

# **IEI PPC-F SERIES**

Al Ready Modular Panel PC Based on Intel® OpenVINO™ toolkit



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#### Achieving AI with IEI Deep Learning Solution

The most likely markets to adopt AI technologies, will be medicine biology, media, security, defense and transportation. Each market faces a variety of challenges for example, in transportation traffic flow prediction, heavily depends on historical and real-time traffic data collected from various sensor sources, including inductive loops, radars, cameras, etc. It is difficult to find a safe and reliable hardware for the kind of harsh and strict environments.

Therefore, IEI introduces the PPC-FxxC series which is specifically designed for edge learning inference computation and features modularized, rich interconnectivity, and powerful computing capability. With desktop-class Intel® Q370 chipset and cutting edge technology, the PPC-FxxC series supports multiple PCIe 3.0 slots and four hot-swappable hard disk drive bays. By applying modularized design, the PPC-FxxC series will help to accelerate development schedules to reduce total cost of operation. In addition, various input/output interfaces are provided for customers to integrate cameras, sensors and motion control equipment to fast respond to accidental event.



# **Unique Modular Design**

The panel and box modules are docked by cabling way that can be easily integrated into various configurations.

#### Highly Flexibility

The panel modules (available in 6 sizes) installed on the box PC can be swapped to provide up to 7 platform solutions for diverse applications

#### Quick Maintenance

The defective module can be separated and replaced with a new module on site; there is no need to unmount the whole system, guaranteeing minimum downtime.



#### Faster Time to Market

Build the system upon specific hardware (CPU, memory, add-on-card, etc.) requirement with faster time-to-market, reducing total cost of ownership for solution providers.

FLEX-BX200 Series

**FLEX-PLKIT Series** 

### Critical Success Factors for Edge Inference Systems

The PPC-FxxC series offers six features to help AI developers to build diverse AI solutions.



#### Industrial grade

Meet MIL-810F vibration test and support extended operating temperature from -10°C~50°C to assure system reliability and endurance under the highest level in volatile, harsh and critical environments.



#### **Flexible deployment**

Different sizes for flexible deployment allows it to be installed everywhere by rack mounting, panel mounting and backwards compatible to previous PPC-F series.



#### Flexible expansion capability

Two PCIe x8 and two PCIe x4 expansion slots allow AI developers to install AI add-on-cards, like VPU, GPU, capture cards and I/O cards, to accelerate AI development.



#### Interconnectivity

IEI's PPC-FxxC series offer diverse I/O, including COM, USB, GbE LAN, HDMI and audio ports, highly interconnected with arrays of sensors and peripherals



#### High volume RAID 0/1/5/10 storage capacity

Al systems are highly dependent on enormous volumes of data. IEI's inference computing system, the PPC-FxxC series, is equipped with 4 hot-swappable HDDs and dual NVMe SSDs supporting massive storage capacity required for AI workloads.



#### 8th Generation Intel<sup>®</sup> Core<sup>™</sup> Desktop Processors

Equipped with a powerful CPU processor, IEI's PPC-FxxC system offers advanced computing and graphics performance for computationally intensive processes.

# IEI AI Ready Solution Accelerates Your AI Initiative

The PPC-FxxC is an AI hardware ready system ideal for deep learning inference computing to help you get faster, deeper insights into your customers and your business. IEI's PPC-FxxC supports graphics cards, Intel FPGA acceleration cards, and Intel VPU acceleration cards, and provides additional computational power plus end-to-end solution to run your tasks more efficiently. With the NVIDIA TensorRT, QNAP QuAI, and Intel OpenVINO AI development toolkit, it can help you deploy your solutions faster than ever.



#### ► OpenVINO<sup>™</sup> Toolkit

"Open Visual Inference & Neural Network Optimization (OpenVINO<sup>™</sup>) toolkit" allows users to easily deploy open source deep learning frameworks for Intel<sup>®</sup> architecture to realize the concept of one SDK for Intel<sup>®</sup>-based accelerators: CPUs, CPUs with integrated graphics, FPGAs, VPUs, and IPUs. OpenVINO<sup>™</sup> toolkit can optimize pre-trained deep learning model such as Caffe, MXNET, Tensorflow into IR binary file then run the inference engine in FPGA acceleration card platforms.



#### QTS-Gateway for Cloud-based IPC Solution

QTS Gateway is an operating system designed specifically for IEI IPCs and fully integrated the QNAP NAS operating system (QTS), breaking through the stereotype of IPCs of not having operating systems and saving unnecessary costs for installing servers and computers. QTS Gateway not only allows easy monitoring of computer status through its visualized interface, it also allows the use of many free application programs, making it multifunctional while challenging the values of traditional IPCs.

		Traditional IPC	Cloud-based PPC-FxxC System
	Remote System Visualization	No	Yes
	OS	No	Built-in VM virtual application
	Remote Device Management	No	Free Apps: Qcenter, QRM+
	Data Backup	No	Hybrid Backup Sync
	myQNAPcloud Management	No	Yes, supports system update through a cloud
Optional QTS-Gateway	Video Surveillance	No	Free software: Surveillance Station
	RAID Data Storage	No	RAID 0, RAID1
	Support for Mobile Device	No	Free Apps Qfile, Qmanager

#### QuAI Empowers Your AI-related Computing Needs

While the PPC-FxxC series is bundled with QTS Gateway system, AI developers can adopt IEI's QuAI toolkit to enable data scientists and developers to quickly build, train, optimize, and deploy machine-learning models with high-performance machine-learning algorithms that come with a wide range of supported AI frameworks. QuAI is an integrated platform to empower your AI-related computing needs. IEI's PPC-FxxC series with QTS Gateway system now supports graphics cards, Intel FPGA acceleration card, and Intel VPU acceleration card; from training to edge computing, it provides additional computational power and end-to-end solution to help run your tasks more efficiently. On top of that, software enhancements are also provided to help you deploy your solutions faster than ever. Major frameworks and libraries are supported through Container Station (1.8 and later), such as Caffe, MXNet, TensorFlow, CNTK and NVIDIA CUDA. You can easily migrate existing containerized solutions to the QuAI platform, or start a new one with QuAI, to fully realize benefits of cognitive technologies.



