Intelligent Industrial Integration Solution

Automatic Efficient Performance manufacturing with IEI industrial embedded systems and motherboards

Machine Automation

IEI Machine Automation solution offers various fanless embedded systems and industrial motherboards with high performance, rich I/O interfaces and multiple expansions, allowing users to connect different devices for increasing productivity by realizing smart manufacturing. Our high-performance products featuring Intel Core-i series CPU have the capability to provide intelligent machinery and big data analysis.

Flexible Expansion

IEI **TANK-870-Q170** and **TANK-870e-H110** fanless embedded computers for high-performance embedded solutions are equipped with PCI/PCIe high-speed expansion slots in a compact enclosure, fully enabling integration of a variety of applications. In addition, IEI offers various backplane for the **PCIE-Q170** and **SPCIE-C236** industrial computer cards, and the IMBA-H110 is capable of supporting up to six PCI expansions. Different expansion options for PCI and PCIe slot are provided for users to choose the suitable model for their application. Therefore, users can install motion control card, capture card, or different I/O expansion card into IEI fanless embedded systems and industrial motherboards for adding extra functions to the system.

Wide Temperature and Wide Power Input

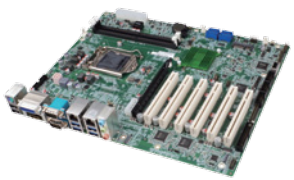
TANK-870-Q170, **TANK-870e-H110**, **PCIE-Q170**, **SPCIE-C236** and IMBA-H110 can support -20°C to 60°C operating temperature (with SSD), and **TANK-870-Q170** & **TANK-870e-H110** can support a wide 9V~36V DC power input range as well. IEI products have been tested under extreme temperature environments in order to ensure that IEI products can be operated in any harsh environment. We also assure our system performance of various fanless embedded systems and industrial motherboards for complete functionality in high temperature environment.

TANK-870-Q170

- 6th generation Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Rich high-speed I/O interfaces on one side for easy installation
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion

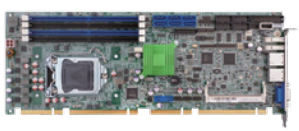
TANK-870e-H110

- 6th generation Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Support dual display VGA+HDMI
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion



IMBA-H110

- LGA1151 6th generation Intel® Core™ i7/ i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2133 MHz
- Support dual displays with DVI-I / HDMI/iDP
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery



PCIE-Q170/SPCIE-C236

- PICMG 1.3 full-size CPU card
- LGA1151 6th generation Intel® Xeon® E3, Core™ i3, Pentium® or Celeron® processor
- Support dual independent display by VGA & internal DP pin header
- IEI jumper-less function

Production Line

Manufacturing has changed from the labor-intensive industry to today's automation operation to greatly increase production capacity. For all those automation applications implemented in different usage, from function design to component material choosing, IEI can provide the reliable solution with the smart industrial application experience for you.

Manufacturing Equipment

For factory's manufacturing equipment that requires reliable and ruggedized design, **TANK-871-Q170** and **AFL3-W15C/W19C-ULT3** are ideal for the production line due to their high-performance CPU and fanless thermal solution which can prevent dust accumulation and keep precisely functional calculation and corresponding control for 24 hours a day. Furthermore, the isolation UART solution can protect the equipment from being damaged through the connected devices at an unexpected situation.

Data Collection

Equipped with multiple USB, COM ports, PCI and PCIe interface expansion slots, the **IMBA-Q170-i2** and **IMB-H110** accompanying with the **ECA-300**, **ECA-200**, or **ECA-100** industrial chassis could be the suitable choice for various applications in fields, such as assembly production line, inspection station, or even information reporting via Ethernet. Moreover, the IMBA and IMB motherboards are capable of providing flexible I/O connection to meet the requirements of the digital control for environment monitoring or machine operating which is becoming popular recently.

IEI offers not only the latest 7th/6th generation Intel® Core™ solution for the hardware requirement, but also provides IEI One Key Recovery solution to prevent operating system error.

