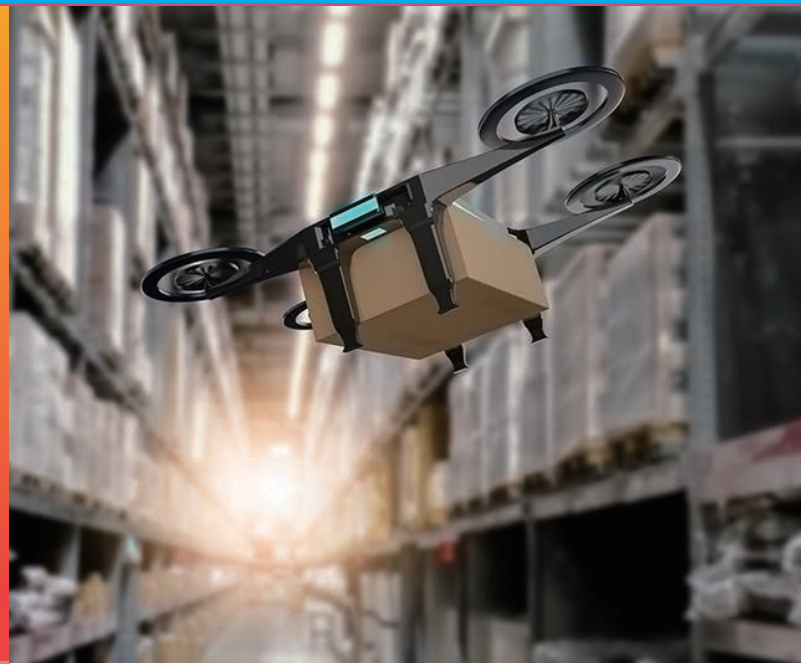


# Exceeding the Limits of the Business Model, Starting a New Chapter for Corporate Efficiency

A Complete Industrial Control Product Line Meeting the Diverse Needs of Smart Manufacturing



New corporate ideas and opportunities:  
“Transform” and  
“Being Smart” for the  
“future”



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## GIGAIPC Builds a Complete Industrial Control Product Line Meeting the Diverse Needs of Smart Manufacturing

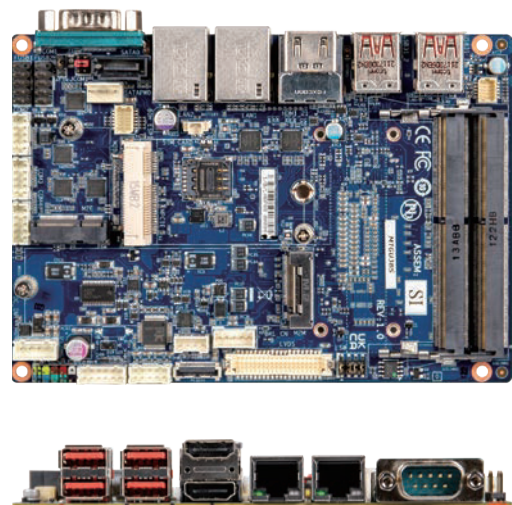
As Industry 4.0 takes over the world, intelligentization has become the most important trend in the manufacturing industry. However, the size of the manufacturing industry is immense, making it difficult to complete the digital transformation. In terms of the current development of the market, the mainstream practice of the industry is to start with image related applications, for example equipping the AOI (Automatic Optical Inspection) system with intelligent inspection functions with the help of AI in order to reduce labor costs and enhance inspection results. Another example would be to integrate machine vision and robotic arms to create a system with eye-hand coordination to elevate production line flexibility. GIGAIPC has been working on the industrial field for years, and has continuously strengthened its technological know-how in recent years. The various types of industrial computers specifically designed for smart manufacturing introduced by the company are capable of satisfying the smart imaging needs of the manufacturing industry.

### GIGAIPC Tiger Lake-UP3

In order to meet the enormous computational requirements for image data, GIGAIPC uses Intel's 11th generation Intel® Core™ processor (Tiger Lake-UP3), which is specifically designed for IoT architecture. The 10nm processor with 4 cores architecture and 15W to 28W power consumption provides excellent performance and power saving features. Furthermore, Intel continued to strengthen the technological aspects of graphic processor this year and released the Intel® Iris® Xe GPU. With the addition of this new technology, Tiger Lake-UP3 will improve the image processing capabilities of industrial control systems.