# **Explore AI Solutions**

#### AOI Defect Classification

During the manufacturing process, defects could be introduced and harmful to the quality. It is necessary to classify the defects detected by AOI machine appropriately especially killer defects. The higher accuracy to classify defects, the less cost spent on review and repair station.



#### ► Facial Recognition at Retail

Retail stores with facial recognition systems can spot convicted or admitted shoplifters in about the time. As soon as he walked in, the store's loss prevention associate approached him, addressed him by full name, and asked him to leave. Moreover, the system can send alerts when the system detects cashiers failing to scan products.



\*\* A vision processing unit (VPU) is a specific type of AI accelerator, designed to accelerate machine vision tasks.

#### Machine Vision for Sorting and Grading of Agricultural Products

Agricultural products are valued by their appearance. The color indicates parameters like ripeness, defects, etc. The quality decisions vary among the graders and often inconsistent. Machine vision technology offers the solution for all these problems. The PPC-FxxC series designed for machine vision market has four PCIe 3.0 expansion slots for installing motion controller cards, GP GPU cards and the PoE Ethernet card which is developed by IEI and has four GbE Power over Ethernet (PoE) ports compliant with IEEE 802.3af for direct connection to CCTV cameras without needing separate power.



#### ► Traffic Management

Recognize objects – people, cars, buses, trucks, bicycles, motorcycles and traffic lights – and characterize how those objects move and interact. This information can then be analyzed and queried by traffic engineers and officials to determine, for instance, how many cars drive the wrong way down a one-way street.



# **PPC-F SERIES Modular Panel PC Provides Flexibility for AI Applications**

#### The PPC-FxxC series featuring a modular design can be fitted with different sizes of panel kits to expand its capabilities.

- Cut-out dimensions is backward compatible to PPC-F series, easy to upgrade your existing project
- More than 12 SKUs by various monitor choices: 15"/17"/15.6"/18.5"/22"/24"
- PCAP touch screen
- 250W/350W DC power supply
- Easy assembly and maintenance
- One-stop shopping and building your own system to accelerate time to market

# FLEX-BX200-Q370 PPC-FxxC FLEX-PLKIT

#### Compact 2U System

- Compatible to standard server rack cabinet
- Optional rack mount and wall mount kit

#### Smart Fan for Quiet Operation

CPU and system fan can be configured separately, which allows the PPC-F to be guieter during operation while extending the fan's lifespan, and enhances system stability and durability.

#### 250W ATX Power Supply

- Active PFC (Power Factor Correction) circuit protection
- 80-Plus Gold high efficiency
- 350W PSU models are built to order

#### **Rich I/O Interface**

- HDMI output
- 6 USB 3.0 ports
- 2 GbE LAN ports
- 2 RS-232 COM ports
- Microphone in and Line-out ports
- AT/ATX switch
- Reset button

#### Up to 64GB DDR4 2133MHz Memory

DDR4 offers greater range of clock speeds, timing, low power consumption and reduced latency to optimize system performance.

tion.



#### Four Hot-swappable HDD Bays

- With security key lock
- Support RAID 0/1/5/10
- LEDs for drive activity



#### 8th Generation Intel® Core<sup>™</sup> Desktop Processors

With architecture optimizing, 8th Generation Intel® Core™ Processors are with intensely powerful 6-core and 12-thread in high end models. The CPU cache size is also increased. It improves performance by 15% compared to the previous genera-

#### Four PCIe 3.0 Low Profile Expansion Slots

- Two PCIe by 4 and two PCIe by 8 with vertical heat dissipation, and the two PCIe by 8 provide zero latency
- Support AI accelerator cards, such as FPGA card, vision process card (VPU), etc.



# IP66 Front Panel Protection

PPC-FxxC series provides front mechanical IP dust and water resistant design. The sealing concept of PPC-FxxC contains the following product sealing to offer rugged IP66 front protection:

- PCAP touchscreen to front aluminum bezel with waterproof glue dispensing
- Internal dust sealing poron from LCD to the touchscreen
- Rubber sealing for mounting to the equipment



Test for protection against dust



Test for protection against water



#### Anti-glare and UV-resistant Touch Screen Ideal for Outdoor Applications

#### Etching anti-glare, never peel off!

The PPC-FxxC series is built with anti-glare touch screen, which has lower reflection compared to normal touch screen. The reflection will reduce from 8% to 1% and it will eliminate the interference of shine and lights on displays and improve the screen clarity.

100

280

315

400



#### UV-resistant ensures reliable continuous operation for mission critical applications

Outdoor applications exposing to direct sunlight and long-term ultraviolet (UV) light will affect PCAP panel appearance such as PCAP top glass hard coat cracking and hazing, or varying degrees of yellowing and bubbling. Thus, IEI offers a UV resistant PCAP touch solution to equip outdoor industrial systems exposed to direct long-term sunlight with anti-UV characteristics.