TANK-871-Q170

Preliminary

- 6th generation Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Rich high-speed I/O interfaces on one side for easy installation
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion

IMBA-Q170-i2

- 6th generation Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Support dual display VGA+HDMI
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion

IMB-H110

- LGA1151 6th generation Intel® Core™ i7/ i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2133 MHz
- Support dual displays with DVI-I / HDMI/iDP
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery

AFL3-W15C-ULT3-R10

- Hight performance with Intel® Core™ i5 and Celeron® processor
- IP 64 compliant 15.6" front panel
- Support DC Power 9 ~ 30V
- Fanless design

ECA-100

- Desktop/wall-mount industrial chassis with RoHS compliant design
- Support ATX/ microATX motherboard
- Seven expansion slots

ECA-200

- Desktop/wall-mount industrial chassis with RoHS compliant design
- Support microATX motherboard
- Four expansion slots

ECA-300

- Tower industrial chassis with RoHS compliant design
- Support ATX/ microATX motherboard
- Seven expansion slots

AFL3-W19C-ULT3-R10

- Hight performance with Intel® Core™ i5 and Celeron® processor
- IP 64 compliant 18.5" front panel
- Support DC Power 9 ~ 30V
- Fanless design

Power over Ethernet Application

Power over Ethernet (PoE) technology allows a single Ethernet cable to carry both data and power to a device. It is used in various applications, such as transportation, surveillance and factory automation applications because of the installation convenience and high integration with current IT system. IEI provides products compliant with IEEE 802.3af and supporting 15.4W power per port for devices.

Surveillance

With PoE technology, users can easily connect various PoE PD supported IP camera to the control system through the standard CAT-5/CAT-6 cable (up to 100 meters) to transfer both electrical power and data at the same time. In this application, users can lower the difficulty of routing and avoid the risk of power adapter failure. With the reliable I**PCIE-4POE** and the powerful **IMBA-C2360/Q170-i2** ATX motherboard, the system can act as PSE, allowing the entire production process to be monitored and controlled from A to Z.

Access Control

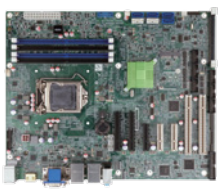
Access control system can be easily developed by connecting PoE capable devices like door controller, locking system and RFID reader. Combining power supply and data transmission in a single standard Ethernet cable can save both cost and time on system installation. IP-based system is also easy to integrate into the existing IP infrastructure. Using **IPCIE-4POE** on **TANK-870-Q170** or **HPCIE-Q170/C236** to expand four IEEE 802.3af compliant PoE ports (up to 15.4 watts per port) can widen applications for the industrial automation system with flexible expansion interface.

IPCIE-4POE

- PCI Express® x4 compliant
- Support for IEEE 802.3af for PoE with 15.4 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- 12~24V AT/ATX DC input power

TANK-870-Q170

- LGA1151 6th Gen. Intel® processor supported
- Triple independent display with high resolution support
- Internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion



IMBA-C2360/Q170-i2

- LGA1151 6th Gen. Intel® processor supported
- Dual-channel DDR4 2133 MHz
- Support independent triple display with HDMI, DVI and VGA
- Support IPMI 2.0 via iRIS-2400

HPCIE-Q170/C236

- PICMG 1.3 half-size CPU card
- LGA1151 6th Gen. Intel® processor supported
- Dual-channel DDR4 2133 MHz
- Supports RAID 0,1 function via SATA 6Gb/s

Selection Guide

Embedded System

Model Name	TANK-870-Q170	TANK-870e-H110	TANK-871-Q170
Dimensions (mm)	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205	132.6 x 190 x 255.2	255.2 x 205 x 82
CPU	Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35)	Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35)	Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35)
	Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35)	Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35)	Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35)
Chipset	Q170	H110	Q170
Ethernet	LAN1 (iRIS): Intel® I210 PCIe controller LAN2: Intel® I219LM PCIe controller	2 x LAN : RTL8111E controller	LAN1 (iRIS): Intel® I210 PCIe controller LAN2: Intel® I219LM PCIe controller
Display	1xVGA / 1x HDMI+ DP / 1xiDP (optional)	1xVGA / 1x HDMI	1xVGA / 1x HDMI+ DP
I/O port	4xUSB 3.0 4xUSB 2.0 4x RS-232 2 xRS-232/422/485 8 bit DI/O , 4I/ 4O 1 x Line-out ; 1 x Mic-in 1 x iRIS-2400 (optional)	4xUSB 3.0 2 xRS-232/422/485 1 x Line-out ; 1 x Mic-in	4xUSB 3.0 4xUSB 2.0 4x RS-232 2 xRS-232/422/485 8 bit DI/O , 4I/ 4O 1 x Line-out ; 1 x Mic-in 1 x iRIS-2400 (optional)
Expansion	2 slot model: 2 x PCIe x 8 2 slot model: 2 x PCIe x 16 , 1 x PCI 4 slot model: 2 x PCIe x 8 , 2 x PCI 4 slot model: 1 x PCIe x 16 , 3 x PCI 1 x Full Size PCIe Mini (Support mSTAT, co-lay SATA2) 1 x Half size PCIe Mini	3A:1x PCIe x16 , 2 x PCI 3B:1x PCIe x16 , 1 x PCIe x4, 1 x PCI 3C:3x PCI 1 x Full Size PCIe Mini (Support mSATA, co-lay SATA2), 1 x Full Size PCIe Mini	1 x Full Size PCIe Mini(Support mSTAT, co-lay SATA2) 1 x Half size PCIe Mini
Operating temp.	-20°C ~ 60°C with air flow (i5/SSD)	-20°C ~ 50°C with air flow (SSD)	-20°C ~ 60°C with air flow (i5/SSD)
Power requirement	9~36V DC	9~36V DC	9~36V DC