In addition to computing power, another key requirement of industrial control equipment is stability. With this in mind, the fans installed on mechanical equipment are prone to failure, causing the machines to be susceptible to downtime, and secondly, the holes made for the installation of the fans make the production line susceptible to dust and moisture in the environment, which affects the performance of the equipment. GIGAIPC Tiger Lake-UP3 series adopts a fanless design to ensure the reliability of the machine operation to completely solve these problems.

Due to the large amount of equipment installed on production lines, each subsystem will have different imaging requirements. Taking resolution as an example, AOI is used to identify defects in products, so high resolution imaging is required for the system. Robotic arms are mainly used to identify the position and posture of the object to be retrieved. Its resolution will vary depending on the size of the object. However, in some applications, 3D imaging technology is required: The main functions of AGV (Automated Guided Vehicle) are route identification and obstacle avoidance. The demand for image resolution is relatively low, but the system requires integration with surrounding wireless communication stations. In addition, AMR (Autonomous Mobile Robot) have gradually become the focus of the industry in recent years. These robots are specially designed to adapt to specific applications.

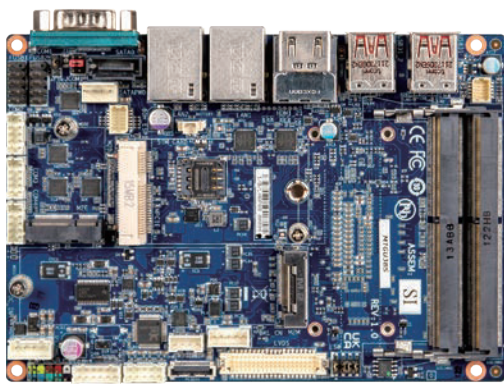


**QBiP-1165G7B/1135G7B/1115G4EB**

When the examples provided above are considered, it is apparent that the imaging requirements of the various subsystems in an industrial control system are quite different. GIGAIPC Tiger Lake-UP3 also provides a variety of computing specifications as options for different applications. Even if the selected computing and I/O interfaces are different, this series of products can ensure the responsiveness and reliability of the machine, becoming the best tool for manufacturers to embrace interfaces are different, this series of products can ensure the responsiveness and reliability of the machine, becoming the best tool for manufacturers to embrace Industry 4.0.

Embedded products with Tiger Lake-UP3 processors for industrial fields include QBiP-1165G7B/1135G7B/1115G4EB and QBiX-Exp/Pro products.

The imaging requirements of industrial control equipment is becoming more apparent, and the industry is paying more attention to processor performance. GIGAIPC QBiP-1165G7B/1135G7B/1115G4EB series products are equipped with Intel's 11th generation Core™ CPU, and its wide voltage range of 9 to 48V can respond to the high-speed computing needs of AI. Regarding connectivity, the products are equipped with 4 serial communication ports such as RS-232/422/485, 3 expansion slots that can improve the usability of the system, and 3 independent image outputs that are suitable for the visualization needs of current industrial control systems. Automated manufacturing systems are often installed in harsh environments. In locations such as high-latitude countries heavy industry of steel forges, extremely high or extremely low temperatures may affect the stability of the system. This series is designed to operate in a wide temperature range of 0-60 degrees Celsius, ensuring the smooth operation of the system even in the harshest environments.