Blocks UV wavelengths less than ≈340nm
 Meets ASTM G154 performance criteria cycle 1 for 1000 hours
 ULTRAVIOLET VISIBLE INFRARED

700

# PCIe 3.0 High Speed Expansion Slots

All of the expansion slots of the PPC-FxxC series support PCIe 3.0, which doubles the speed per lane from 500MB/s to 1GB/ s compared to PCIe 2.0. The high-speed PCIe 3.0 can fulfill the bandwidth requirements of 10G Ethernet cards, USB 3.1 cards, even the high end graphics cards and PCIe NVMe SSDs.



Interface	Theory Bandwidth
PCle 2.0 x1	5Gt/s
PCle 3.0 x1	8Gt/s

#### Four PCIe x4/x8 Low Profile Expansion Slots

The PPC-FxxC series supports multiple PCIe slots including two PCIe 3.0 x8 and two PCIe 3.0 x4 slots, which are compatible with standard low profile add-on cards, to meet different edge inference computing applications.



#### Supported Cards:

P/N	QNAP QM2-2P-384	QNAP LAN-10G2SF- MLX	IEI GPOE-4P-R10 IEI GPOE-2P-R10	IEI Mustang-V100- MX8	GP GPU	GT1030/GT1050
Description	Dual M.2 PCIe SSD expansion card	Dual-port 10GbE SFP+ network expansion card	4-port/2-port PoE Card	VPU card	Inferencing accelerator card	GPU card
Form Factor/ Interface	Low-Profile PCIe 3.0 x8	Low-Profile PCIe 3.0 x8	Low-Profile PCIe x1	Low-Profile PCIe 2.0 x4	Low-Profile PCIe 3.0 x16	Low-Profile PCIe 3.0 x4

### HDMI 1.4 Output Delivers 4K High Definition Video and Audio

The PPC-FxxC integrated with Intel<sup>®</sup> Coffee Lake Desktop processor supports HDMI 1.4 output port delivering 4K 24 Hz with amazing details. And a single HDMI cable carries both video and audio signals, which makes hookup particularly easy.



Date initially released	6/5/09
Maximum Bandwidth (Gbps)	10.2
Maximum Resolution	4096 x 2160p24
Maximum LPCM Audio Channels	8 Channels
Maximum Audio Sampling Rate	768kHz

#### → Thunderbolt<sup>™</sup> 3 Dual Ports (optional)

The PPC-FxxC series can be built-in with IEI Thunderbolt<sup>™</sup> 3 card, the TB3-40GDP-R10, to support dual Thunderbolt 3 ports for connecting displays and USB devices and provide more speed.

#### ► How fast is it?

- 40Gpbs Thunderbolt, PCI Express Gen 3 and Display Port
- Double the speed of previous generation
- Four times the data and twice the vide bandwidth of any other cable





# What can Thunderbolt™ 3 do?

Single-cable Docking



Now, one compact port provides Thunderbolt™ 3 data transfer, supporting more peripherals connection, such as 4K monitor, SSD, pen drive, and so on.

# Full 4K Video

Connect multiple displays with astonishing resolution, contrast, and color depth to see surveillance photos, videos, AI applications with details.

#### **External Graphics**



Al developers can now connect plug-and-play external graphics to the PPC-FxxC to deal with abundant of Al videos and graphics

#### **10GbE Networking**



Designed to meet AI needs of video and graphics editing, IEI Thunderbolt<sup>™</sup> 3 PPC-FxxC Panel PC makes collaboration with QNAP Thunderbolt<sup>™</sup> 3 NAS faster and simpler, greatly increasing productivity. It also features ultra-high transfer speed to tackle AI's challenges in fast-paced multi-workstation environments.

### Built-in 250W/350W 80-Plus Gold Power Supply

The 80-plus Gold power supply is implemented into the PPC-FxxC series, which reduces power loss and increases efficiency during power transition. With the certified power supply, the power transition between AC source and DC source could maintain up to 87% efficiency, and the power loss is only 13% or less. For customers, the high efficiency of power transition could reduce not only cost but also heat loss. Furthermore, it could make an eco-friendly environment.



		Gold	Silver	Bronze	80 Plus
Parameters	Loading	BOD BOLD	80 SILVER	80 BRONZE	80 PLUS
	20%	87%	85%	82%	80%
Efficiency	50%	90%	88%	85%	80%
	100%	87%	85%	82%	80%
Power Factor	50%	90% (a	across the full	range)	90% (@100% Load)

#### Dual M.2 M-Key NVMe PCIe 3.0 x4 SSD Support

The PPC-FxxC series provides higher transfer speed and reliability with support for two additional PCIe by 4 M.2 2280 NVMe SSDs with 32Gb/s high speed transfer rate. It is safer to have NVMe SSDs installed in the system internally, because users can install operating system in it to avoid OS crash caused by unplugging the storage accidentally, and to prevent the drive from being stolen.

- NVMe reduces latency
- Delivers higher input/output per second (IOPS)



#### -20°C to 50°C Wide Operating Temperature & Effective Thermal Design System Thermal

Al system with heavy workload produces higher heat and noise. The main heat source usually comes from CPU, PSU and add-on cards. The PPC-FxxC series with unique ventilation thermal design allows system operating temperatures to go as low as -20°C and up to 50°C. Traditional IPC has insufficient air flow due to turbulence caused by multiple fans (system fan/ CPU fan/ PSU fan) and cables. IEI modular system, the PPC-FxxC series, is designed with system thermal concept to sustain low internal chassis temperature for CPU, PSU, and add-on cards for better system reliability.