Industrial Chassis

Model Name	ECA-300	ECA-200	ECA-100
Dimensions (mm)	210 x 320 x 480.5	310 x 310 x 162	365 x 291 x 162
SBC Form Factor	ATX/Micro-ATX	Micro-ATX	ATX/Micro-ATX
Drive Bays	2 x 5.25” 1 x 3.5”/2.5” HDD/SSD	1 x 3.5”/2.5” HDD/SSD Expansion: 1 x 3.5”/2.5” HDD/SSD by the optional ECA-HDD-KIT-R10	1 x 3.5”/2.5” HDD/SSD Expansion: 1 x 3.5”/2.5” HDD/SSD by the optional ECA-HDD-KIT-R10
Cooling Fans	1	1	1
I/O Openings	6 x USB / 2 x COM	2 x USB / 6 x COM	2 x USB / 6 x COM
Expansion Slots	7	7	7
Indicators	1 x Power LED, 1 x HDD LED	1 x Power LED, 1 x HDD LED	1 x Power LED, 1 x HDD LED
Buttons	1 x Reset button, 1 x Power switch	1 x Reset button, 1 x Power switch	1 x Reset button, 1 x Power switch
Installation	Desktop, wall mount	Desktop, wall mount	Desktop, wall mount
Operating Temperature	-10°C ~ 50°C	-10°C ~ 50°C	-10°C ~ 50°C
PSU	PS/2 ATX power supply	1U flex power supply	1U flex power supply

Selection Guide

Industrial Motherboard





Model Name	PCIE-C236 / Q170	HPCIE-C236/Q170	IMBA-H110	IMBA-Q170	IMB-H110
Form Factor	Full-size PICMG 1.3	Half-size PICMG 1.3	ATX	ATX	Micro-ATX
CPU	Intel® Xeon® E3, Core™ i7/ i5/i3, Celeron® and Pentium® processor	Intel® Xeon® E3, Core™ i7/ i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/ i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/ i5/i3 Pentium® and Celeron® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor
Chipset	Intel® C236 / Q170	Intel® C236/ Q170	Intel® H110	Intel® Q170	Intel® H110
Memory	4x288-pin 2133MHz DDR4 ECC & non-ECC unbuffered DIMMs (ECC supported by C236 model)	2 x 260-pin 2133MHz DDR4 ECC & non-ECC unbuffered SO-DIMMs (ECC supported by C236 model)	2x288-pin 2133 MHz DDR4	4x288-pin 2133 MHz DDR4	2x288-pin 2133MHz DDR4
Display	1 x VGA 1 x iDP interface	1 x VGA 1 x iDP interface	1 x HDMI 1 x DVI-I 1 x iDP interface	1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	1 x DVI-I 1 x VGA 1 x LVDS 1 x iDP
I/O Port	2 x Ethernet 4 x USB 3.0 7 x USB 2.0 2 x RS-232 2 x RS-232/422/485 1x TPM 1 x 6-pin wafer for KB/MS 1 x LPT 1 x iRIS-2400 slot 8-bit digital I/O	2 x Ethernet 2 x USB 3.0 4 x USB 2.0 2 x RS-232/422/485 1 x 6-pin wafer for KB/MS 8-bit digital I/O	2 x Ethernet 4 x USB 3.0 5 x USB 2.0 4 x RS-232 2 x RS-232/422/485 1x TPM 1 x KB/MS 1 x LPT 8-bit digital I/O	2 x Ethernet 5 x USB 3.0 7 x USB 2.0 4 x RS-232 2 x RS-232/422/485 1x TPM 1 x KB/MS 1 x LPT 1 x iRIS-2400 slot 8-bit digital I/O	2 x Ethernet 4 x USB 3.0 8 x USB 2.0 10 x RS-232 2 x RS-232/422/485 1x TPM 1 x KB/MS 1 x LPT 8-bit digital I/O
Storage	6 x SATA 6Gb/s (RAID 0/1 supported)	2 x SATA 6Gb/s (RAID 0/1 supported) 1 x mSATA (SATA & USB signal)	4 x SATA 6Gb/s	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	4 x SATA 6Gb/s (RAID 0/1 supported)
Expansion	4 x PCI signal via golden finger 1 x Full/Half-size PCIe mini card slot	N/A	1 x PCIe x16 slot (Gen3) 6 x PCI slot 1 x Full-size PCIe Mini card slot (support mSATA)	2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot 1 x Full-size PCIe Mini card slot	1 x PCIe x16 slot (Gen3) 1 x PCIe x1 slot (Gen2) 2 x PCI slot 1 x Full-size PCIe Mini card slot
Operating Temperature	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C