**QBiP-1165G7B/1135G7B/1115G4EB**

Model	QBiP-1165G7B	QBiP-1135G7B	QBiP-1115G4EB
<b>CPU</b>	Intel® Core™ i7-1165G7 Processor, 12M Cache, up to 4.70 GHz	Intel® Core™ i5-1135G7 Processor, 8M Cache, up to 4.20 GHz	Intel® Core™ i3-1115G4E Processor, 6M Cache, up to 3.90 GHz
<b>Socket</b>	FCBGA1449		
<b>Memory</b>	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 3200 MHz		
<b>Ethernet</b>	2 x GbE LAN ports (Intel® I219V and Intel® I211AT)		
<b>Graphic Support</b>	Integrated Graphics Processor - Intel® Iris X® Graphics 2 x HDMI 2.0, 1 x LVDS 3 independent display outputs		Integrated Graphics Processor - Intel® UHD Graphics 2 x HDMI 2.0, 1 x LVDS 3 independent display outputs
<b>Audio</b>	Realtek® codec		
<b>Storage</b>	1 x SATA 6Gb/s ports (RAID 0/1)		
<b>Expansion Slots</b>	1 x 2280 M.2 M-Key (PCIe x2, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x Full-size Mini PCIe with SIM slot 1 x PCIe x1 (Board to Wire connector, PCIe Gen3 x1)		
<b>Internal I/O</b>	1 x 4-pin box power connector (+9V~48VDC) 4 x USB 2.0 headers 1 x SATA Power header 3 x COM headers (RS232/422/485) 1 x CPU fan header 1 x Backlight Control header 1 x System fan header	1 x AT/ATX mode select jumper 1 x Front panel header 1 x GPIO (8 bits) & SMBus header 1 x Front panel audio header 1 x SPI header 1 x 2W Speaker out header	
<b>Rear I/O</b>	1 x COM (RS232/422/485 & RI/5V/12V) 2 x HDMI	2 x RJ45 LAN ports 4 x USB3.2 Gen2	
<b>TPM</b>	1 x TPM header		
<b>Operating Temp.</b>	0°C to 60°C		



## QBiX-Exp/Pro

QBiX-Exp is an industrial computer designed by GIGAIPC for industrial control systems with special communication requirements. The motherboard is equipped with a PoE port, which can provide power while receiving and sending images. IEEE 802.3af provides 15W power supply for individual ports, which is also sufficient for powering external cameras. The system is suitable for security and vehicle-mounted systems. The other QBiX-Pro is designed as a box PC. The COM Port and GPIO I/O interfaces allows it to be connected with traditional industrial control equipment, and the compact design makes it suitable for use in limited spaces. The series has been strengthened against vibrations, wide voltage ranges, and wide temperature ranges, in order to protect the efficiency and stability of the system.



**QBiX-Exp-TGLA1115G4EH-A1**



**QBiX-Pro-TGLA1115G4EH-A1**

Model	QBiX-Exp-TGLA1115G4EH-A1	QBiX-Pro-TGLA1115G4EH-A1
Dimension	210.36W x 165D x 65H (mm)	178W x 125D x 52.7H (mm)
CPU	Intel® Core™ i3-1115G4E Processor, 6M Cache, up to 3.90 GHz	Intel® Core™ i3-1115G4E Processor, 6M Cache, up to 3.90 GHz
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 3200MHz	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 3200MHz
Ethernet	6 x GbE LAN ports (1 x Intel® i219V and 5 x Intel® i211AT)	2 x GbE LAN ports (Intel® i219V and Intel® i211AT)
Graphic Support	Integrated Graphics Processor - Intel® UHD Graphics 2 x HDMI 1.4 2 independent display outputs	Integrated Graphics Processor - Intel® UHD Graphics 2 x HDMI 1.4 2 independent display outputs
Audio	Realtek® codec	Realtek® codec
Storage	1 x SATA 6Gb/s ports (RAID 0/1)	1 x SATA 6Gb/s ports (RAID 0/1)
Expansion Slots	1 x 2280 M.2 M-Key (PCIe x2, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x Full-size mini PCIe with SIM slot	1 x 2280 M.2 M-Key (PCIe x2, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x Full-size mini PCIe with SIM slot
Front I/O	4 x RJ45 LAN ports 2 x USB 2.0 1 x Power switch with LED 1 x HDD LED 1 x COM (RS-232/422/485) 1 x GPIO (8 bits) 2 x Antenna (Optional) 1 x 2.5" SSD/HDD SATA Extension	2 x RJ45 LAN ports 4 x USB3.2 Gen2x1 2 x HDMI 1 x Power switch with LED 1 x HDD LED 1 x COM (RS-232/422/485 & RI/5V/12V)
Rear I/O	2 x RJ45 LAN ports 4 x USB3.2 Gen2x1 1 x COM (RS-232/422/485, RI/5V/12V) 2 x COM (RS-232/422/485) 1 x Terminal Block	2 x USB 2.0 2 x COM (RS-232/422/485) 1 x GPIO (8 bits) 1 x Headphone Jack 1 x Screw type DC Jack
Side I/O	2 x External Antenna Hole (Option)	2 x External Antenna Hole (Option)
TPM	—	—
Power	12V~24VDC	9V~48VDC (Adapter 19V/90W)
Operating Temp.	0°C to 50°C	0°C to 50°C