# System Thermal Distribution Simulation



#### Smart Fan Operation

Users can define CPU fan and system fan speed and temperature profile in the BIOS menu. When the system is in idle or running less demanding tasks, smart fan is able to bring down the level of noise produced by rotating fans. The adjustable settings allow the PPC-FxxC to be quieter during operation while extending the fan's lifespan, enhancing system stability and durability.



# 4-Bay Hot Swappable HDD RAID 0/1/5/10 Protection

The PPC-FxxC series offers four 2.5"HDD bays with high speed SATA 6Gb/s interface that can expand storage capabilities and enable fast data transfers. The equipped Intel Q370 chipset provides reliable and high performance hardware RAID protection to back-up your media and critical information. You can configure the RAID 0/1/5/10 from the BIOS menu to increase performance and/or provide automatic protection against data loss from drive failure.

#### ► What type of RAID do I need?

- RAID 0 (Striping) The highest performing level
- RAID 1 (Mirroring) -Data safety
- RAID 5 (Distributed Parity)-offers both data safety and performance
- RAID 10 (combining mirroring and striping) data safety and big data volume







Features	RAID 0	RAID 1	RAID 5	RAID 10
Minimum # Drives	2	2	3	4
Data Protection	No	Single-drive failure	Single-drive failure	Up to one disk failure in each sub-array
Capacity Utilization	100%	50%	67%-94%	50%
Typical Application	High end workstations, data logging, real-time rendering, very transitory data	Operating system, Transaction database	Data warehousing, web serving, archiving	Fast databases, applictaion servers

### How to configure RAID on your System?

You will need to have two hard drives or more of equal size and capacity. And you will need to decide if you want to use RAID0, RAID1, RAID 5 or RAID 10 first.



#### **BIOS Configuration:**

- 1. On Start Up you must press the Ctrl+l keys to enter the Intel RAID Option.
- 2. Select Create RAID Volume and press ENTER.
- 3. Enter a RAID volume name or accept the default and press ENTER.
- 4. For RAID0 select RAID0 (Stripe) and press ENTER or for RAID1 select RAID1 (Mirror) and press ENTER.
- 5. Select the two drives that will constitute the RAID configuration and press ENTER.
  - For RAID0 change the stripe size and press ENTER
  - For RAID1 skip this step.
- 6. Select the desired capacity for the volume and press ENTER.
- 7. Normally you would go with the default size as its maximum available size.
- 8. Press ENTER to create the volume.
- 9. Press the Y key to confirm creating the RAID volume.
- 10. Check that the correct volume configuration is displayed on the main Intel RAID Option ROM utility screen.
- 11. Select Exit and press ENTER.
- 12. Install the operating system.

#### **Secured and Strong HDD Bays**



**STEP 1** Unlock the HDD cover with the secured key



**STEP 2** Open the HDD cover and you will see four drive trays



**STEP 3** Pull out one of the drive tray





**STEP 4** Mount the 2.5" SATA HDD /SSD on to the mounting bracket with 4 screws on the bottom of the drive enclosure



**STEP 5** Slide the hard drive together with the bracket till the drive is fully inserted into the SATA connector

The four HDDs strongly secured by printed circuit board internally and the PPC-FxxC passed military vibration standard, MIL-STD-810G, and can prevent from data loss and HDD crash during operation.

		Operating Random Vibration Mode (MIL-STD-810G)	Non Operating Sine Mode IEC-60068-2-0
	514.5C-1	Axis: 3 axes / Vertical / Transverse / Longitudinal. 10-500 Hz, 60min/axis. Equivalent to Z:1.04 Grms X:0.204 Grms Y:0.74 Grms	Axis: 3 axes / Vertical / Transverse / Longitudinal. 0.003in. p-p, 10-55Hz, 0.003in 9.8m/s2 1g peak, 55-500Hz Swept Sine, 3 Swept per axis. 60 min/axis

# Flexible Deployment

Rack Mount

The PPC-FxxC with rack mounting kit can easily fit the standard 19" cabinet for industrial applications.



► Panel Mount

Panel mounting is the mounting way that mounts product into an opening of a customer's fixture from the front and secured from the rear. All user controls are located on the rear of the mechanism, making the panel mount displays a good choice for applications requiring a display with no external or exposed controls such as CNC equipment, gaming, casino system, ATM, and kiosk.



#### Backward-Compatibility Mechanism with PPC-F series

The cutout size of the PPC-FxxC series is backward compatible with the previous PPC-F series in panel mounting. There is no need to build a new fixture for the PPC-FxxC series, making it easy to upgrade the performance from 4th Gen. Intel<sup>®</sup> Core<sup>™</sup> to 8th Gen. Intel<sup>®</sup> Core<sup>™</sup> with the existing fixture.



