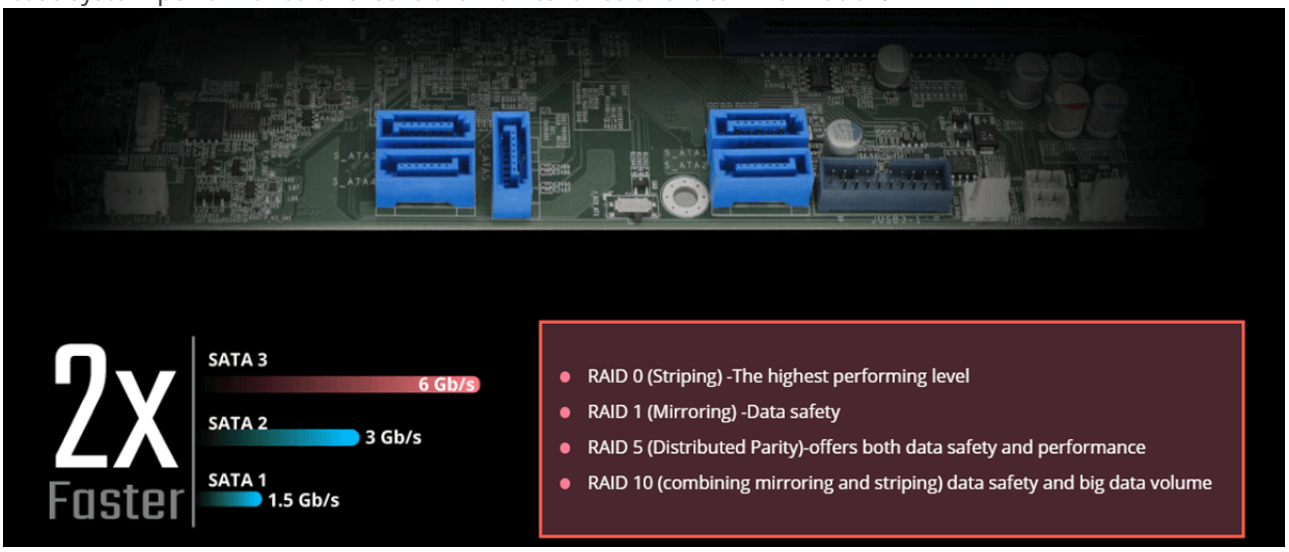


Touch-enabled BIOS

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.

RAID 0/1/5/10 Protection

The IMBA-Q471 offers five high-speed SATA 6Gb/s interfaces with configurable RAID 0, 1, 5, 10 functionality that can increase system performance or ensure the maintenance of critical information.

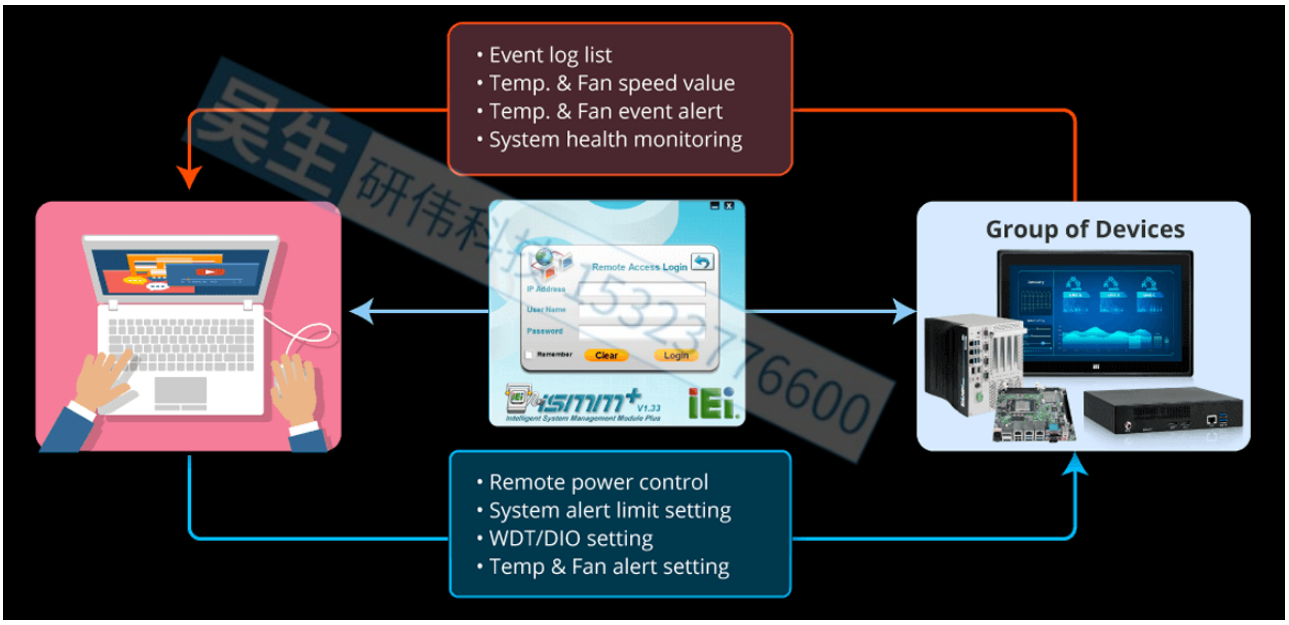


Data Protection with RAID and Intel® PTT

Intel® PTT Security

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.

Intelligent System Management



IEI Intelligent System Management Module (iSMM+)

The IEI Intelligent System Management Module (iSMM+) is a system health supervision application which utilizes sensor chips on IEI motherboards to track CPU and system temperatures, fan speed, watchdog timer, digital I/O status and system event.