## GIGAIPC Comet Lake S

In addition to Tiger Lake, GIGAIPC presents Comet Lake S series of products with Intel® 10th generation processors. This series was created to meet IoT needs and it possesses a computing architecture that is equipped with 4 to 10 cores, improving efficiency by 31% when compared to 9th generation processors.

The series is also equipped with 40 PCIe 3.0 channels, 8 SATA and 14 USB 3.2 I/O interfaces. It uses Intel® OpenVINO™ toolkit and its high-end graphics card, to fully meet the needs for artificial intelligentization of industrial control systems .

GIGAIPC Comet Lake S includes two product lines, Micro-ATX and Mini-ITX. Micro-ATX series include uATX-Q47EA/W480A, uATX-H410A, GA-IMB410M; and Mini-ITX series include mITX-Q47EA, iTXL-Q47EA, GA-IMB460N, GA-IMB410N, GA-IMB410TN.

## uATX-Q47EA

Manufacturing systems often require interface to various peripheral devices in order to increase functionality. Especially in IoT environment, front-end devices are responsible for capturing operating data and transmitting it to the back-end platform. Therefore, the scalability of industrial computers is relatively important. GIGAIPC uATX-Q47EA is one of the Comet Lake-S series products. This product provides 4 LAN ports and 16 USB ports (USB 3.0 x 8, USB2.0 x 8). In addition, this series retains PCIe Gen3 slots to connect industrial cameras to meet the large-scale image transmission needs. In case there is a need to enhance computing capabilities, the product also allows an external CPU.



**uATX-Q47EA**

Model	uATX-Q47EA	
Form Factor	Micro ATX 244W x 244D(mm)	
CPU	Support for 10th Generation Intel® Core™ i9/i7/i5/i3, Pentium® & Celeron® processors in the LGA1200 package TDP under 95W	
Socket	1 x LGA 1200	
Chipset	Intel® Q470E Express Chipset	
Memory	4 x DDR4 DIMM sockets, Max. Capacity 128GB Support Dual channel DDR4 2933 MHz memory modules	
Ethernet	4 x GbE LAN ports (Intel® i219LM and Intel® i211AT)	
Video	Integrated Graphics Processor - Intel® HD Graphics support: 1 x HDMI 1.4 port, supporting a maximum resolution of 4096x2160 @30Hz 1 x Display port, supporting a maximum resolution of 4096x2160 @60Hz 1 x VGA port, supporting a maximum resolution of 1920x1200 @60Hz 1 x LVDS port, supporting a maximum resolution of 1920x1080 @60Hz (3 independent display outputs)	
Audio	Realtek® Audio Codec	
Storage	4 x SATA 6Gb/s ports (RAID 0/1/5/10)	
Expansion Slots	2 x PCIe Gen3 x8 (or only 1 x PCIe Gen3 x16 on PCIe x16_A slot as optional) 1 x PCIe x4 (Gen3 x4) 1 x PCIe x1 (Gen3 x1) 1 x 2230 M.2 E-Key (PCIe x1 + USB2.0) 1 x 2280/2242 M.2 M-Key (PCIe x4, SATA 6Gb/s)	
Internal I/O	1 x 24-pin ATX main power connector 1 x 8-pin ATX 12V power connector 4 x SATA 6Gb/s connectors 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 4 x USB 2.0 headers 1 x COM header (RS232/422/485 & RI/5V/12V)	1 x COM header (RS232 & RI/5V/12V) 2 x COM headers (RS232) 1 x VGA header 1 x Backlight header 1 x LVDS header 1 x AT/ATX mode select jumper 1 x GPIO (8 bits) & SMBUS header 1 x Buzzer 1 x Clear CMOS jumper
REAR I/O	1 x HDMI 1 x Display Port 4 x RJ45 LAN ports 8 x USB3.0 4 x USB2.0	
TPM	1 x TPM header	
Os Compatibility	Windows® 10 (x64)	
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)	
Packing Content	Bulk Packing Capacity: 20pcs Carton size: 609 x 581 x 362(mm) Content: IO Shield x 1 (P/N: 12AIO-MQ47EA-00R) Cable SATA x 2 (P/N: 12CF1-2SAT1B-01R)	
Order Information	9MQ47EAMNR-SI (Bulk packing)	