Customer's fixture

# **Pre-Configured Systems**

# **PPC-FxxC** Panel PC







Model		PPC-F15C-Q370	PPC-F17C-Q370	PPC-FW15C-Q370	
	LCD Size	15"	17"	15.6"	
	Max. Resolution	1024x768	1280x1024	1366x768	
TFT LCD	Brightness (cd/m <sup>2</sup> )	450	350	400	
	Contrast Ratio	800:1	1000:1	500:1	
	LCD Color	16.2M	16.7M	16.2M	
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°	
	Backlight MTBF (Hrs)	70,000	50,000	50,000	
Touch Screen	·	PCAP touc	h with 10-point multitouch, anti-g	are coating	
CPU		8th Generation Intel® Core	™ i7/i5/i3 and Pentium® process	or in the LGA 1151 package	
	Chipset	Intel® Q370 Chipset			
Mainboard	Memory	2 x 288-pin 2666/2400 MHz d	ual-channel DDR4 unbuffered DI	MM slot supporting up to 64GB	
Mainboard	Graphics Engine	Intel® HD Graphics Gen 9 E Op	Engines with 16 low-power execu- penGL 5.X and OpenCL 2 x, ES 2	tion units, supports DX2015, 2.0	
	Ethernet	Intel® I211 controller			
Storage		(1) 4 x Accessible 2.5" SATA 6 (2) 2 x M.2	Gb/s HDD/SSD bay (RAID 0/1/5/ 2280 PCIe Gen 3.0 x4 NVMe™ 3	10 support) with LED indicator SSD socket	
I/O Ports and Swite	ches	1 x HDMI output     1 x Line out       2 x GbE LAN     1 x AC power in Inlet       6 x USB 3.0 Type-A     Power button with power LED (power on=E       2 x RS-232 DB-9 type     AT/ATX mode switch			
			2 x PCle 3.0 by 8 (by 16 slot)		
Expansion Slots		2 x PCle 3.0 by 4	(maximum card size supported:	68 mm x 167 mm)	
Thermal Solution		Smart Fan			
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%. Typical load (50%) 90%. Light load (20%) 87%			
Watchdog Timer		Software Pr	ogrammable support 1~255 sec.	system reset	
	IP Rating		IP66-rated front panel		
	Chassis Construction		Metal Housing		
	Mounting		Rack/Panel Mount		
Construction	Color	Front Bez	el : Cyan-blue (PSM 296C), Othe	rs: Black C	
Construction	Cut-out dimensions (LxDxH) (mm)	361.1 x 285.6	391 x 324	379.1 x 232.3	
	Dimensions (LxDxH) (mm)	378.5 x 303 x 118	408.4 x 341.4 x 119	400.1 x 253.3 x 121	
	Operating Temperature	-20°C ~ 50 -20°C ~ 4	°C (with SSD and up to TDP 65W 0°C (with HDD or add-on cards w	/ processor) /ithout fan)	
	Storage Temperature		-30°C ~ 60°C		
Environmental	Operating Humidity		5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplit	ude displacement 17~640Hz 1.50	G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)			

# **Pre-Configured Systems**

# **PPC-FxxC** Panel PC



Model		PPC-FW19C-Q370	PPC-FW22C-Q370	PPC-FW24C-Q370	
	LCD Size	18.5"	21.5"	23.8"	
	Max. Resolution	1366x768	1920x1080	1920x1080	
	Brightness (cd/m <sup>2</sup> )	400	250	250	
TFT LCD	Contrast Ratio	1000:1	1000:1	3000:1	
	LCD Color	16.7M	16.7M	16.7M	
	Viewing Angle (H/V)	170°/160°	170°/160°	178°/178°	
	Backlight MTBF (Hrs)	50,000	30,000	30,000	
Touch Screen		PCAP touc	h with 10-point multitouch, anti-g	lare coating	
CPU		8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package			
	Chipset		Intel® Q370 Chipset		
Mainboard	Memory	2 x 288-pin 2666/2400 MHz d	ual-channel DDR4 unbuffered DI	MM slot supporting up to 64GB	
Mainboard	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0			
	Ethernet		Intel® I211 controller		
Storage		(1) 4 x Accessible 2.5" SATA 6 (2) 2 x M.2	Gb/s HDD/SSD bay (RAID 0/1/5/ 2280 PCIe Gen 3.0 x4 NVMe™	/10 support) with LED indicator SSD socket	
		1 x HDMI output	1 x Line out		
		2 x GbE LAN	1 x AC power in	Inlet	
I/O Ports and Swite	ches	6 x USB 3.0 Type-A Power button with power LED (power on=Blue)			
		2 x RS-232 DB-9 type AT/ATX mode switch			
			2 x PCIo 3 0 by 8 (by 16 slot)		
Expansion Slots		2 x PCle 3 0 by 4	(maximum card size supported.	68 mm x 167 mm)	
Thermal Solution			Smart Fan		
		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz			
Power Supply		- Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A			
		2. 350W power supply (Build to Order)			
		- IIIpuit. T15VAU~264VAU, 50/60HZ - Output (max.): 3.3V@144_5V@164_12V@29412V@0.34 +5Veb@34			
		- Efficiency: Full load (100%) 87%, Typical load (50%) 90%. Light load (20%) 87%			
Watchdog Timer		Software Pr	ogrammable support 1~255 sec.	system reset	
	IP Rating		IP66-rated front panel		
	Chassis Construction		Metal Housing		
	Mounting	Rack/Panel Mount	Panel	Mount	
Construction	Color	Front Bez	el : Cyan-blue (PSM 296C), Othe	ers: Black C	
Construction	Cut-out dimensions (LxDxH) (mm)	447.8 x 267.2	533 x 341	577.6 x 359.6	
	Dimensions (LxDxH) (mm)	469.8 x 289.2 x 120.8	550.4 x 358.4 x 117.8	600 x 356.6 x 119	
	Operating Temperature	-20°C ~ 50 -20°C ~ 4	°C (with SSD and up to TDP 65W 0°C (with HDD or add-on cards v	V processor) vithout fan)	
Environmentel	Storage Temperature		-30°C ~ 60°C		
Environmental	Operating Humidity		5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak			
Shock 100		)G acceleration part to part (11ms)			