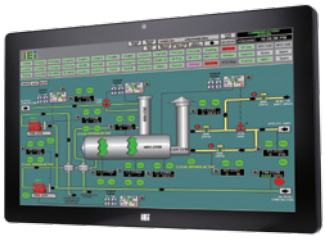
Peripherals

Model Name	IPCIE-4POE
Dimensions (mm)	145 x 18.4 x 101.3
Interface	PCI Express® x4
Ethernet	4x Intel® i210 AT controller 9kB jumbo frame IEEE 802.3az, IEEE1588"

PoE Capability	IEEE 802.3af 15.4W / 48V DC per port"
PWR Input	12~24V DC input
Operating Temperature	0°C ~ 60°C
Storage Temperature	-10°C ~ 70°C
Operating Humidity	5% ~ 95%, non-condensing

Selection Guide

Panel PC



Model Name	AFL3-W15C-ULT3-R10	AFL3-W19C-ULT3-R10
Size	15.6"	18.5"
Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)
Touch Screen	5-wire rsistive type with RS-232 interface (reserved) / projected capacitive type with USB interface	5-wire rsistive type with RS-232 interface (reserved) / projected capacitive type with USB interface
Touch Controller	PenMount DMC9000(reserved)/ EETI	PenMount DMC9000(reserved)/ EETI
CPU	Intel® Skylake-ULT platform i5-6300U Celeron 3955U	Intel® Skylake-ULT platform i5-6300U Celeron 3955U
Input / Output	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB3.0 1 x HDMI output 1 x Power Switch 1 x Reset Button 1 x AT/ATX switch 1 x 9-30V Lockable Power Jack	
Construction Front Panel	PC + ABS Plastic	
Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	
Operating Temperature (°C)(Ambient with air flow)	minus -20oC~50oC	
Storage Temperature (°C)	minus -20oC~60oC	
IP Level	IP 64 compliant front panel	
Thermal Solution	Fanless	
Power Requirement	9 ~ 30 VDC	

Headquarters
威強電工業電腦 **IEI Integration Corp.**
No. 29, Zhongxing Rd., Xizhi Dist., New Taipei City 221, Taiwan
TEL : +886-2-86916798 / +886-2-26902098 FAX : +886-2-66160028
sales@ieiworld.com www.ieiworld.com

America
IEI Technology USA Corp.
138 University Parkway, Pomona, CA 91768
TEL : +1-909-595-2819 FAX : +1-909-595-2816
sales@usa.ieiworld.com usa.ieiworld.com

China
威强电工业电脑 **IEI Integration (Shanghai) Corp.**
上海市闵行莘庄工业区申富路515号
515, Shen Fu Rd., Xin Zhuang Industrial Develop Zone, Shanghai, 201108, China
TEL:+86-21-3116-7799 FAX:+86-21-3462-7797
sales@ieiworld.com.cn www.ieiworld.com.cn