## uATX-H410A

While intelligent functions increase in diversity, some functional requirements are still in common. GIGAIPC launched the uATX-H410A in February 2021 which adopts a universal design and supports Intel's 10th generation processors with a maximum power of 65W. The product can support multi-display outputs. uATX-H410A reserves some legacy I/O interfaces, so that older peripheral devices can still communicate and operate in Industry 4.0 environment. Manufacturers can intelligitize their systems and equipment while preserving their existing investments.



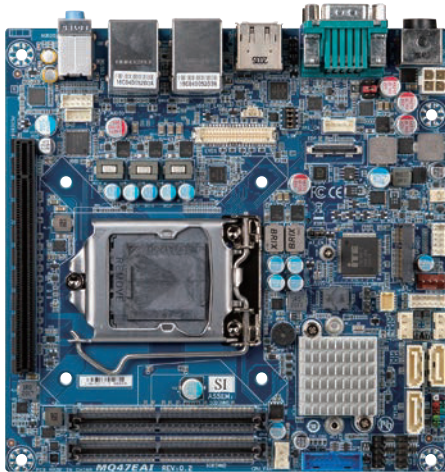
**uATX-H410A**

Model	uATX-H410A	
Form Factor	Micro ATX 244W x 244D(mm)	
CPU	Support for 10th Generation Intel® Core™ i7/i5/i3, Pentium® & Celeron® processors in the LGA1200 package TDP under 65W	
Socket	1 x LGA 1200	
Chipset	Intel® H410 Express Chipset	
Memory	4 x DDR4 DIMM sockets, Max. Capacity 64GB Support Dual channel DDR4 2933/2666 MHz memory modules	
Ethernet	2 x GbE LAN ports (Intel® i219V and Realtek® RTL8111HS)	
Video	Integrated Graphics Processor - Intel® HD Graphics support: 1 x HDMI 1.4 port, supporting a maximum resolution of 4096x2160 @30Hz 1 x DVI-D port, supporting a maximum resolution of 1920x1200 @60Hz 1 x VGA port, supporting a maximum resolution of 1920x1200 @60Hz (2 independent display outputs)	
Audio	Realtek® Audio Codec	
Storage	4 x SATA 6Gb/s ports	
Expansion Slots	1 x PCIe x16 (Gen3 x16)-CPU 1 x PCIe x4 (Gen3 x2) 2 x PCIe x1 (Gen3 x1)	
Internal I/O	1 x 24-pin ATX main power connector 1 x 8-pin ATX 12V power connector 1 x CPU fan header 2 x System fan headers 1 x Front panel header 1 x Front panel audio header 4 x USB 2.0 headers 3 x COM header (RS232)	1 x Buzzer 1 x Clear CMOS jumper
Rear I/O	3 x Audio jacks (Line in, Line out, Mic in) 1 x VGA 1 x HDMI 1 x DVI-D 2 x RJ45 LAN ports 4 x USB3.0 1 x COM ports (RS232)	
TPM	Onboard TPM2.0 security chip INFINEON SLB9670VQ2.0	
OS Compatibility	Windows® 10 (x64)	
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -20°C to 70°C Non-operating humidity: 0%-95% (non-condensing)	
Packing Content	Bulk Packing Capacity: 20pcs Carton size: 609 x 581 x 362(mm) Content: IO Shield x 1 (P/N: 12AIO-MH4100-00R) Cable SATA power x 2 (P/N: 25CRI-300B01-K1R)	
Order Information	9MH410AMNR-SI (Bulk packing)	



## mITX-Q47EA & iTXL-Q47EA

As the trend of intelligentization accelerates, manufacturing systems can perform more diversified functions than ever, and the operating space for machines and equipment become smaller, how to maintain strong performance in a limited space has become the focus of industrial computer designs. GIGAIPC iTXL-Q47EA is designed to be lightweight and with a thickness of only 30mm, it's perfect to be used in slim-design equipment, such as Panel PC, HMI, etc. and the feature of low latency meets the need for real-time operations of industrial control equipment.