# **Ordering Information**



Part No.	Description
PPC-F15C-Q370-P/PC/25-R10	15" 450cd/m <sup>2</sup> 1024 x768 AI modular Panel PC , Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F15C-Q370-i3/PC/25-R10	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F15C-Q370-i5/PC/25-R10*	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F15C-Q370-i7/PC/25-R10*	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10



Part No.	Description
PPC-F17C-Q370-P/PC/25-R10	17" 350cd/m <sup>2</sup> 1280 x 1024 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F17C-Q370-i3/PC/25-R10	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Core ™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F17C-Q370-i5/PC/25-R10*	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Core ™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-F17C-Q370-i7/PC/25-R10*	17" 350cd/m <sup>2</sup> 1280 x 1024 AI modular Panel PC, Intel® Core™ i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10



Part No.	Description
PPC-FW15C-Q370-P/PC/25-R10	15.6" 400cd/m <sup>2</sup> 1366 x 768 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW15C-Q370-i3/PC/25-R10	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW15C-Q370-i5/PC/25-R10*	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW15C-Q370-i7/PC/25-R10*	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10



Part No.	Description
PPC-FW19C-Q370-P/PC/25-R10	18.5" 400cd/m <sup>2</sup> 1366 x 768 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW19C-Q370-i3/PC/25-R10	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
PPC-FW19C-Q370-i5/PC/25-R10*	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW19C-Q370-i7/PC/25-R10*	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10

# **Ordering Information**



Part No.	Description
PPC-FW22C-Q370-P/PC/25-R10	21.5" 250cd/m <sup>2</sup> 1920 x 1080 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW22C-Q370-i3/PC/25-R10	21.5" 250cd/m <sup>2</sup> 1920 x 1080 AI modular Panel PC, Intel® Core™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW22C-Q370-i5/PC/25-R10*	21.5" 250cd/m <sup>2</sup> 1920 x 1080 AI modular Panel PC, Intel® Core ™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW22C-Q370-i7/PC/25-R10*	21.5" 250cd/m <sup>2</sup> 1920 x 1080 AI modular Panel PC, Intel® Core <sup>™</sup> i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10



Part No.	Description
PPC-FW24C-Q370-P/PC/25-R10	23.8" 250cd/m <sup>2</sup> 1920 x 1080 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
PPC-FW24C-Q370-i3/PC/25-R10	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i3- 8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
PPC-FW24C-Q370-i5/PC/25-R10*	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i5- 8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
PPC-FW24C-Q370-i7/PC/25-R10*	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i7- 8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
DDR4-LO-4GB	4GB DDR4 (288-pin)
DDR4-LO-8GB	8GB DDR4 (288-pin)
HDD-25-1TB	1TB 2.5" HDD

\*Build to order

\*\*350W AC PSU models are by build-to-order manufacturing

# **Packing List**

Item	Q'ty	Description
44013-030041-RS	16	Flat head screws for HDD bracket, M3*4
32702-000200-100-RS	1	European power cord, 1830mm

# **Options**

Item	PPC-F15C	PPC-FW15C	PPC-F17C	PPC-FW19C	PPC-FW22C	PPC-FW24C
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10	FPK-13-R10	FPK-14-R10
Rack Mount Kit	FRK15C-R10	FRKW15C-R10	FRK17C-R10	FRKW19C-R10	N.A.	N.A.

# **Configurable Systems**

#### **Box PC Modules**



#### **Specifications**

Model		FLEX-BX200-Q370			
	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package			
	Chipset	Intel® Q370 Chipset			
System	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB			
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0			
	Ethernet	Intel® I211 controller			
Storage		4 x Accessible 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket			
I/O Ports and S	witches	1 x HDMI output1 x Line out2 x GbE LAN1 x AC power in Inlet6 x USB 3.0 Type-APower button with power LED (power on=Blue)2 x RS-232 DB-9 typeAT/ATX mode switch1 x Mic inReset button			
Expansion Slots	3	2 x PCle 3.0 by 8 (by 16 slot) 2 x PCle 3.0 by 4 (maximum card size supported: 68 mm x 167 mm)			
Thermal Solutio	n	Smart Fan			
AC input ATX power supply           1. 250W power supply           Input: 115VAC~230VAC, 50/60Hz           Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vst           2. 350W power supply (Build to Order)           Input: 115VAC~264VAC, 50/60Hz           Output (max.): 3.3V@16A, 12V@29A, -12V@0.3A,+5Vst           Dutput (max.): 3.3V@16A, 12V@29A, -12V@0.3A,+5Vst		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%			
Watchdog Time	r	Software Programmable support 1~255 sec. system reset			
	Chassis Construction	Metal Housing			
	Mounting	Wall and Rack Mount			
Construction	Color	Black C			
	Dimensions (LxDxH) (mm)	357 x 230 x 88			
	Operating Temperature	$-20^{\circ}$ C ~ $50^{\circ}$ C (with SSD and TDP 65W processor) $-20^{\circ}$ C ~ $40^{\circ}$ C (with HDD or add-on cards without fan)			
	Storage Temperature	-30°C ~ 60°C			
Environmental	Operating Humidity	5% ~95%, non-condensing			
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak			
	Shock	10G acceleration part to part (11ms)			
Certificate		CE/FCC/CCC			

### **Ordering Information**

Part No.	Description
FLEX-BX200-Q370-P/25-R10	2U AI Modular Box PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i3/25-R10	2U AI Modular Box PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i5/25-R10*	2U AI Modular Box PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i7/25-R10*	2U AI Modular Box PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-P/35-R10*	2U AI Modular Box PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i3/35-R10*	2U AI Modular Box PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i5/35-R10*	2U AI Modular Box PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i7/35-R10*	2U AI Modular Box PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
DDR4-LO-4GB	4GB DDR4 (288-pin)
DDR4-LO-8GB	8GB DDR4 (288-pin)
HDD-25-1TB	1TB 2.5" HDD

\*Build to order

#### Options

Part No.	Description
FLEX-BXRK-R10	Rack mount kit for FLEX-BX200-Q370 box PC

#### **Packing List**

Item	Q'ty	Description			
32702-000200-100-RS	1	European power cord, 1830mm			
41020-0521C2-00-RS	2	/all mount kit, black			
44035-040062-RS	4	M4*6 oval head screw for wall mount kit, black			
	1	Key for HDD cover			

# **Configurable Systems**

#### **Panel Kit Modules**













Model		FLEX-PLKIT-F15 FLEX-PLKIT-F17 FLEX-PLKIT-FW15 FLEX-PLKIT-FW19 FLEX-PLKIT-FW22 FLEX-PLKI				FLEX-PLKIT-FW24	
	LCD Size	15"	17"	15.6"	18.5"	21.5"	23.8"
	Max. Resolution	1024x768	1280x1024	1336x768	1336x768	1920x1080	1920x1080
	Brightness (cd/m <sup>2</sup> )	450	350	400	400	250	250
TFT LCD	Contrast Ratio	800:1	1000:1	500:1	1000:1	1000:1	3000:1
	LCD Color	16.2M	16.7M	16.2M	16.7M	16.7M	16.7M
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	70,000	50,000	50,000	50,000	30,000	30,000
Touch So	reen	PCAP touch with 10-point multitouch, anti-glare coating					
Video Int	erface	LVDS					
IP Rating		IP66-rated front panel					

#### **Ordering Information**

Part No.	Description
FLEX-PLKIT-F15/PC-R10	15" 450cd/m <sup>2</sup> 1024 x768 FLEX modular resistive touch window/LCD kit, R10
FLEX-PLKIT-F17/PC-R10	17" 350cd/m <sup>2</sup> 1280 x 1024 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW15/PC-R10	15.6" 400cd/m <sup>2</sup> 1366 x 768 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW19/PC-R10	18.5" 400cd/m <sup>2</sup> 1366 x 768 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW22/PC-R10	21.5" 250cd/m <sup>2</sup> 1920 x 1080 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW24/PC-R10	23.8" 250cd/m <sup>2</sup> 1920 x 1080 FLEX modular PCAP touch window/LCD kit, R10

### Options

Item	FLEX-PLKIT-F15	FLEX-PLKIT-FW15	FLEX-PLKIT-F17	FLEX-PLKIT-FW19	FLEX-PLKIT-FW22	FLEX-PLKIT-FW24
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10	FPK-13-R10	FPK-14-R10
Rack Mount Kit	FRK15C-R10	FRKW15C-R10	FRK17C-R10	FRKW19C-R10	N.A.	N.A.



# **Dimensions** (Unit: mm)

#### PPC-F15C-Q370 Dimensions (Unit: mm)









#### PPC-FW15C-Q370 Dimensions (Unit: mm)

6



# **Dimensions** (Unit: mm)

#### PPC-F17C-Q370 Dimensions (Unit: mm)











#### PPC-FW19C-Q370 Dimensions (Unit: mm)



# **Dimensions** (Unit: mm)

#### PPC-FW22C-Q370 Dimensions (Unit: mm)



#### PPC-FW24C-Q370 Dimensions (Unit: mm)



# **GPOE-2P**

PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS



# **Specifications**

- Interface
   PCI Express® x1
- Ethernet
   Intel® I211AT controller
   9kB jumbo frame
   IEEE 802.3az, IEEE1588
- Power Input 12~24V DC input
  1 x Internal DC input (1x4 pin)
  1 x External DC Jack (Ф2.1/Ф5.5)
  - \*\*Caution! Choose one input only at a time
- PoE Capability IEEE 802.3at 30W / 52V DC per port
- Operating Temperature 0°C ~ 60°C
- ◆ Storage Temperature -10°C ~ 70°C
- ◆ Operating Humidity
   5% ~ 95%, non-condensing
- Dimensions
   160 mm x 65 mm
- ◆ Weight: 110g
- ♦ CE/FCC compliant

# **Ordering Information**

#### **Features**

- PCI Express® x1 compliant
- Support IEEE 802.3at for PoE (Power over Ethernet) with 30 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power



#### **Packing List**

- 1 x GPOE-2P card
- 1 x QIG (Quick Installation Guide)

Part No.	Description
GPOE-2P-R10	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3af compliant, low profile, RoHS
63040-010090-120-RS	Power adapter, FSP, FSP090-DIEBN2, 9NA0904712, Vin:90~264VAC, 90W, Plug=7.5mm, Cable=1500mm, Erp (no load 0.5W), Vout:19VDC, Ф2.1/Ф5.5/lock, CCL, RoHS
63040-010065-200-RS	Power adapter, FSP, FSP065-REBN2, 9NA0654709, Vin:90~264VAC, 65W, Dim:46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (no load 0.1W), Vout:19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS

# **GPOE-4P**

PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS



### **Specifications**

- Interface
   PCI Express® x1
- Ethernet
   Intel® I211-AT controller
   9kB jumbo frame
   IEEE 802.3az, IEEE1588
- Power Input
  12~24V DC input
  1 x Internal DC input (1x4 pin)
  1 x Internal DC input (2x3 pin)
- \*\*Caution! Choose one input only at a time
- ♦ PoE Capability
  - Standard mode: IEEE 802.3af with 15.4W / 52V per port Dual port mode: IEEE 802.3at with 30W / 52V per port
- Operating Temperature 0°C ~ 60°C
- Storage Temperature -10°C ~ 70°C
- Operating Humidity
- 5% ~ 95%, non-condensing
- Dimensions
   160 mm x 65 mm
- Weight
   110q
- ◆ CE/FCC compliant

#### Features

- PCI Express® x1 compliant
- Support for total 60 watts under full load
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power



#### Packing List

1 x GPOE-4P card

1 x QIG (Quick Installation Guide)

### **Ordering Information**

Part No.	Description
GPOE-4P-R10	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant, low profile, RoHS
32102-045800-100-RS	WIRE cable, power cable, 2, 300MM, 20AWG, (A) DC JACK 5.5*2.1+NUT+WASHER (Smcts:655-353), (B) TKP: H6657R1-06-B-03 P=4.2, Polywell, RoHS

# Mustang-F100-A10



#### **OpenVINO**<sup>™</sup>

#### Features

- Half-height, half-length, Single-width compact size
- Power-efficiency, low latency
- OpenVINO<sup>™</sup> Toolkit, AI edge computing ready device
- FPGA could be optimized for different deep learning tasks

#### **Specifications**

Model Name	Mustang-F100-A10
Main FPGA	Intel® Arria® 10 FPGA
Operating Systems	Ubuntu* 16.04.3 long-term support (LTS), 64-bit (more OS are coming soon)
Memory	8G on board DDR4
Deteniene interface	PCI Express 3.0x8
Dataplane interface	Compliant with PCI Express Specification V3.0
Power Consumption	<60W
Operating Temperature	0°C~50°C (ambient temperature)
Cooler	Active fan
Dimensions	Standard half-height half-length single-width PCIe
Operating Humidity	5% ~ 90%
Power Connector	12V external power
DIP Switch/LED indicator	Identify card number

# QNAP<sup>®</sup> QM2 PCIe Cards

Flexible and versatile, boosts performance and functionality



#### **Hardware Specifications**

QM2-2S



Ordering SKU	QM2-2S
Interface	PCI Express 2.0 x2
Supported M.2 SSD Types	2 x M.2 2280/22110 SATA SSD
Connector	B+M Key
10GbE Support	N/A
Dimensions (Lenath x Width x Height)	157(L) x 68.9(W) x 20.6(H) mm; 6.18(L) x 2.71(W) x 0.81(H) inch

Ordering SKU	QM2-2S-220A
Interface	PCI Express 2.0 x2
Supported M.2 SSD Types	2 x M.2 2280/22110 SATA SSD
Connector	B+M Key
10GbE Support	N/A
Dimensions (Length x Width x Height)	147.15(L) x 68.9(W) x 20.6(H) mm; 5.79(L) x 2.71(W) x 0.81(H) inch

# QNAP<sup>®</sup> QM2 PCIe Cards

Flexible and versatile, boosts performance and functionality

#### **Hardware Specifications**

#### QM2-2P



Ordering SKU	QM2-2P
Interface	PCI Express 2.0 x4
Supported M.2 SSD Types	2 x M.2 2280/22110 PCIe SSD
Connector	М Кеу
10GbE Support	N/A
Dimensions (Length x Width x Height)	157(L) x 68.9(W) x 20.6(H) mm; 6.18(L) x 2.71(W) x 0.81(H) inch
Ordering SKU	QM2-2P-244A
Interface	PCI Express 2.0 x4
Supported M.2 SSD Types	2 x M.2 2280/22110 PCIe (2.0 x2) SSD
Connector	М Кеу
10GbE Support	N/A
Dimensions (Length x Width x Height)	147.15(L) x 68.9(W) x 20.6(H) mm; 5 79(L) x 2 71(W) x 0 81(H) inch

#### QM2-2S10G1T



Ordering SKU	QM2-2S10G1T
Interface	PCI Express 2.0 x4
Supported M.2 SSD Types	2 x M.2 2280 SATA SSD
Connector	B+M Key
10GbE Support	1 x 10GBASE-T 10GbE LAN support (backwards compatible with 5GbE/2.5GbE/1GbE/100MbE)
Dimensions (Length x Width x Height)	157(L) x 68.9(W) x 20.6(H) mm; 6.18(L) x 2.71(W) x 0.81(H) inch

#### QM2-2P10G1T



Ordering SKU	QM2-2P10G1T
Interface	PCI Express 2.0 x4
Supported M.2 SSD Types	2 x M.2 2280 PCIe (2.0 x4) SSD
Connector	М Кеу
10GbE Support	1 x 10GBASE-T 10GbE LAN support (backwards compatible with 5GbE/2.5GbE/1GbE/100MbE)
Dimensions (Length x Width x Height)	157(L) x 68.9(W) x 20.6(H) mm; 6.18(L) x 2.71(W) x 0.81(H) inch

\*Specifications are subject to change without prior notice.

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