**mITX-Q47EA**

Model	mITX-Q47EA	
CPU	Support for 10th Generation Intel® Core™ i9/i7/i5/i3, Pentium® & Celeron® processors, TDP under 65W	
Socket	LGA 1200	
Chipset	Intel® Q470E Chipset	
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 2933/2666/2400MHz	
Ethernet	2 x GbE LAN ports (Intel® I219LM and Intel® I211AT)	
Graphic Support	Integrated Graphics Processor - Intel® HD Graphics: 1 x HDMI 2.0a, 1 x Display Port, 1 x VGA, 1 x LVDS/eDP 3 independent display outputs	
Audio	Realtek® codec	
Storage	3 x SATA 6Gb/s ports (RAID 0/1/5/10)	
Expansion Slots	1 x PCIe x16 (Gen3 x16)	
	1 x 2280 M.2 M-Key (PCIe Gen3 x4, SATA 6Gb/s)	
	1 x 2230 M.2 E-Key (PCIe x1 + USB2.0)	
Internal I/O	1 x 4-pin ATX main power connector	4 x USB 2.0 headers
	2 x SATA power connectors	2 x USB 3.0 headers
	1 x CPU fan header	1 x COM header (RS-232)
	1 x System fan header	1 x Clear CMOS jumper
	1 x Front panel header	1 x GPIO (8 bits) & SMBus header
	1 x Front panel audio header	1 x Backlight Control header
	1 x 2W Speaker out header	1 x eDP connector
	1 x LVDS connector	1 x PSU on header
	1 x AT/ATX mode select jumper	
Rear I/O	2 x Audio Jacks (Line out, Mic in)	1 x VGA
	1 x COM (RS-232/422/485 & RI/5V/12V)	2 x RJ45 LAN ports
	1 x HDMI	3 x USB3.0
	1 x Display Port	1 x USB3.2 Gen2x1 Type A
		1 x DC Jack (+12V/+19V~+24VDC)
TPM	1 x TPM header	
Operating Temp.	0°C to 60°C	



**iTXL-Q47EA**

Model	iTXL-Q47EA	
CPU	Support for 10th Generation Intel® Core™ i9/i7/i5/i3, Pentium® & Celeron® processors, TDP under 65W	
Socket	LGA 1200	
Chipset	Intel® Q470E Chipset	
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 2933/2666/2400 MHz	
Ethernet	2 x GbE LAN port (Intel® I219LM and I211AT)	
Graphic Support	Integrated Graphics Processor - Intel® HD Graphics: 1 x HDMI 2.0, 1 x Display Port, 1 x LVDS/eDP 3 independent display outputs	
Audio	Realtek® codec	
Storage	4 x SATA 6Gb/s ports (RAID 0/1/5/10)	
Expansion Slots	1 x PCIe x16 (Gen3 x8)	
	1 x 2280 M.2 M-Key (PCIe x4, SATA6Gb/s)	
	1 x 2230 M.2 E-Key	
Internal I/O	1 x 4-pin ATX main power connector	1 x COM header (RS232)
	6 x USB 2.0 headers	1 x COM header (RS232/422/485 & RI/5V/12V)
	1 x Front panel header	2 x SATA Power connectors
	1 x Front panel audio header	1 x eDP connector
	1 x 2W Speaker out header	1 x GPIO (8 bits) & SMBUS header
	1 x LVDS connector	1 x ATX Control header
	1 x System fan header	
	1 x CPU fan header	
Rear I/O	2 x Audio Jacks (Line out, Mic in)	2 x RJ45 LAN port
	1 x HDMI 2.0	4 x USB3.2 Gen1x1
	1 x Display Port	1 x DC Jack (+12V/+19~24VDC)
TPM	1 x TPM header	
Operating Temp.	0°C to 60°C	